DIBUJO PROFESIONAL

CURSO ELEMENTAL PRACTICO

DE

DIBUJO DE MÁQUINAS

PARA USO

DE LAS ESCUELAS, ENSEÑANZA DE ADULTOS, OBREROS, CONTRAMAESTRES, MODELISTAS, etc

Y

de los alumnos que se preparan para los concursos de admision

de las escuelas especiales : CENTRAL, ANGERS, AIX etc

POR

MAURICIO TIXIER, INGENIERO

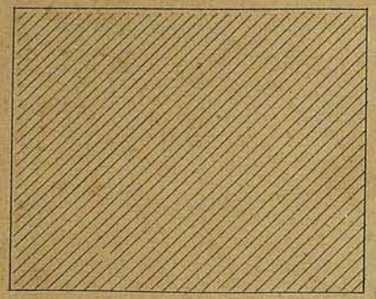
PARIS

MONROCQ, FRÈRES, *Editeurs-Imprimeurs*, 3, RUE SUGER

Elements conventionnels

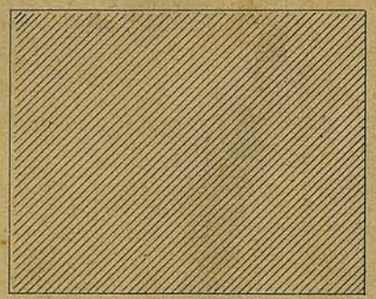
Hachures

fonte e = 1m/m 1/4



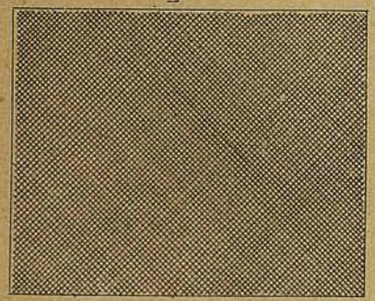
grandes surfaces

fer e = 3/4 m/m



acier doux e = 1/4 à 1/2 m/m

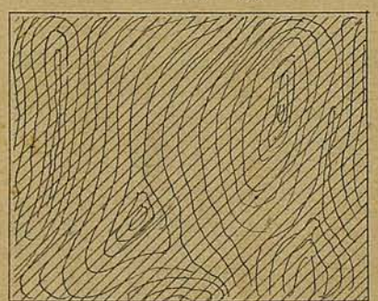
acier trempé e = 1/4 à 1/2 m/m



bronze cuivre e = 1 m/m

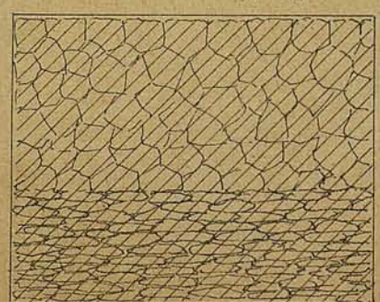
plomb zinc étain e = 1 m/m 1/2

bois e = 1 m/m 1/4



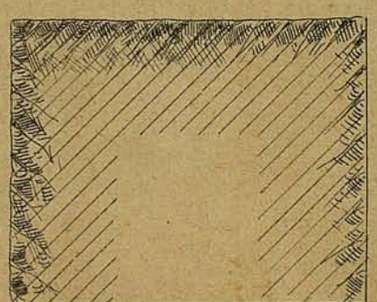
pierre e = 1 m/m 1/2 à 2 m/m

moellons. meulière e = 1 m/m 1/2



beton e = 1 m/m 1/2

terrain.



Nota.

Laisser un liseré blanc de 1/2 à 1 m/m dans les coupes le long des traits eclairés

e – espacement des hachures

Maurice Tixier Del

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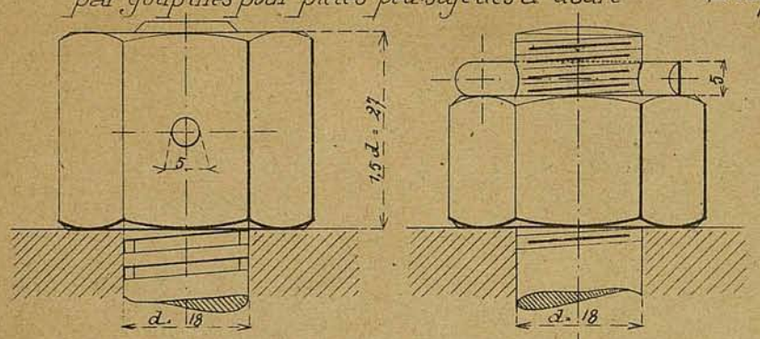
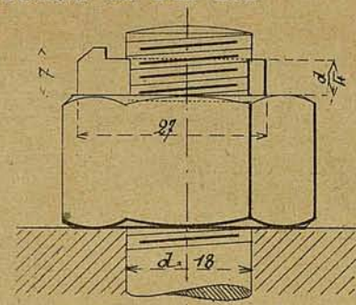
Assemblages par boulons

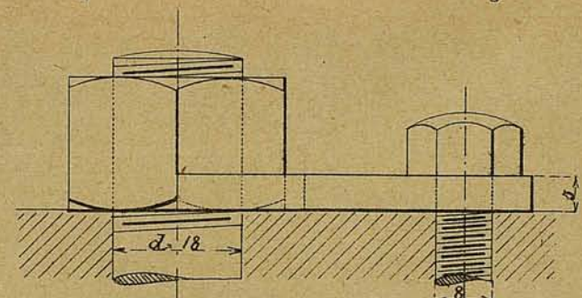
Dispositifs de sureté

par goupilles pour pieces peu sujettes a usure

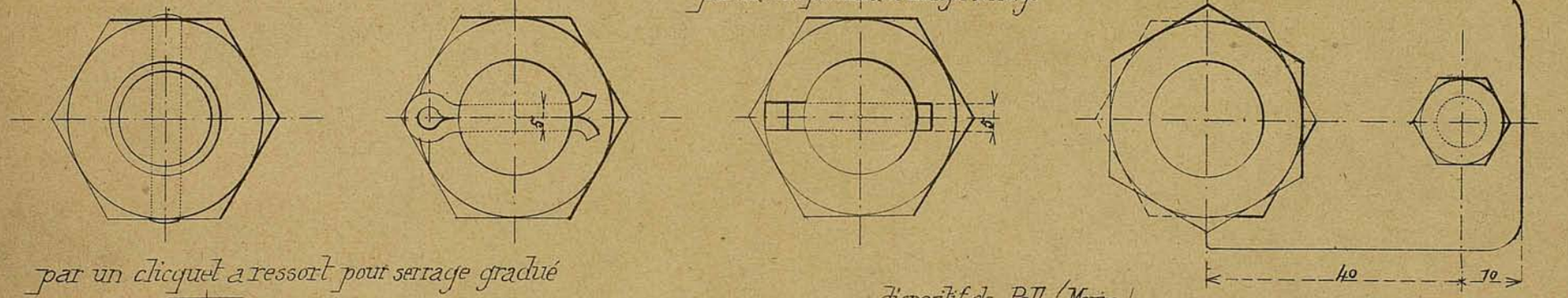




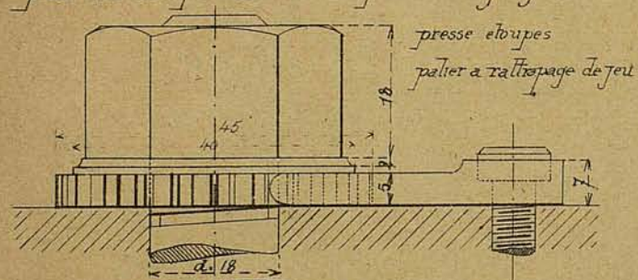
par plaque de sureté permettant un resserrage



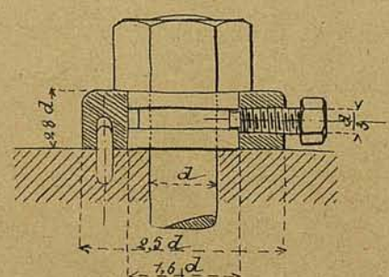
par clavette permettant un leger serrage



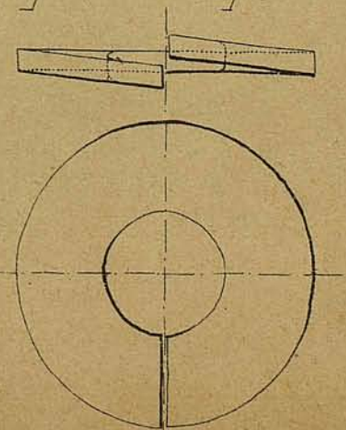
par un cliquet a ressort pour serrage gradué



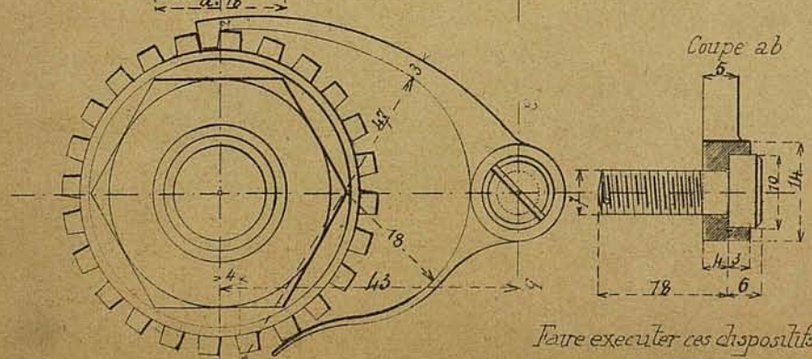
dispositif de Pell (Marine)



par rondelle elastique



Echelle: Vraie grandeur



(Croquis)

Faire executer ces dispositifs a diverses echelles

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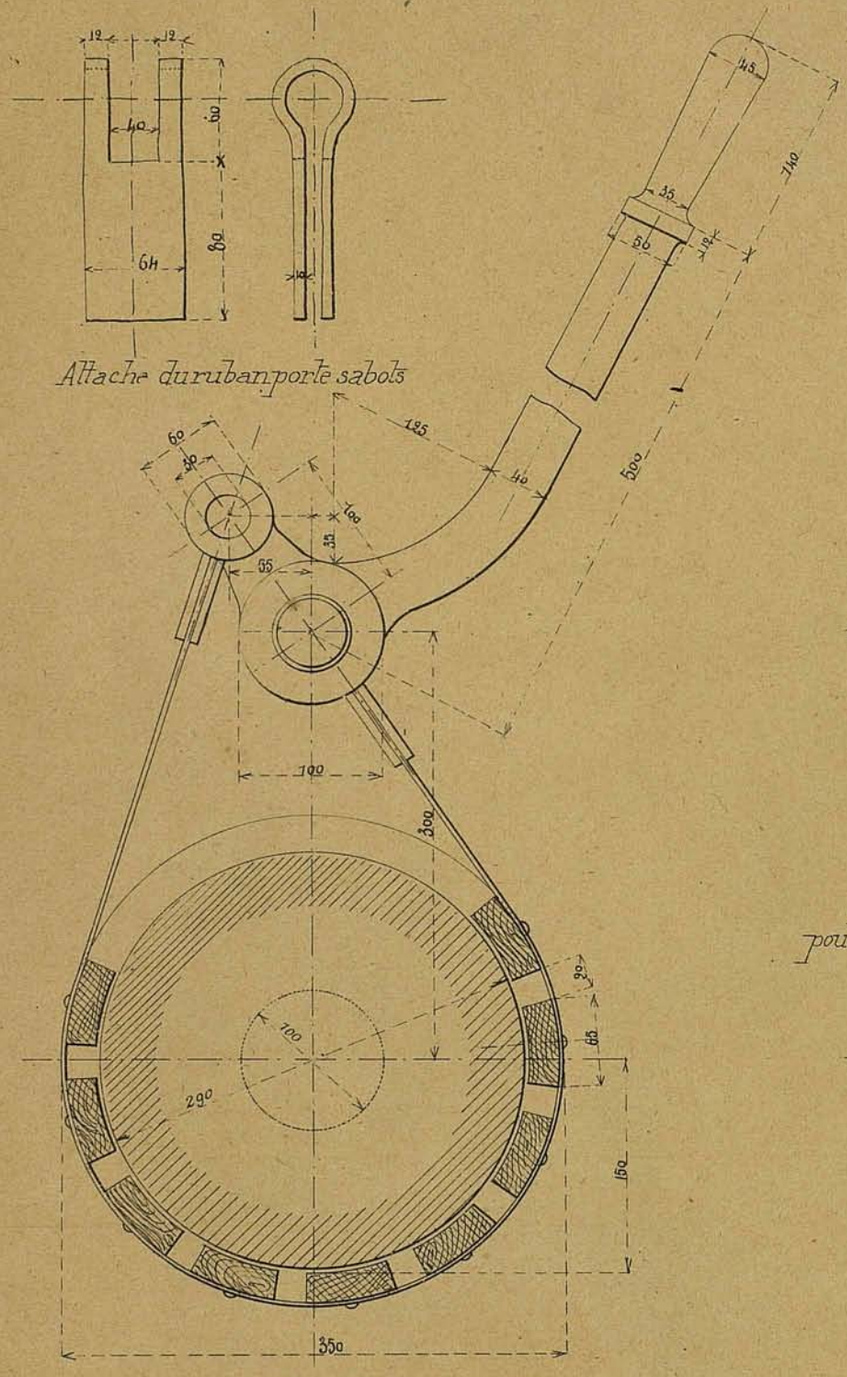
Palanca acodada

Levier coudé

~~pour frein a collier~~

para freno de collar



Palanca acodada

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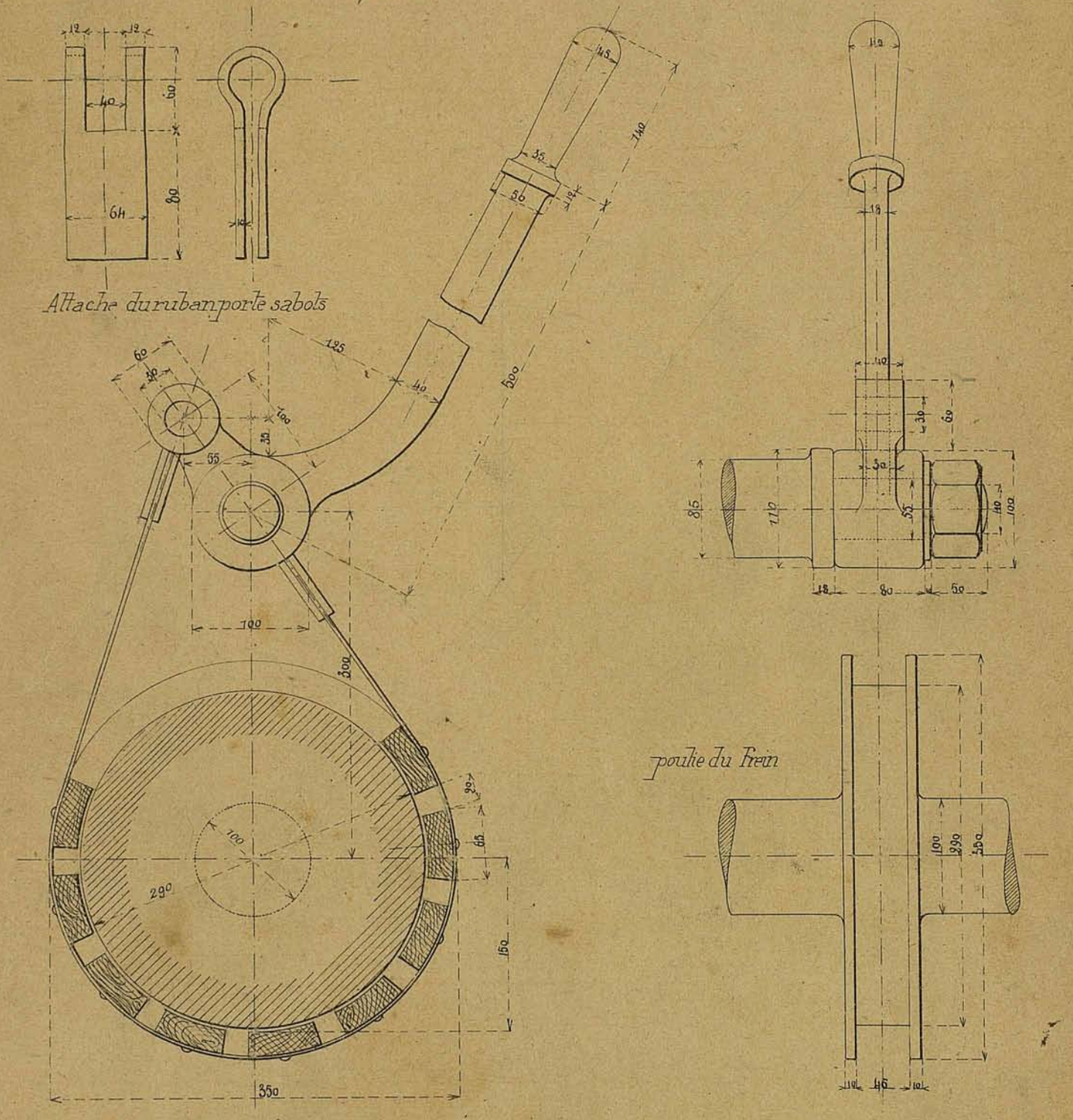
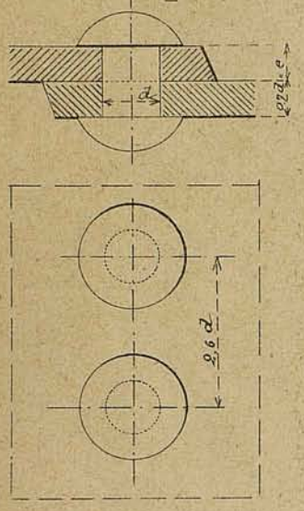
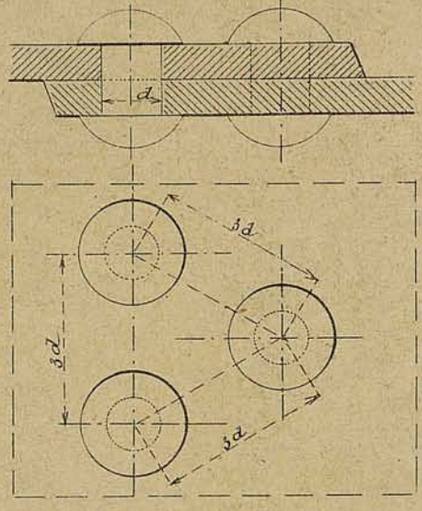


Assemblages de tôles

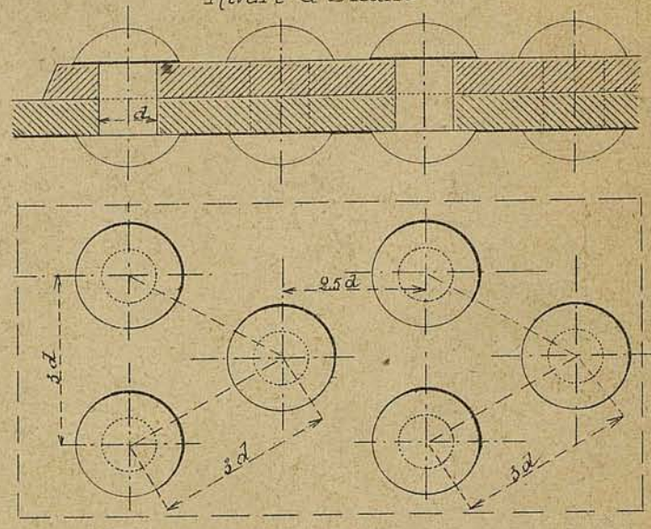
Rivure simple



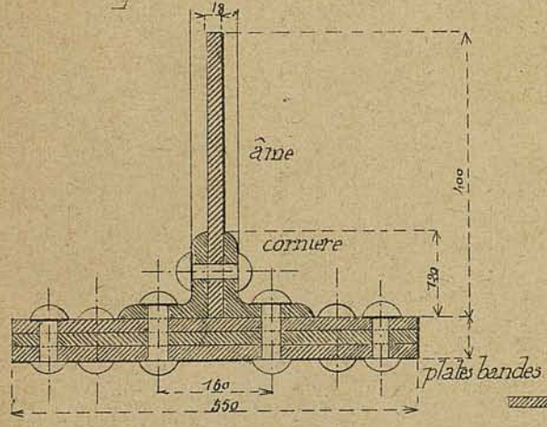
Rivure double



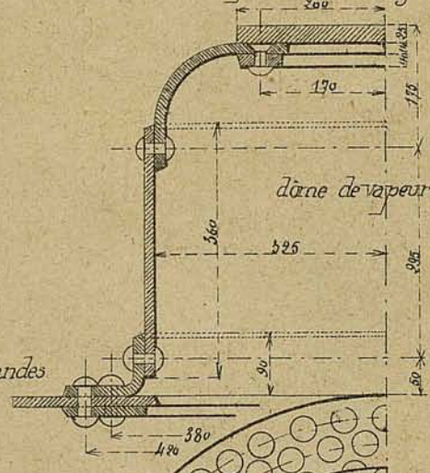
Rivure a chaine



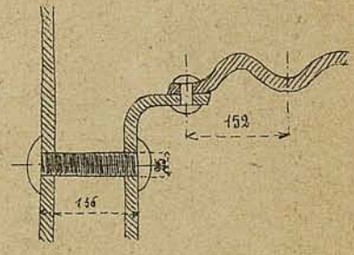
poutre armée



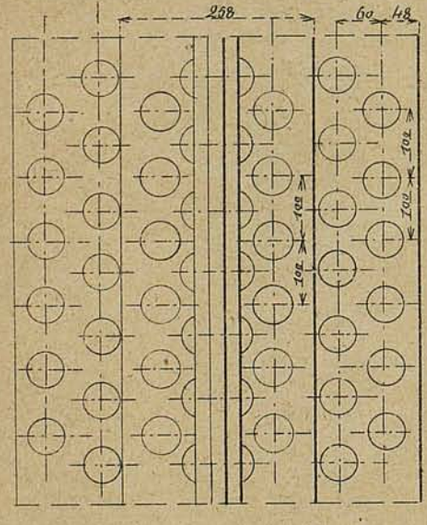
Corps de tole cylindrique (chaudière de locomotive)

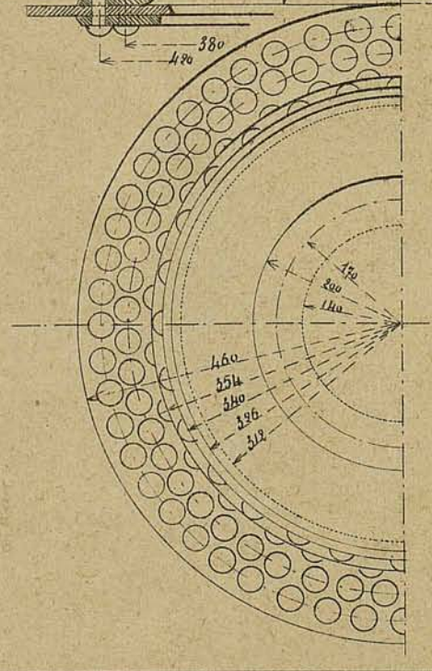


ciel du foyer ondulé (Cr.)

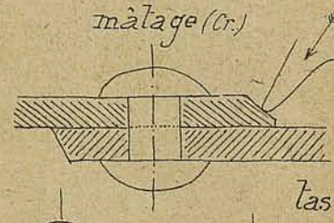


entretoise filetee rivee (Cr.)

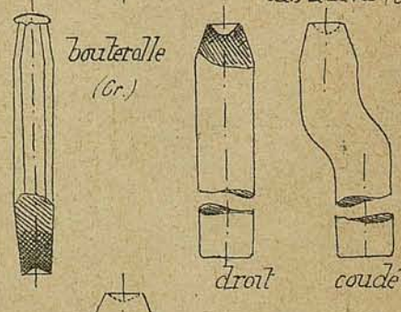




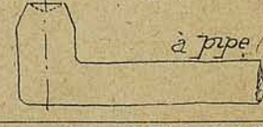
mâtage (Cr.)



tas à river (Cr.)



à pipe (Cr.)



Echelle 0m 10 pour 1m

Le nombre et l'espacement des rivets sont calculés d'après la resistance que doit avoir la poutre

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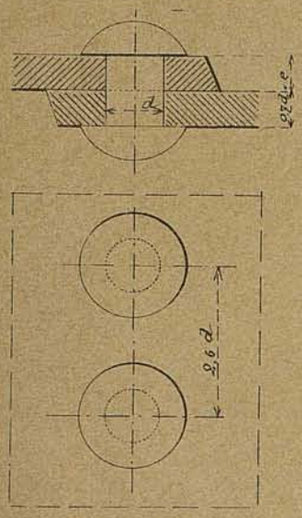
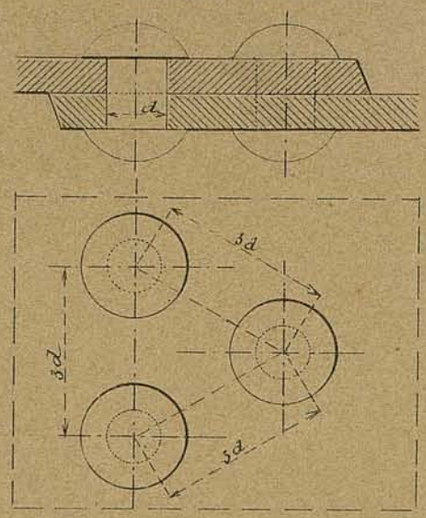
Ensambladuras de palastro

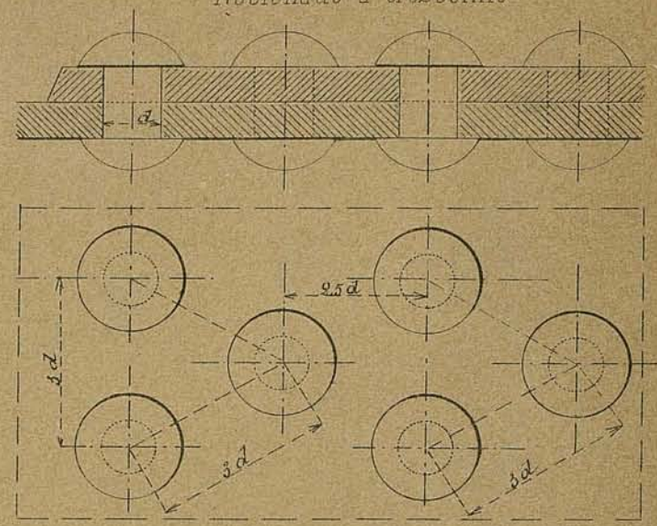
Roblonado sencillo



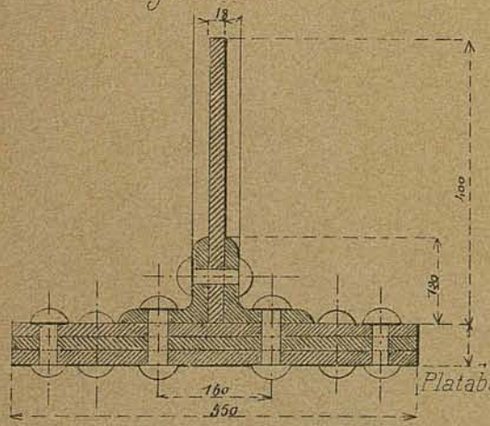
Roblonado doble



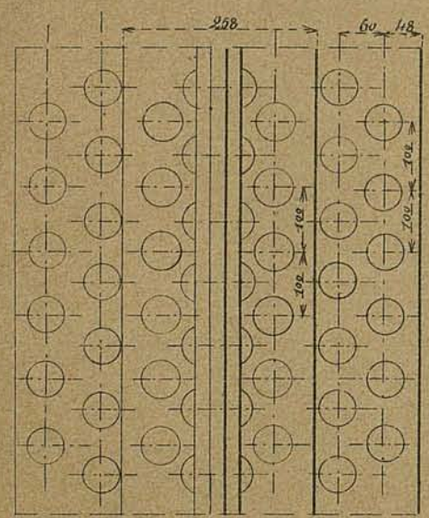
Roblonado á tresbolillo



Viga armada



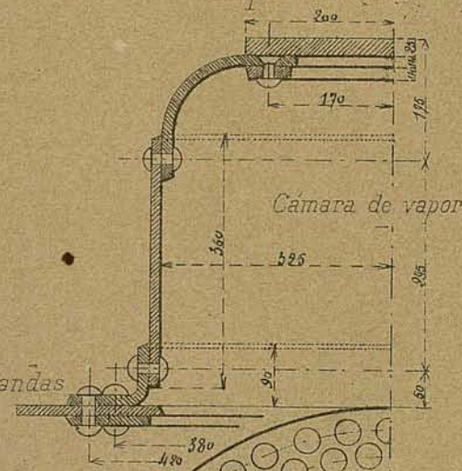
Platabandas



Escala 0m10 por 1m00

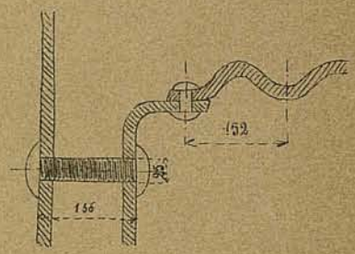
El número y separación de los roblones se calculan por la resistencia que la viga ha de tener

Cuerpo cilíndrico de palastro (Caldera de locomotora)



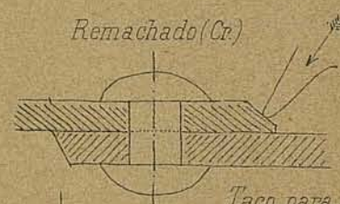
Cámara de vapor

Cielo ondulado del hogar (Cr.)



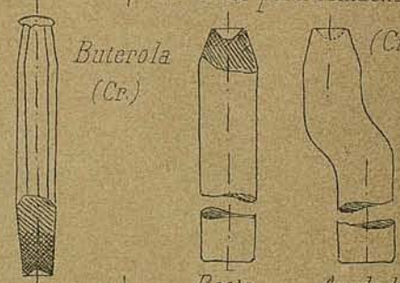
Riostra fileteada y remachada (Cr.)

Remachado (Cr.)



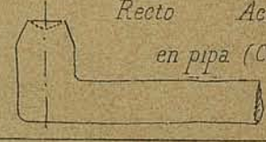
Taco para remachar (Cr.)

Buterola (Cr.)



Recto

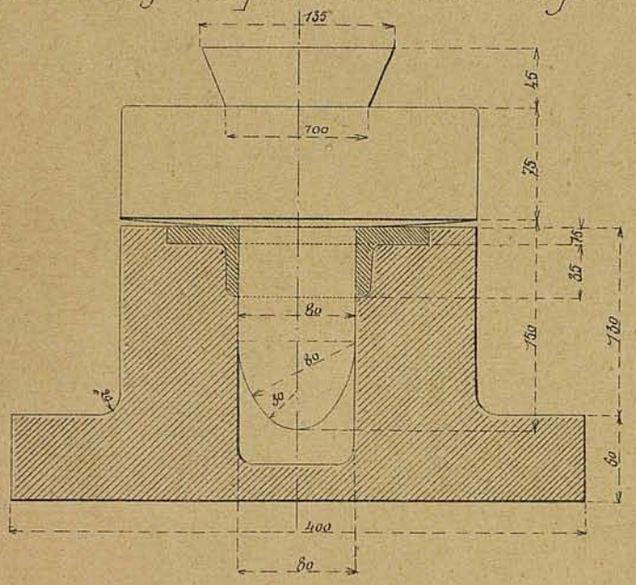
Acodado en pipa (Cr.)

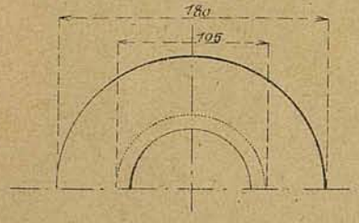


Emboutissage

Echelle 0m20 pour 1m

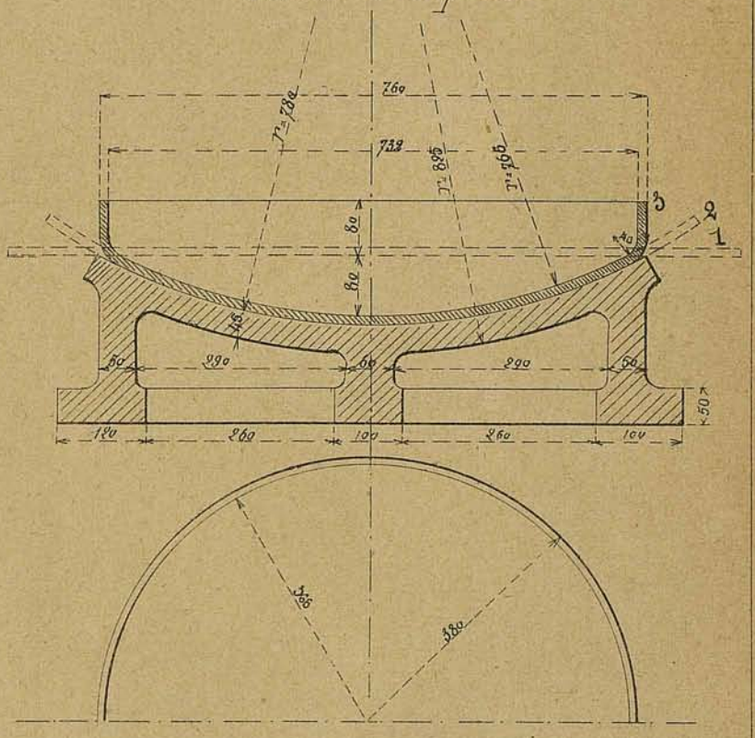
Emboutissage à la presse d'une bride de tuyau



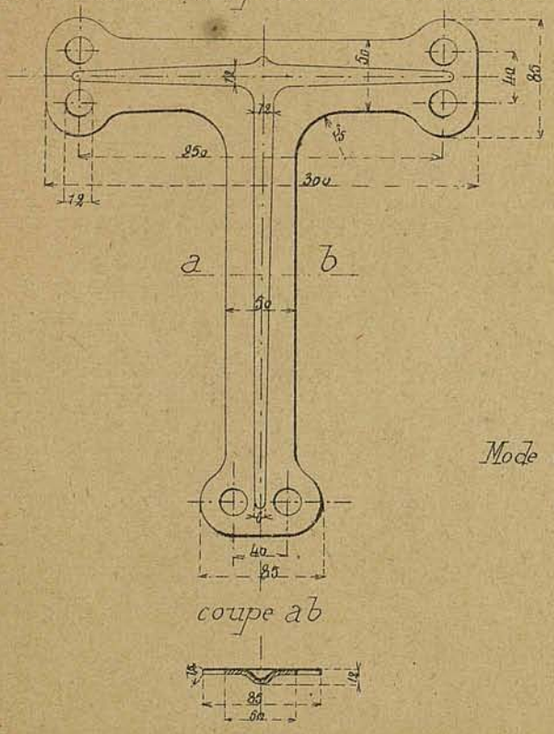


Emboutissage au marteau d'un fond de chaudiere

Echelle 0m10 pour 1m



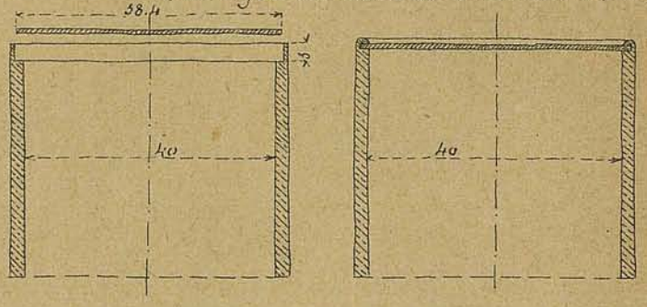
ferrure en tôle découpée avec nervure emboutie



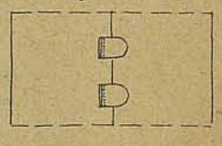
coupe ab

Echelle 0m20 pour 1m

sertissage d'un fond à un tube en laiton (Croquis

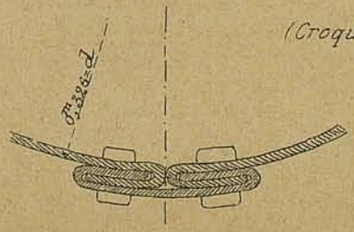


tôle agrafée



Mode d'assemblage des tôles des sas à sable employés à l'execution d'un cintre

(Croquis)



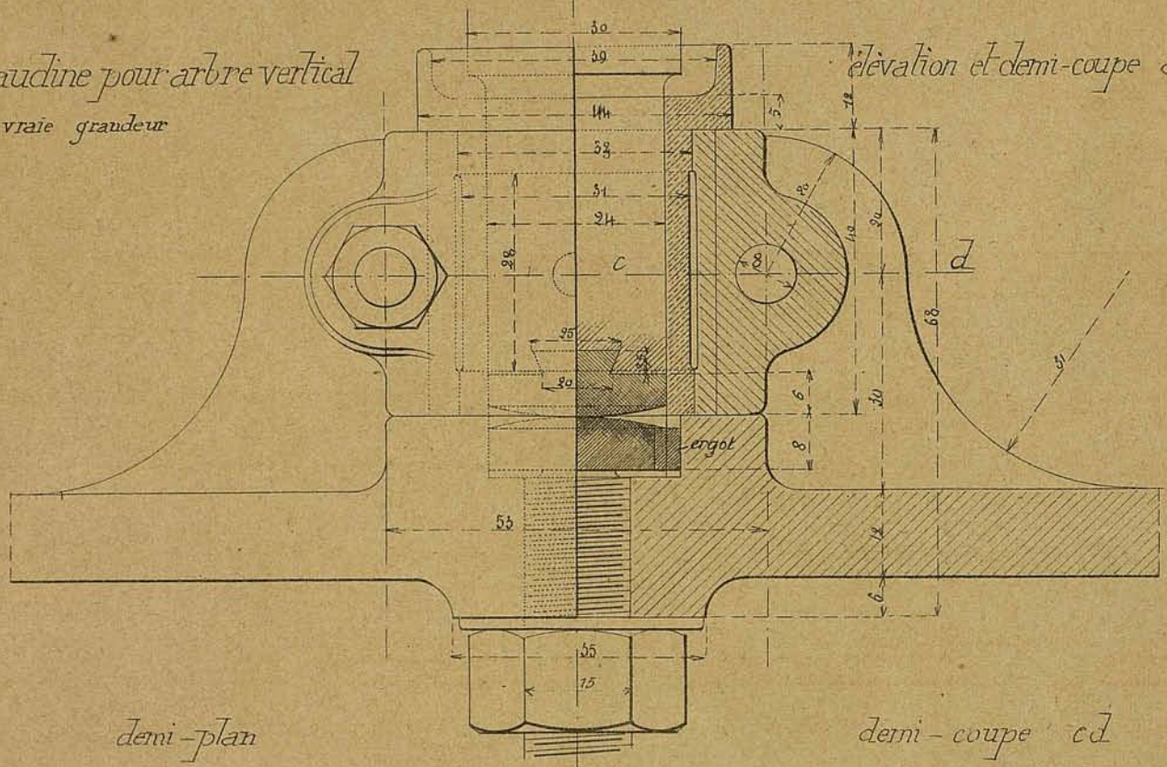
tôle rephée

Supports d'arbres

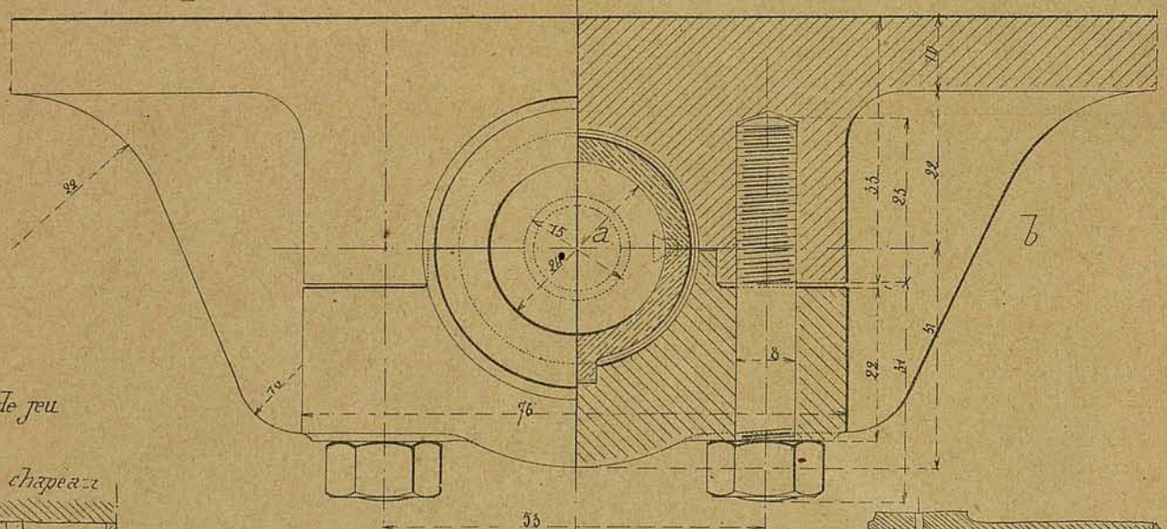
Paliers

Crapaudine pour arbre vertical

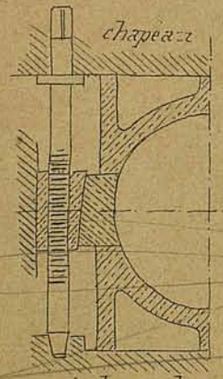
vraie grandeur



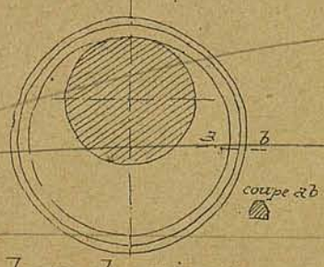
demi-plan



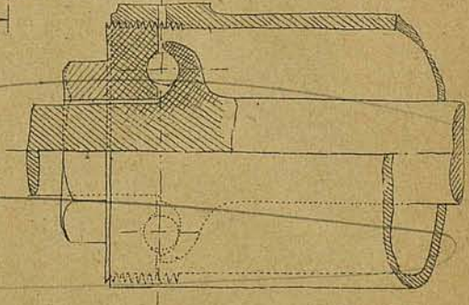
rattrapage de jeu



coussinet en quatre parties



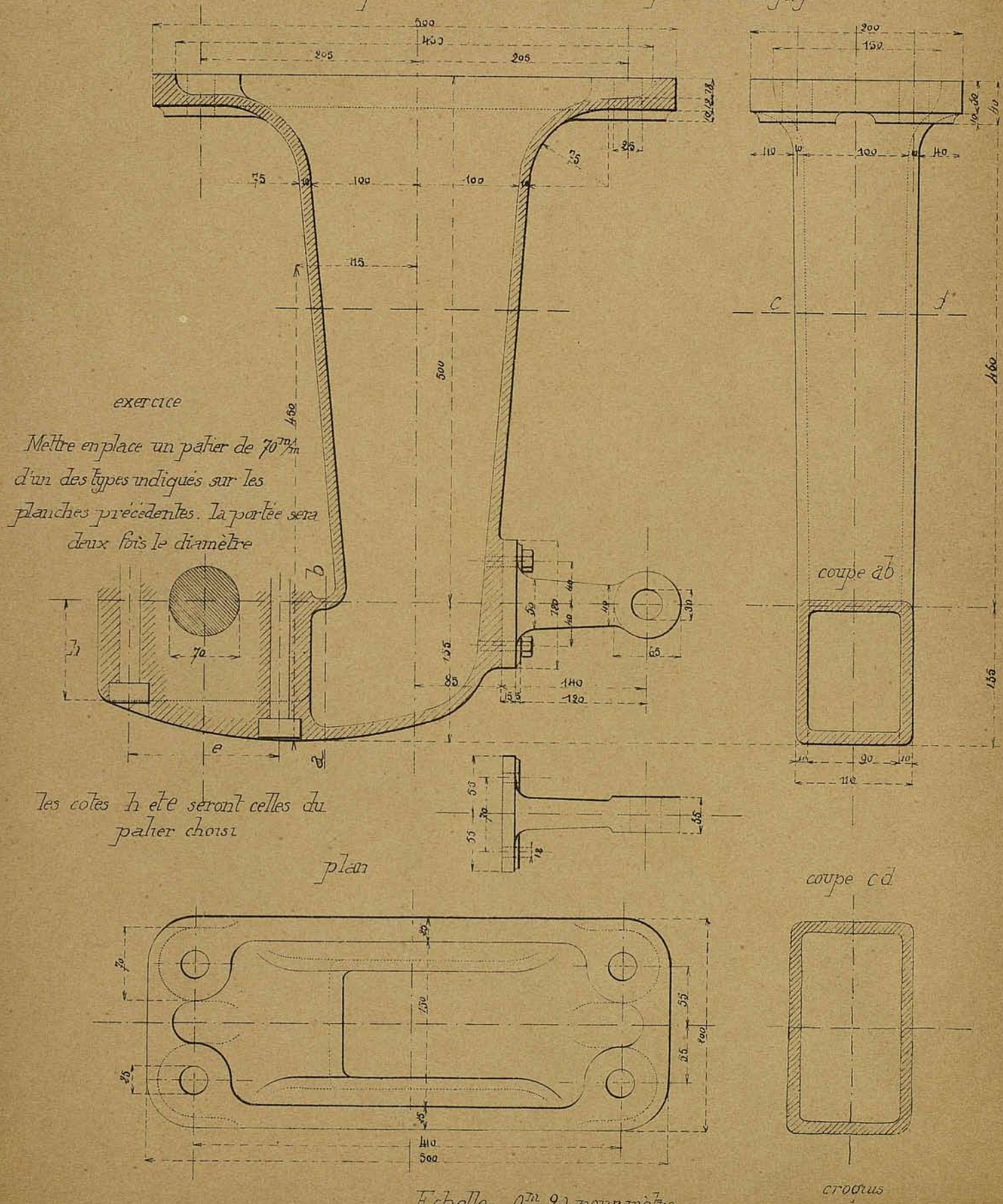
bague de graissage



roulement à billes de bicyclette

Supports de paliers

Chaise pendante ouverte avec renvoi pour débrayage



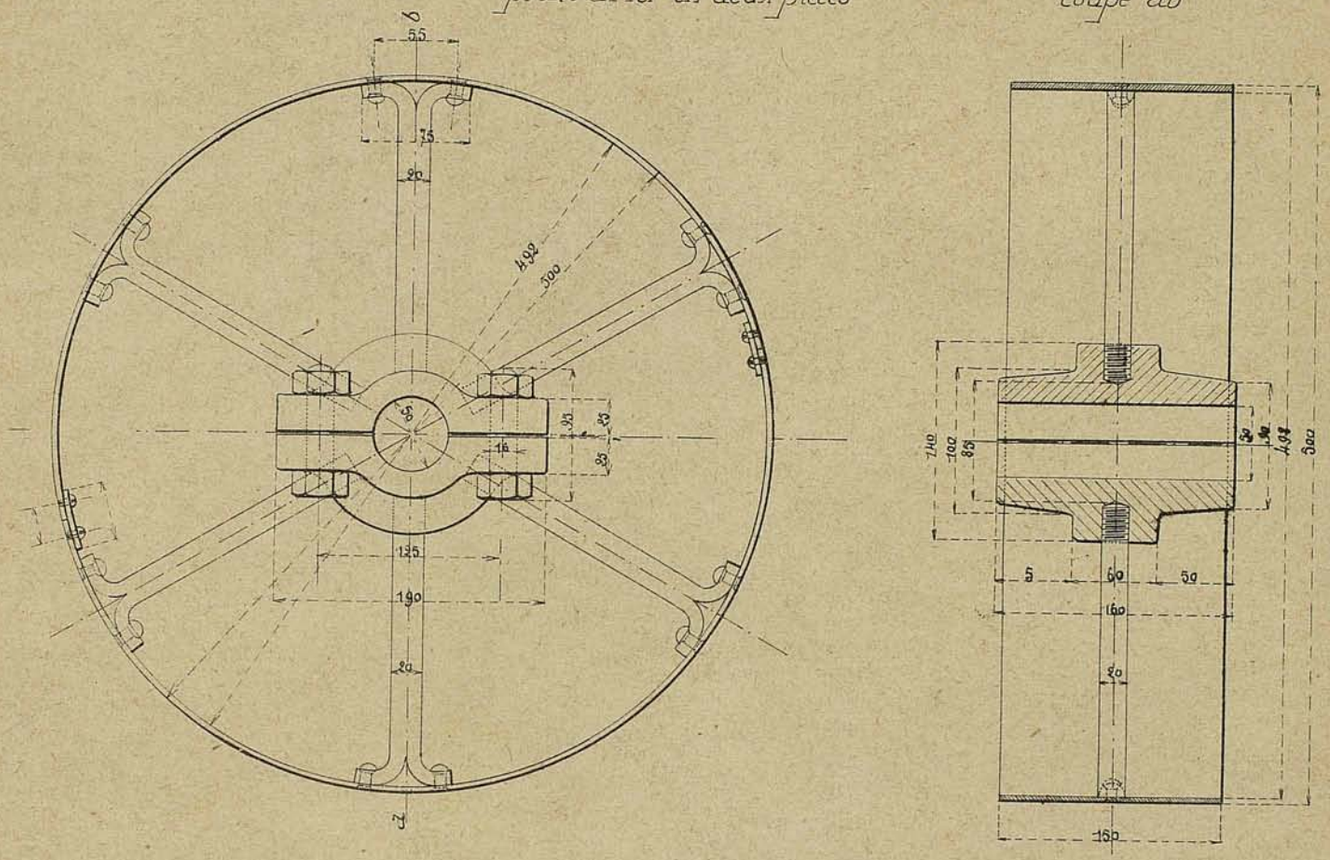
exercice

Mettre en place un palier de 70mm/m d'un des types indiqués sur les planches précédentes. La portée sera deux fois le diamètre

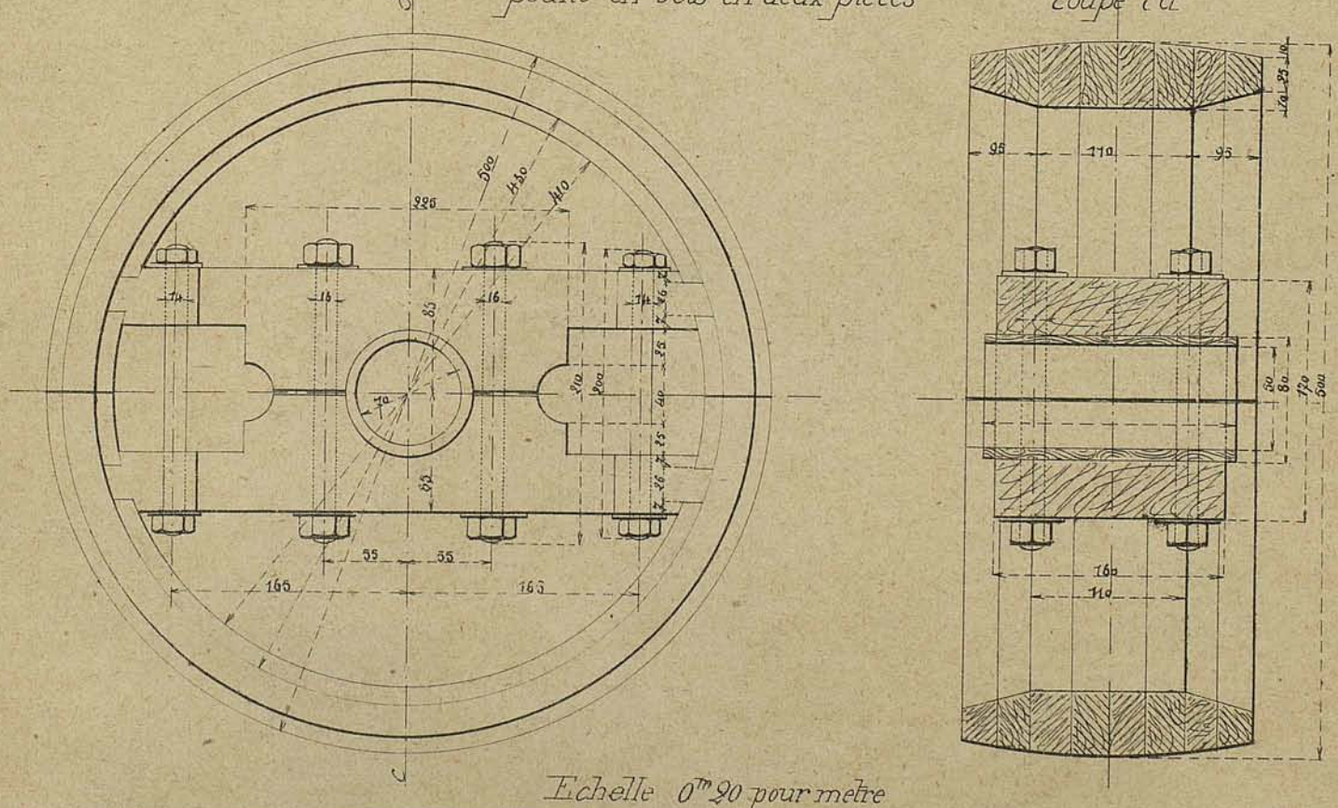
Les cotes h et e seront celles du palier choisi

Poulies

poulie en fer en deux pièces *coupe ab*



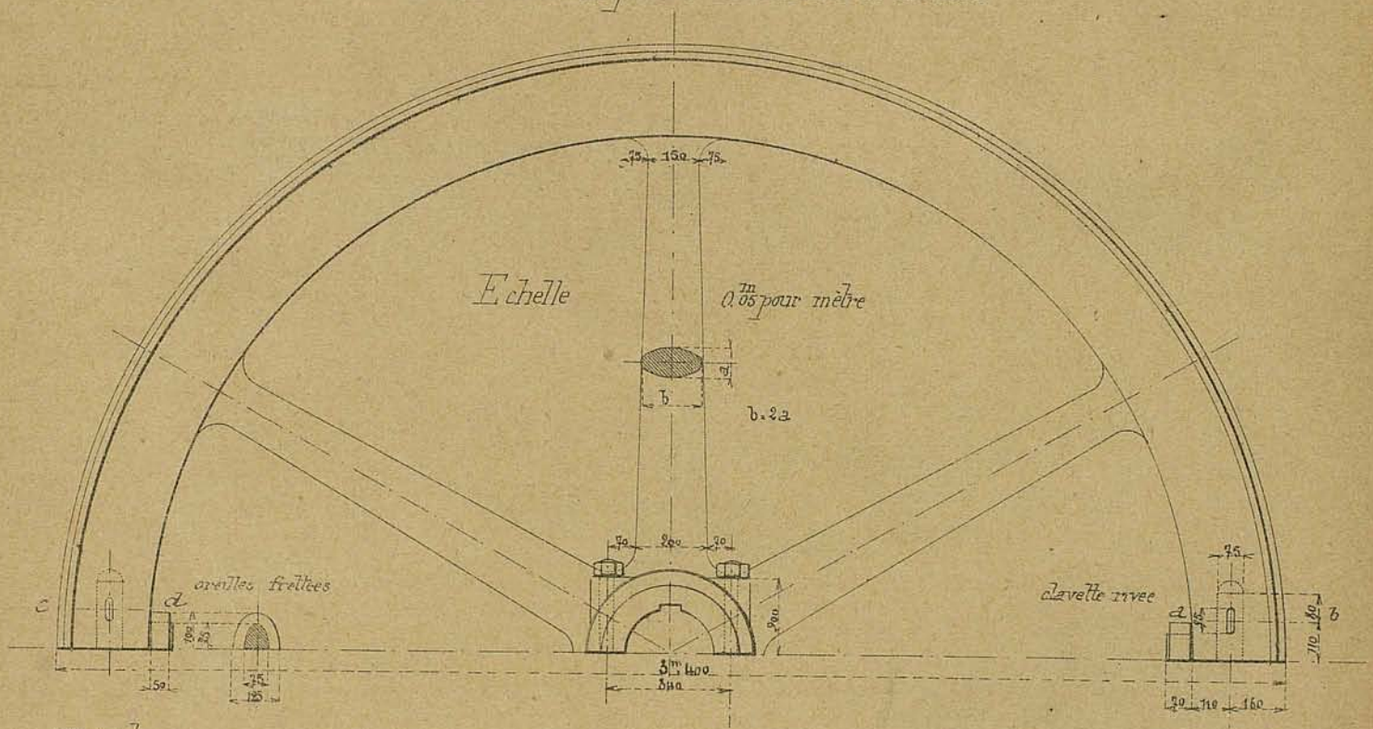
poulie en bois en deux pièces *coupe cd*



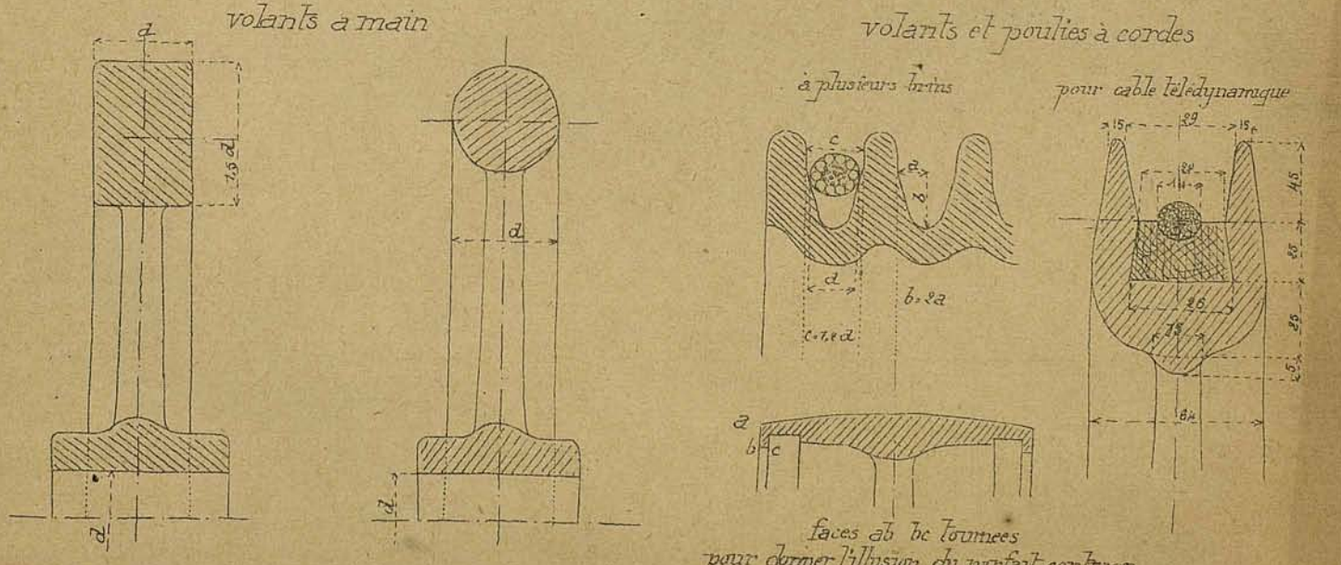
Echelle 0m 20 pour mètre

Volants

Volant en deux pièces boulonnees et frettees



Diverses formes de jantes



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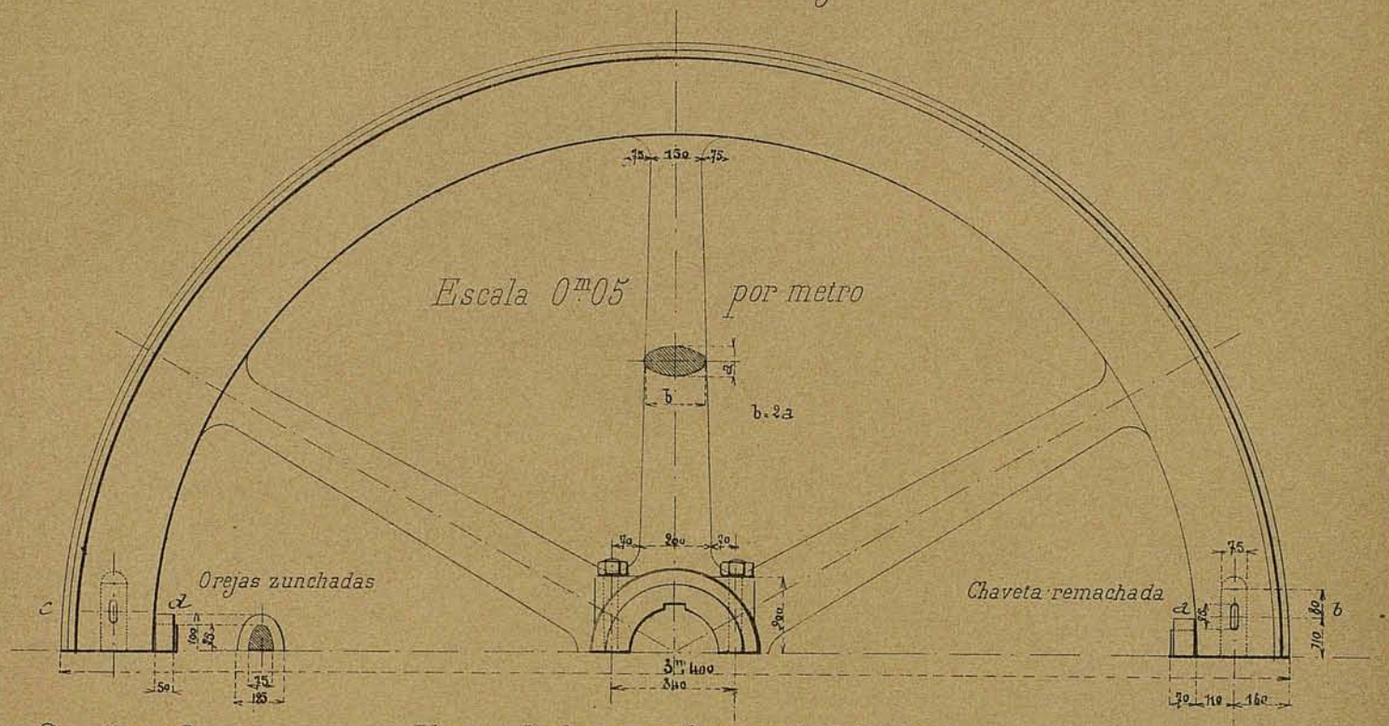
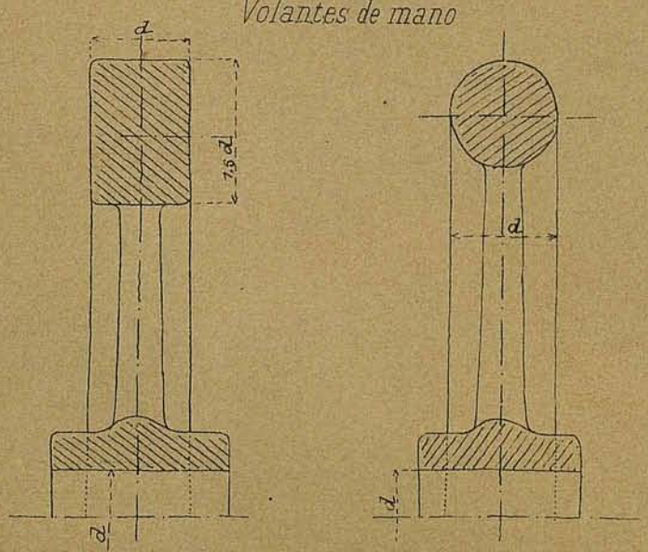
Volantes

Volante en dos trozos atornillados y zunchados



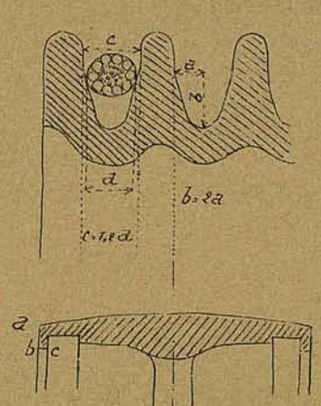
Formas variadas de las llantas

Volantes de mano

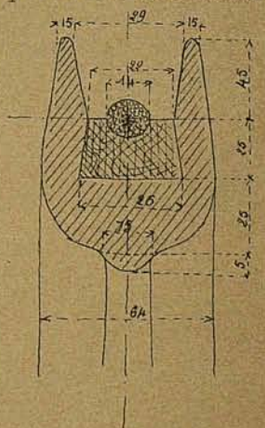


Volantes y poleas de cuerdas

de varios cabos



para cable teledinámico

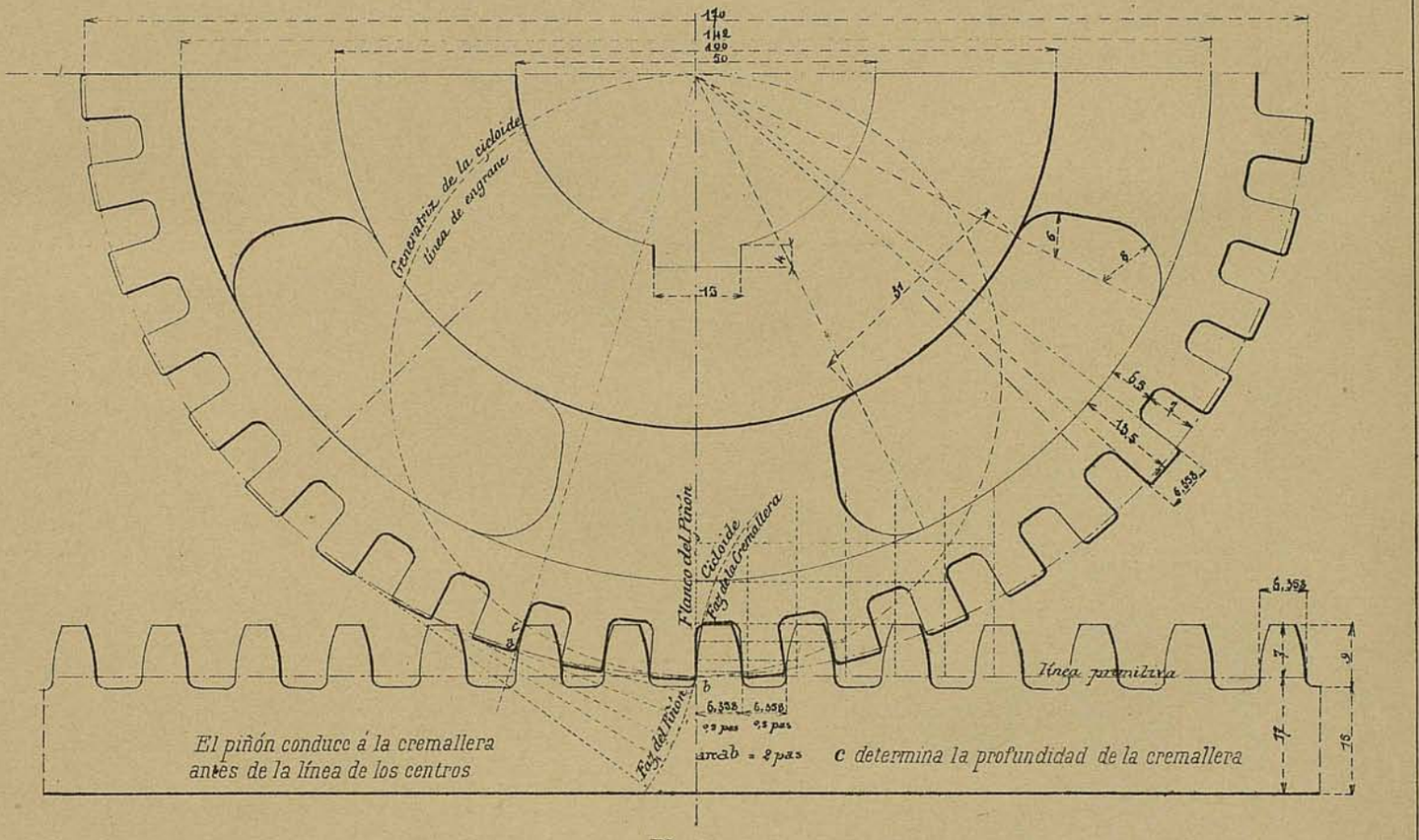


*Caras **ab** y **bc** vueltas para dar idea del perfecto centrado*

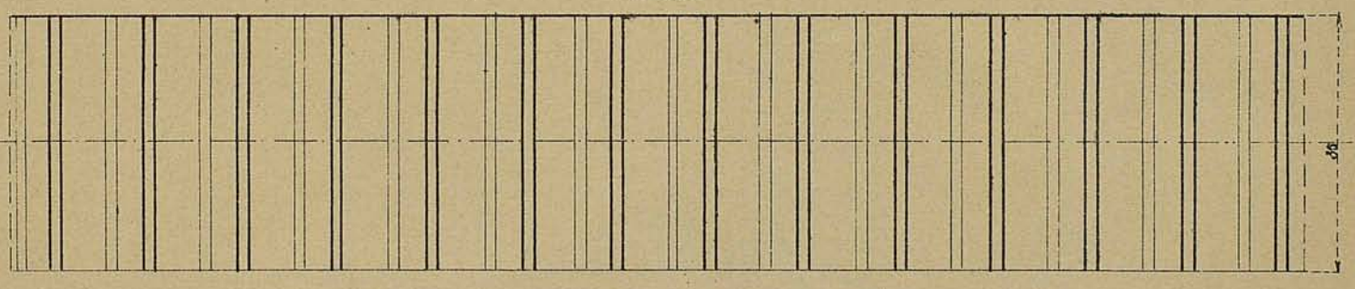
Engranajes

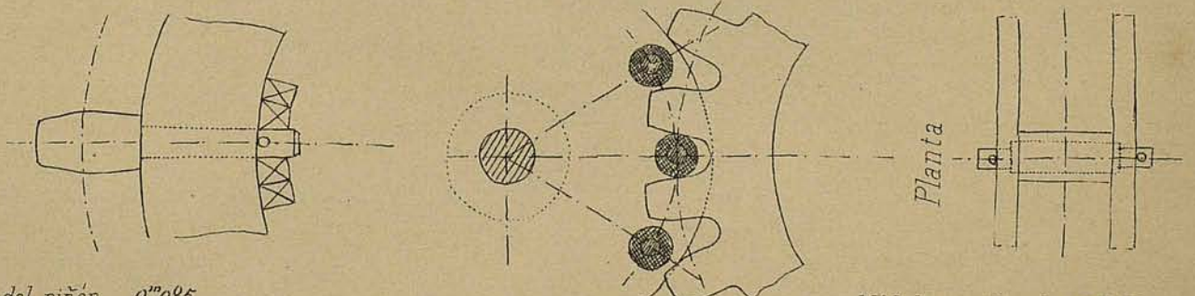
Piñón y cremallera

trazado del perfil de los diente de flanco recto



Planta





Tamaño natural

R	*Circ. primitiva del piñón*	*0,m085*
P	*Esfuerzo sobre un diente*	*36 k*
e	*Espesor del diente*	$e = 0{,}105\sqrt{P}$
P	*Paso del engranaje*	*2e*

Módulo rectificado $\frac{2\pi R}{P}$ *42*

Paso ____ *d°* ____ *12 m/m 716*

Epesor ____ *d°* ____ *6 m/m 358*

Longitud ____ *4 a 6 e* ____ *35 m/m*

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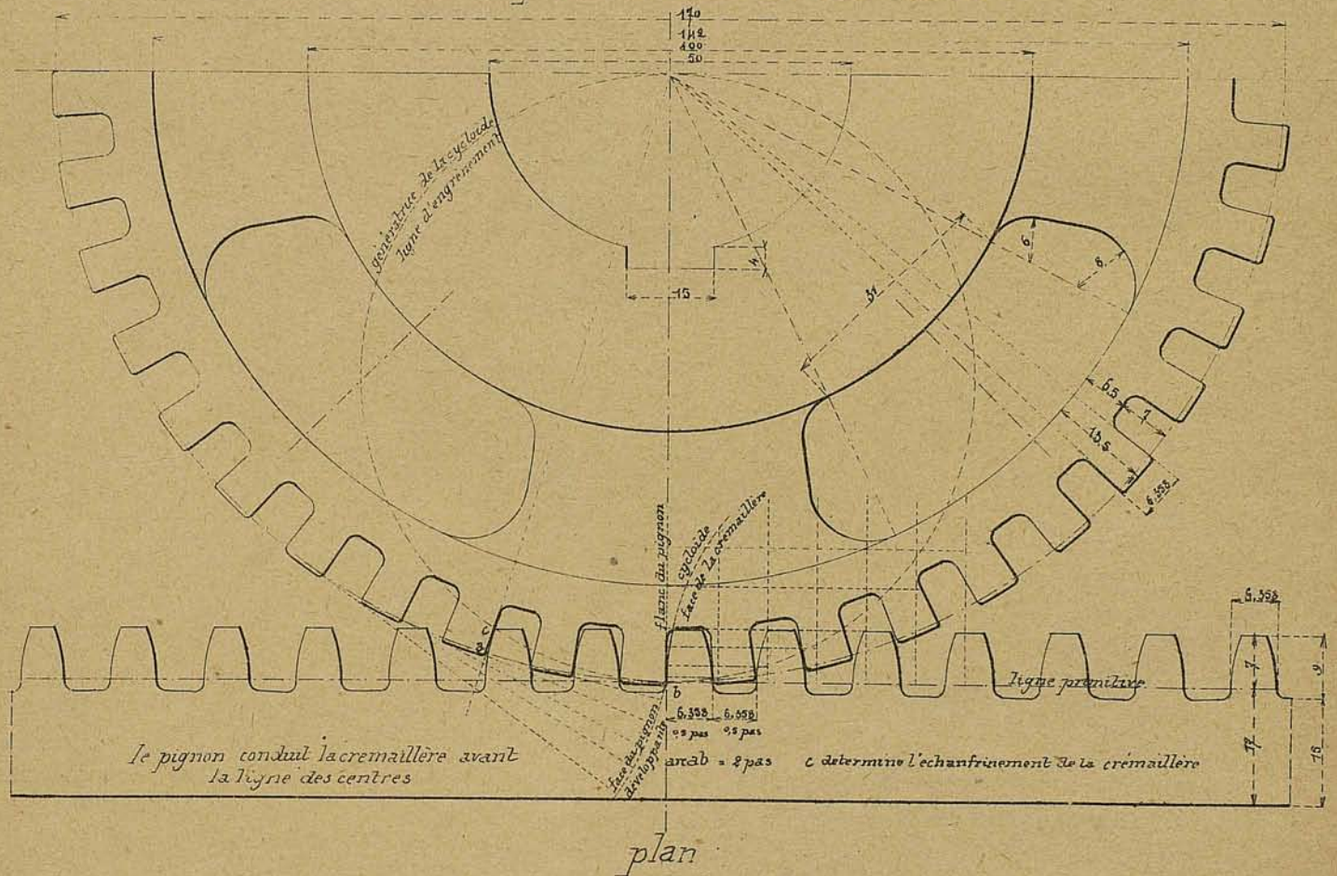
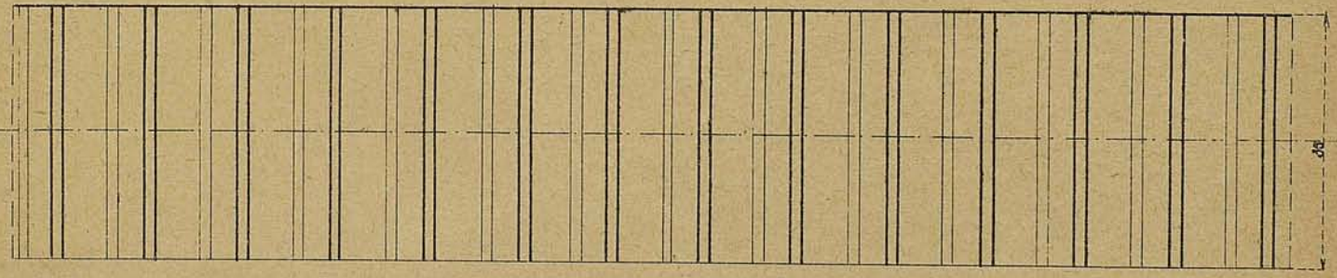
Engrenages

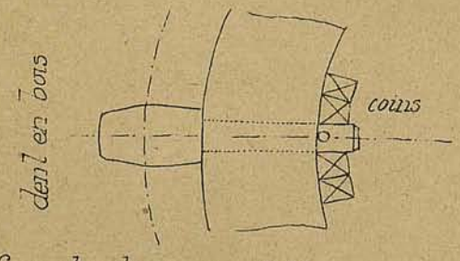
Pignon et cremaillère

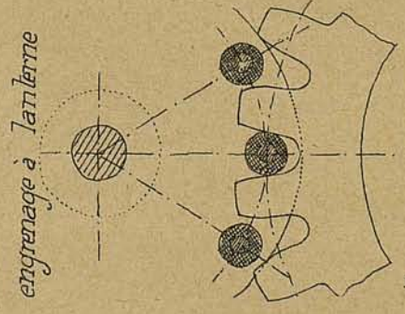
trace du profil des dents a flancs droits

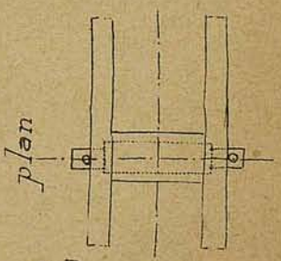


plan









R circonf-primitive du pignon 0,m085

P effort sur une dent 36 k

e epaisseur de la dent $e = 0{,}105\sqrt{P}$

p pas de la denture $2e$

Vraie grandeur

module $\frac{2\pi R}{P}$ rectifié 42

pas rectifié 12 m/m, 716

epaisseur d° 6 m/m, 358

longueur 4 a 6 e 35 m/m

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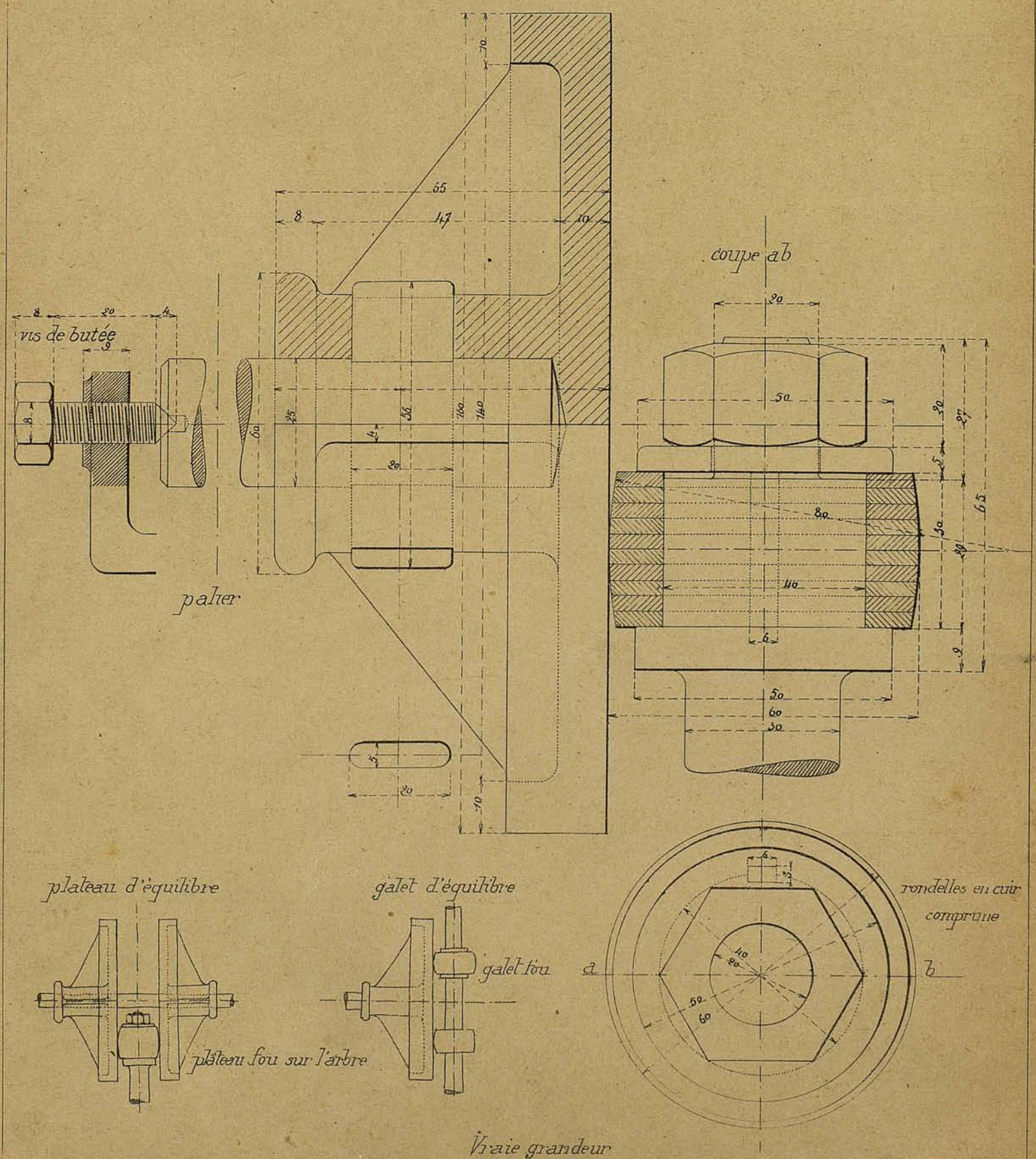
Plateau de friction

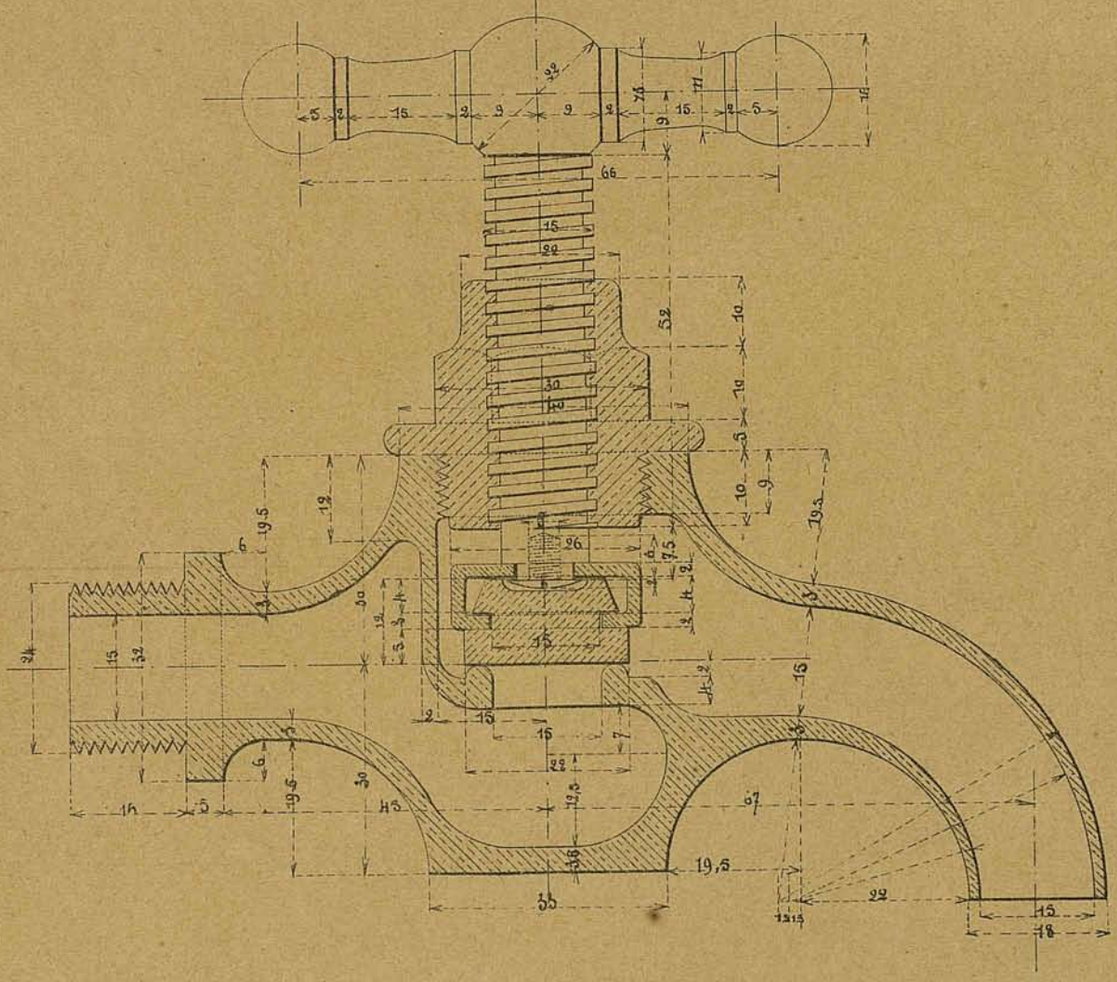
pour transmettre de petits efforts



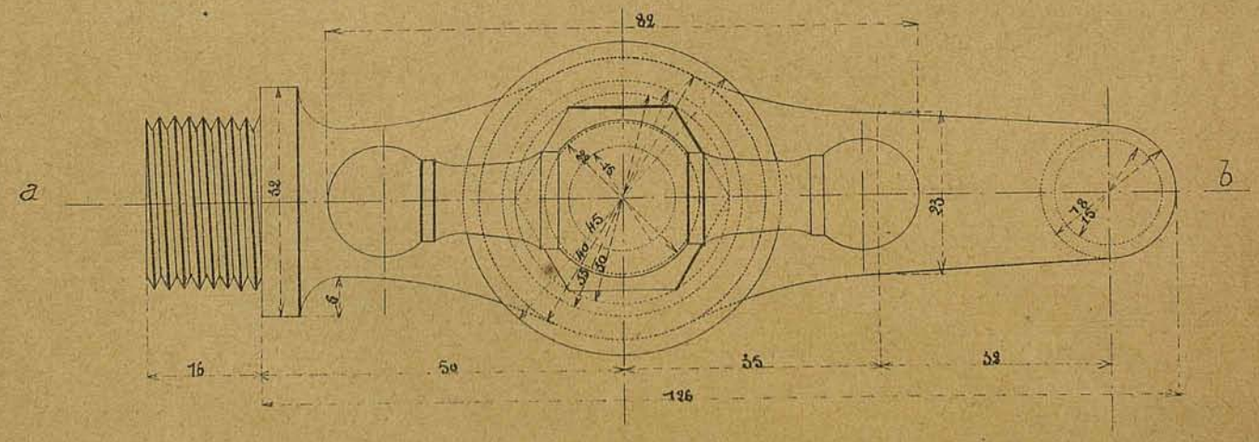
Robinet pour eau

fermeture a vis a caoutchouc

coupe ab



plan

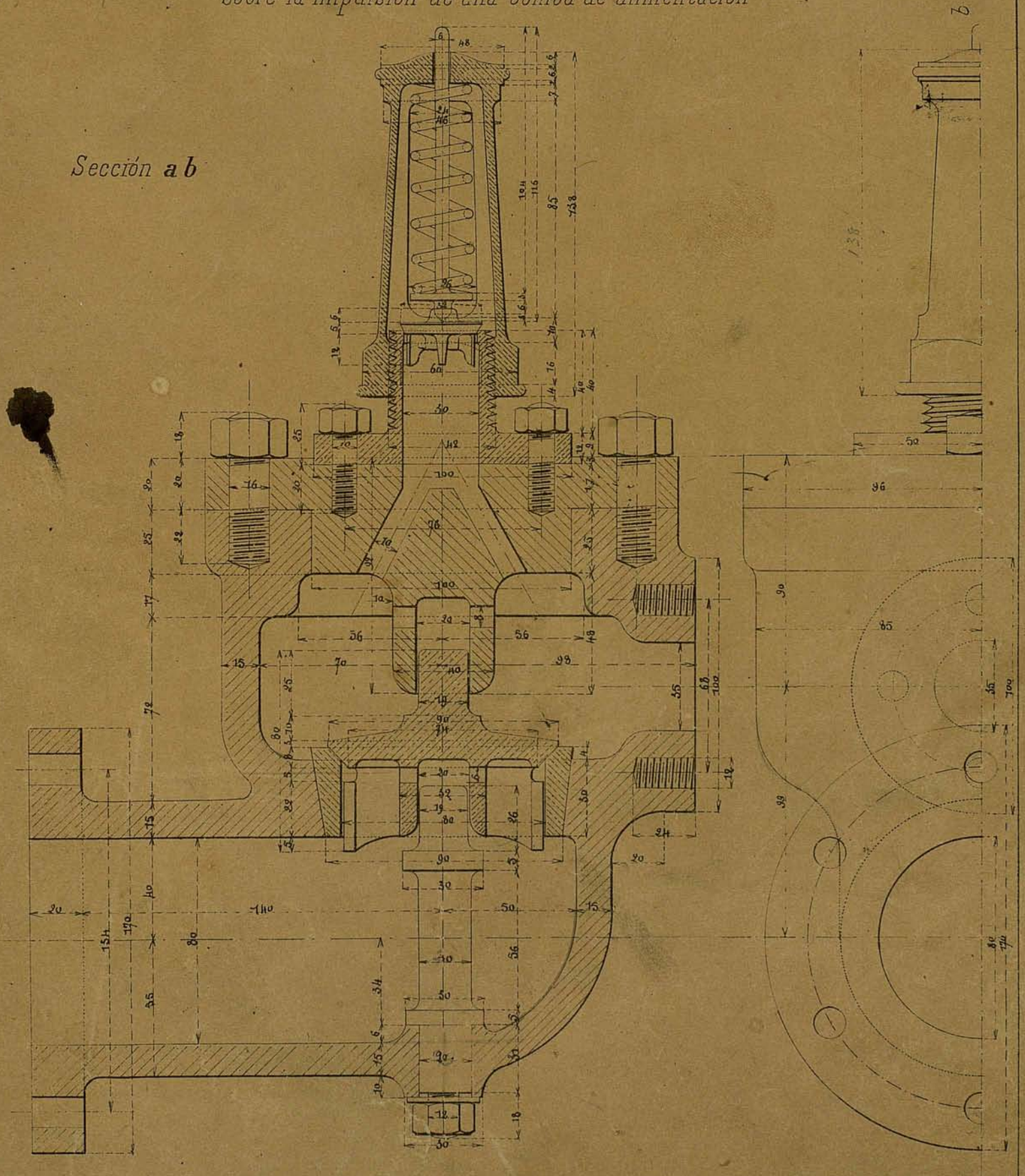


Vraie grandeur

Caja de válvula de asiento con válvula de seguridad

sobre la impulsión de una bomba de alimentación

Sección **a b**



Escala 0m50 por metro

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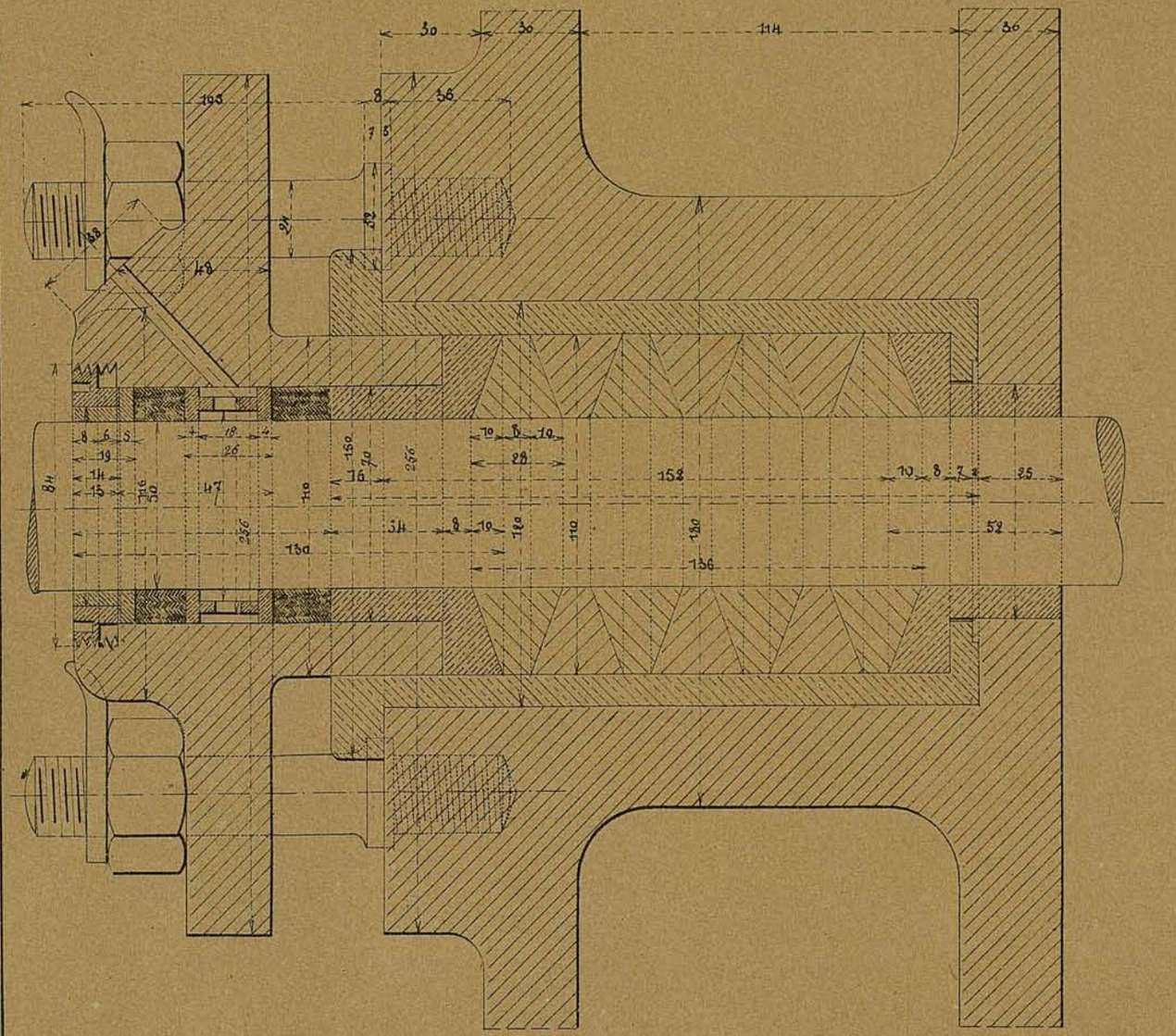
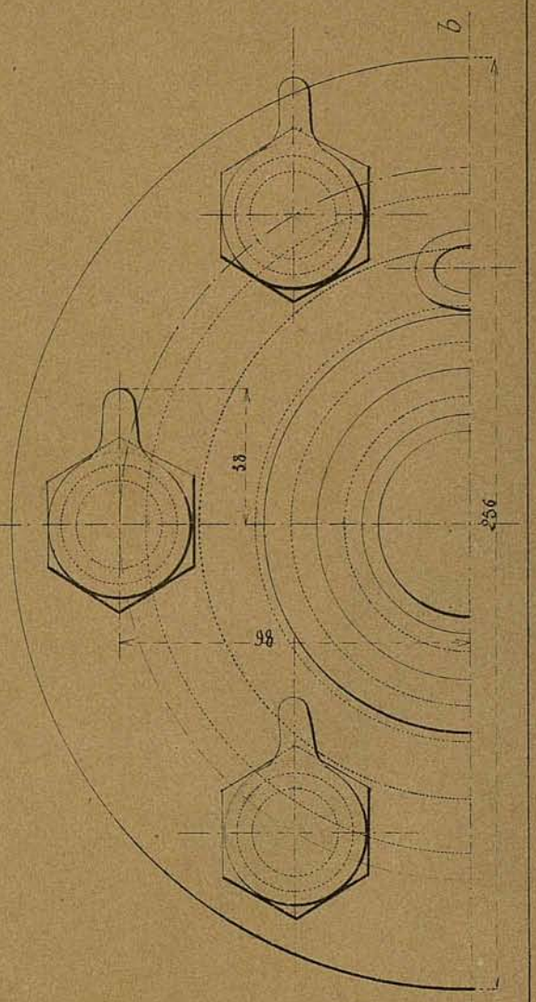
Prensa-estopas

con guarnición metálica y disco horadado por máquina horizontal

Sección **a b**



1/2 proyección del extremo



Escala 0m.50 por metro

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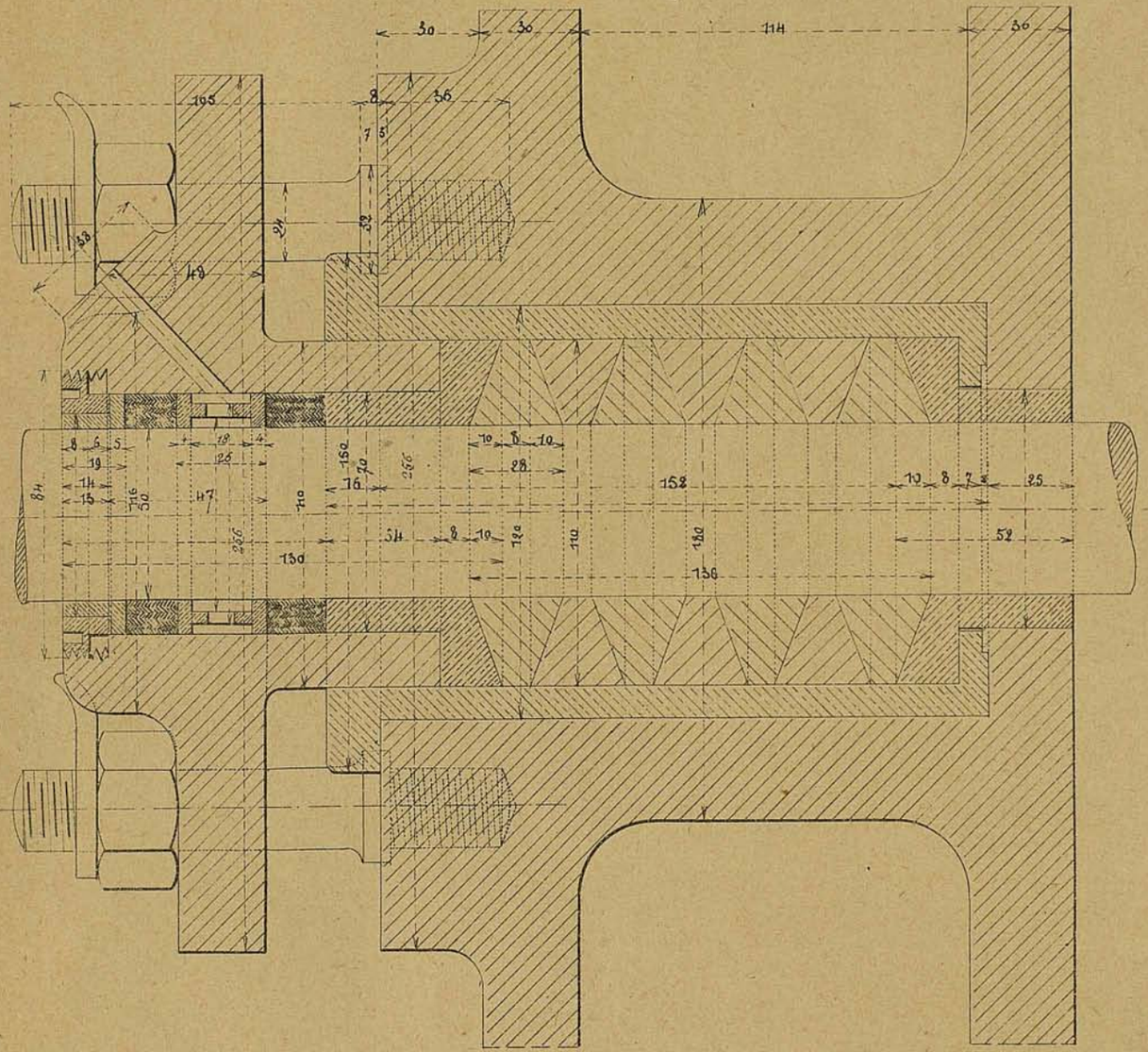
Presse-etoupe

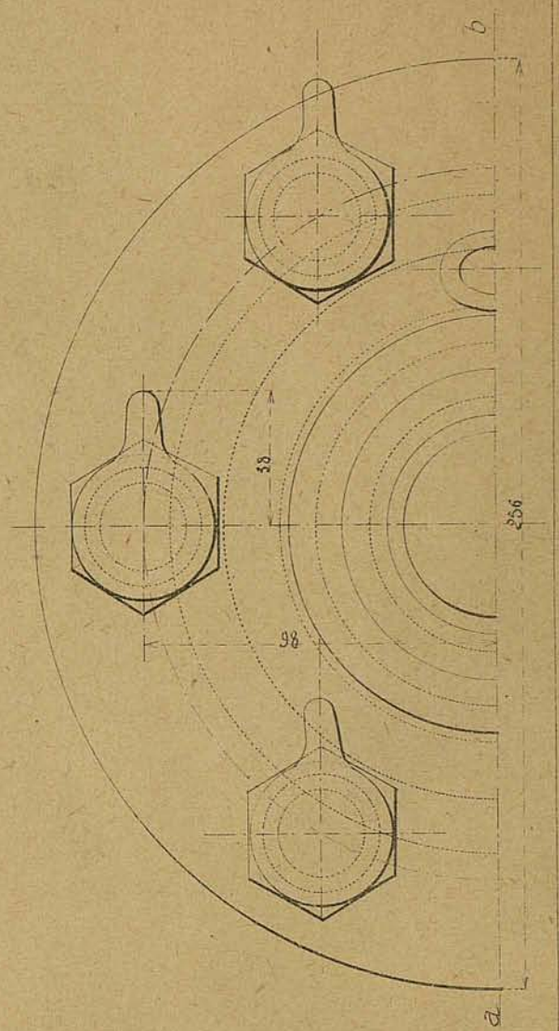
avec garniture métallique et bague evidée

pour machine horizontale

coupe ab



½ vue en bout



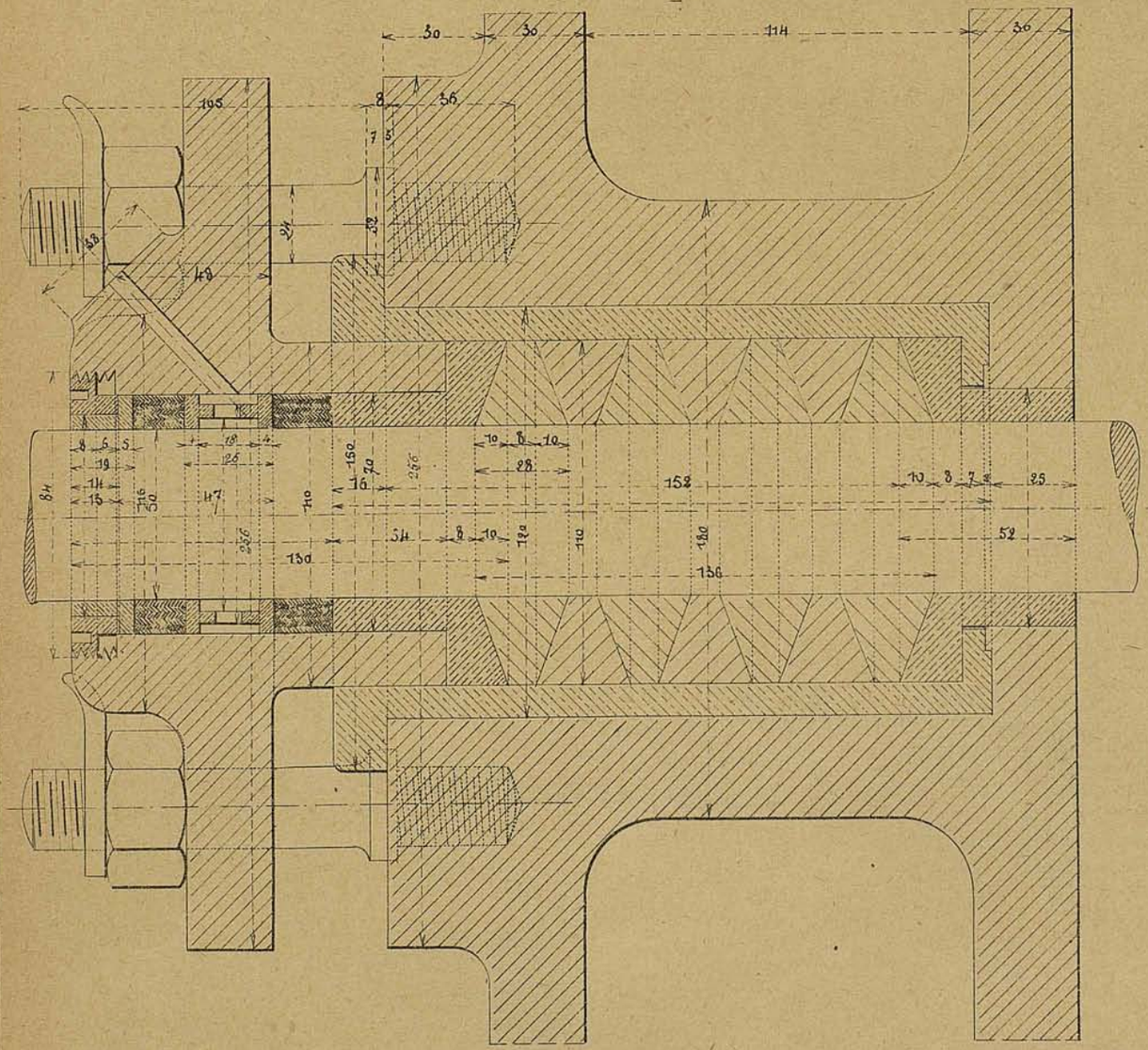
Echelle 0m50 pour mètre

Presse-etoupe

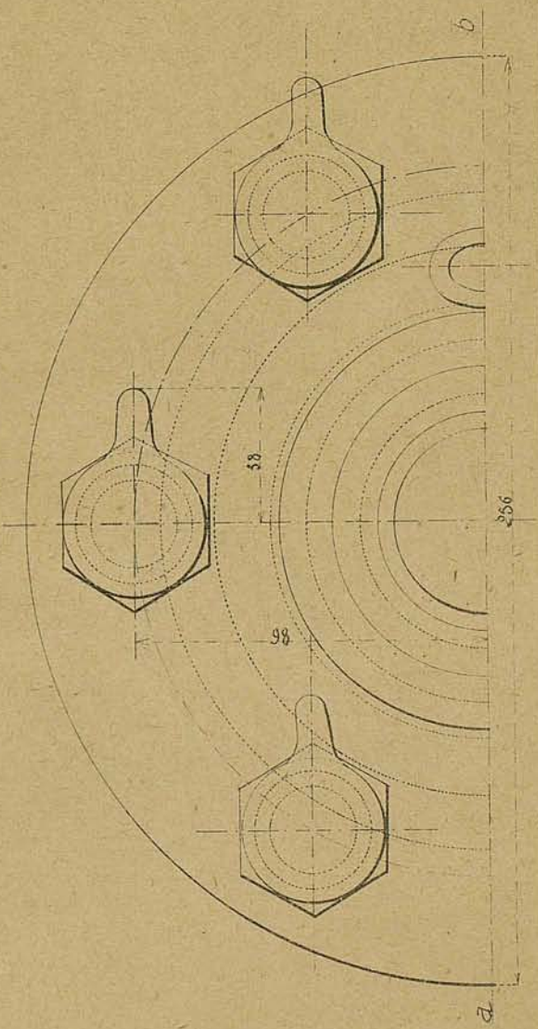
avec garniture métallique et bague evidée

pour machine horizontale

coupe ab



½ vue en bout

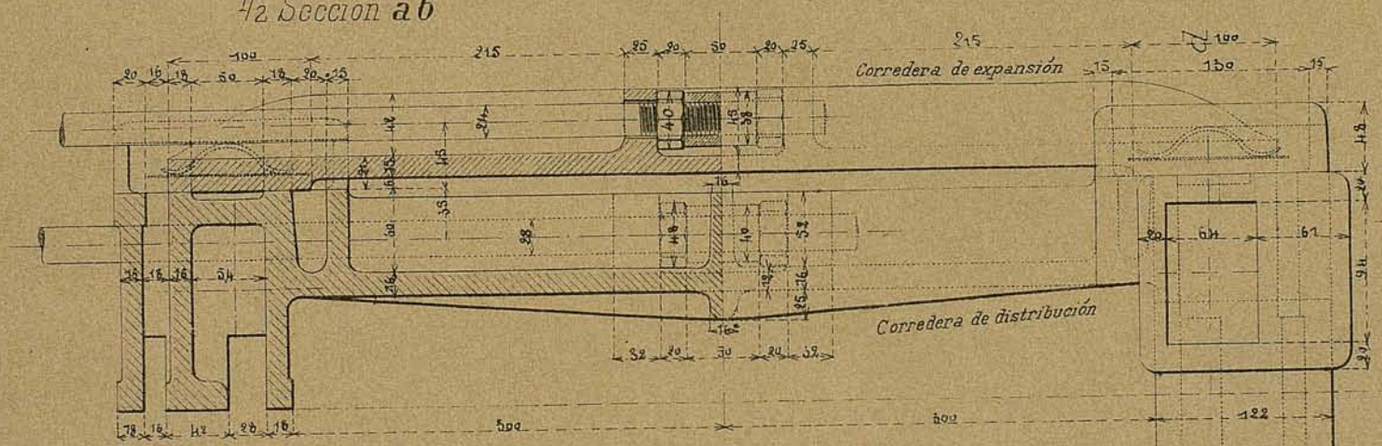


Echelle $0^{m}50$ pour mètre

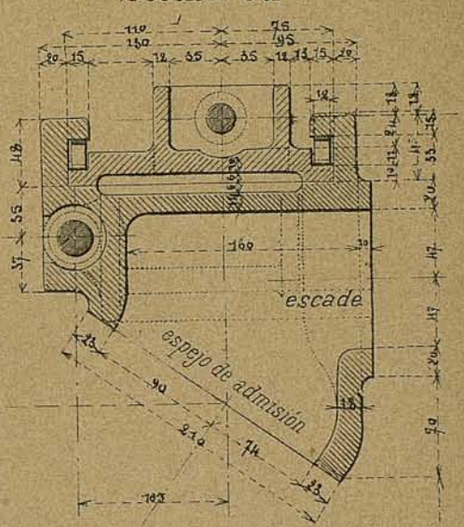
Corredera de distribución

con expansión variable por medio del regulador

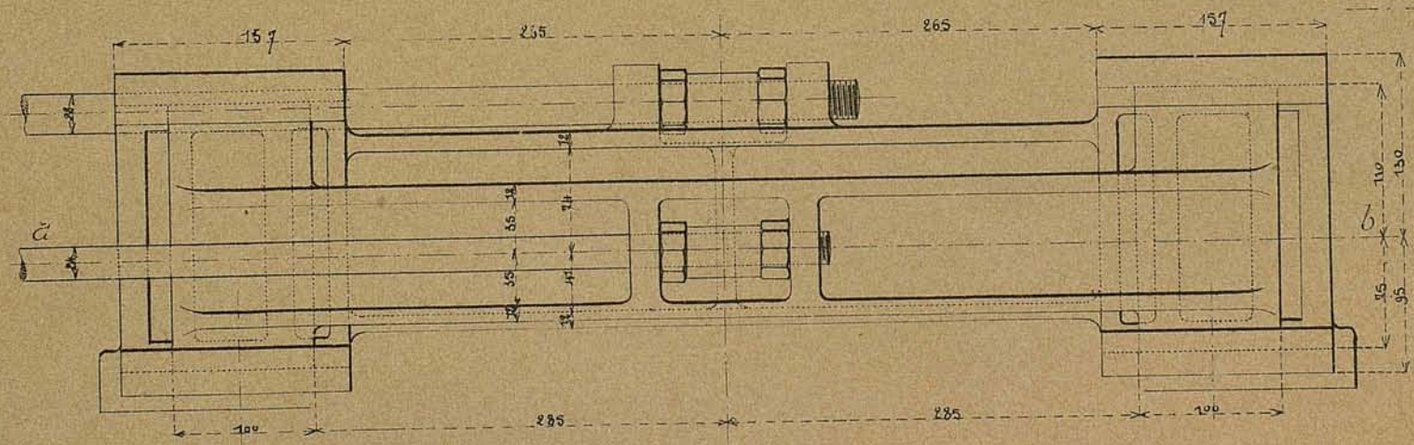
1/2 Sección **a b**



Sección **c d**



Planta



ejes del cilindro

Escala 0m20 por metro

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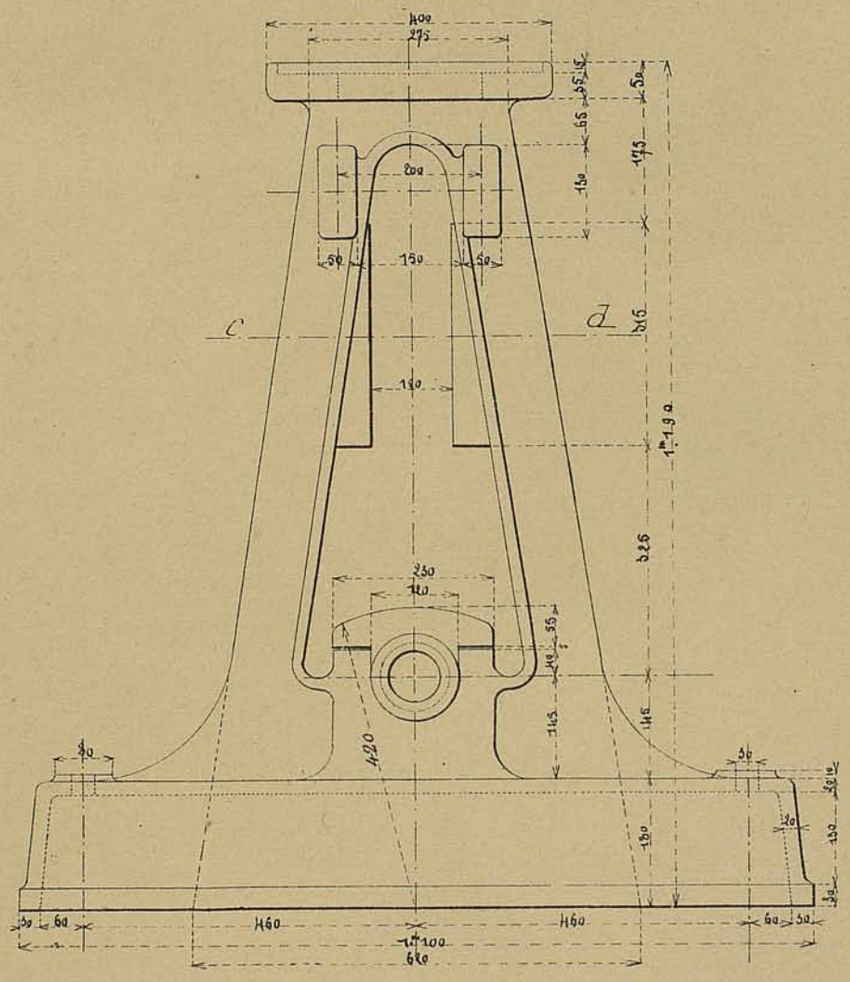
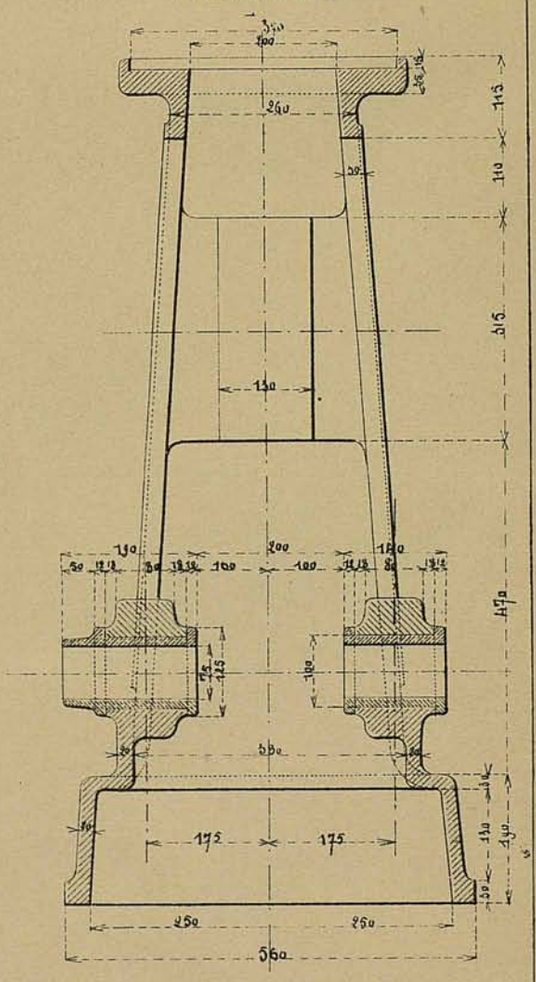
Armazón vertical

para máquina de vapor

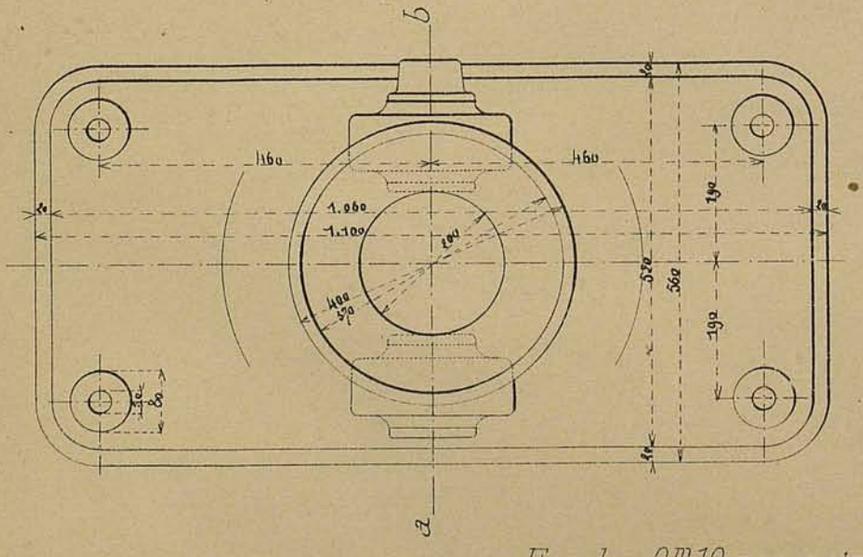
Elevación



Sección ***a b***

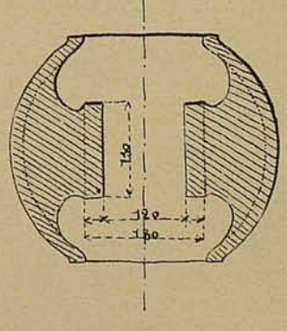


Planta



Sección ***c d***

Croquis

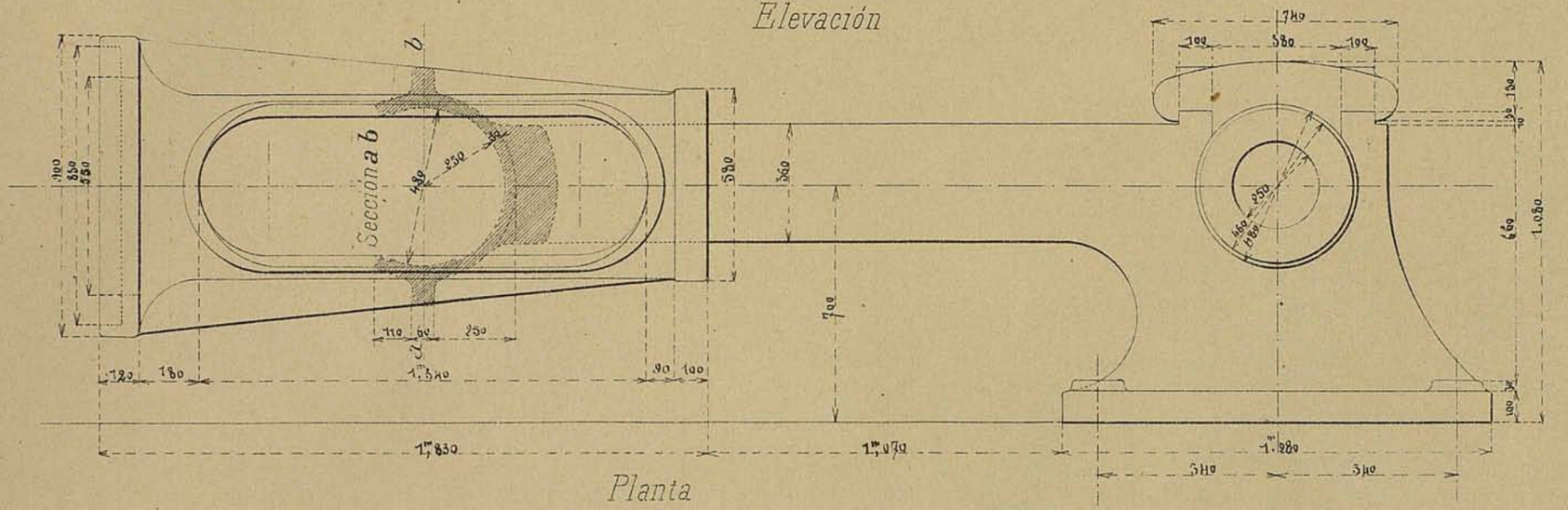


Escala $0^{m}10$ *por metro*

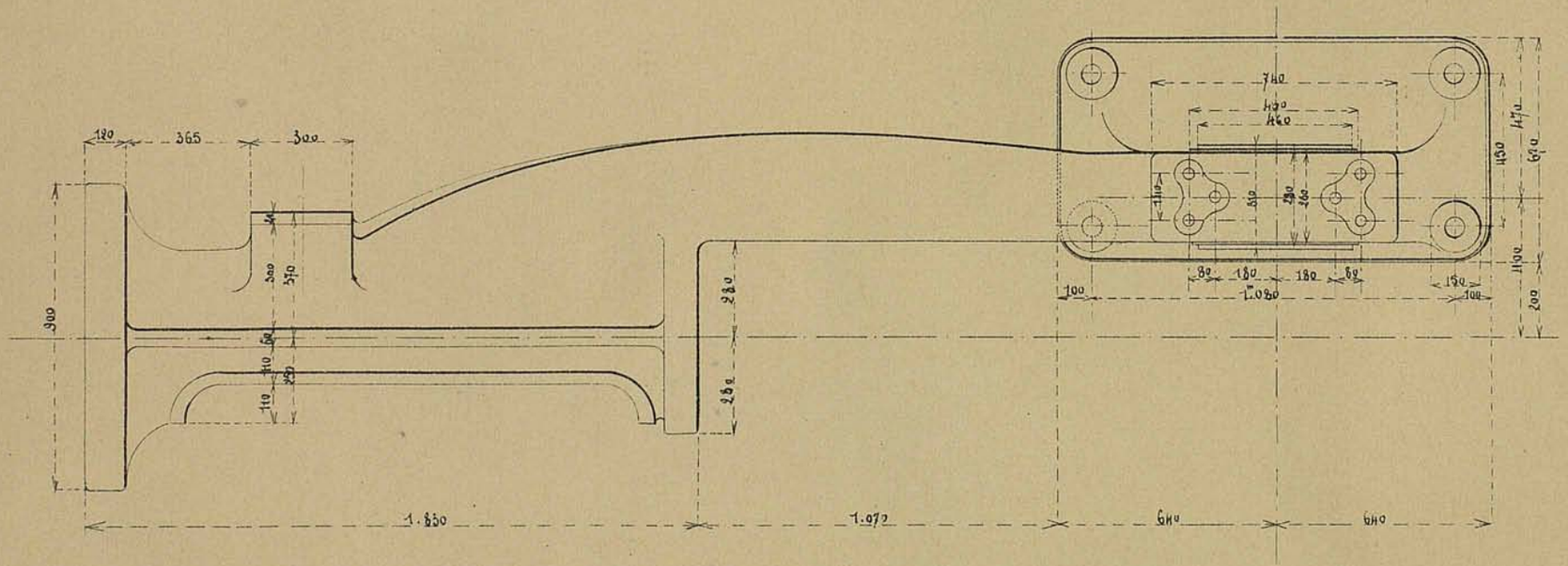
Amazón horizontal

para máquina de vapor

Elevación



Planta

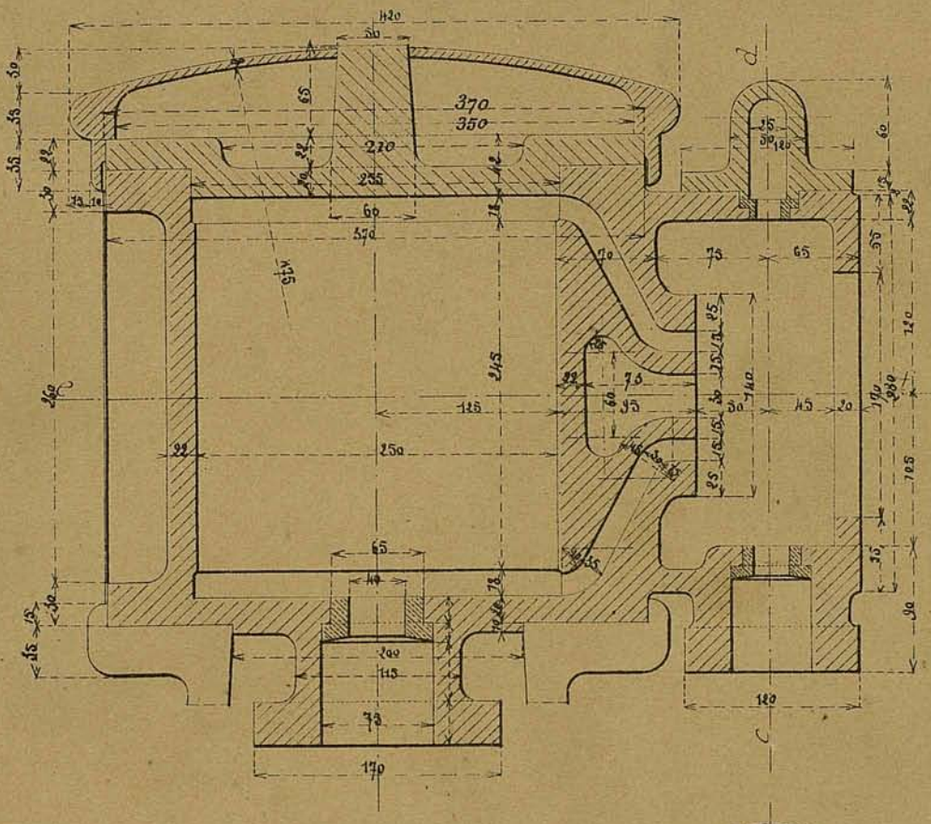


Escala 0m.05 por metro

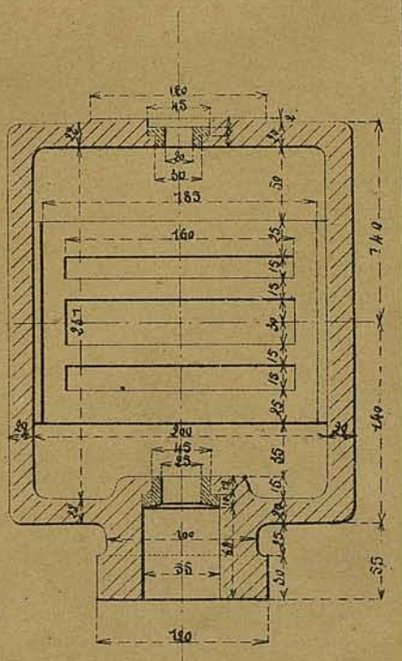
Cilindro

para maquina de vapor vertical 1/2

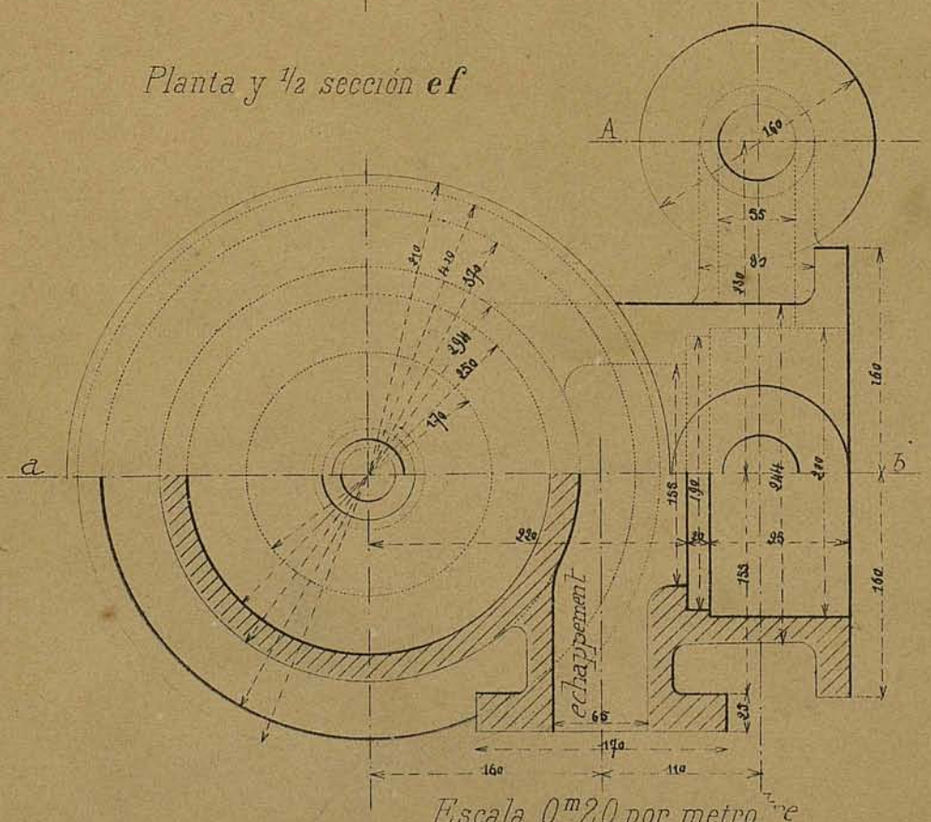
Sección **a b**



Sección **c d**



Planta y 1/2 sección **e f**



Nota:

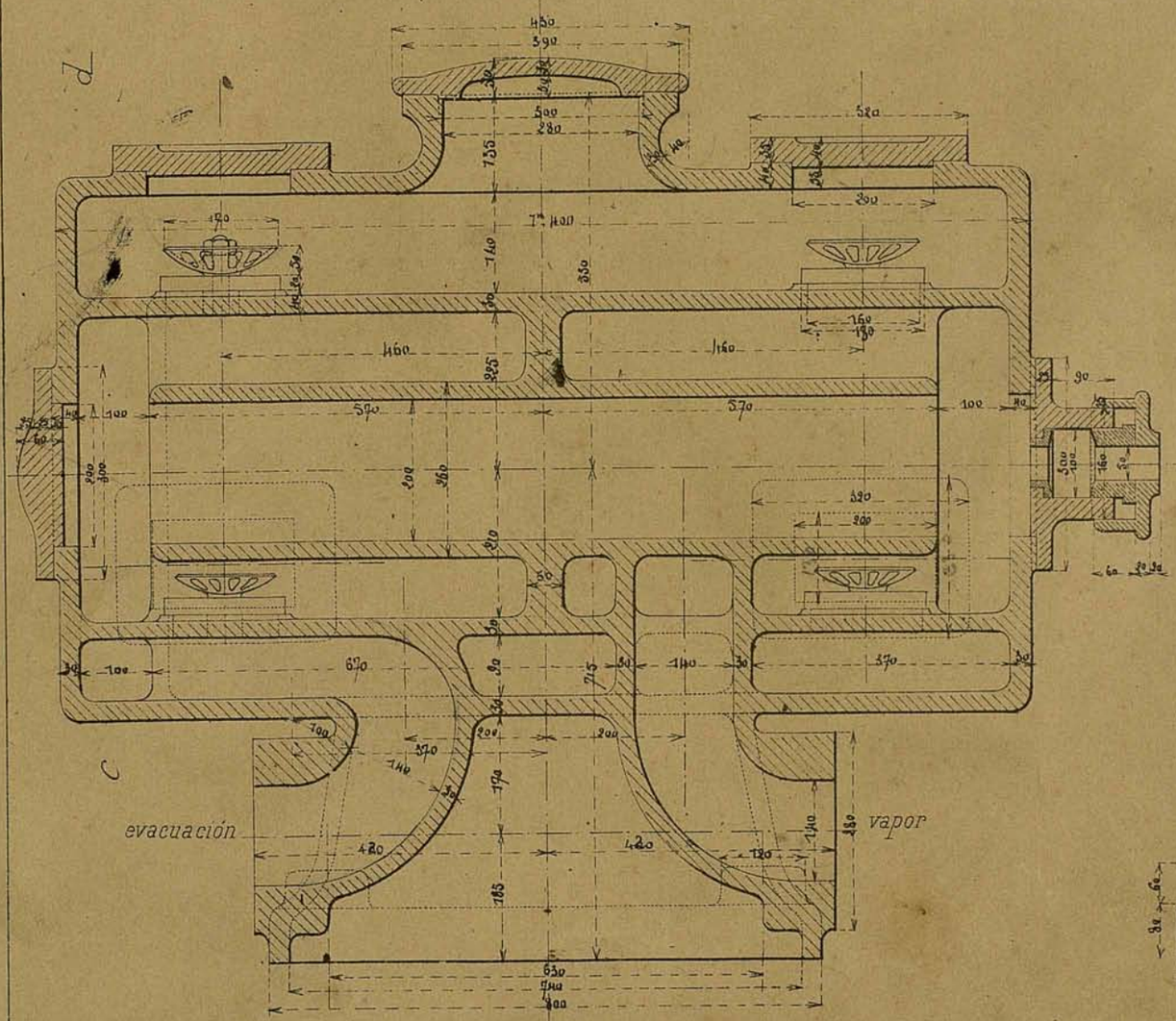
Sobre el tubo **A** *que sirve para la admisión se coloca una válvula de vapor de mariposa accionada por el regulador*

Escala 0m20 por metro

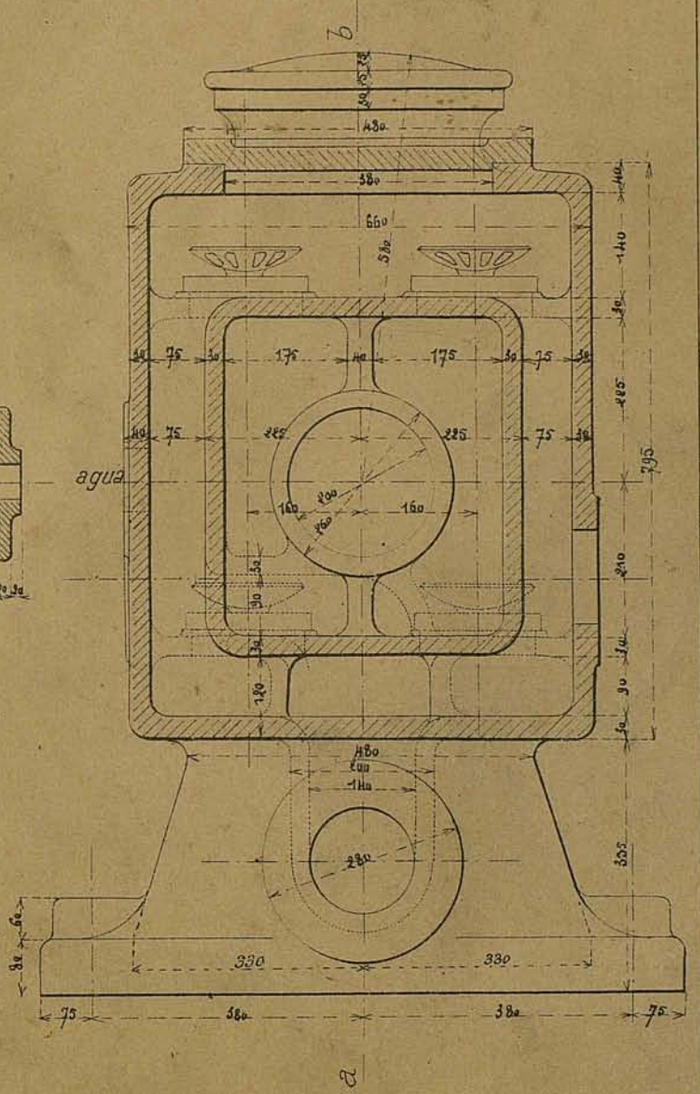
Condensador de inyección

para máquina de vapor

Sección ***ab***



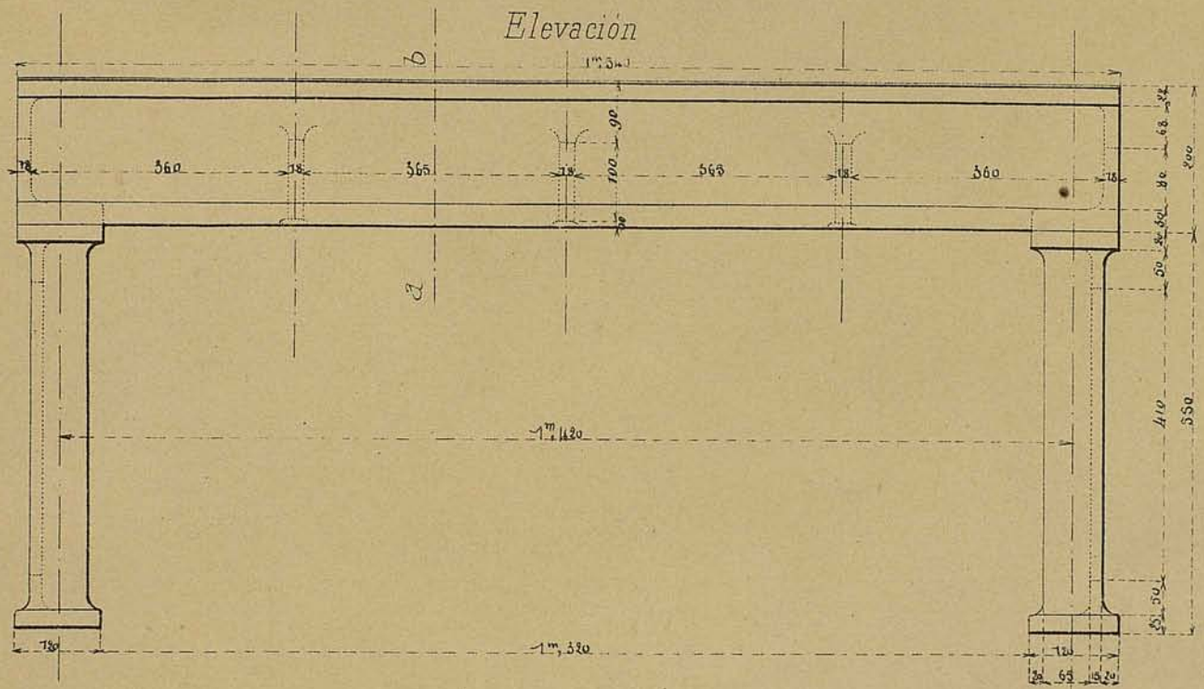
Sección ***cd***



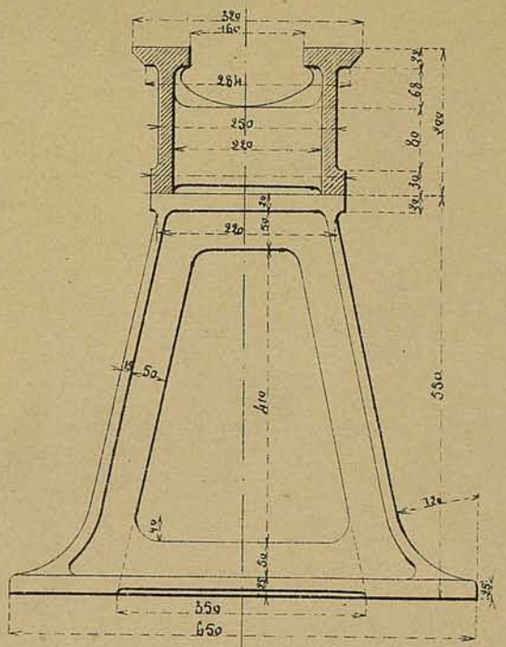
Escala 0m10 por metro

Banco de torno

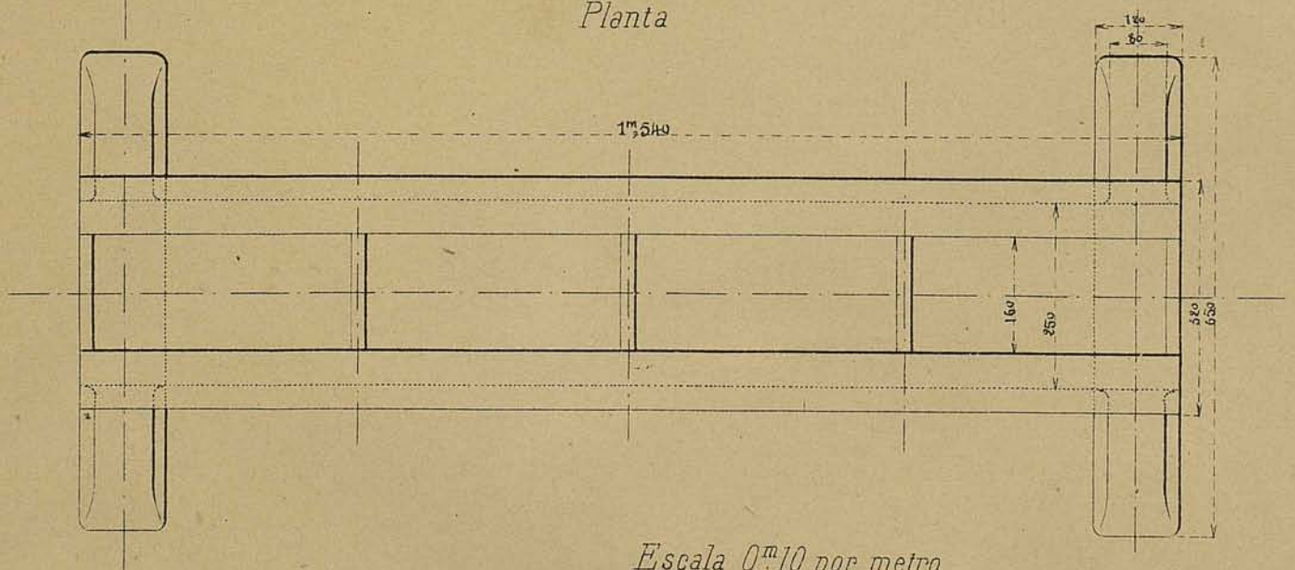
Elevación



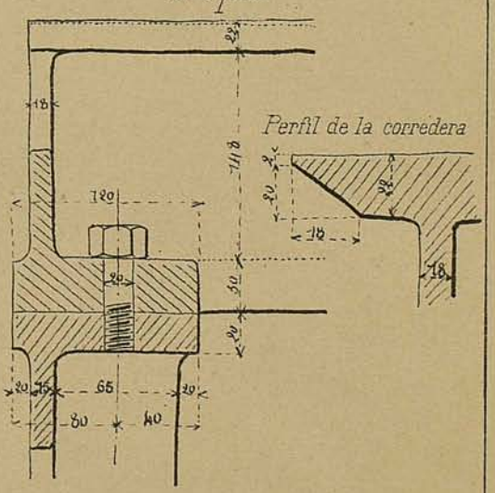
Sección a b



Planta



Croquis



Escala 0m,10 por metro

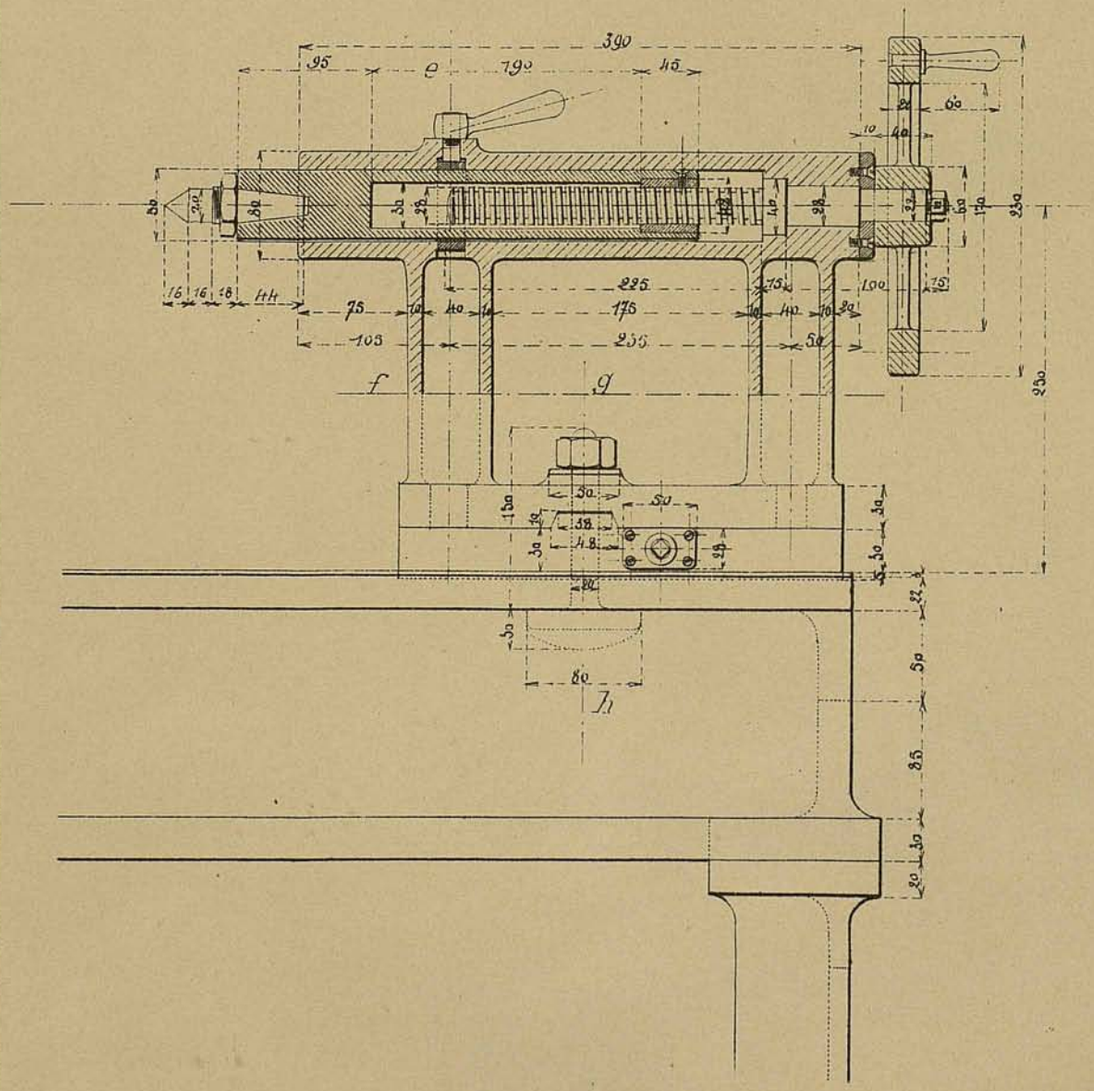
Ensambladura del banco de torno y sus pies

Punto de torno

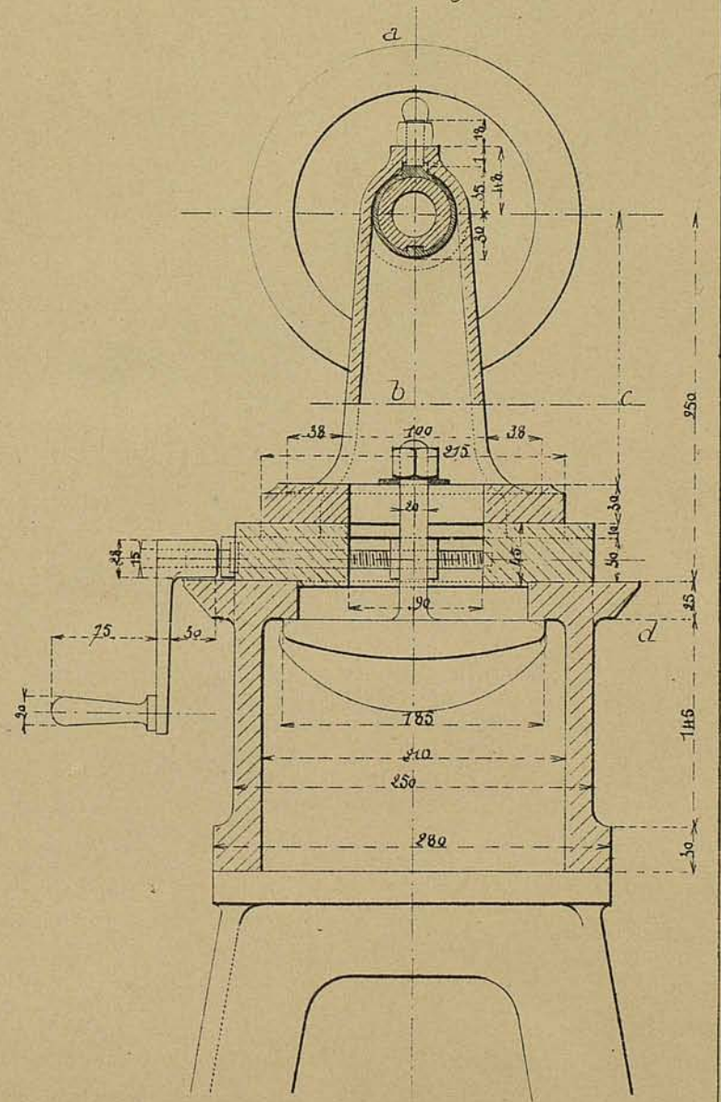
movible que permite el torneado cónico

altura de los puntos 0m25

Sección ***abcd***



Sección ***efgh***



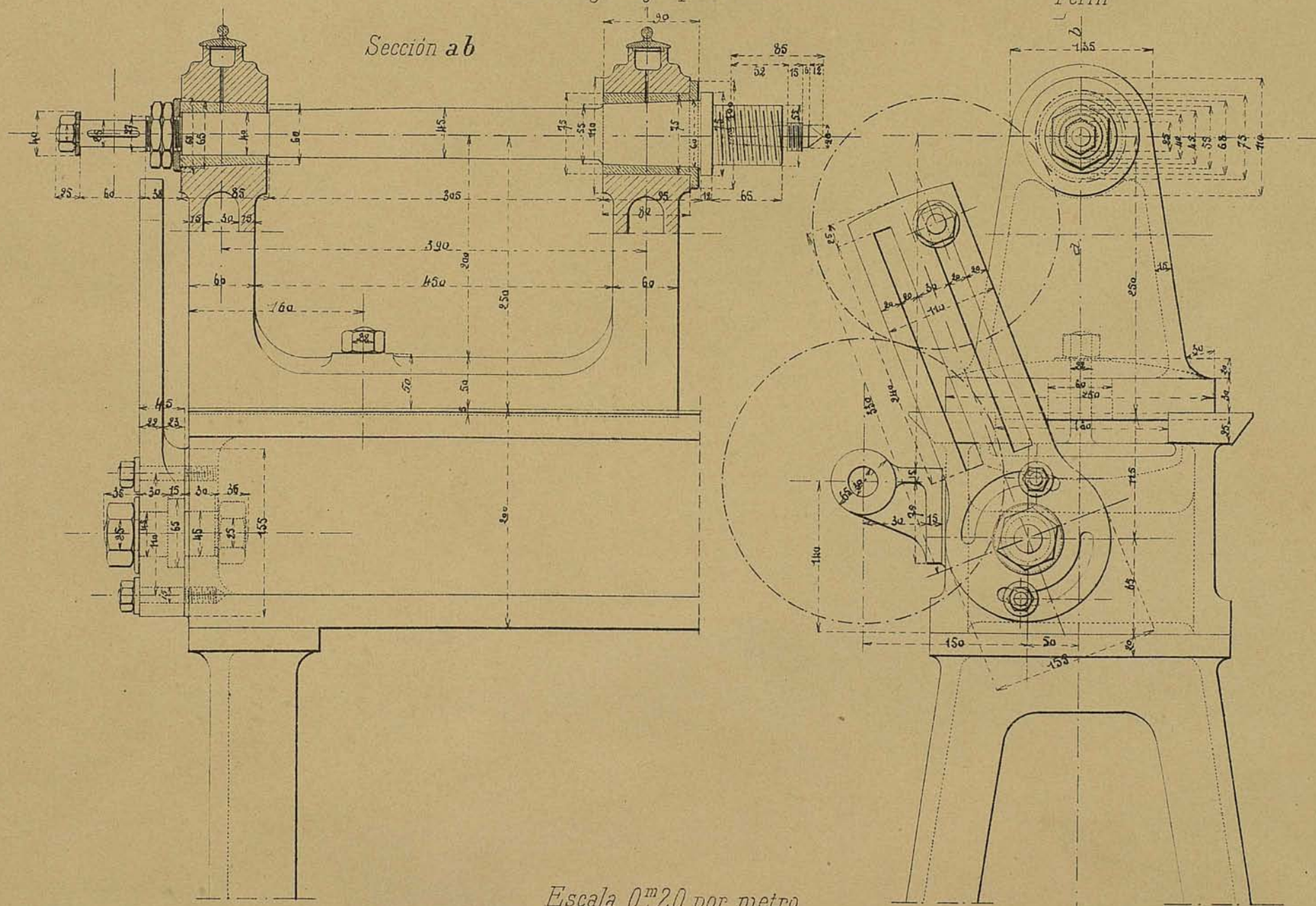
Escala 0m20 por metro

Punto fijo

Tren de engranajes para mover el carro

Sección a b

Perfil



Escala 0m20 por metro

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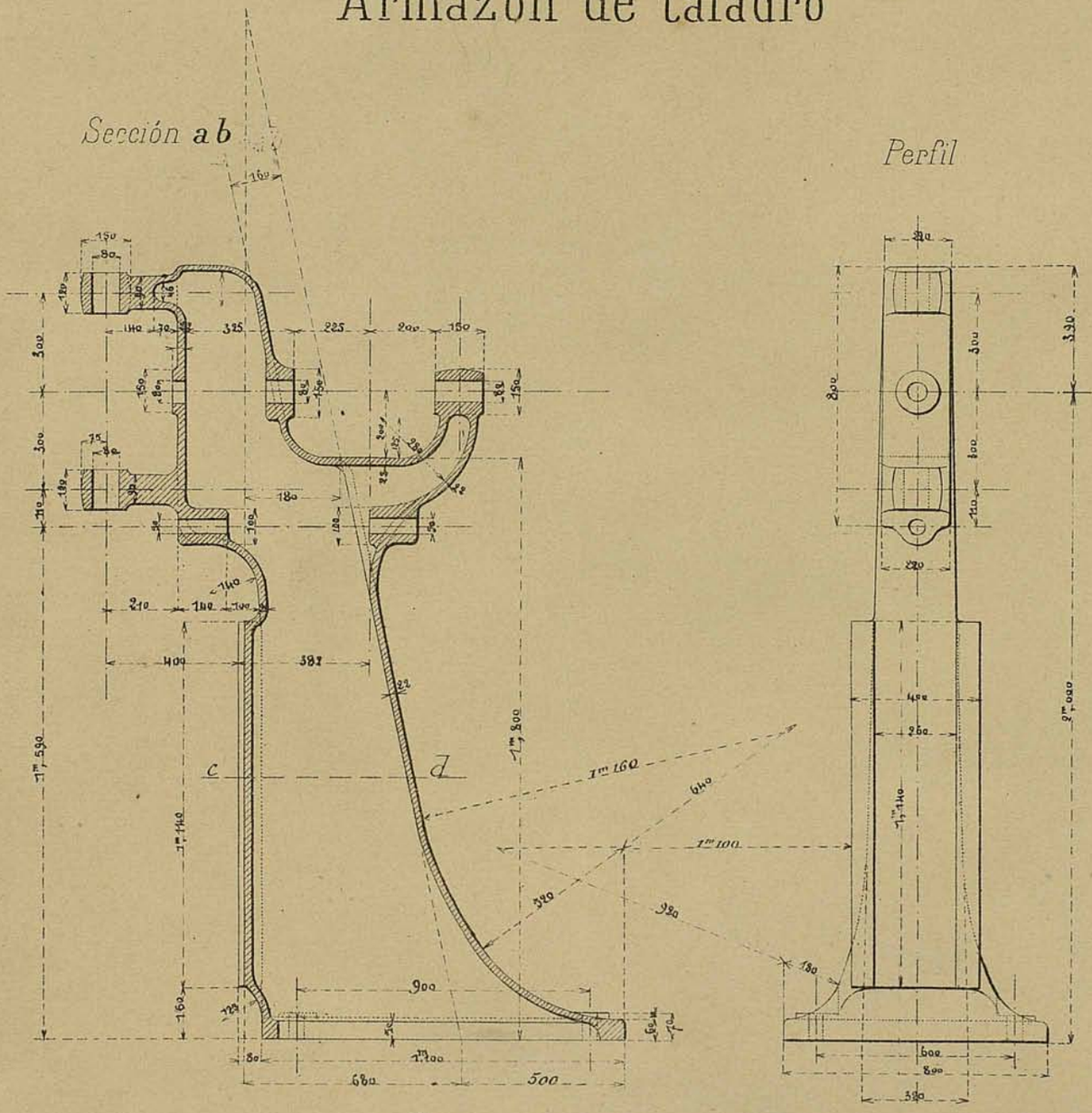
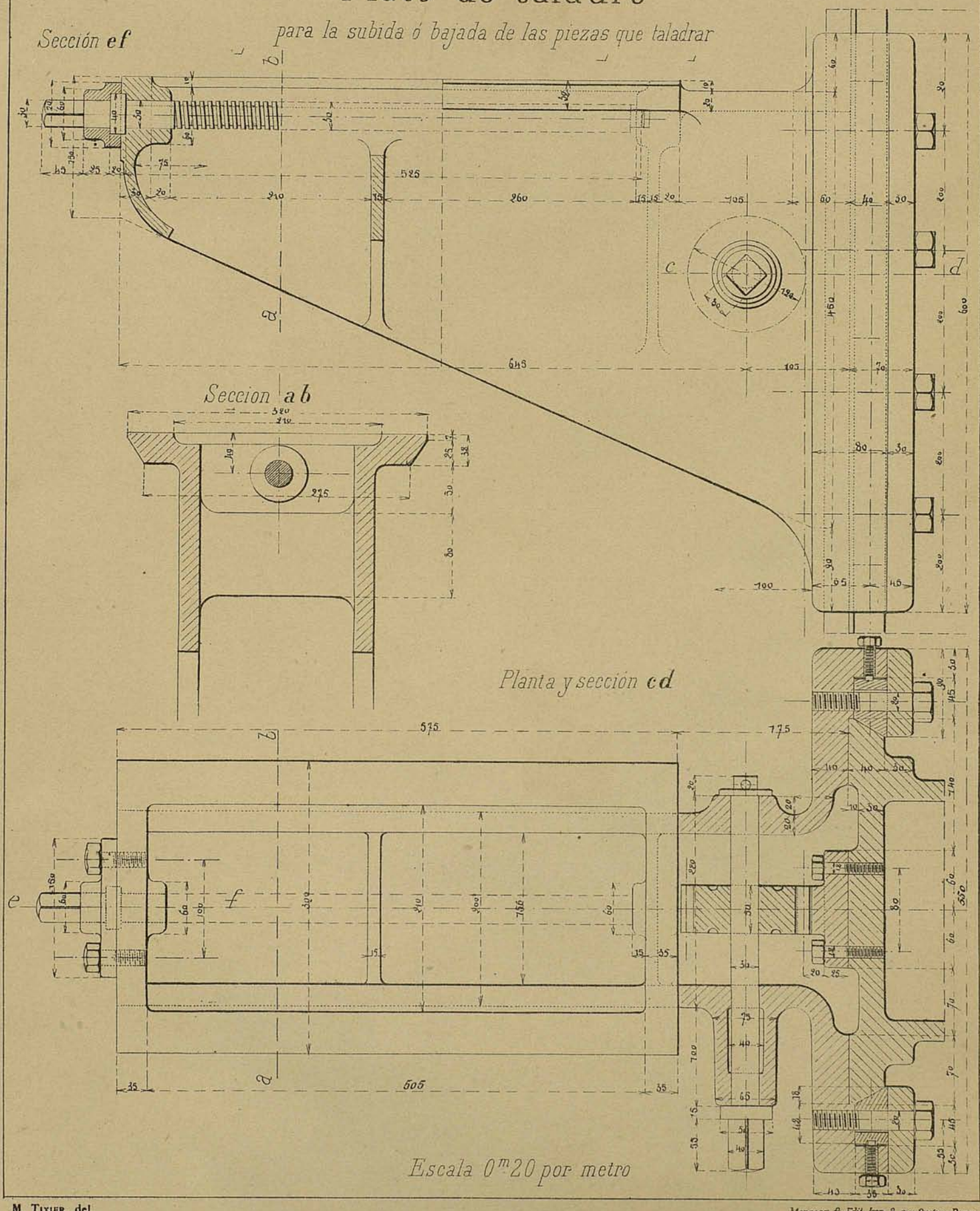
Armazón de taladro



Escala $0^{m}.05$ por metro

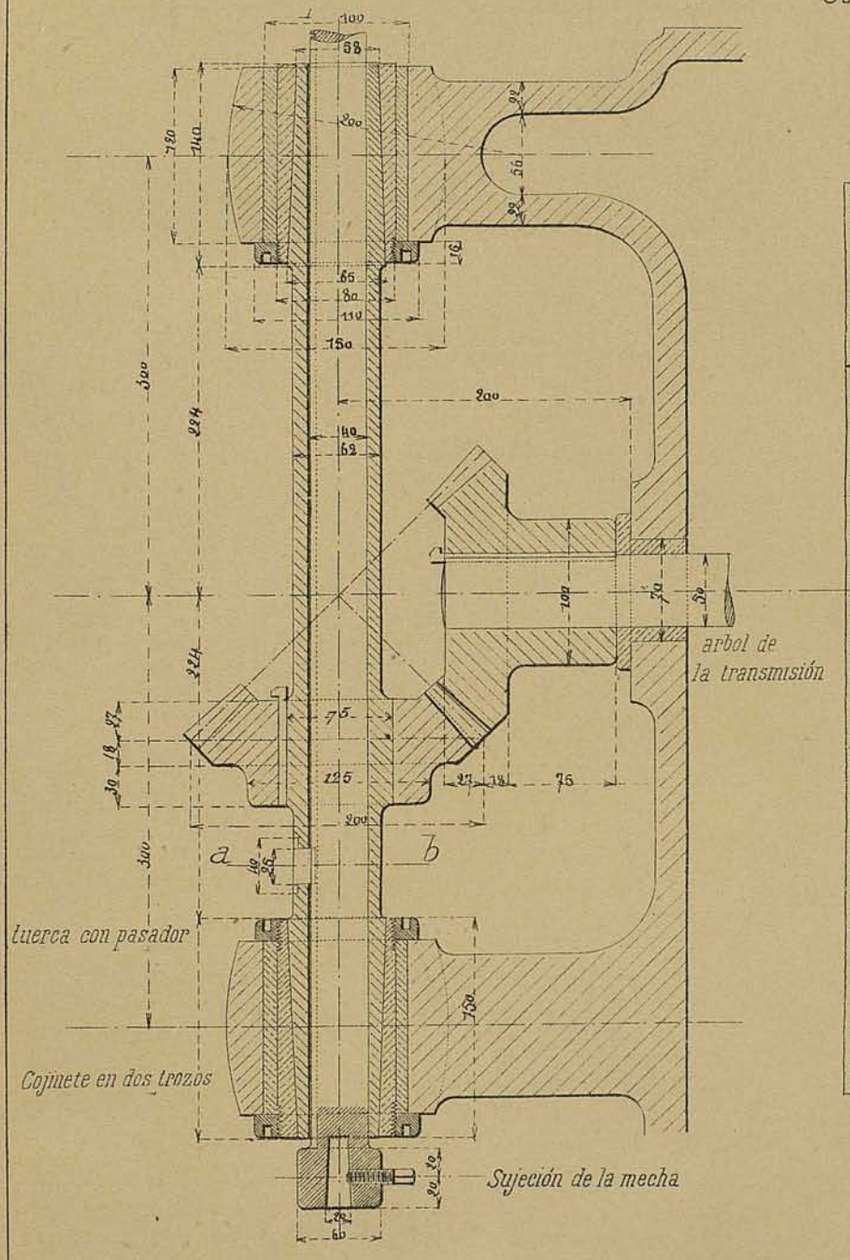
Plato de taladro

para la subida ó bajada de las piezas que taladrar

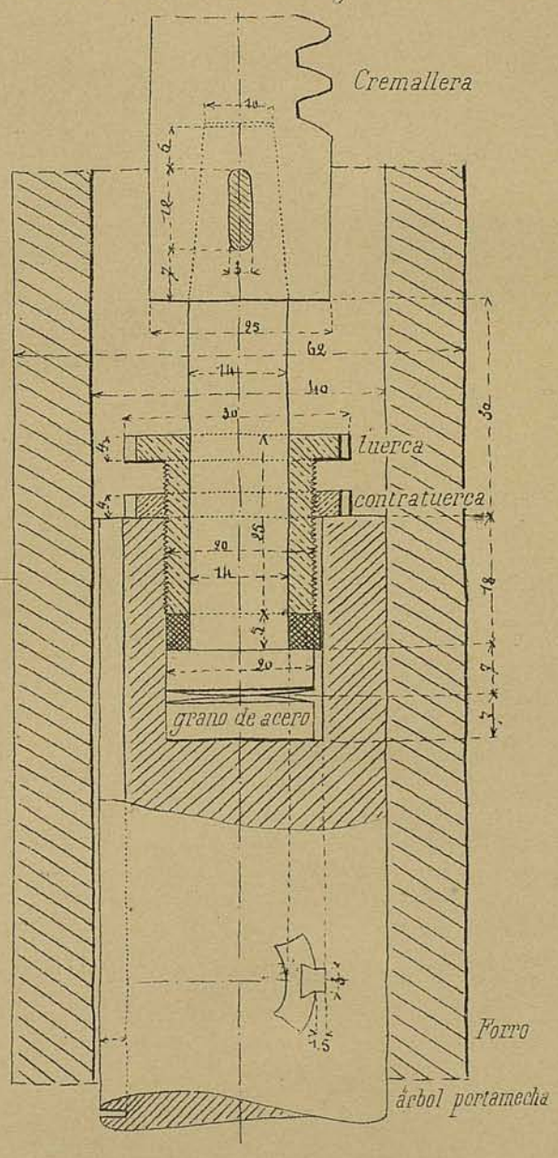


Arbol portamecha

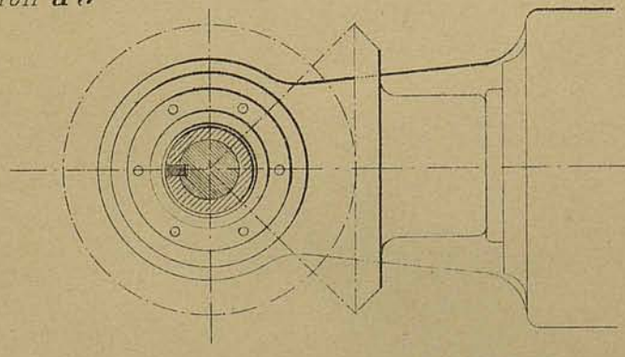
Sección **c d**



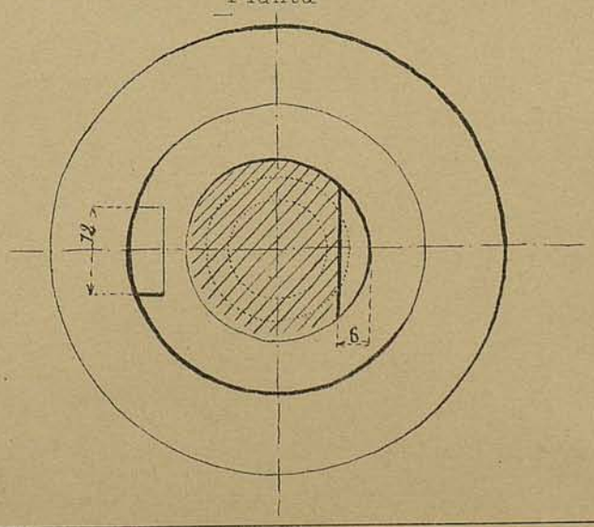
Conexión de la cremallera y del árbol · (Croquis)



Sección **a b**



Planta



Escala $0^{m}20$ por metro

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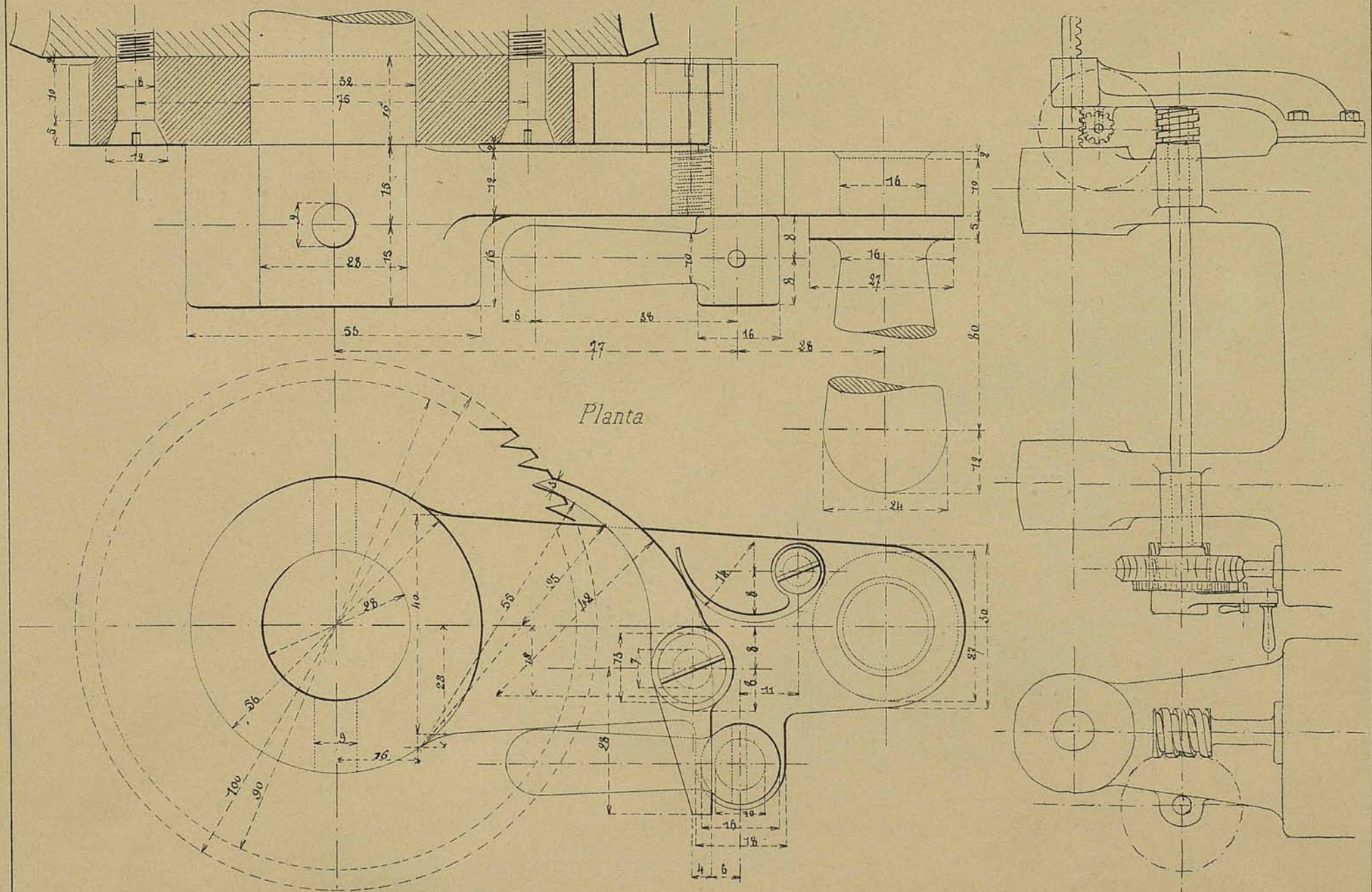
Compresión del árbol portamecha

Manivela con escape para verificar la presión automáticamente ó á mano



Planta

Tamaño natural

Esquema de la presión automática

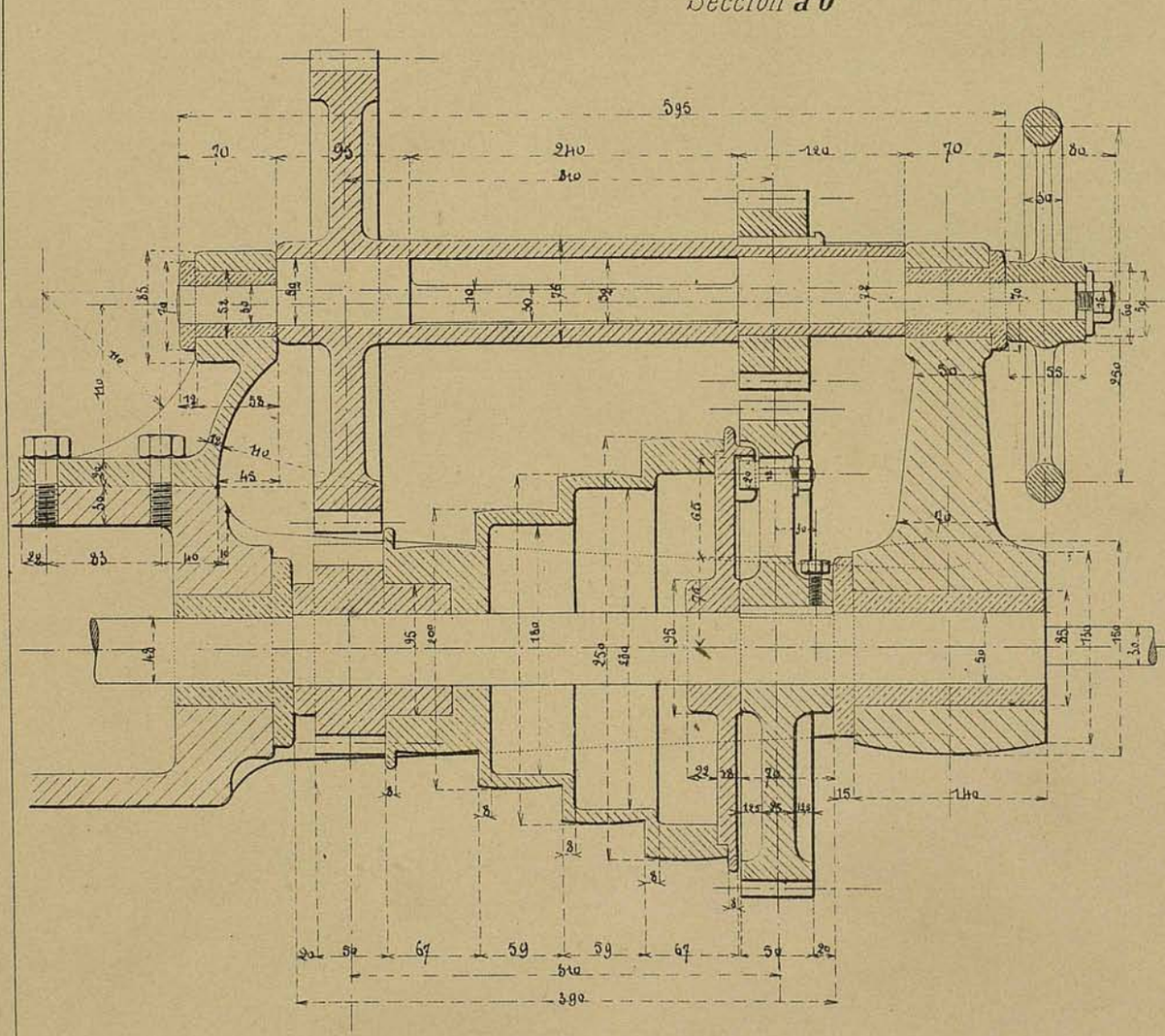
M. Tixier, del

Monrocq, fr. Edit. Imp. 3, rue Suger. Paris

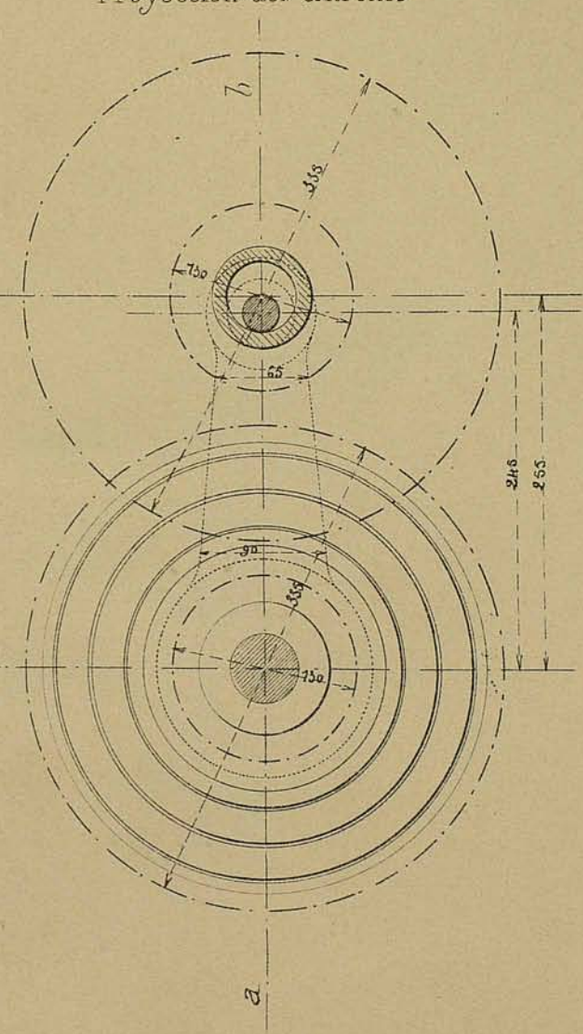
Embrague del árbol motor

para permitir una gran variación de velocidad

Sección ***a b***



Proyección del extremo

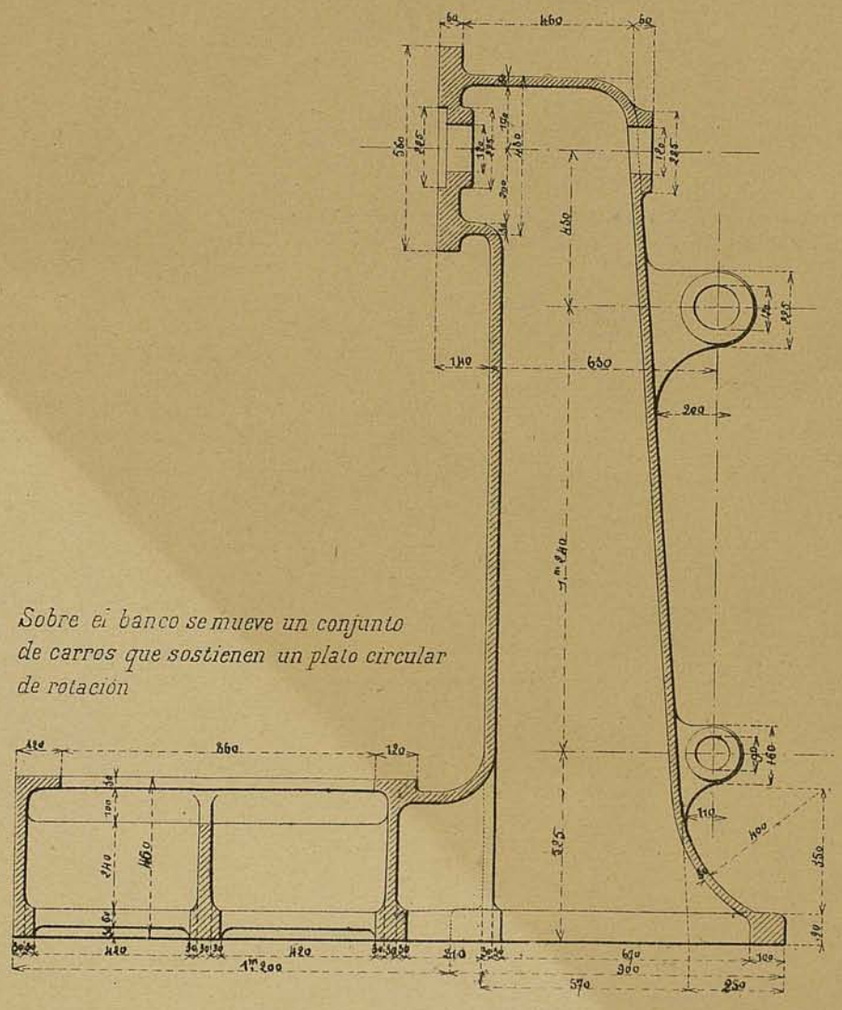


Escala 0^{m}20 por metro

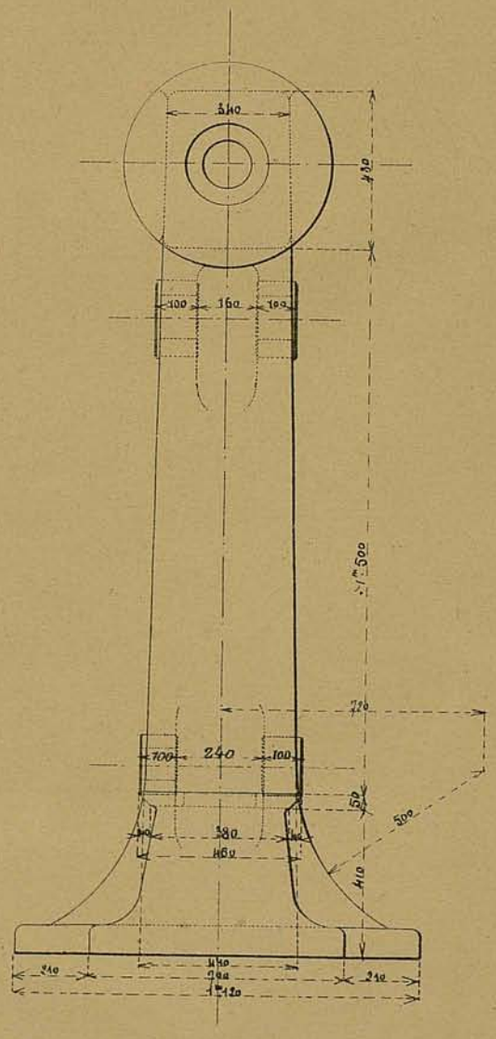
Cajeadora

armazón

Sección a b

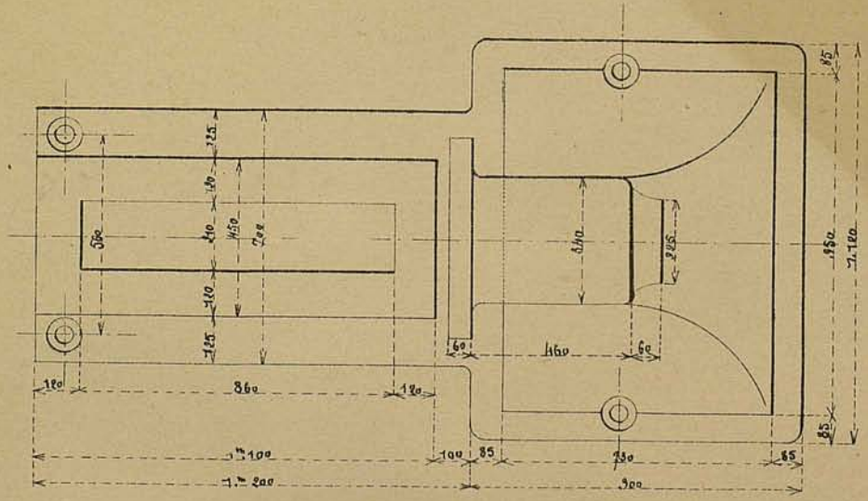


Frente



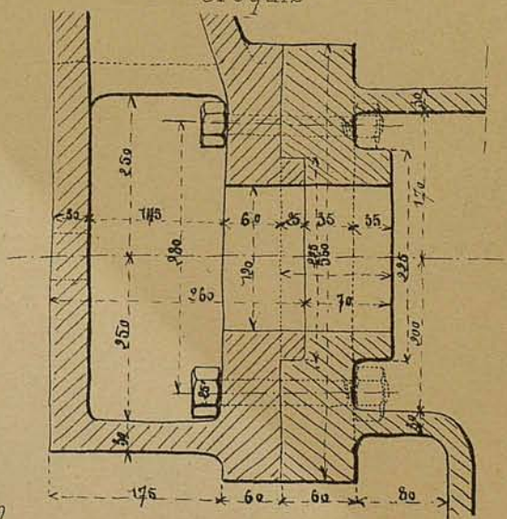
Sobre el banco se mueve un conjunto de carros que sostienen un plato circular de rotación

Planta



Cabeza giratoria

Croquis

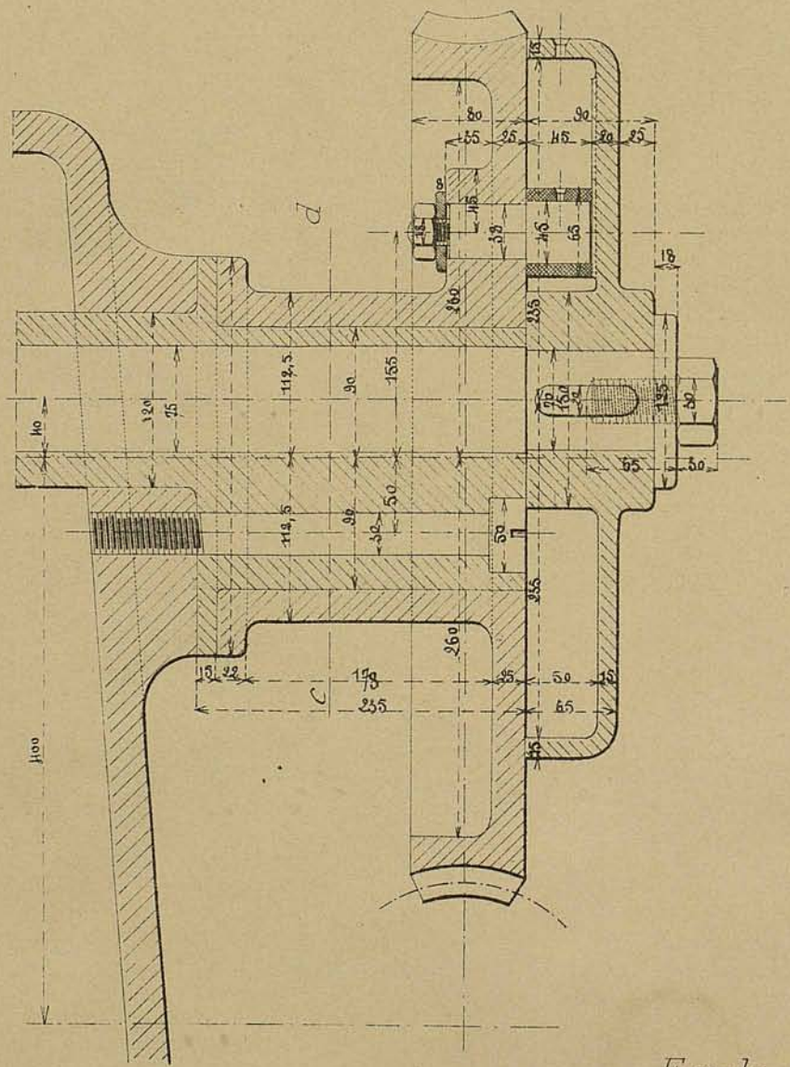


Escala 0m05 por metro

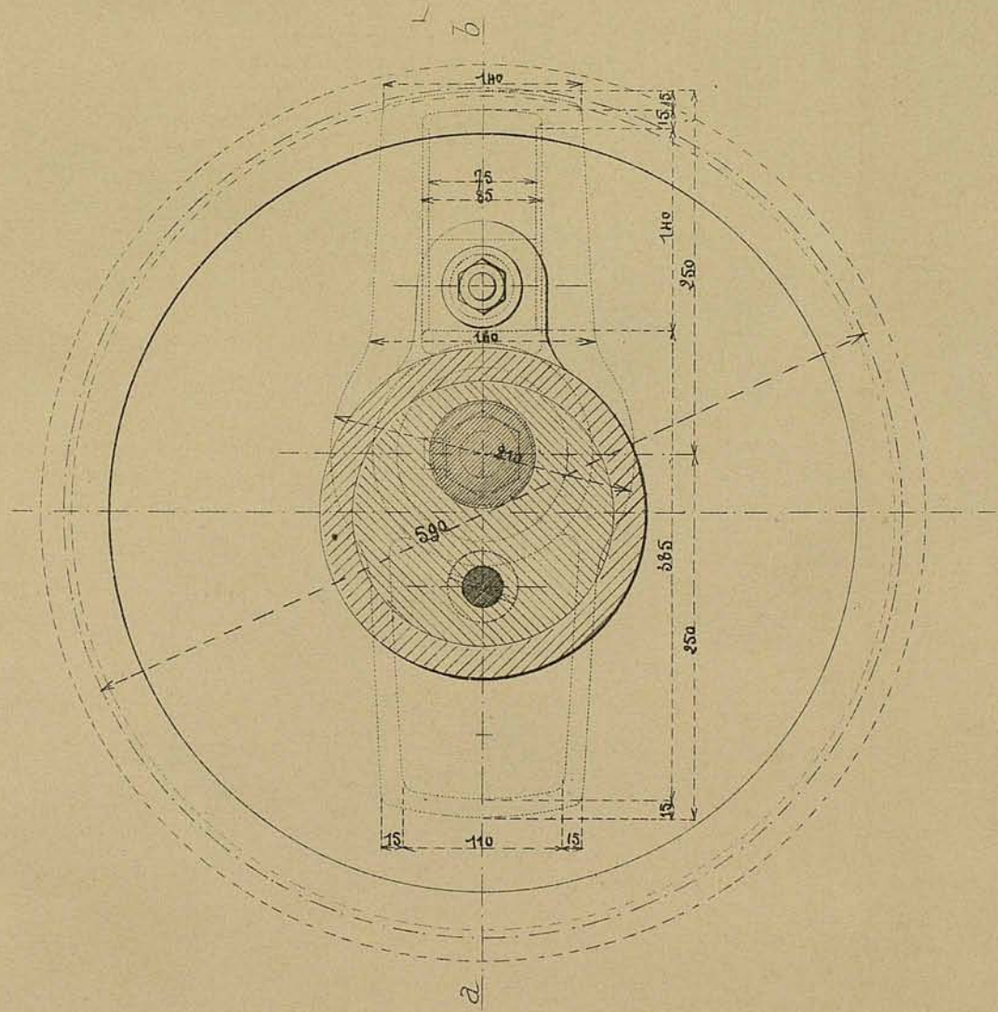
Cajeadora

movimiento de retroceso rápido de la flecha portaútil

Sección a b



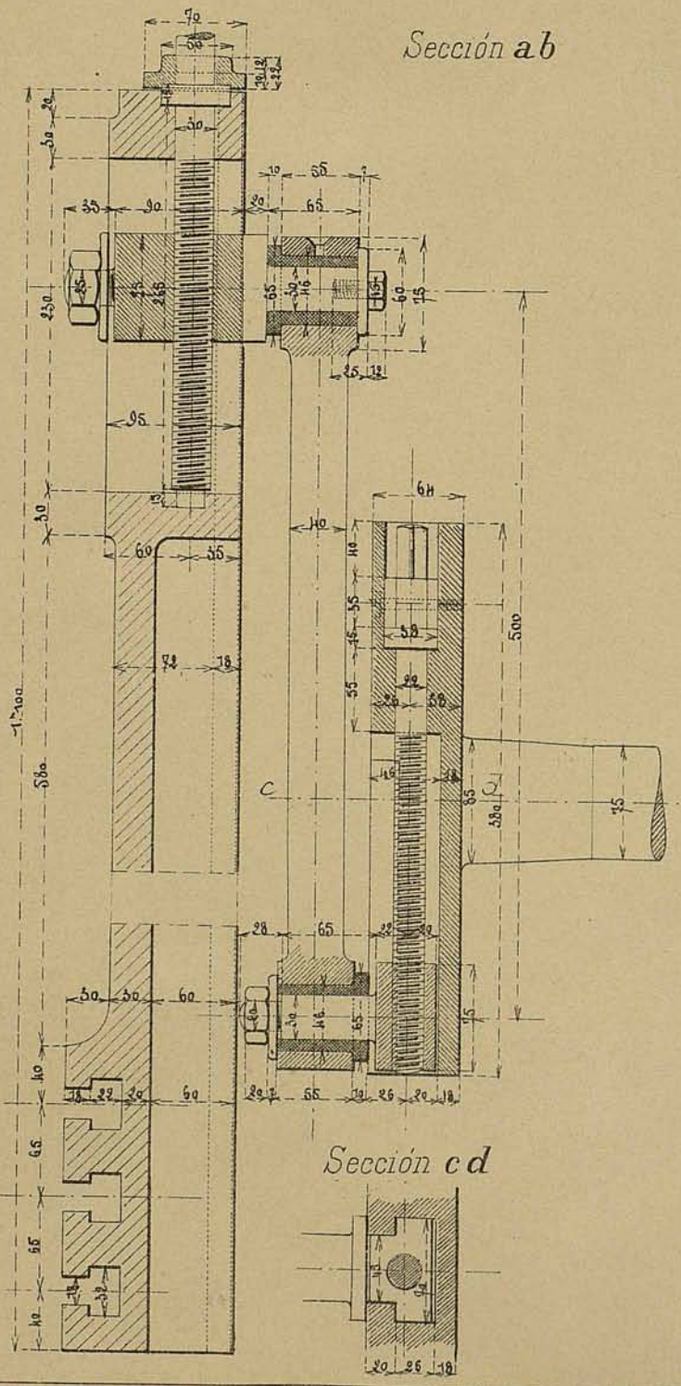
Sección c d

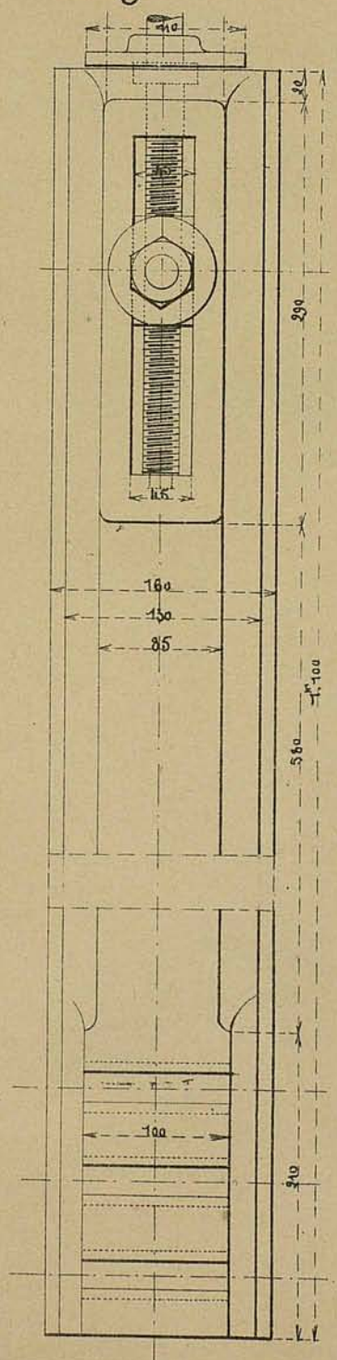


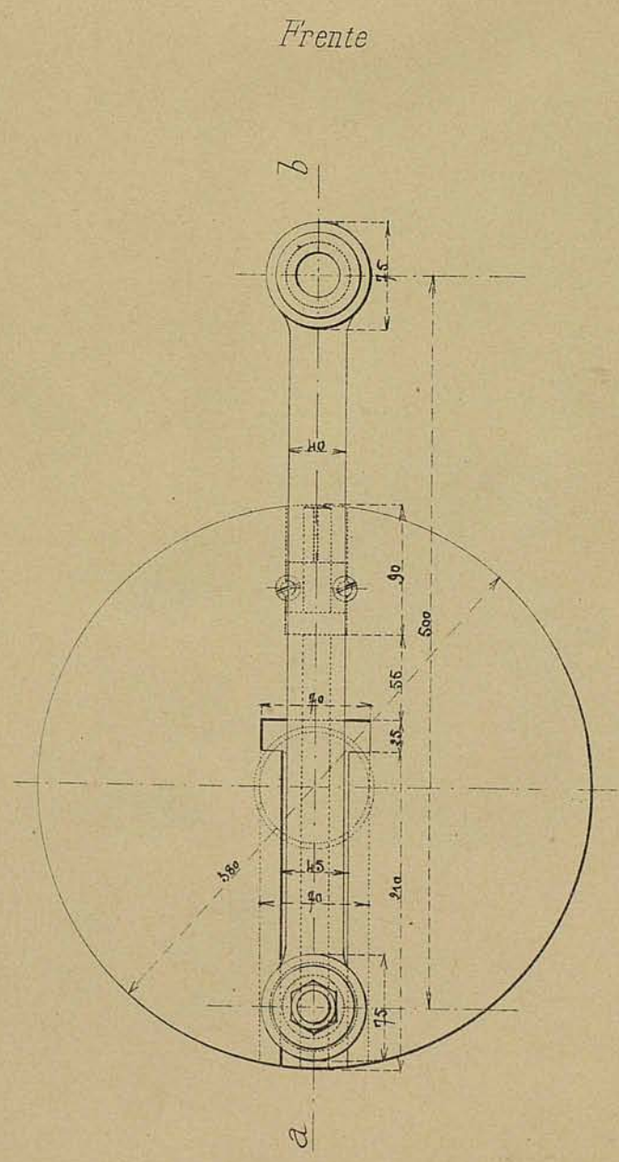
Escala 0m.20 por metro

La rueda dentada es loca sobre su manguito descentrado y transmite el movimiento al árbol por medio de la manivela ajustada encima

Cajeadora







Movimiento vertical de la flecha portaútil

Escala 0ᵐ20 por metro

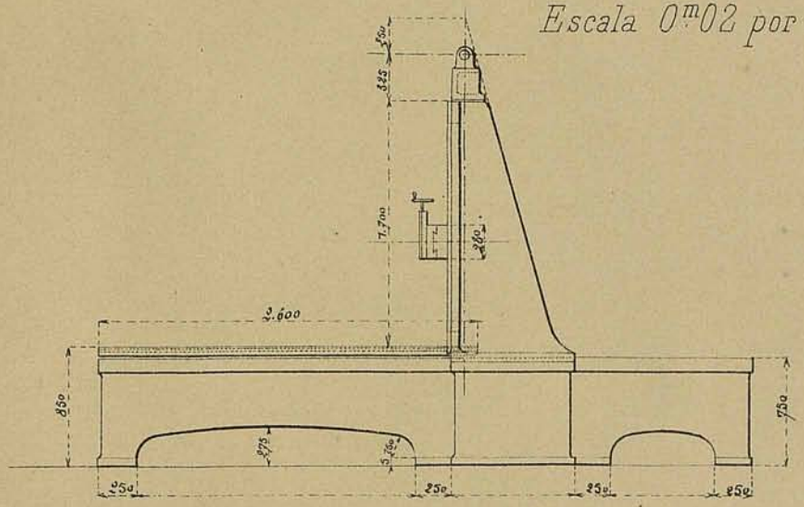
M. Tixier, del

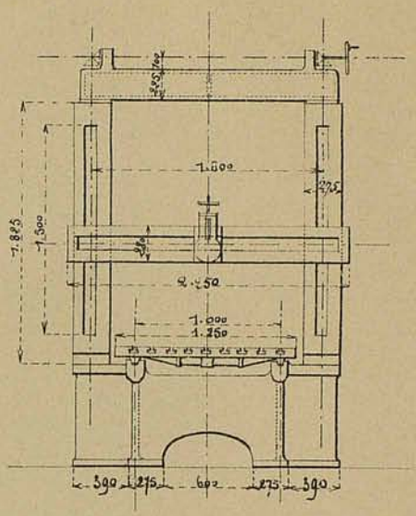
Monrocq. fr. Edit. Imp. 3, rue Suger, Paris

Cepillo

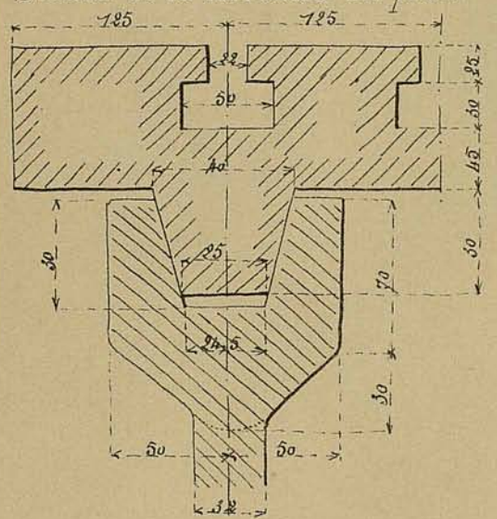
Conjunto

Escala 0m02 por metro

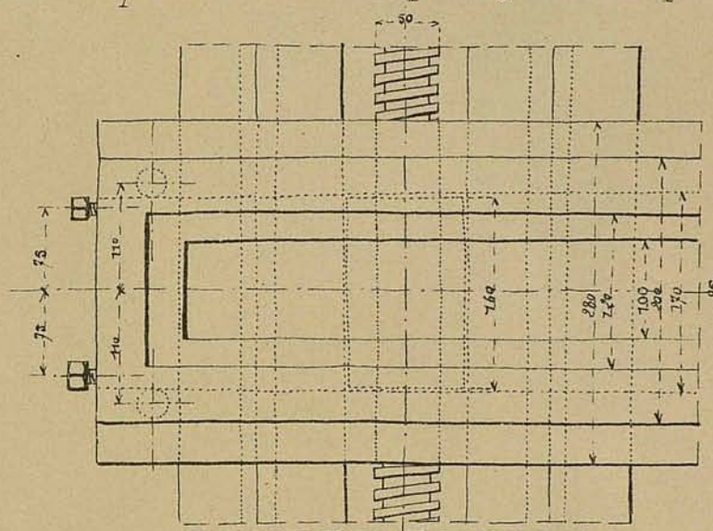




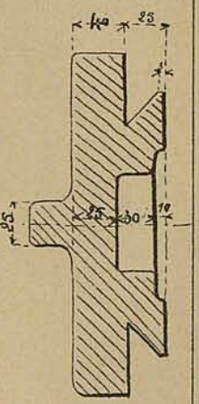
Sección de la corredera del plato



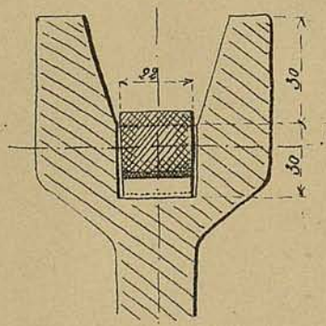
Croquis

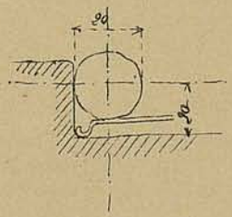


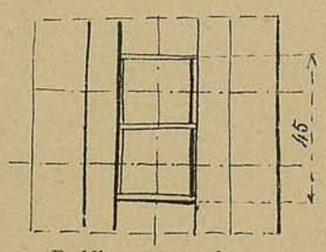
Sección por el eje del carro portaútil



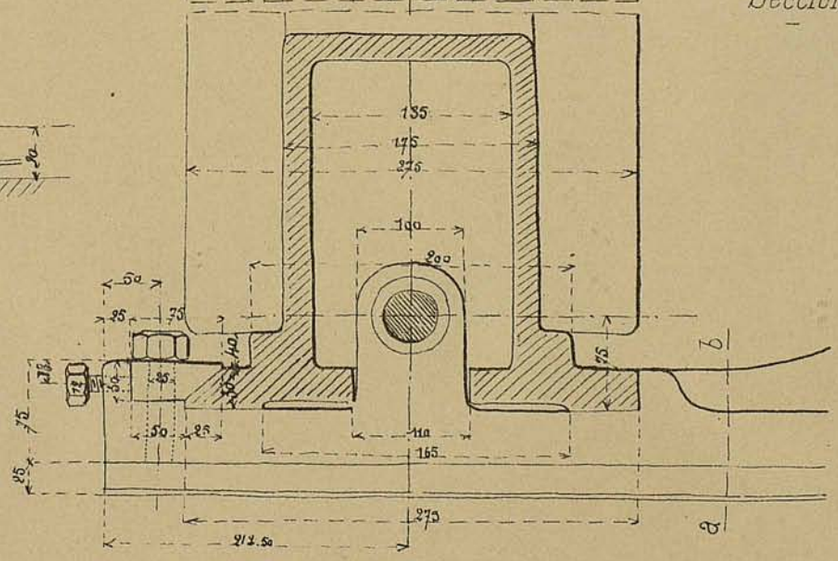
Sección a b







Rodillos engrasadores

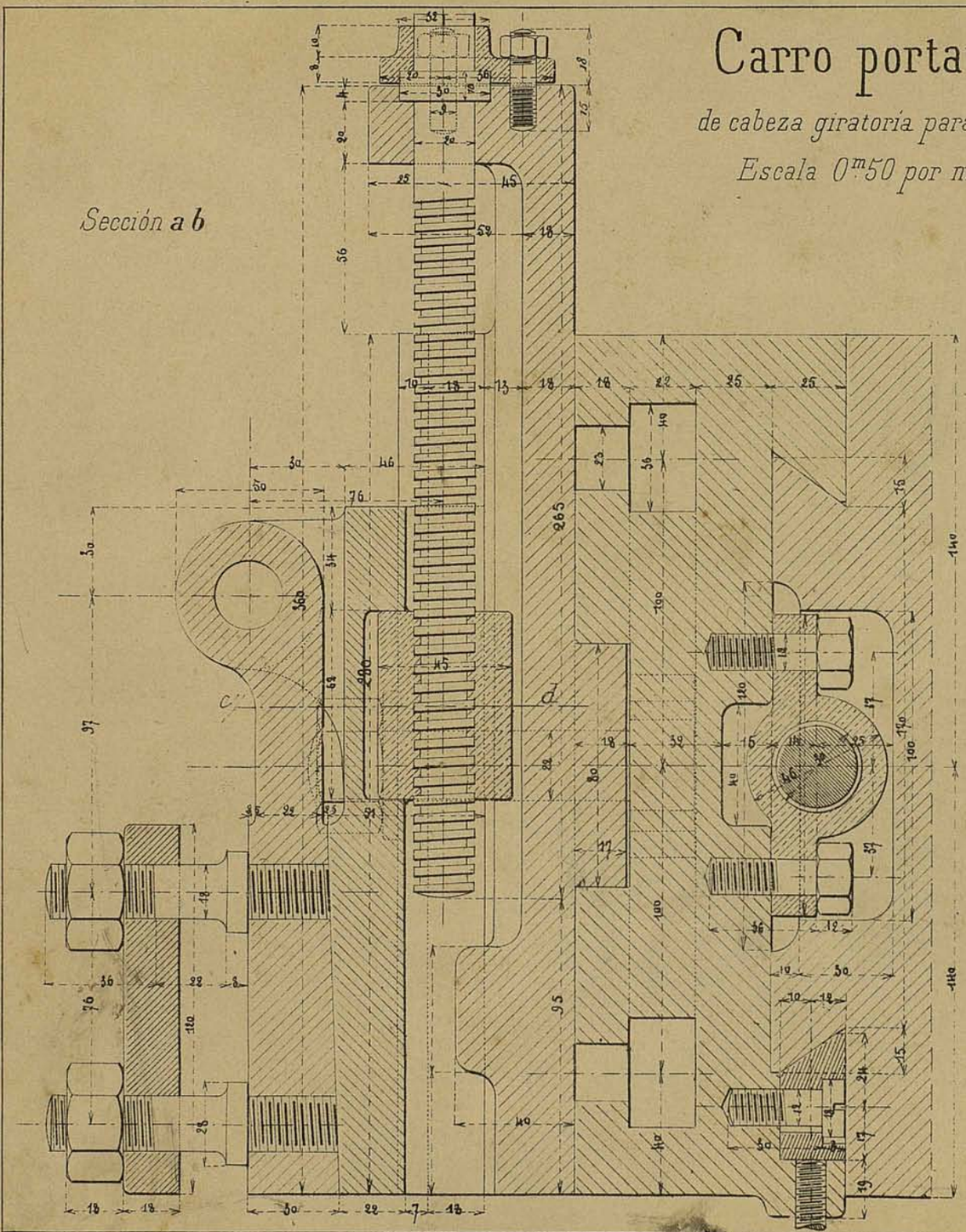


Carro portaútil

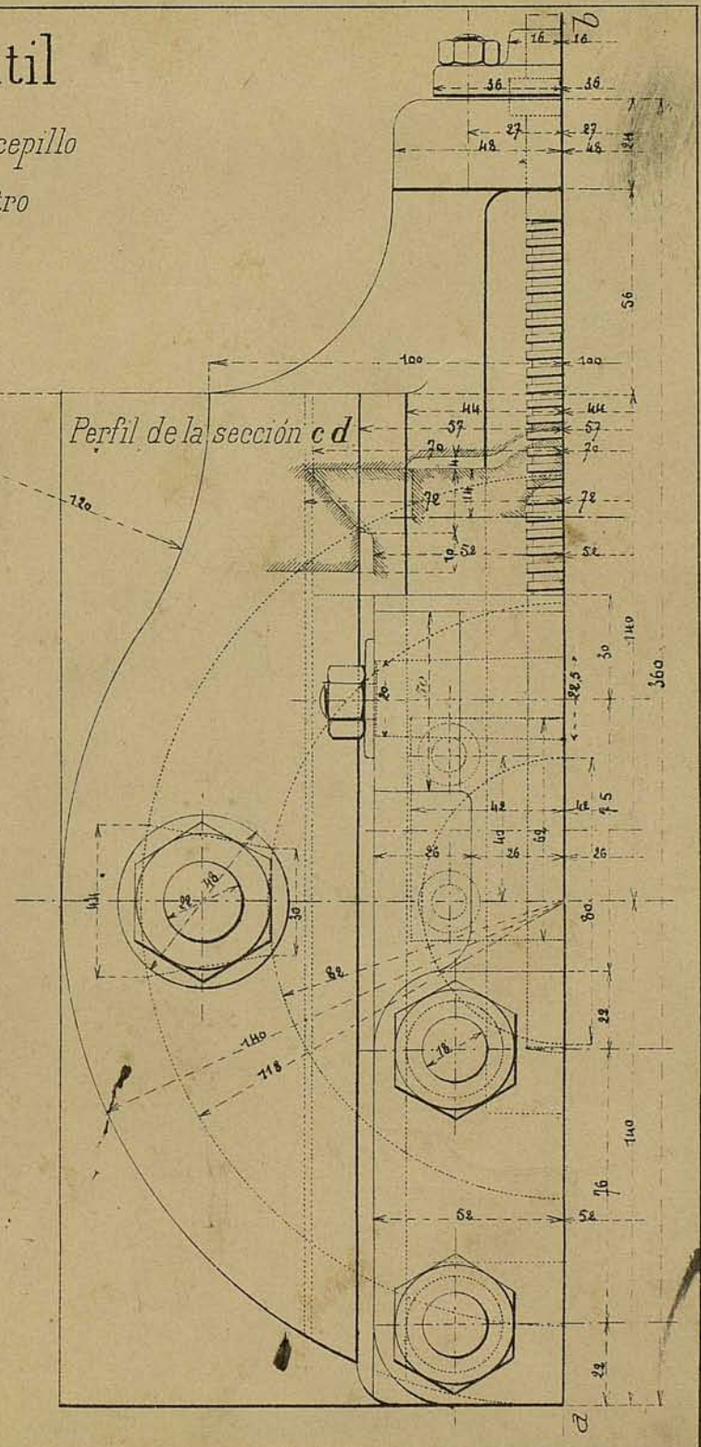
de cabeza giratoria para cepillo

Escala 0m50 por metro

Sección a b



Perfil de la sección c d



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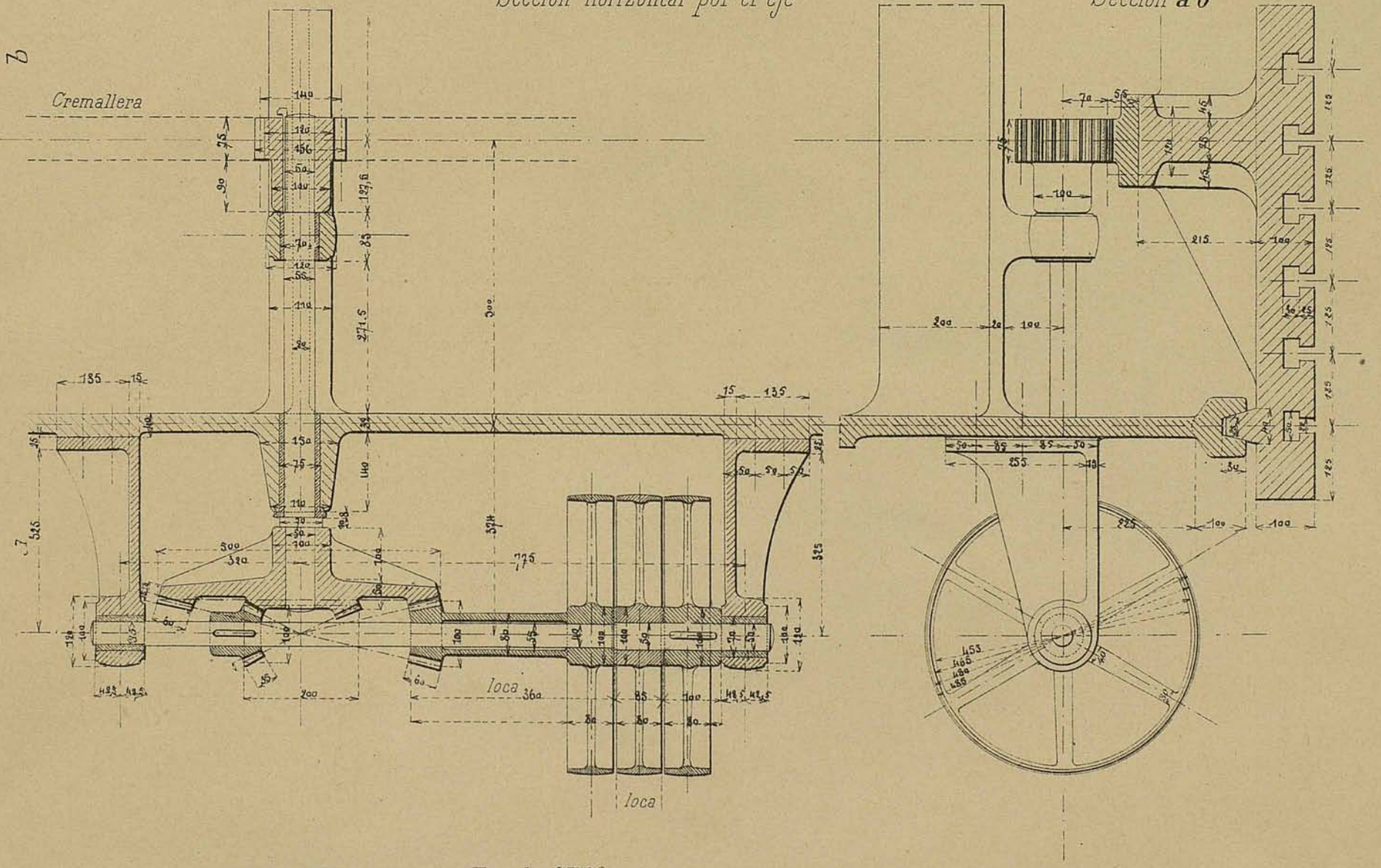
Movimiento del plato

con retroceso rápido

Sección horizontal por el eje *Sección* ***a b***

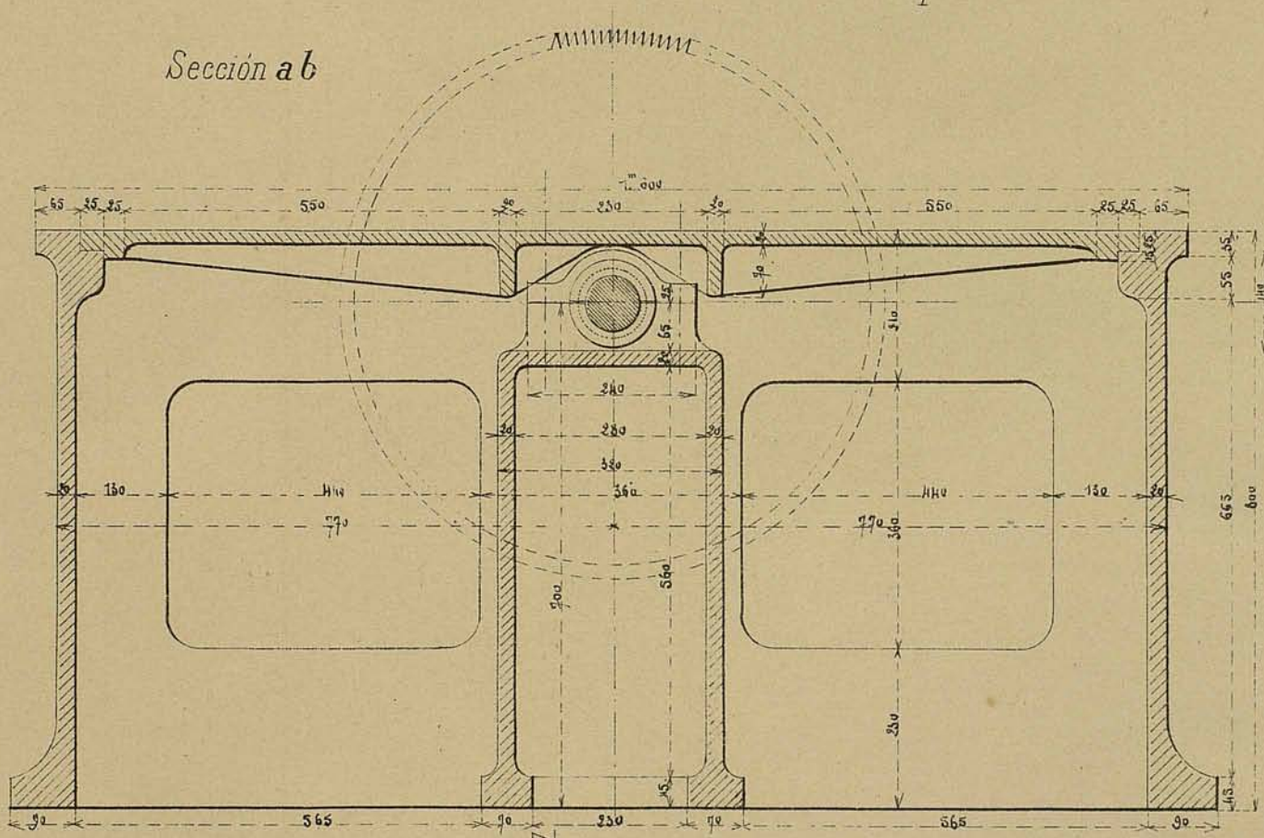


Escala 0^{m}10 por metro

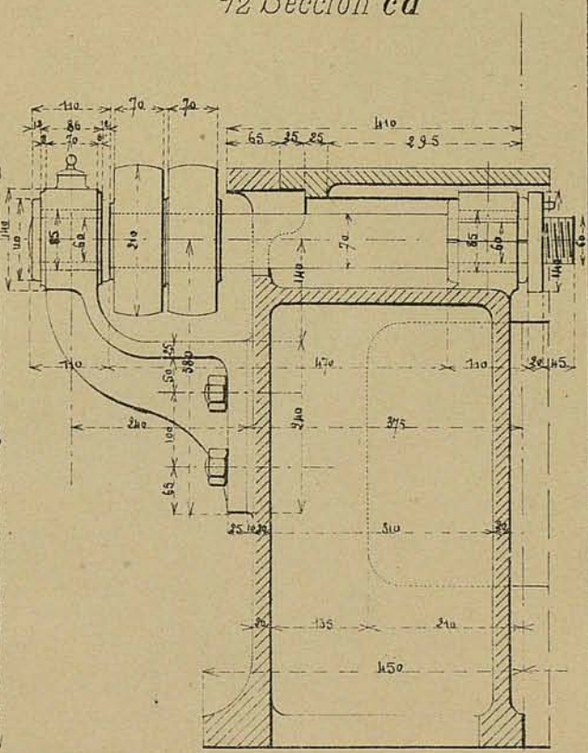
Sierra circular

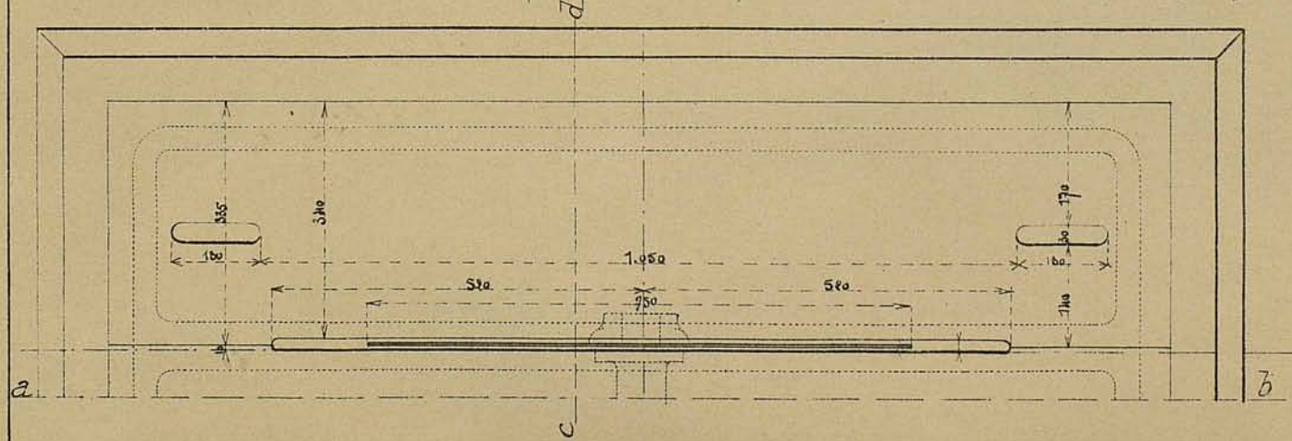
Escala 0m10 por metro

Sección a b



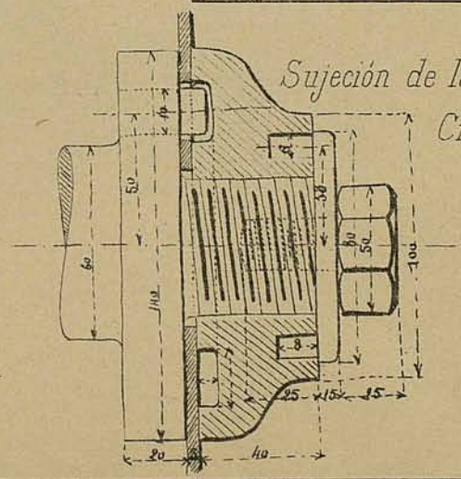
½ Sección c d





Sujeción de la Sierra

Croquis



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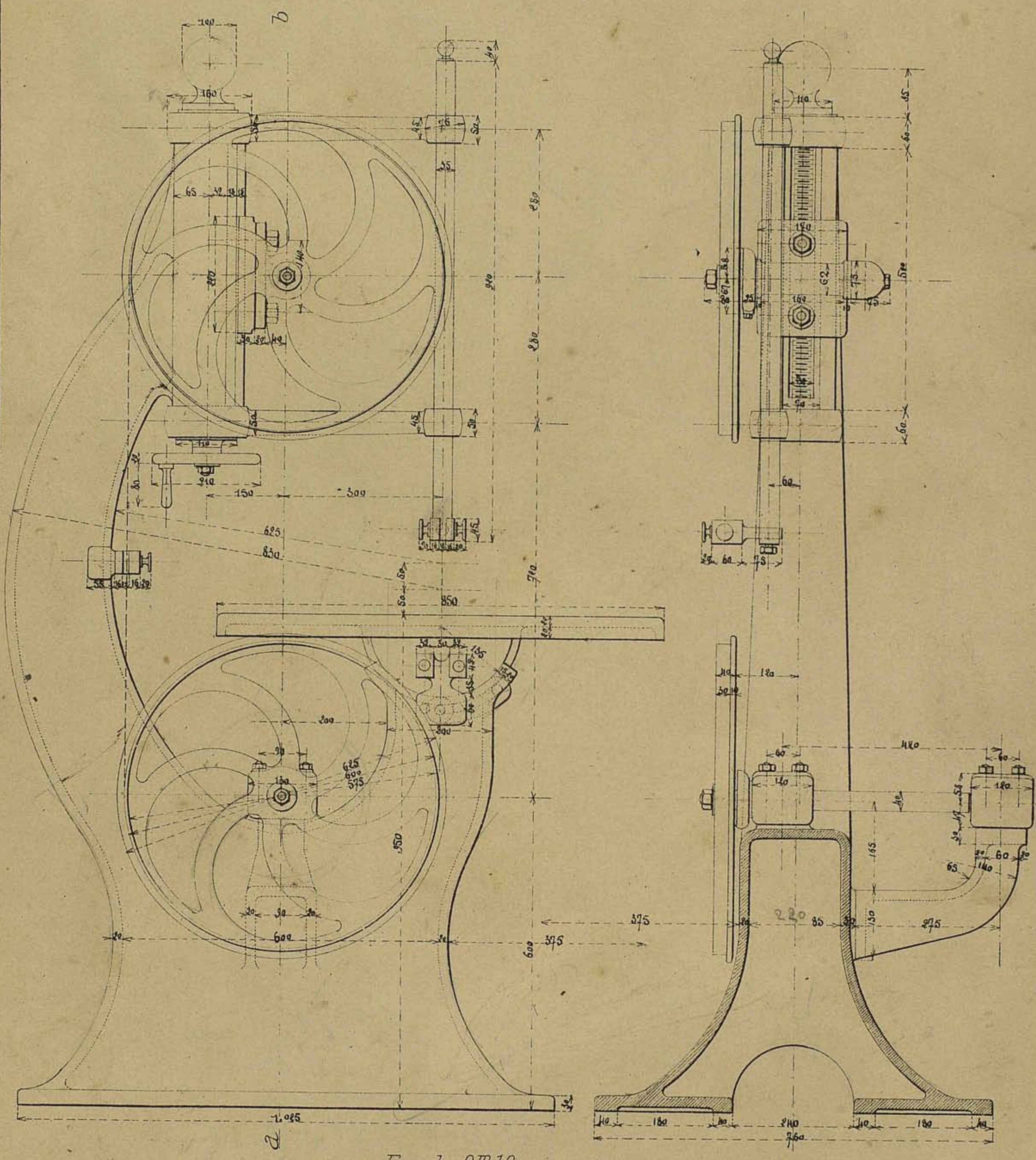
Sierra de cinta

con tablero movible para el trabajo de la madera

Elevación *Sección ab*



Escala 0m10 por metro

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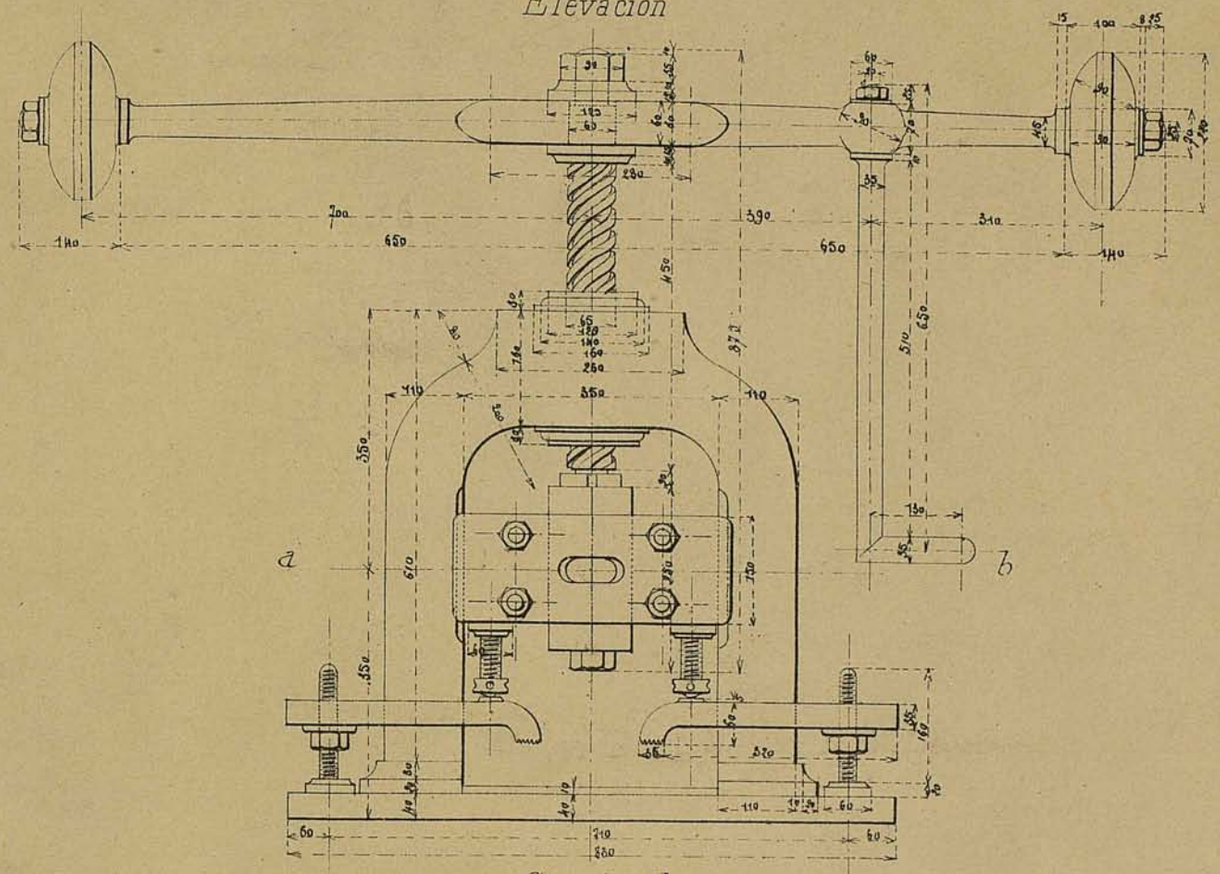
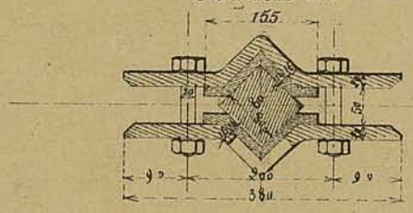
Balancín para recortar metales

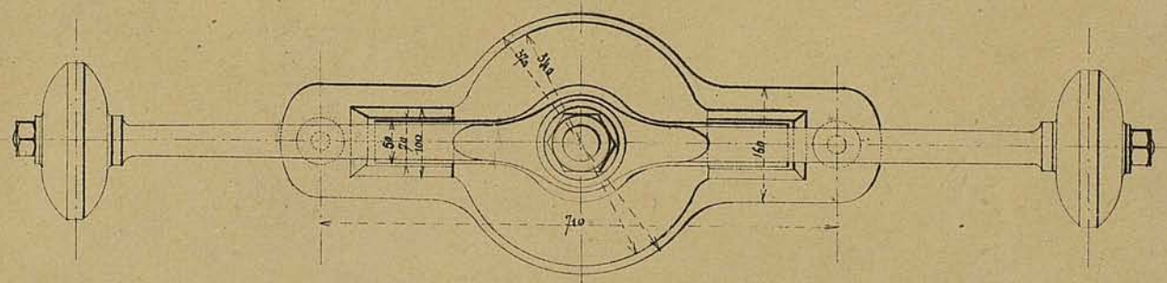
Elevación



Sección **a b**



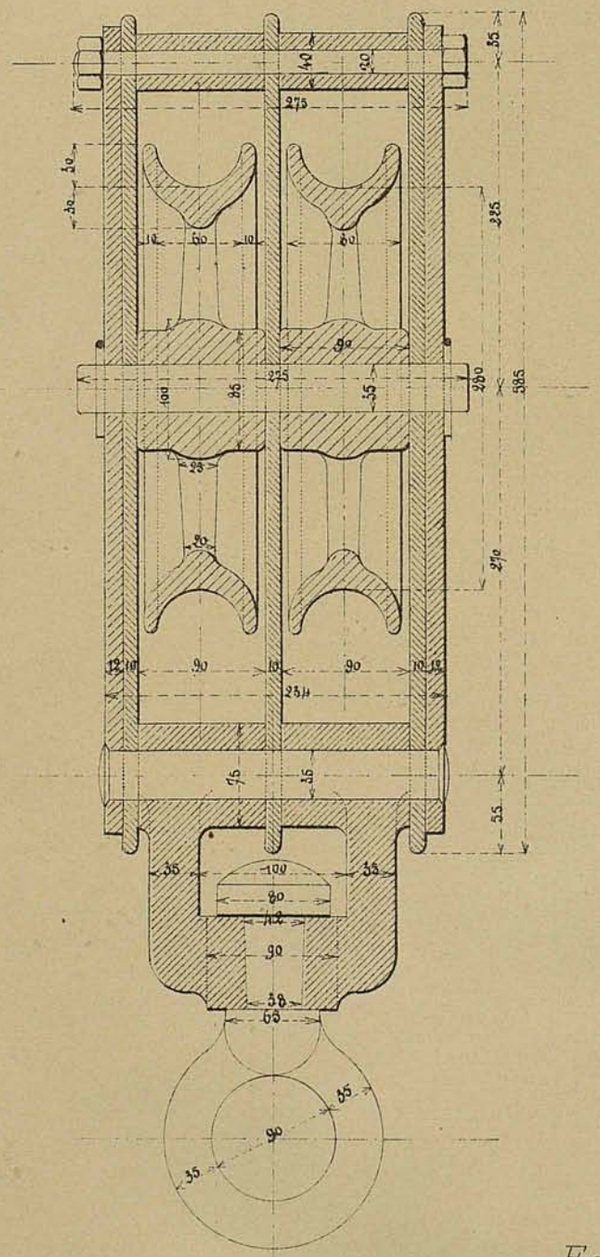
Planta



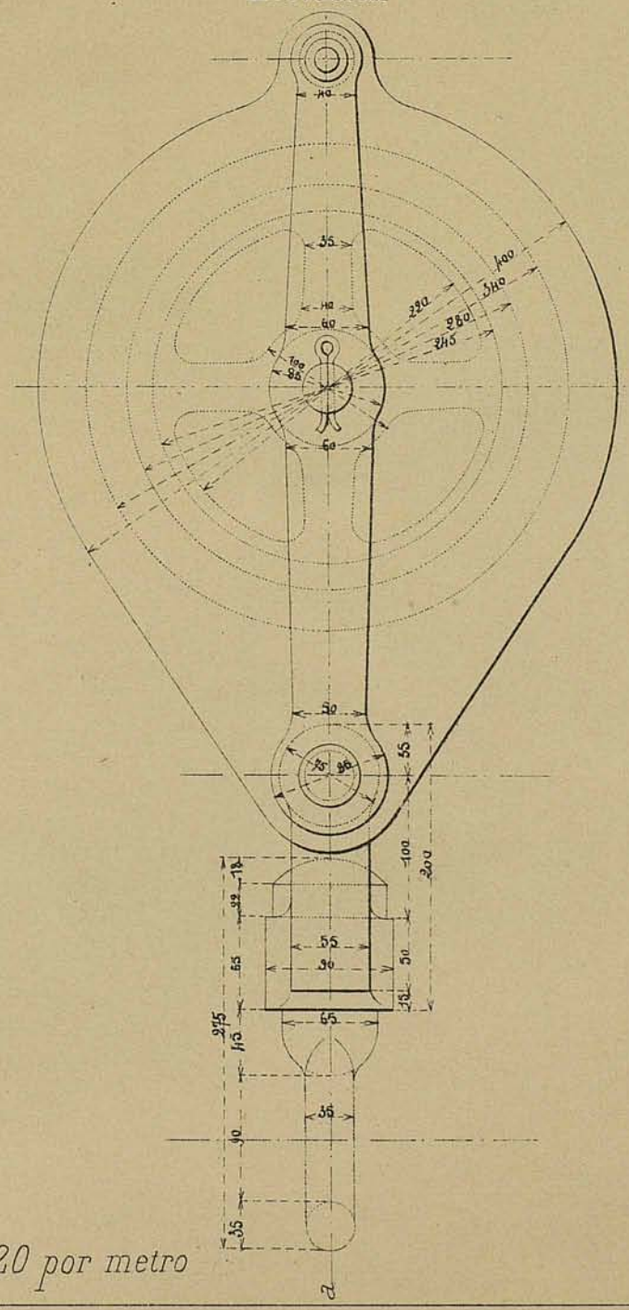
Escala 0m.10 por metro

Aparejo de dos poleas

Sección **a b**



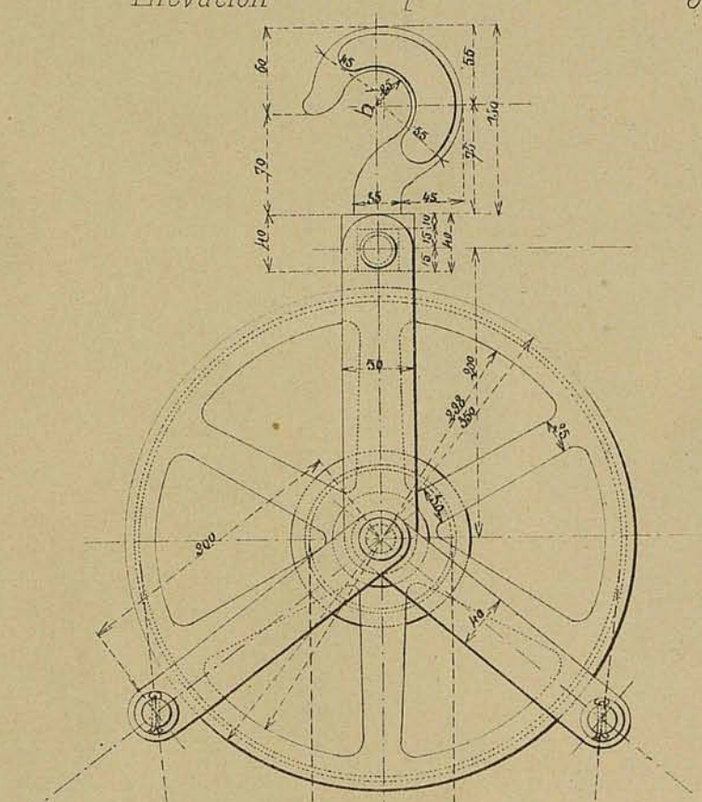
Elevación



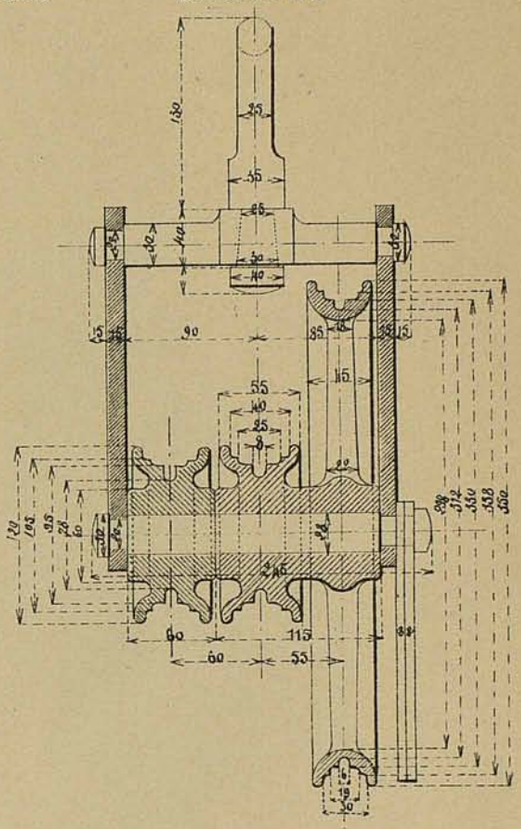
Escala 0m20 por metro

Aparejo de cadenas

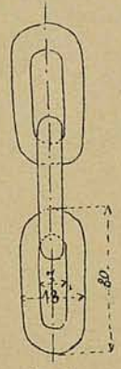
Elevación *con poleas diferenciales y volante*

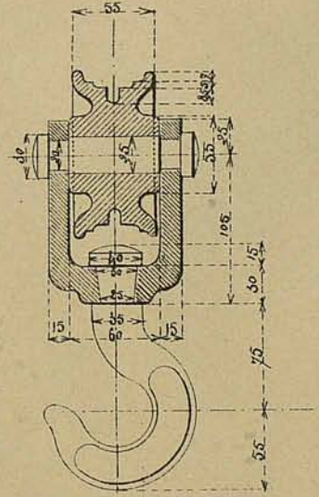


Sección ***a b***

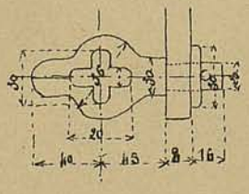


Croquis
cadena del volante

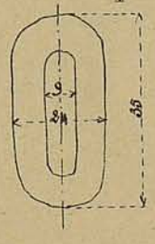


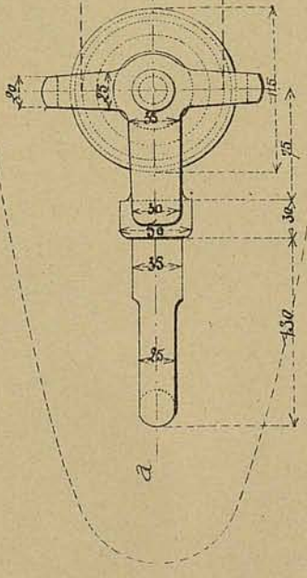


Guía cadenas



Cadena de las poleas

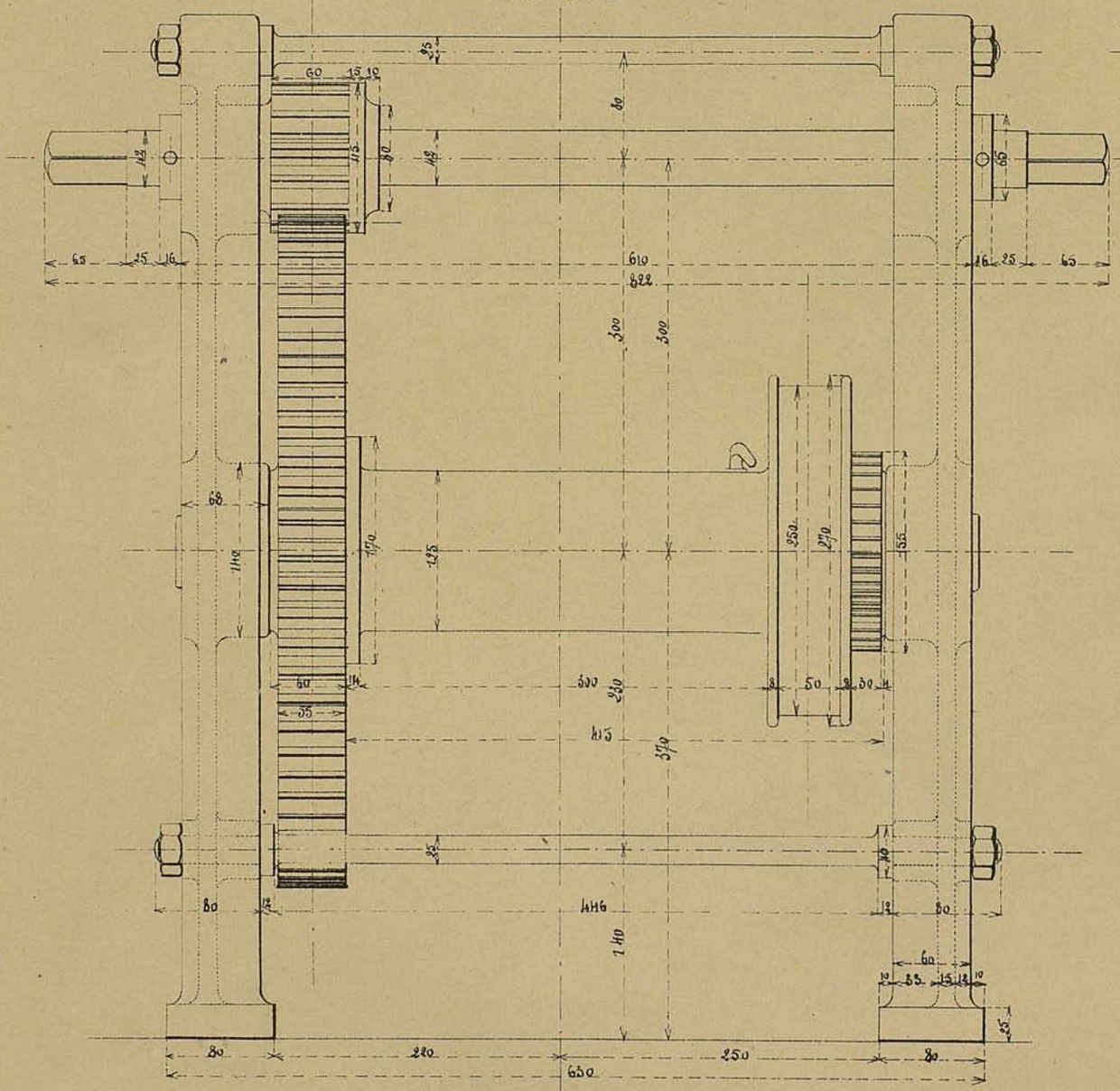




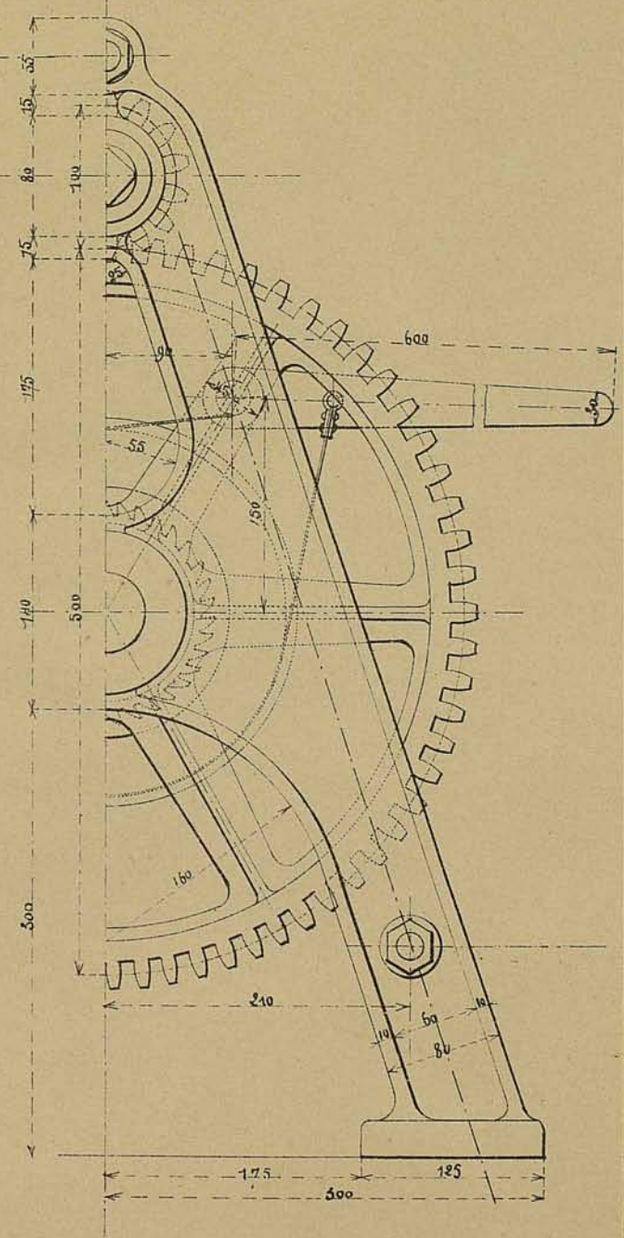
Escala 0^{m}20 por metro

Torno de engranaje sencillo

Elevación



½ Perfil



Escala 0m20 por metro

M. Tixier, del

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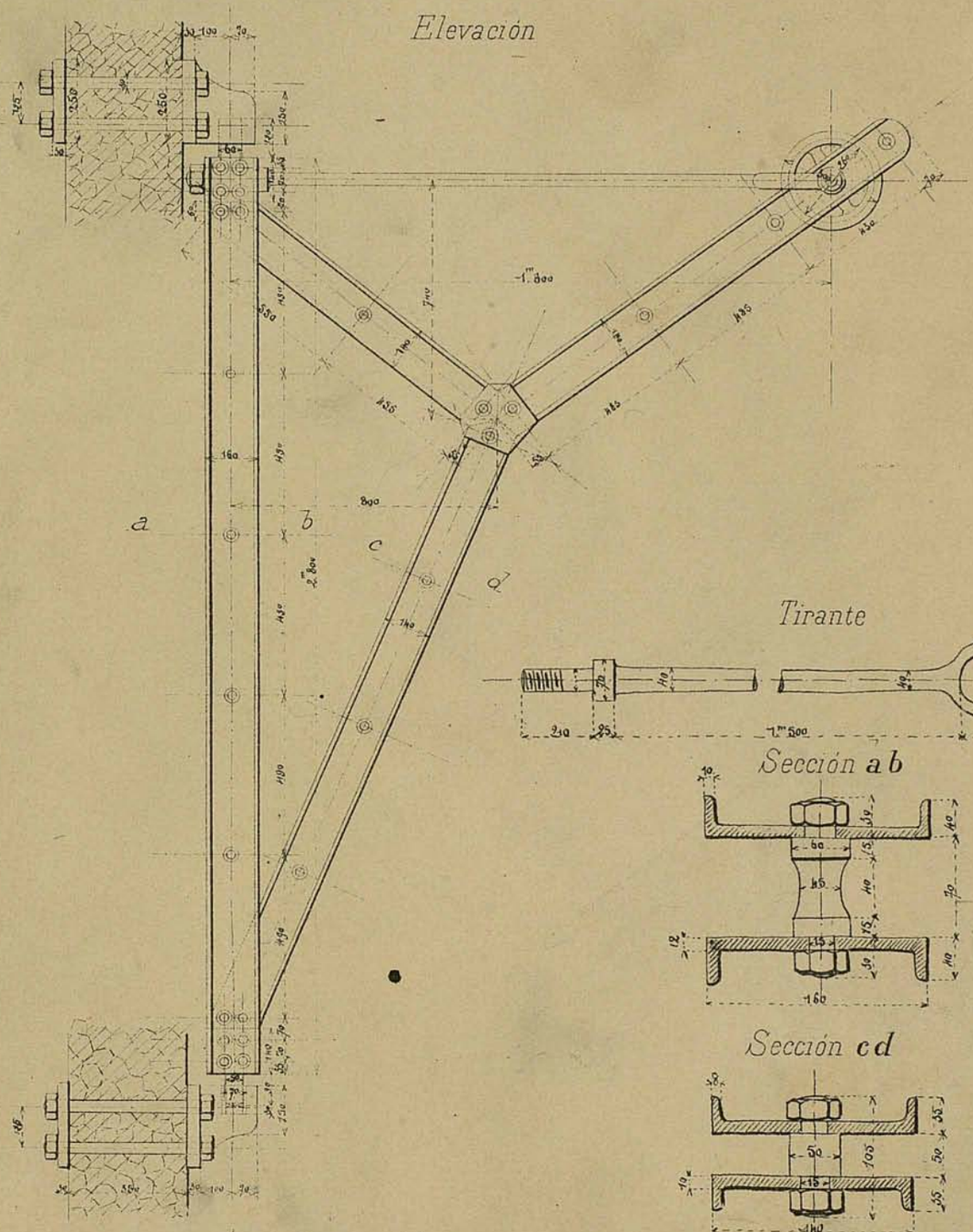
Grúa mural

Elevación

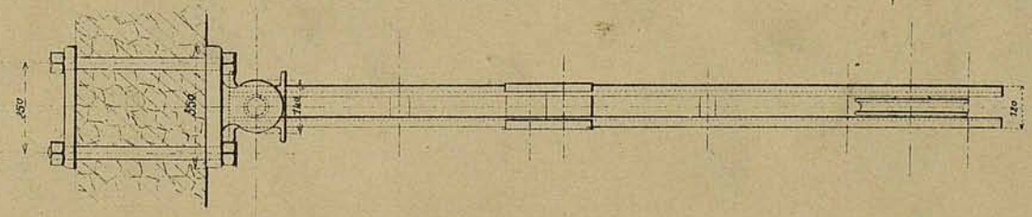


Tirante

Sección **a b**

Sección **c d**

Planta



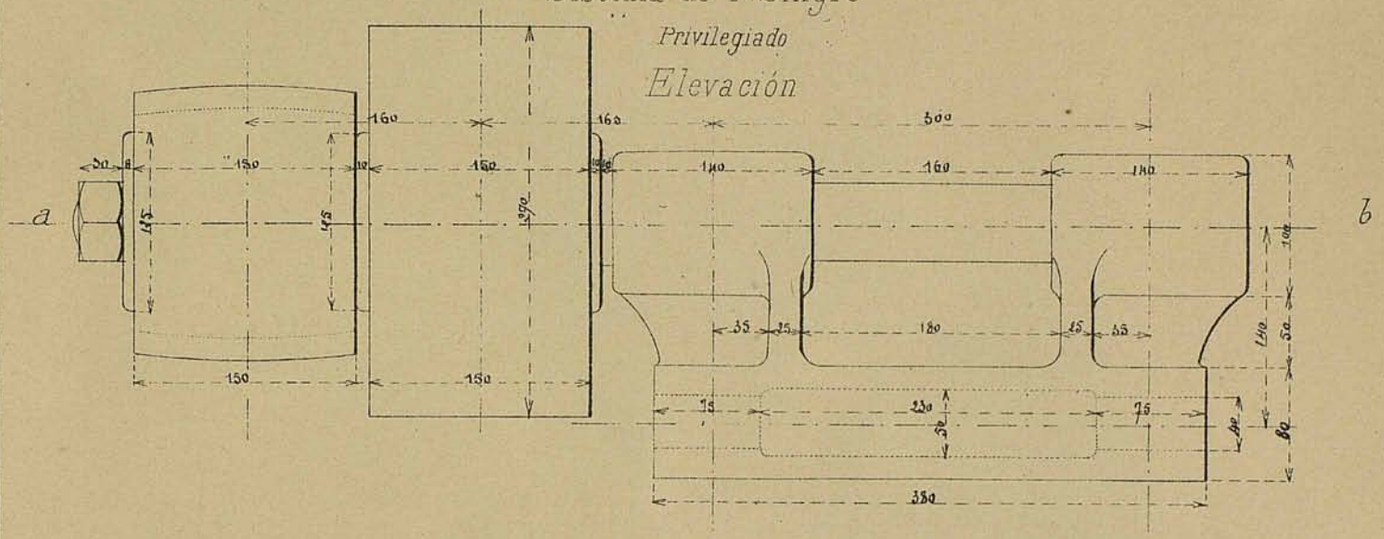
Escala 0m05 por metro

Embrague por fricción

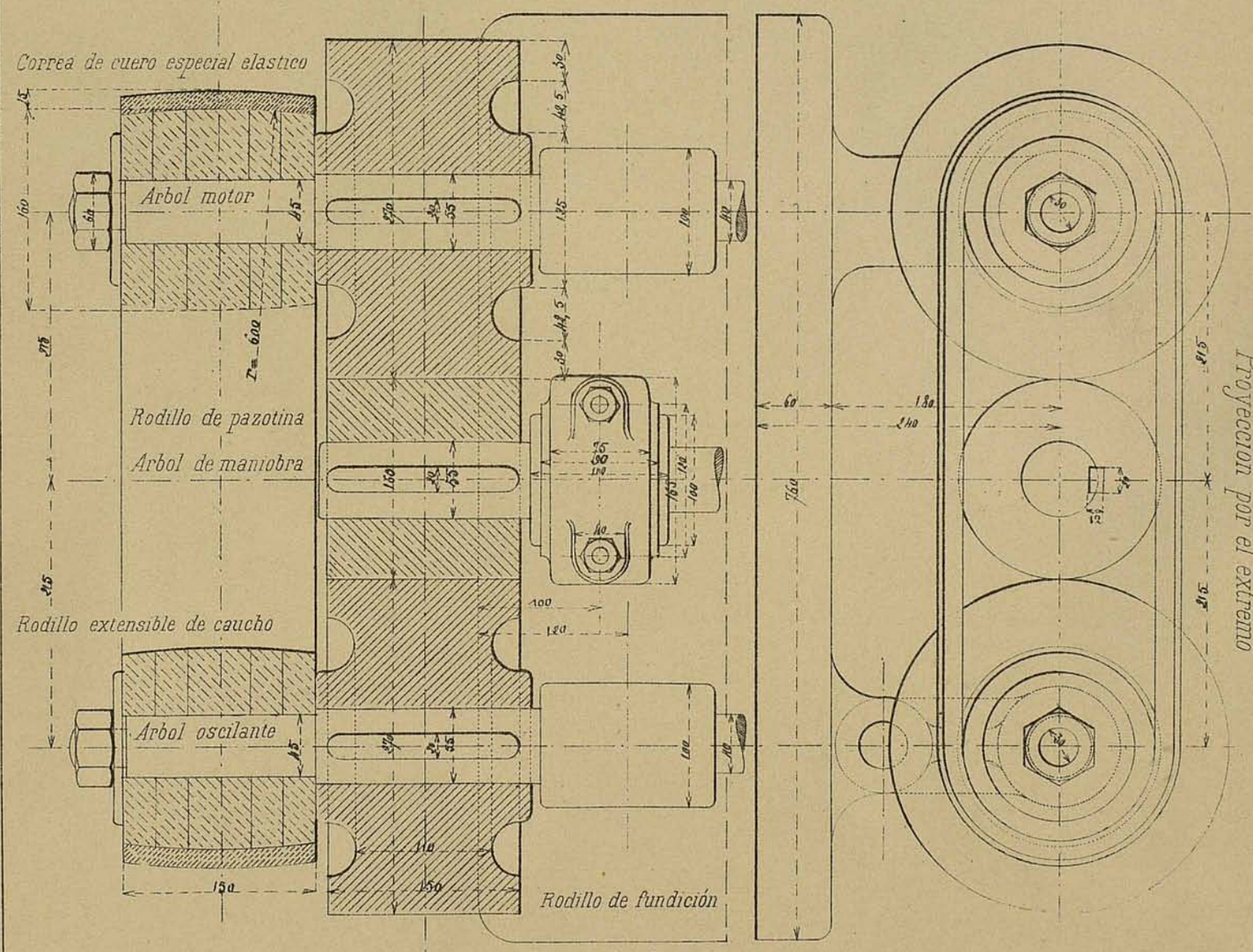
Sistema de F. Singre

Privilegiado

Elevación



Sección **a b**

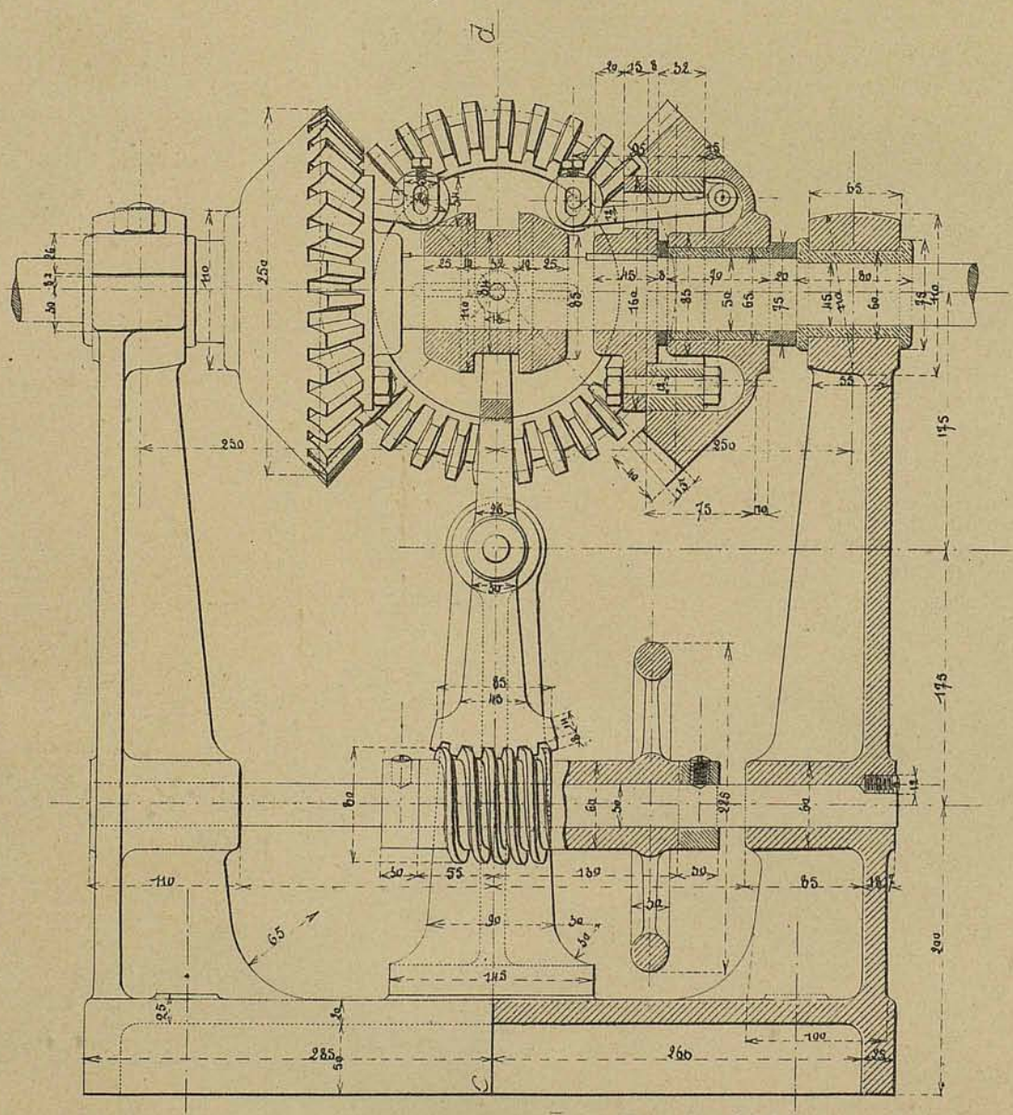


Escala 0m20 por metro

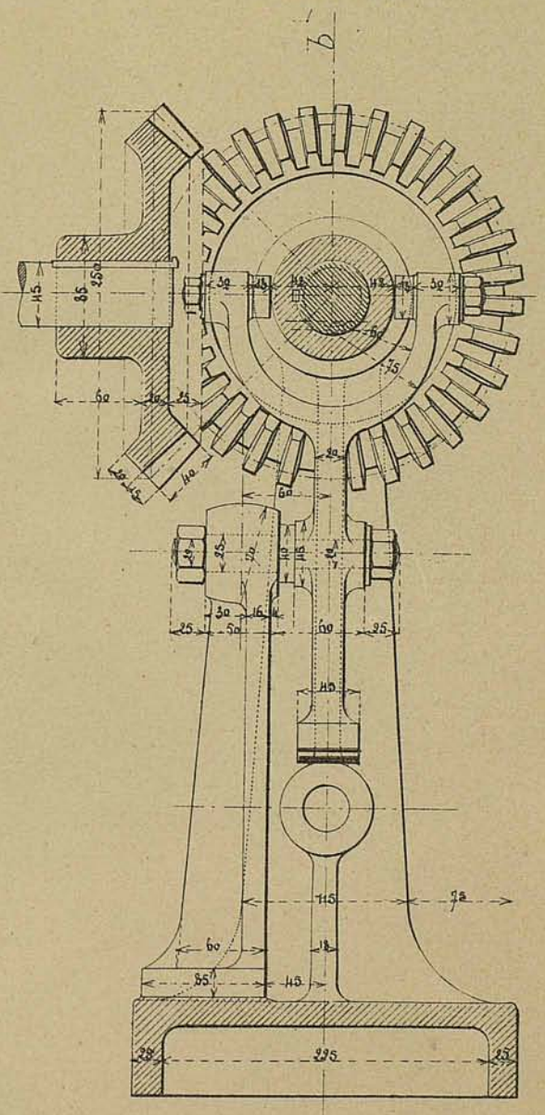
Cambio de marcha

por engranajes y embragues de fricción

1/2 Elevación y 1/2 Sección ***ab***



Sección ***cd***



Escala 0m20 por metro

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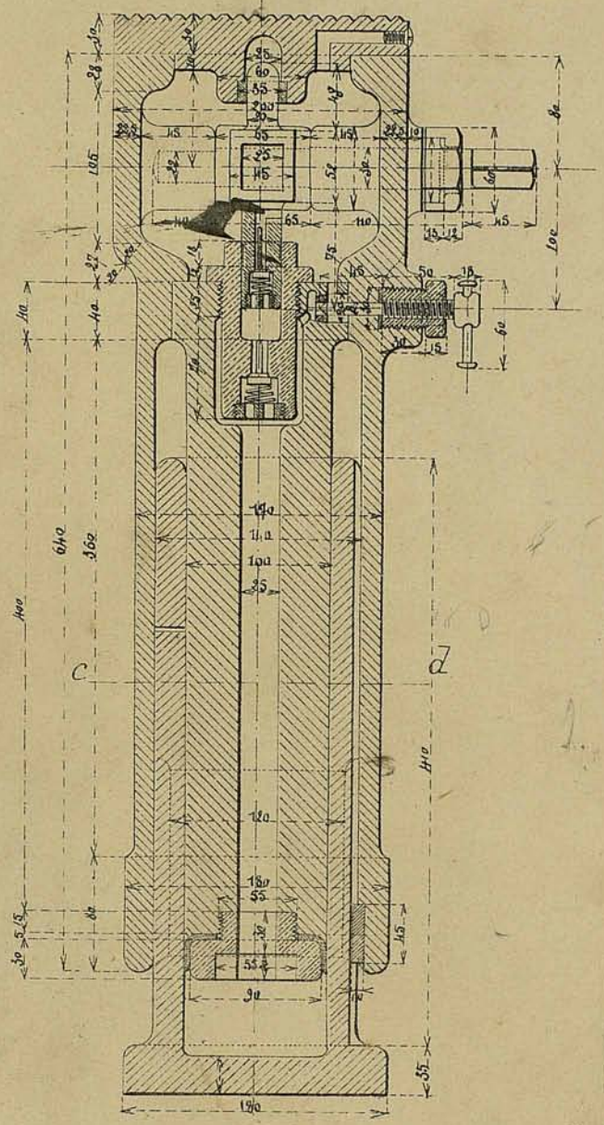
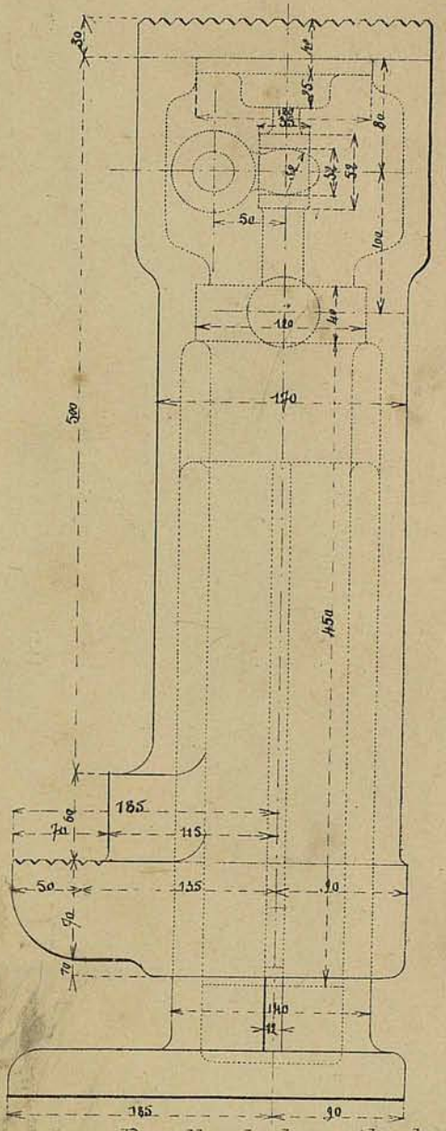
Gato hidráulico

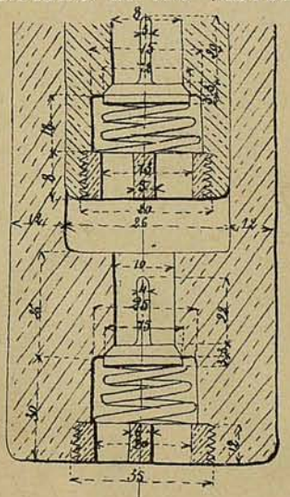
Sección **a b**



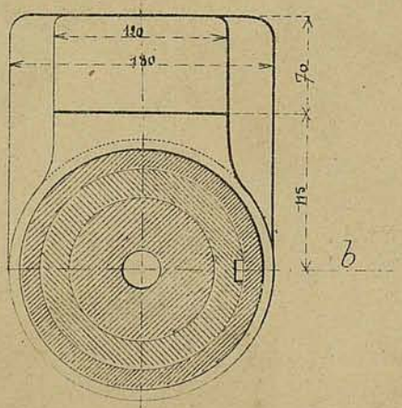
Perfil



Detalle de las válvulas



Croquis



Sección **c d**

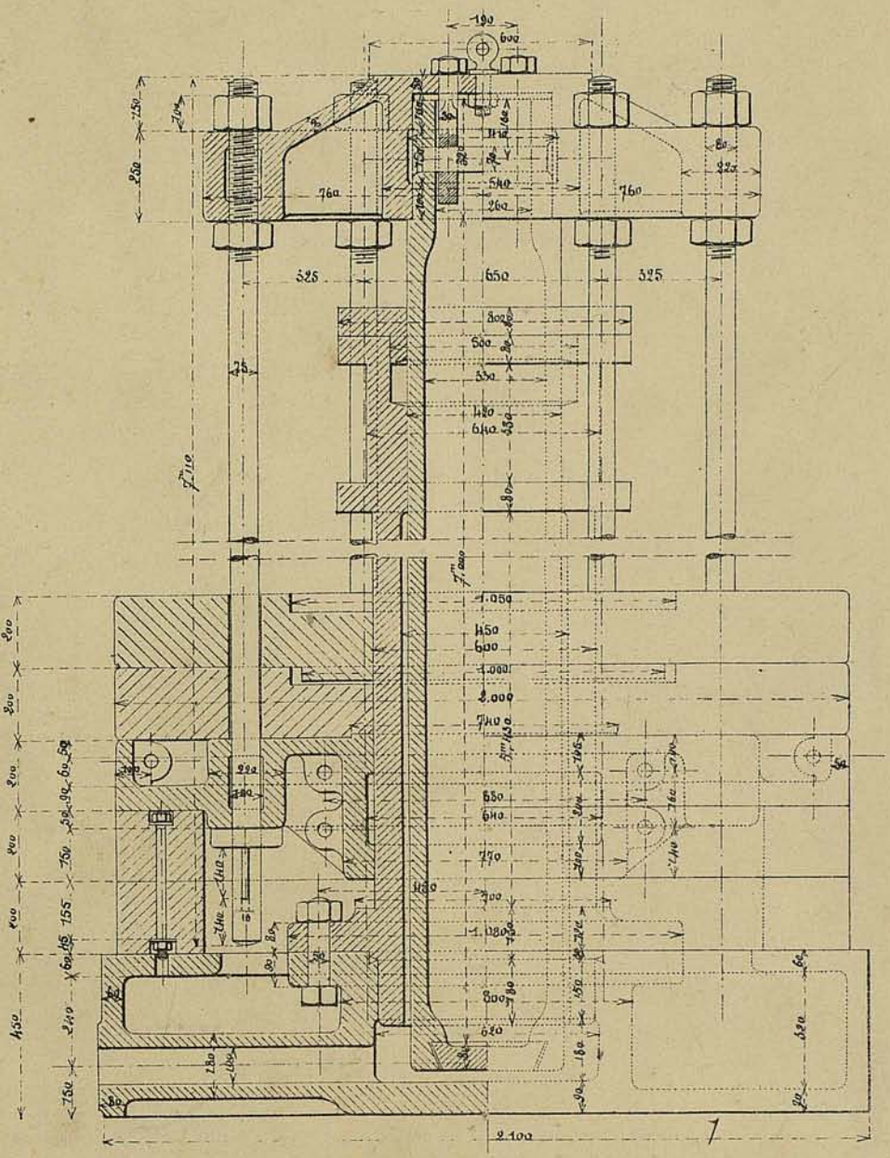
Escala 0m.20 por metro

M. TIXIER, del

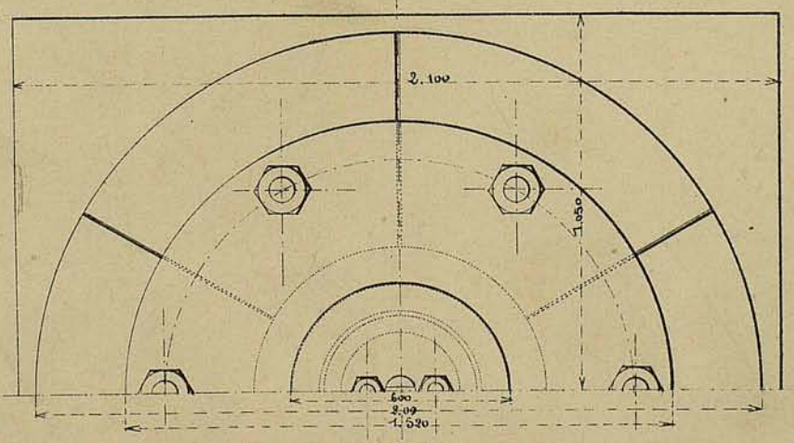
Monrocq, ft. Edit. Imp. 3, rue Suger. PARIS

Acumulador hidráulico

1/2 Elevación y 1/2 Sección por **a b**



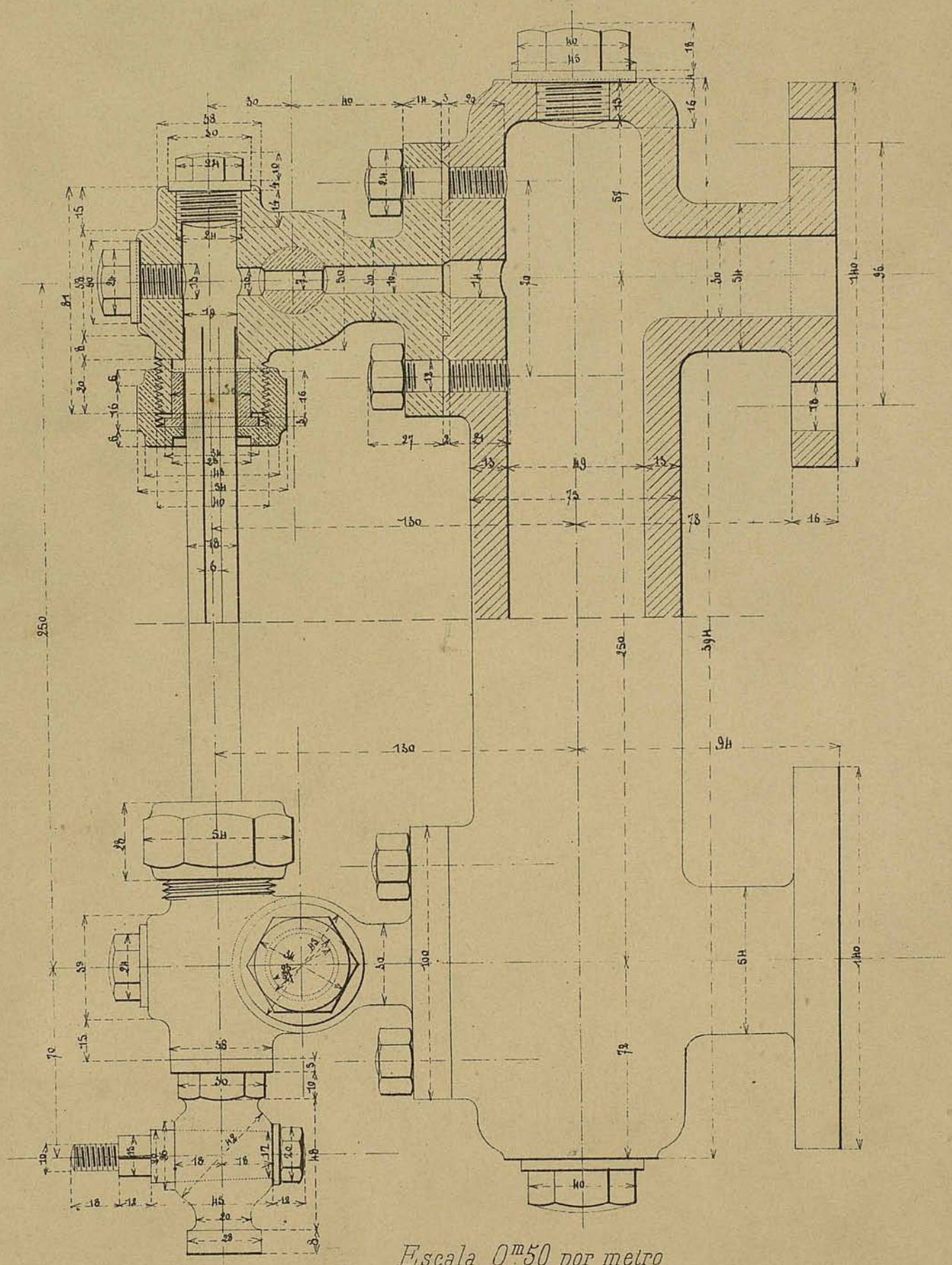
18 Roldanas .



Escala 0m05 por metro

Nivel de agua de botella

para fuertes presiones



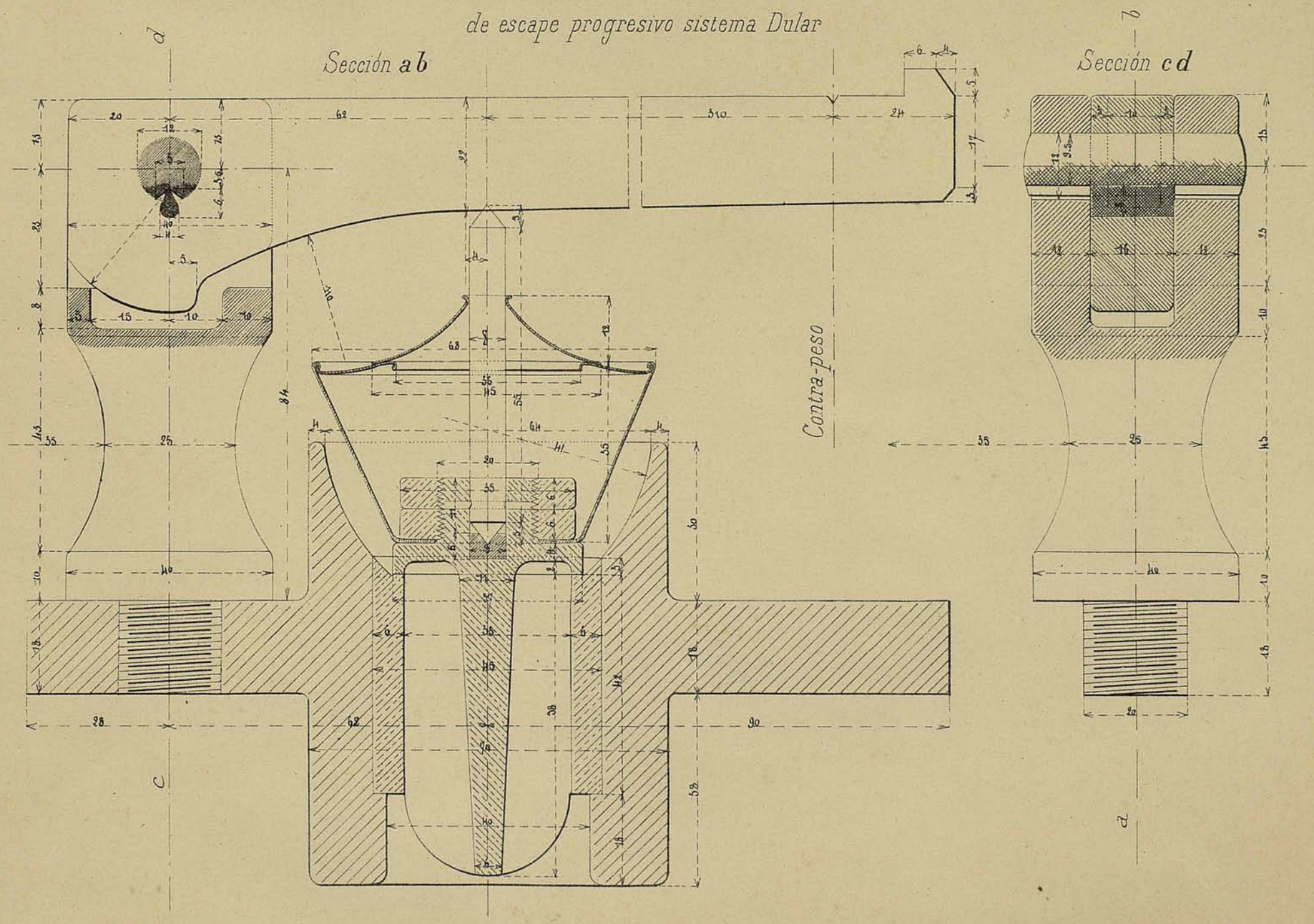
Escala 0m50 por metro

M. Tixier, del

Monrocq. fr. Edit. Imp. 3, rue Suger. Paris

Válvula

de escape progresivo sistema Dular



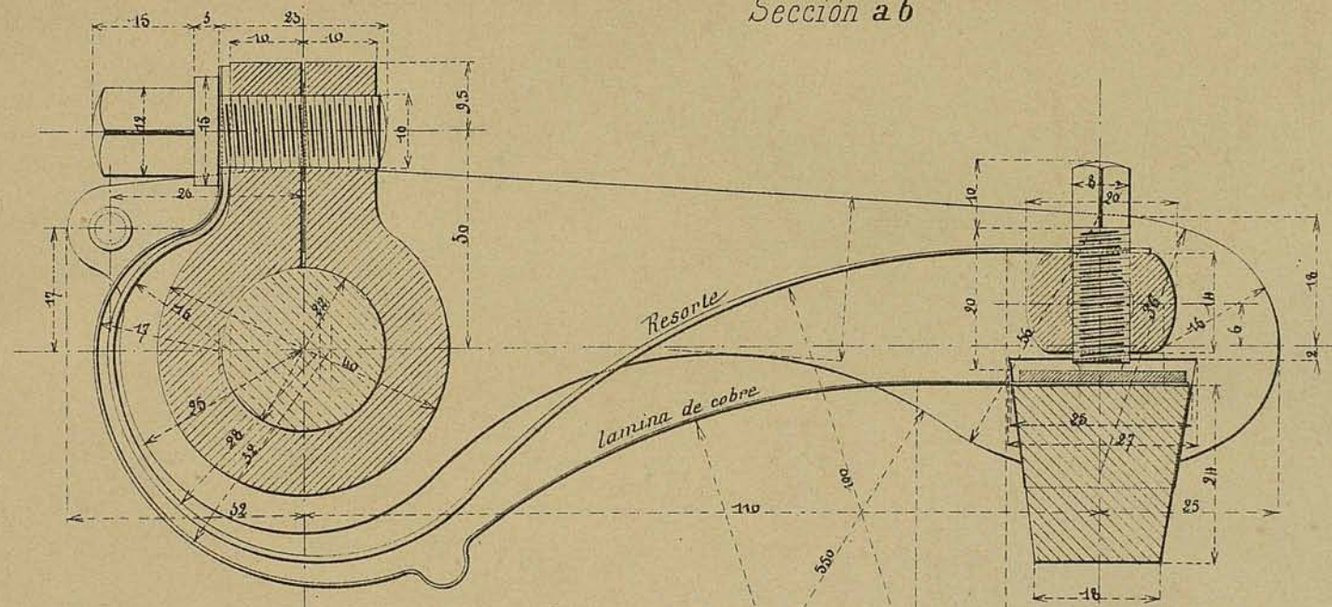
Escala *Tamaño natural*

Monrocq, fr. Edit. Imp. 3, rue Suger, Paris

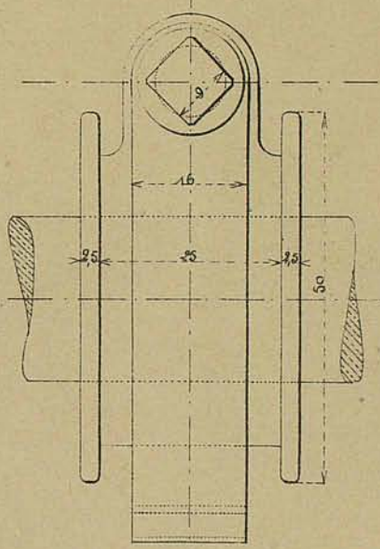
Portaescoba para dinamo

con escoba gráfica cobreada

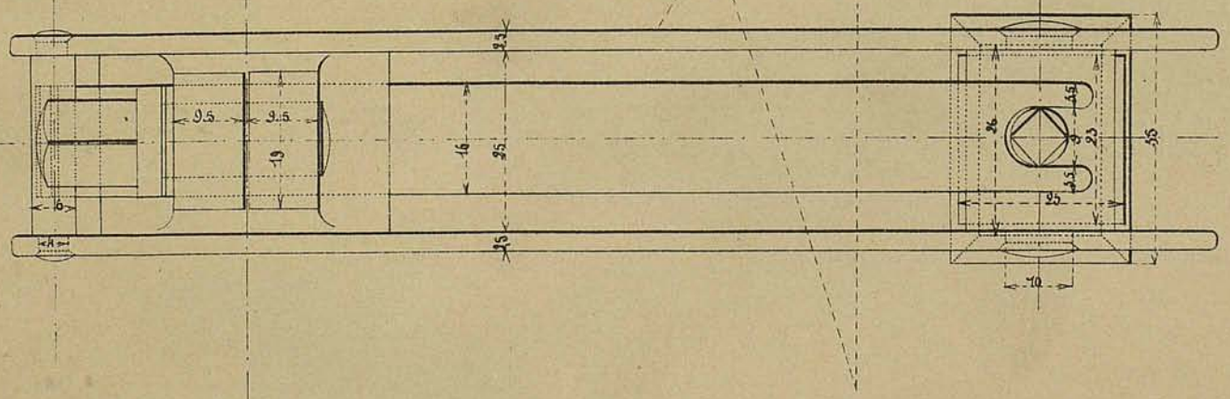
Sección **a b**

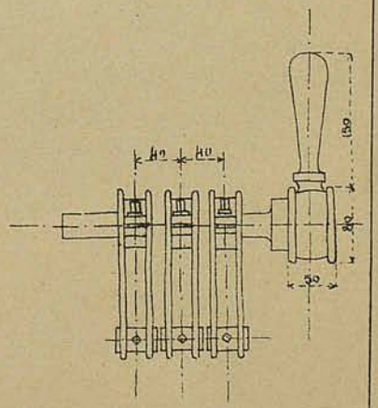


Perfil



Planta





Montado de los portaescobas

Escala *Tamaño natural*