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BIBLIOTECA CENTRALA
A
UNIVERSITAŢII
DIN
BUCUREŞTI

No. Curent ..... Format .....

No. Inventar 14558 Anul .....

Secţia ..... Raftul .....

Tv 18653
Inv. A. 66.640

COURS

DE

MATHÉMATIQUES

A L'USAGE

DES ARCHITECTES, INGÉNIEURS CIVILS, ETC.

163450(M)
328182

PAR J. ADHÉMAR

BIBLIOTECA CENTRALĂ UNIVERSITARĂ BUCUREȘTI

APPLICATIONS DE GÉOMÉTRIE DESCRIPTIVE

[Tom. 2]

COUPE DES PIERRES

243358

Sixième Édition

PARIS

ARMAND COLIN, ÉDITEUR

16, RUE DE CONDÉ, 16

J. BAUDRY
15, RUE DES SAINTS-PÈRES

BERTHOUD FRÈRES
QUAI DES AUGUSTINS, 45

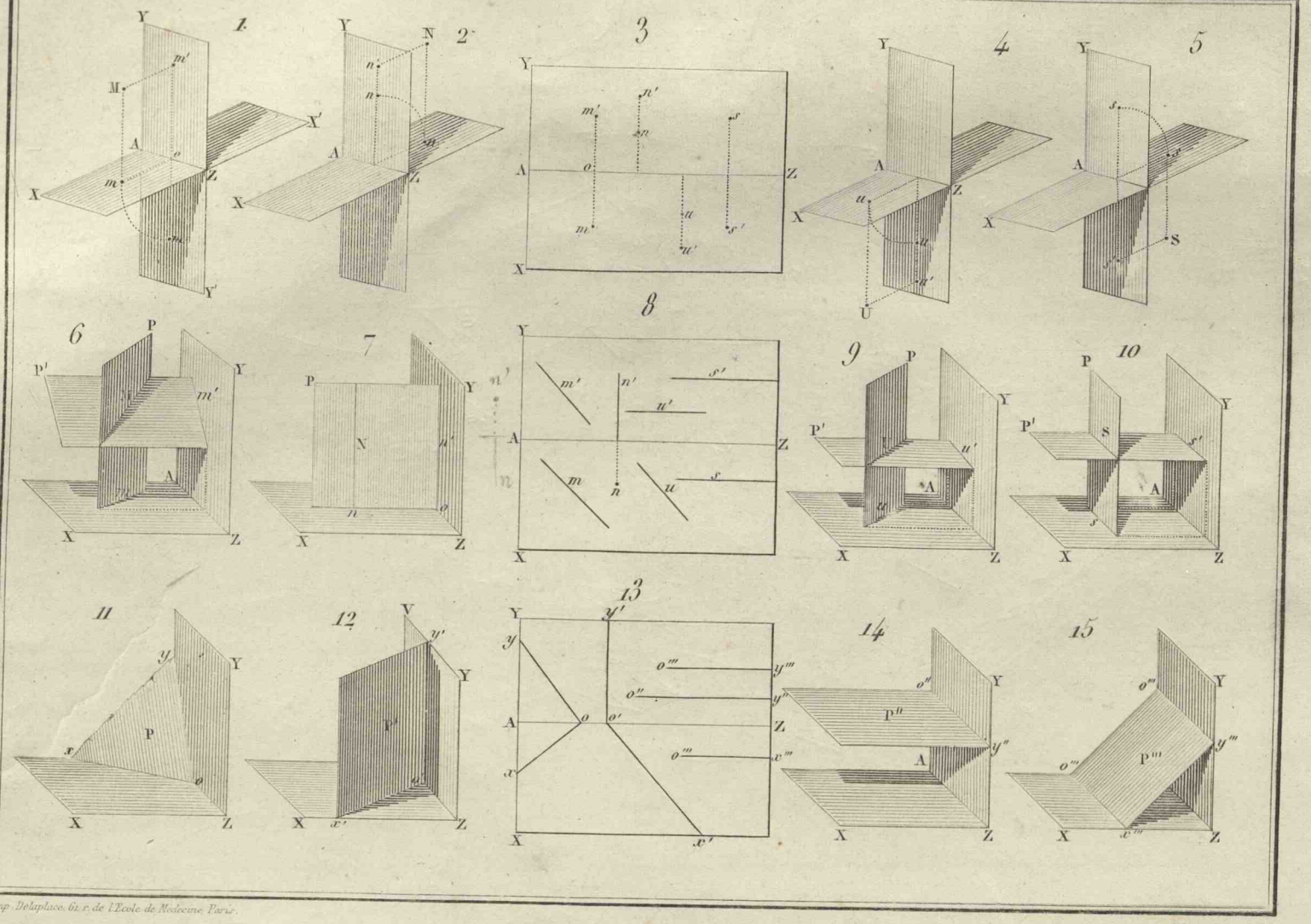
BERLIN
MAX WINCKELMANN, SPITTELMARKET, 2.

MADRID
A. DURAN, CARRERA DE SAN GERÓNIMO, 2.

1870

C/953
1961
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Cota 18651
Inventar 24558
1956
Rc 115/06
B.C.U. Bucuresti
C24558

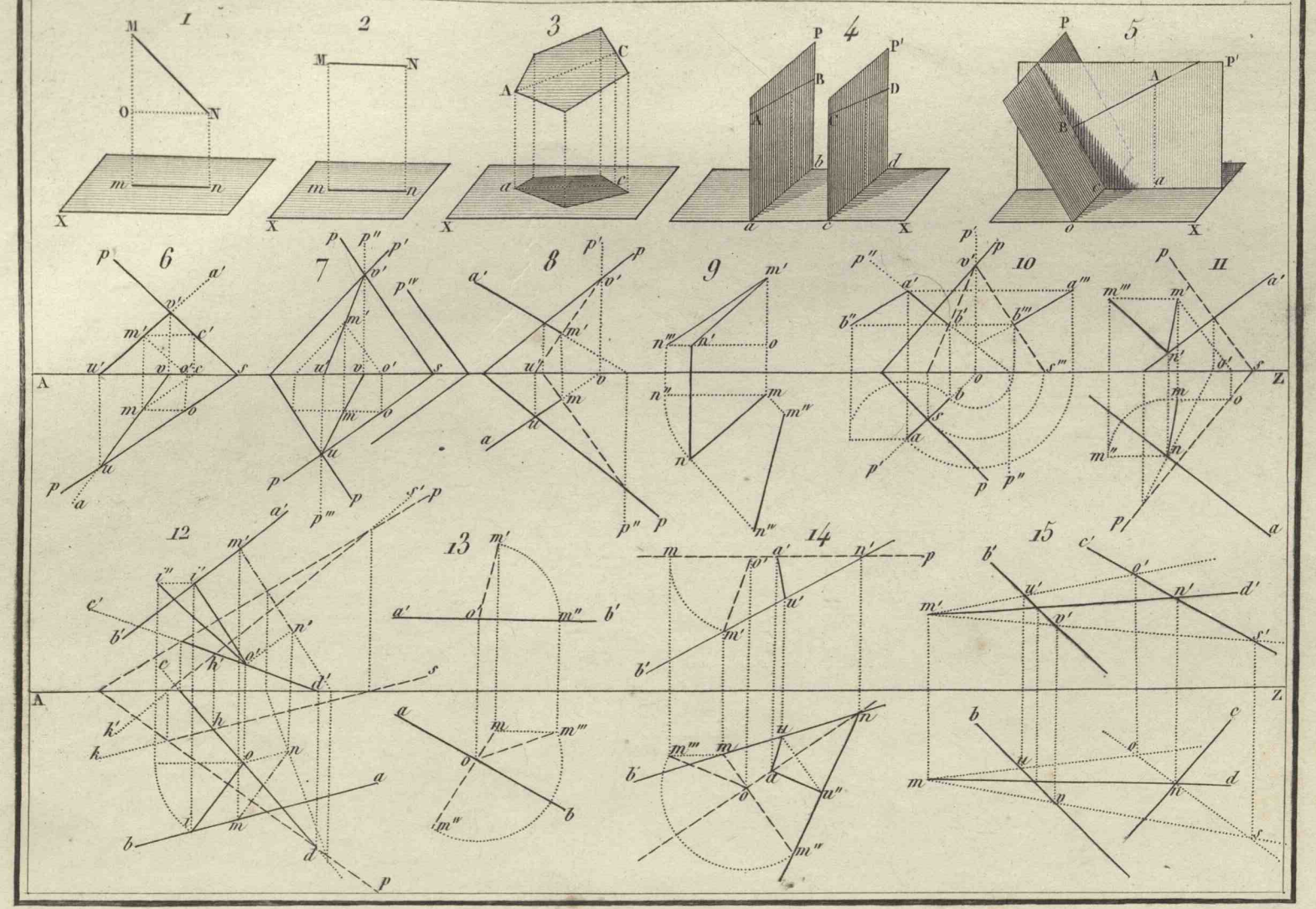
Projections



Imp. Delaplace, 61, r. de l'Ecole de Medecine, Paris.

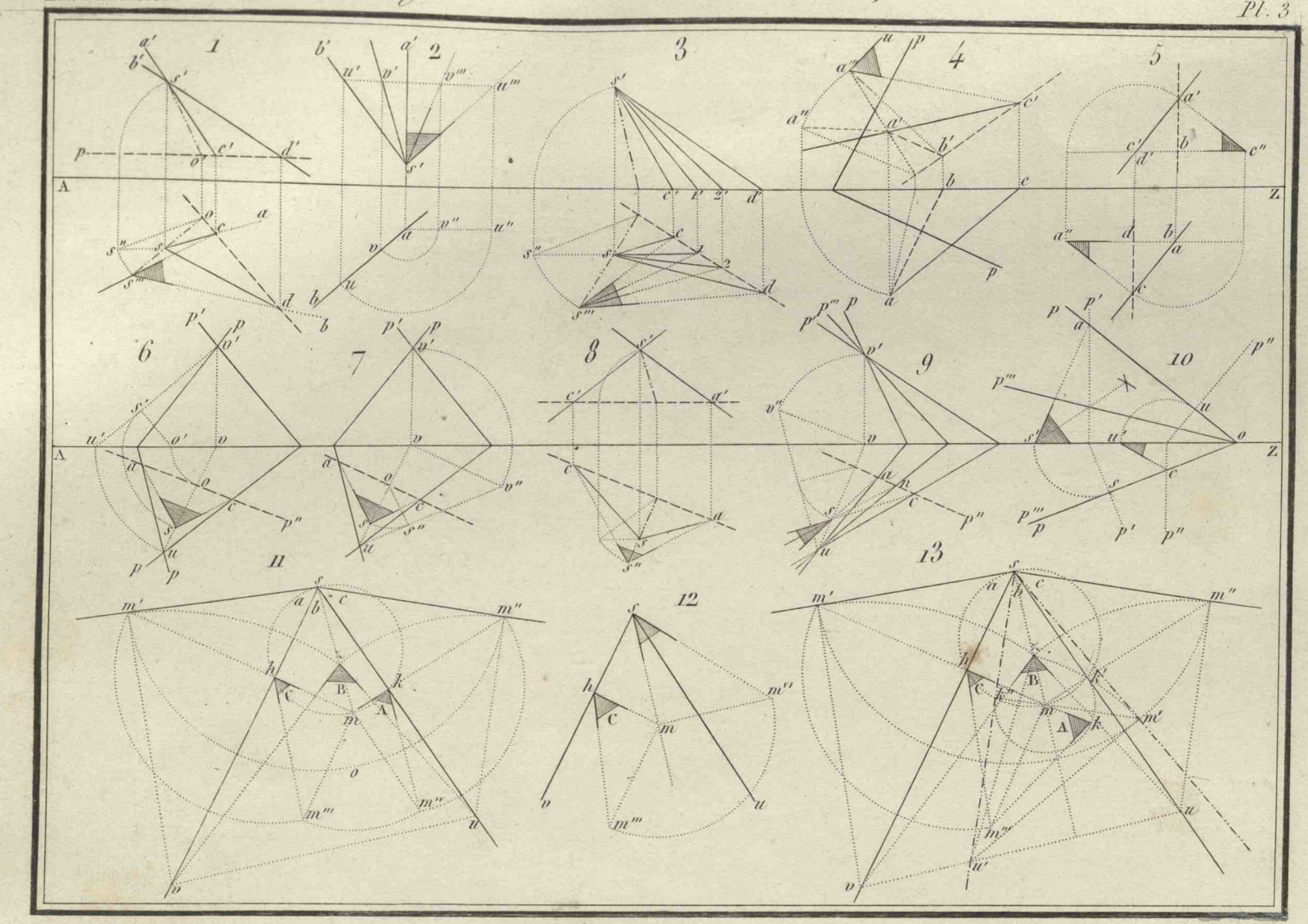
Adhémar del.

Points, lignes droites, plans



Adhémar del.

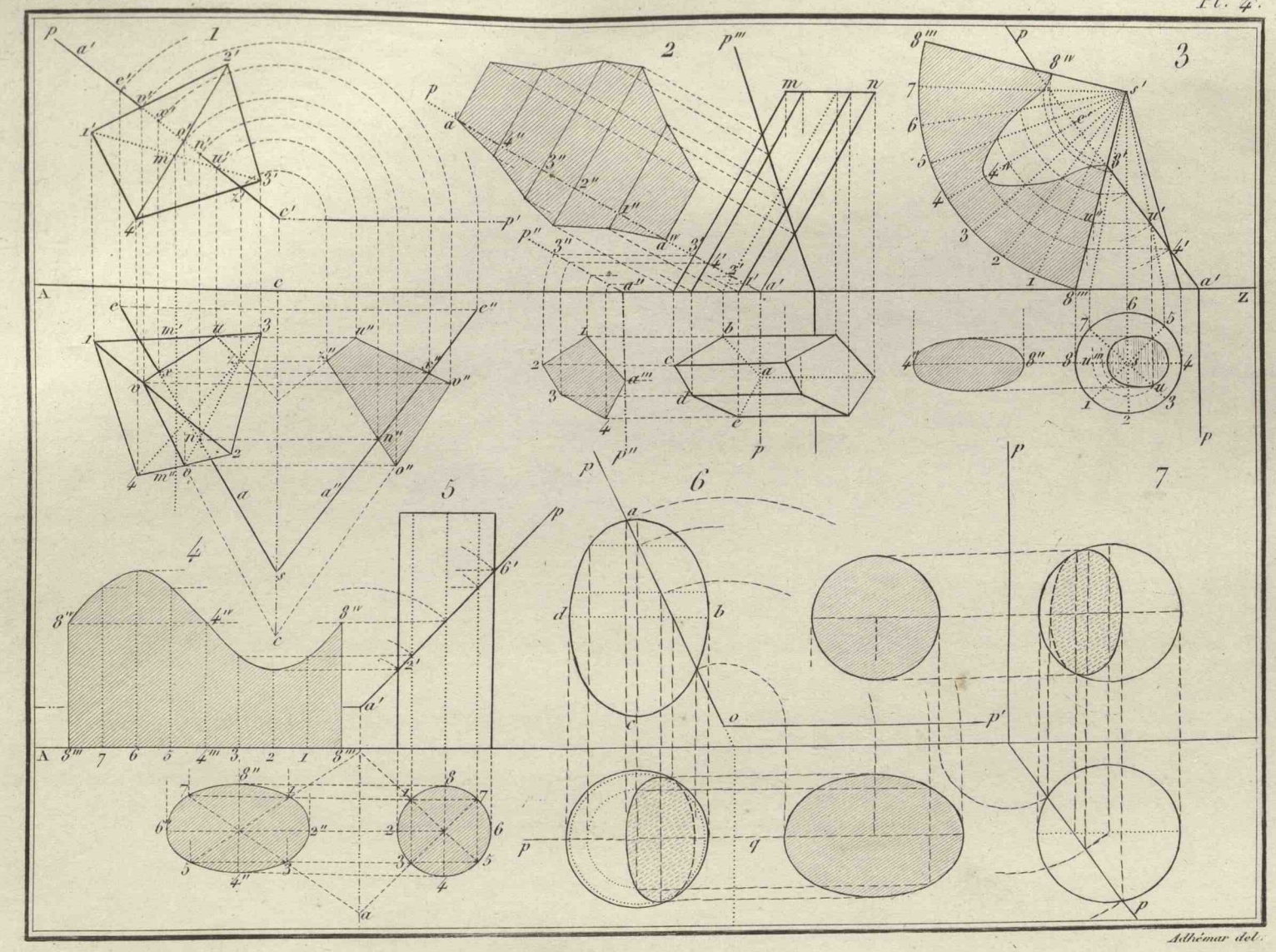
Angles des droites et des plans



Adhémar del.

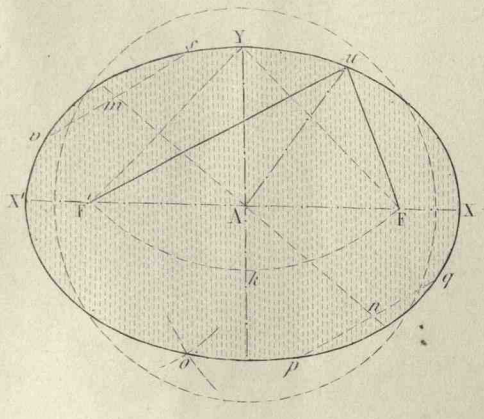
Sections et courbes planes.

Introduction *Pl. 4.*

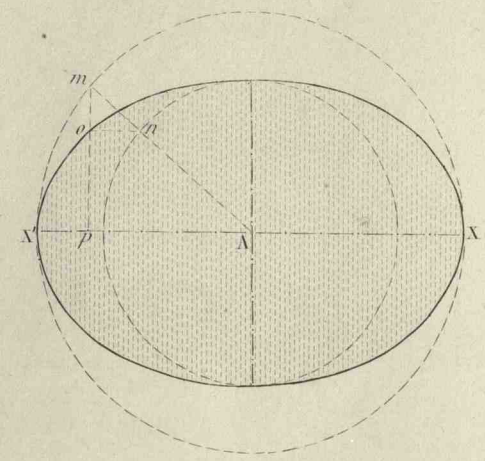


Courbes du 2ème degré

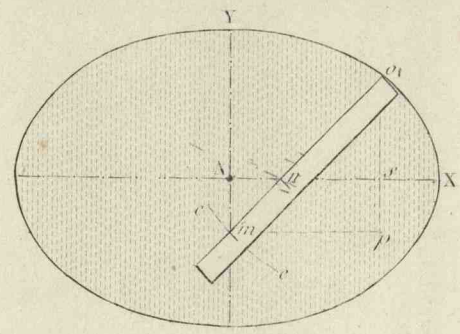
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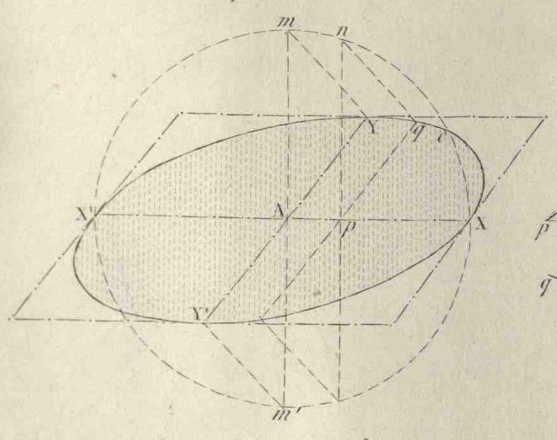
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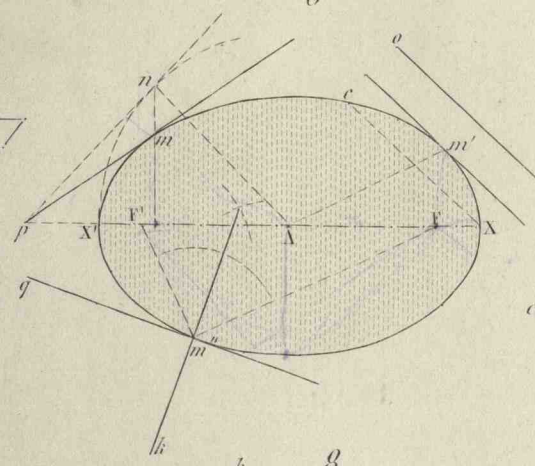
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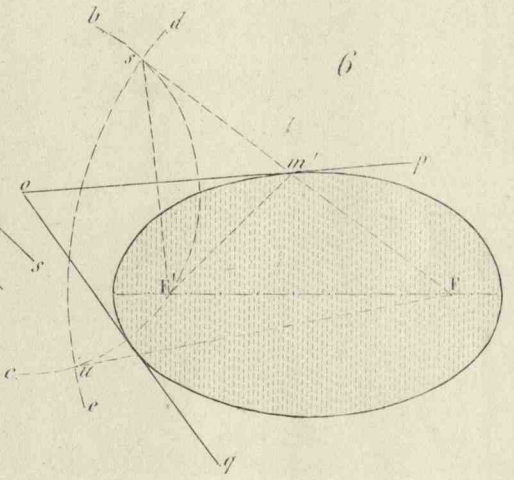
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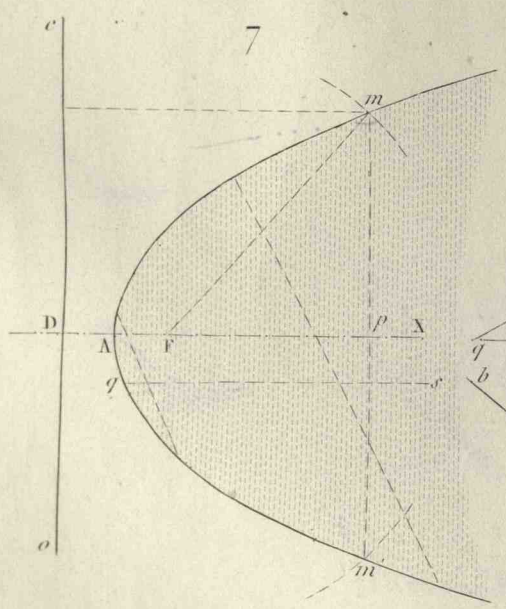
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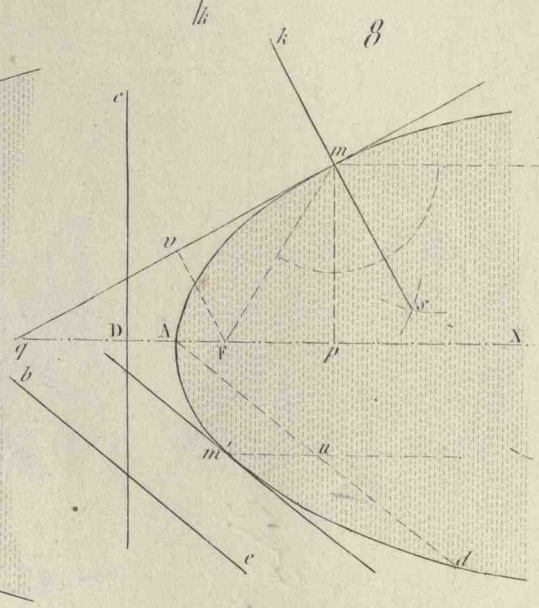
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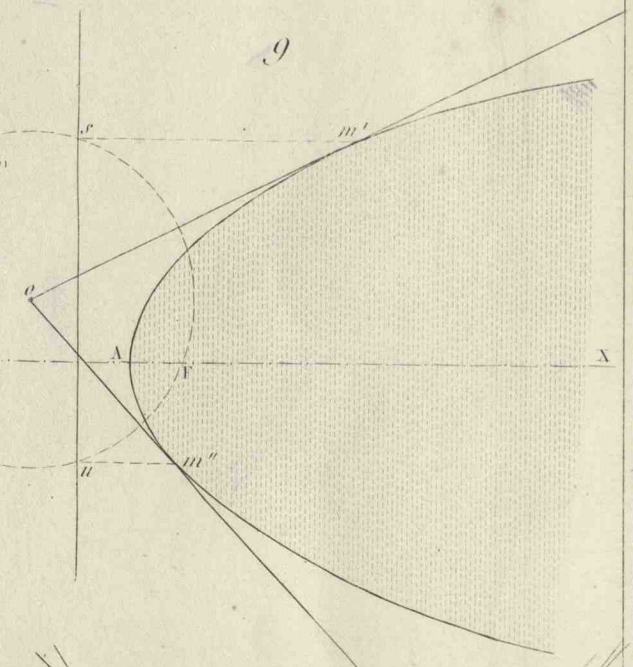
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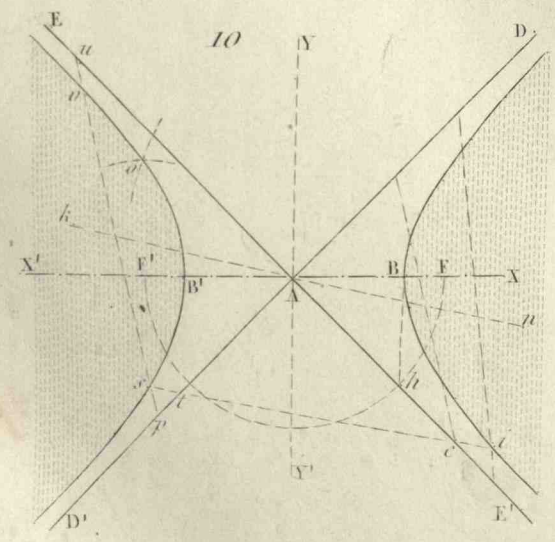
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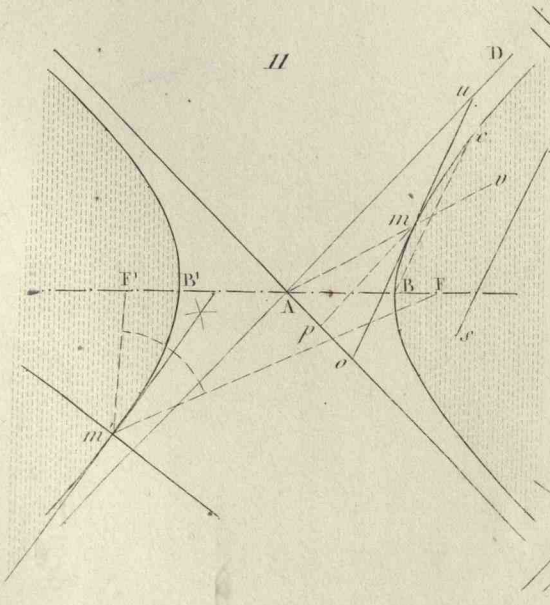
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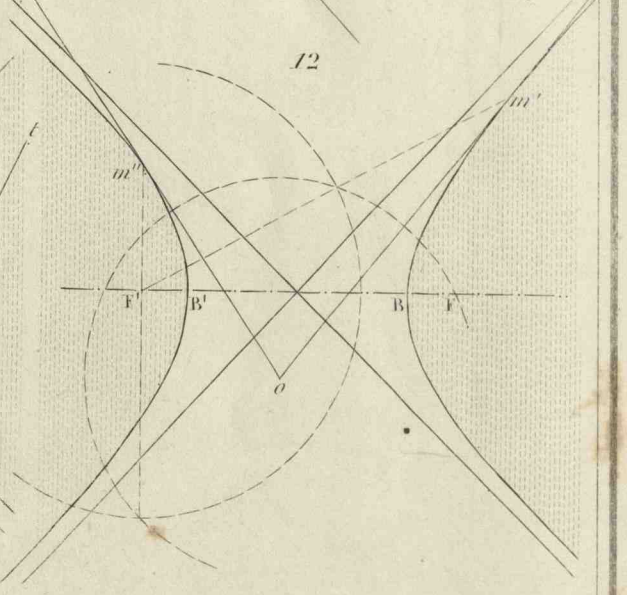
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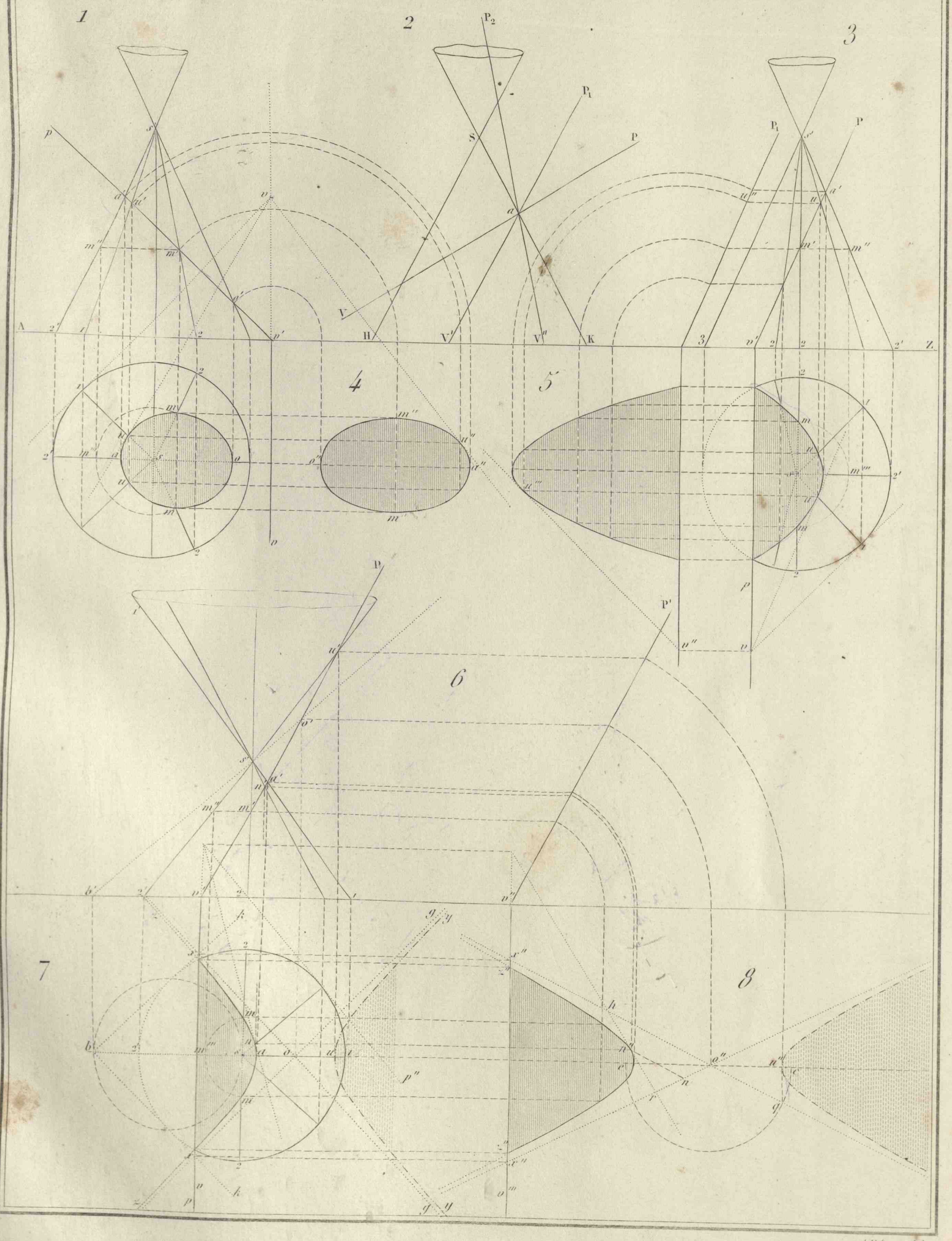


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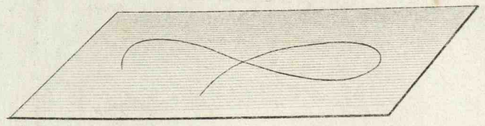
Adhémar del

Sections coniques

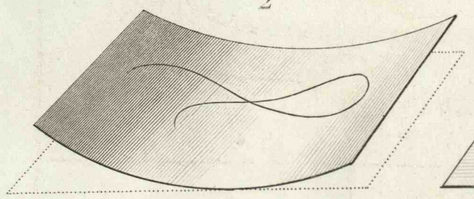


Courbes à double courbure.

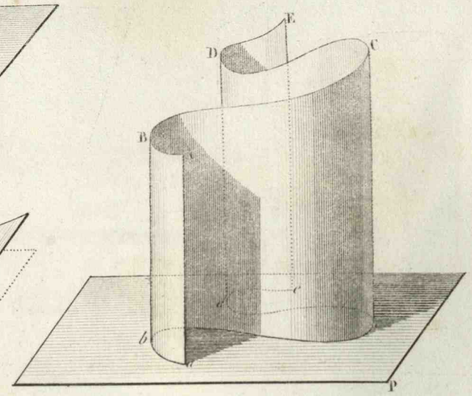
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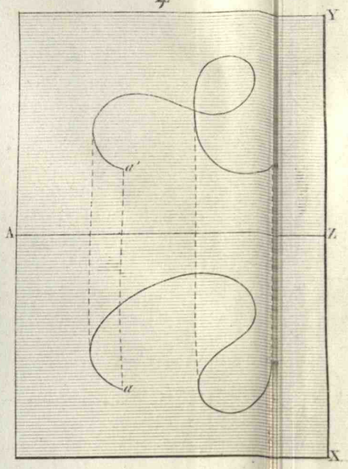
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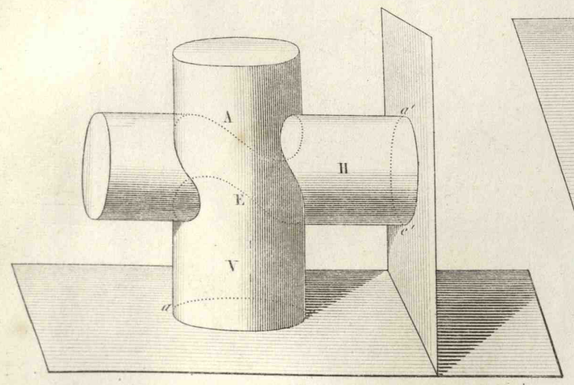
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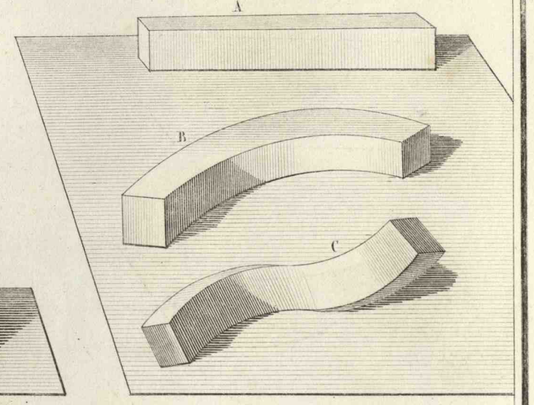
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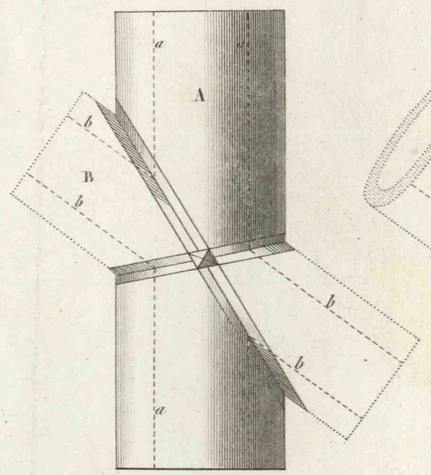
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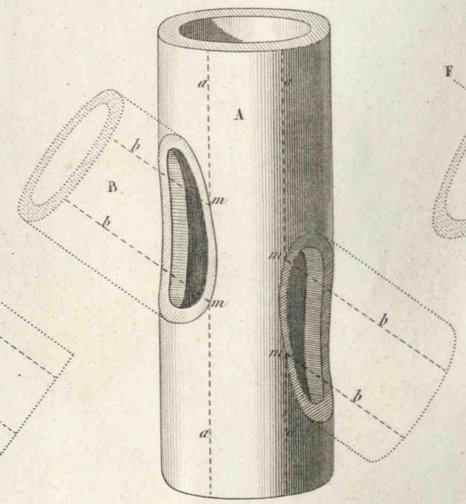
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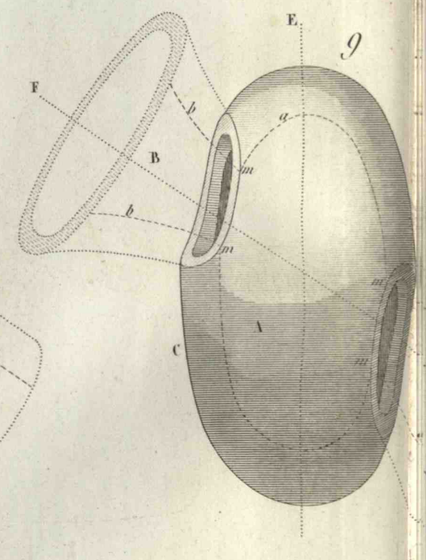
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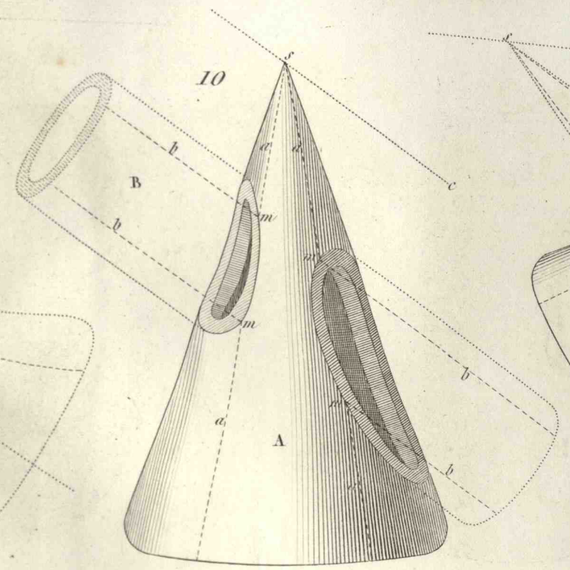
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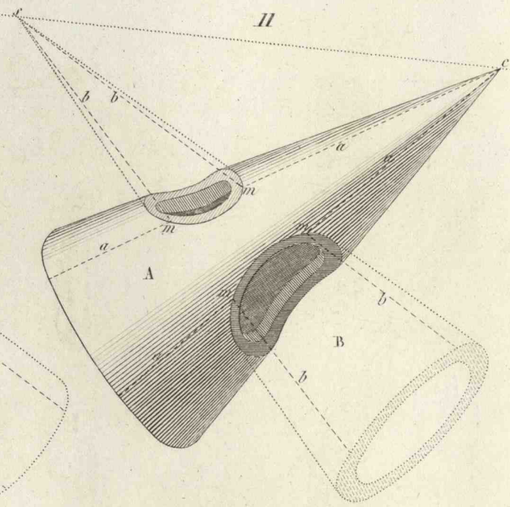
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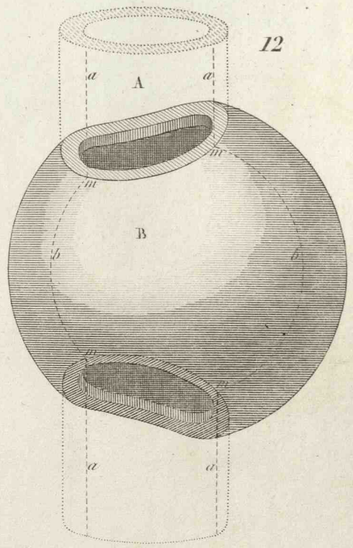
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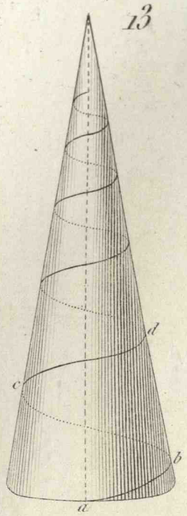
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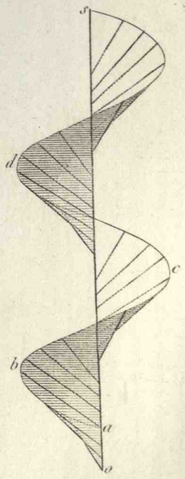
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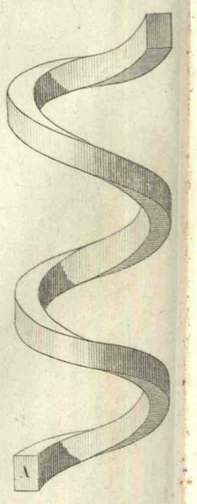
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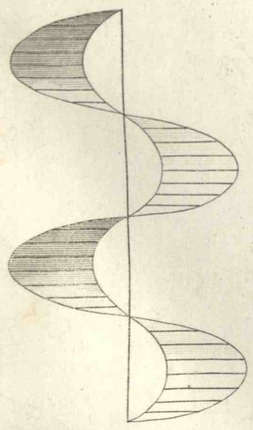
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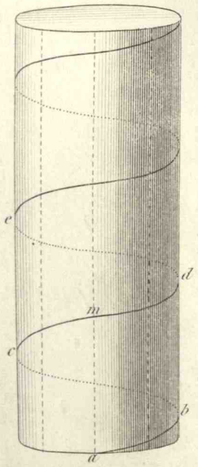
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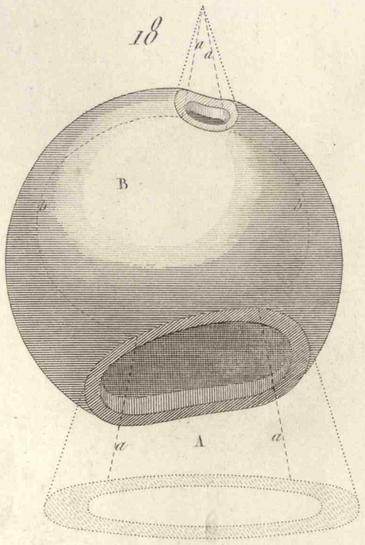
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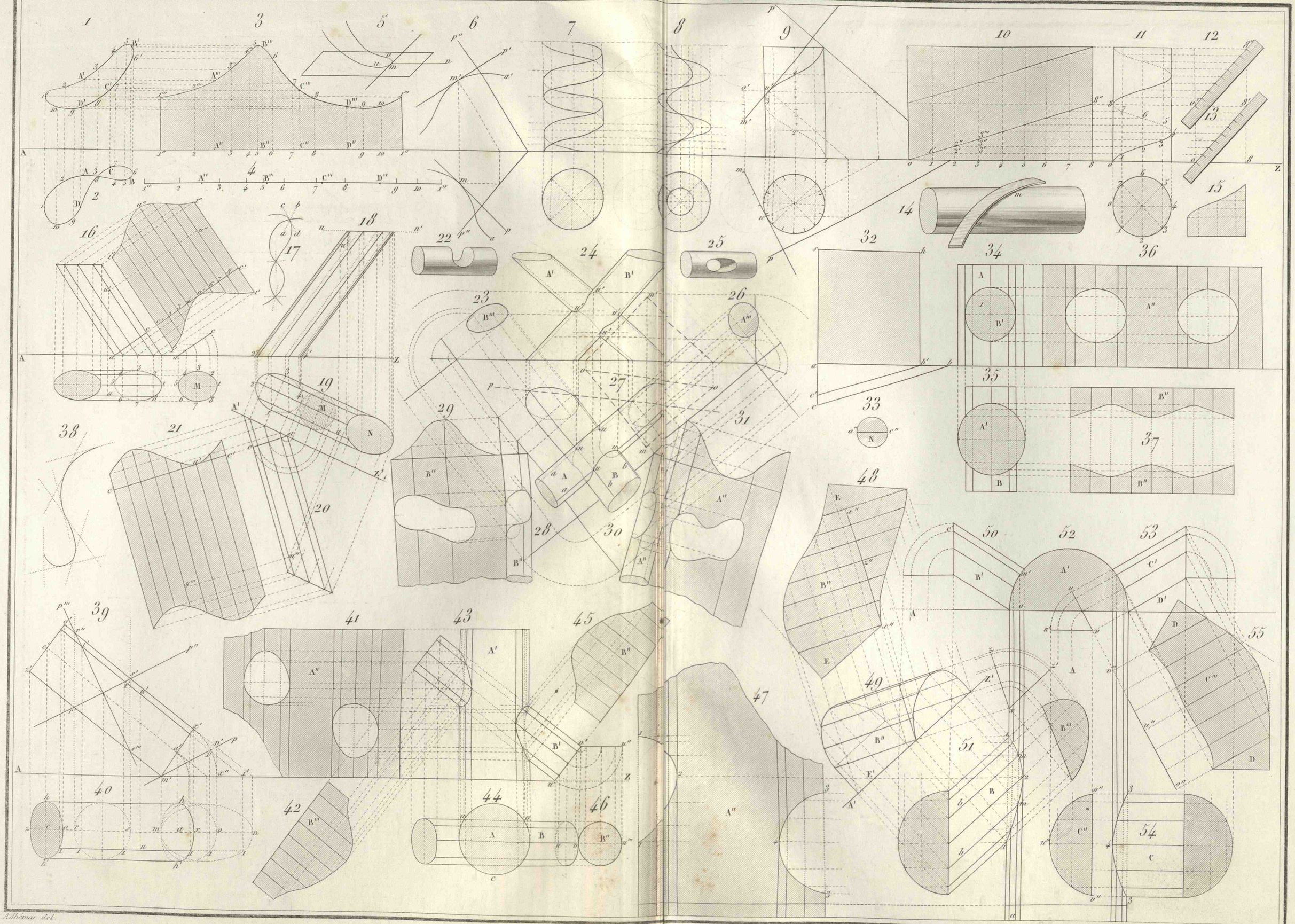
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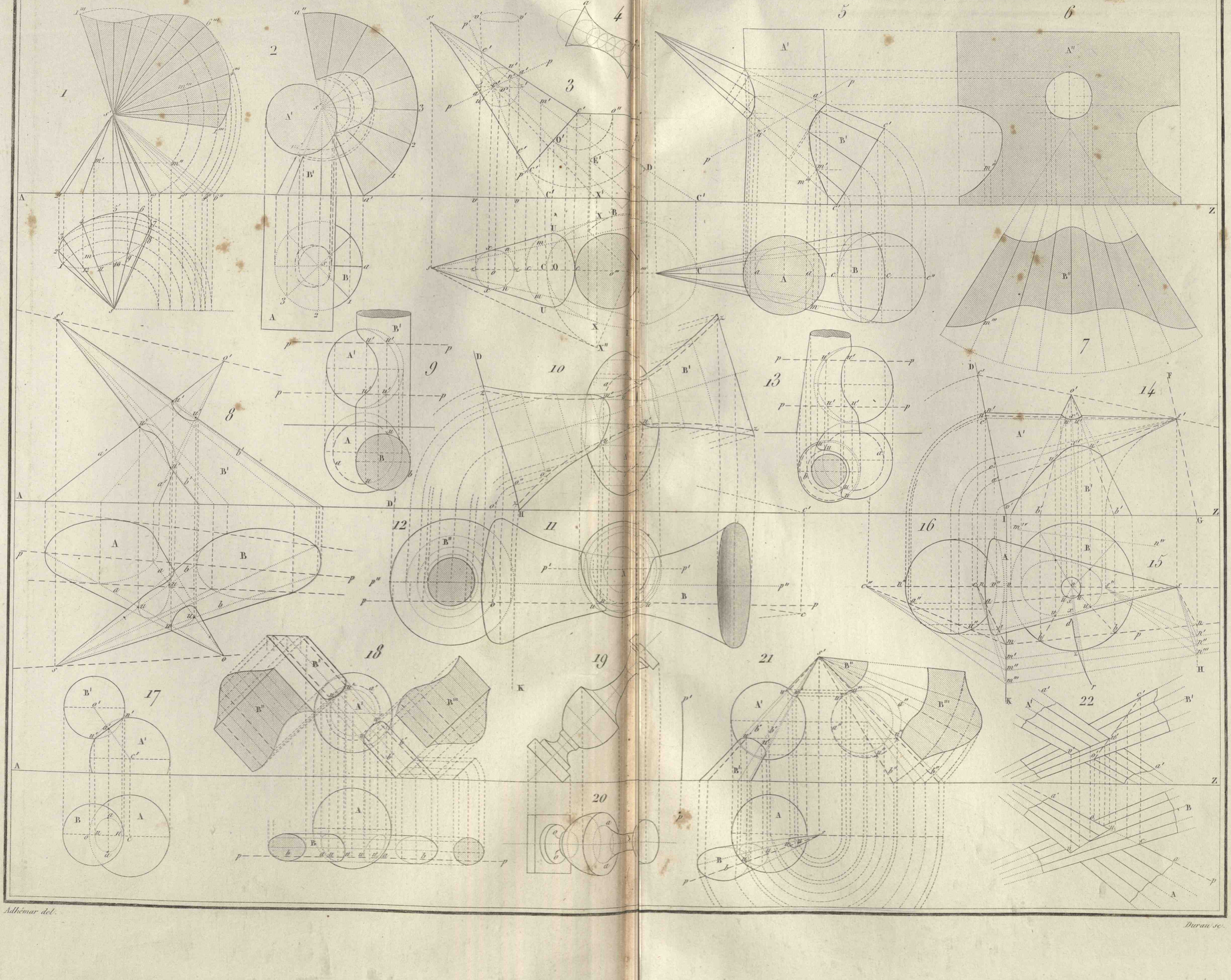
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Courbes à double courbure.



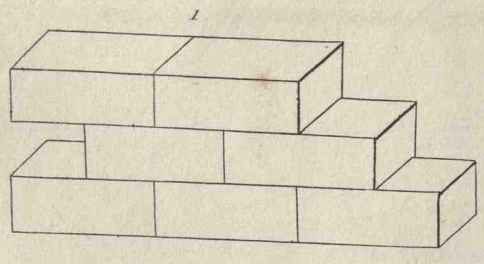
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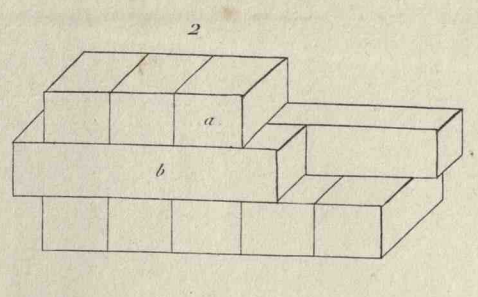


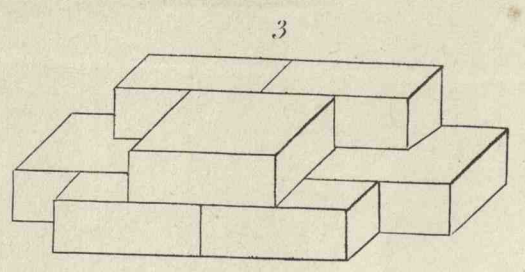
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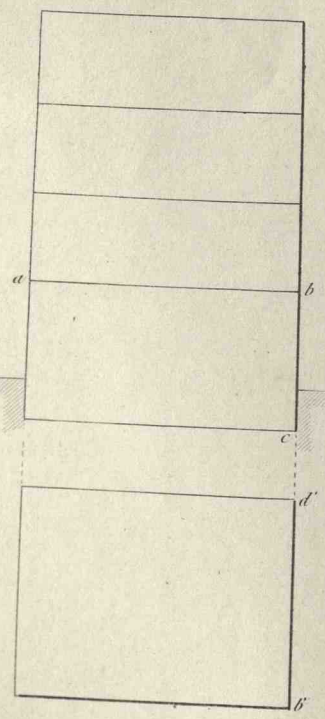
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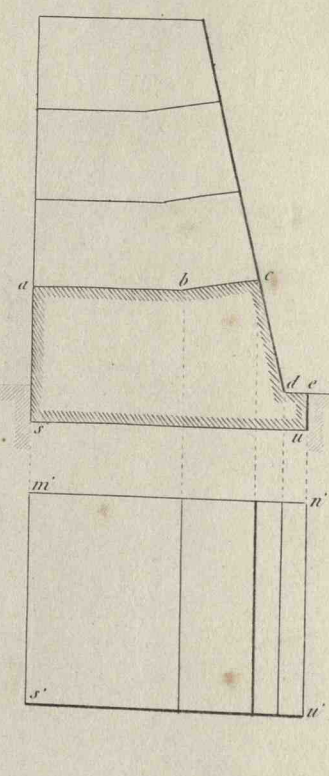
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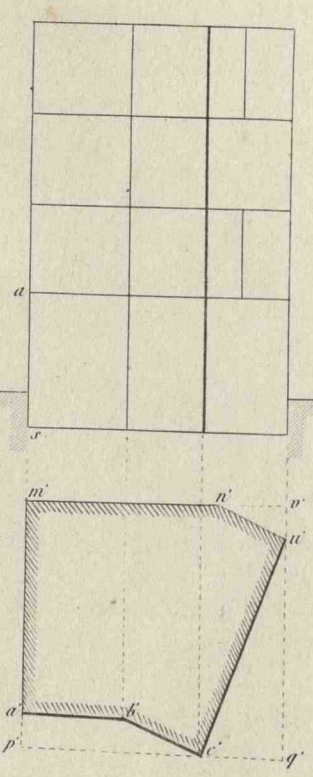

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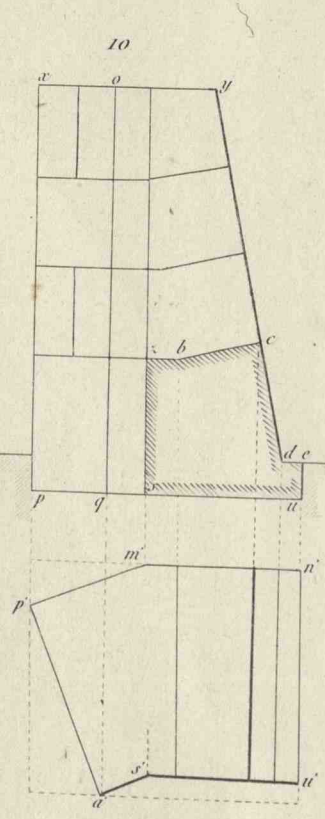

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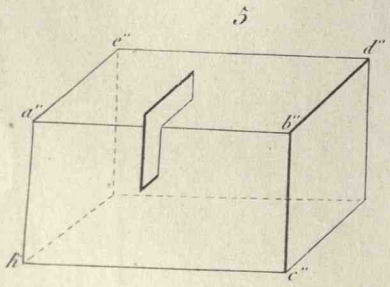

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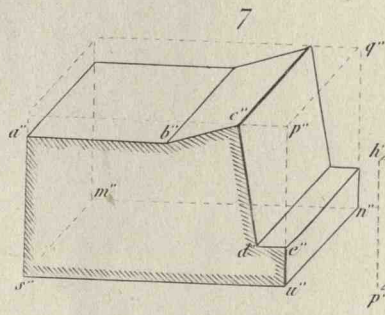

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b
c
d'
b'

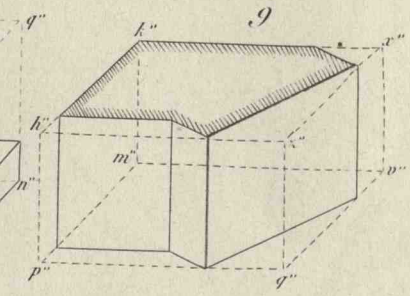

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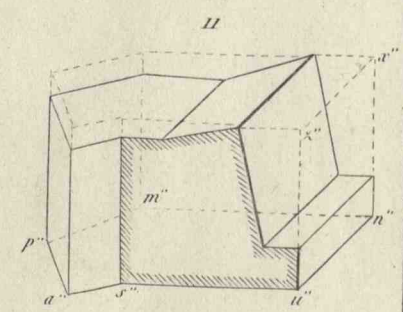

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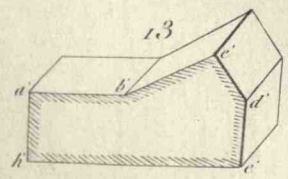

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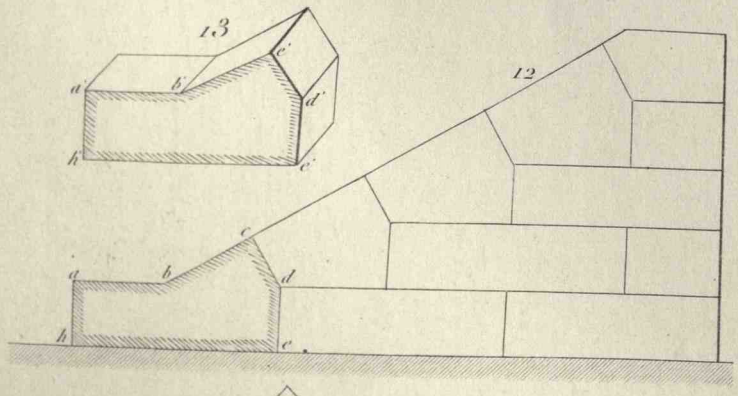

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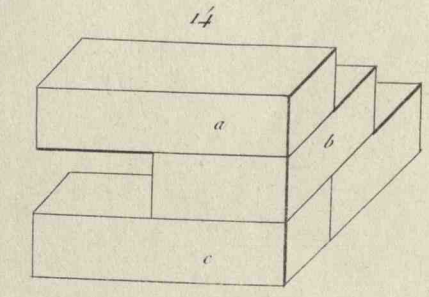

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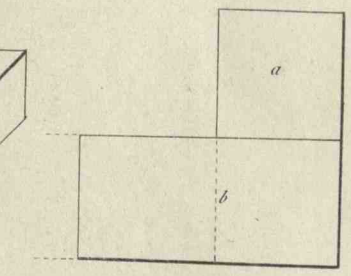

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p''
q''

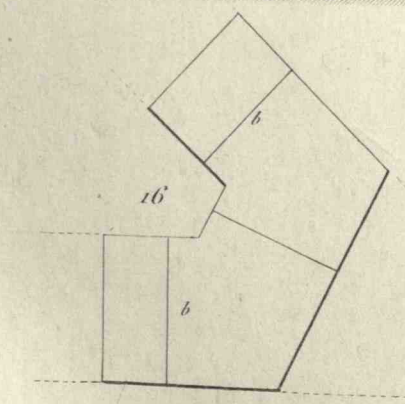

11
x''
m''
p''
n''
a''
s''
u''

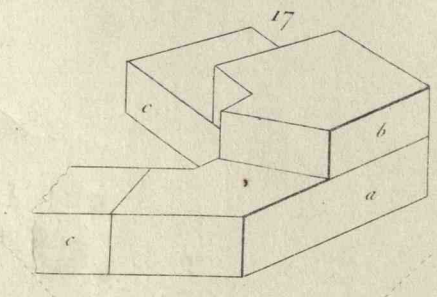

13
a'
b'
c'
d'
h'
e'


12
c
a
b
d
h
e


14
a
b
c


15
a
b


16
b
b


17
c
b
a
c

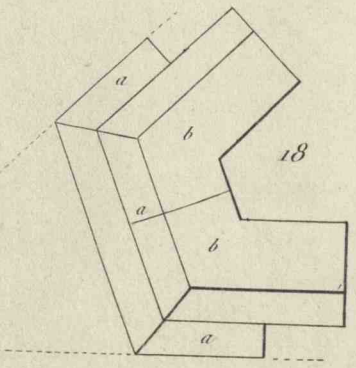

18
a
b
a
b
a

Plate-bandes; Voutes plates.

19

20

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24

25

26

27

A

B

28

29

30

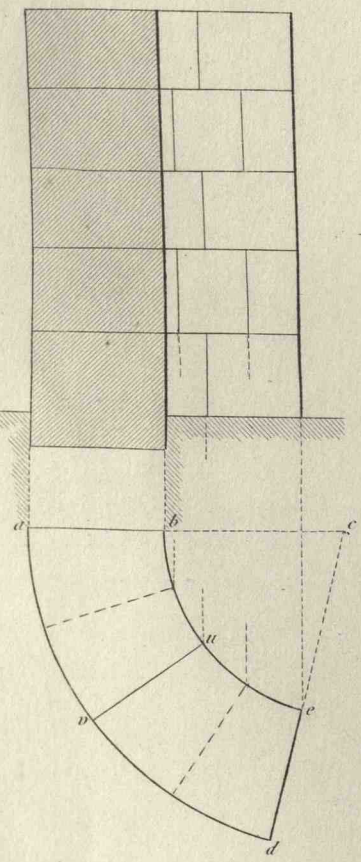
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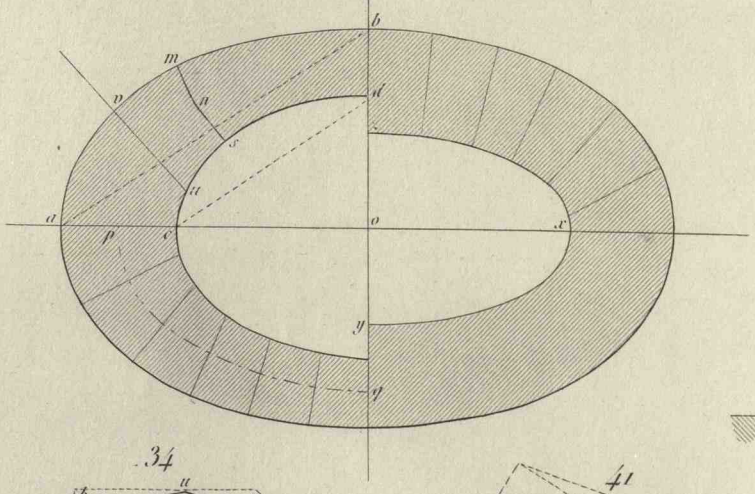
Murs ronds; Berceaux et portes droites.

Coupe des Pierres

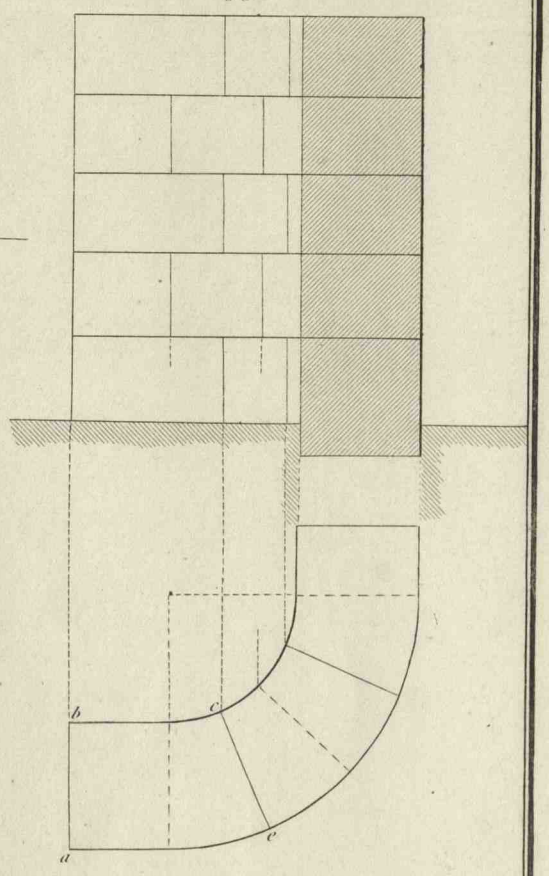
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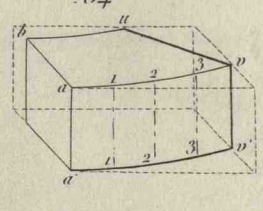
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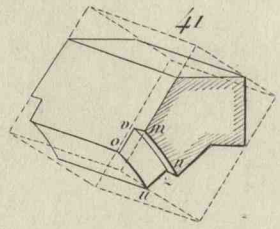
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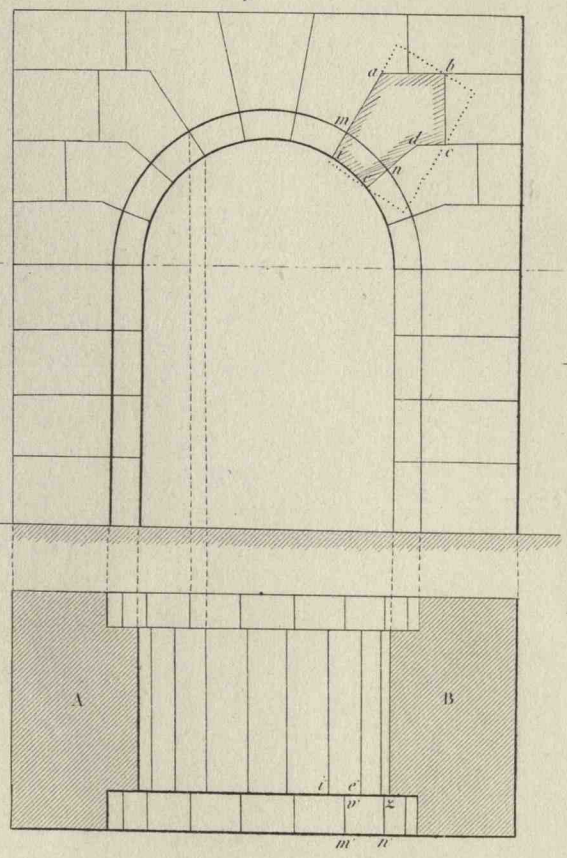
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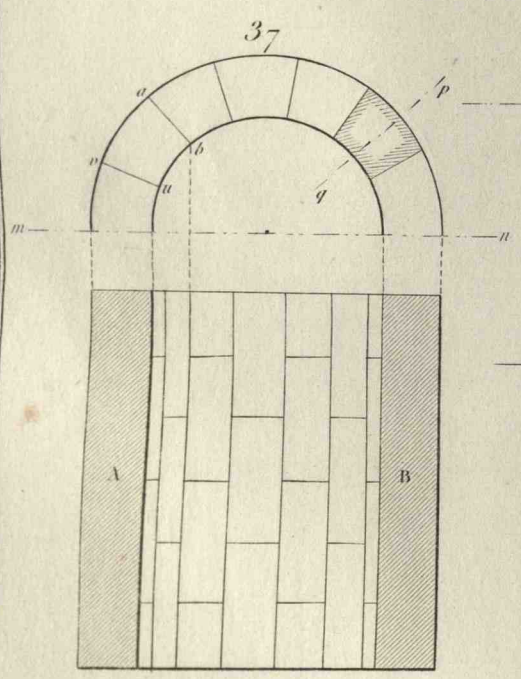
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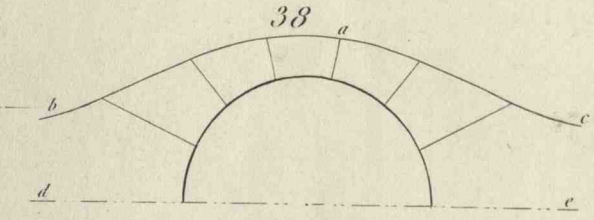
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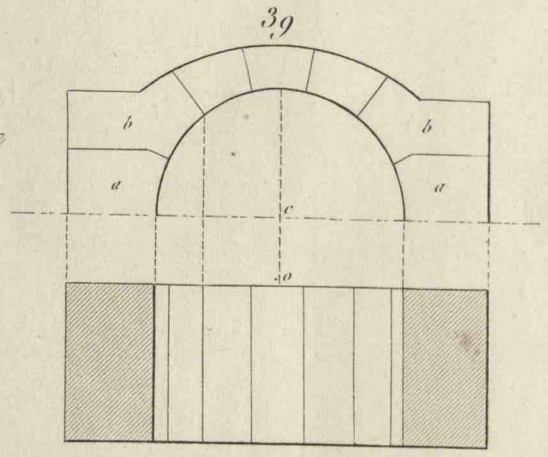
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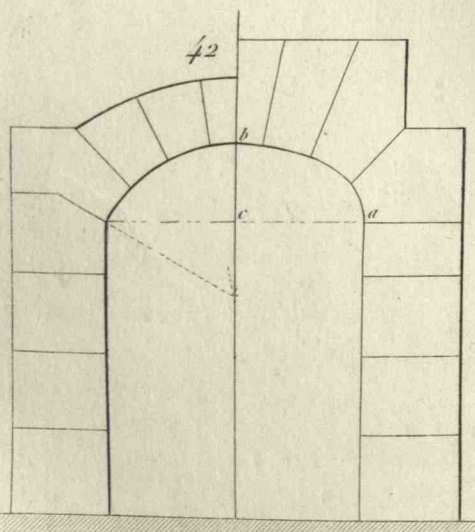
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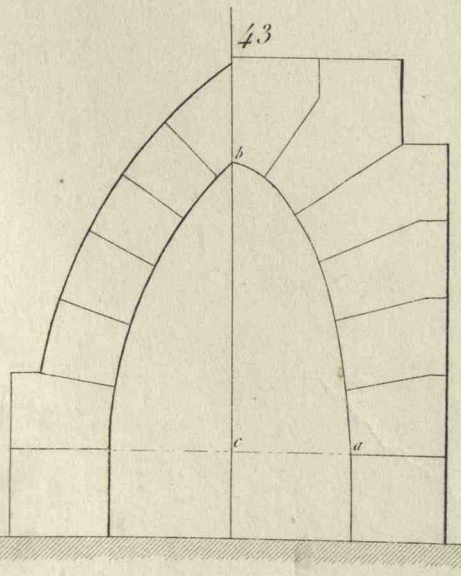
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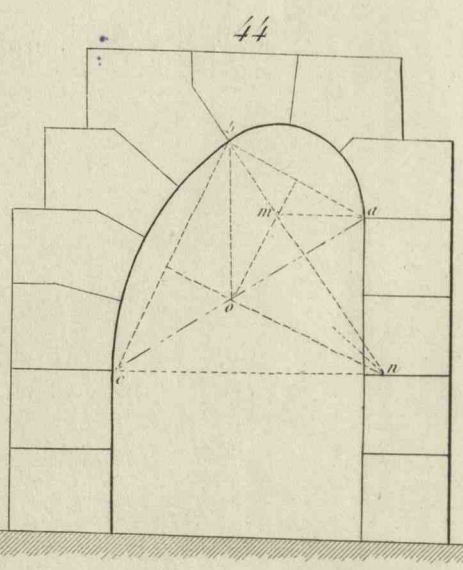
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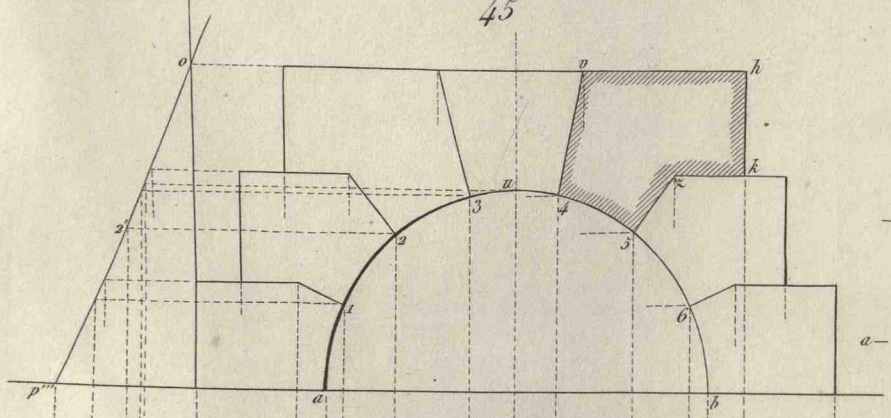


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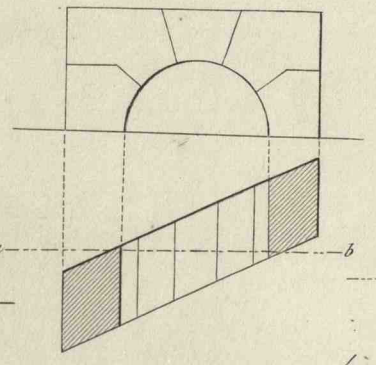


Portes biaises et en talus.

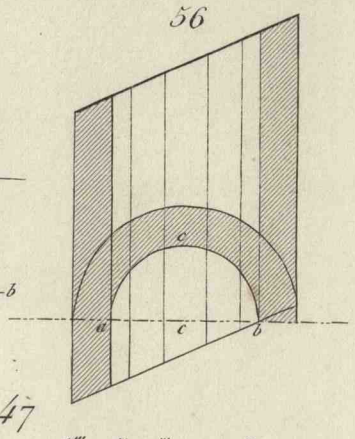
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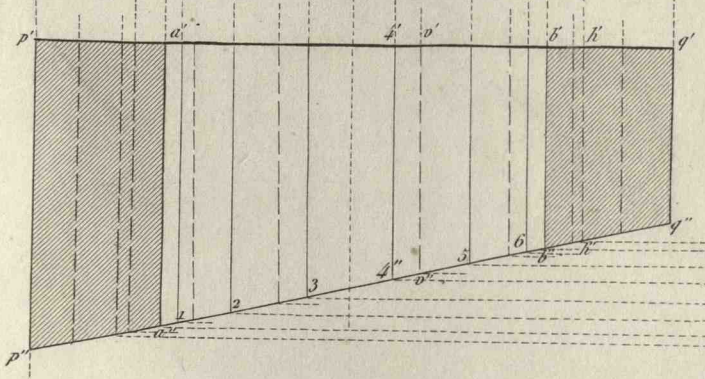
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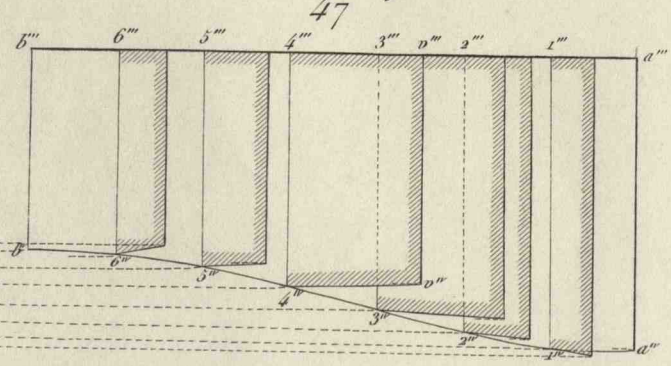
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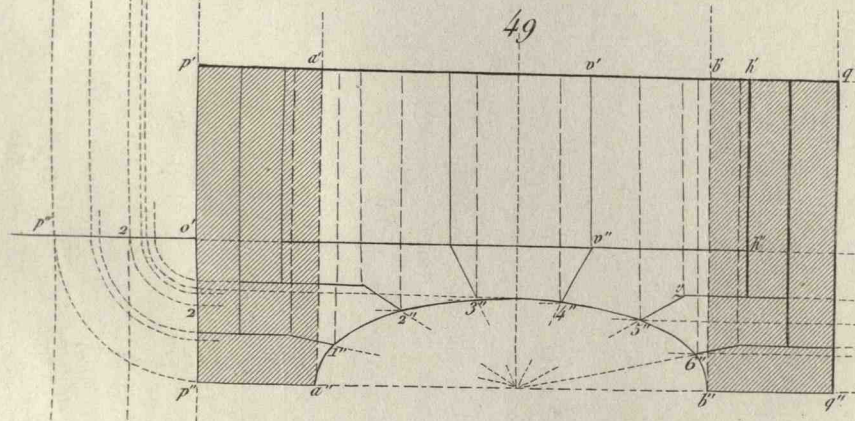
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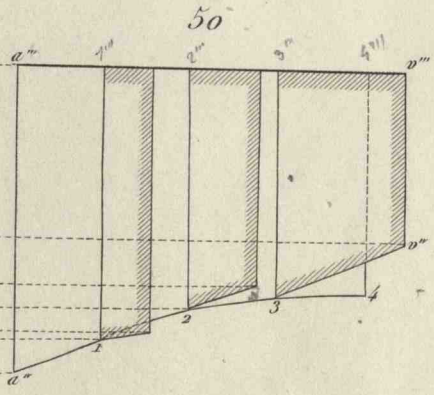
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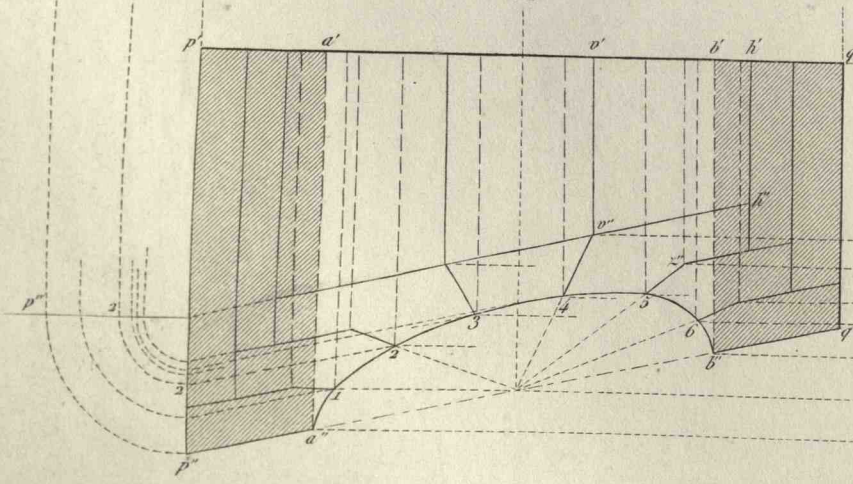
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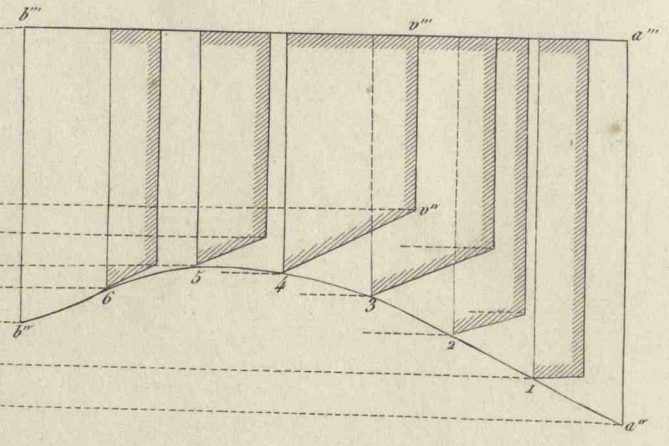
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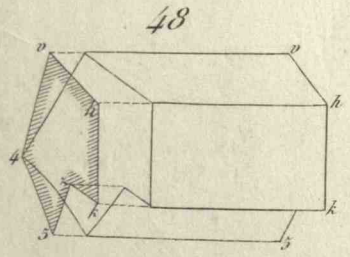
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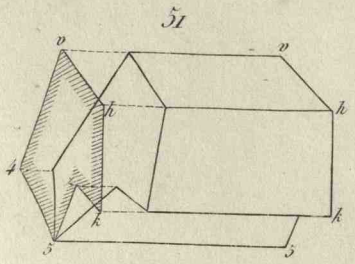
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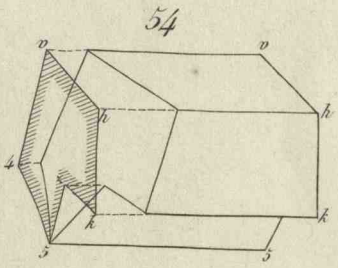
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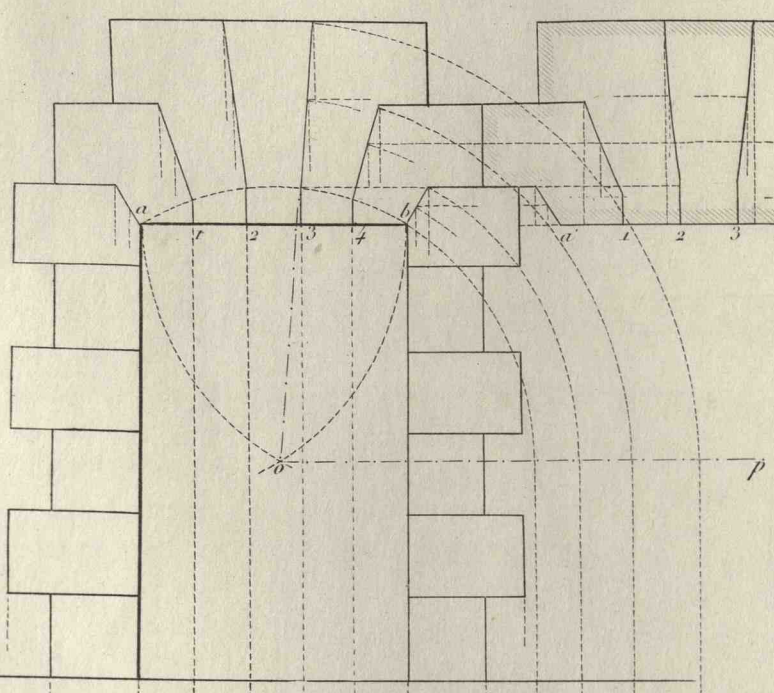


Portes dans une tour ronde.

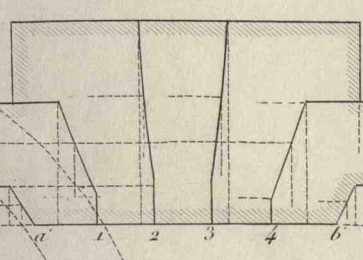
Coupe des pierres

Pl. 14.

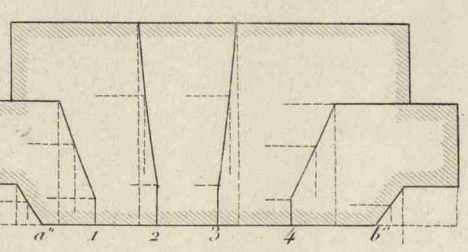
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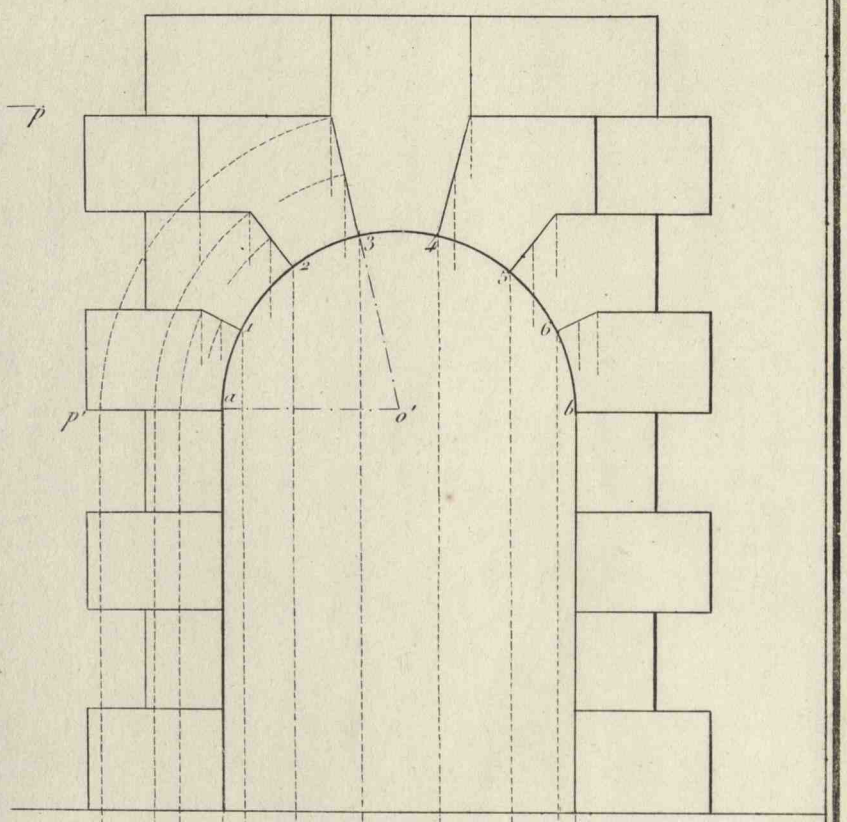
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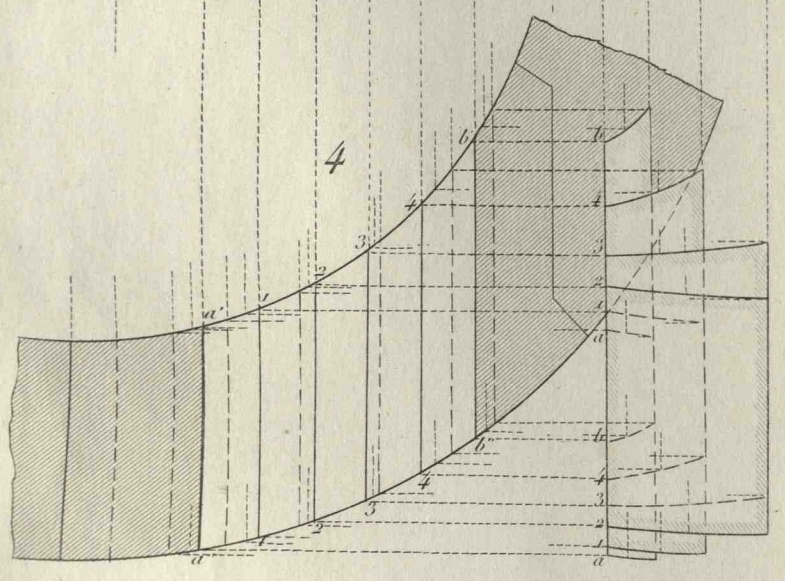
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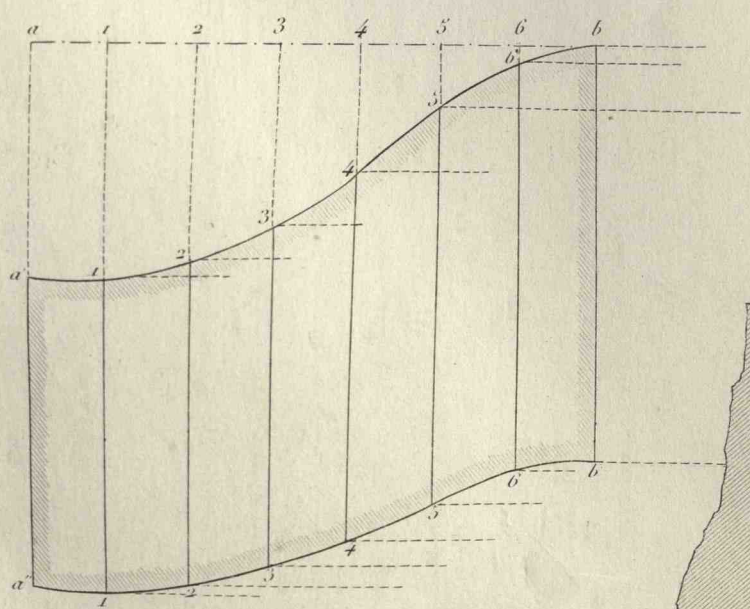
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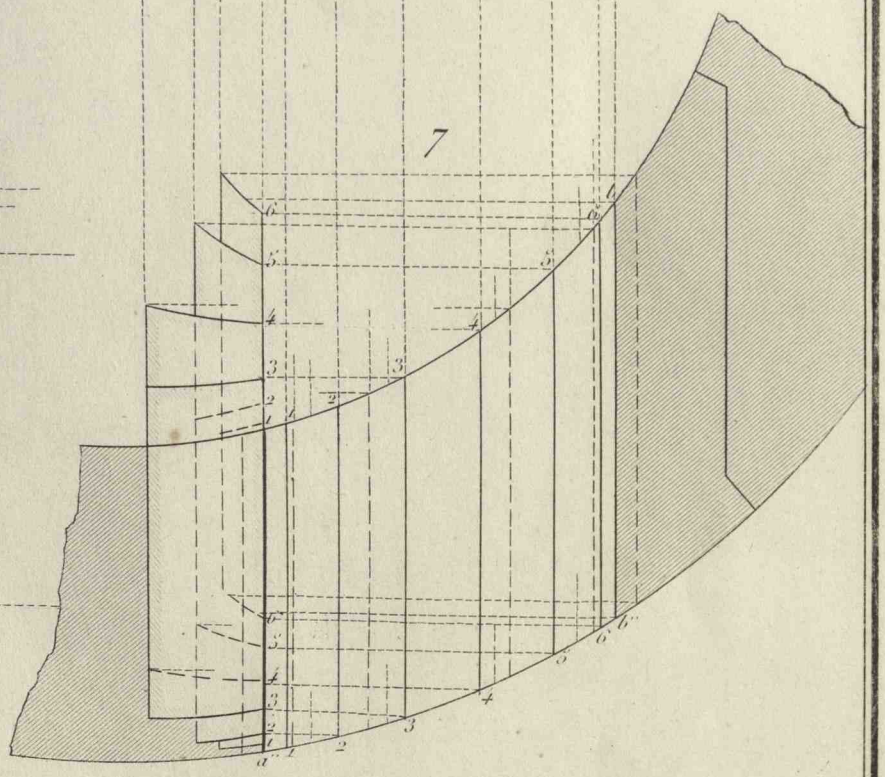
4



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Berceaux biais.

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Voute d'arête.

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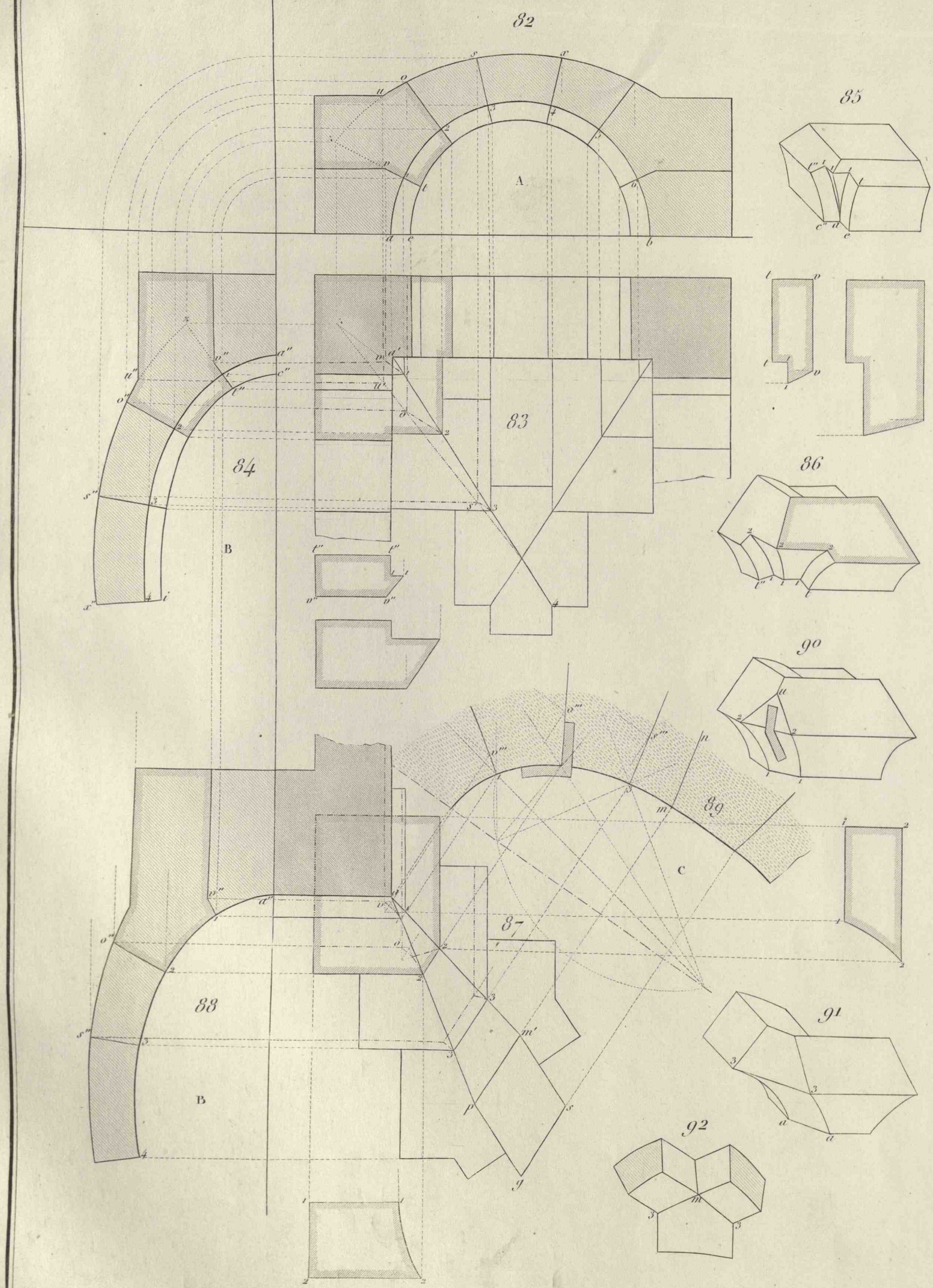
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1

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3

Voutes d'arête.



Voutes d'arrête.

93

94

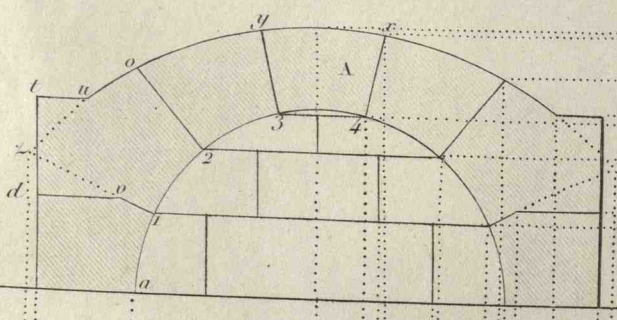
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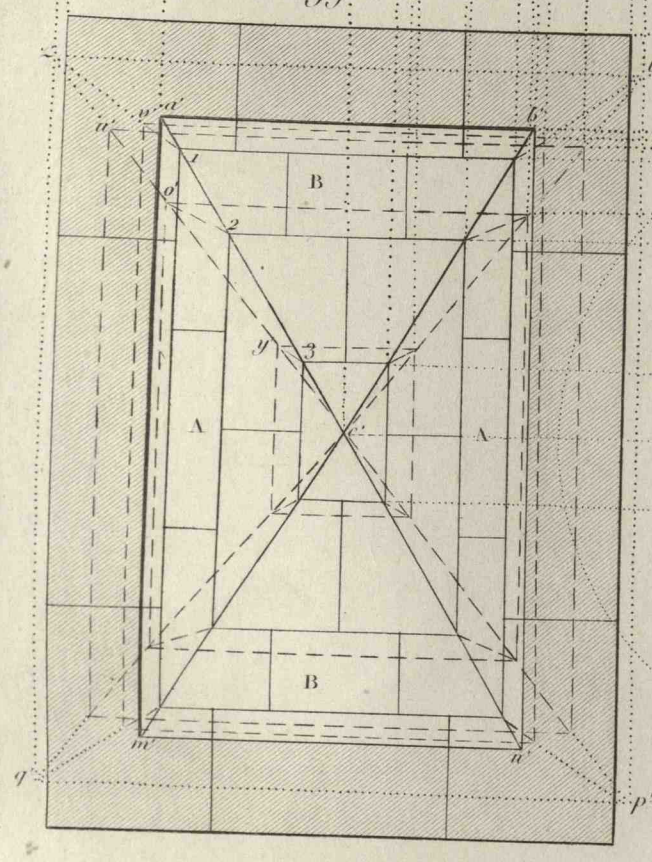
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Voutes en arc de Cloître

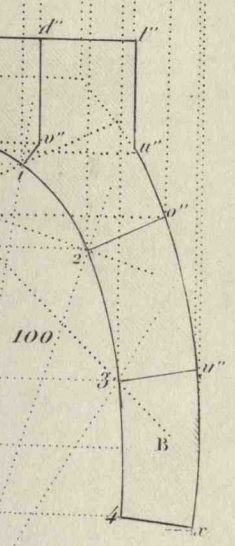
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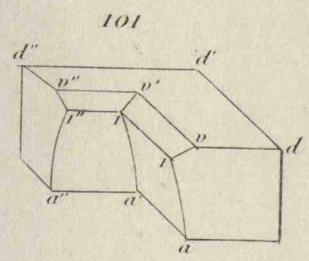
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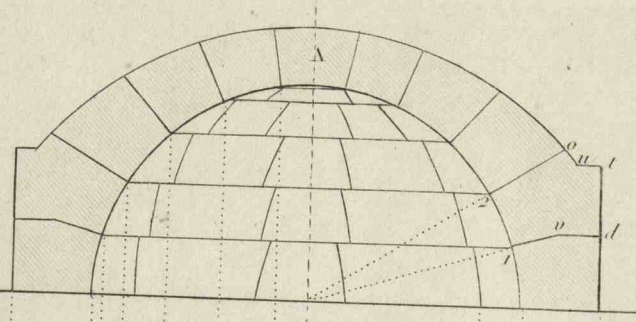
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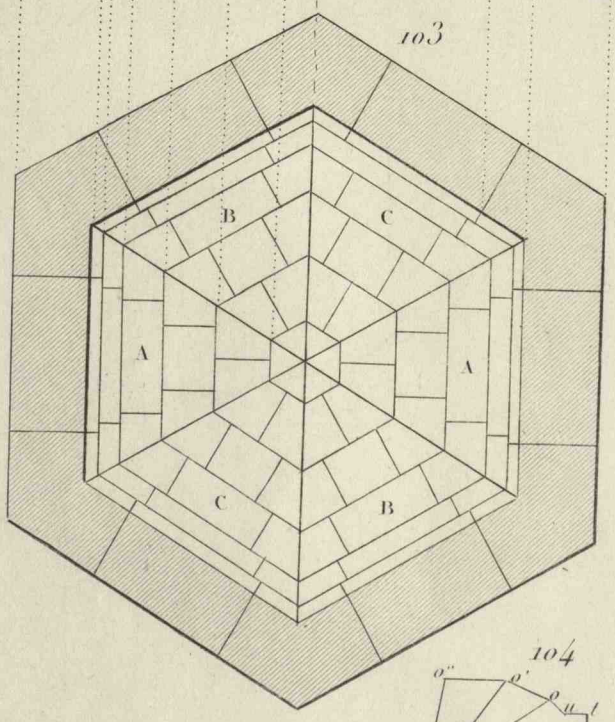
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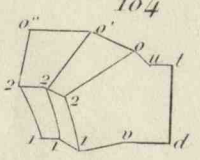
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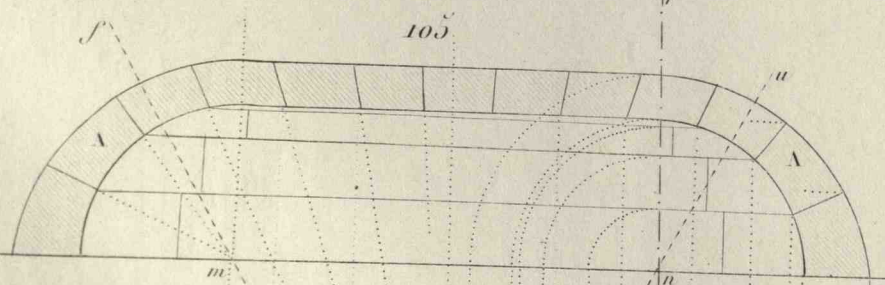
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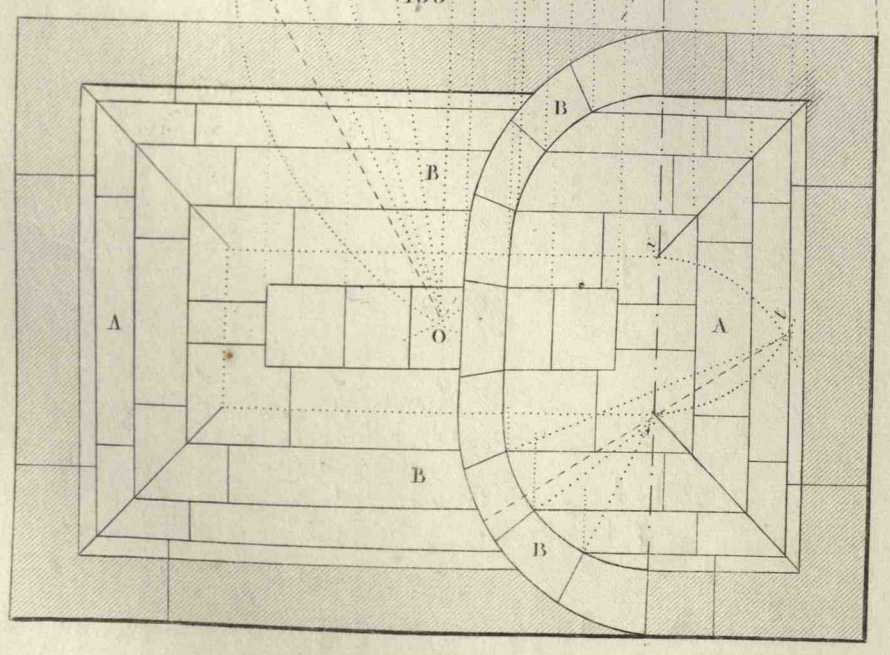
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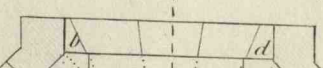
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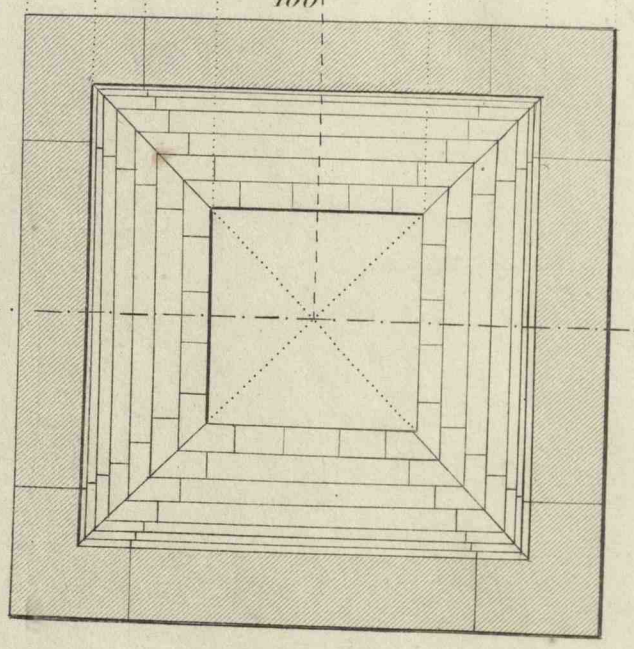
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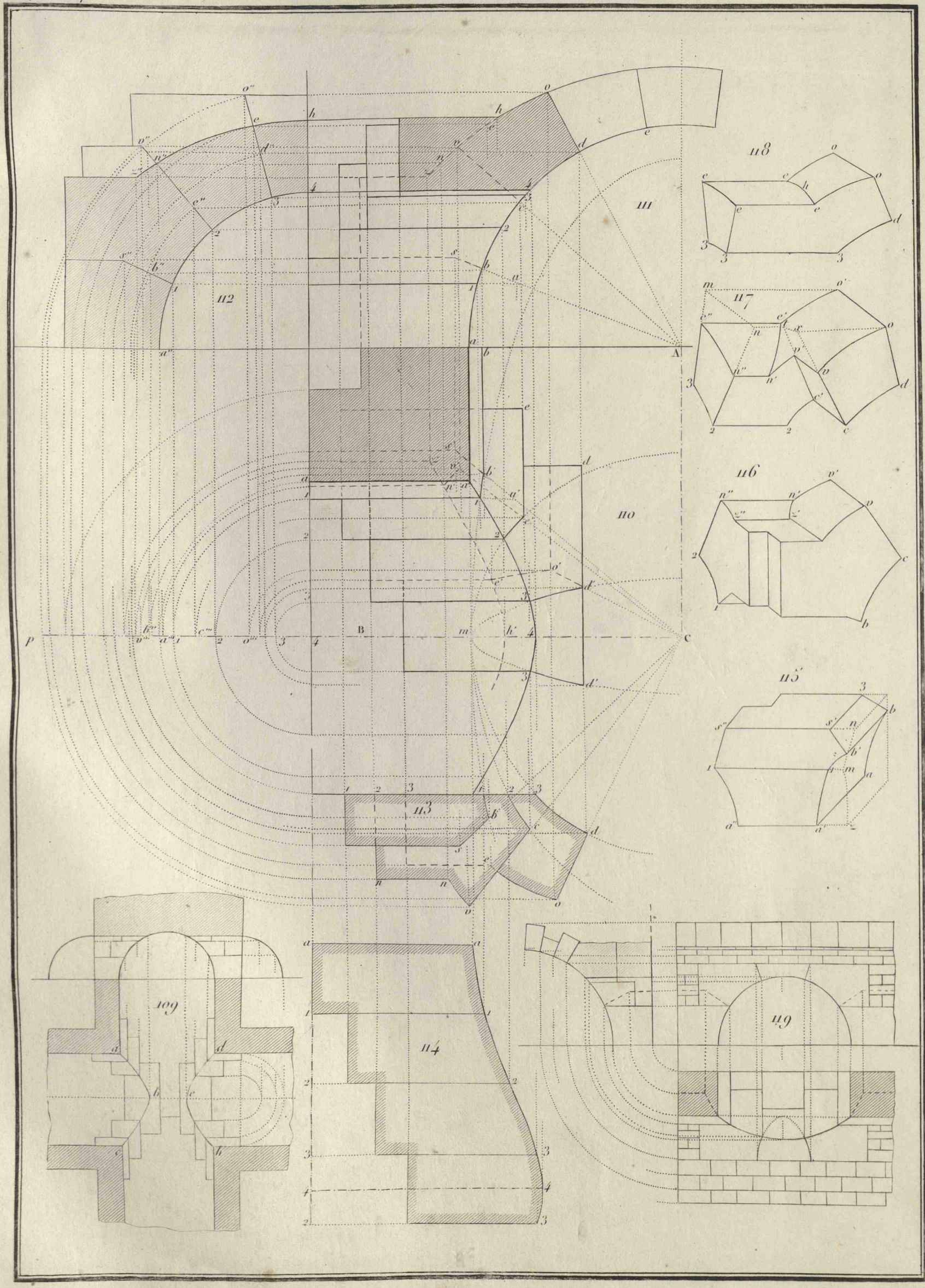
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108

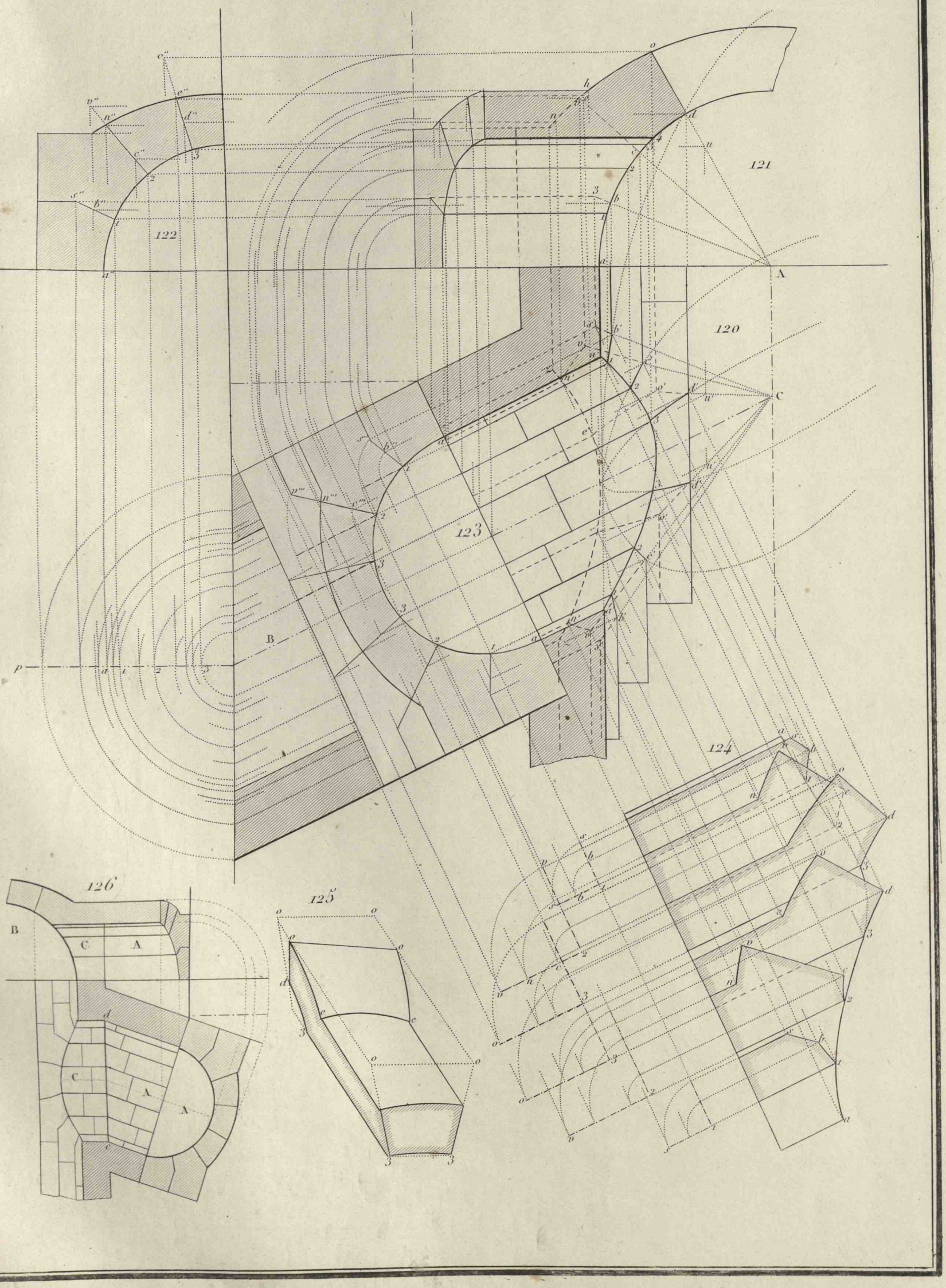


Lunette droite.

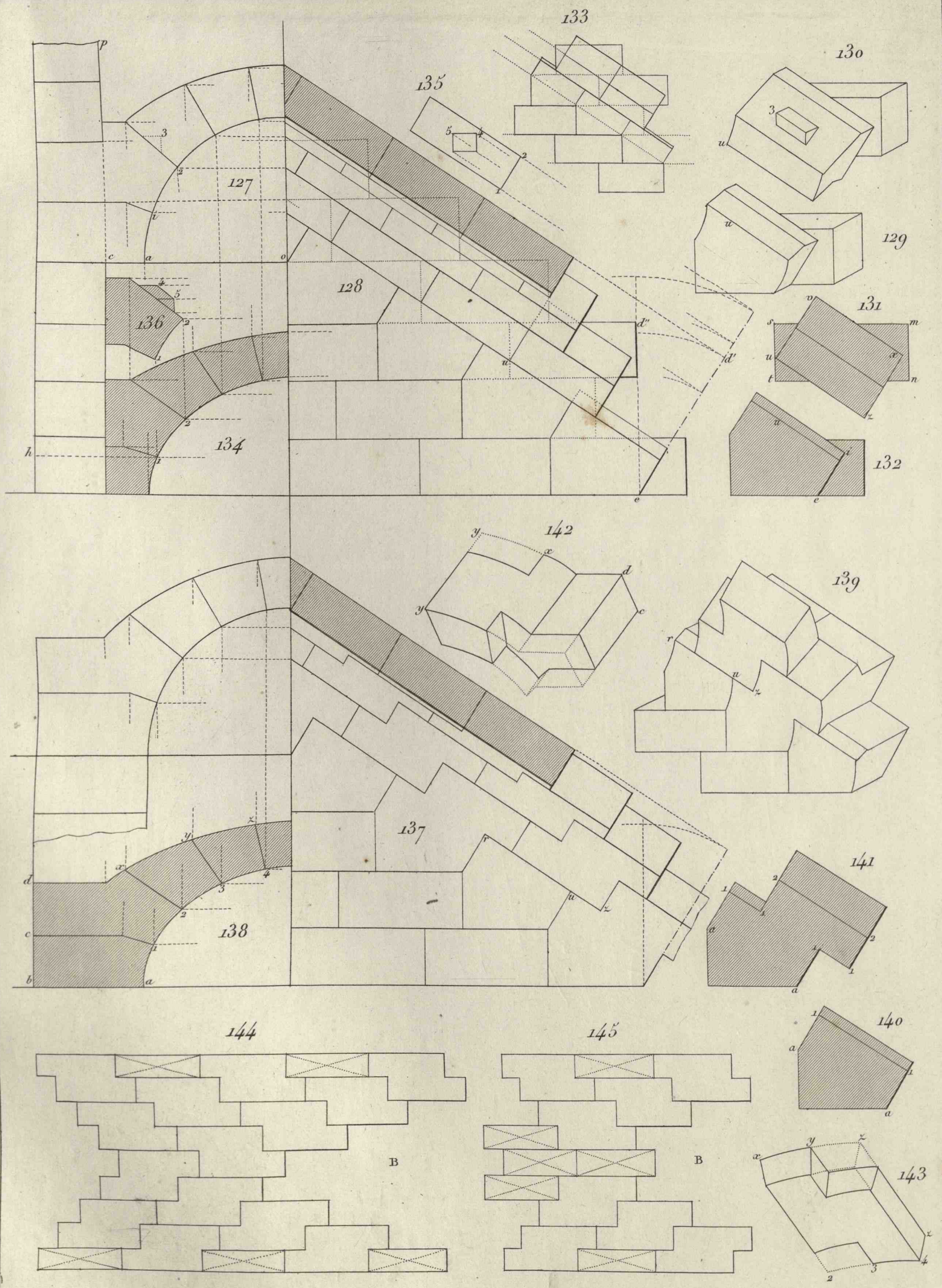


Lunette Biaisé.

Coupe des pierres. *Pl. 21.*



Descentes.


133
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Descentes.

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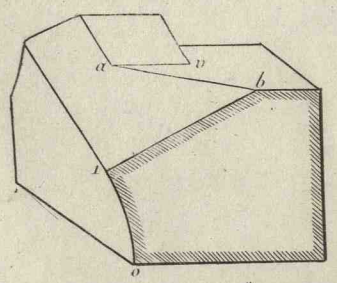
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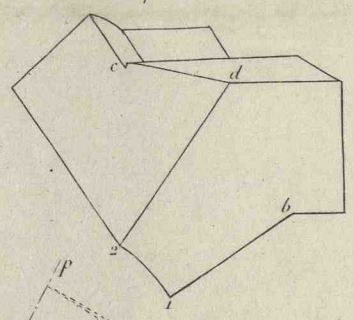
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Descentes.

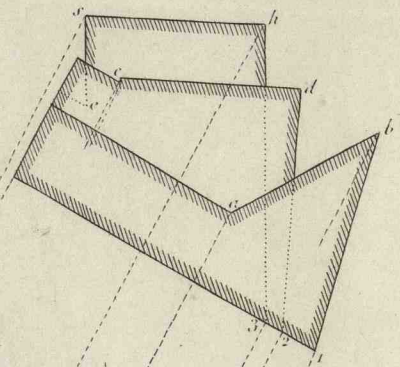
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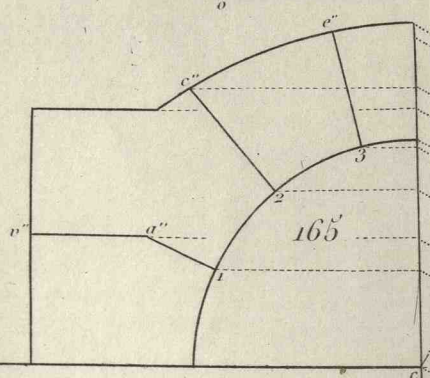


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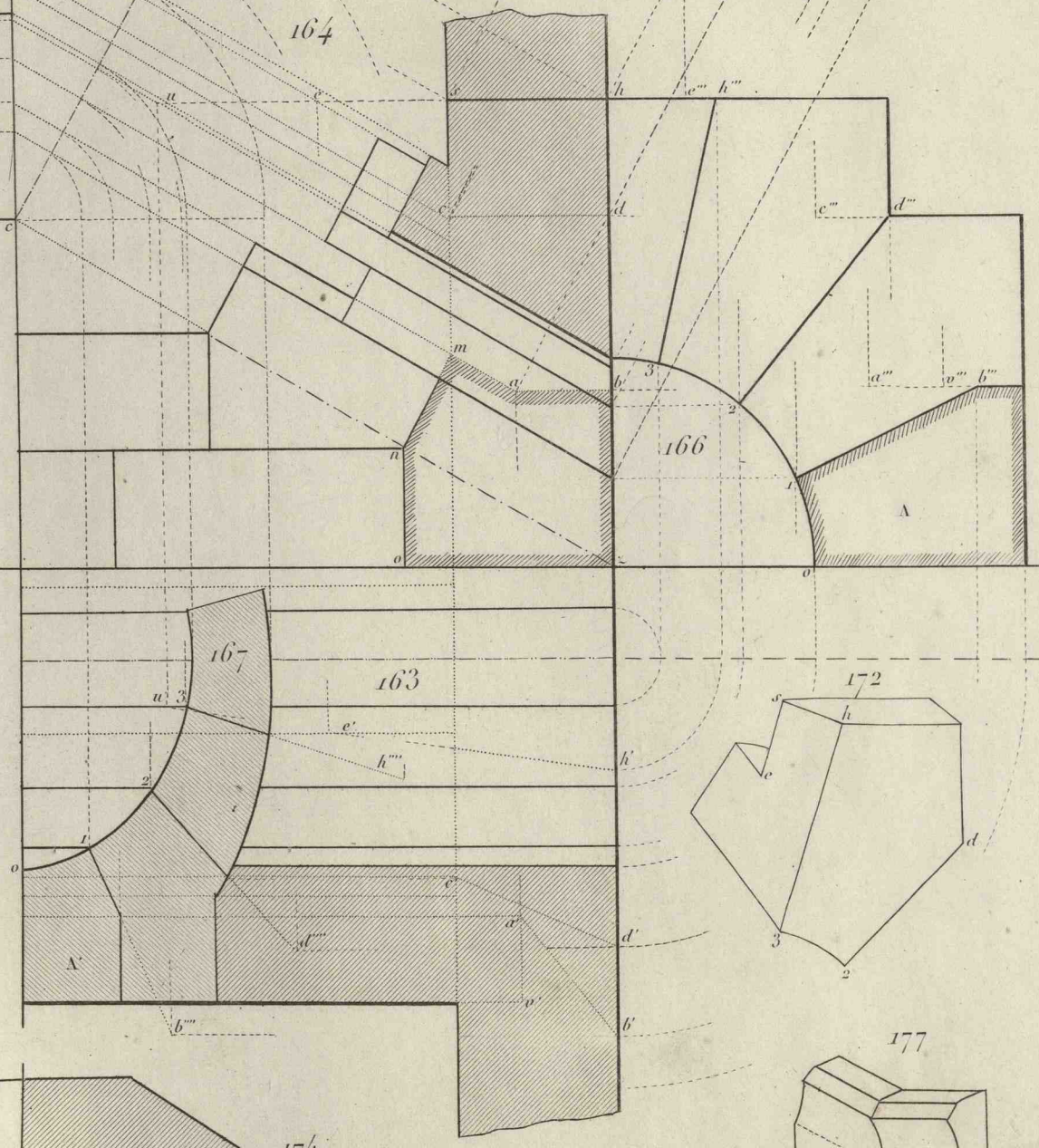


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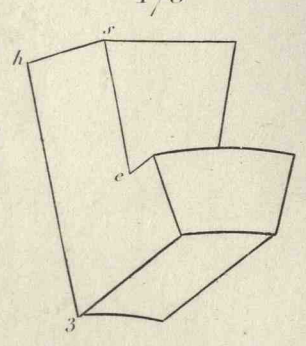




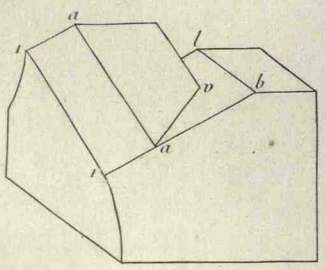
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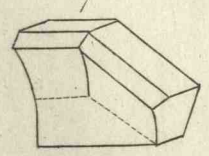


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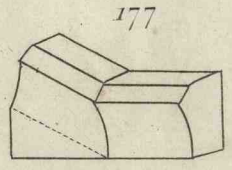


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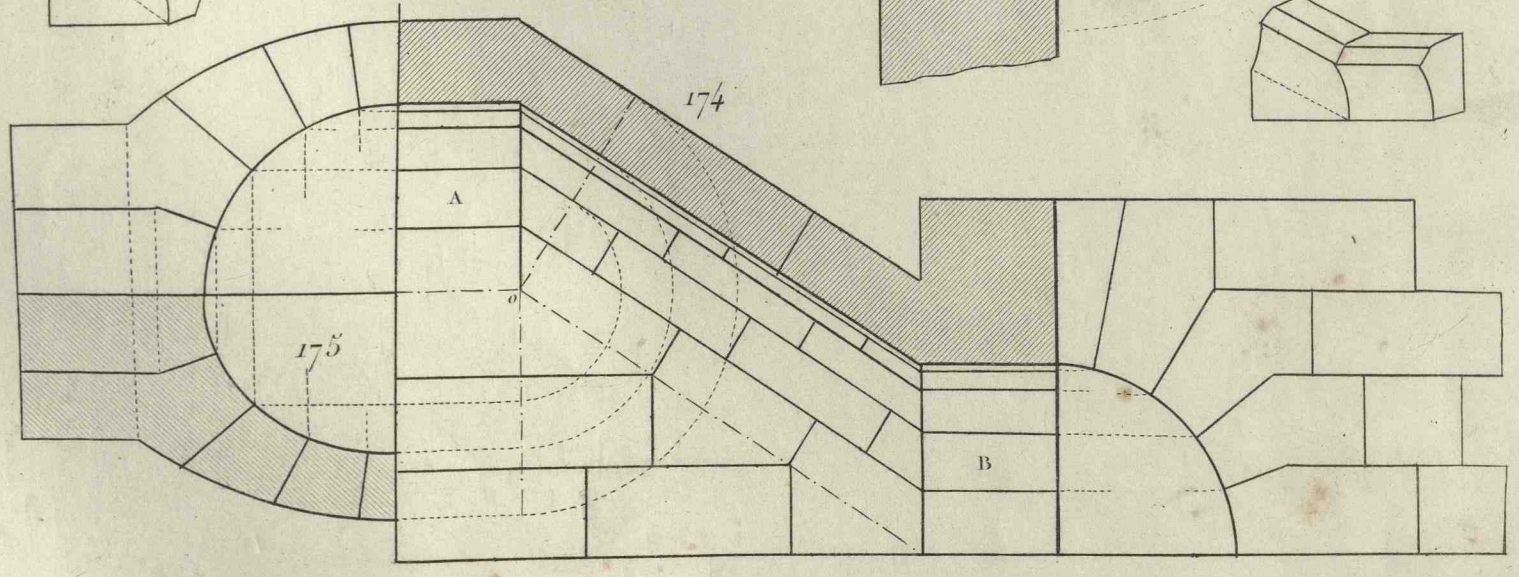
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Descentes.

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Descente biaise.

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Descente biaise.

Coupe des pierres. *Pl. 27.*

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Questions diverses.

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Trompes cylindriques.

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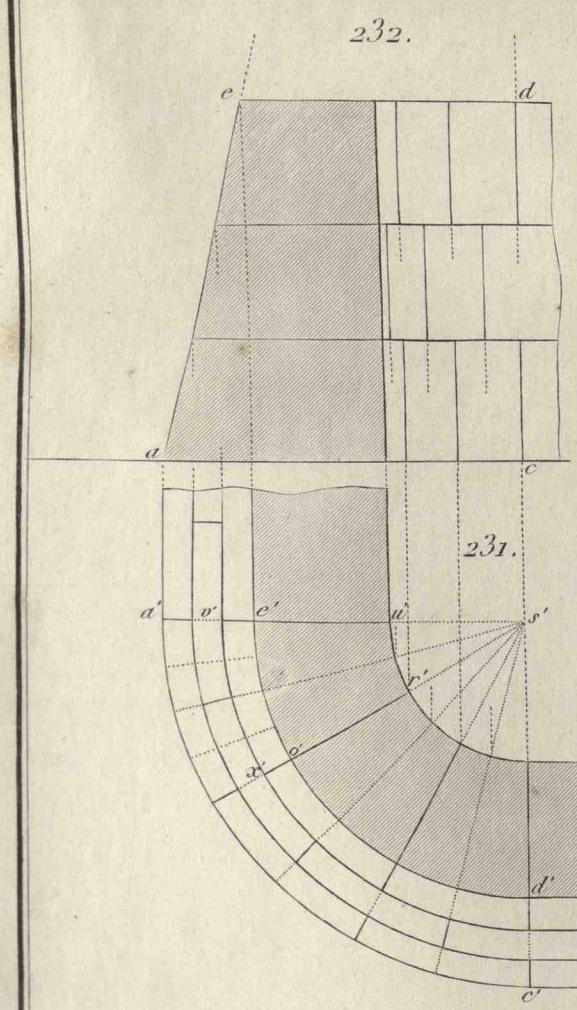
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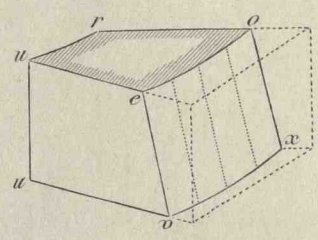
Murs et Voutes coniques.

Coupe des pierres. *Pl. 30.*

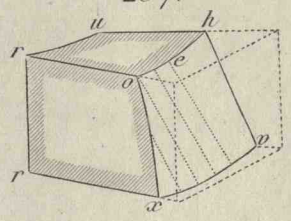
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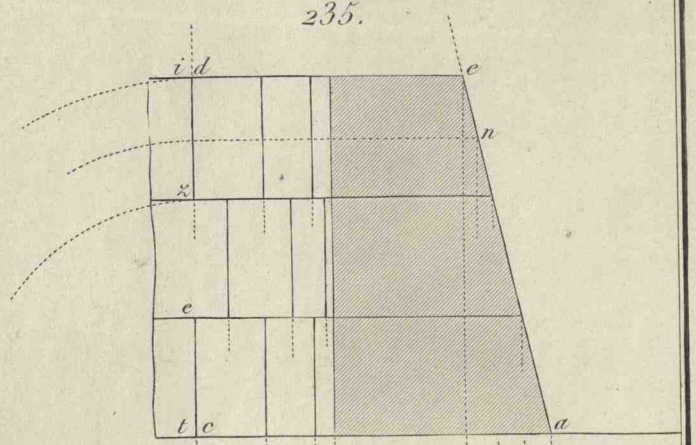
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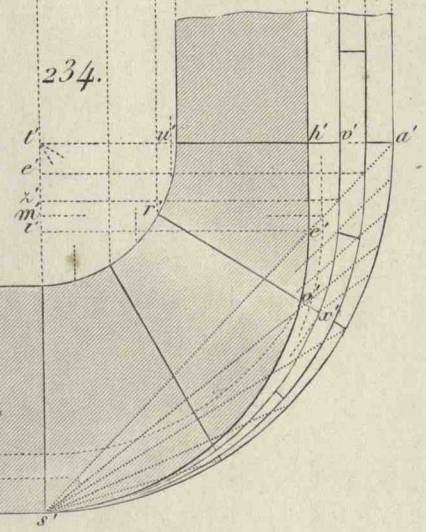
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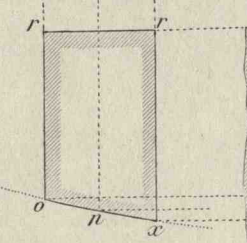
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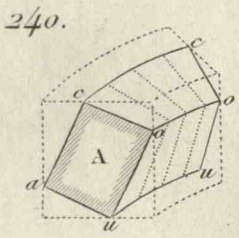
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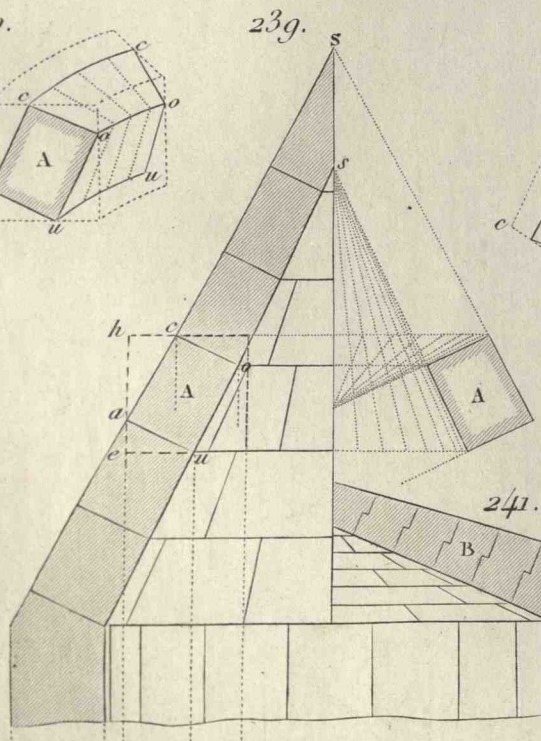
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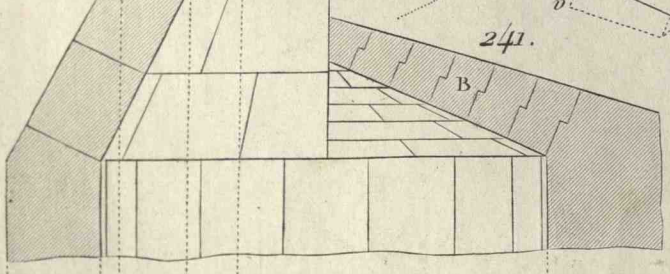
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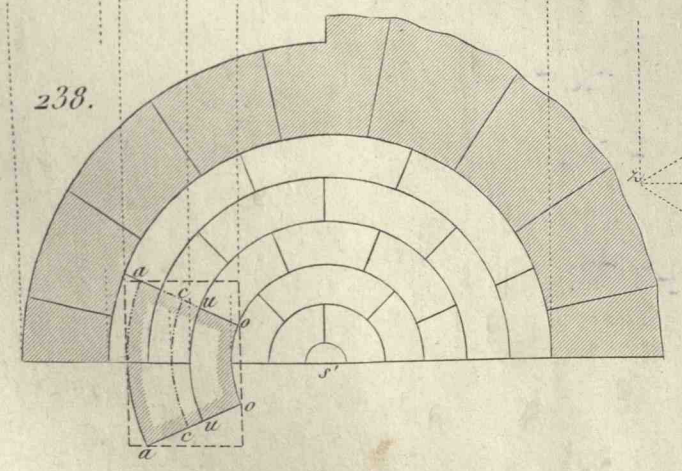
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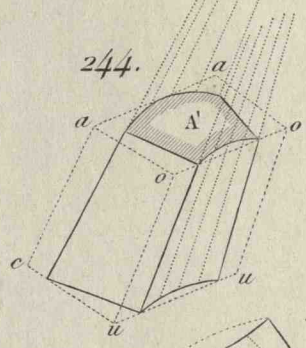
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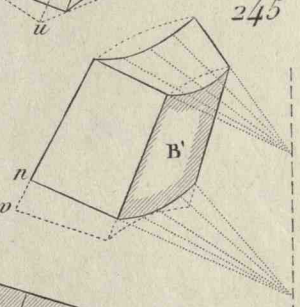
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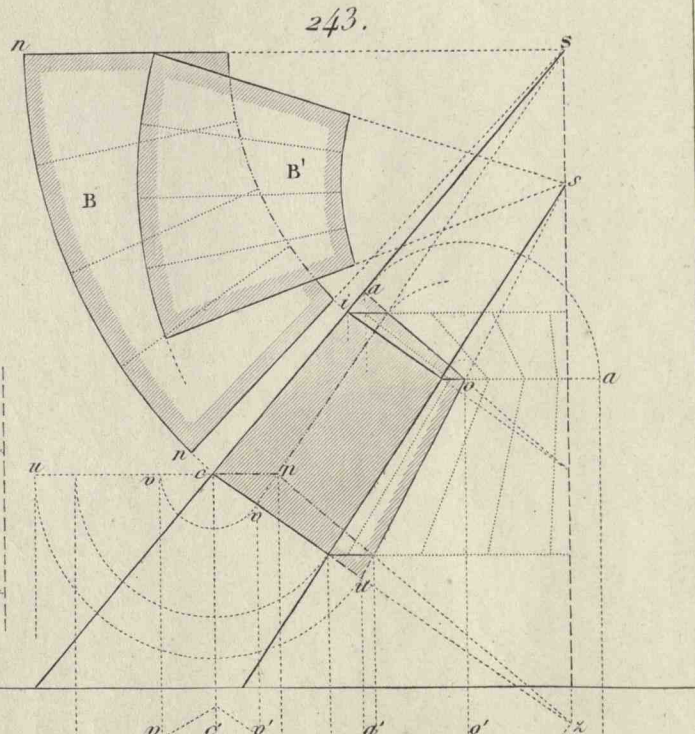
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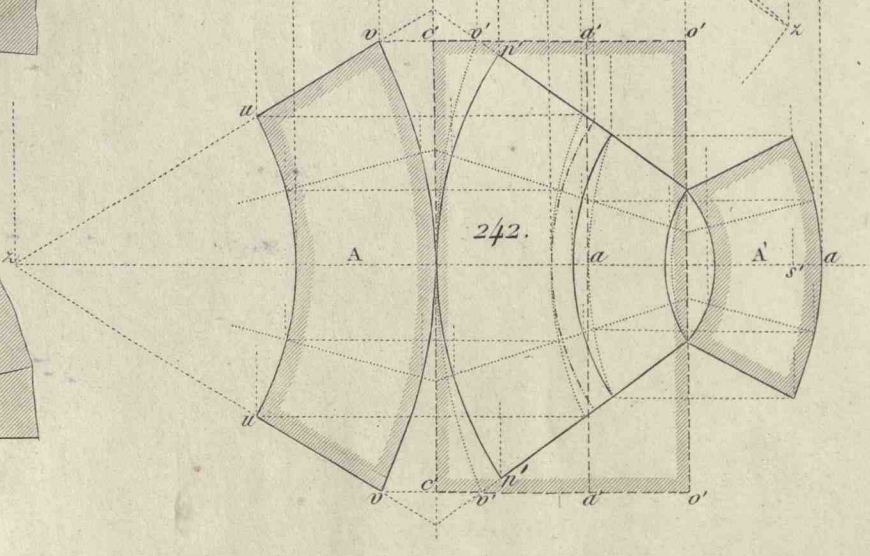
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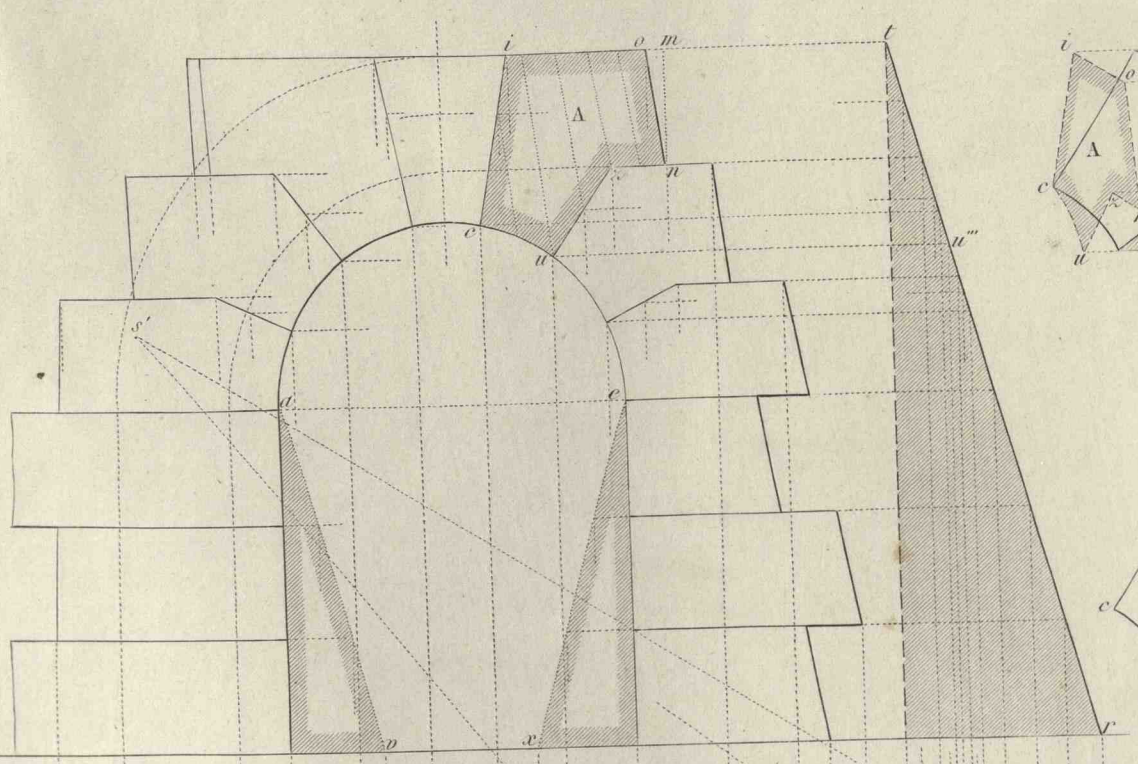
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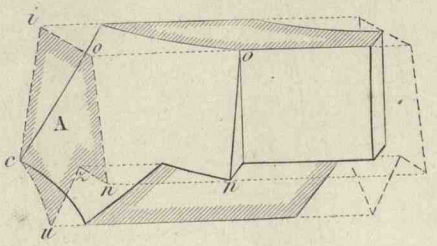
Porte biaise dans un mur conique.

Coupe des pierres.

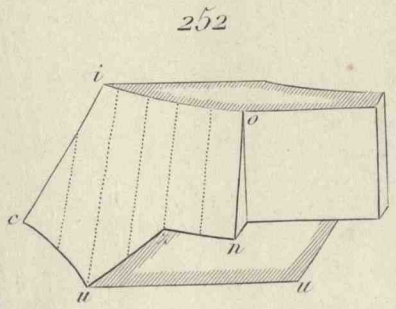
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248



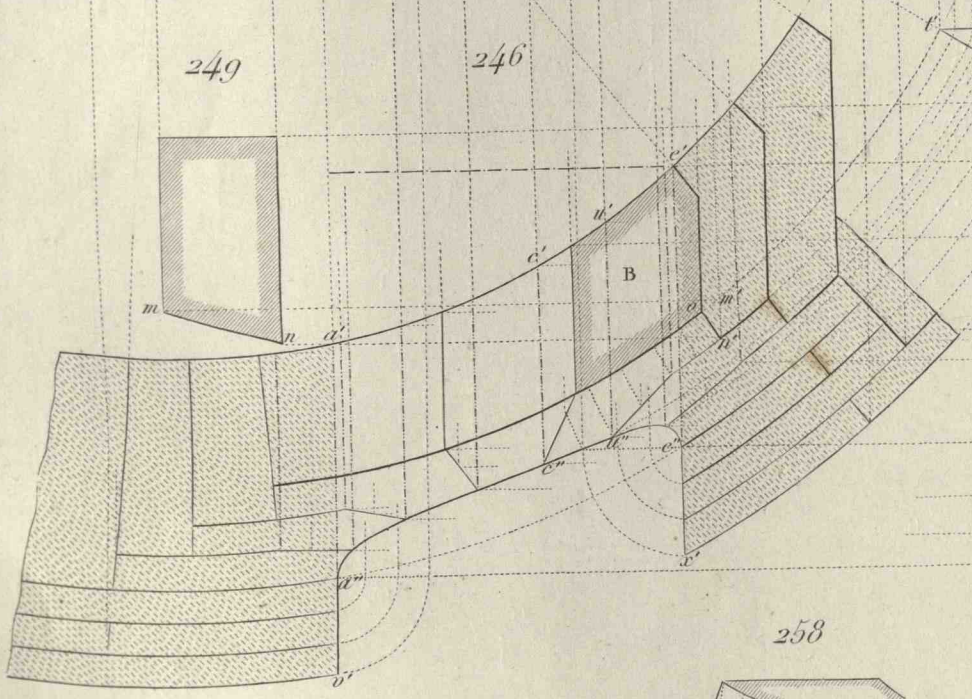
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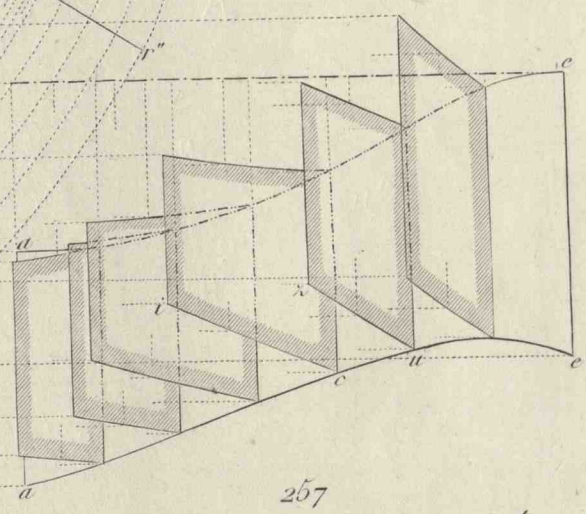
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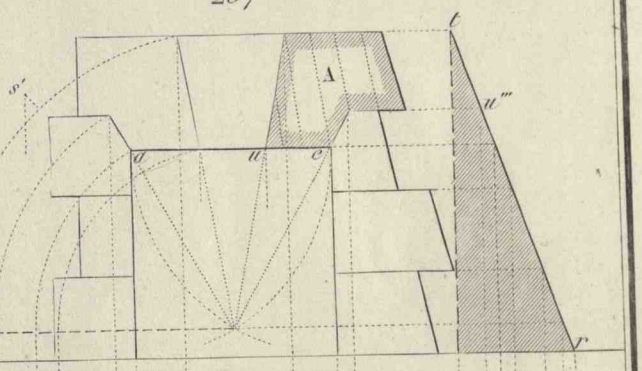
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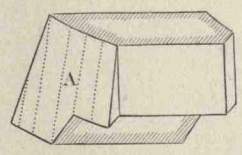
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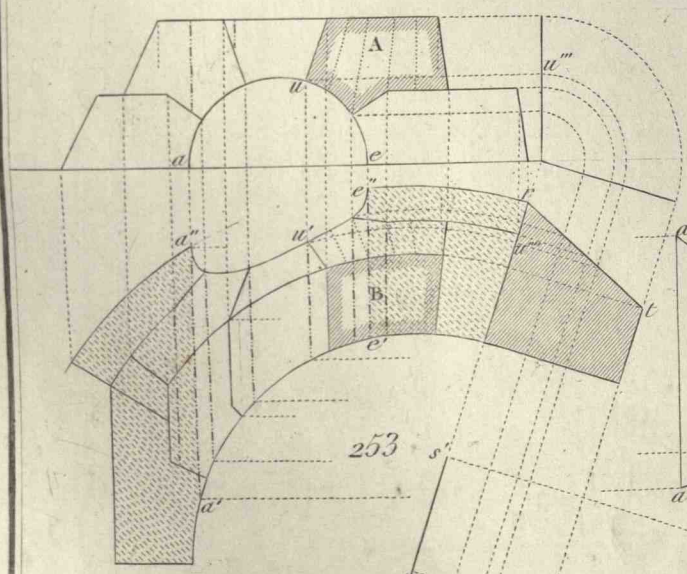
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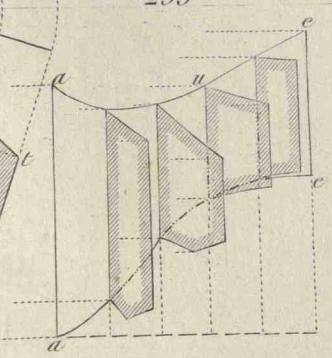
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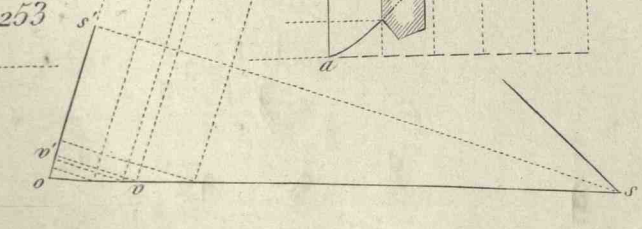
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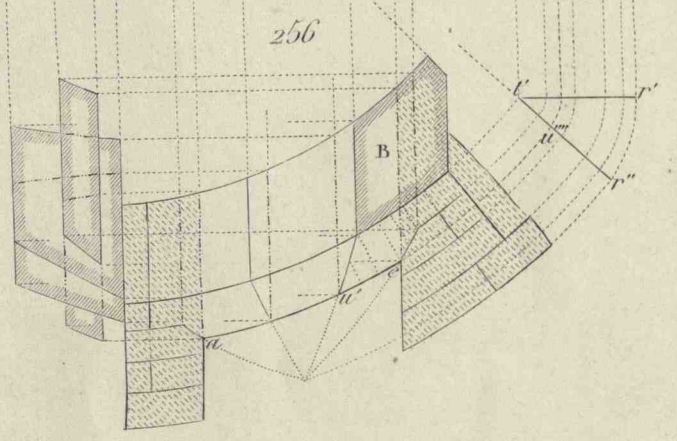
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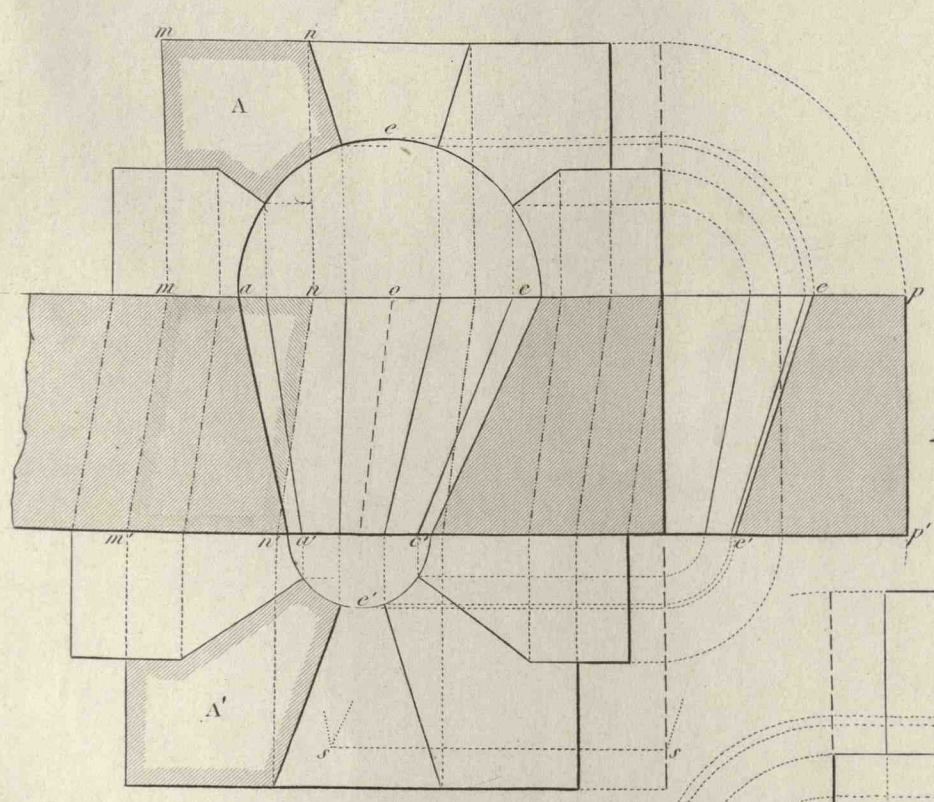


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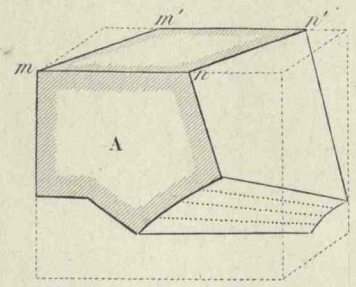
Portes coniques.

259.

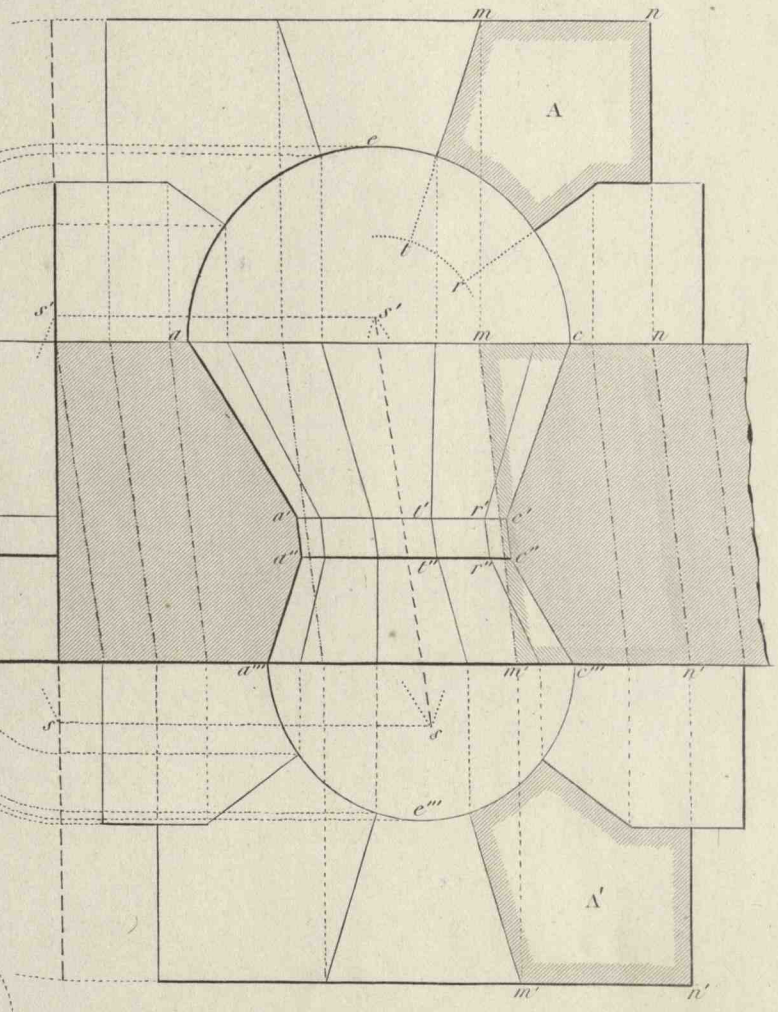


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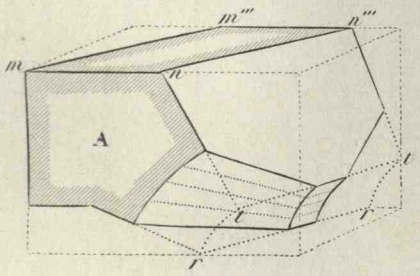


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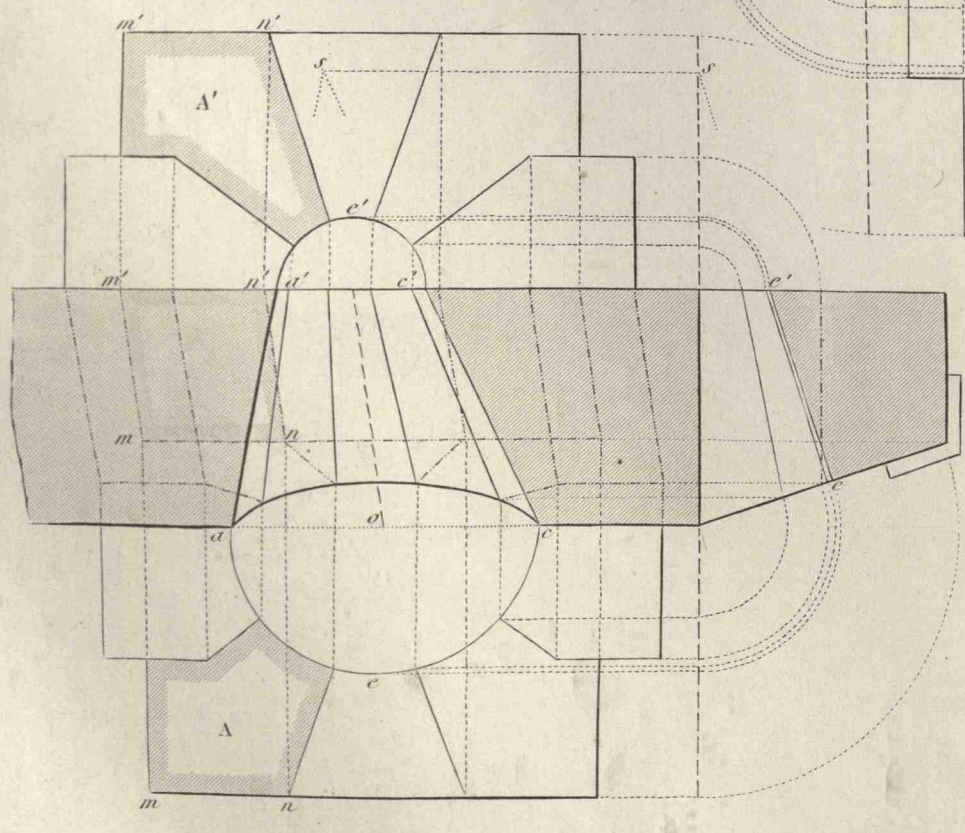


263.

264.

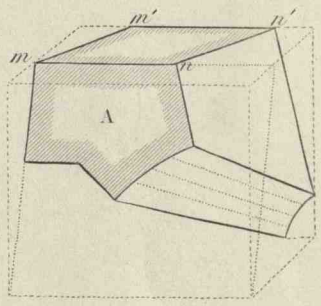


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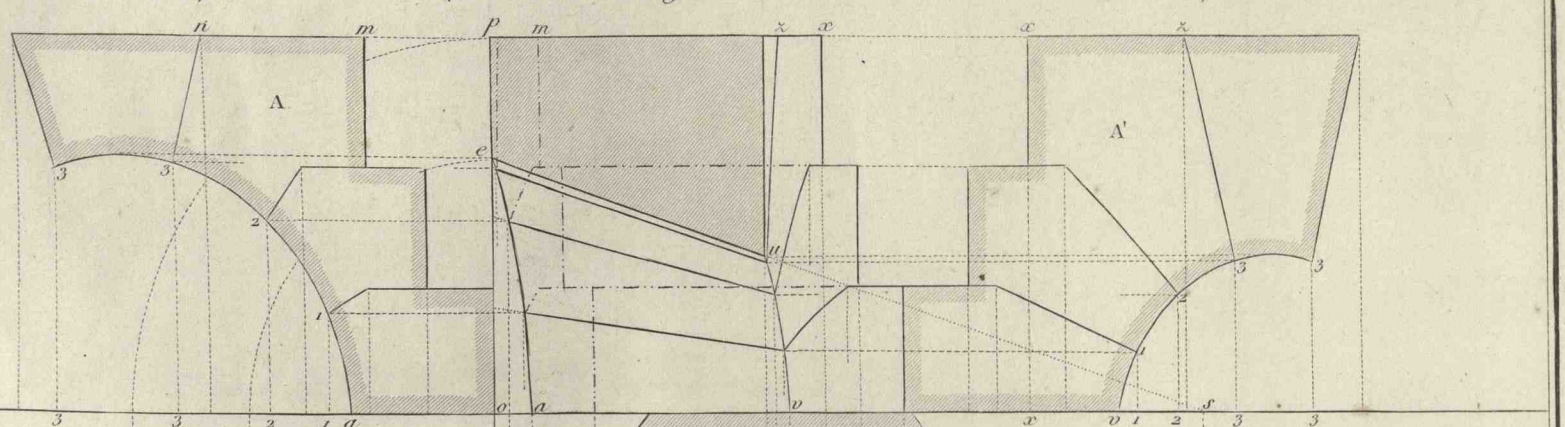
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Portes coniques.

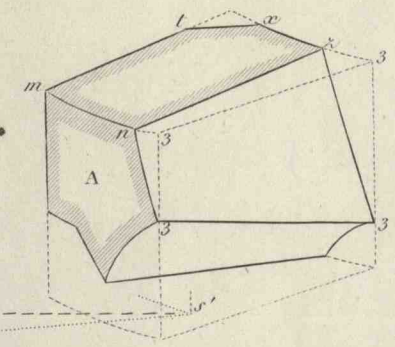
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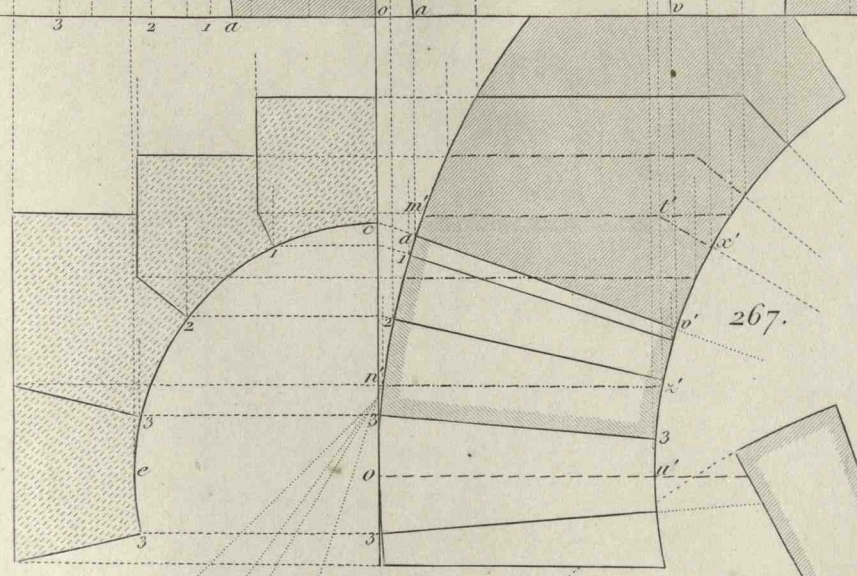


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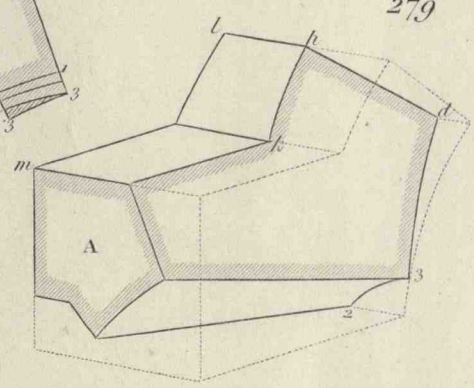
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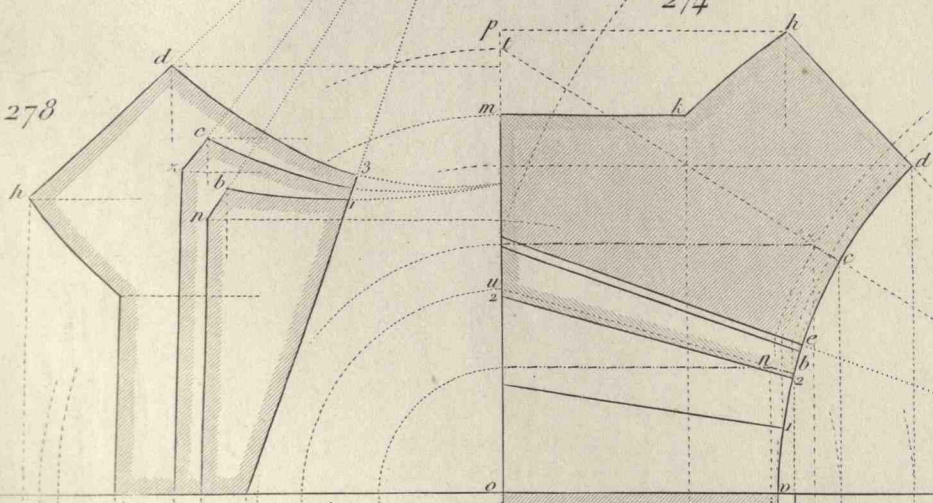
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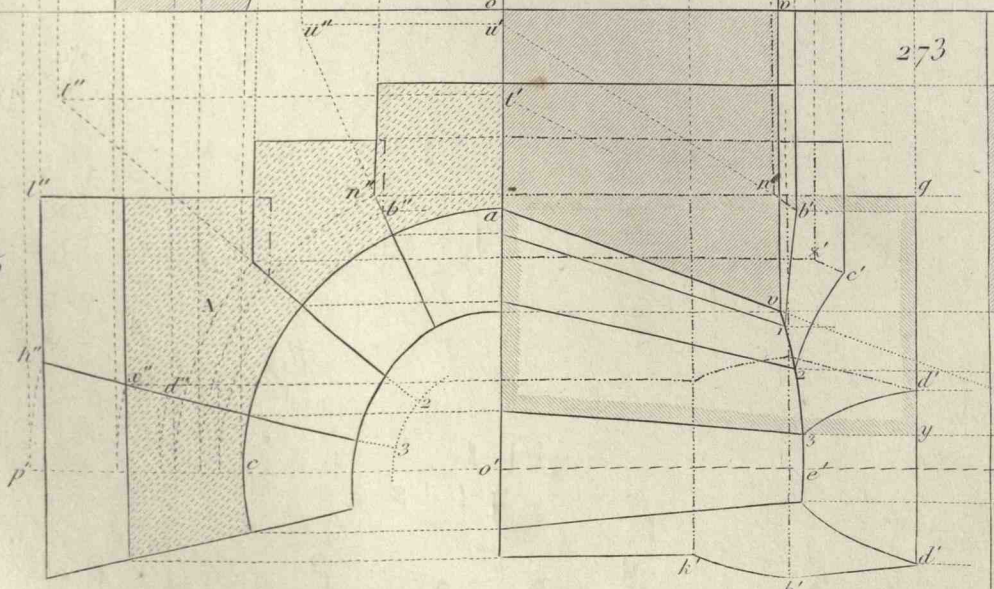


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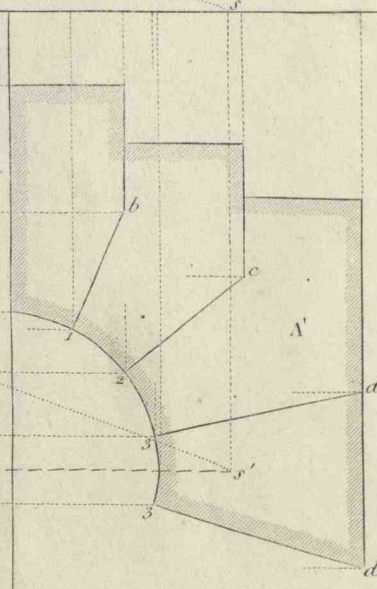
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Lunette conique biaise.

Coupe des pierres. *Pl. 34.*

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Trompe conique.

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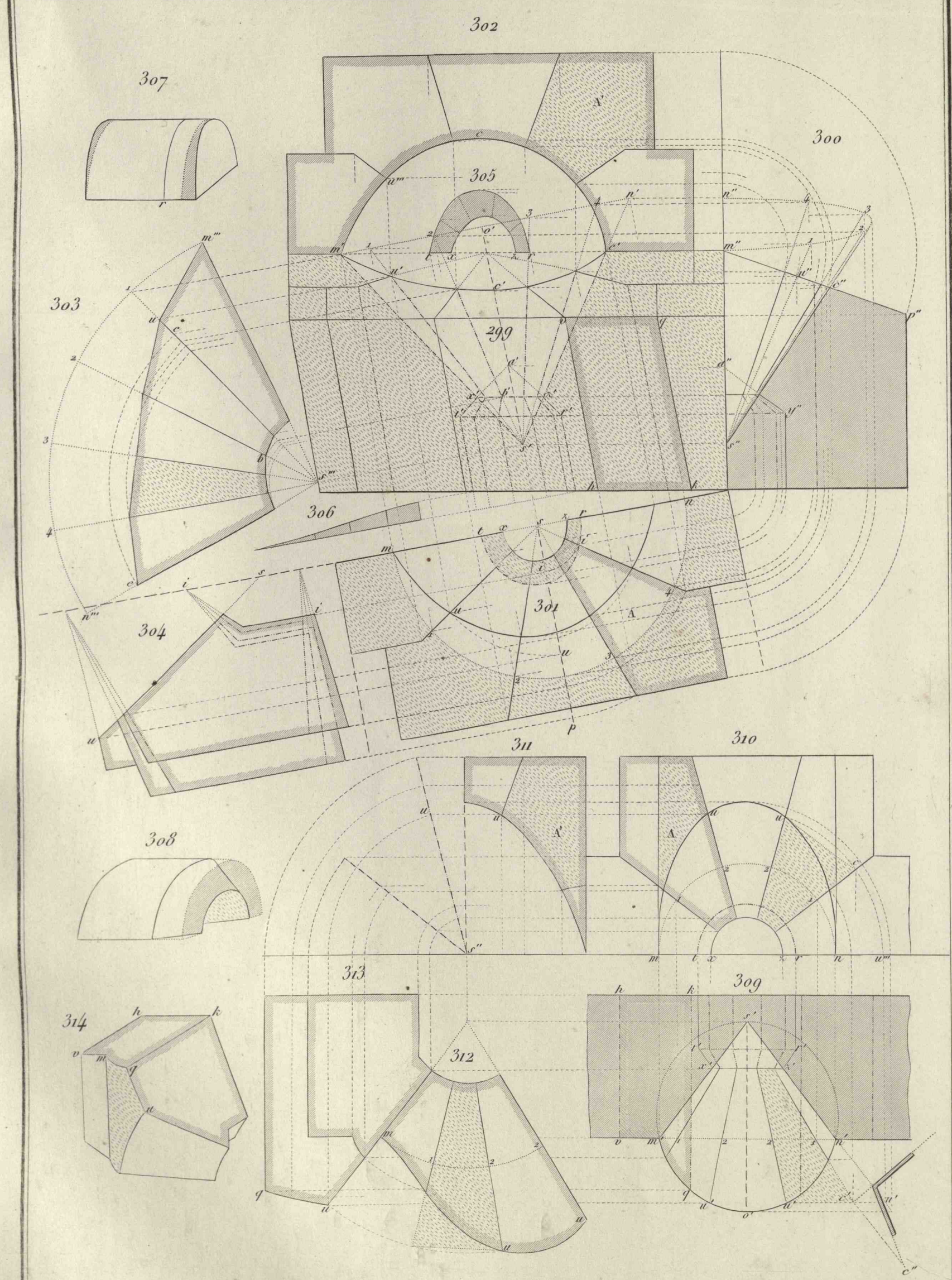
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Trompes coniques.



Trompes.

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Arrière voussure conique.

Coupe des pierres. *Pl. 38.*

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Voûtes sphériques.

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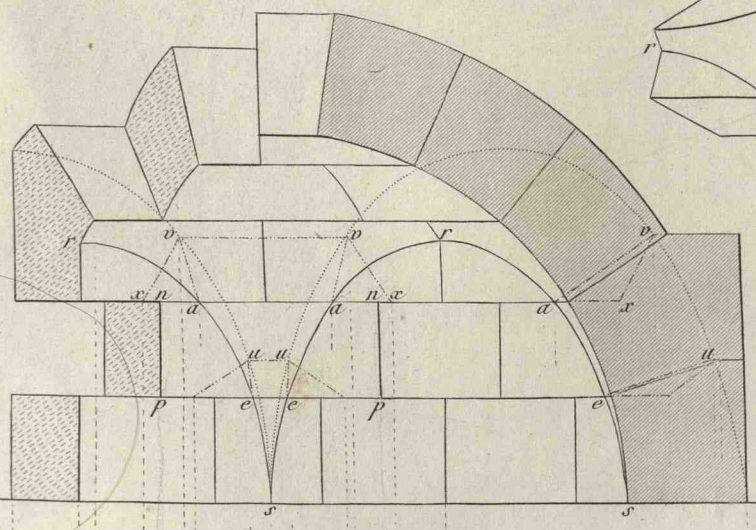
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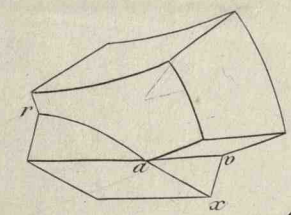
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Pendentifs.

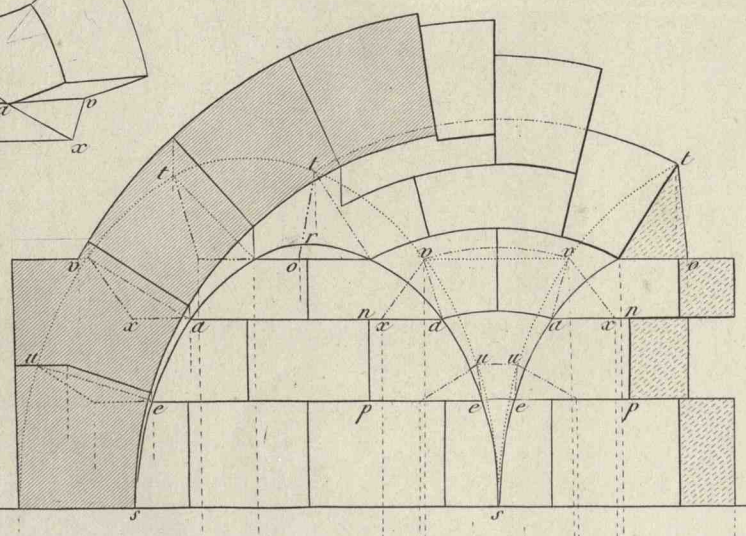
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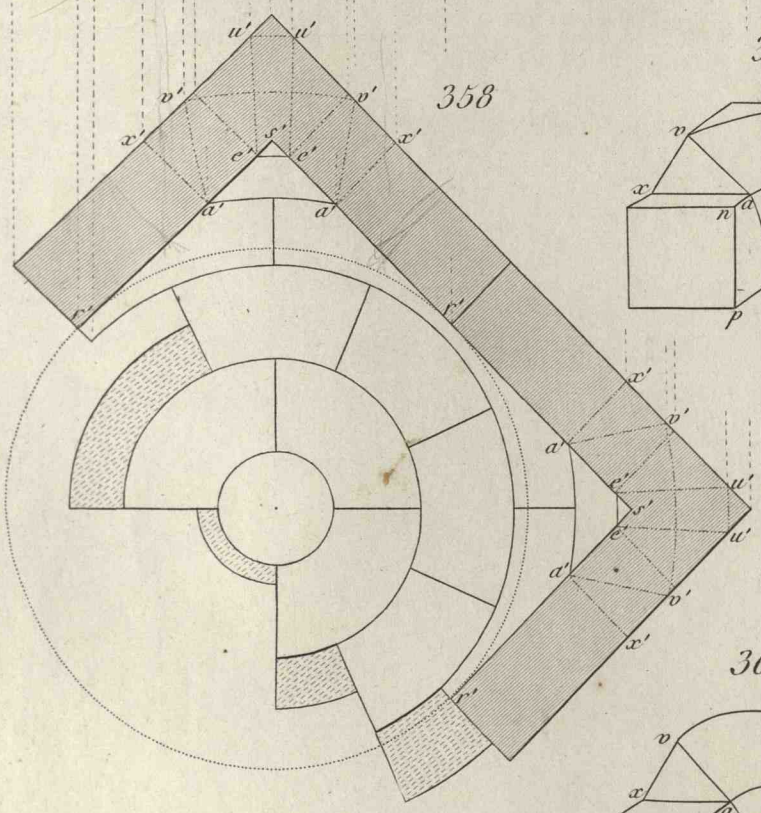
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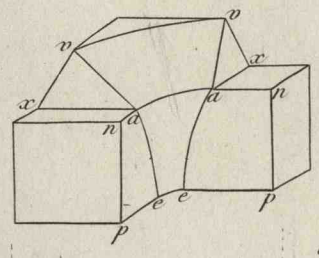
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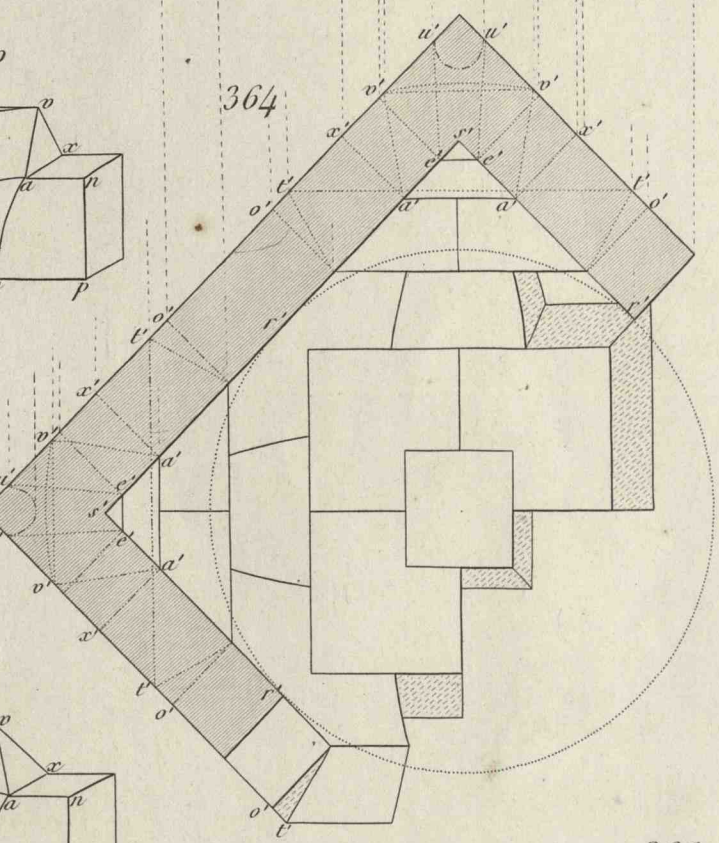
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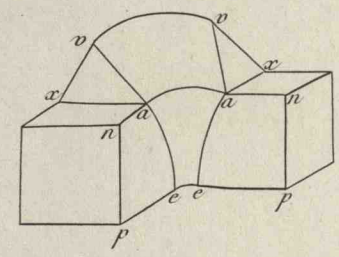
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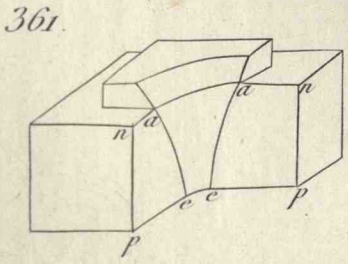
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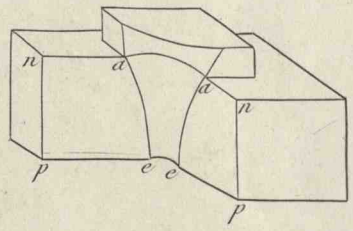
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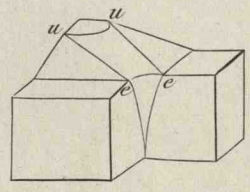
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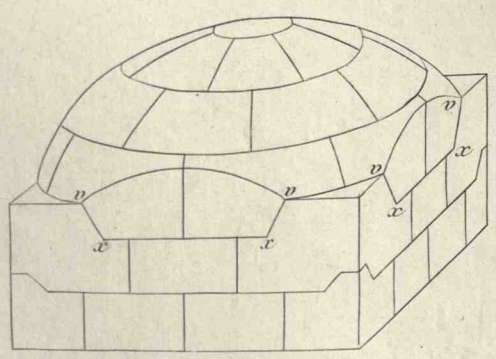
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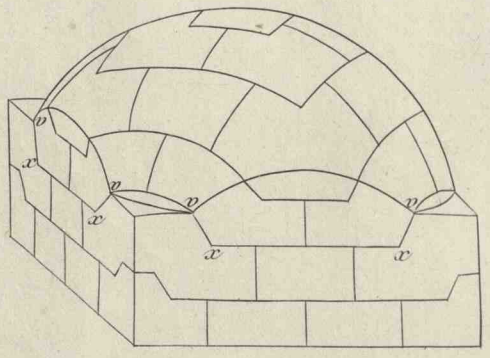
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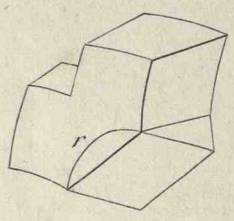
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Pendentifs.

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Lunette dans une Voute spherique.

Coupe des pierres. *Pl. 42.*

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A B C

Descente dans une Voute spherique.

Coupe des pierres. *Pl. 43.*

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Questions diverses.

Coupe des pierres.

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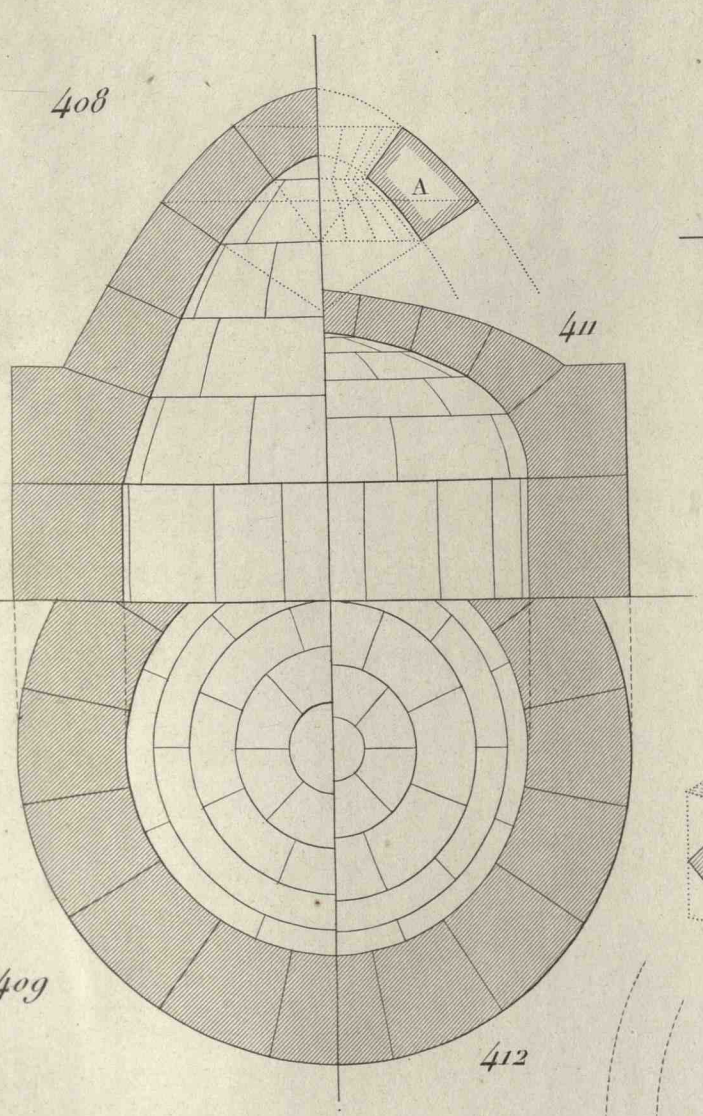
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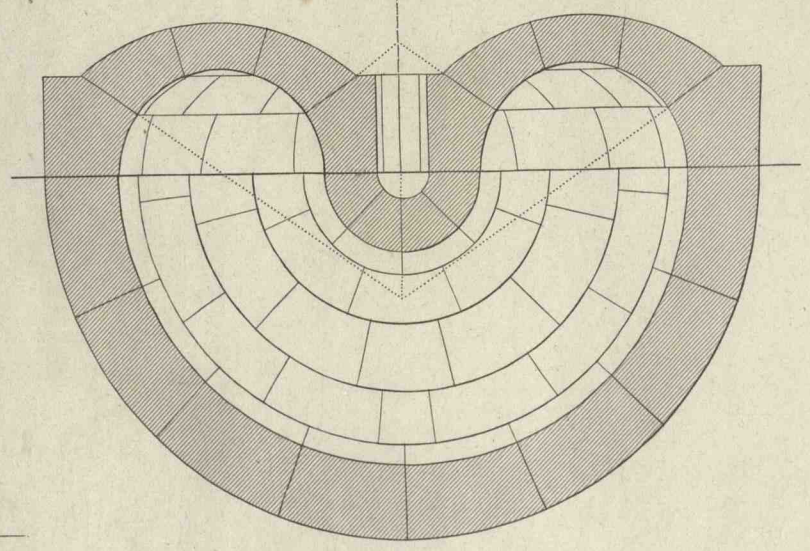
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Surfaces de révolution.

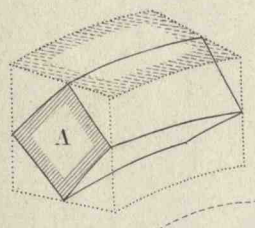
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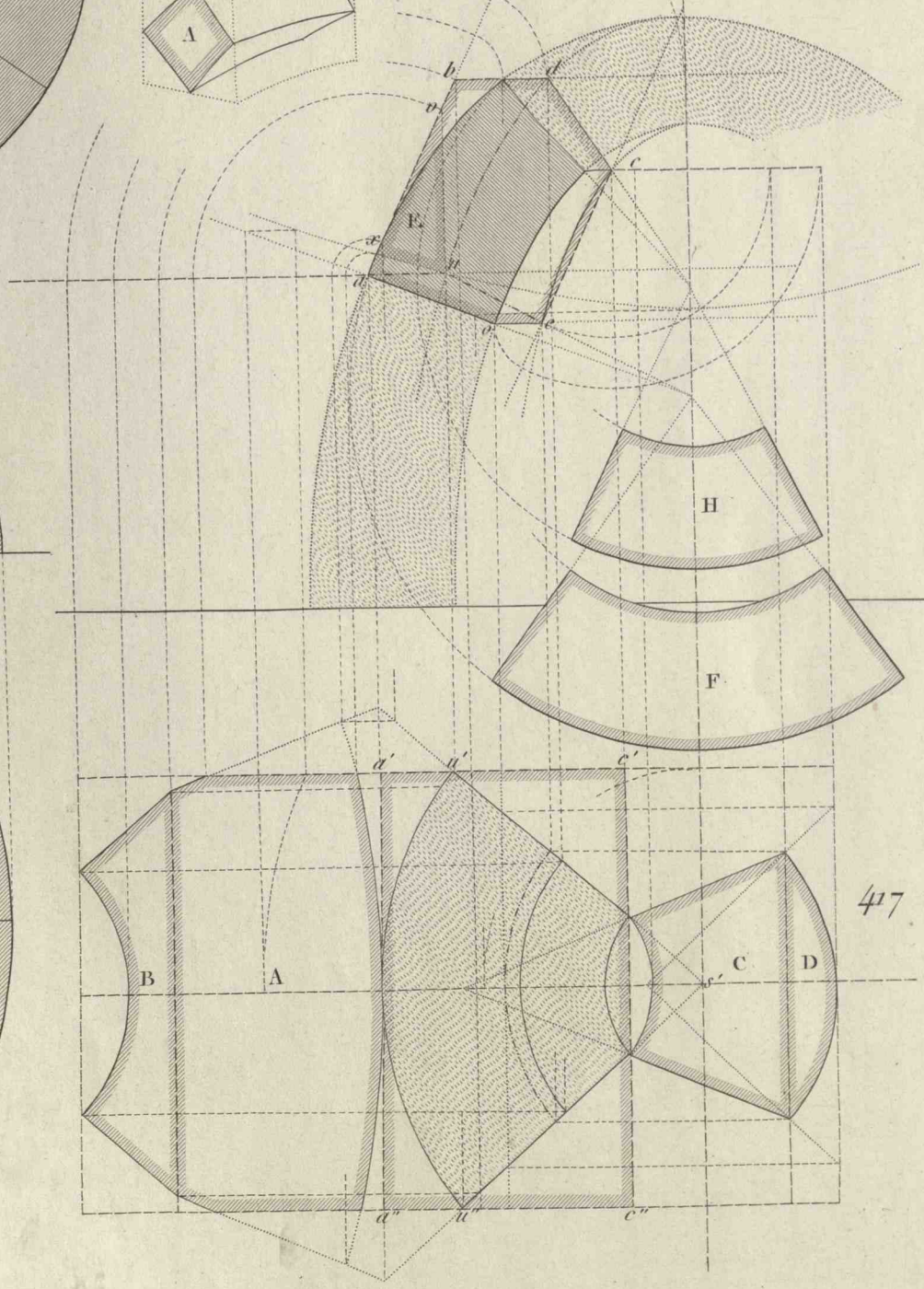
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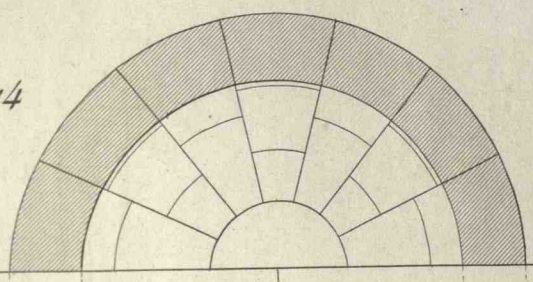
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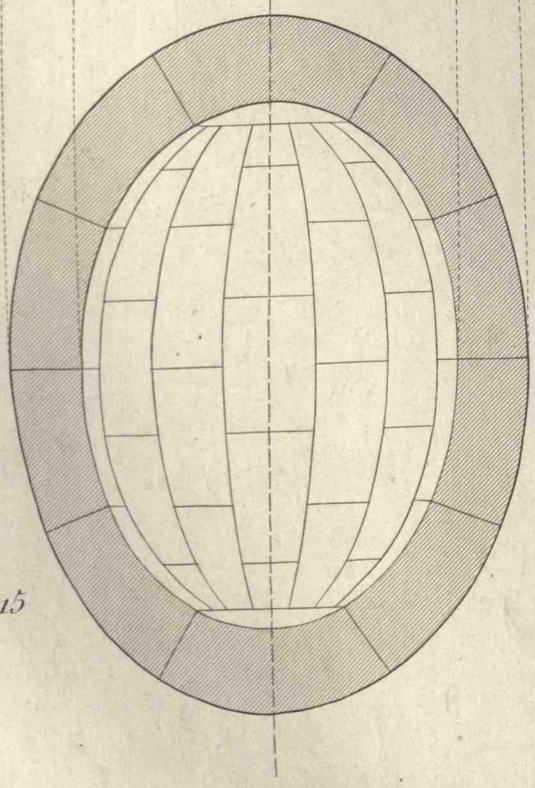
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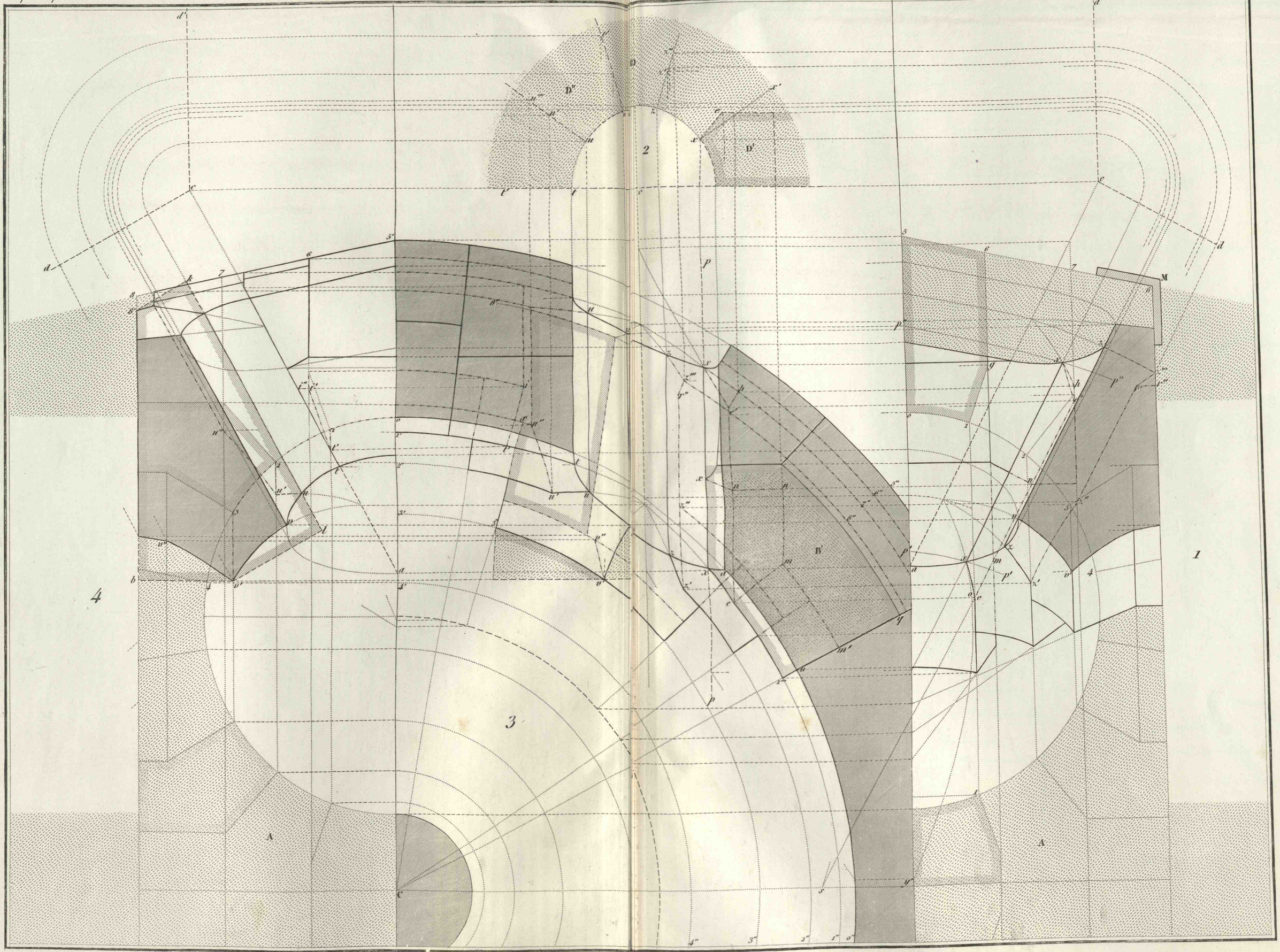
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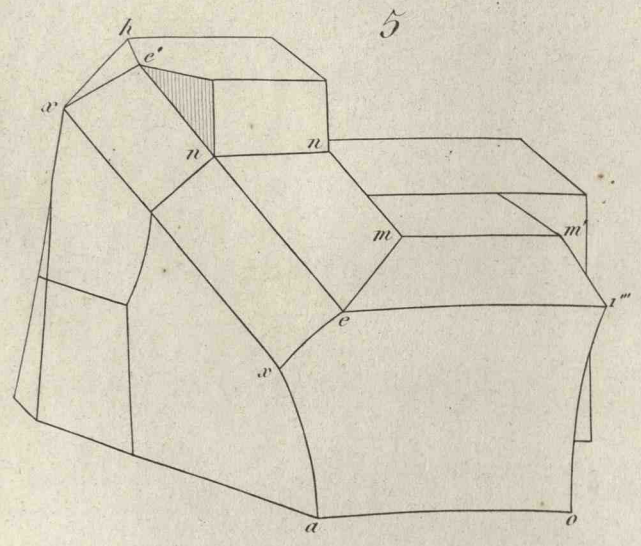
Voute annullaire.

Coupe des pierres.

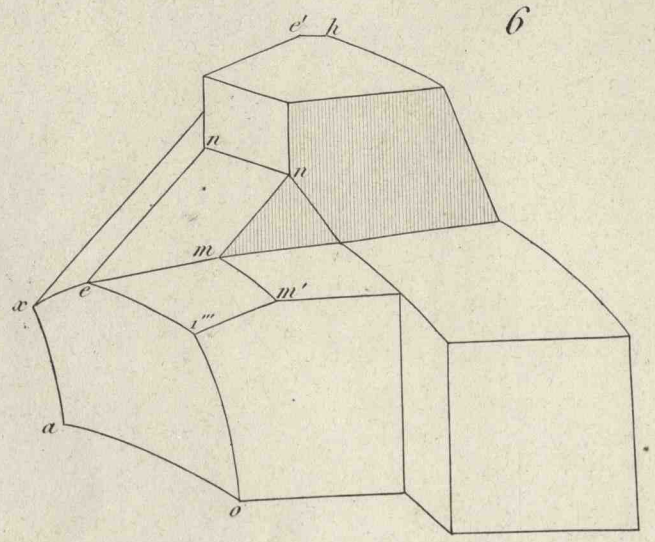


Voute annullaire.

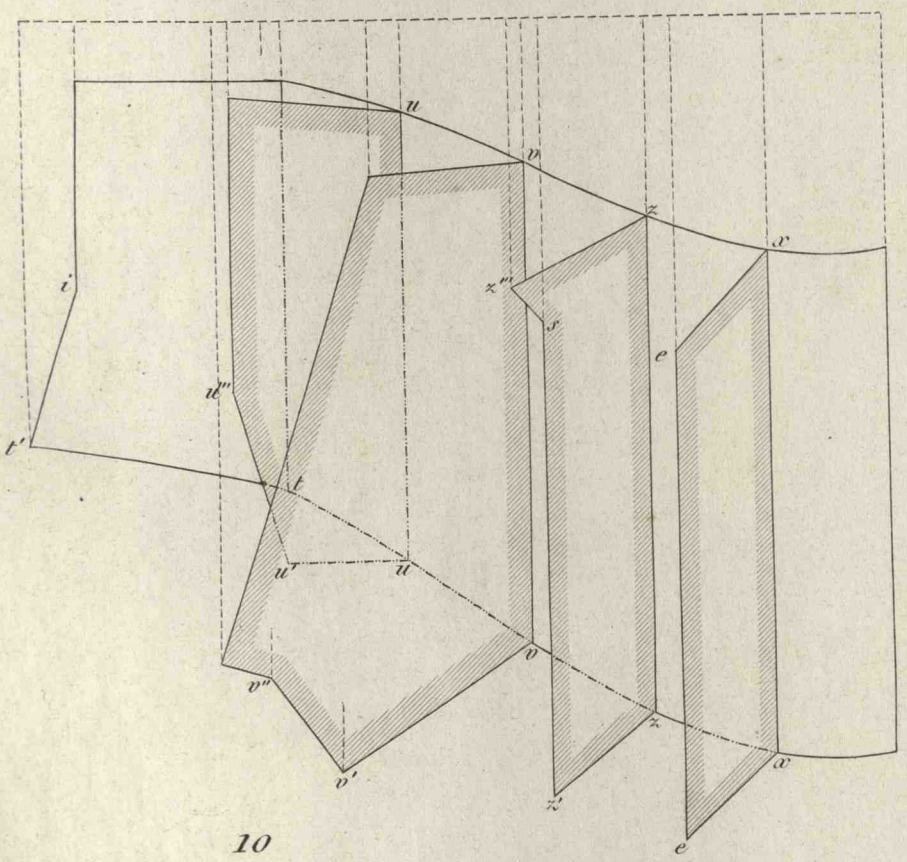
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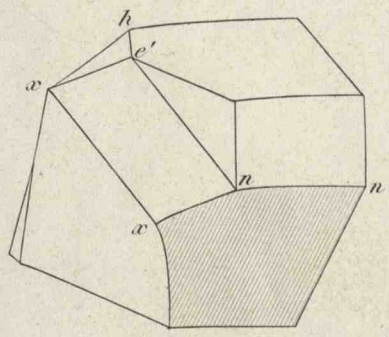
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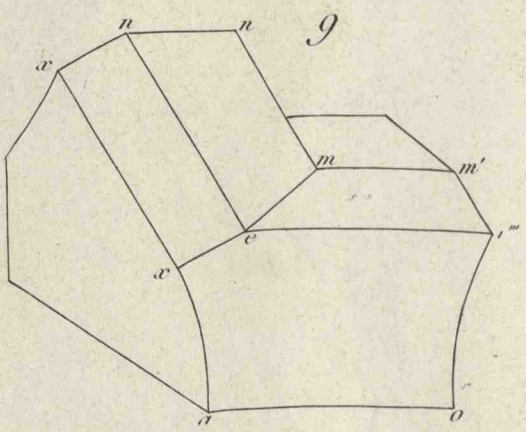
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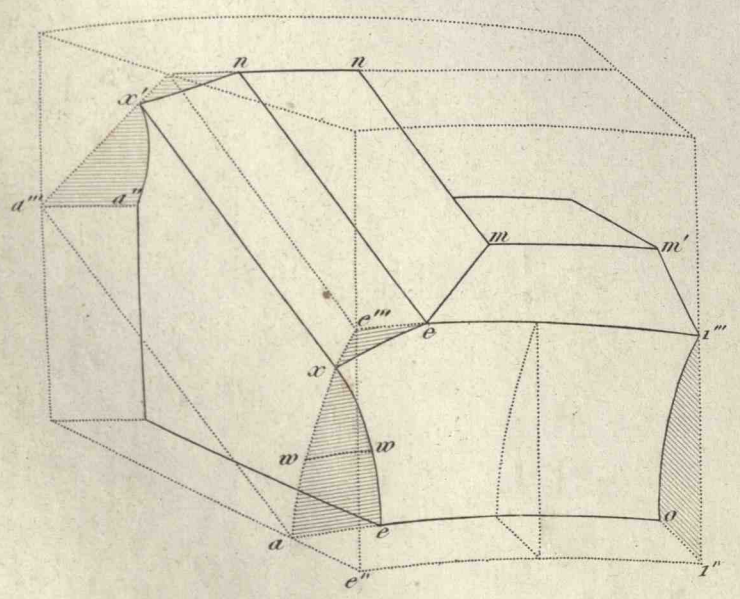
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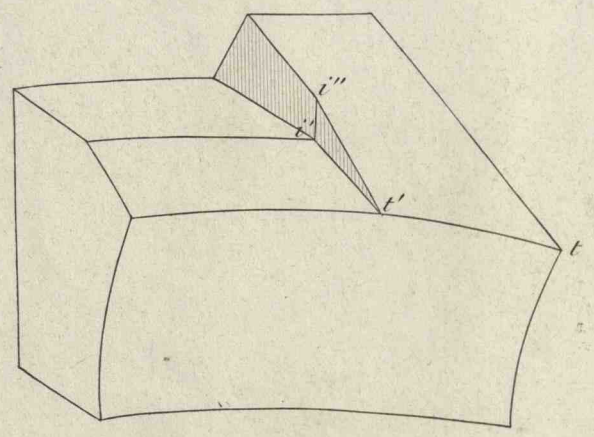
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Voute elliptique.

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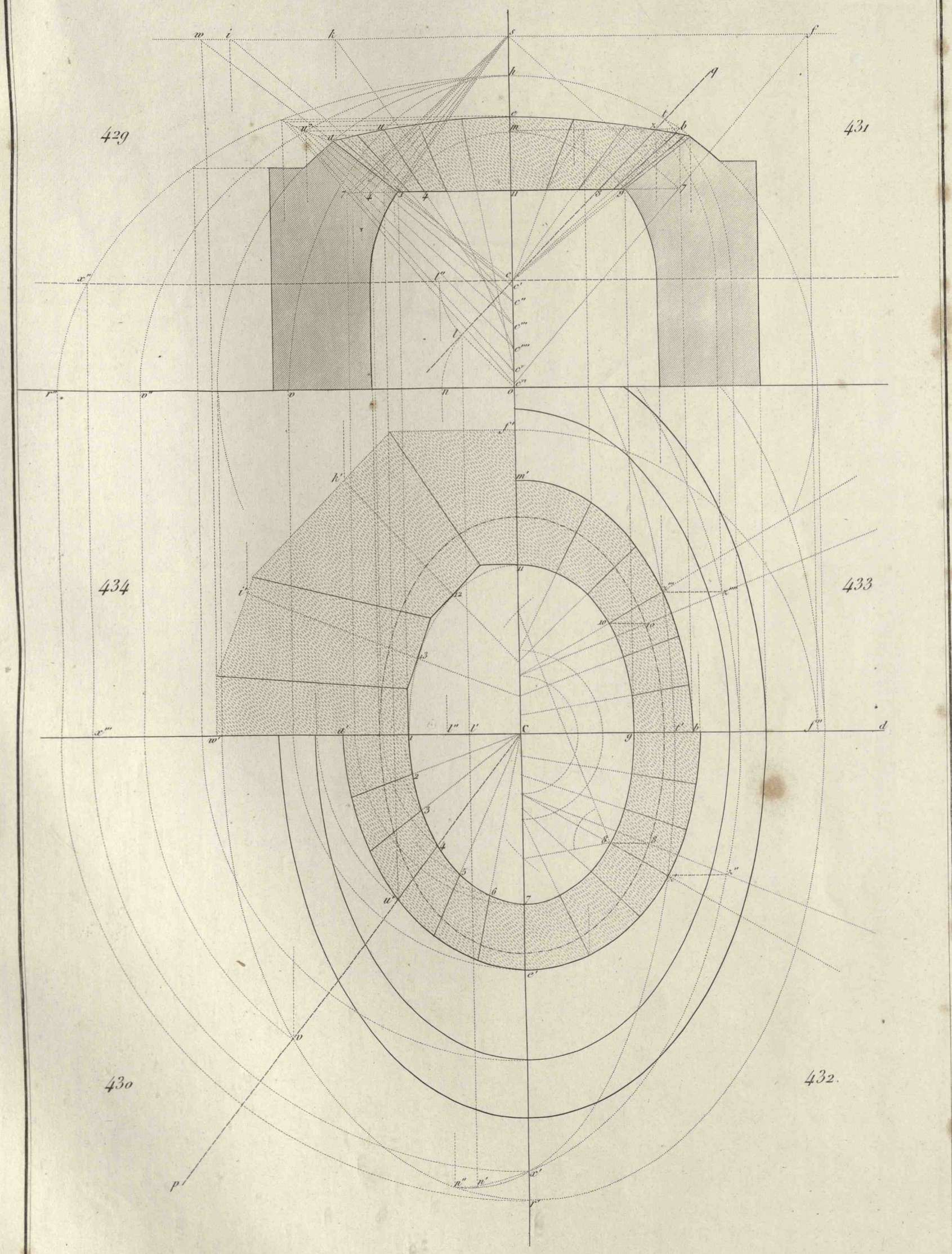
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Joints de la Voute elliptique.

Coupe des pierres. *Pl. 49.*



Conoïdes.

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Voute d'arête annullaire.

Coupe des pierres.

Pl. 51.

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Vis à noyau plein.

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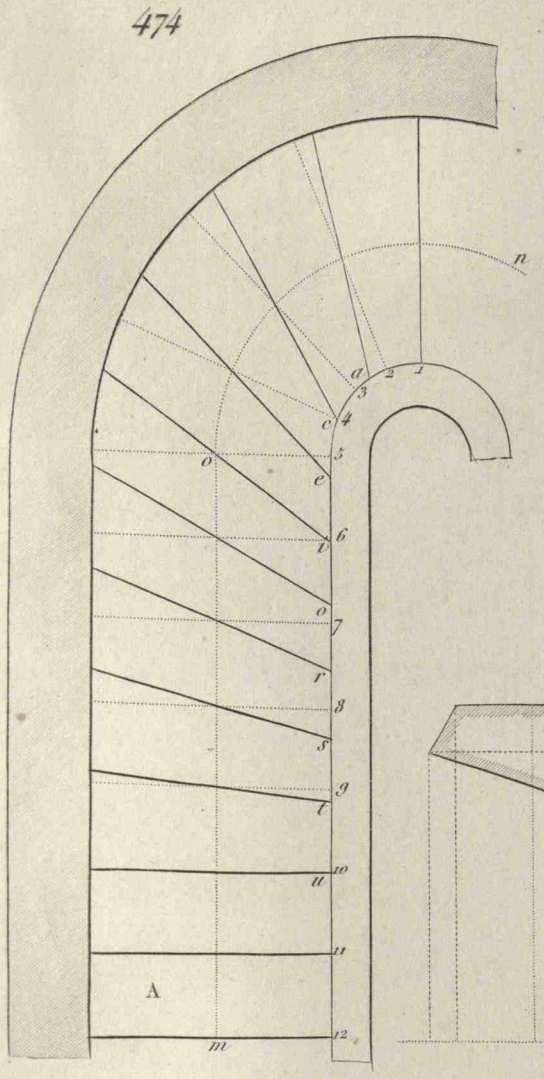
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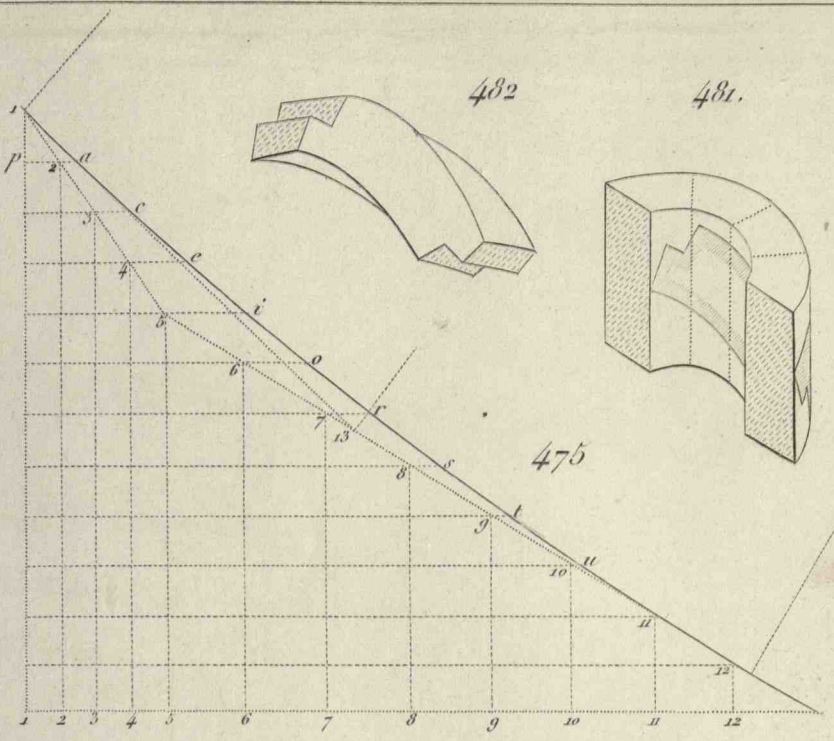
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Balancement.

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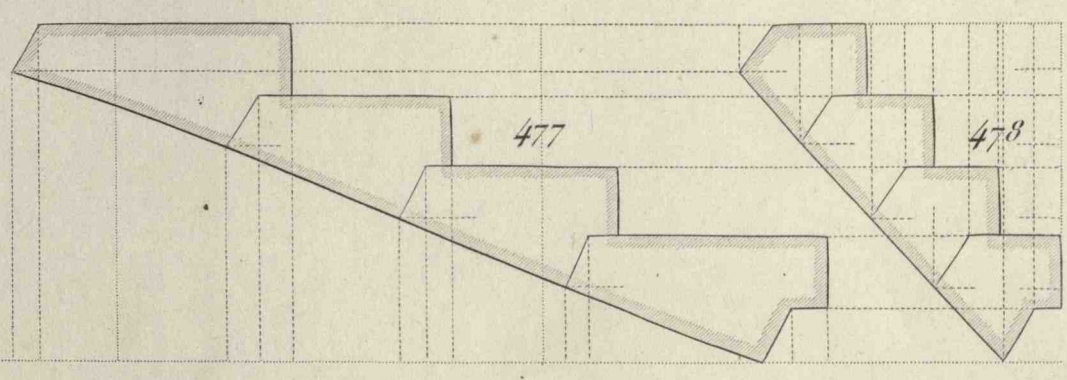
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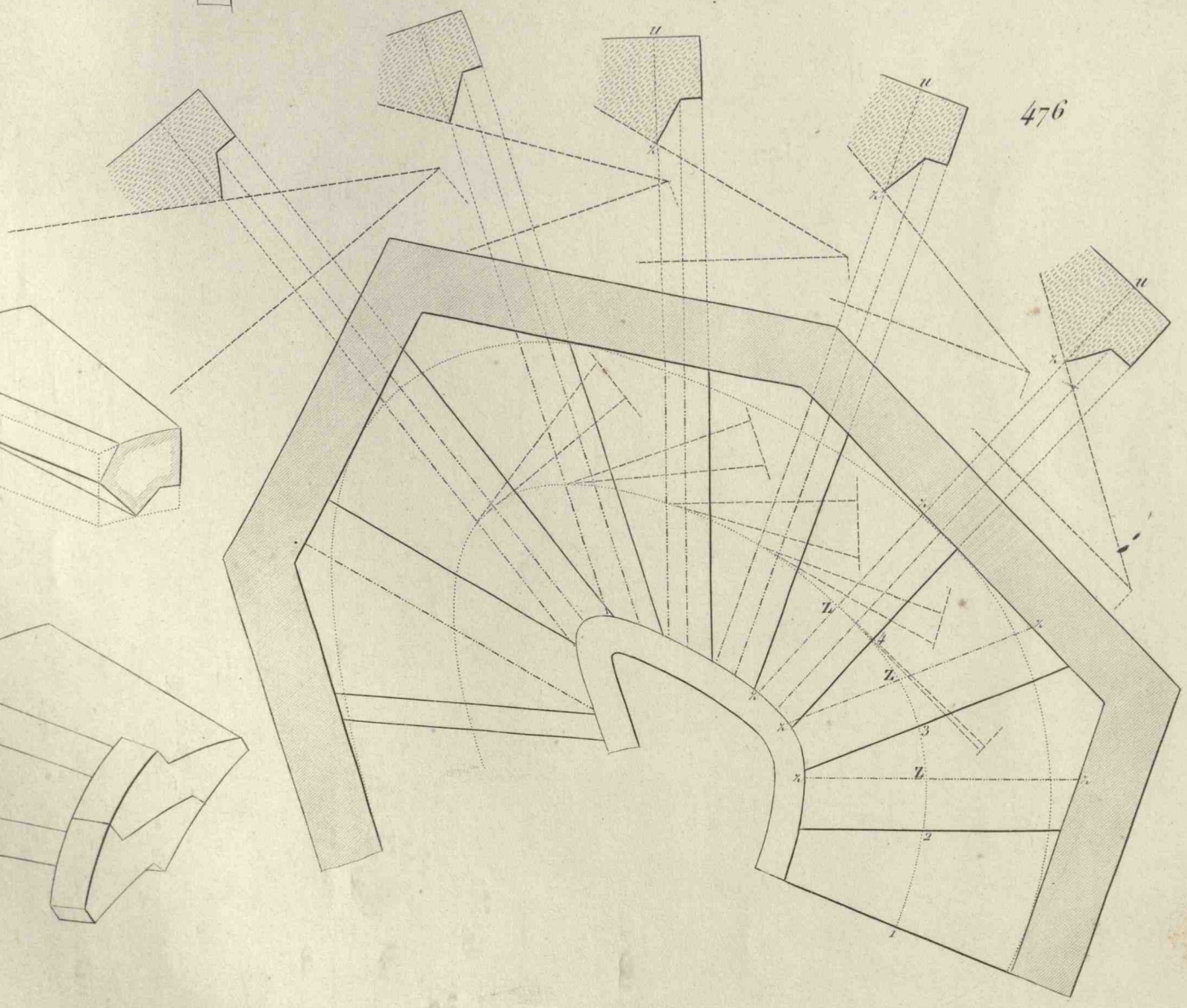
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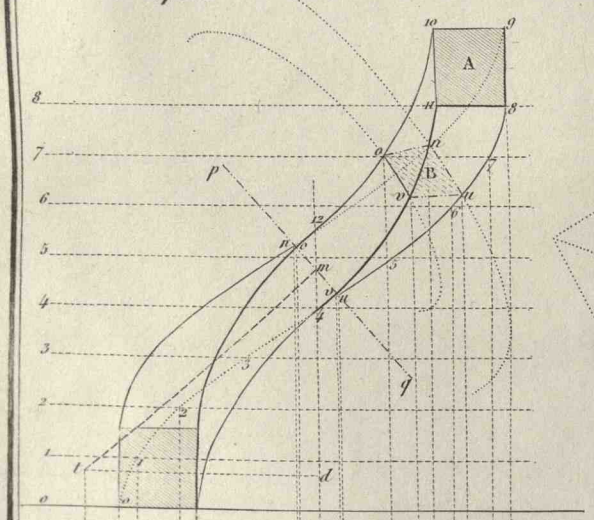
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Limon.

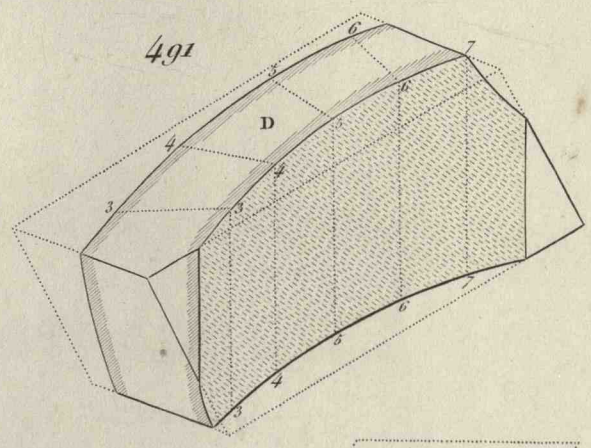
Coupe des pierres. *Pl. 54.*

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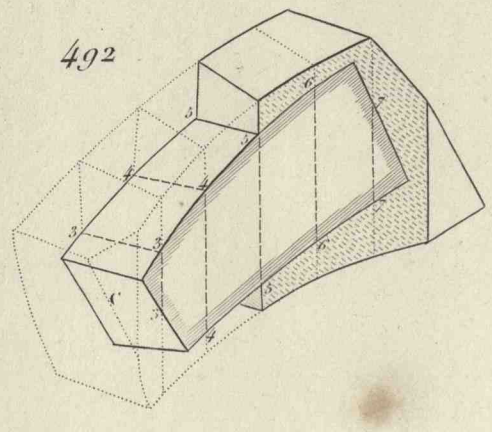


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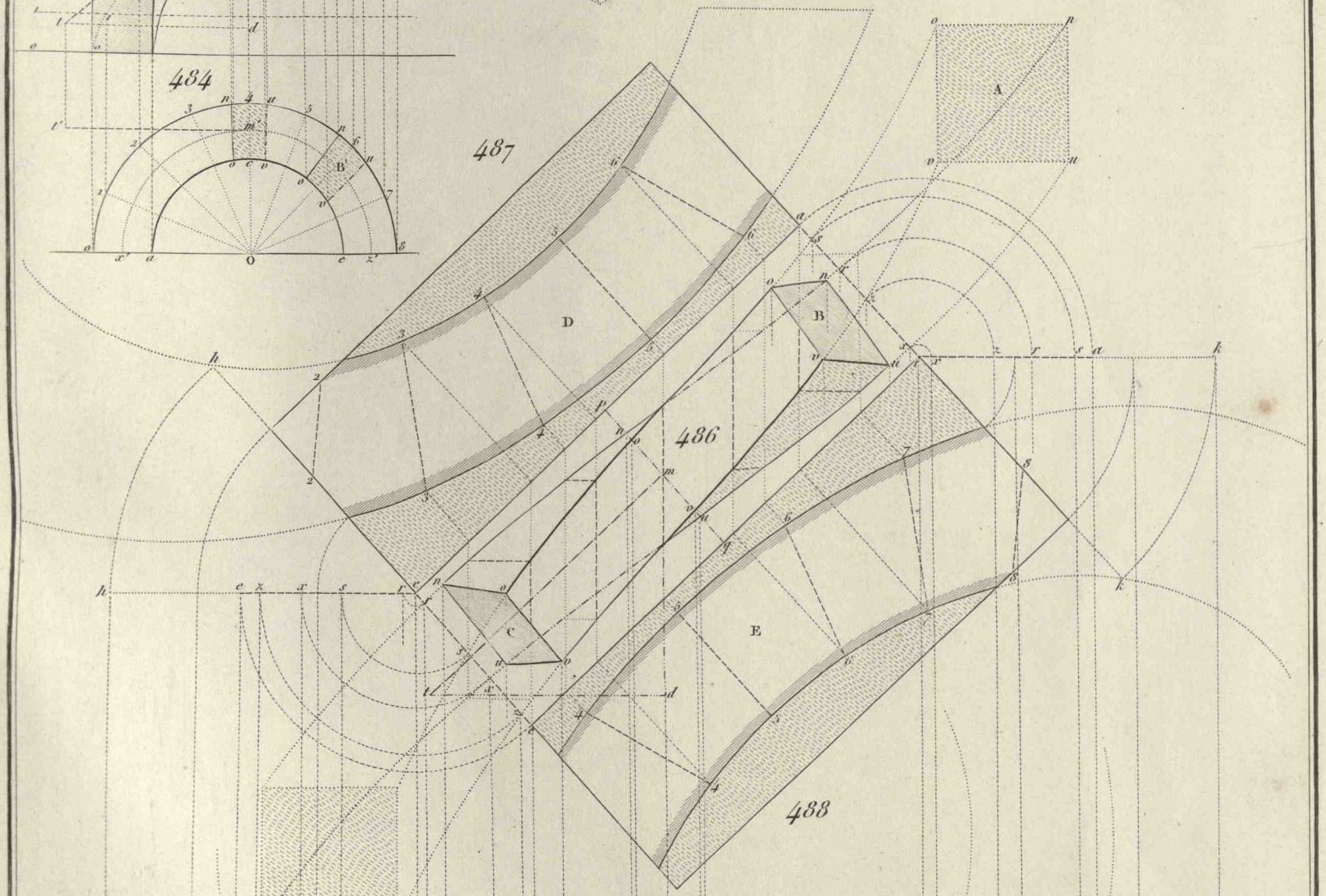
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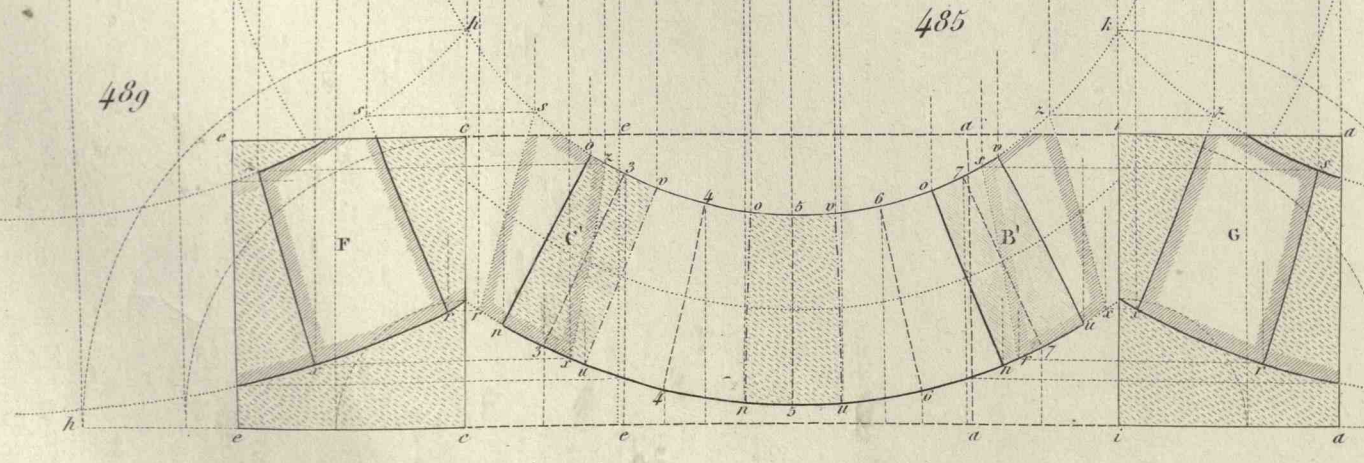


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Limon.

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Limon.

Coupe des pierres. *Pl. 56.*

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Vis Saint Gilles.

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Vis S.t Gilles carrée.

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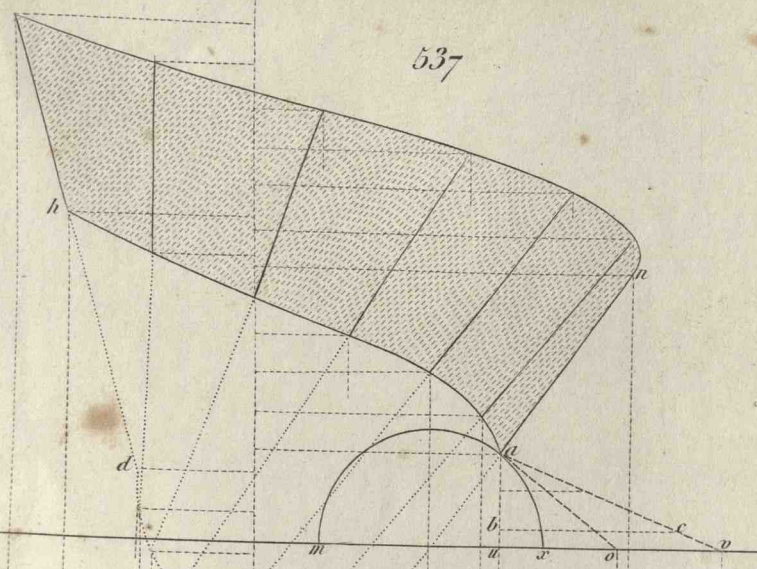
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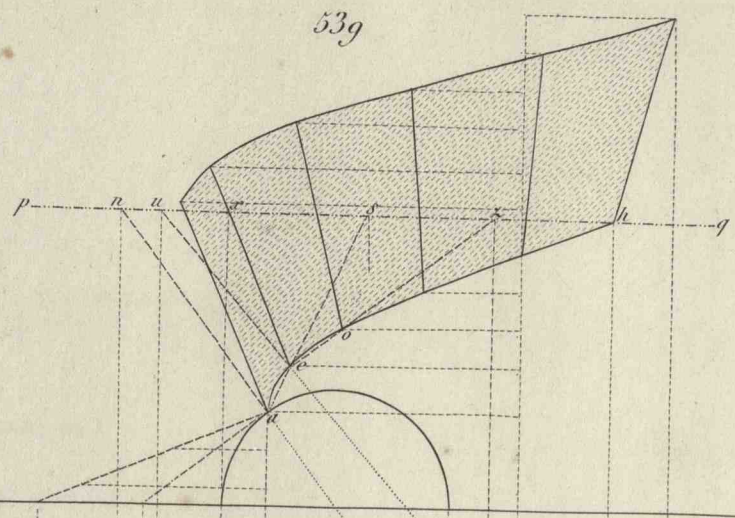
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Joints de la Vis S.t Gilles.

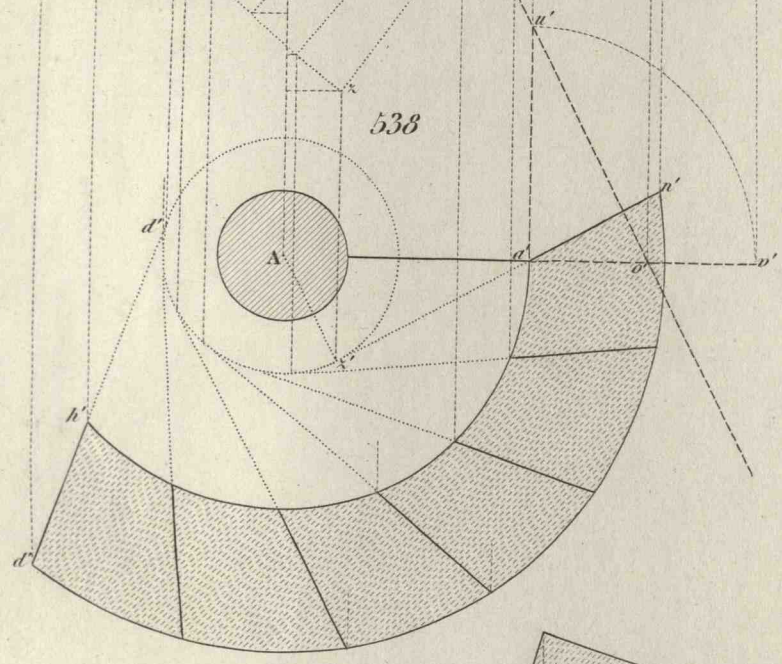
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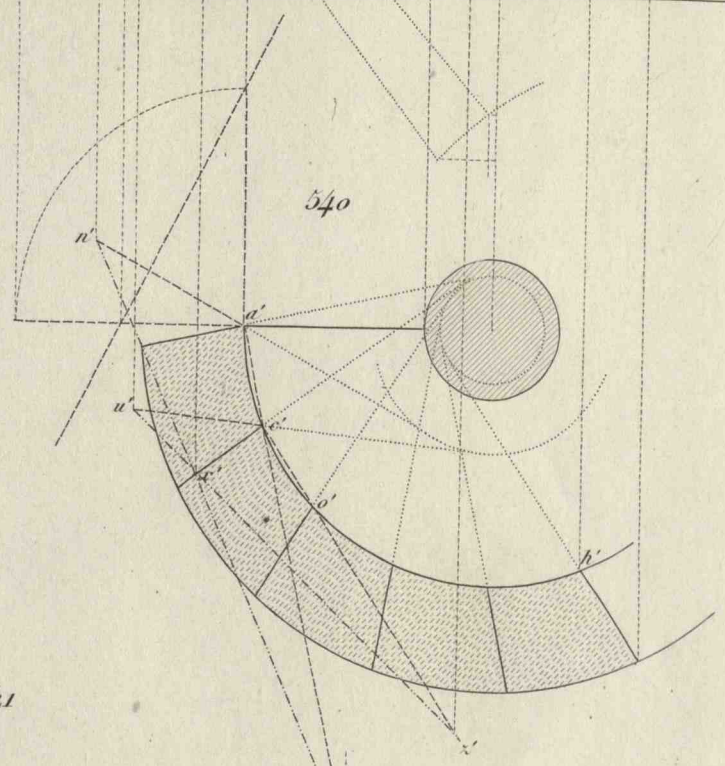
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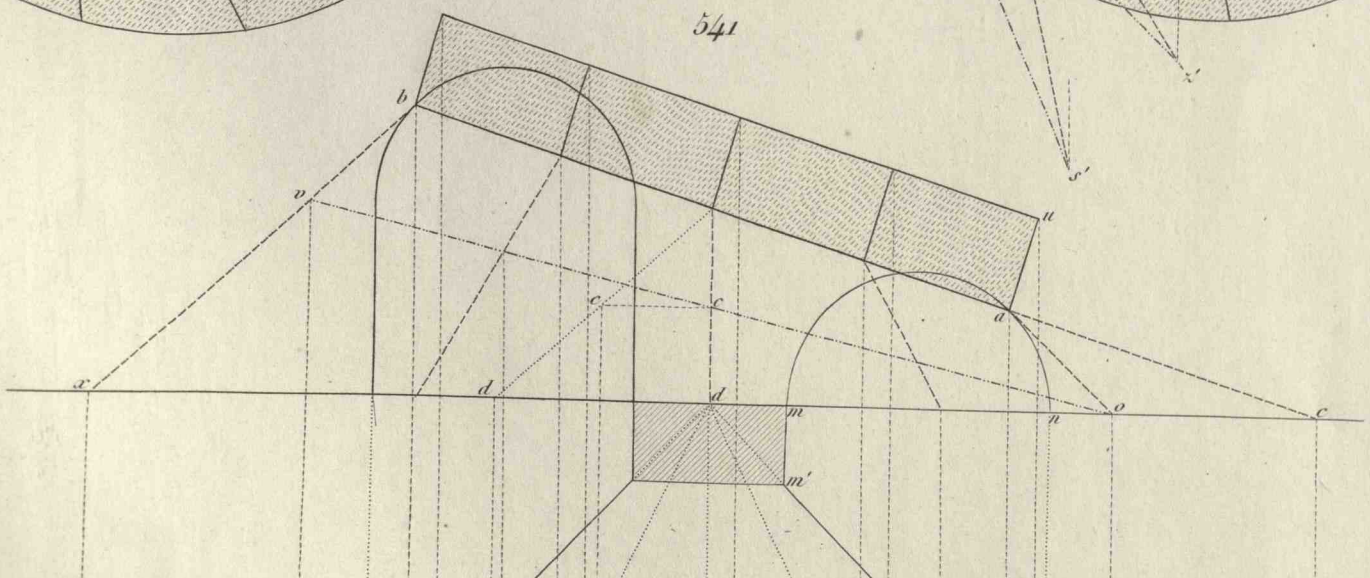
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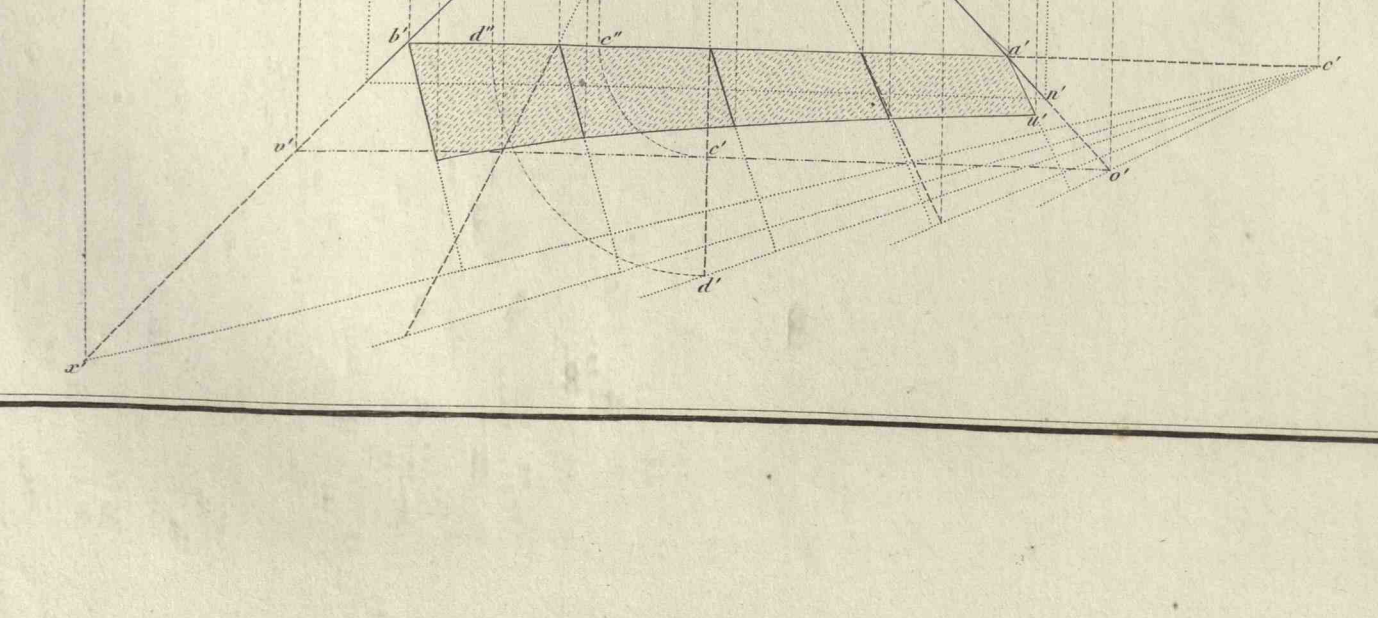
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Voute d'arête rampante et en tour ronde.

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C'

D

D'

E

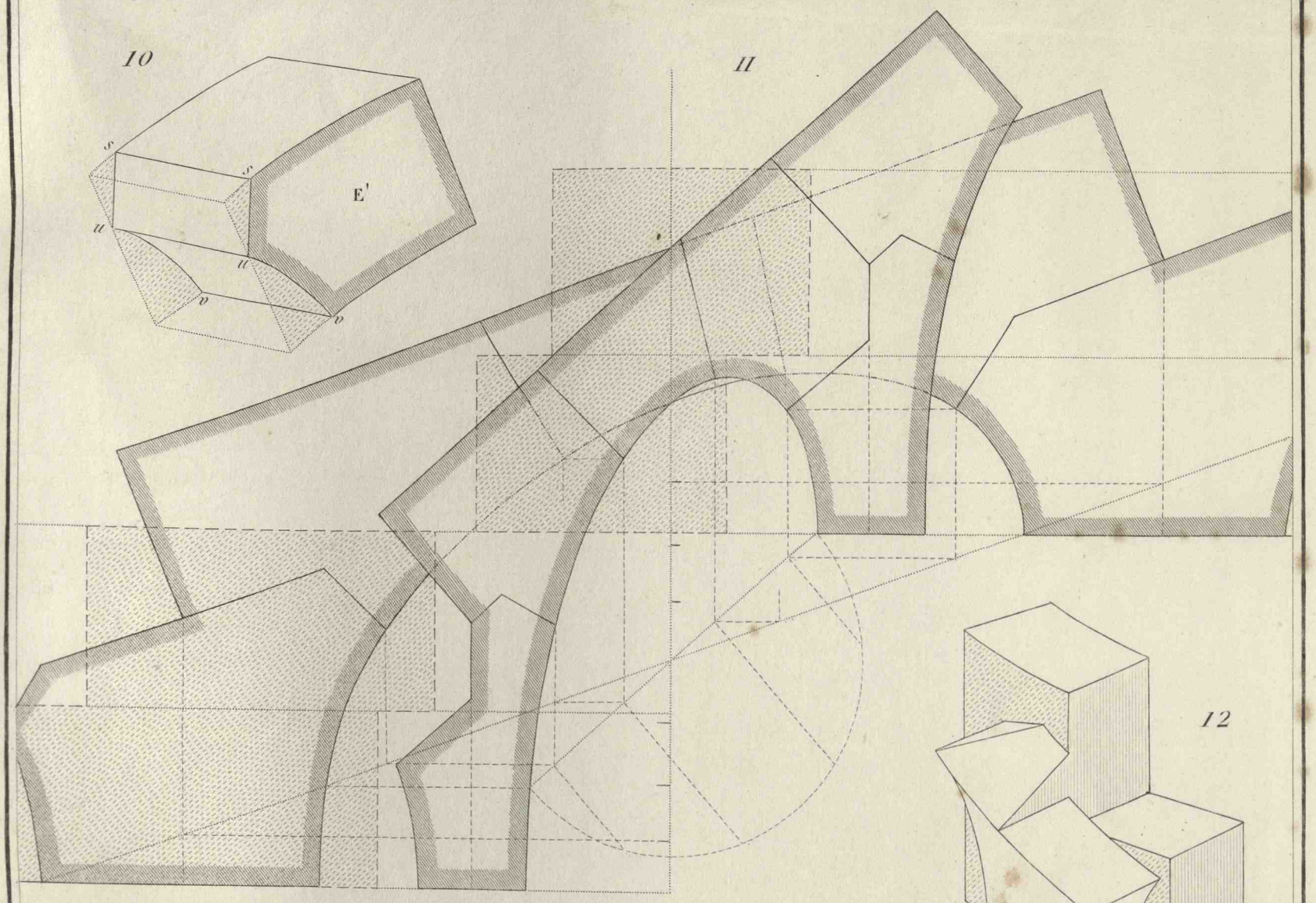
E'

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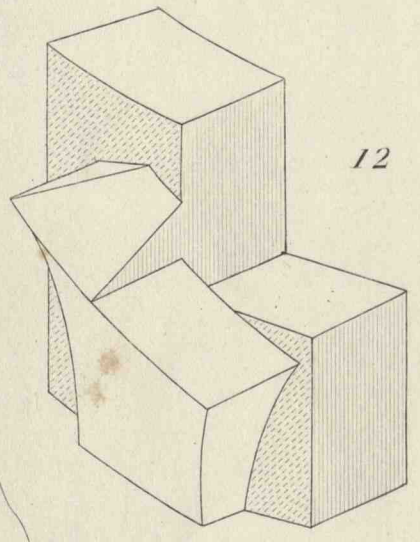
Voute d'arête.

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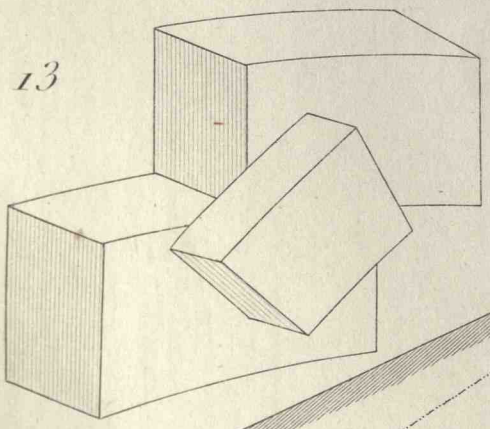
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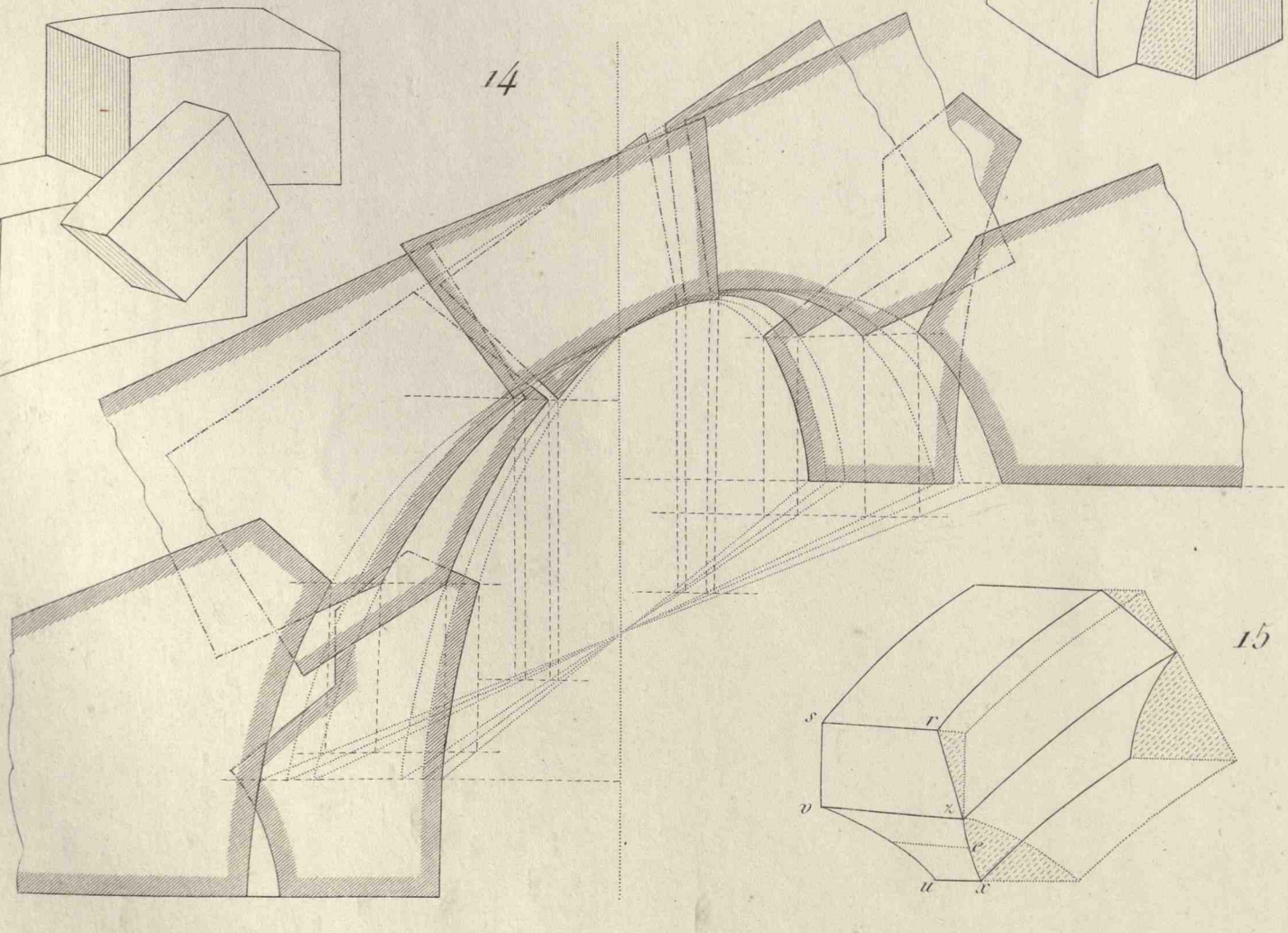
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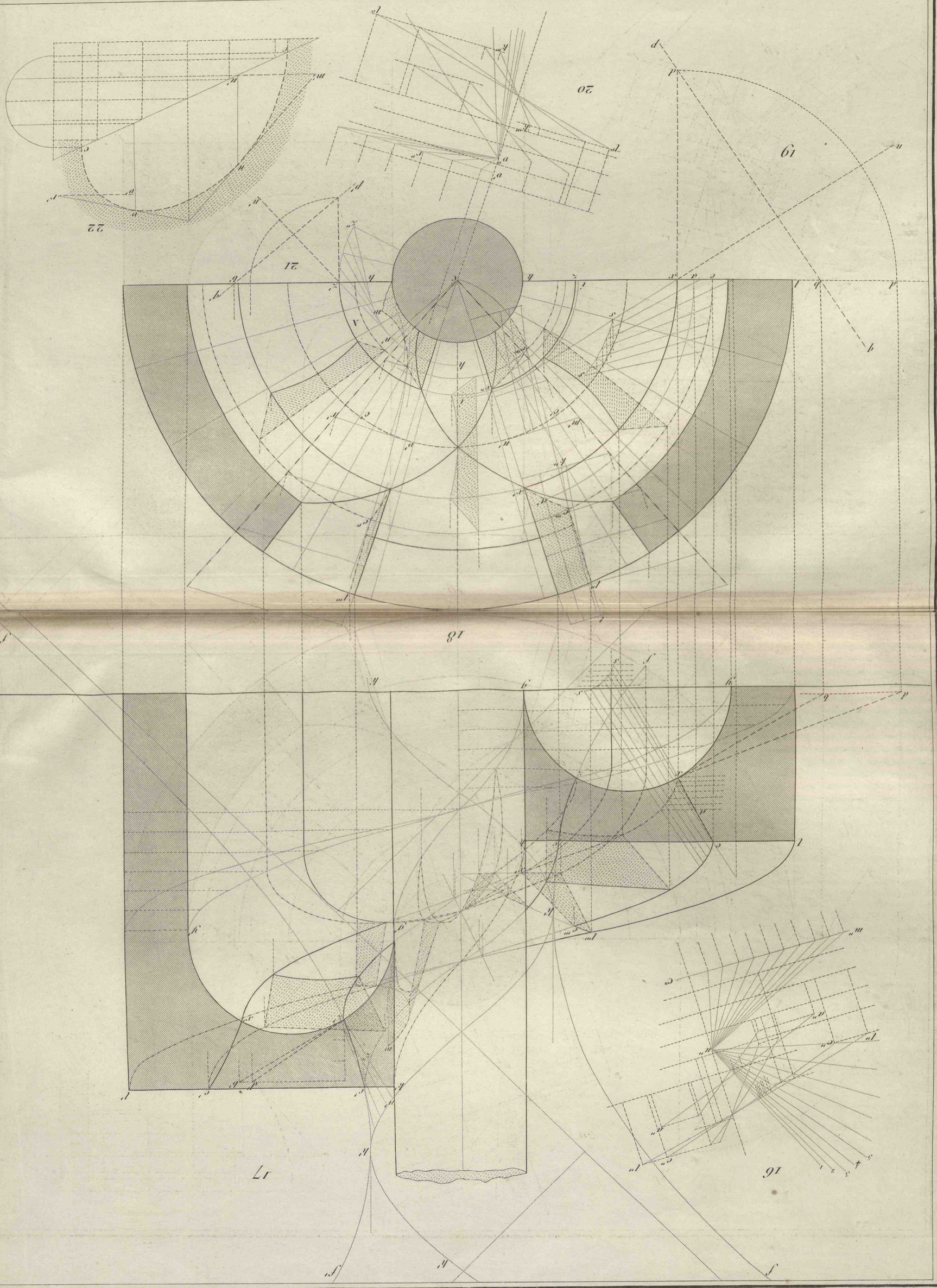
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15

Coupe des pierres.

Voute d'arête surmontée d'un four rond.



Arrière Voussure de Marseille.

Coupe des pierres. *Pl. 63.*

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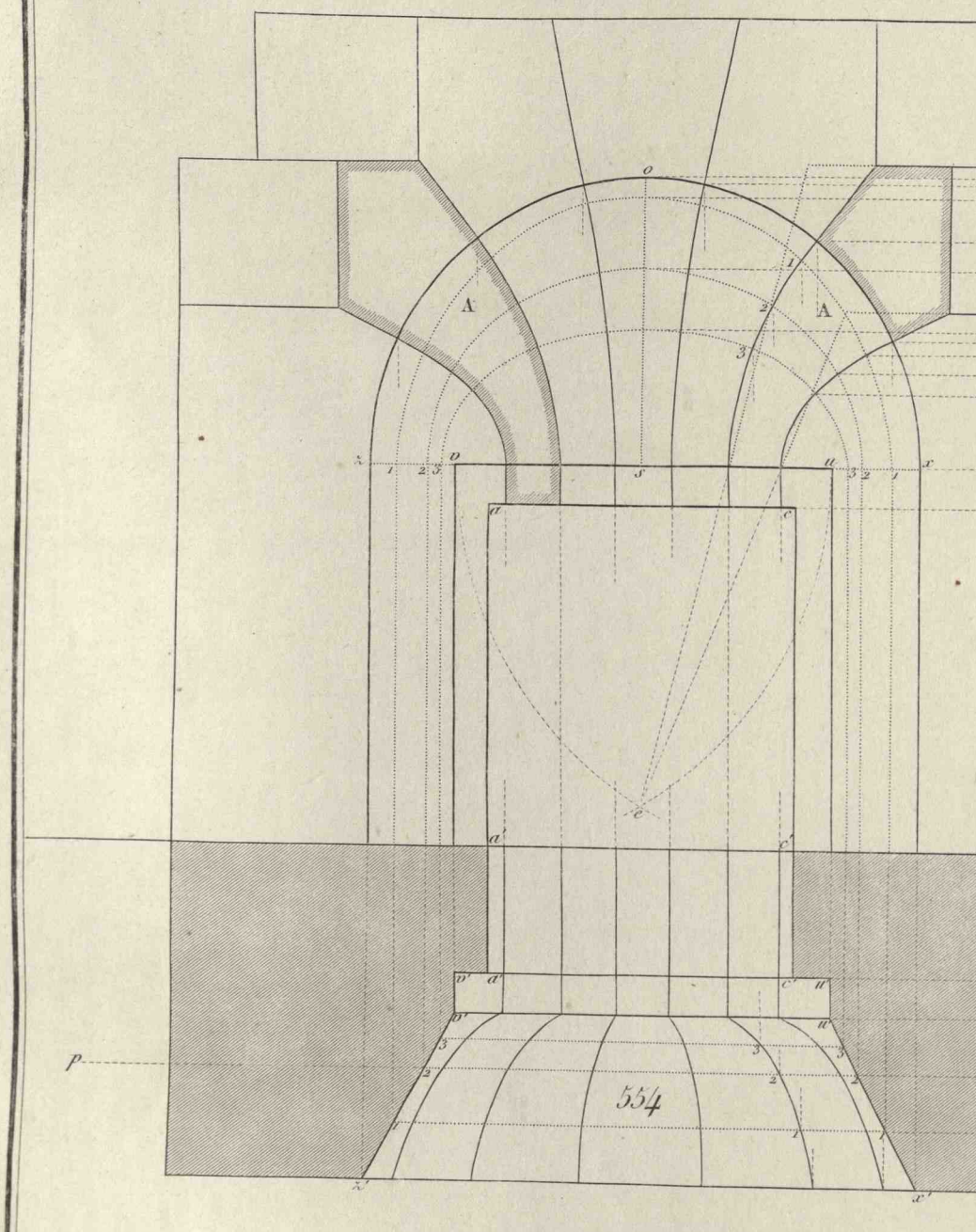
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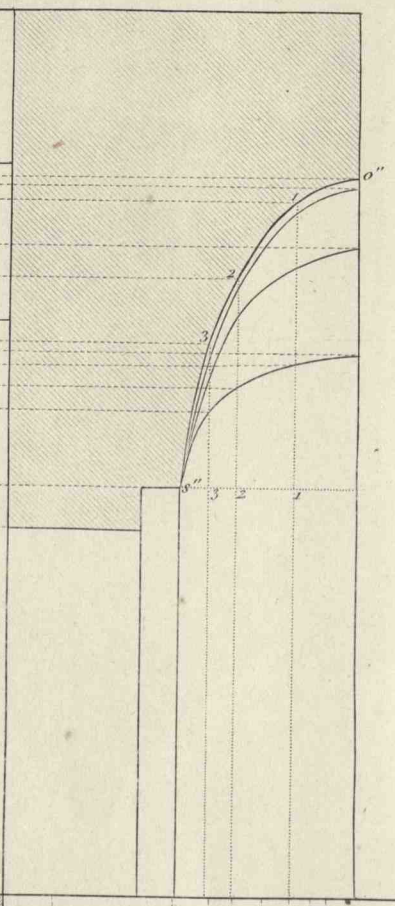
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Arrières-Voussures.

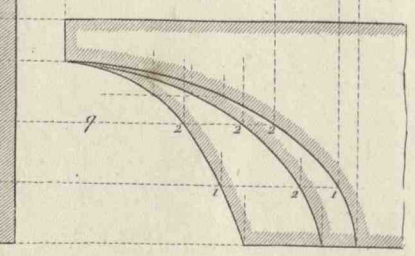
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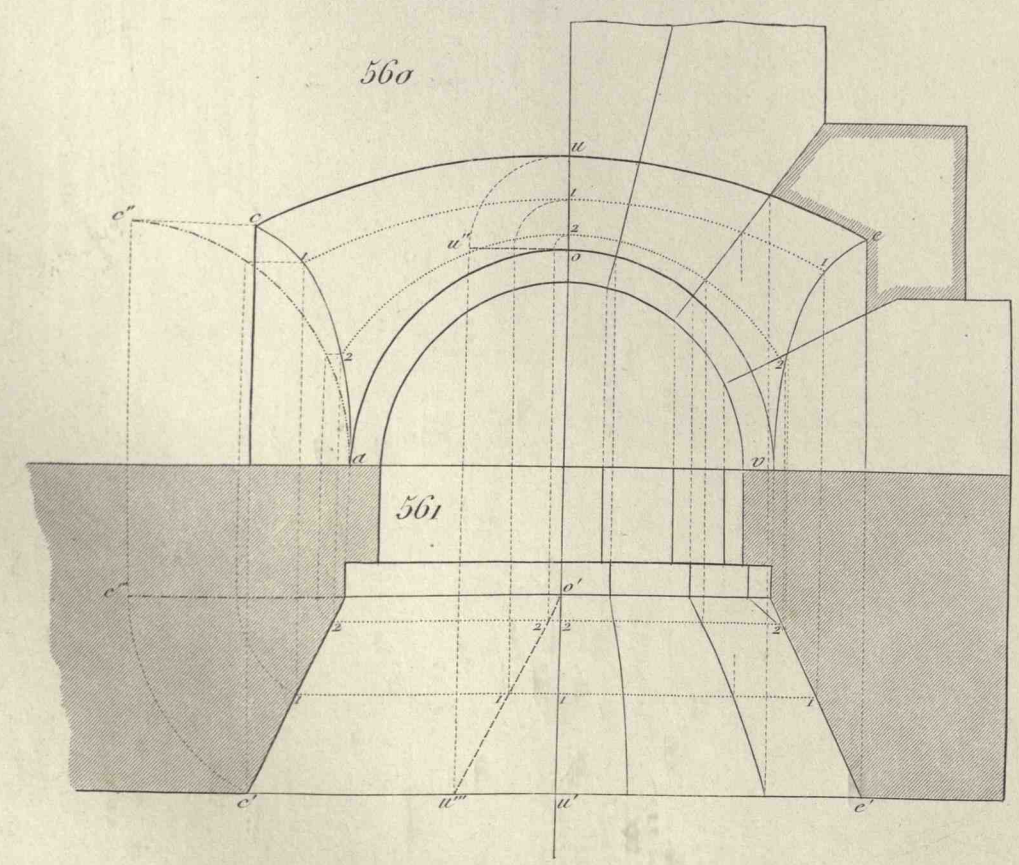
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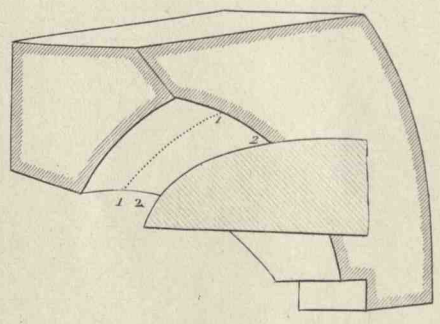
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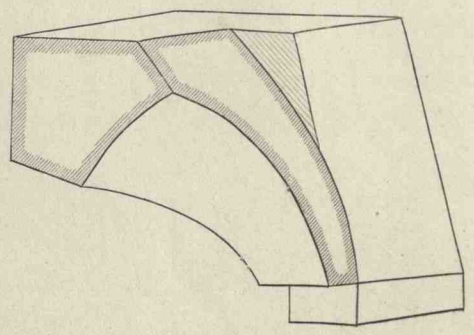
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Voute elliptique à trois axes.

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Épure de la voûte elliptique

Coupe des pierres

Pl. 66.

Fig. 1.

Fig. 2

Fig. 3

Fig. 4

Fig. 5

Fig. 6

Fig. 7

Fig. 8

Fig. 9

Lith.ue del

Voute elliptique, Tendentys

Fig. 1

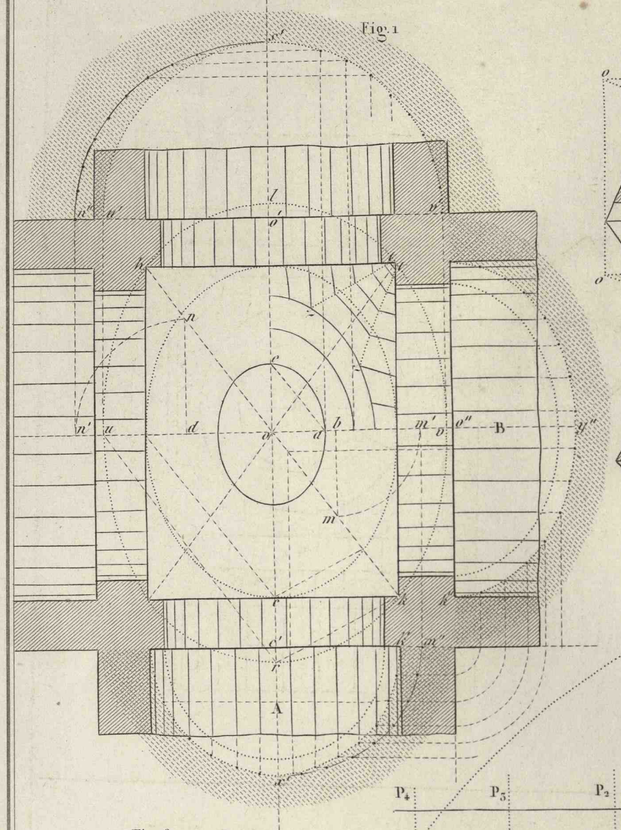


Fig. 2

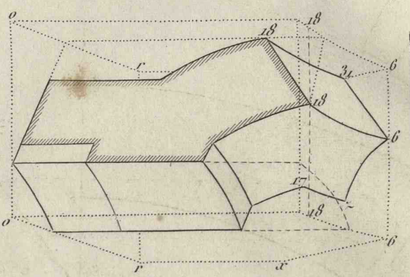


Fig. 3

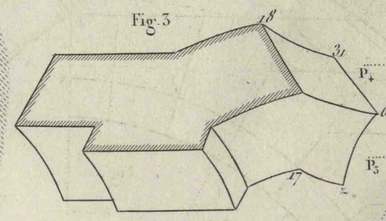


Fig. 4

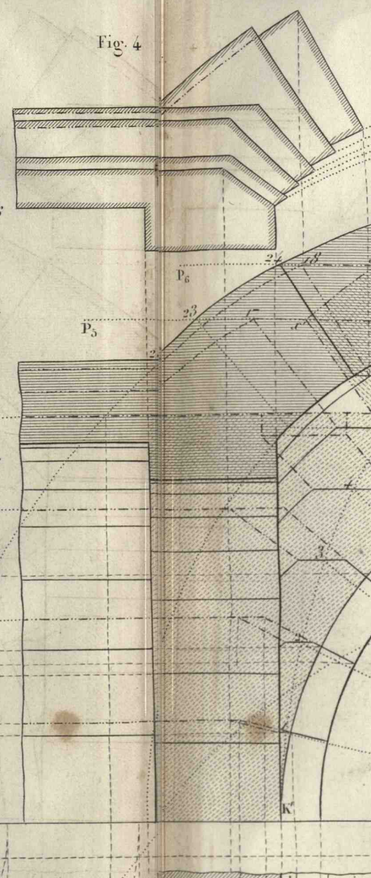


Fig. 5

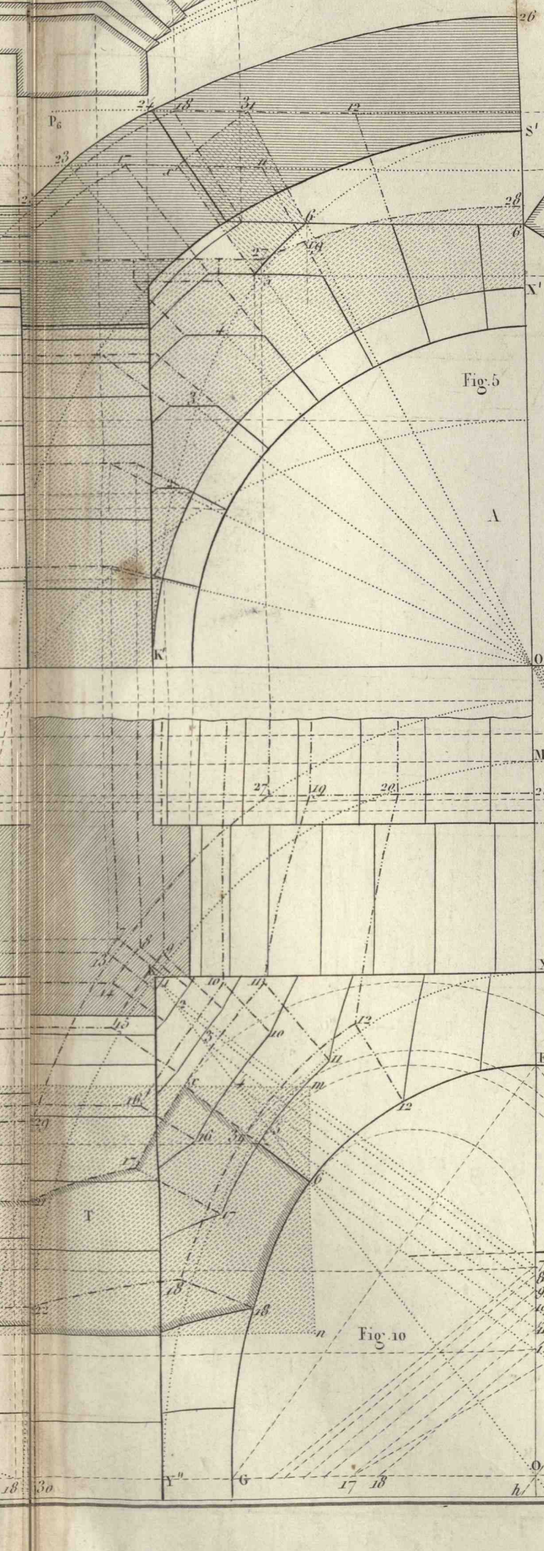


Fig. 6

Fig. 7

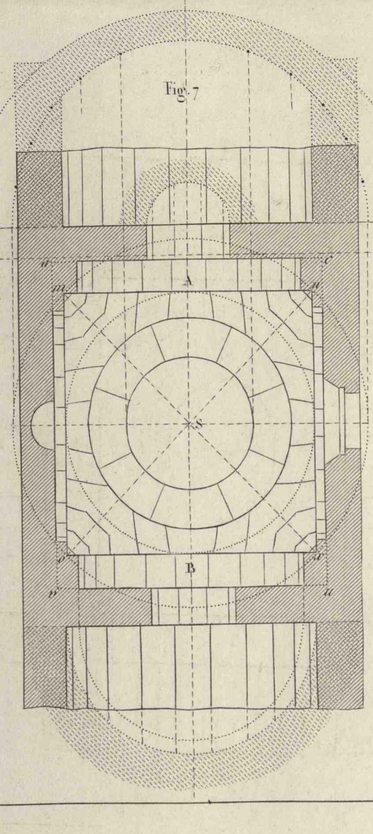


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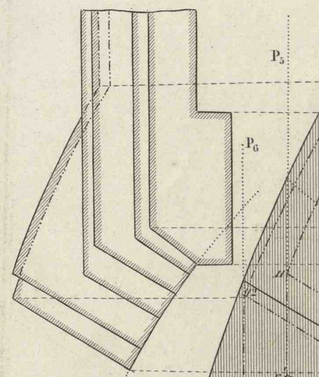


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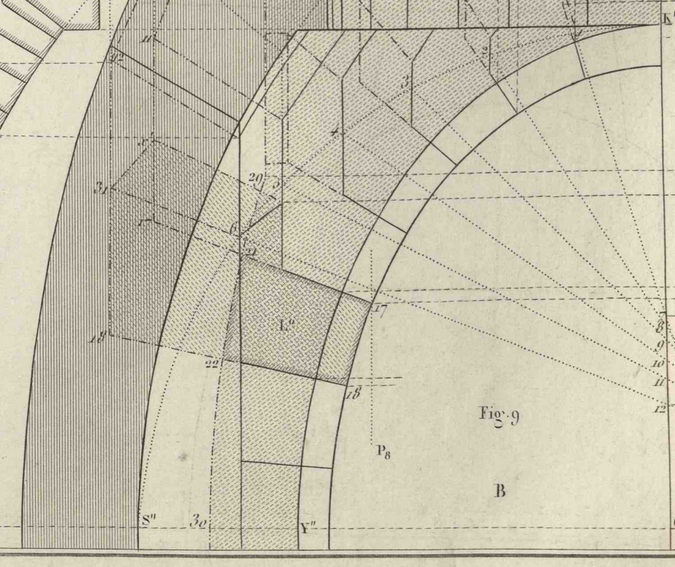


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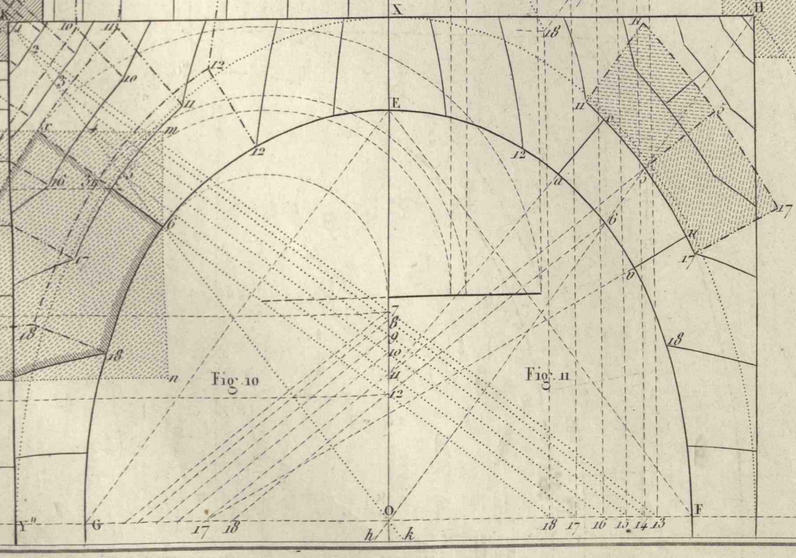
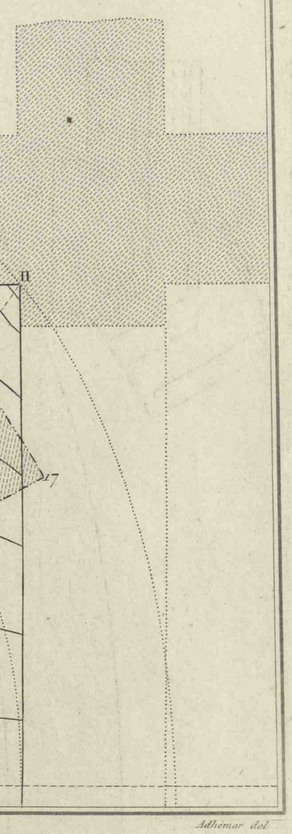


Fig. 11



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Fig. 1.

Fig. 2.

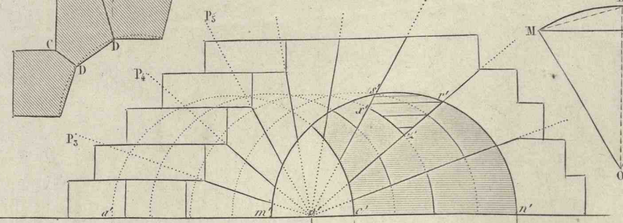


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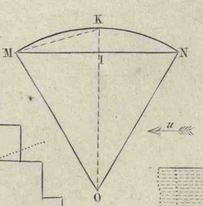


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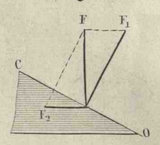


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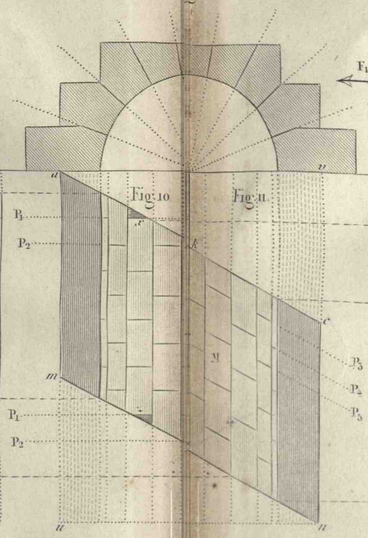


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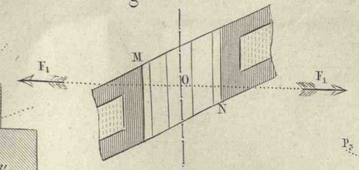


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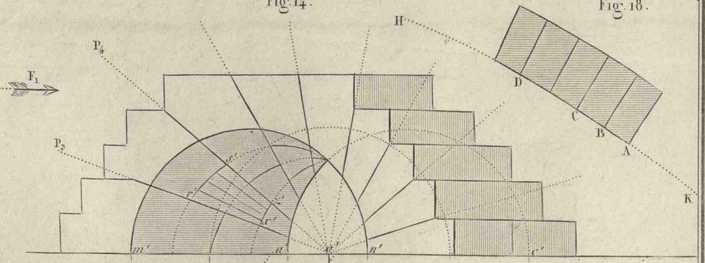


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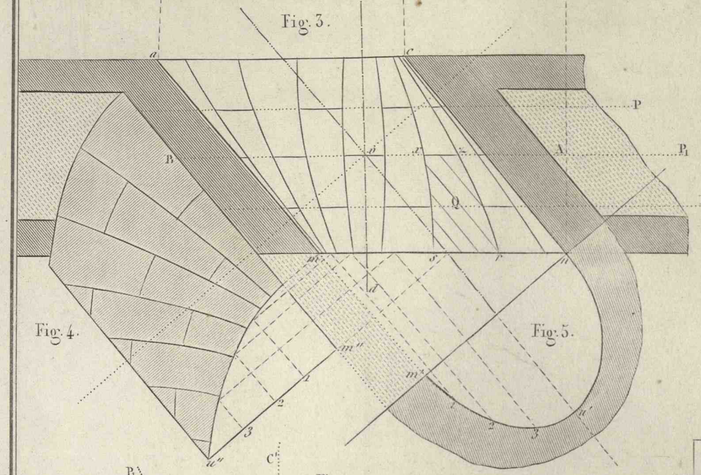


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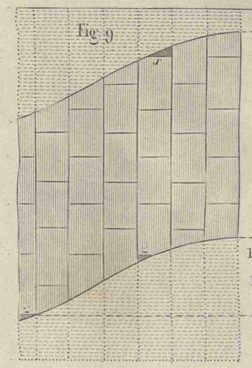


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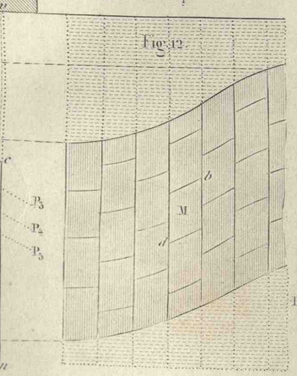


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Fig. 15.

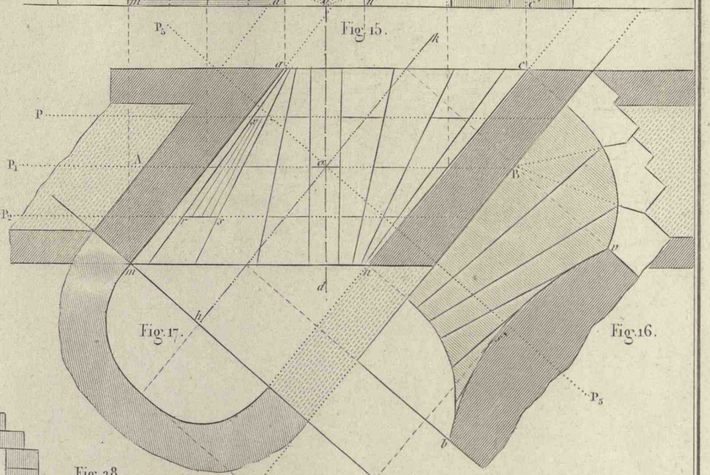


Fig. 4.

Fig. 5.

Fig. 17.

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Fig. 19

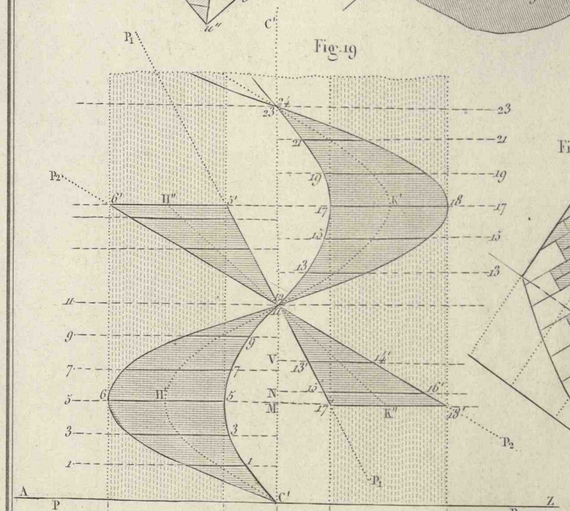


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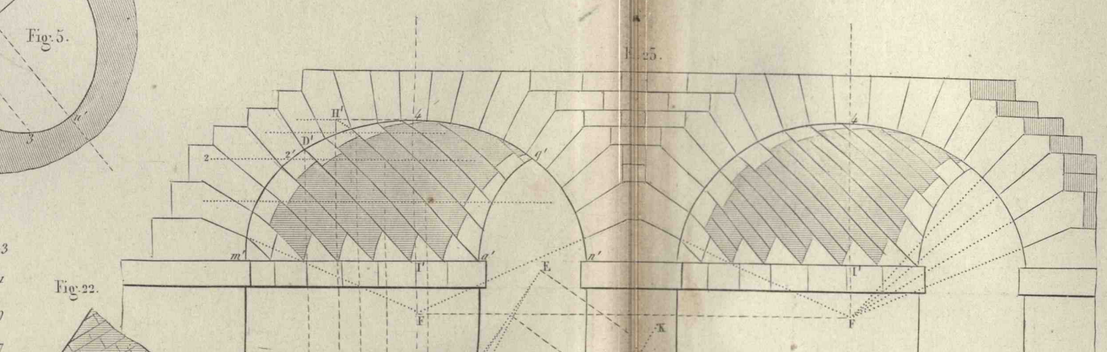


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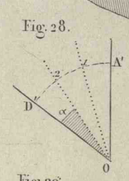


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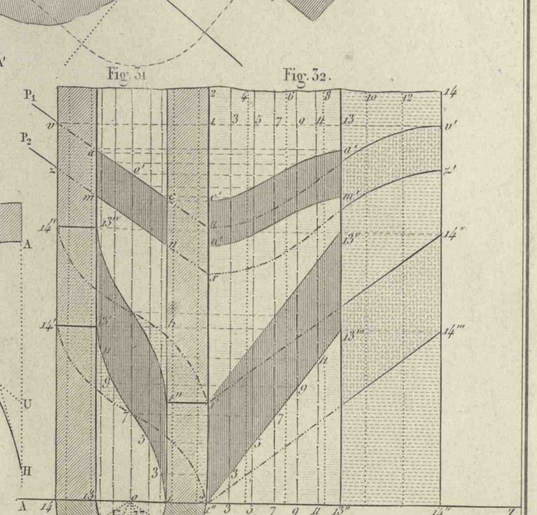


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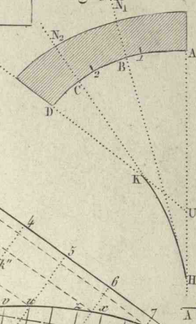


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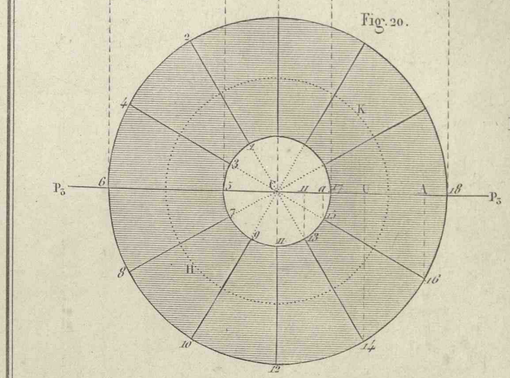


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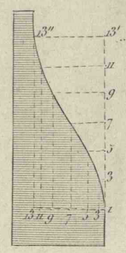


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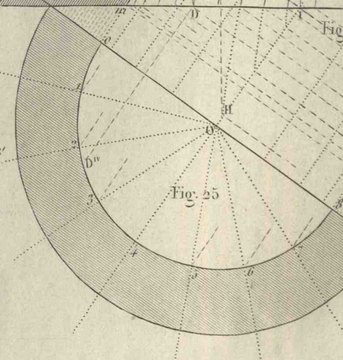


Fig. 26.



Fig. 27.

Fig. 30.

Fig. 33.

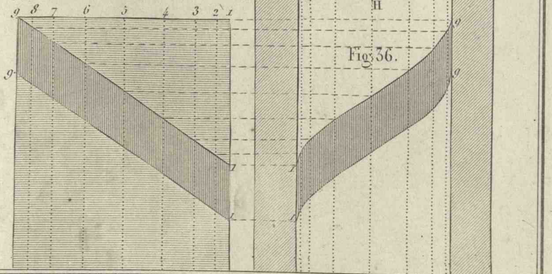


Fig. 34.

Fig. 36.

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Fig. 1.

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Fig. 1.

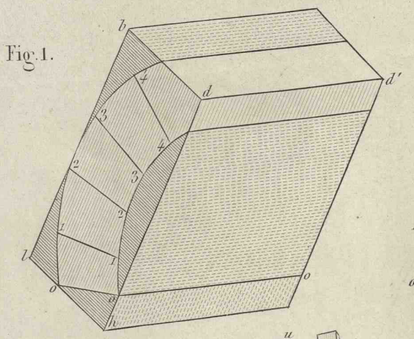


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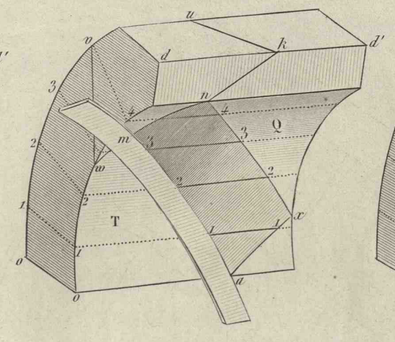


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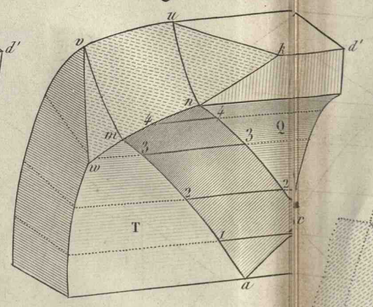


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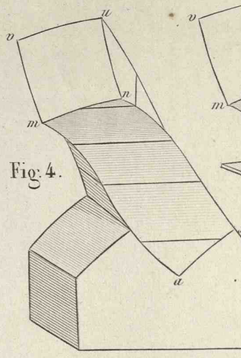


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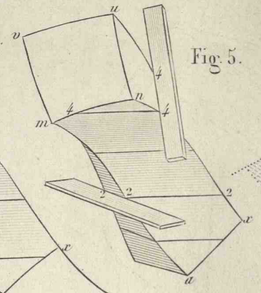


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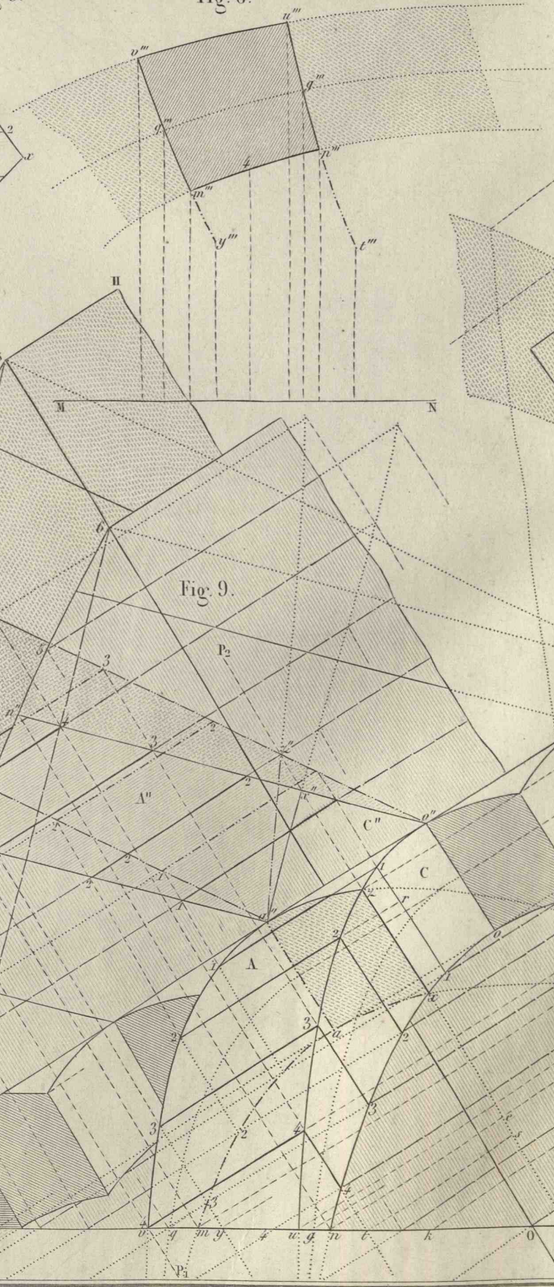


Fig. 7.

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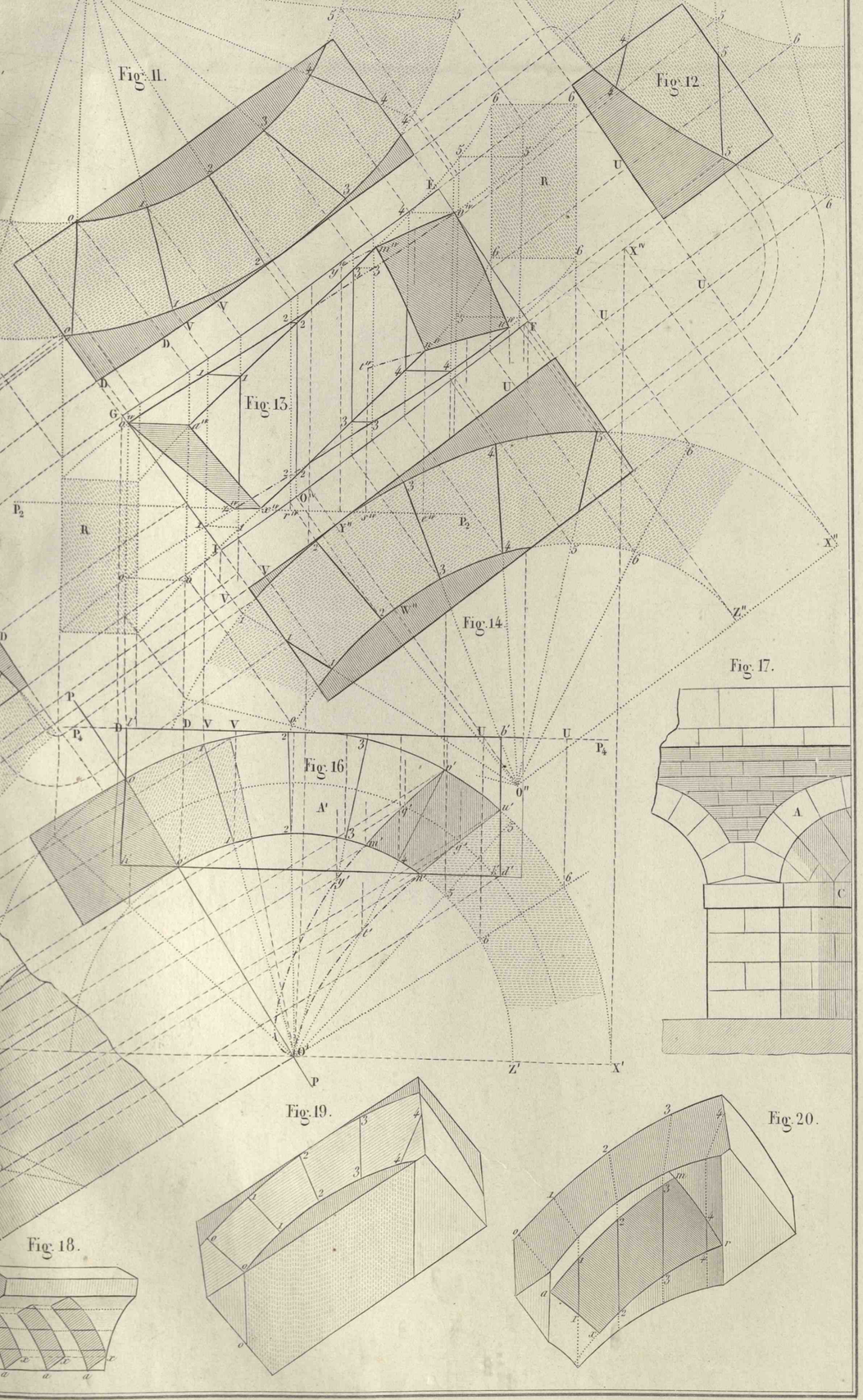


Fig. 12.

Fig. 13.

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Fig. 1.

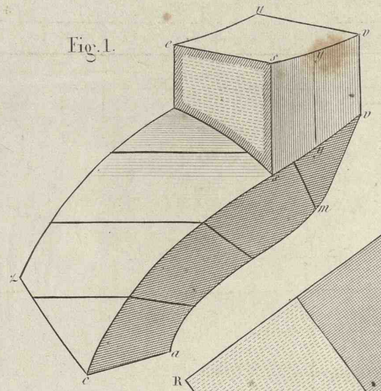


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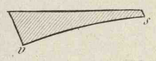


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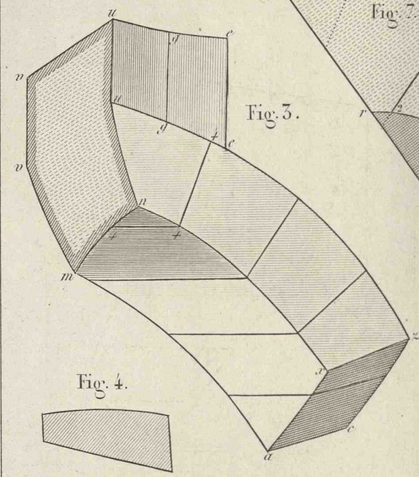


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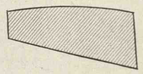


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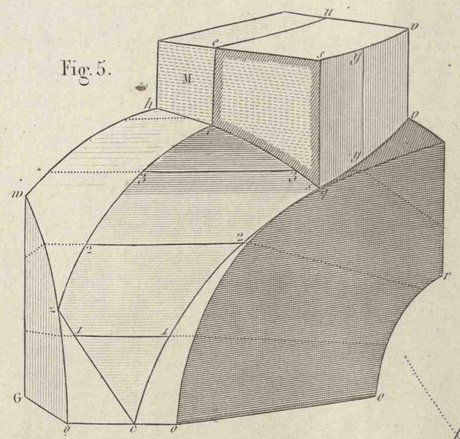


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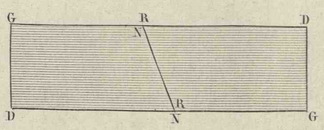


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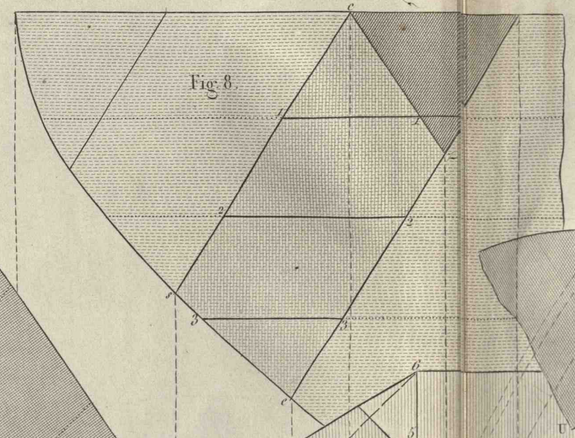


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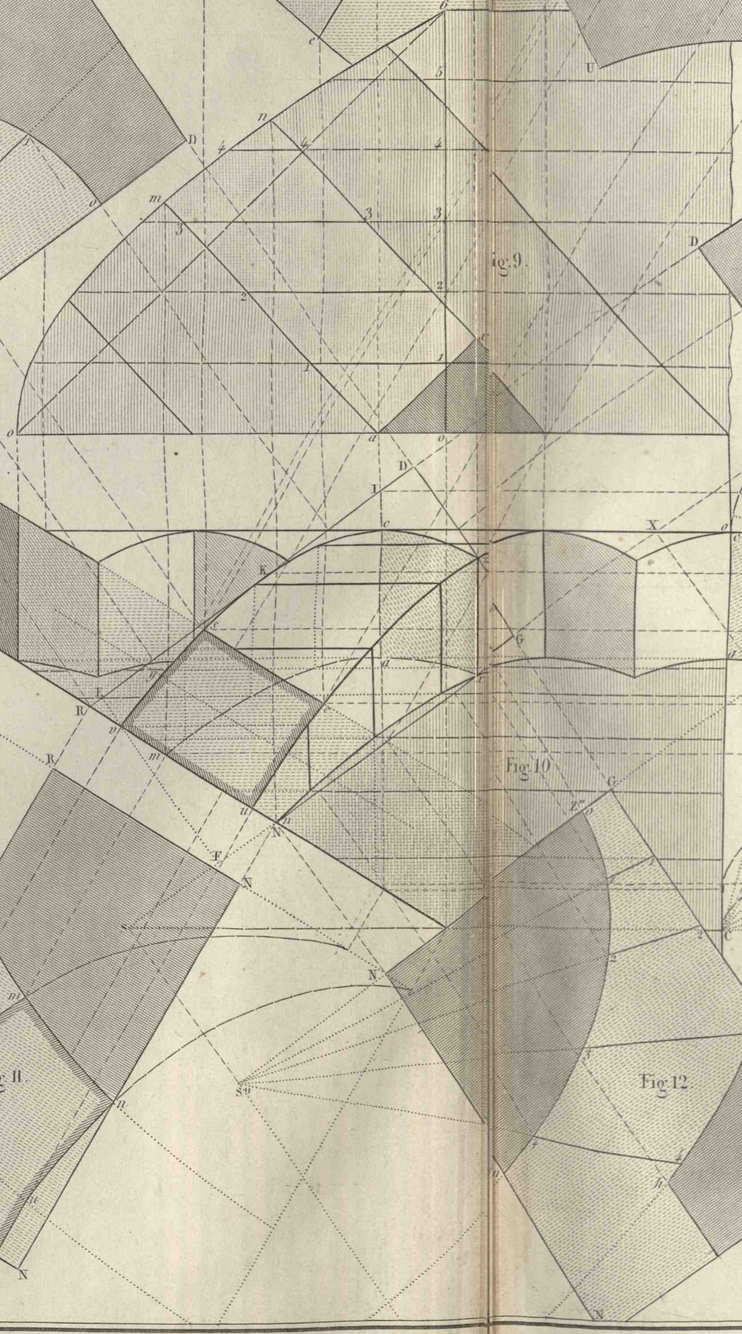


Fig. 10

Fig. 11.

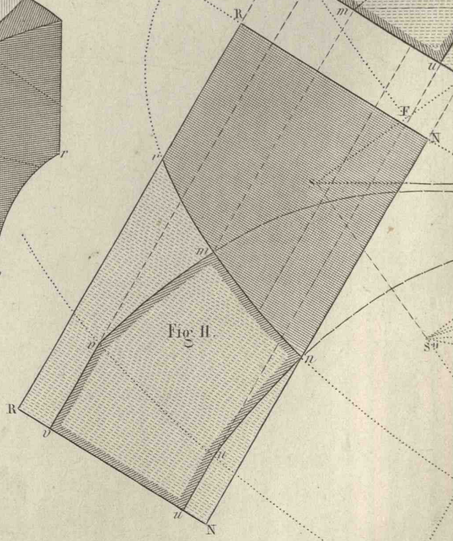


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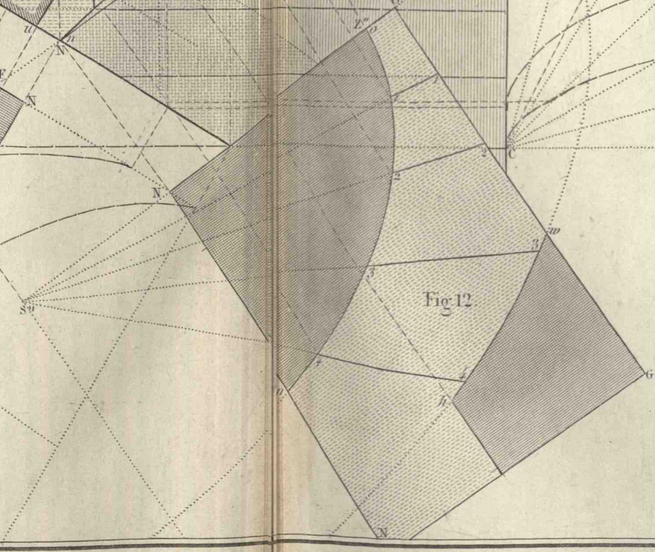


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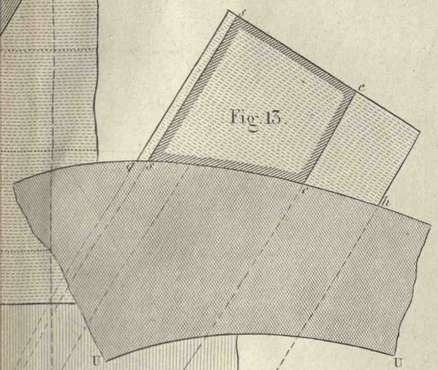


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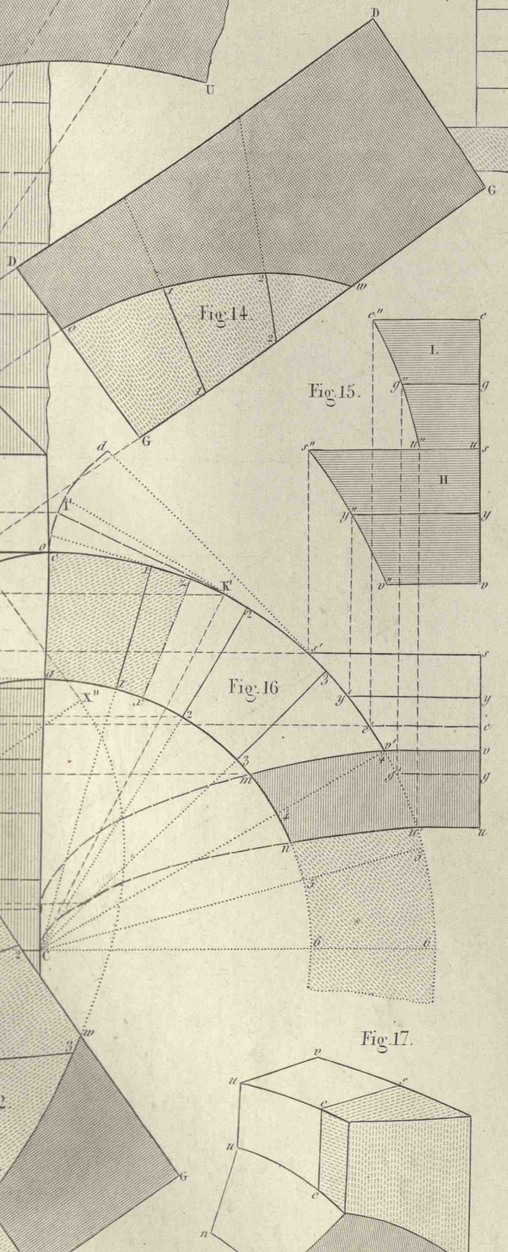


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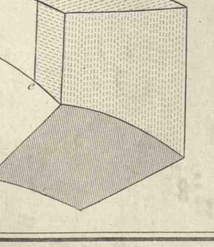


Fig. 16

Fig. 17.

Fig. 18.

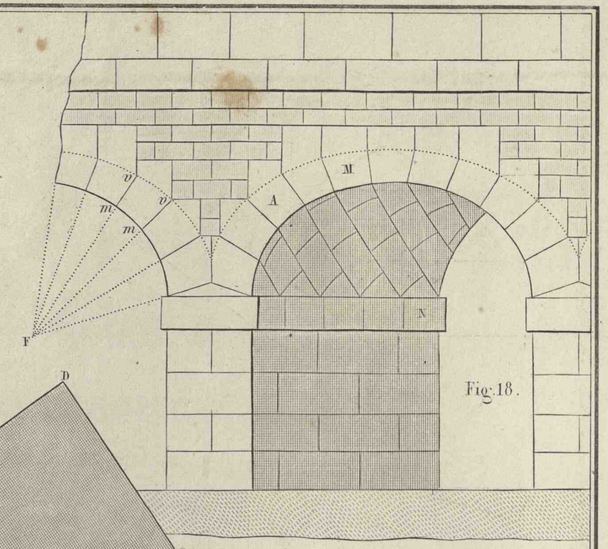


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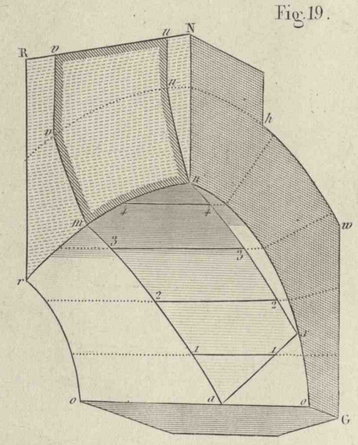
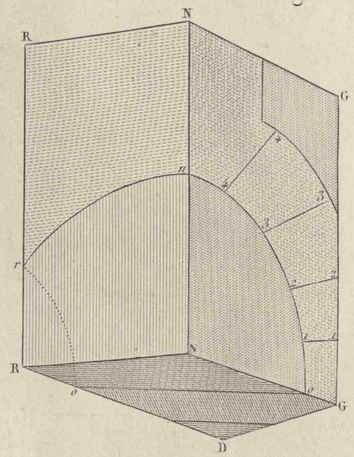


Fig. 20.



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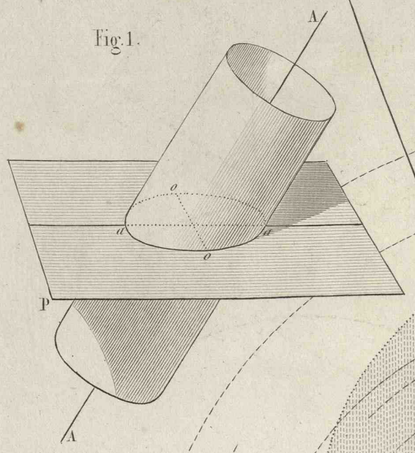


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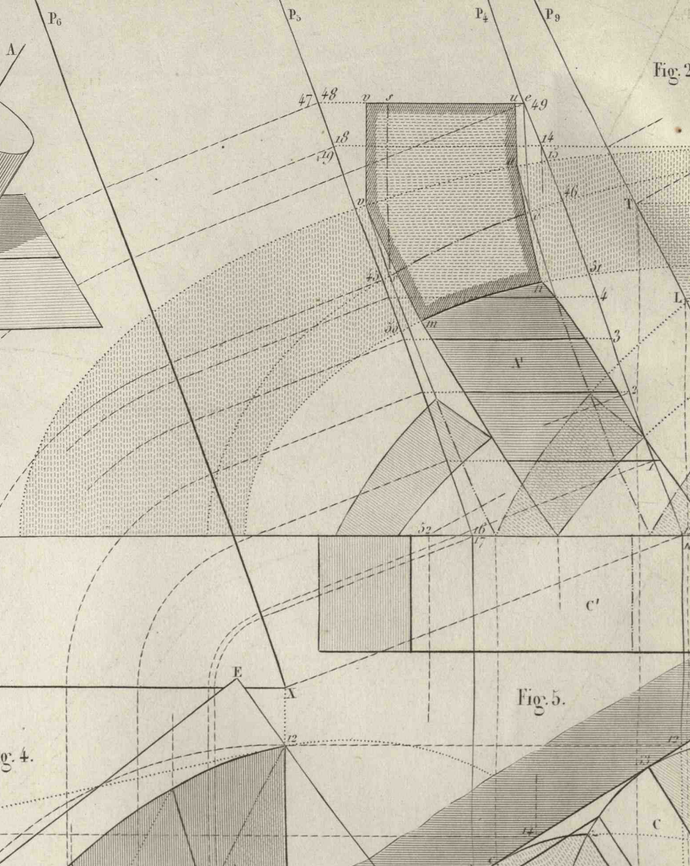


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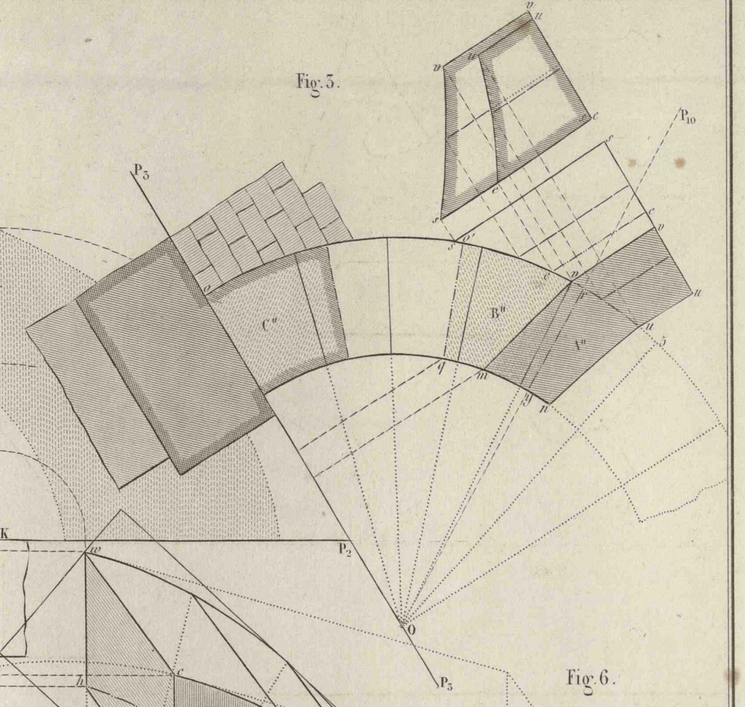


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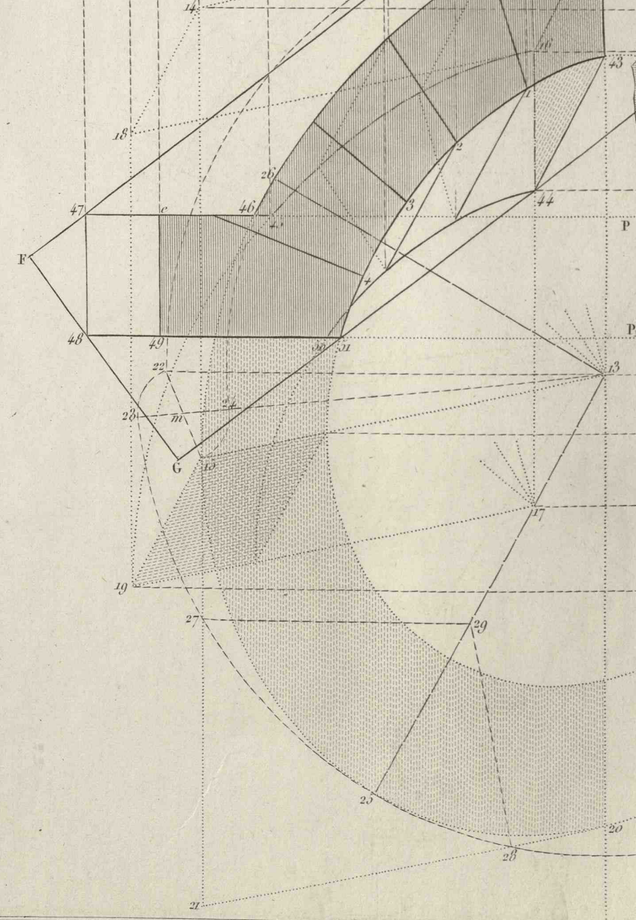


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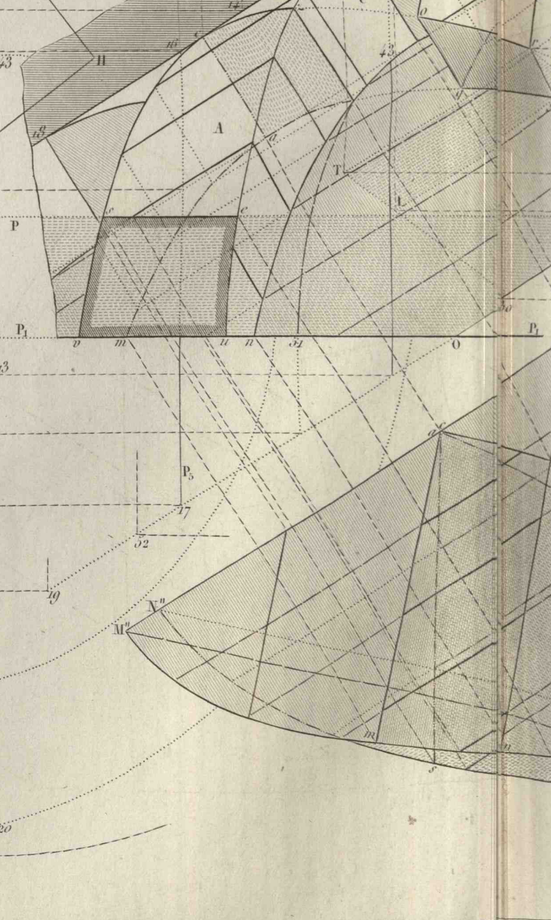


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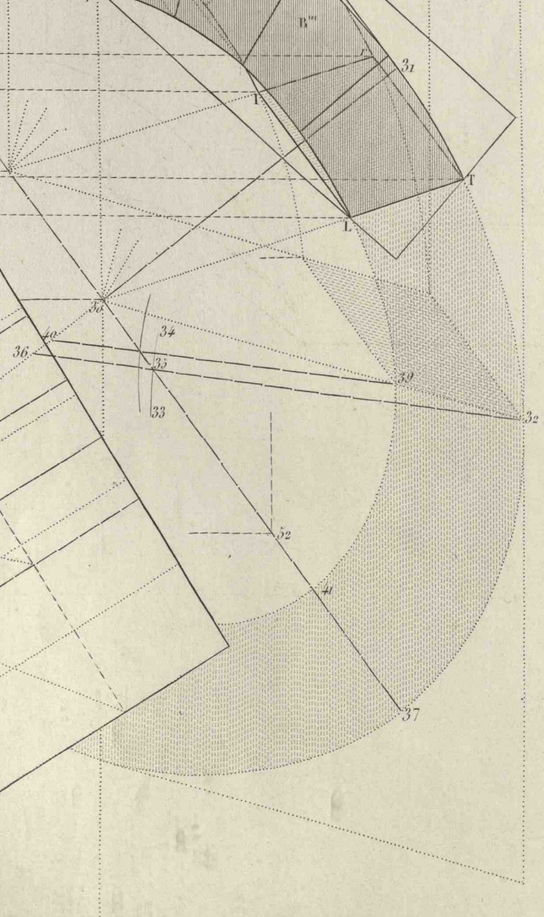
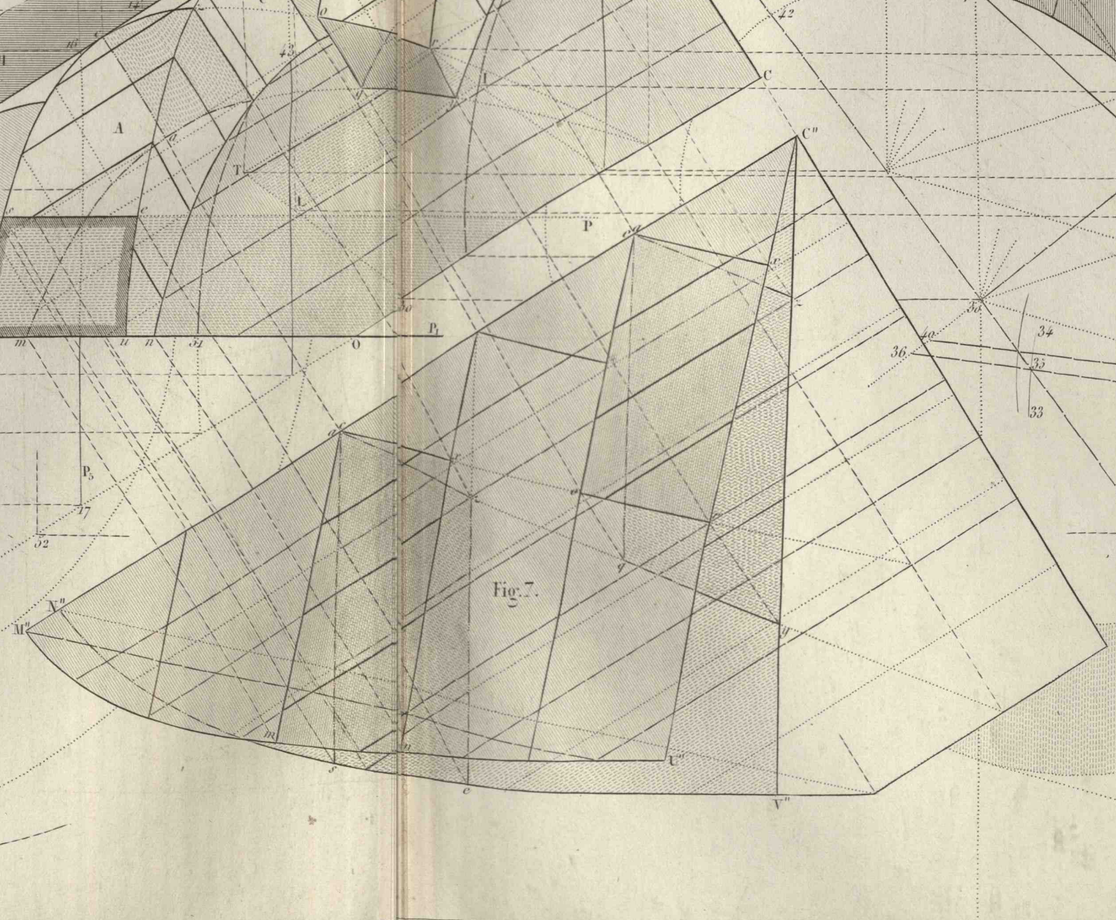


Fig. 7.



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Fig. 1.

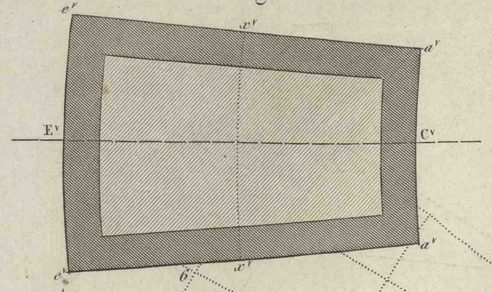


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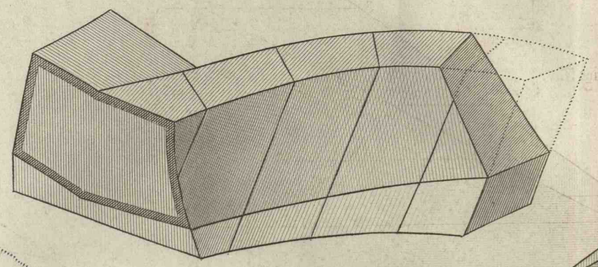


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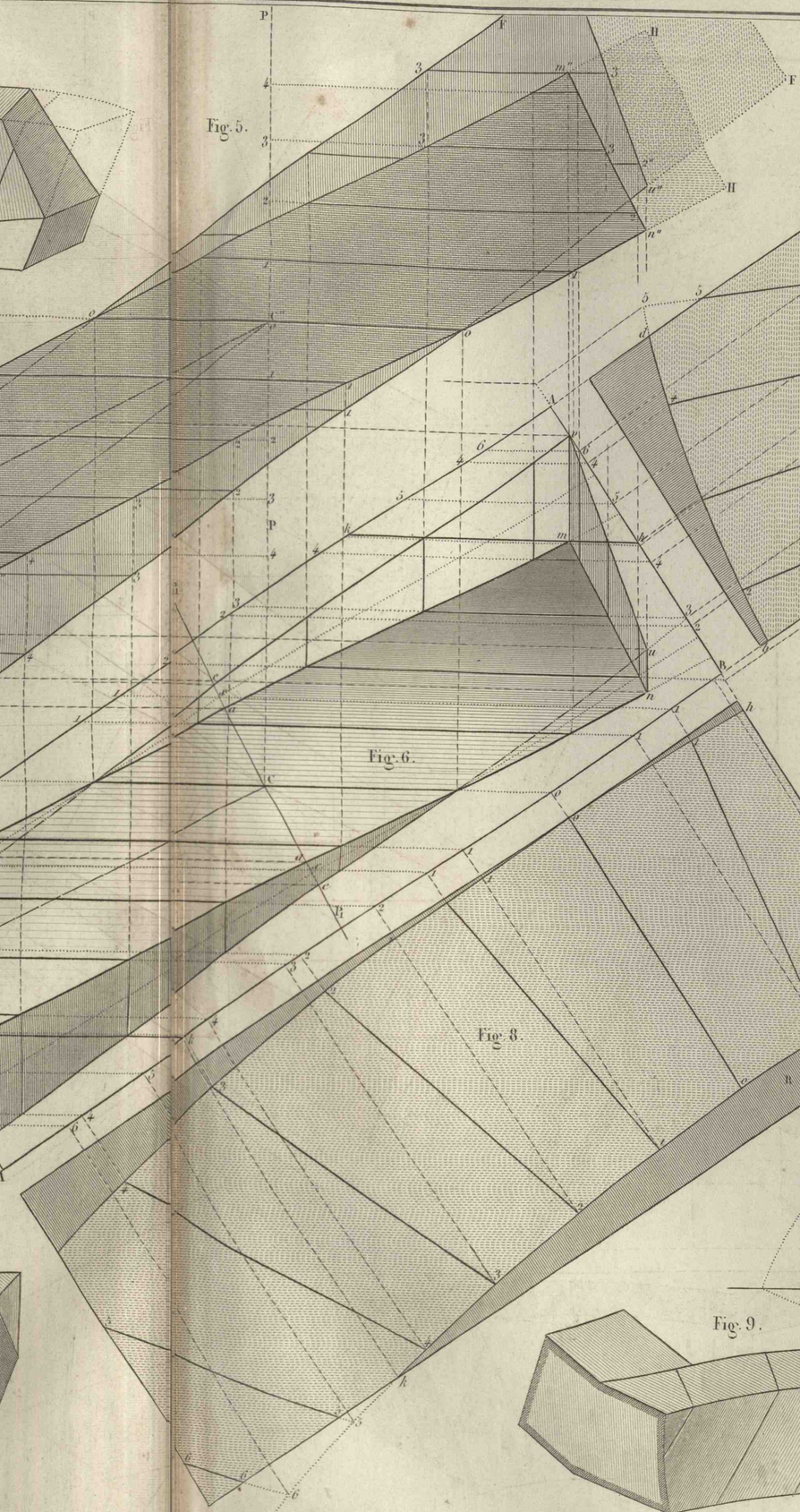


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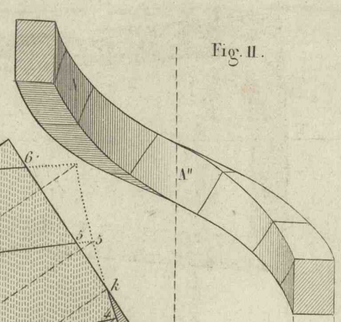


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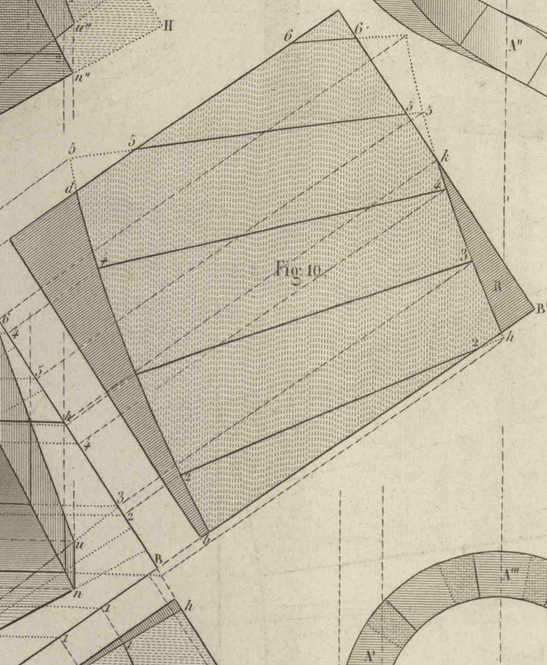


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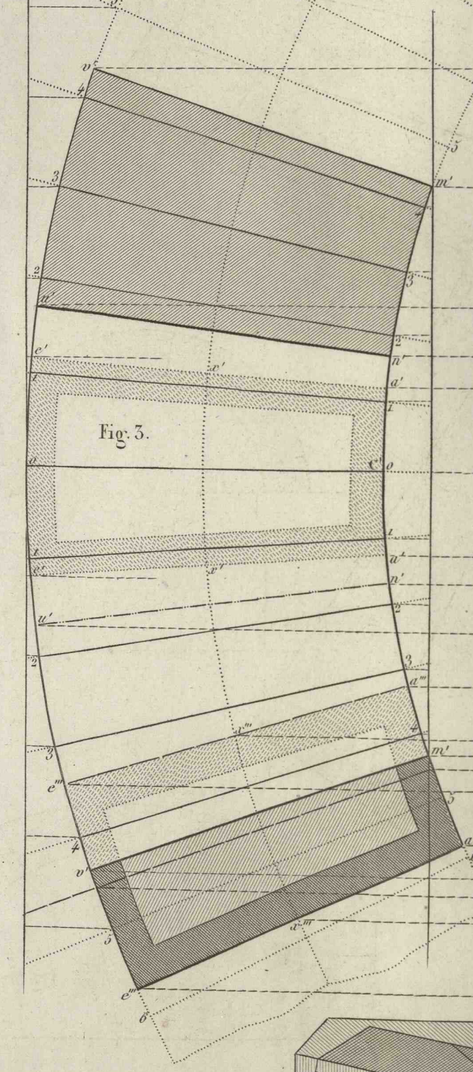


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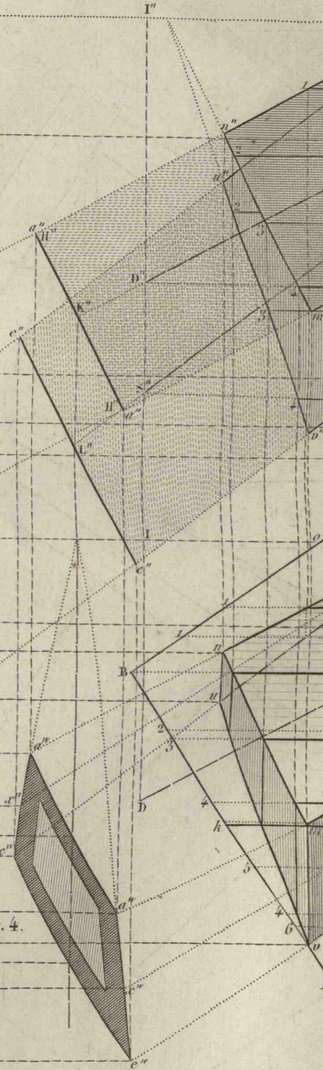


Fig. 6.

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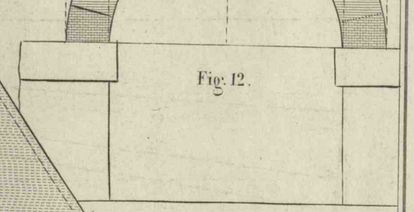


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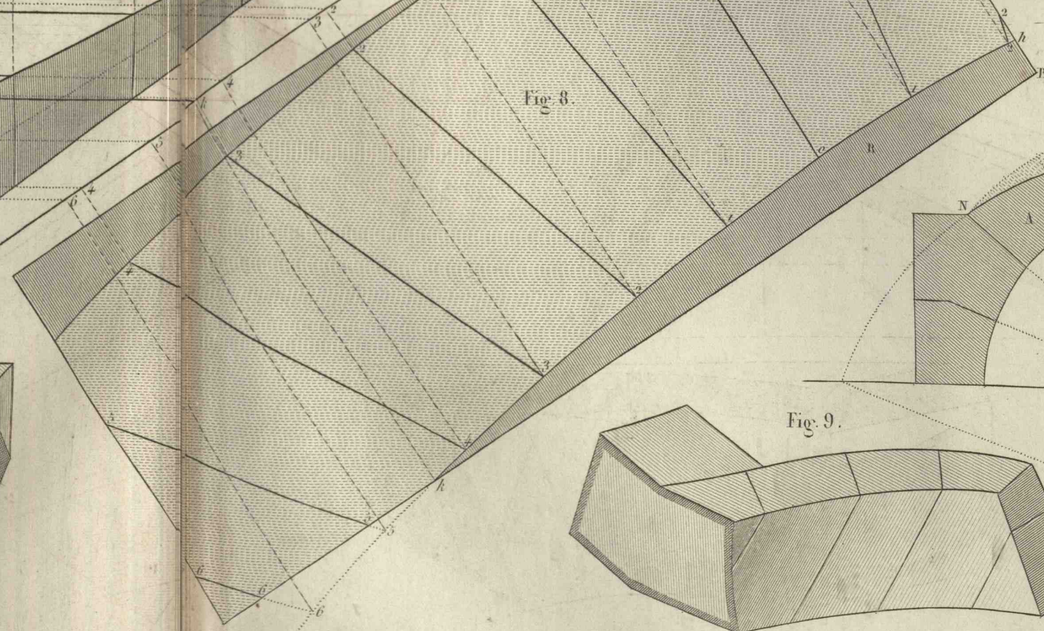


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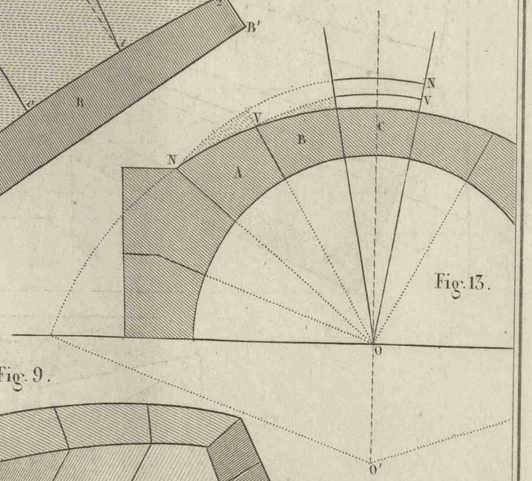


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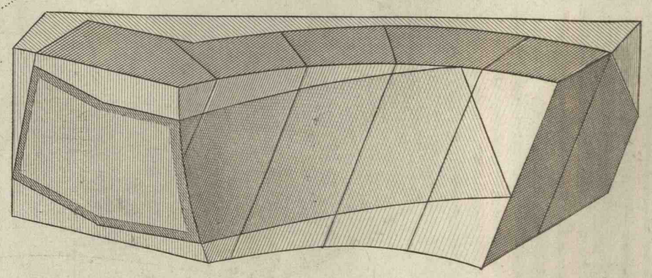
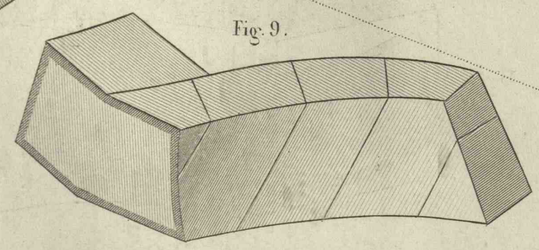


Fig. 9.



Allhémar del.

Ponts droits - appareil hélicoïdal

Fig. 1.

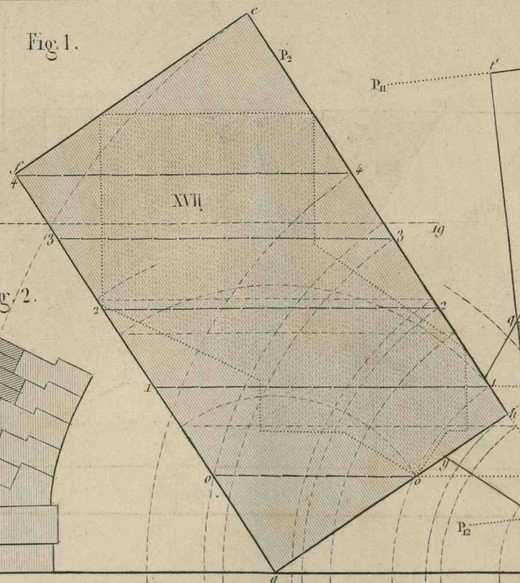


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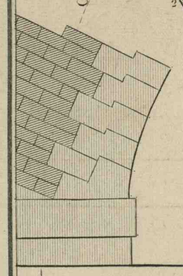


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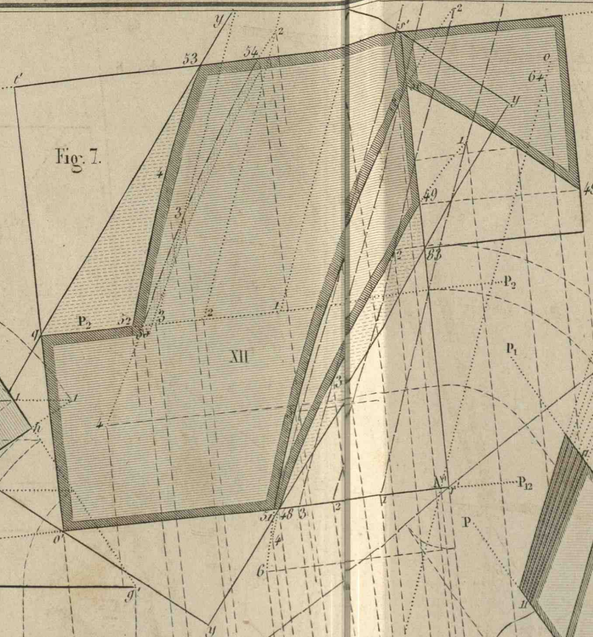


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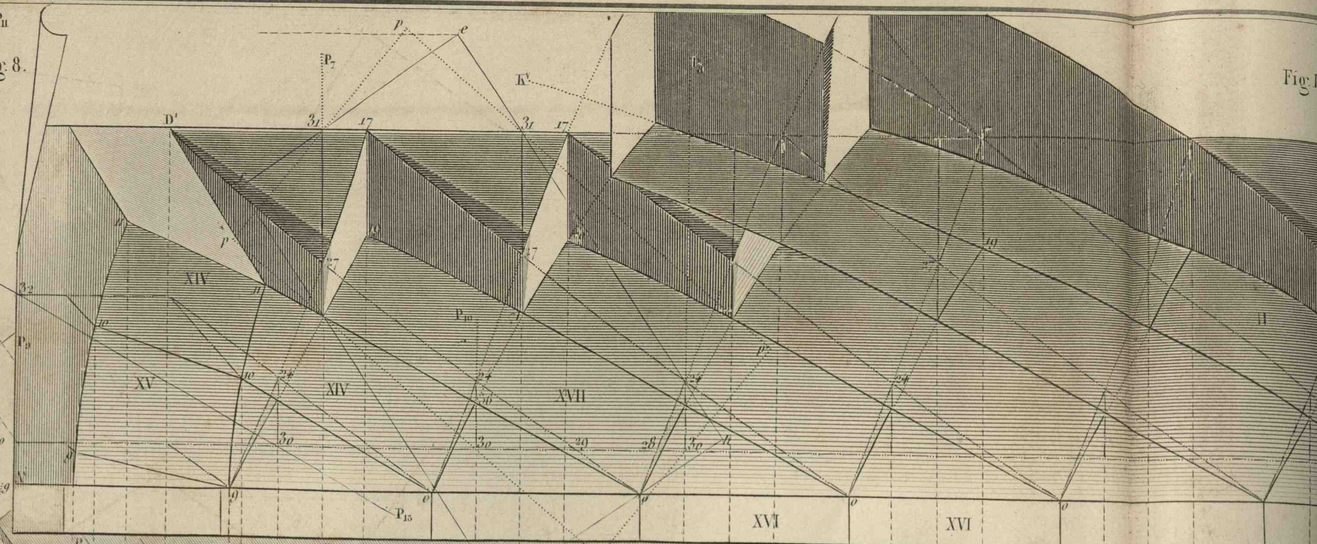


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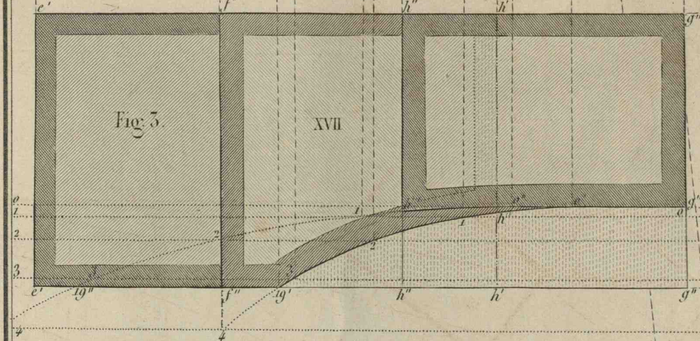


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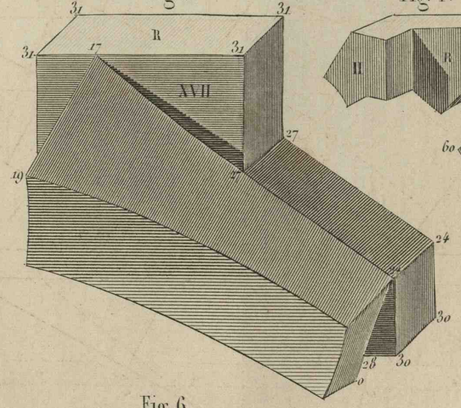


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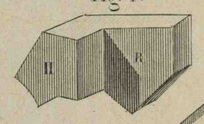


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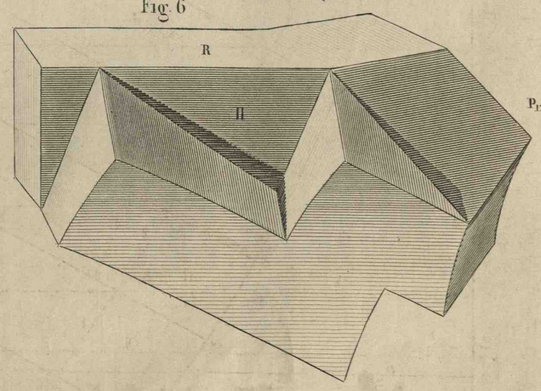


Fig. 10



Fig. 9.

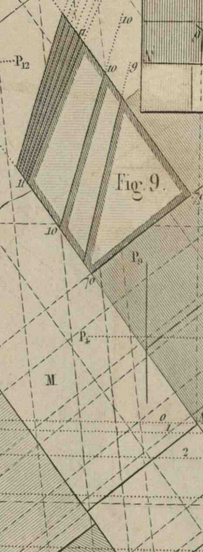


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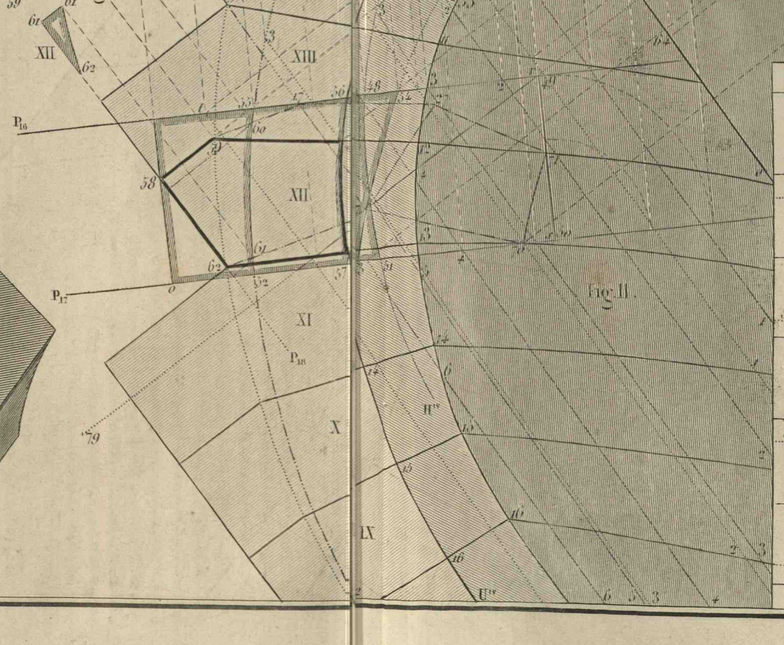


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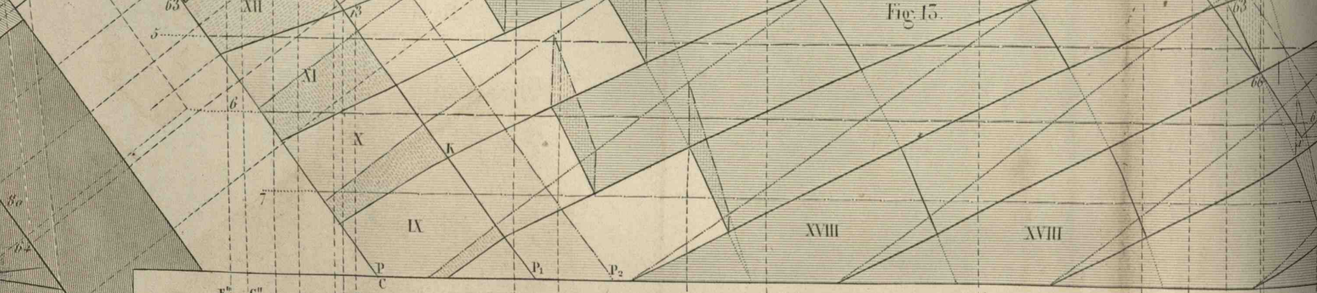
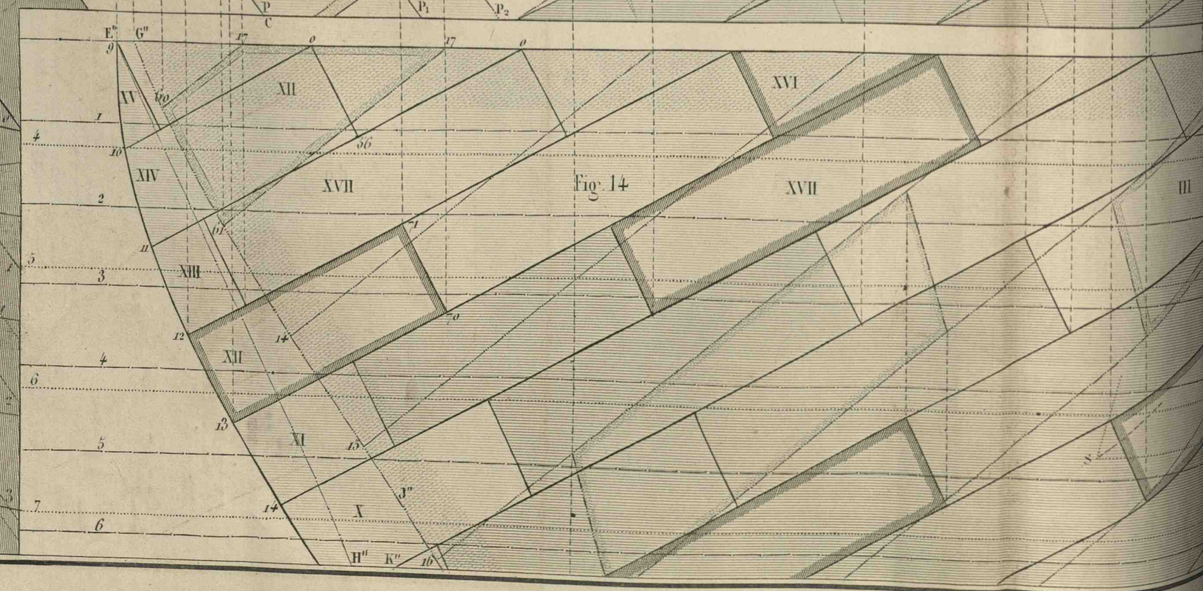


Fig. 14



12.

Fig. 15

Fig. 16.

Fig. 17

Fig. 18

Fig. 19.

Fig. 20.

Fig. 21

Fig. 22.

Fig. 23

Fig. 24

Fig. 25

Fig. 26

Fig. 27

Fig. 28

Ponts biais - taillé par Beurrau

Fig. 1.

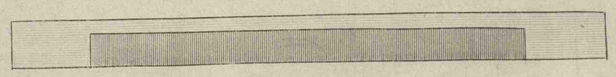


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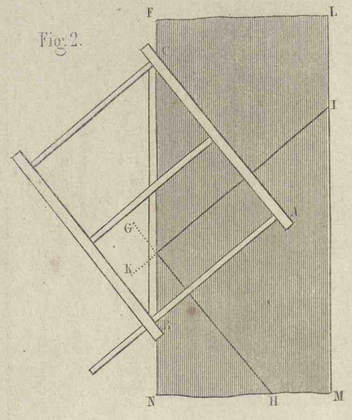


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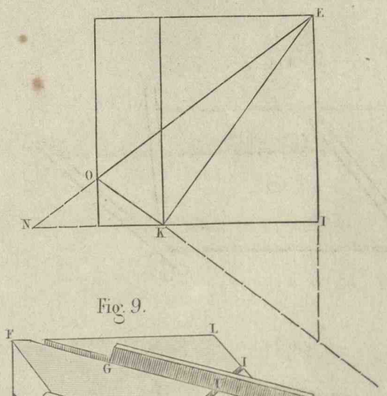


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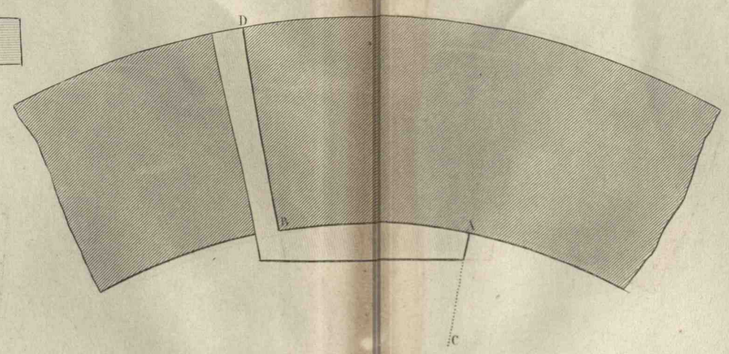


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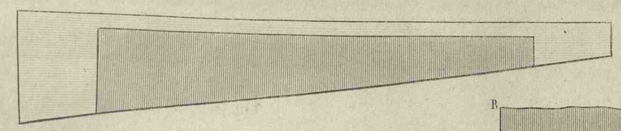


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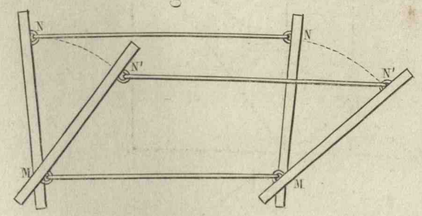


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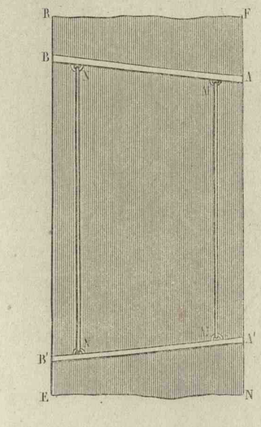


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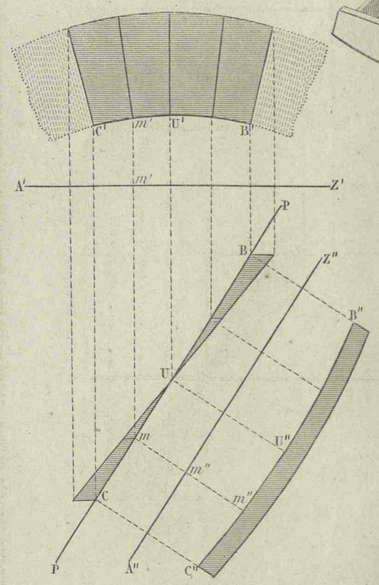


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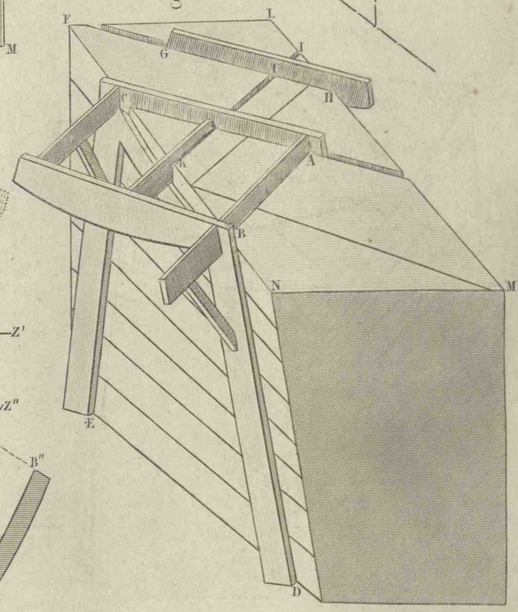


Fig. 10

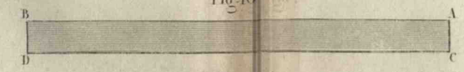


Fig. 11



Fig. 12

Fig. 13.

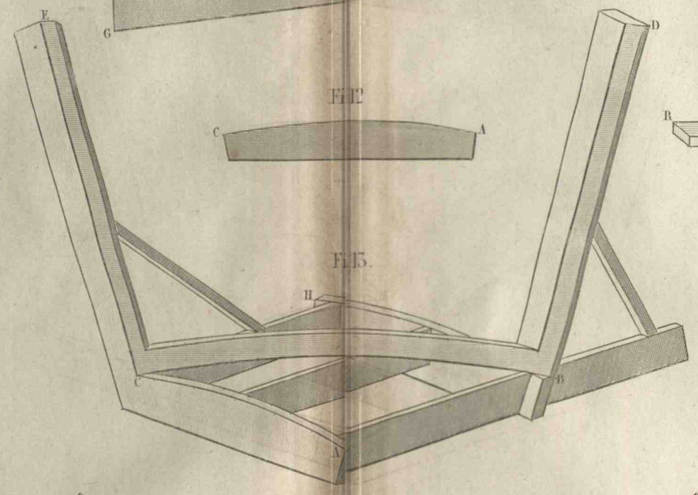


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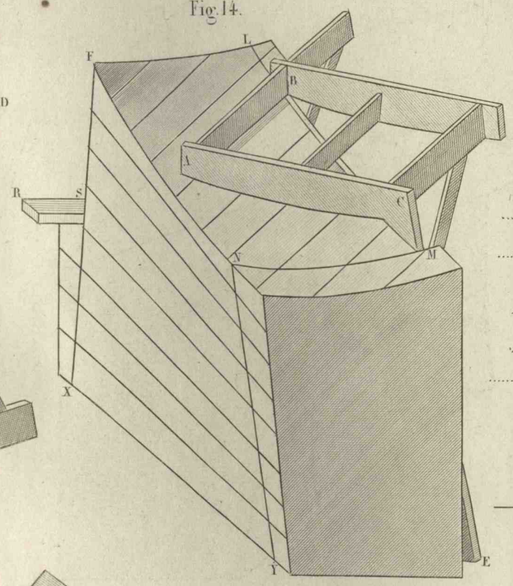


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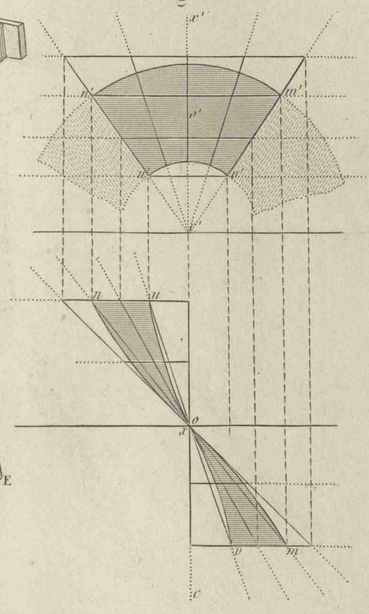


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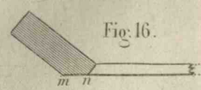


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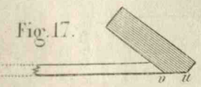


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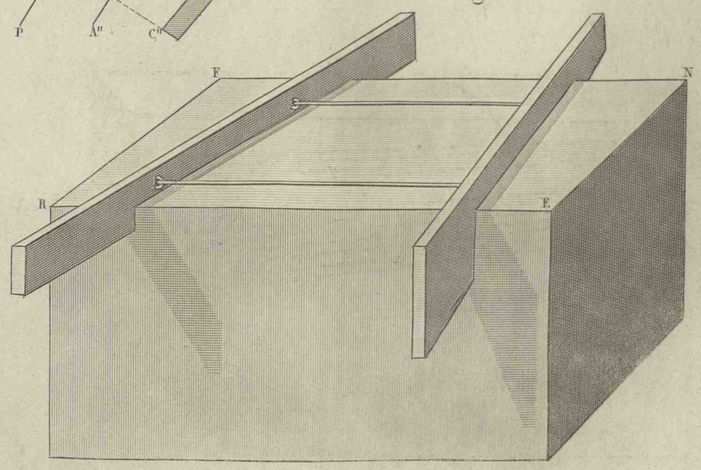


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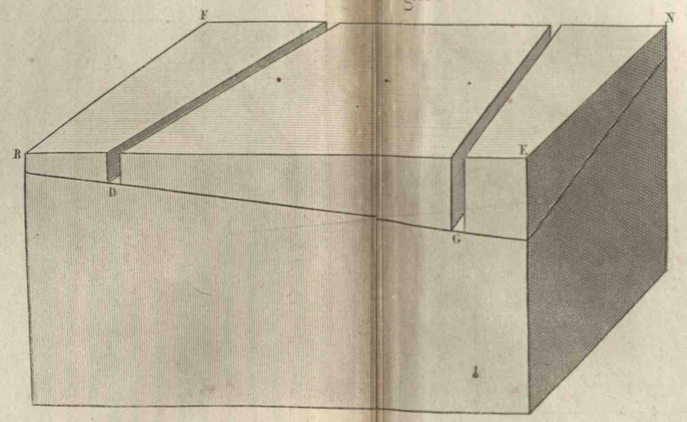
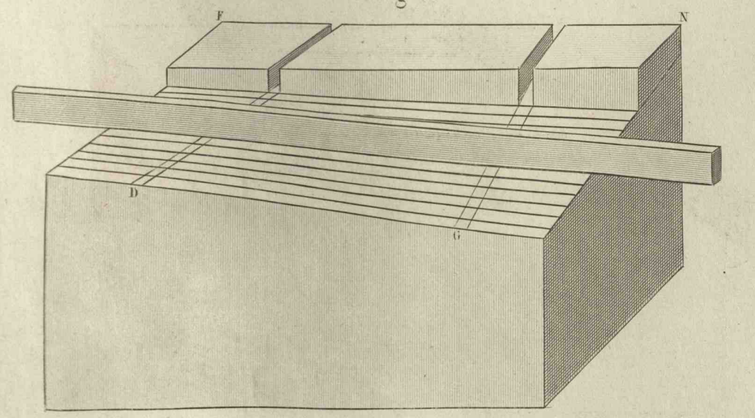


Fig. 20.



Imp. Rougier, R. des Mathurins S. J. 40. Paris.

Adhémar del.

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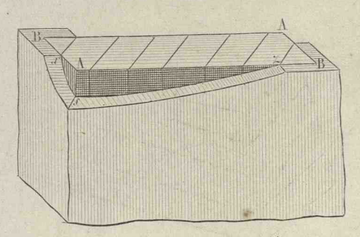


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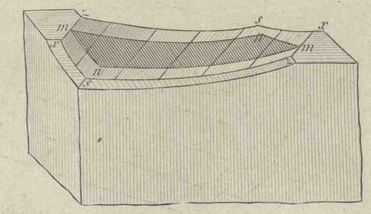


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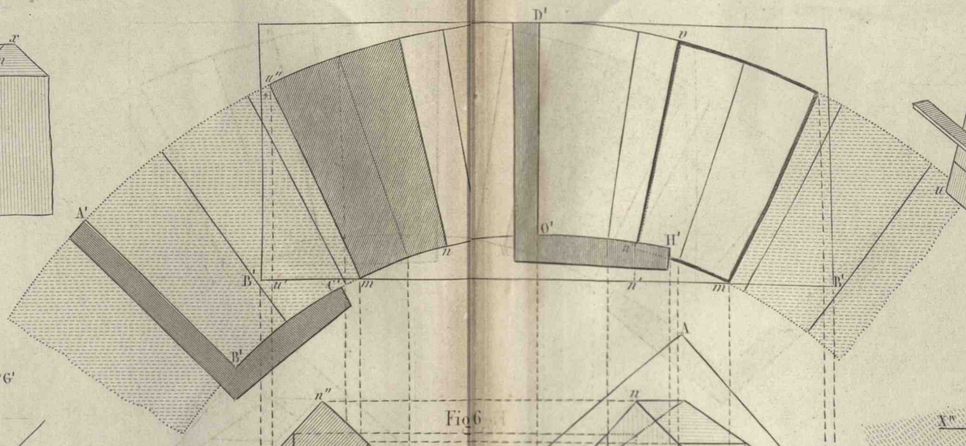


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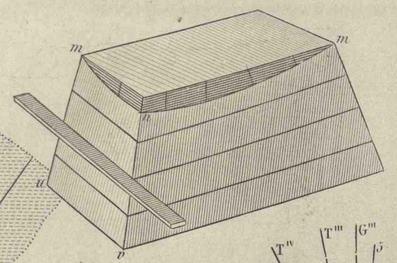


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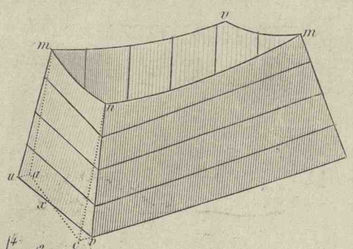


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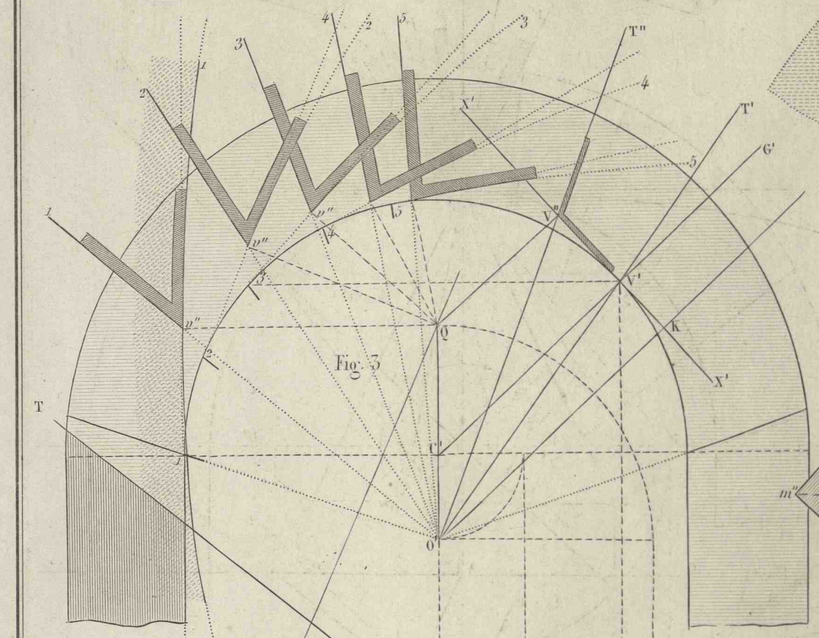


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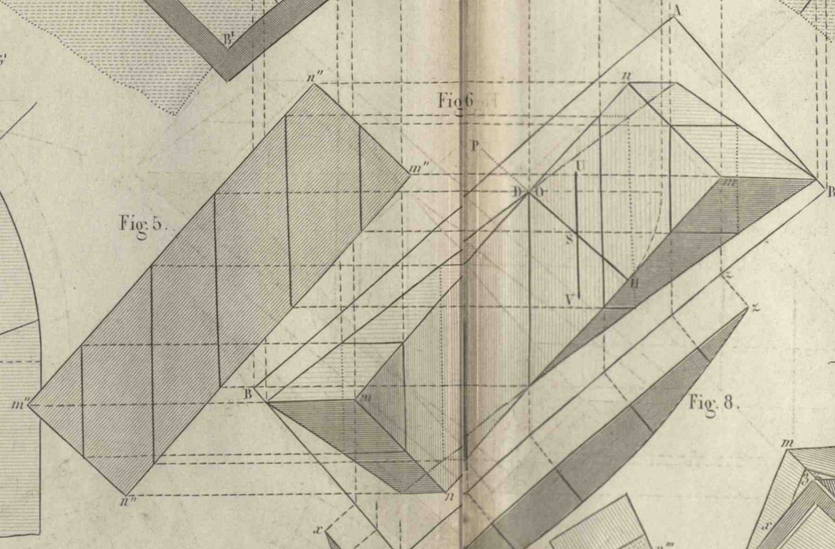


Fig. 6

Fig. 7

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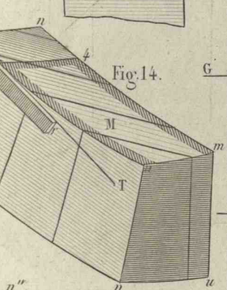


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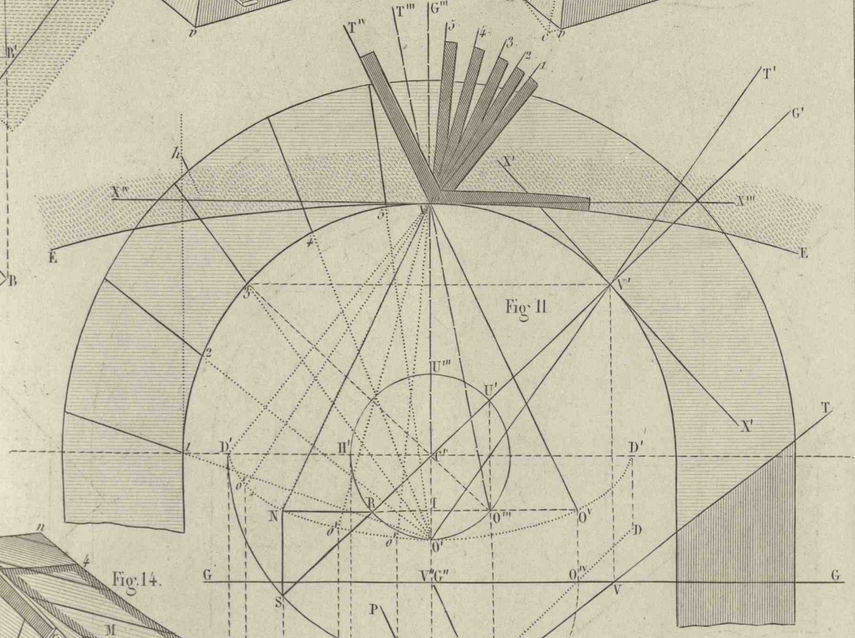


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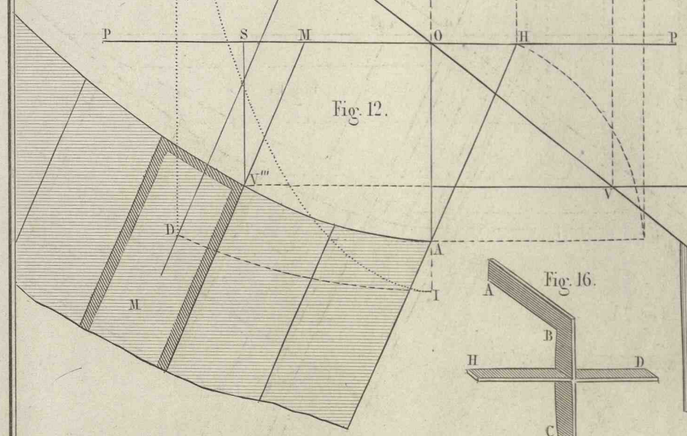


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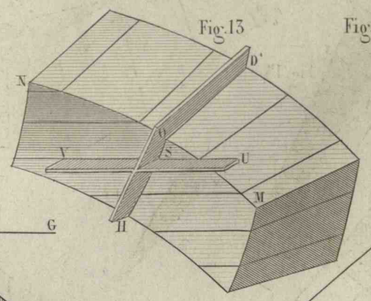


Fig. 14.

Fig. 15

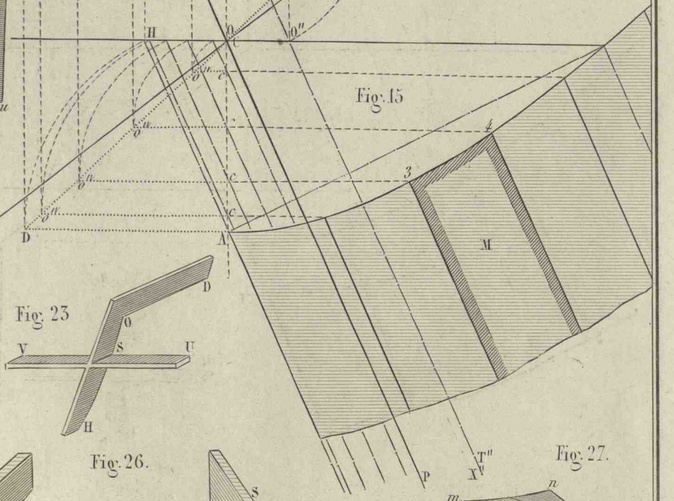


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Fig. 17

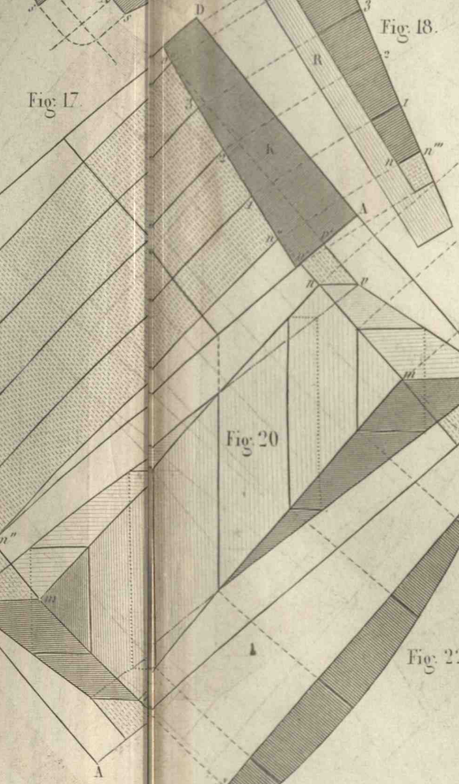


Fig. 18.

Fig. 19.

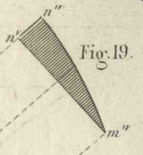


Fig. 20

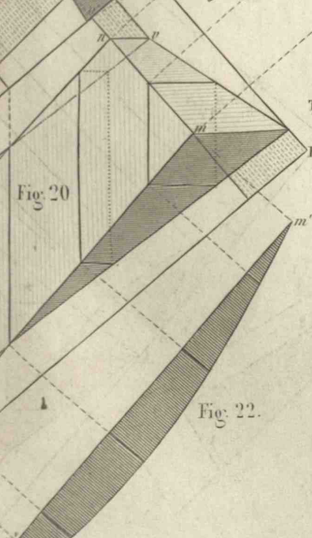


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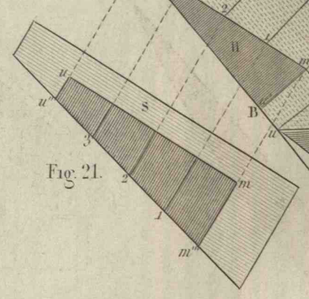


Fig. 22.

Fig. 23

Fig. 24.

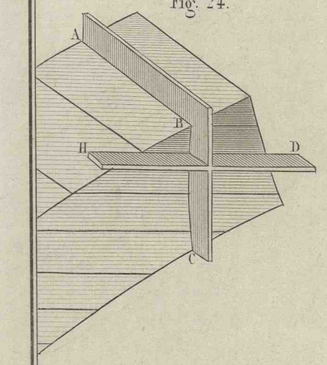


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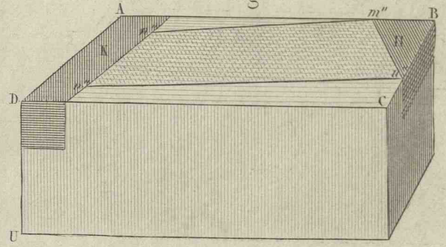


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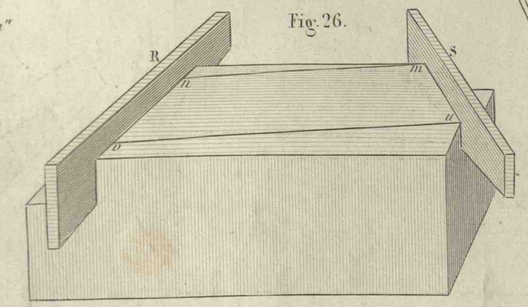


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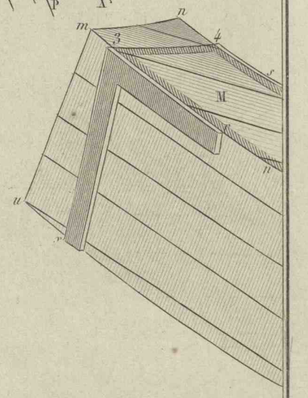


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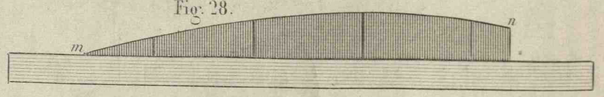
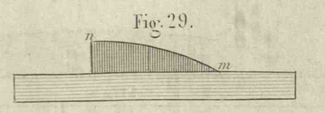


Fig. 29.



Ponts biais - Berceau circulaire - Joints normaux

Fig. 1

Fig. 2.

Fig. 3.

Fig. 4

Fig. 5.

Fig. 6.

Fig. 7.

Fig. 8.

Fig. 9.

Fig. 10.

Fig. 11.

Fig. 12.

Fig. 13.

Fig. 14.

Fig. 15.

Fig. 16.

Fig. 17

Adhémar del.

Ponts biais - stabilité

Fig. 1.

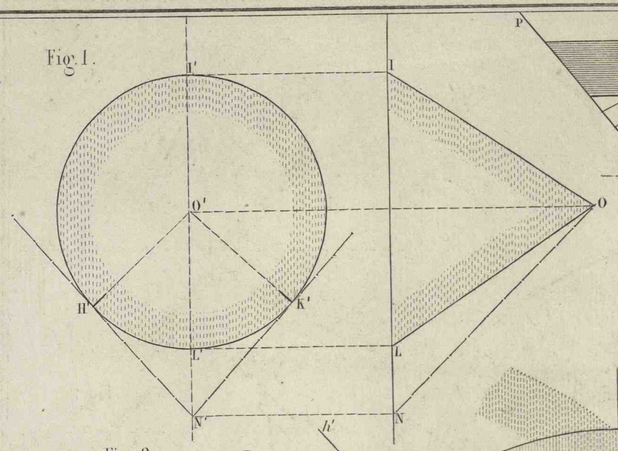


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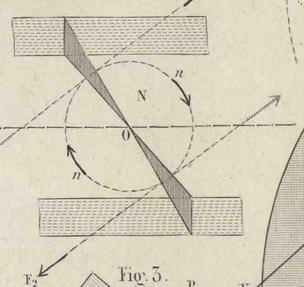


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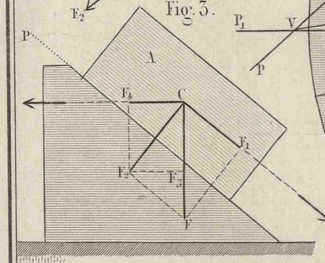


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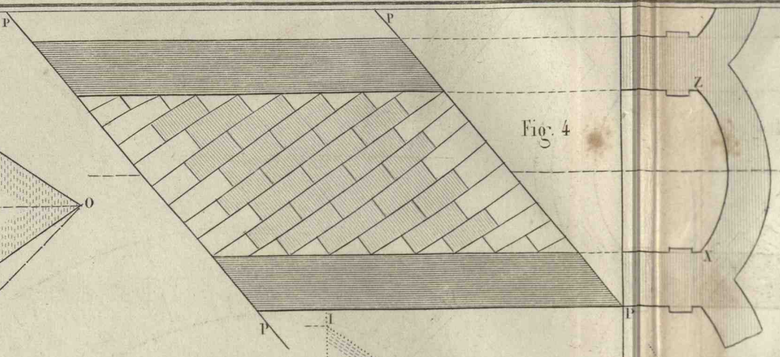


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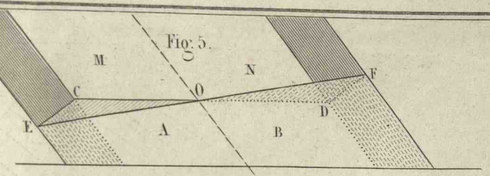


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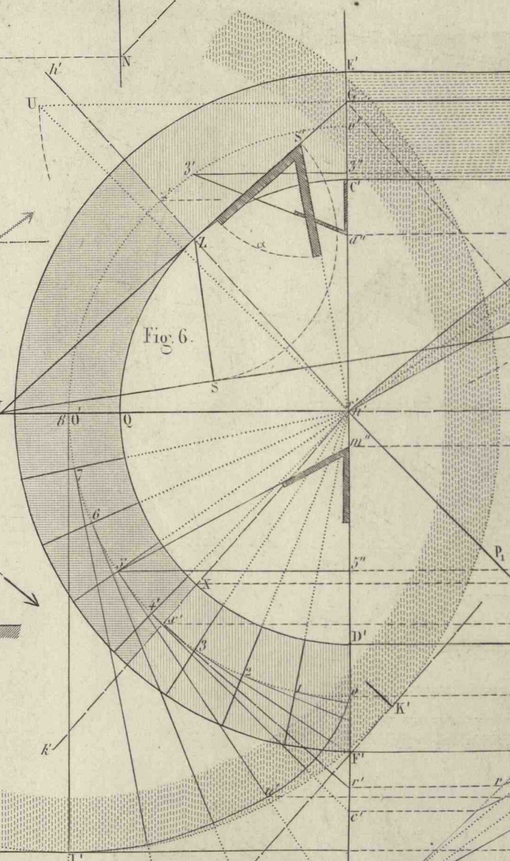


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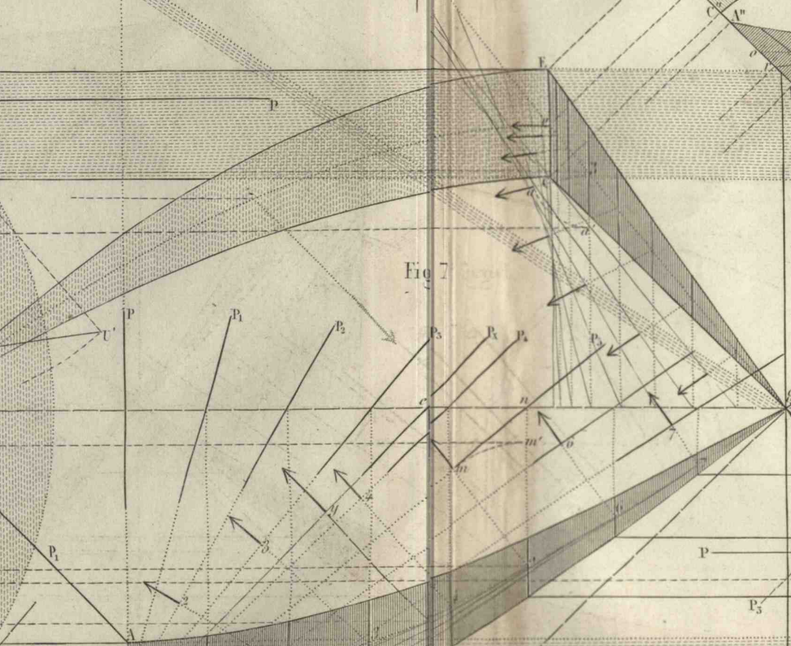


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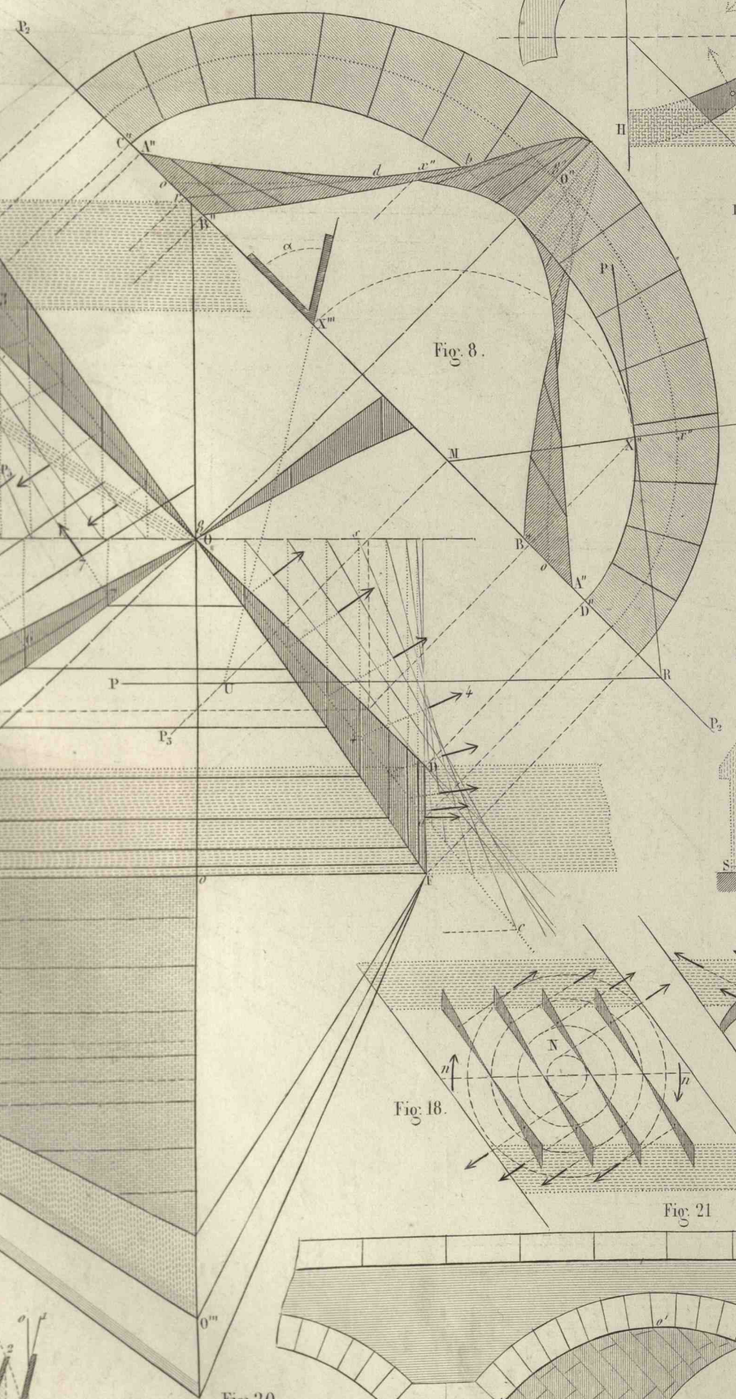


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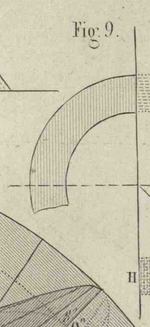


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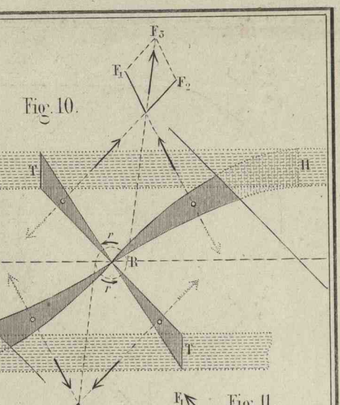


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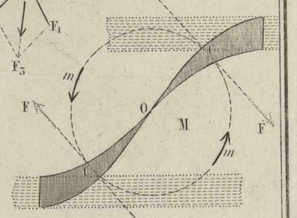


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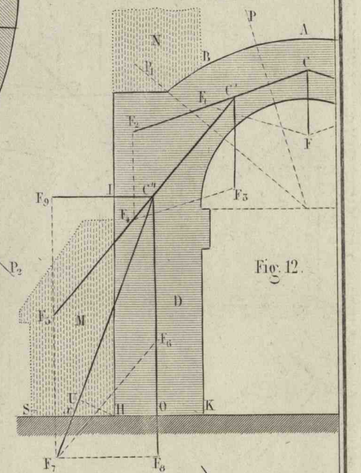


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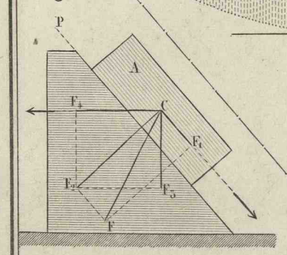


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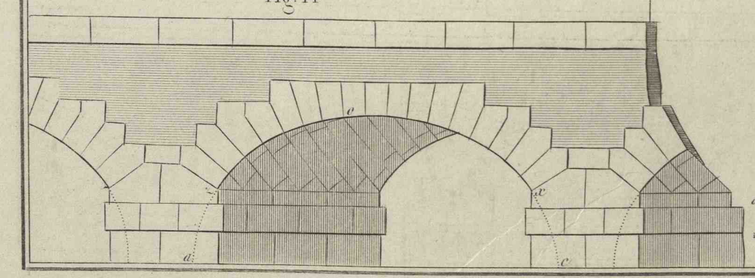


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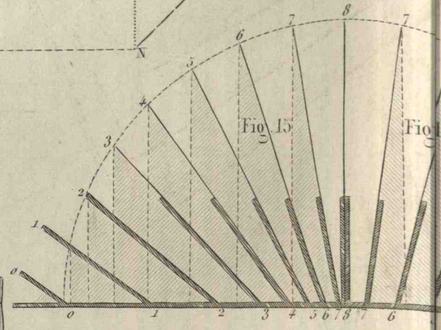


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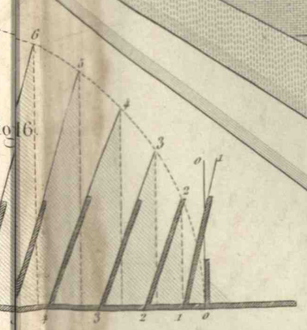


Fig. 17.

Fig. 18.

Fig. 19.

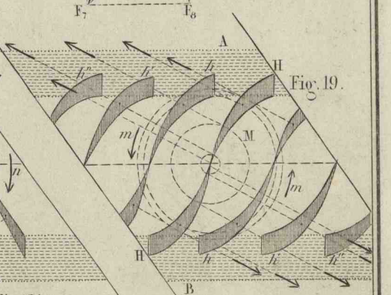


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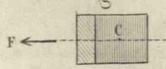
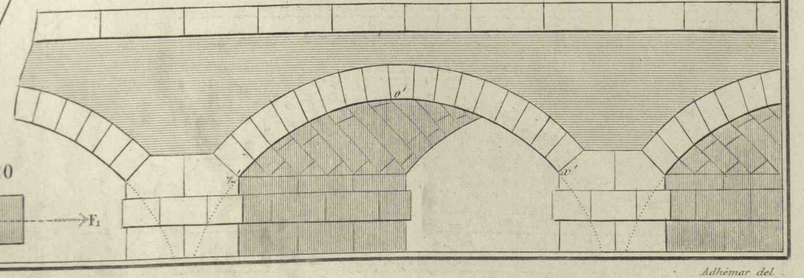


Fig. 21



Pont biais circulaire - Joints, Plans.

Fig. 1.

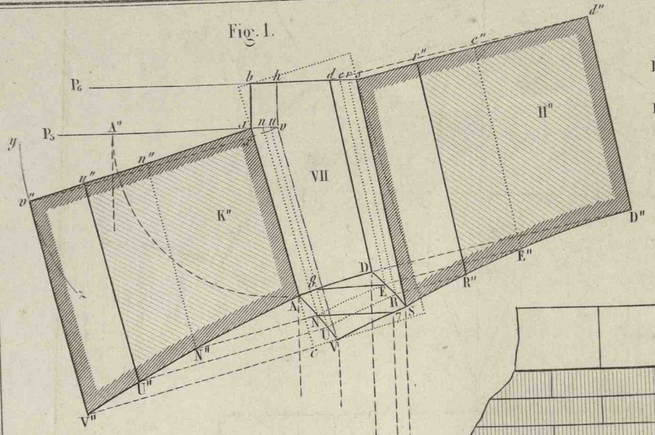


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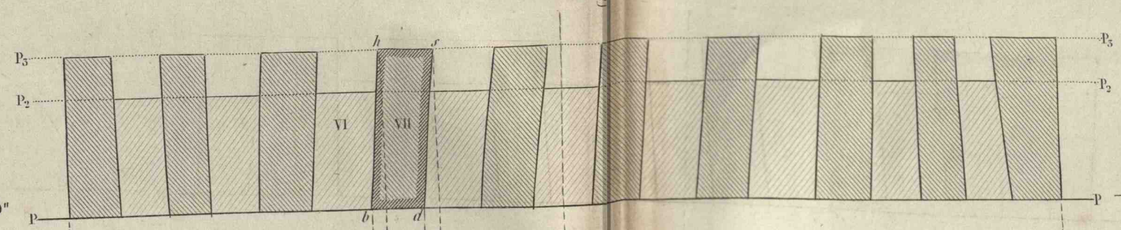


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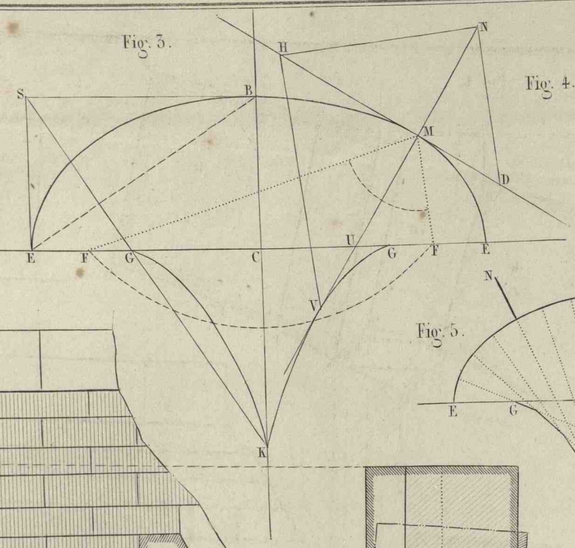


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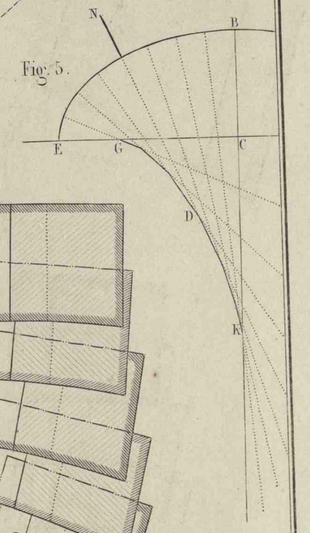


Fig. 5.

Fig. 6

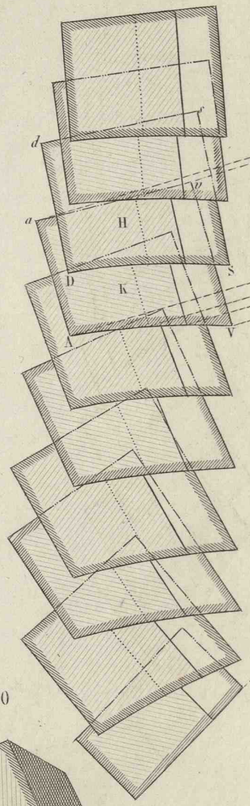


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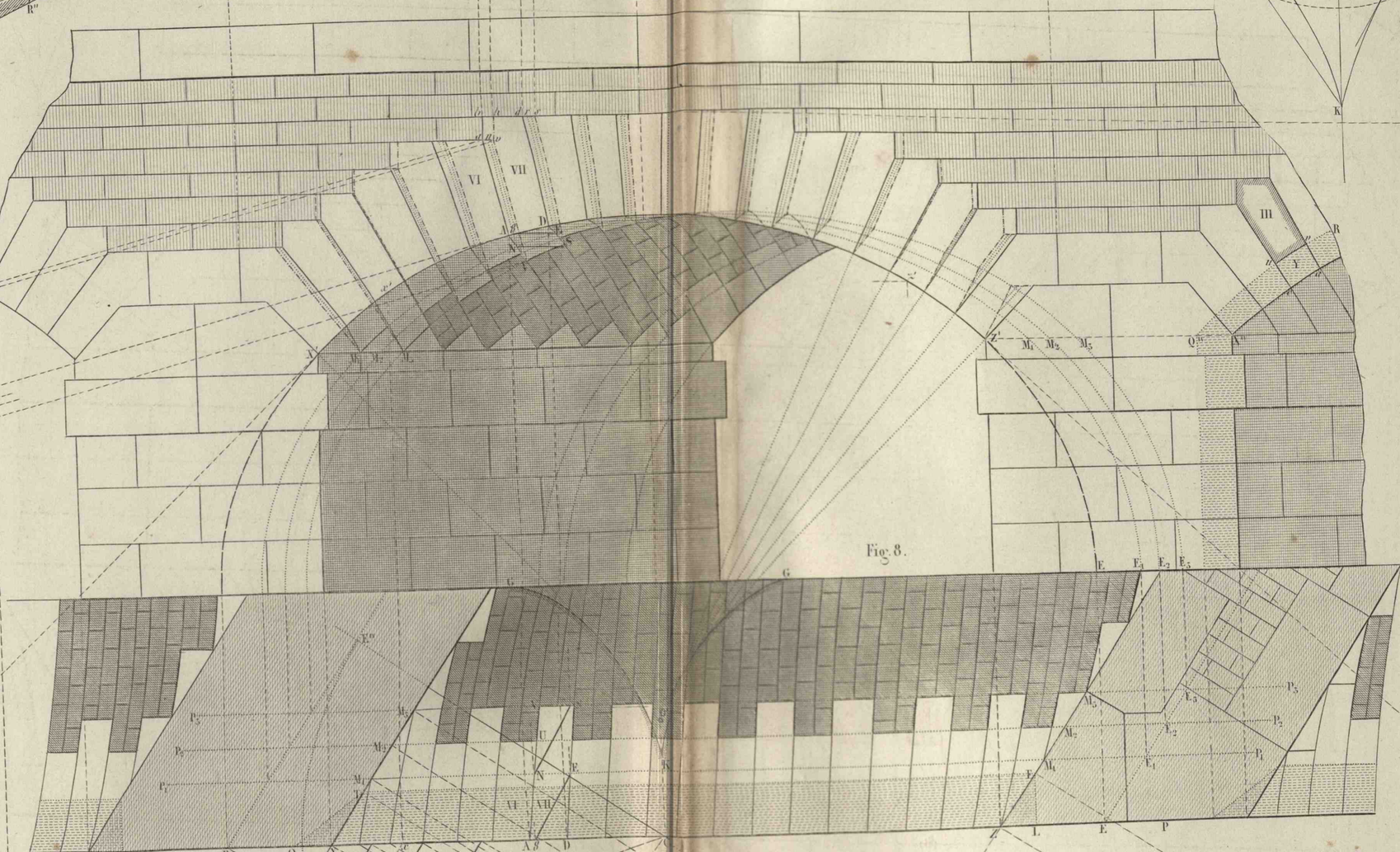


Fig. 8.

Fig. 9.

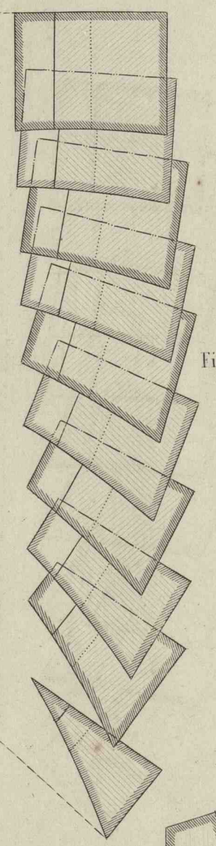


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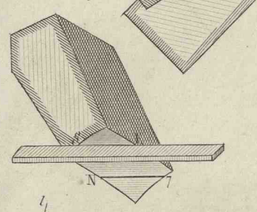


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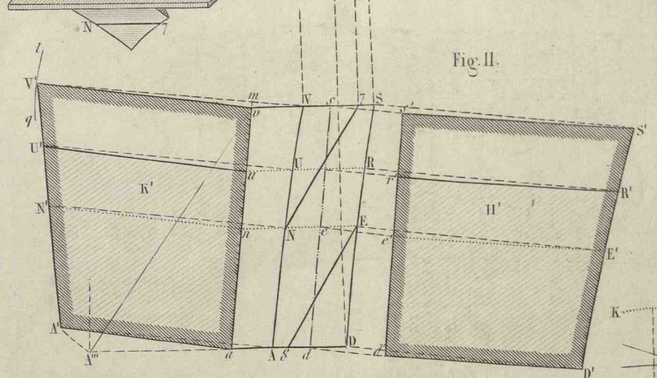


Fig. 12.

Fig. 13

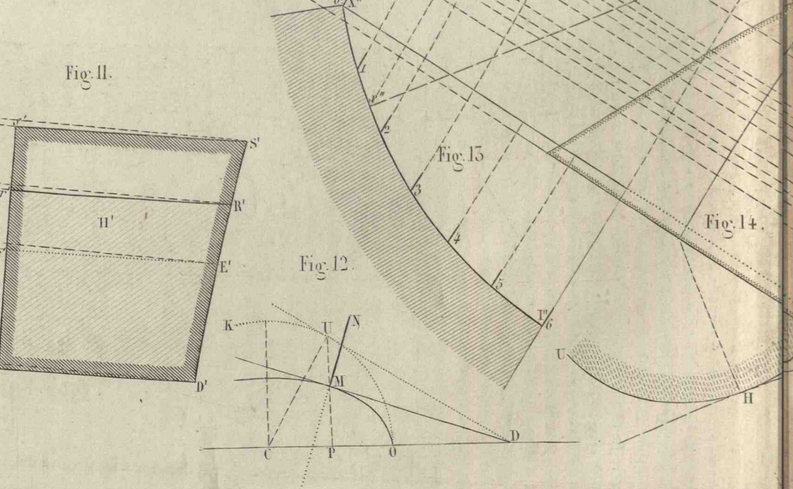


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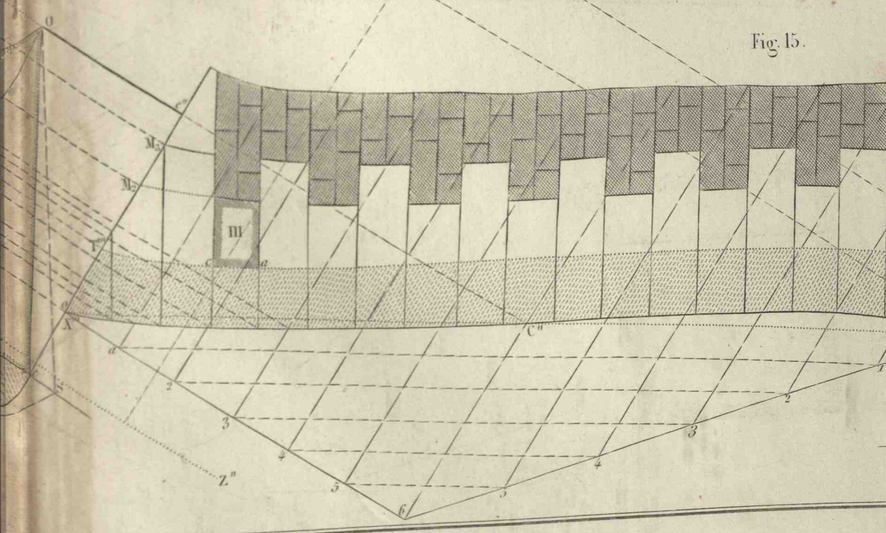


Fig. 15.

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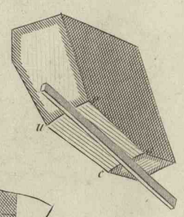
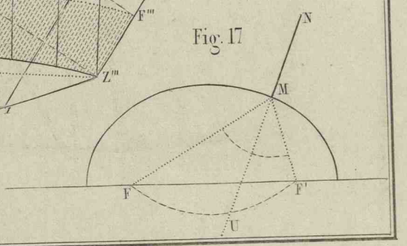


Fig. 17



Ponts biais - section droite

Fig. 1.

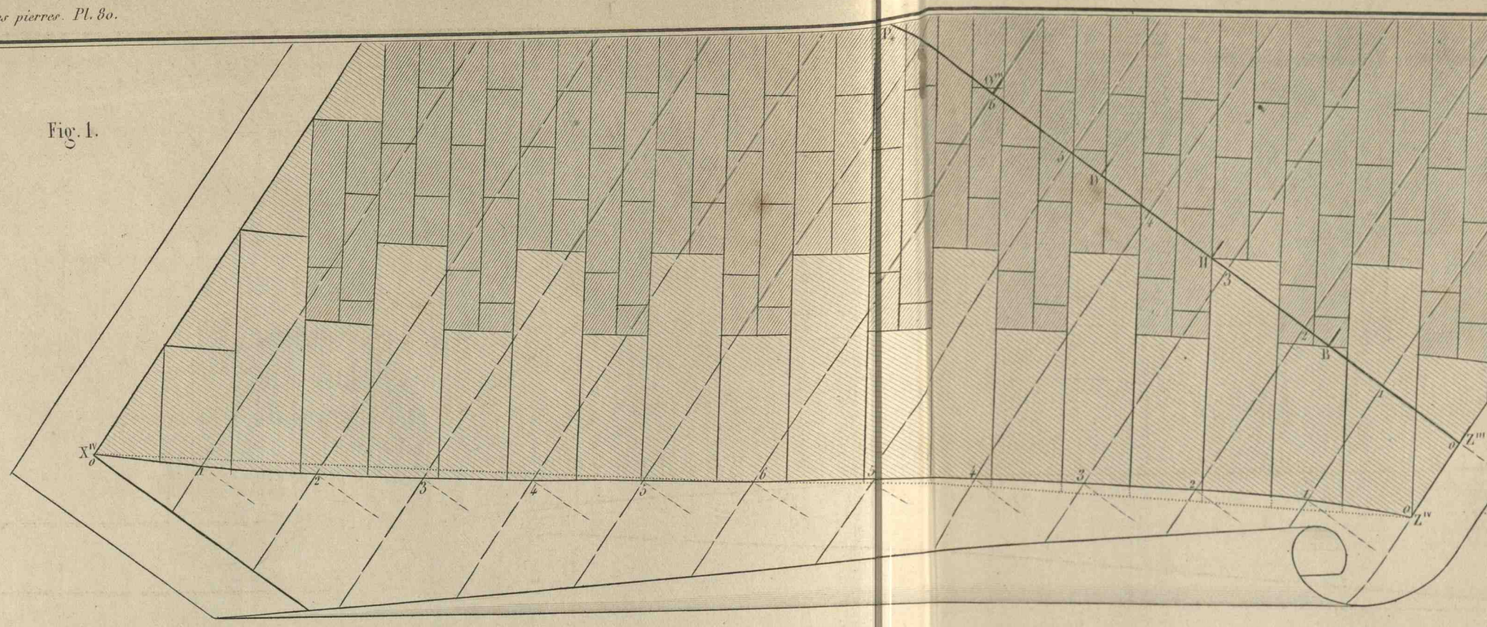


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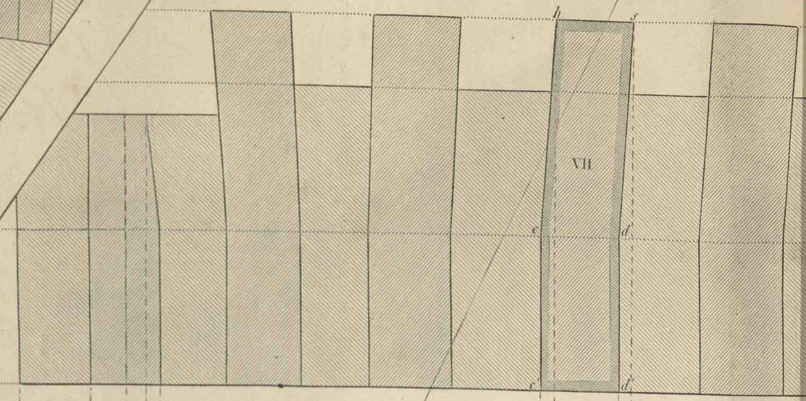


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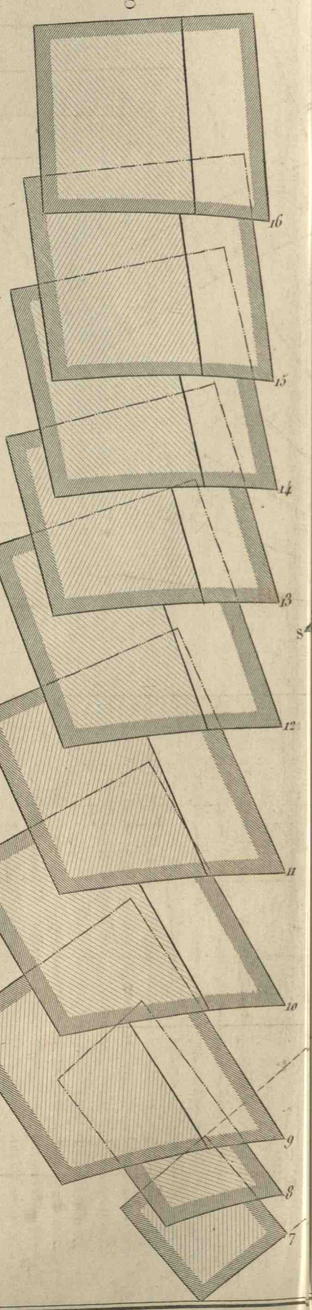


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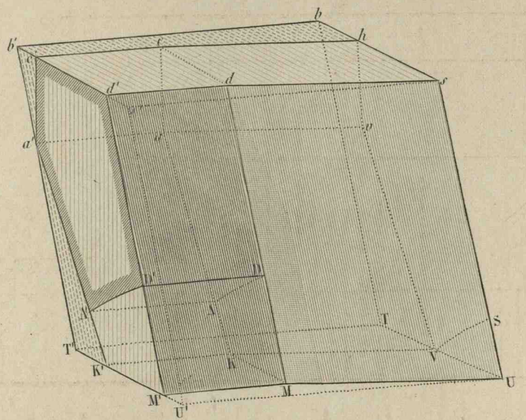


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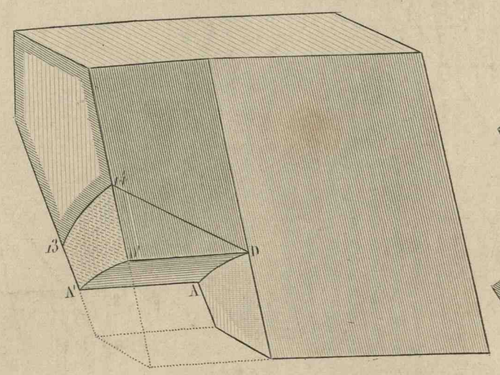


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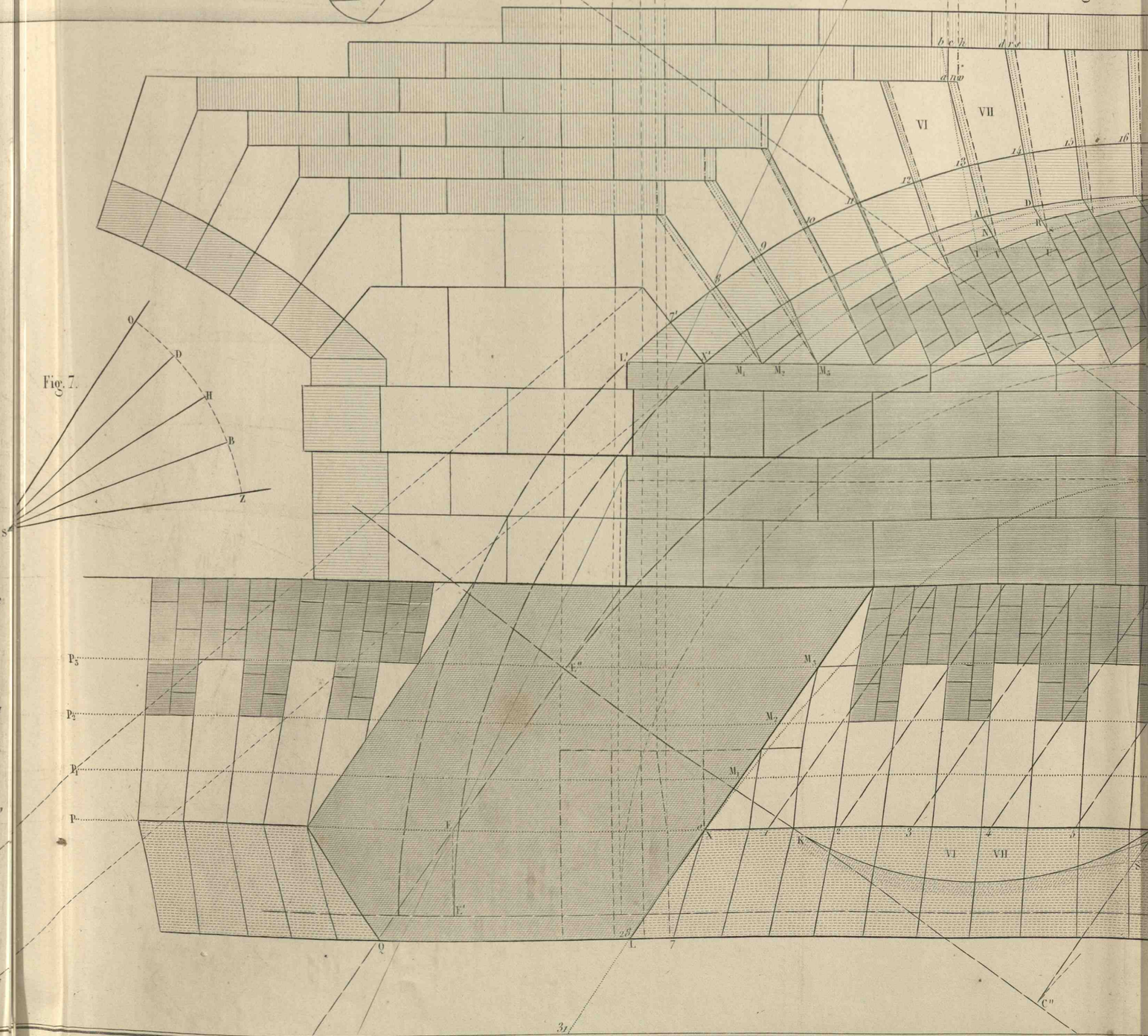


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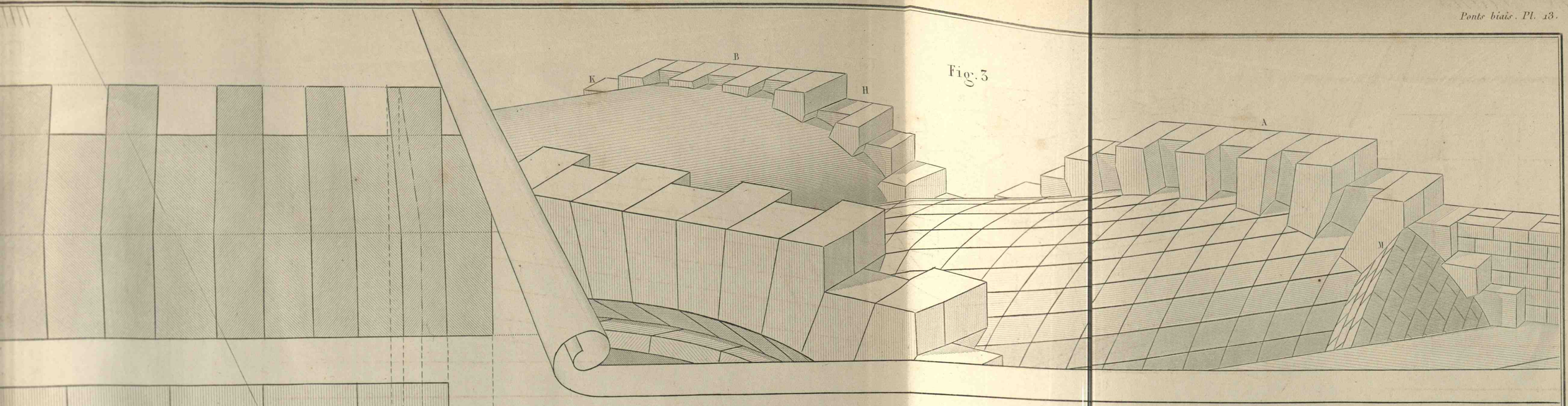


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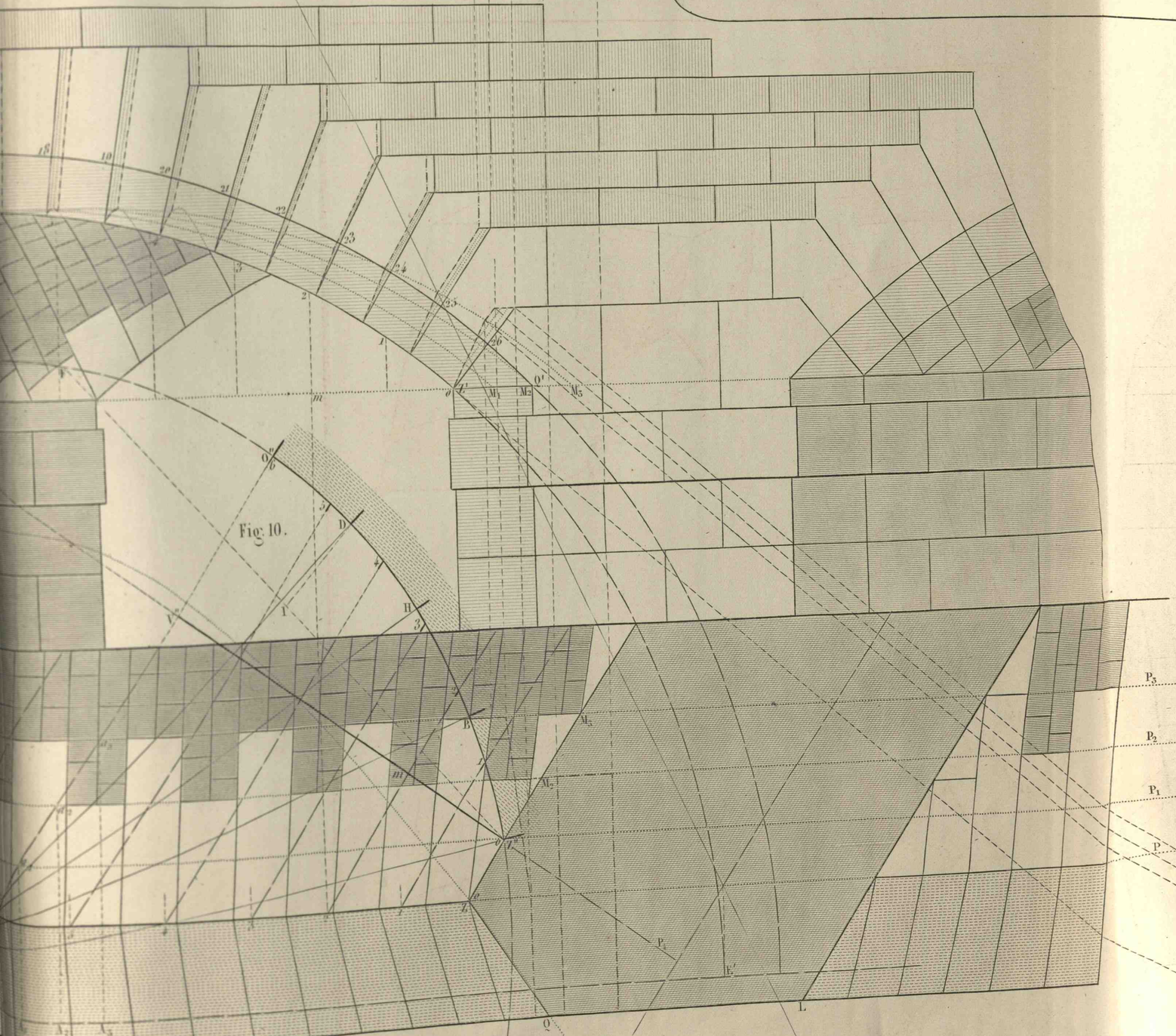


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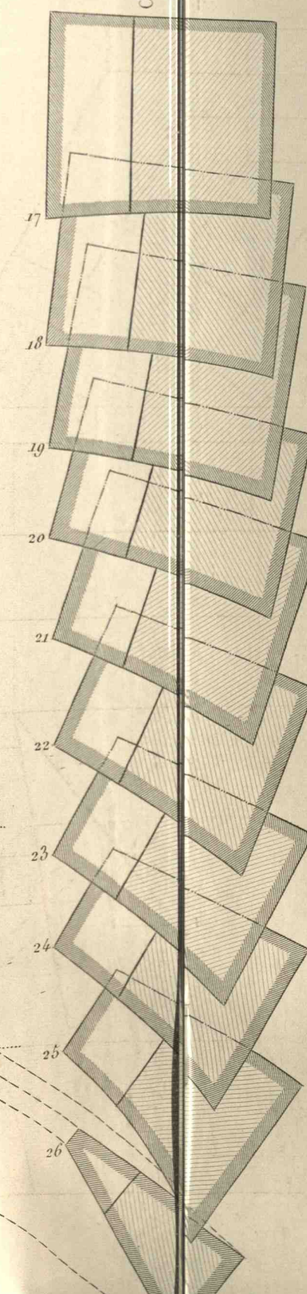


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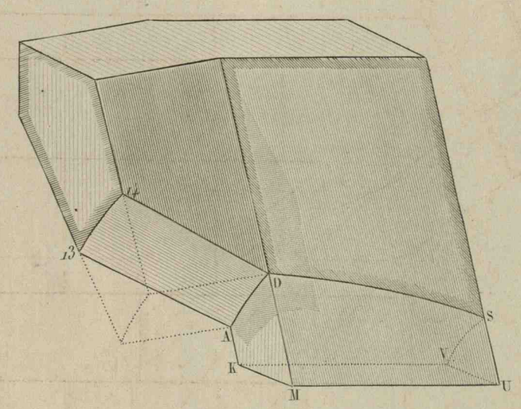
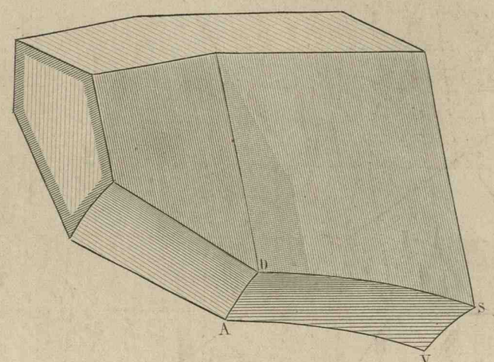


Fig. 13.



Ponts biais - appareil orthogonal

Fig. 1

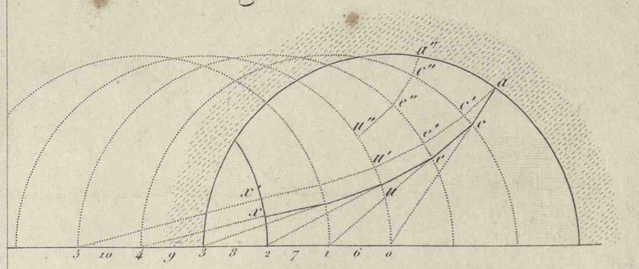


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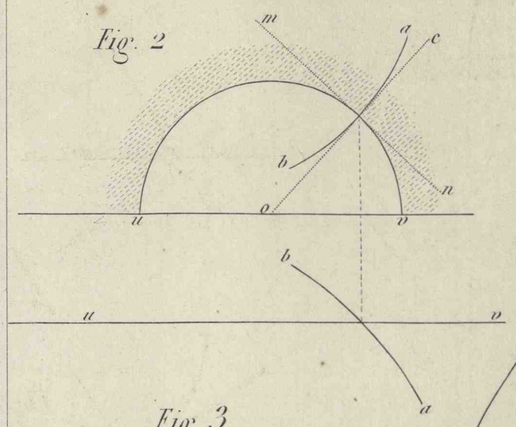


Fig. 3

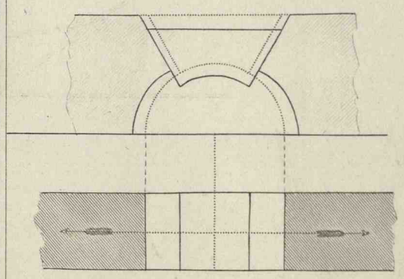


Fig. 4

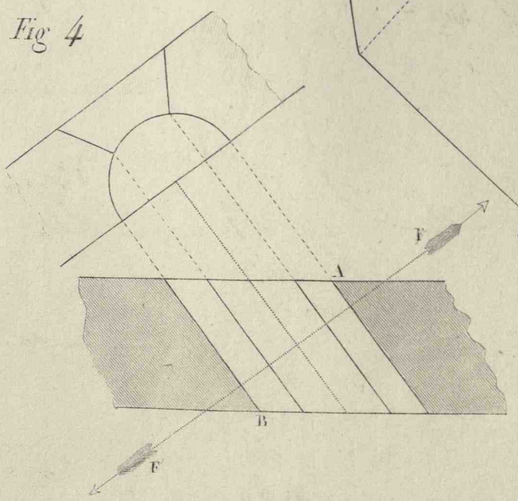


Fig. 5

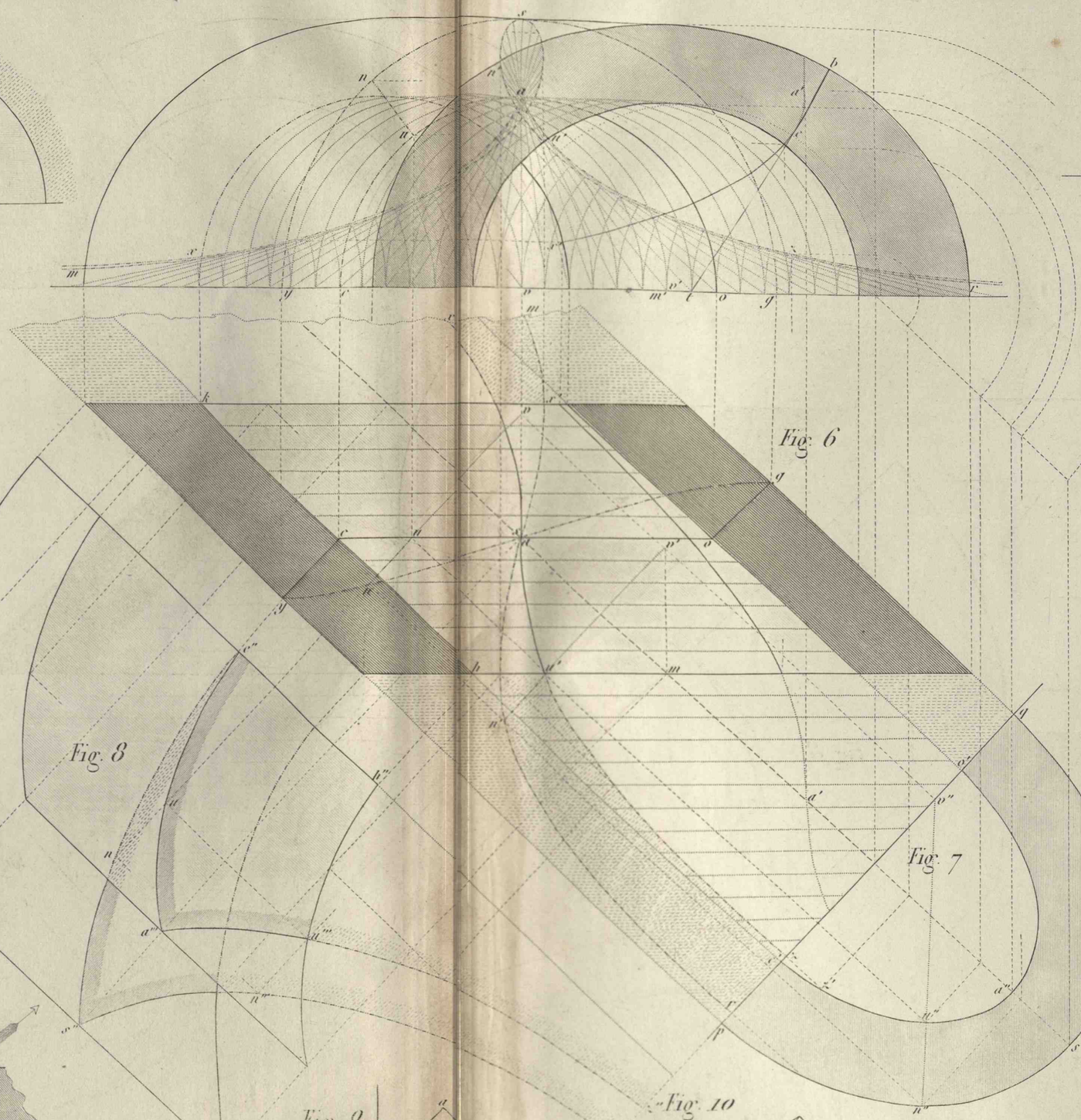


Fig. 6

Fig. 7

Fig. 8

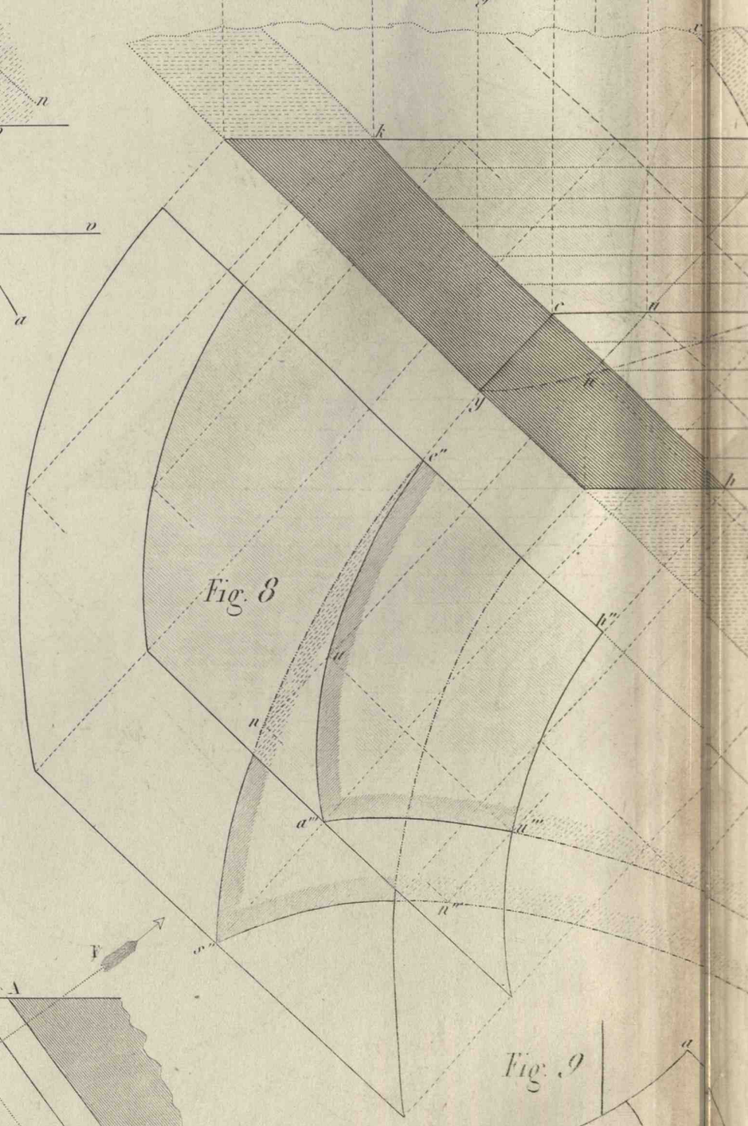


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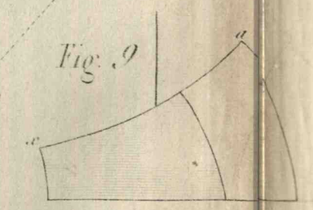


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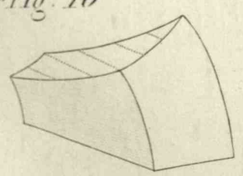


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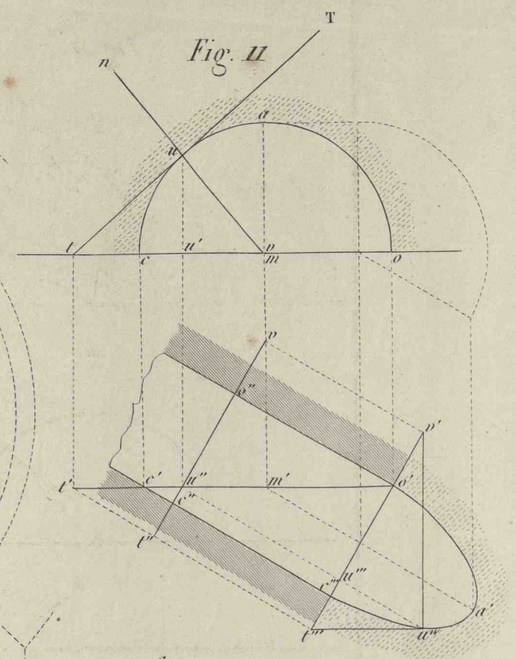


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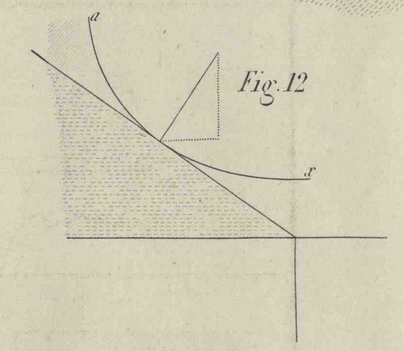


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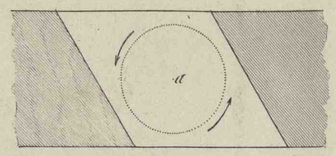
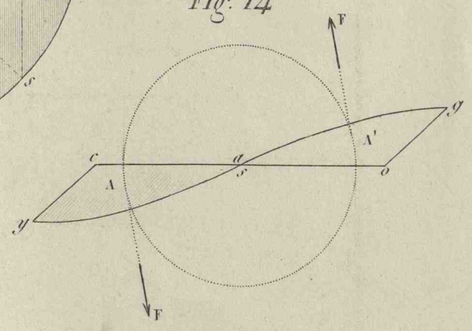


Fig. 14



Ponts biais - appareil orthogonal - Joints Plans

Fig. 1

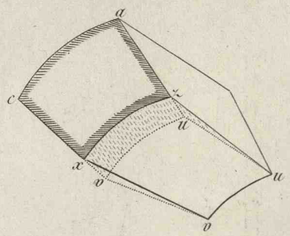


Fig. 2.

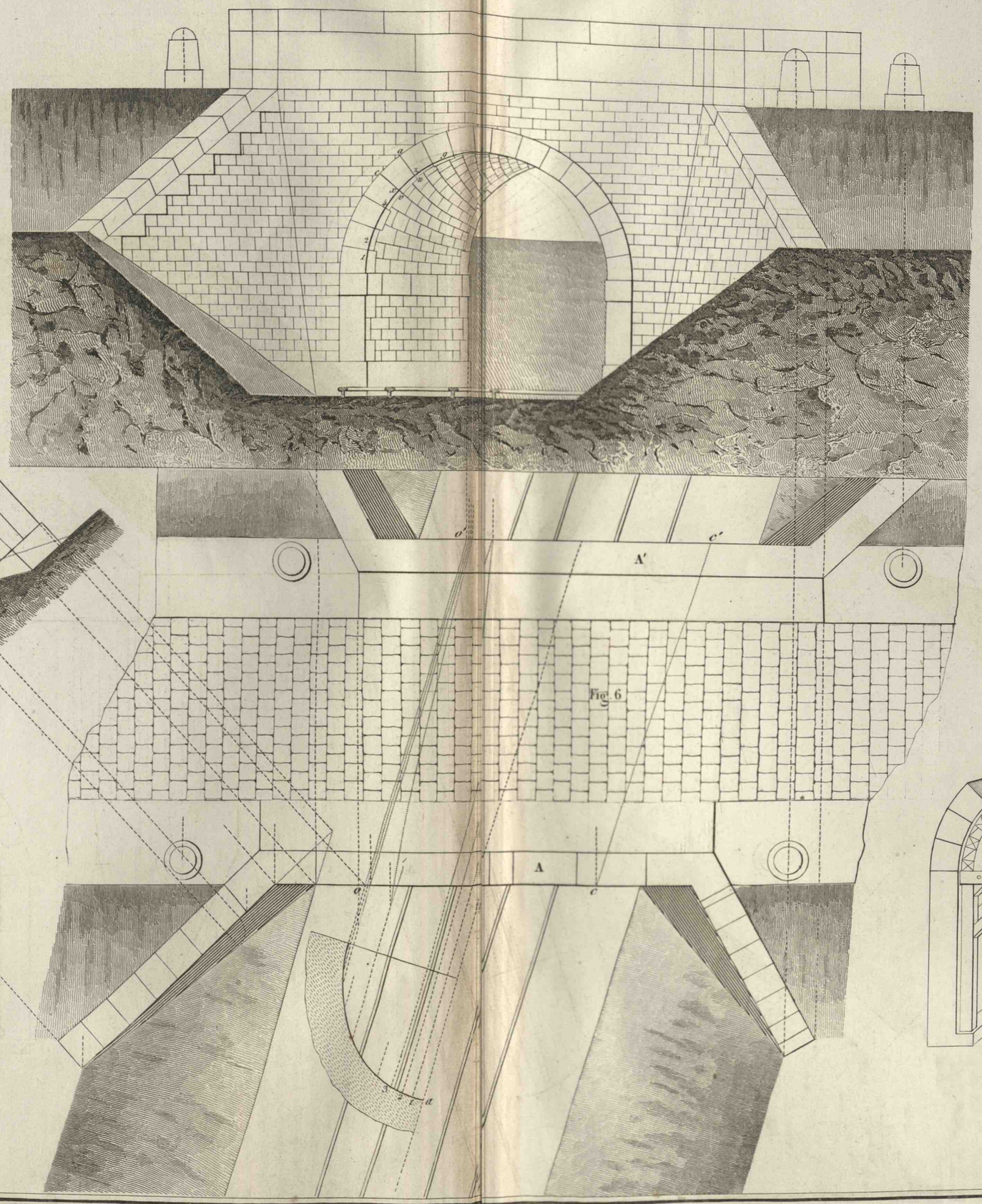


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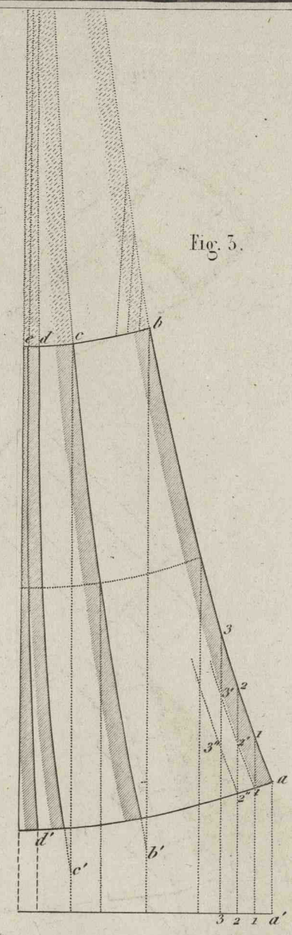


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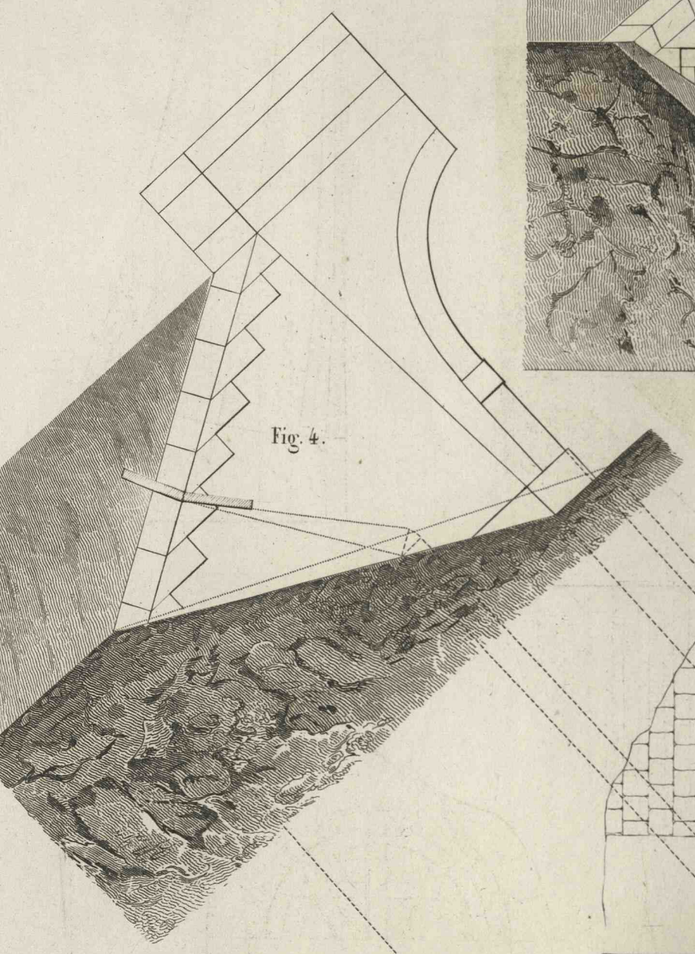


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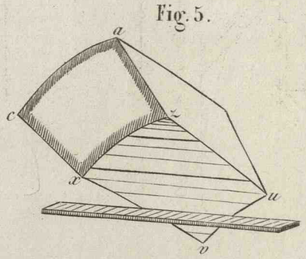
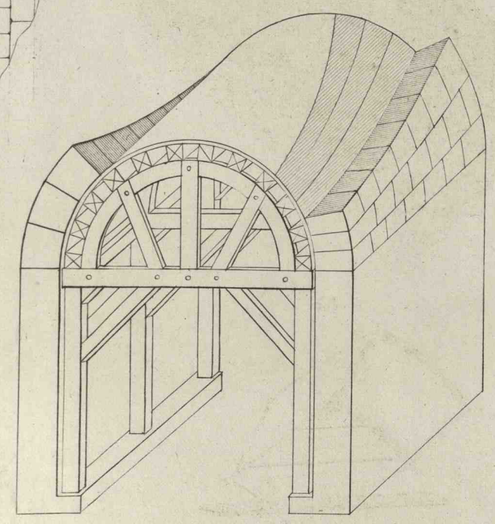


Fig. 6

Fig. 7.



Imprimerie B. Bau Mathématiques & J. Dy Paris

Adhémar del

Ponts biais - appareil orthogonal convergent.

Fig. 1.

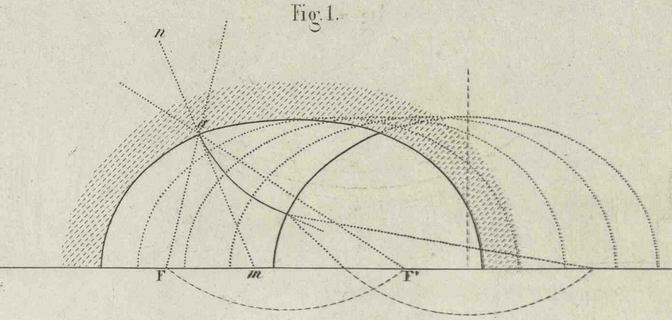


Fig. 2

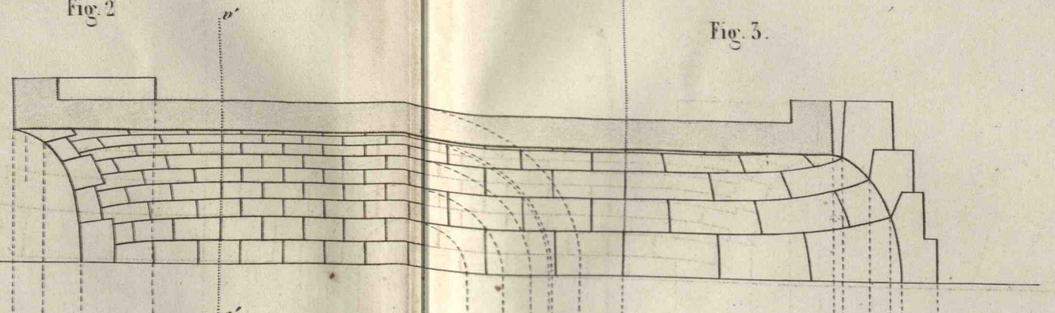


Fig. 3.

Fig. 4.

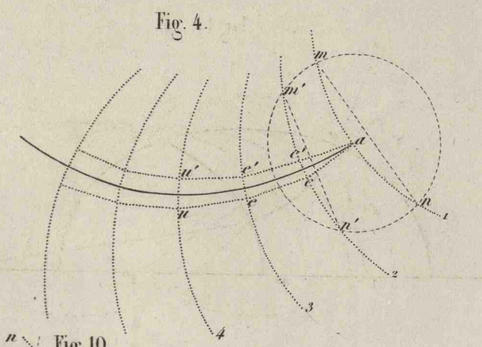


Fig. 5.

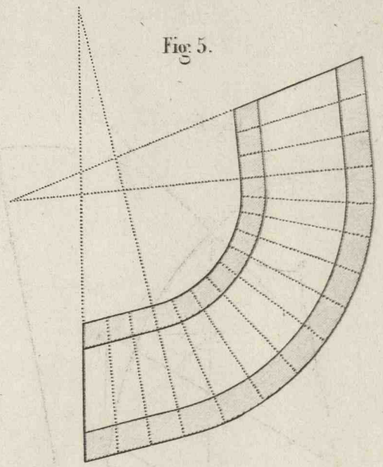


Fig. 6

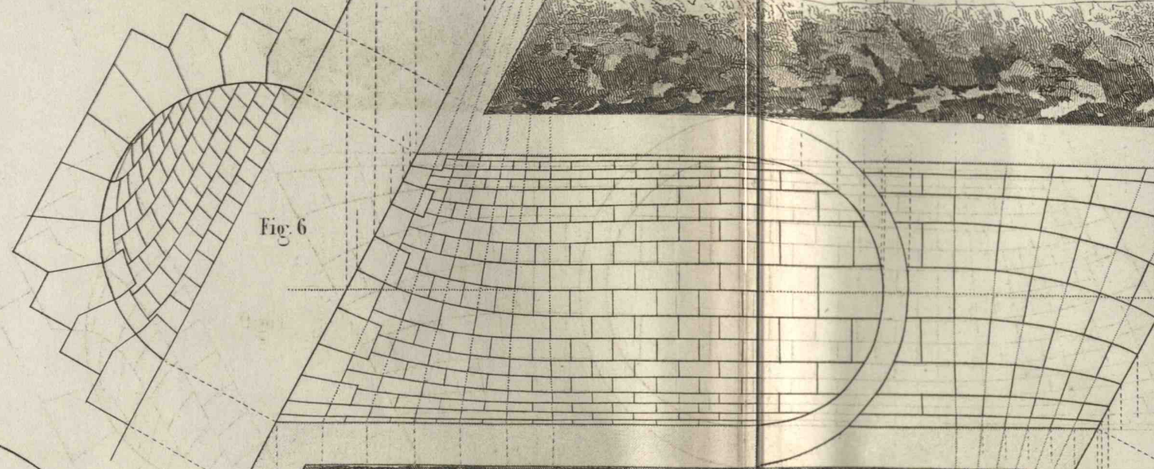


Fig. 7.

Fig. 8.

Fig. 9

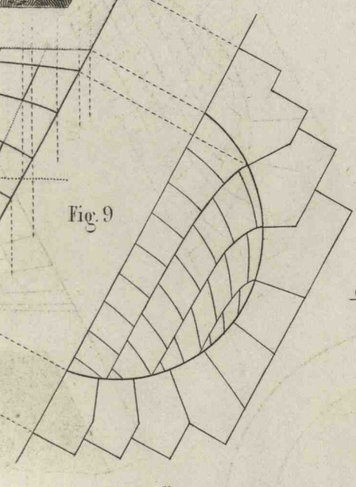


Fig. 10

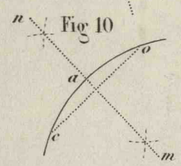


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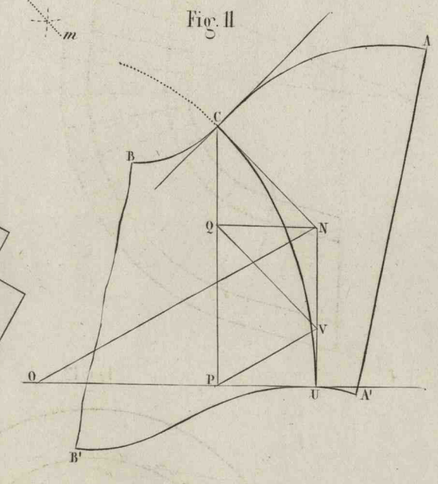


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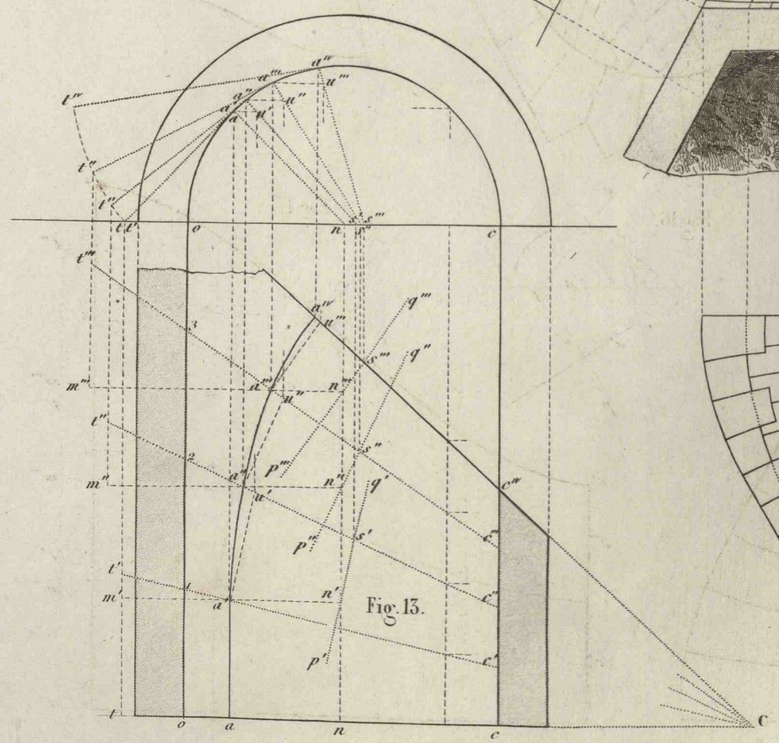


Fig. 13.

Fig. 14

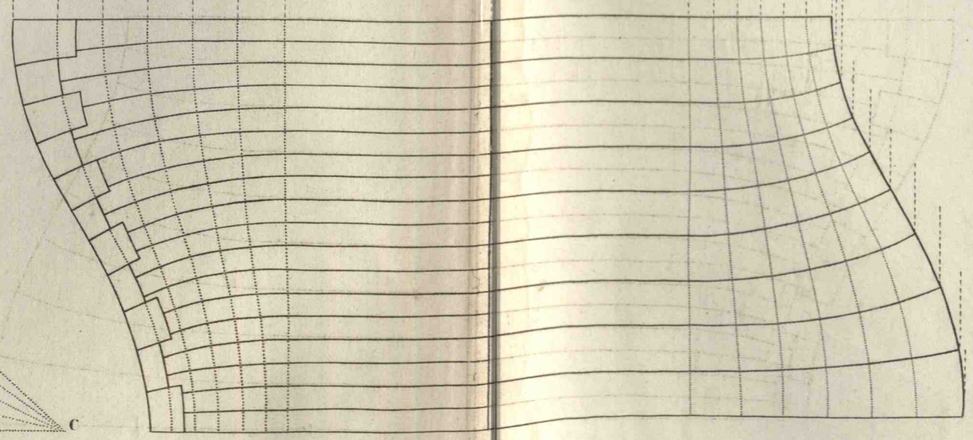


Fig. 15.

Fig. 16.

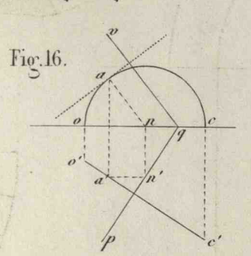
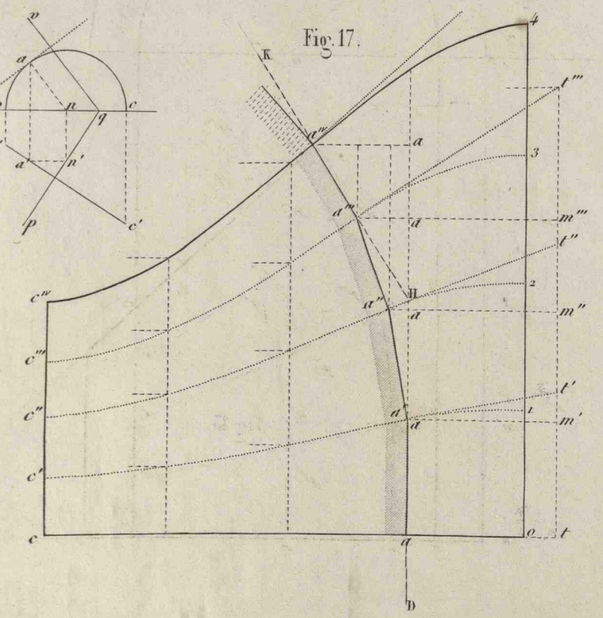


Fig. 17.



Imprimerie de Lemercier, R. des Mathurins S.t J.n 10. Paris.

Adhemar del.

Ponts biais - appareil orthogonal - Joints cylindriques

Fig. 1

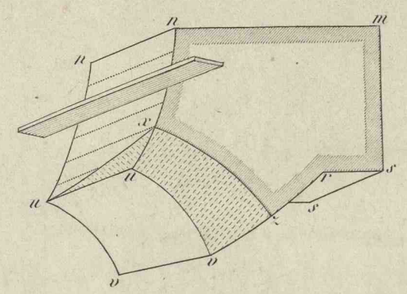


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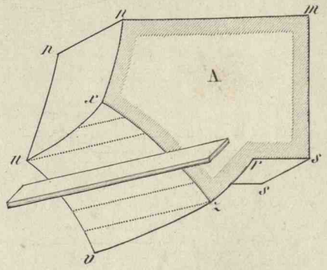


Fig. 3

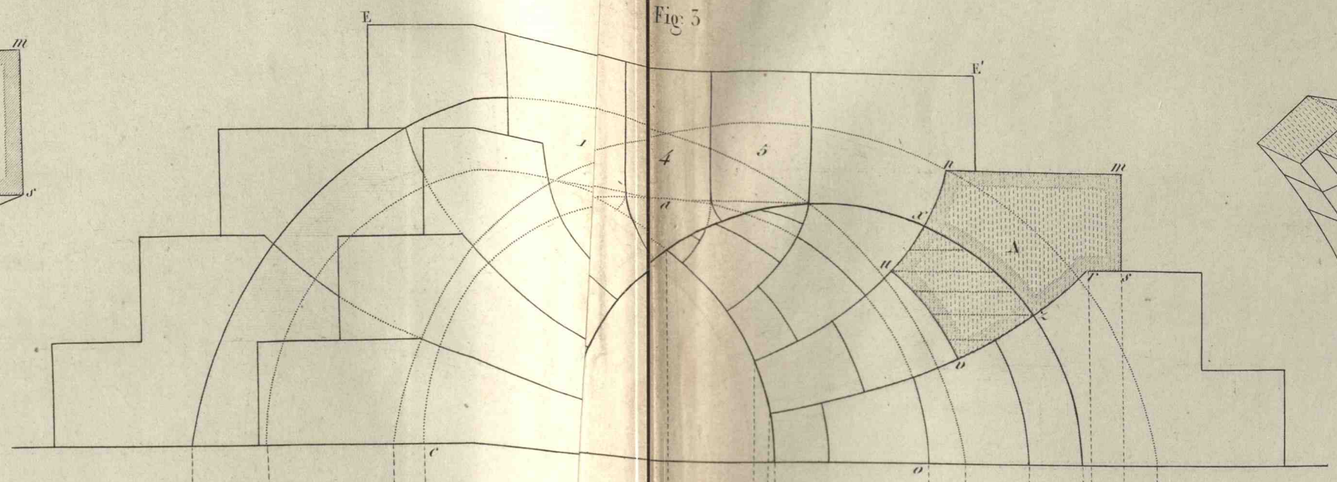


Fig. 4.

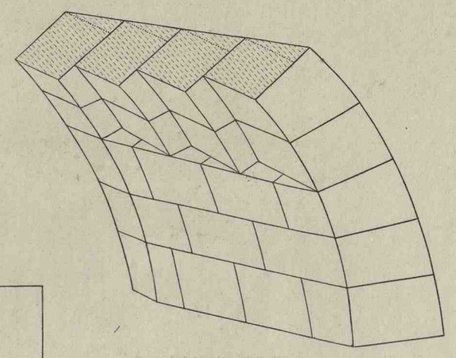


Fig. 5

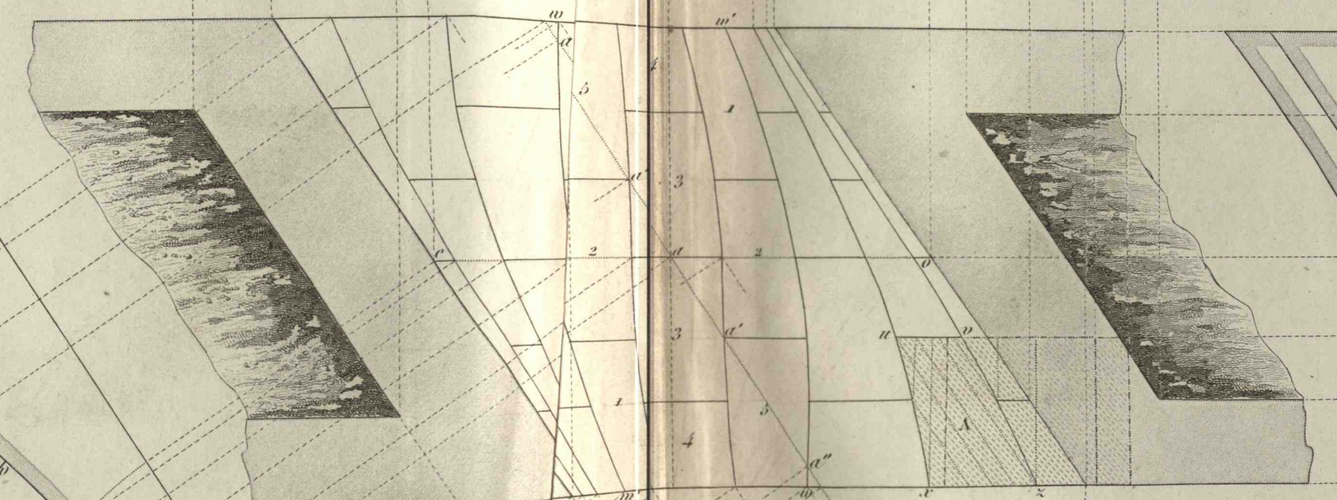


Fig. 6.

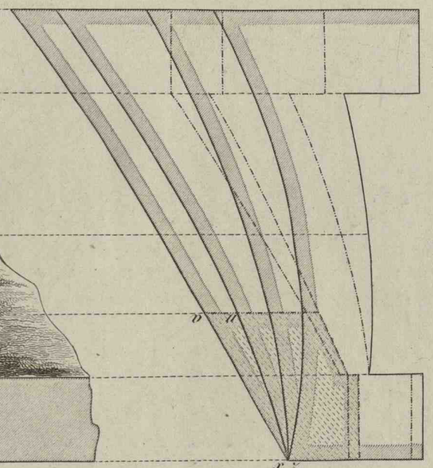


Fig. 9.

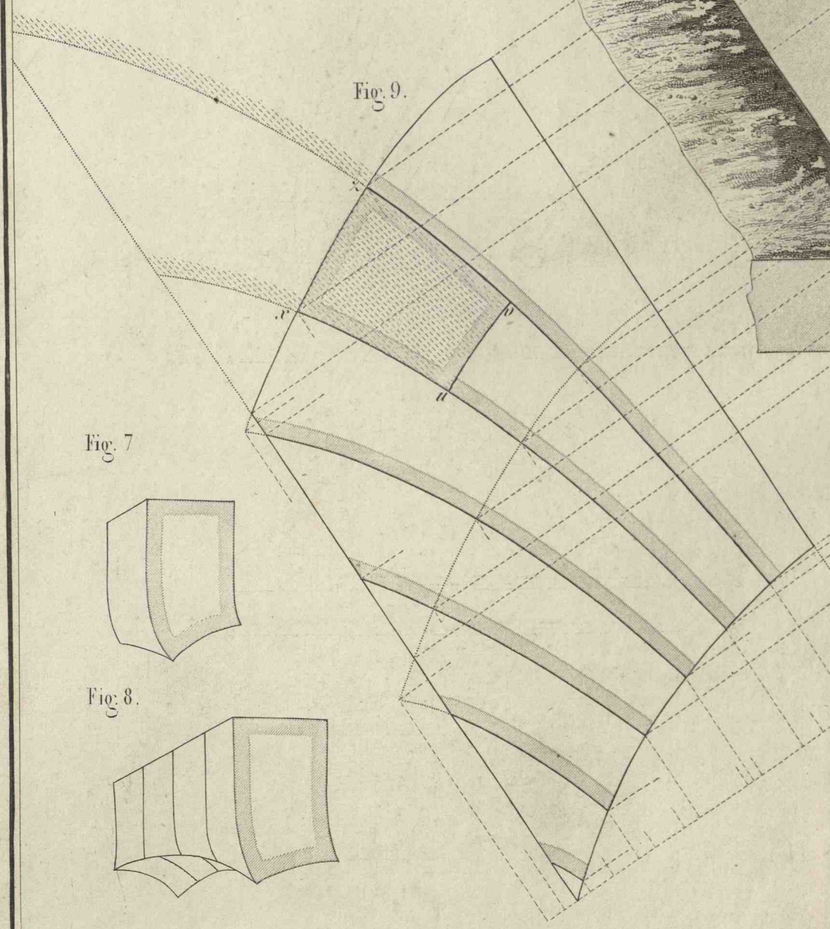


Fig. 7

Fig. 8.

Fig.

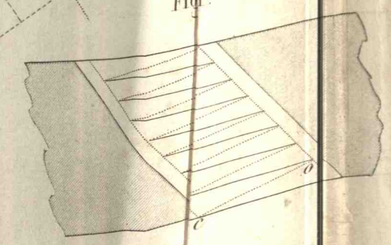


Fig. 10

Fig. 12

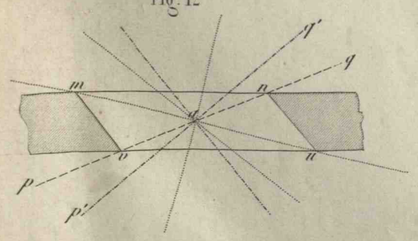


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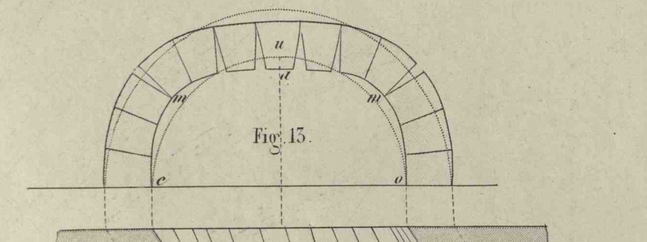


Fig. 14

Imp. Rougier fils rue des Mathurins S. J. N°16. Paris.

Adhémar del.

Ponts biais - appareil orthogonal -

Fig. 1.

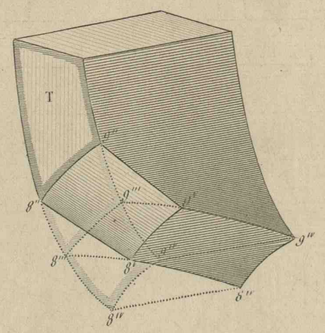


Fig. 2.

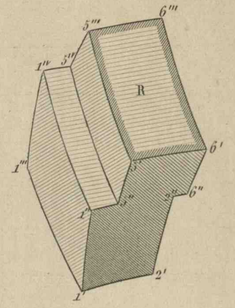


Fig. 3.

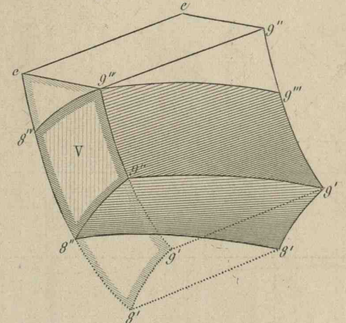


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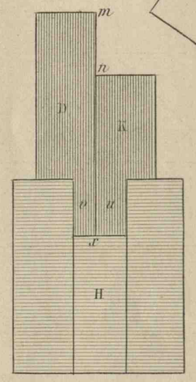


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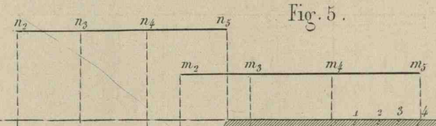


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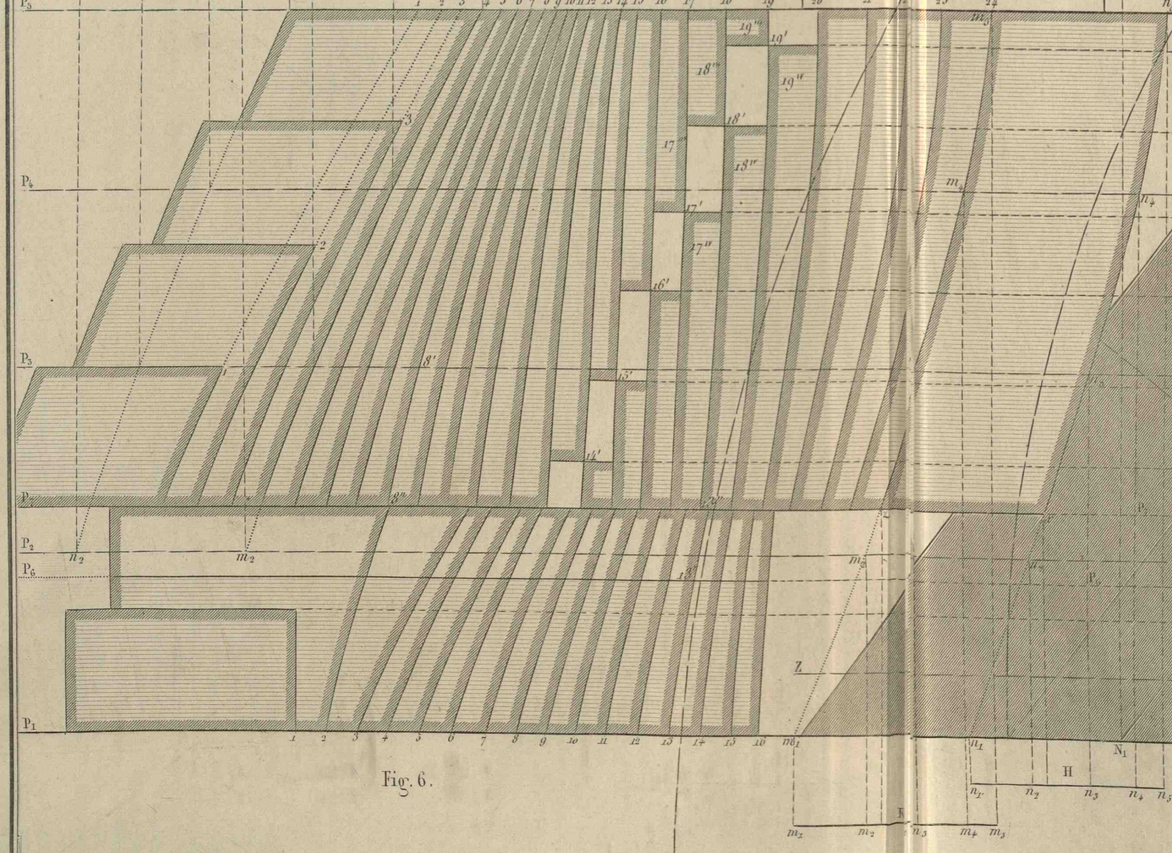


Fig. 7.

Fig. 9

Fig. 8.

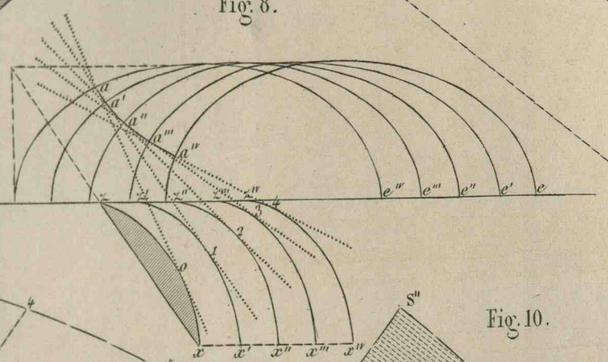


Fig. 10.

Fig. 11.

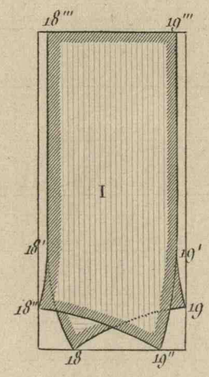


Fig. 12

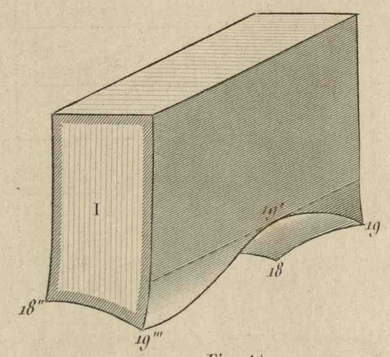


Fig. 13.

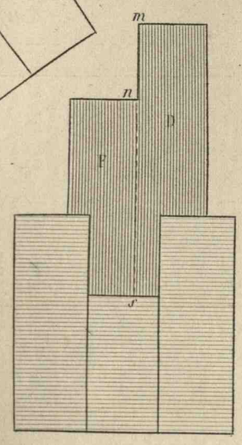


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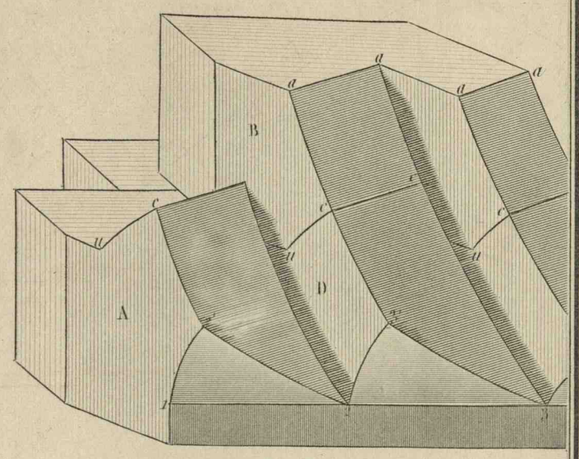


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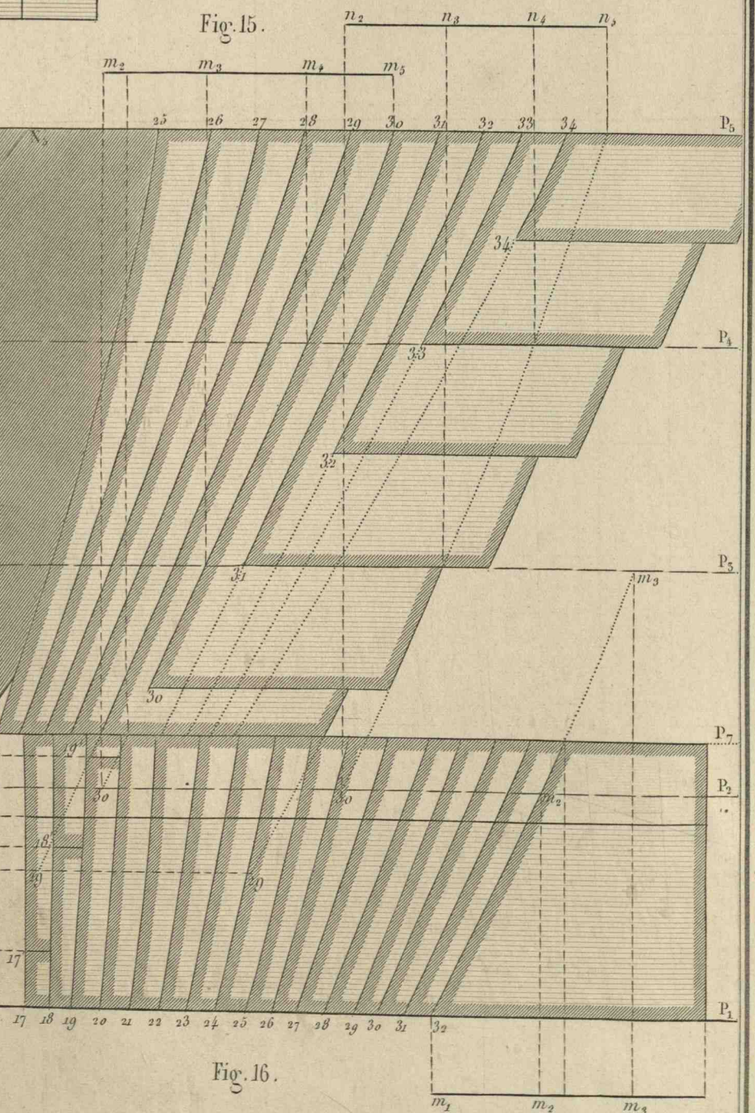


Fig. 16.