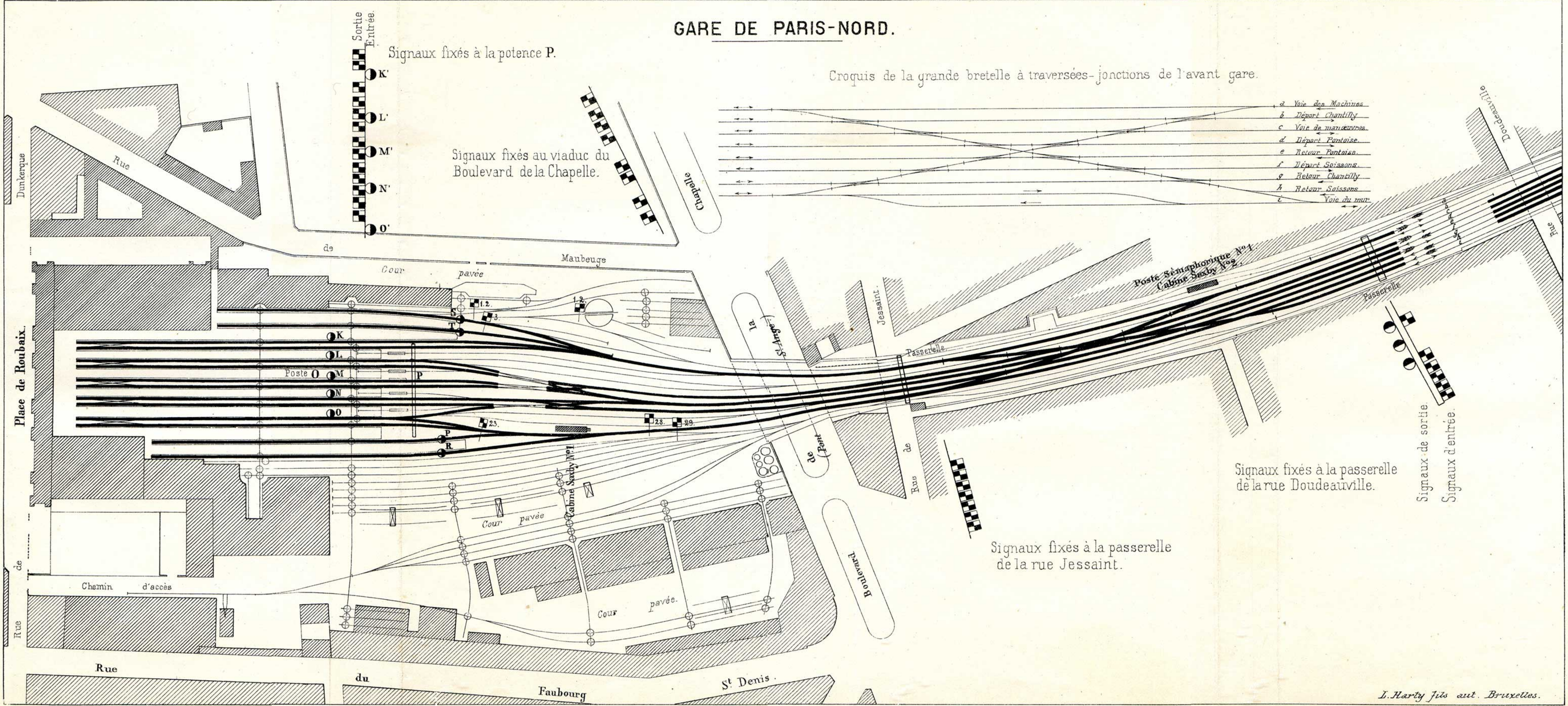




## GARE DE PARIS-NORD.

Croquis de la grande bretelle à traversées-jonctions de l'avant gare.



Signaux fixés à la potence P.

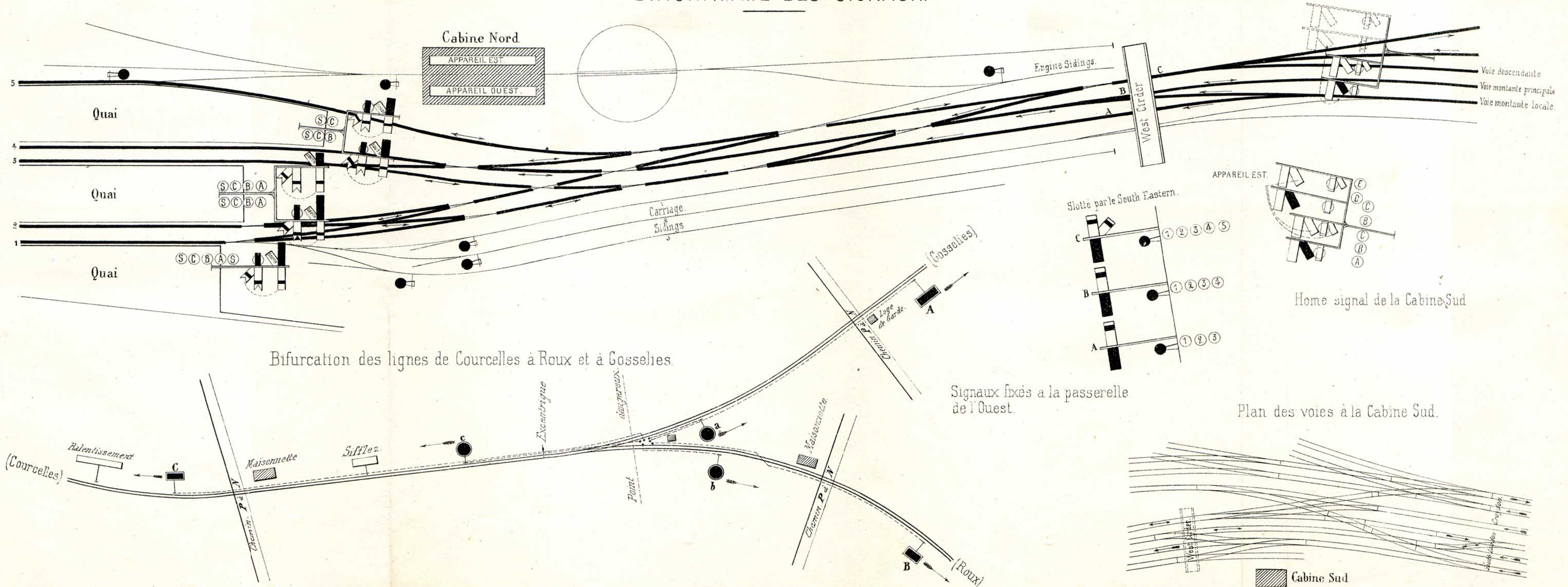
Signaux fixés au viaduc du Boulevard de la Chapelle.

Signaux fixés à la passerelle de la rue Doudeauville.

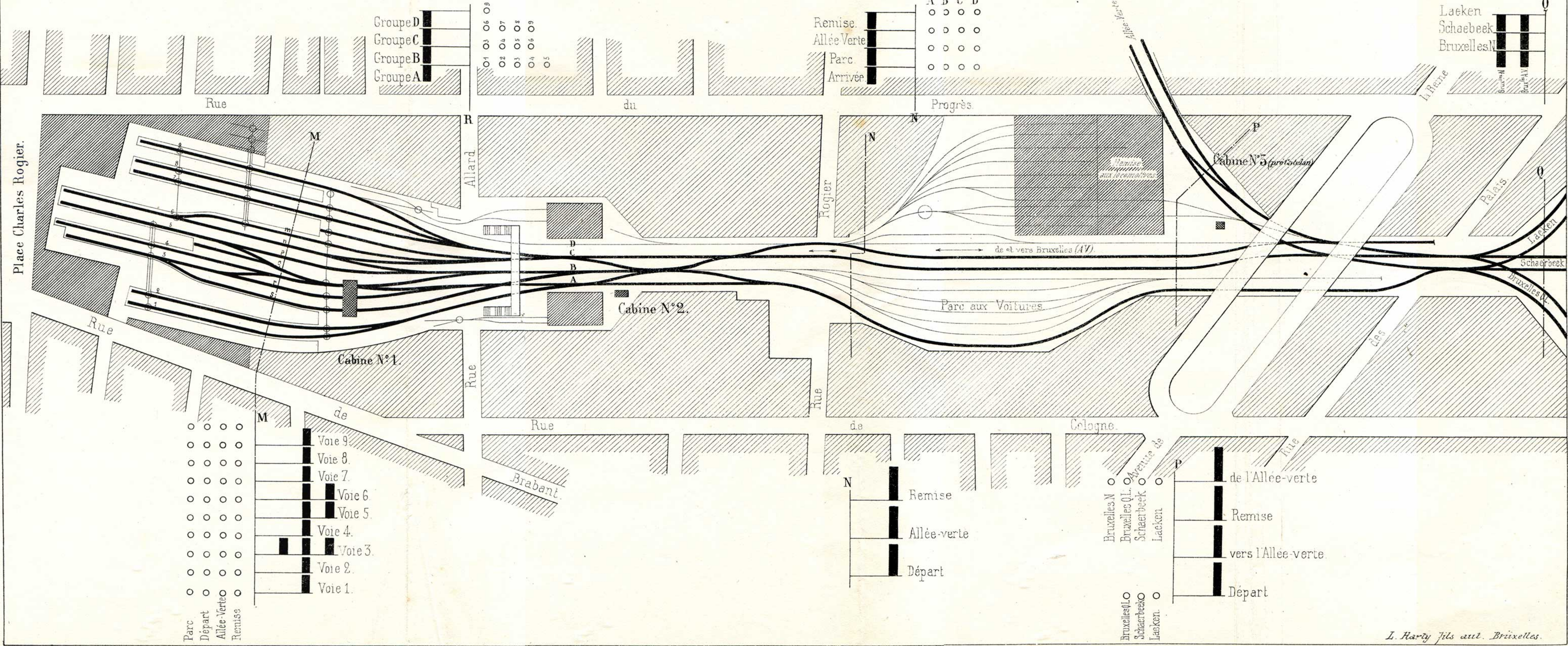
Signaux fixés à la passerelle de la rue Jossaint.

Signaux de sortie  
Signaux d'entrée.

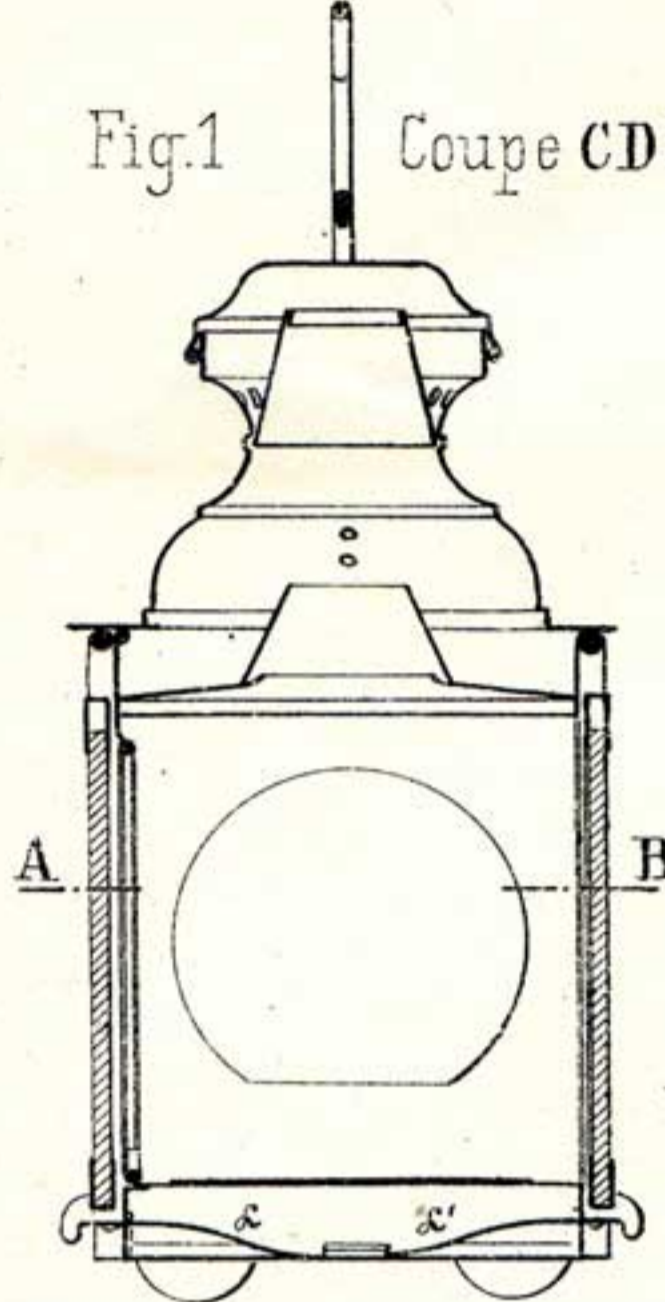
LONDON, BRIGHTON & SOUTH COAST RAILWAY.  
**STATION DE LONDON BRIDGE.**  
 Cabine Nord - Côté Ouest.  
 DIAGRAMME DES SIGNAUX.



## STATION DE BRUXELLES-NORD. Projet des signaux par le système des régions dangereuses.



Lanterne L. du P.L.M.  
à vitres rabattantes.



Lanterne N. du P.L.M.  
à verres tournants

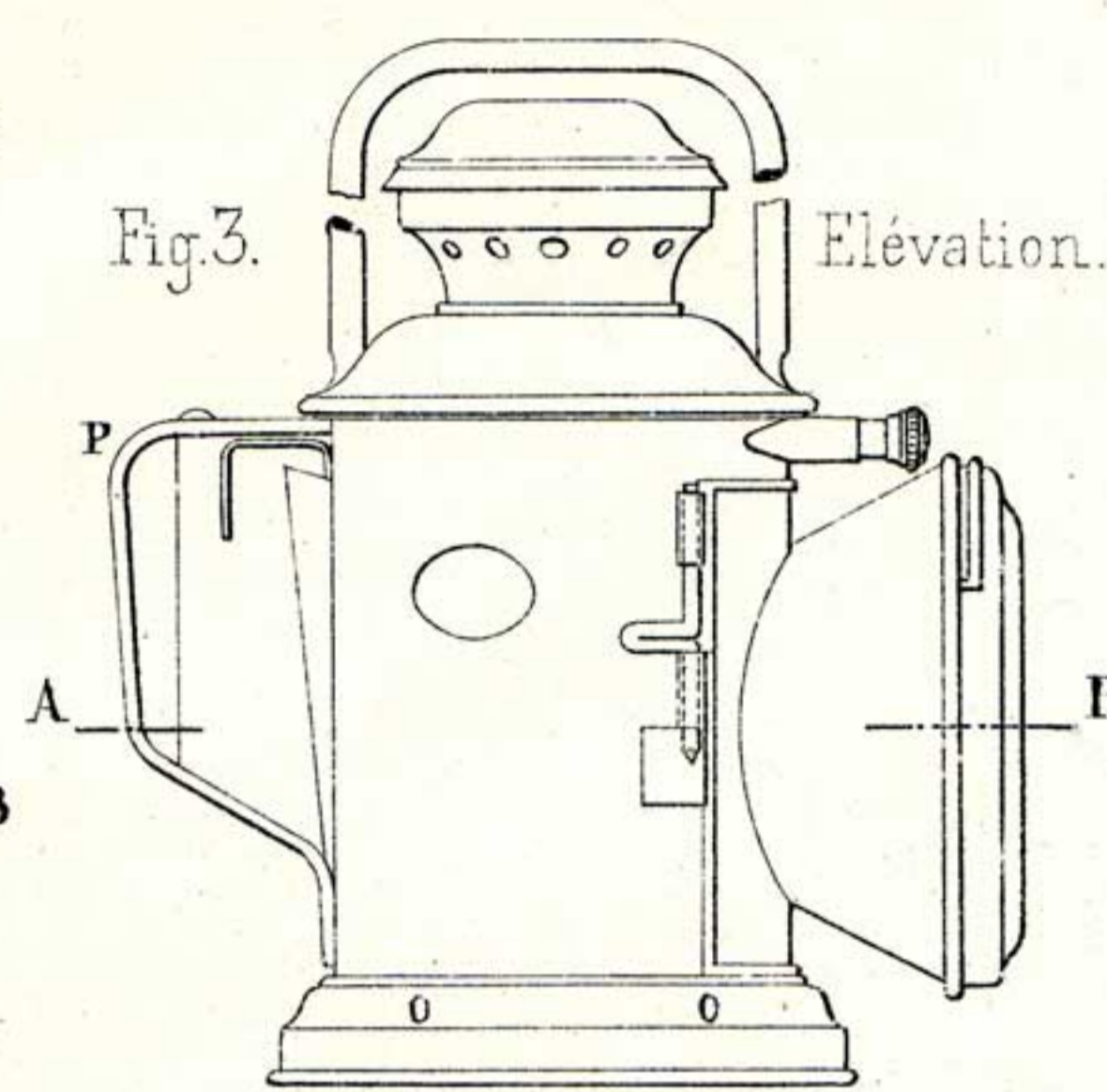
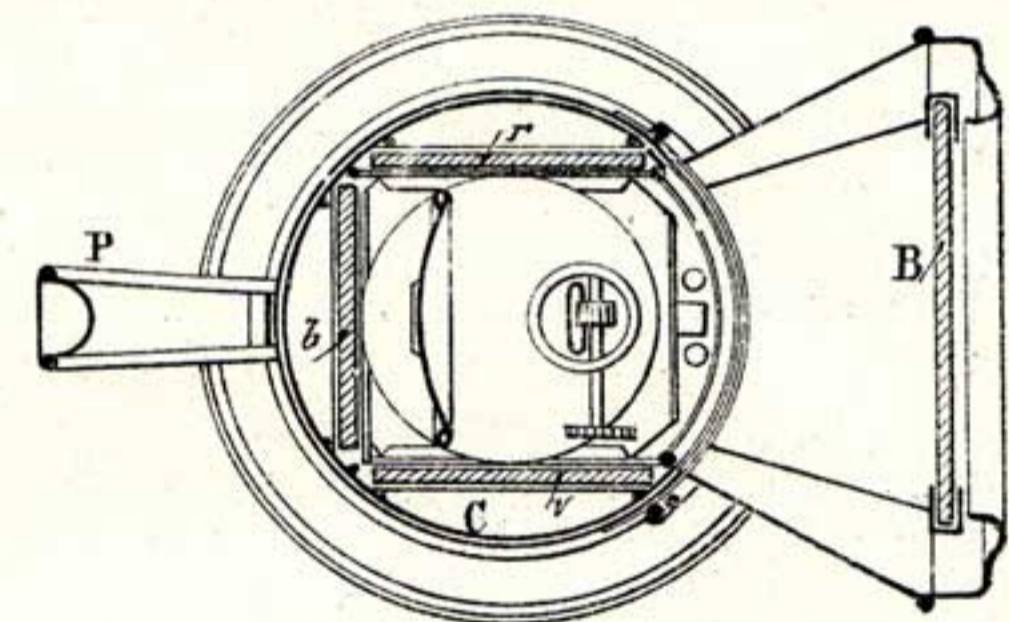
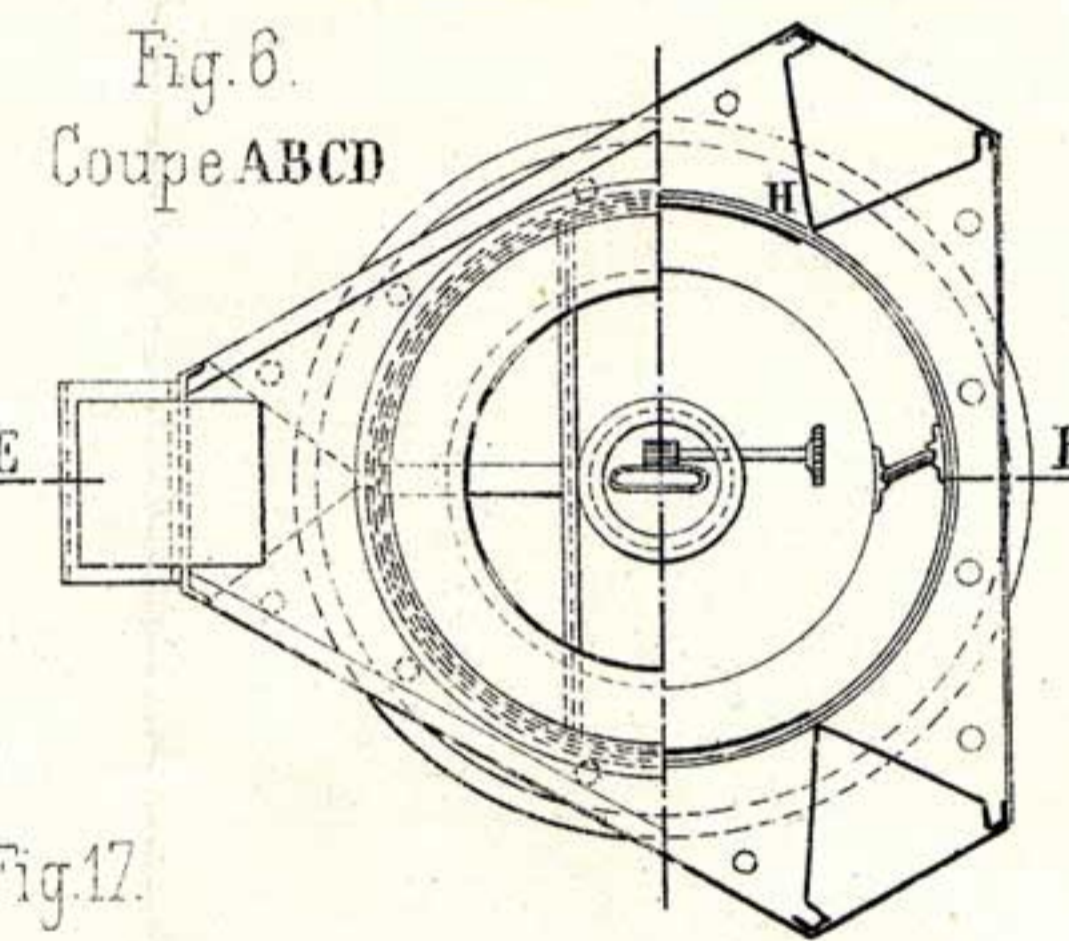
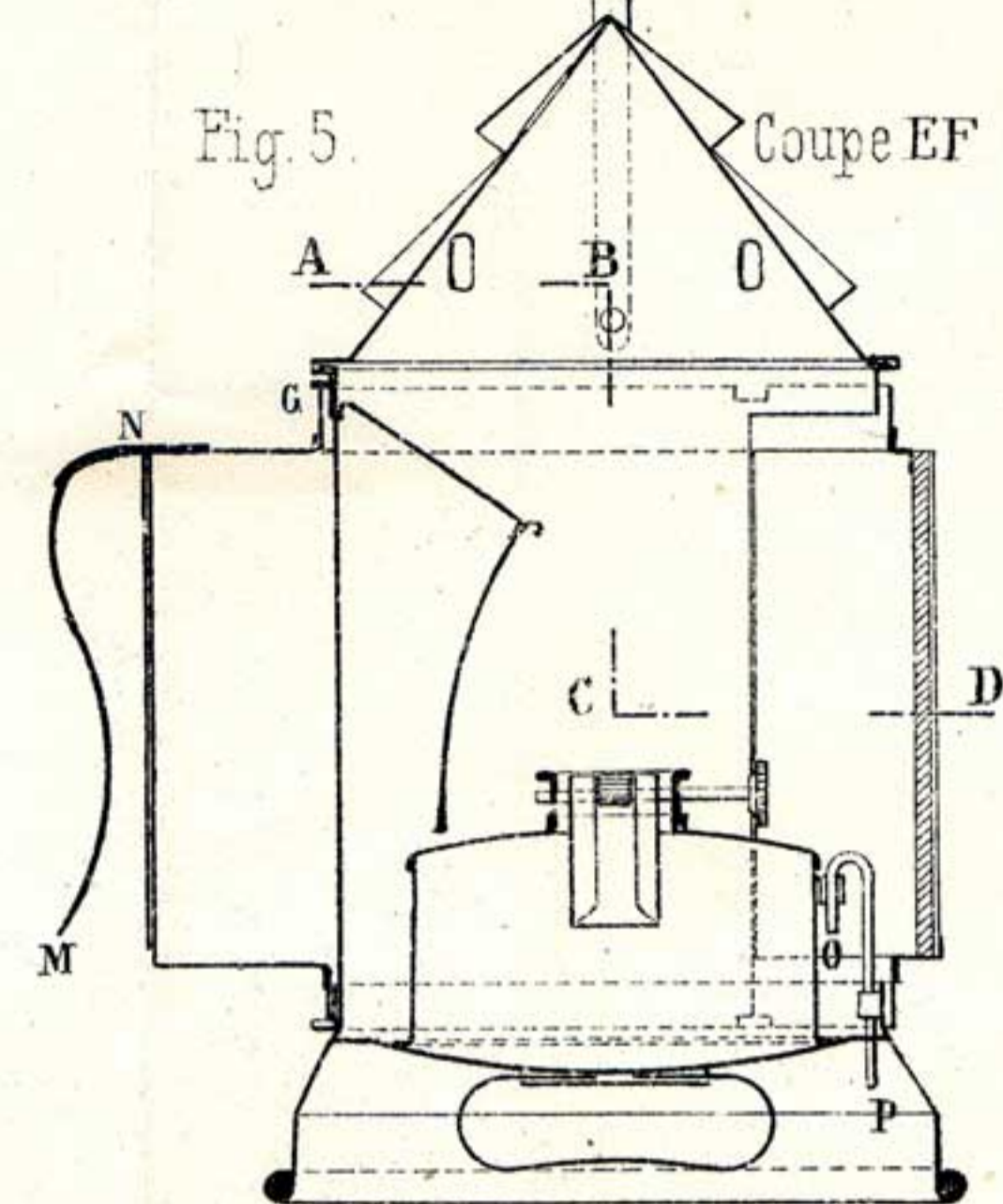


Fig. 4. Coupe AB.



Lanterne de l'Etat Belge  
à verres tournants



Lanterne de l'Ouest  
à flamme tournante

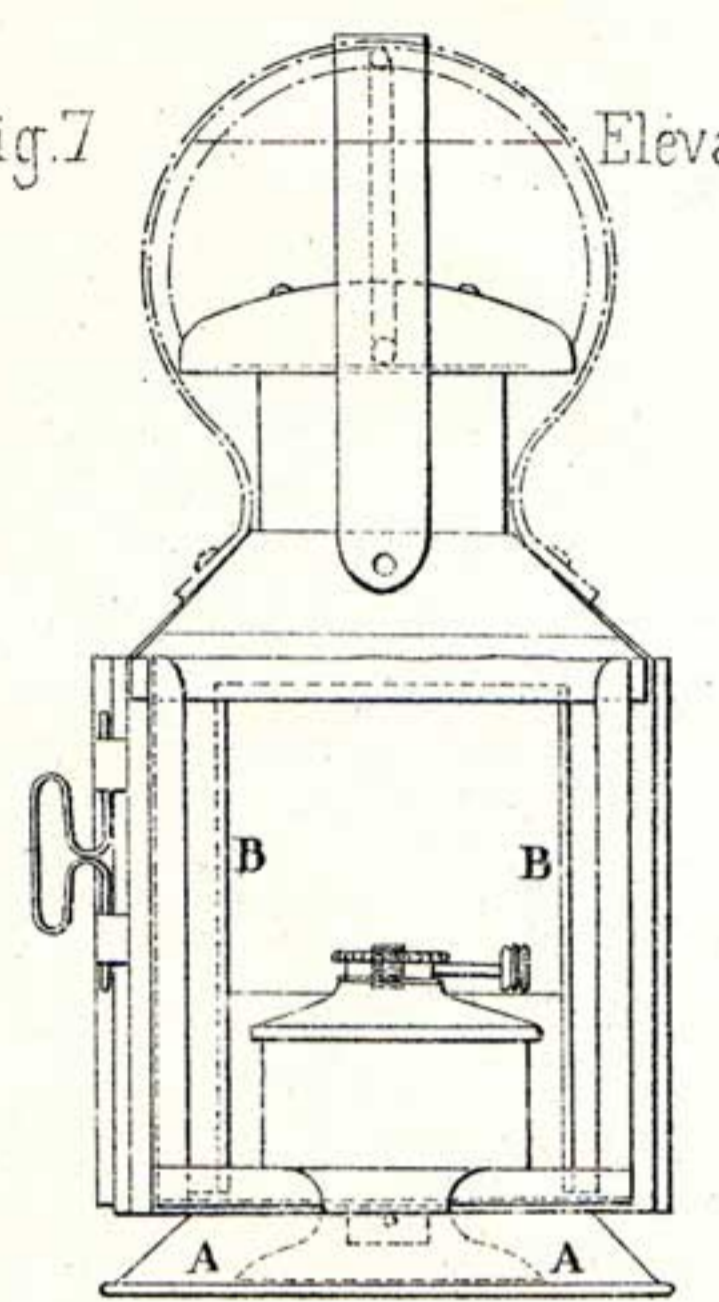
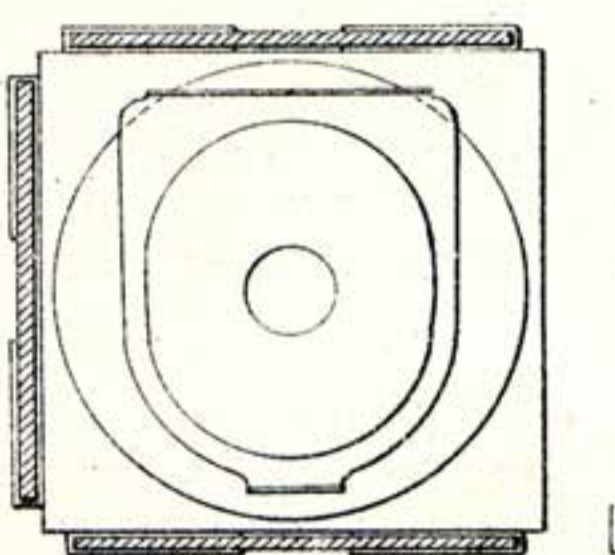
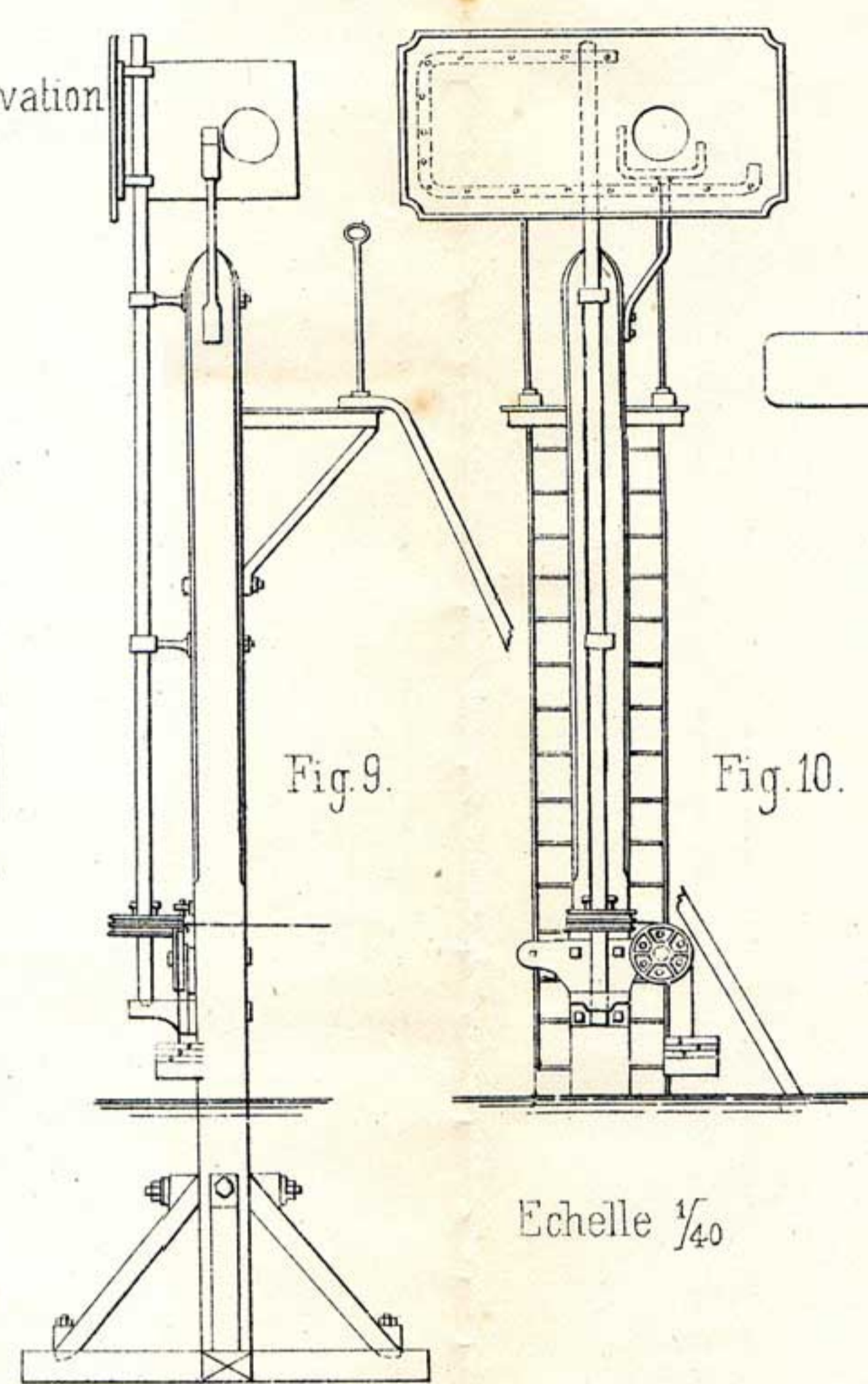


Fig. 8. Plan.

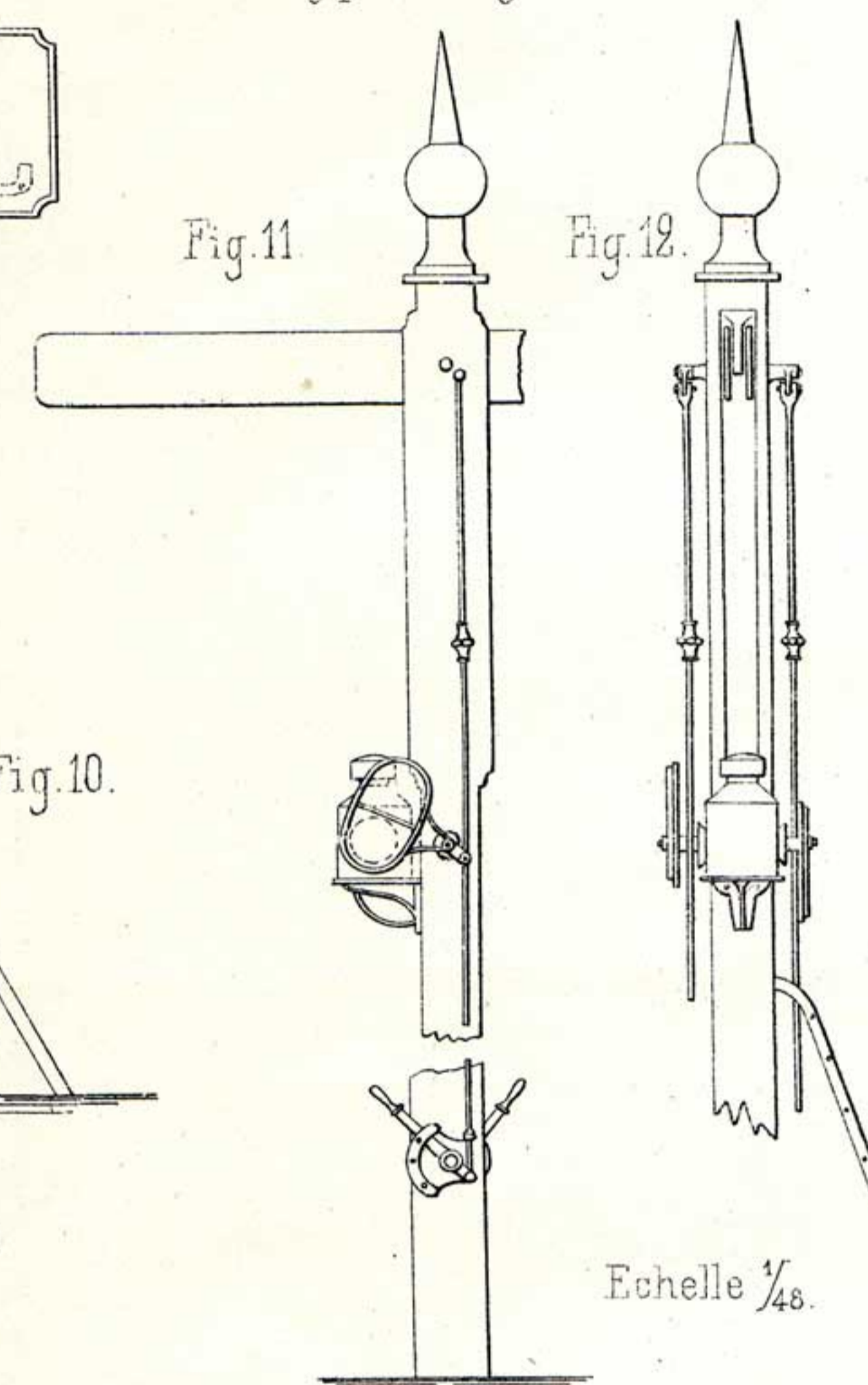


Signal à distance de l'Etat Belge  
avec mat en bois



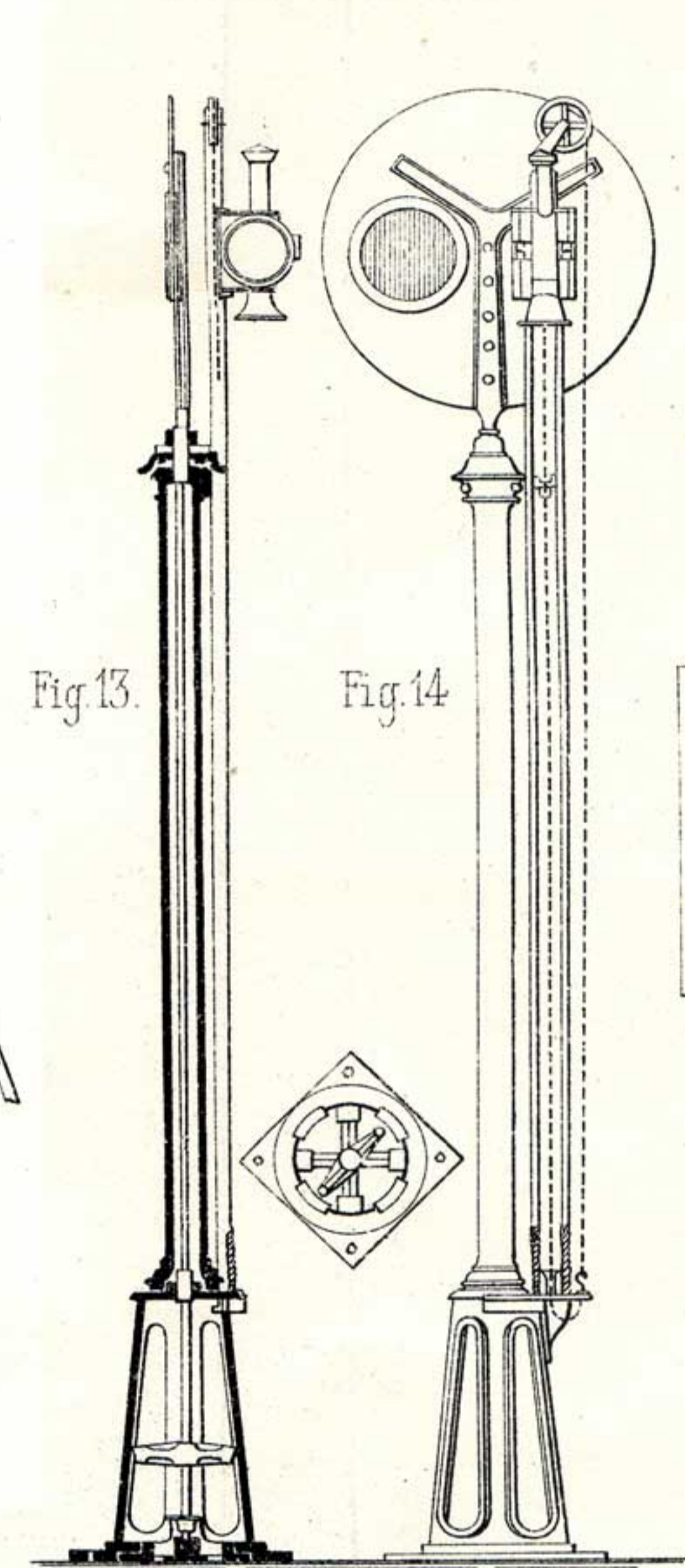
Echelle 1/40

Mat sémaphorique en bois  
type Saxby.



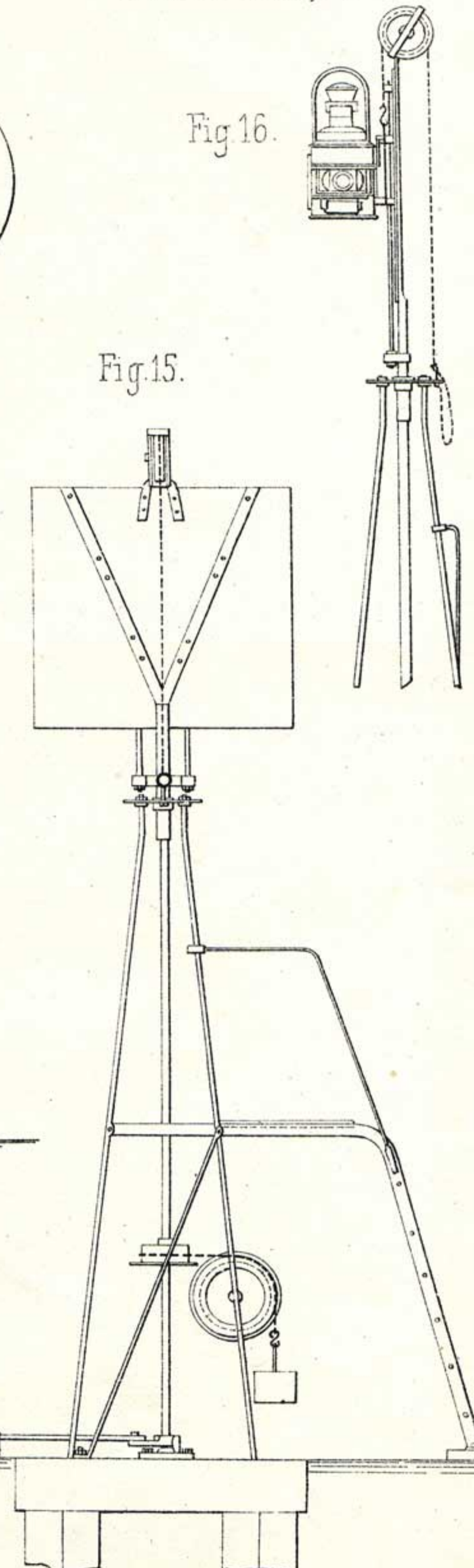
Echelle 1/48

Disque à distance avec mat  
en fonte du P.L.M.



Echelle 1/40

Signal d'arrêt absolu  
du Nord français.



Echelle 1/20

Fig. 23. Ancienne manœuvre sur place de l'Etat Belge.

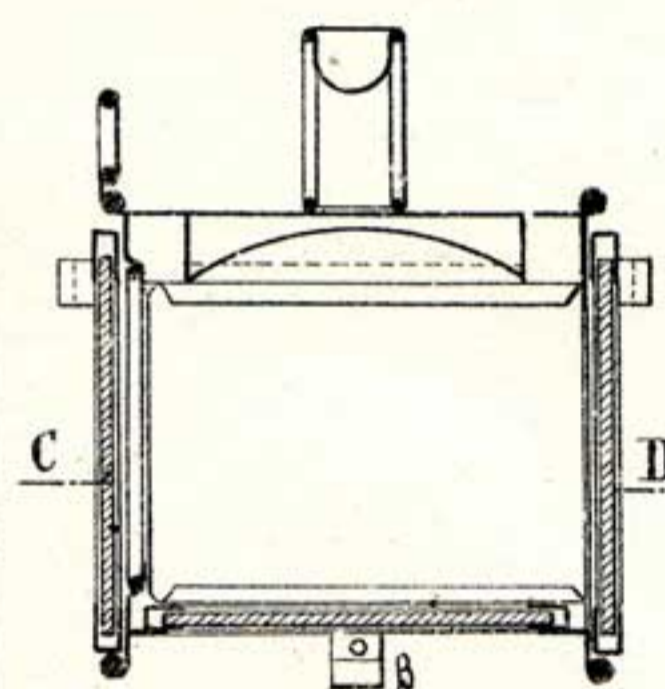


Fig. 17.

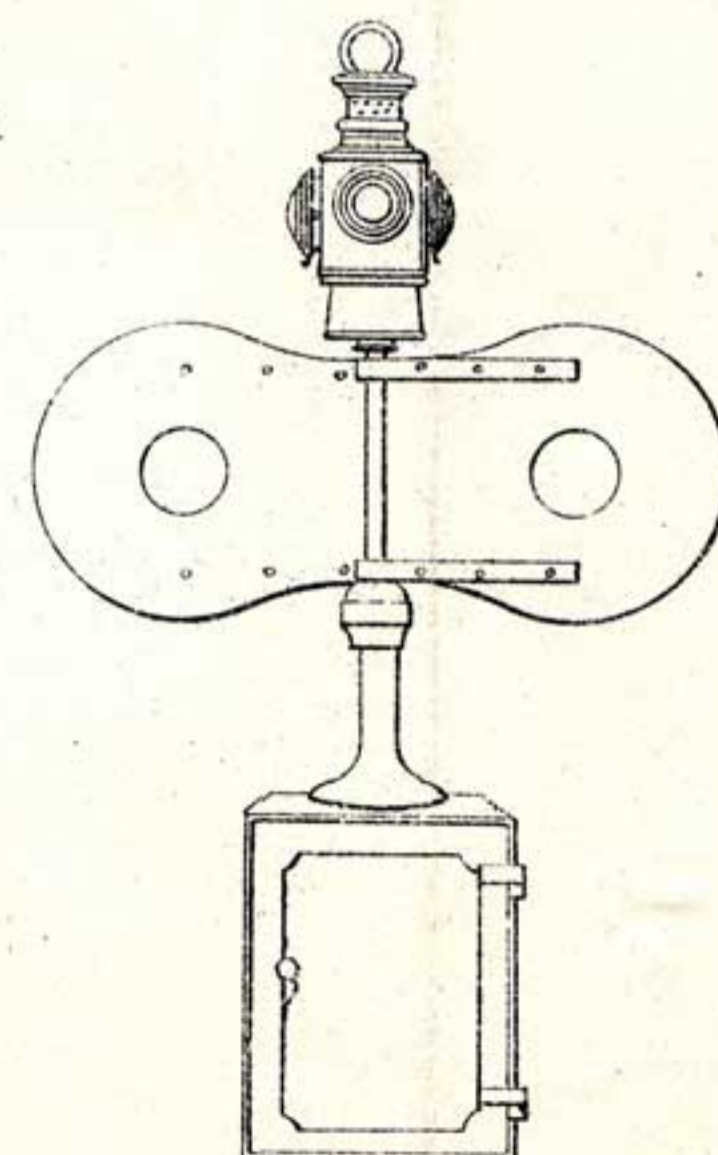


Fig. 18.

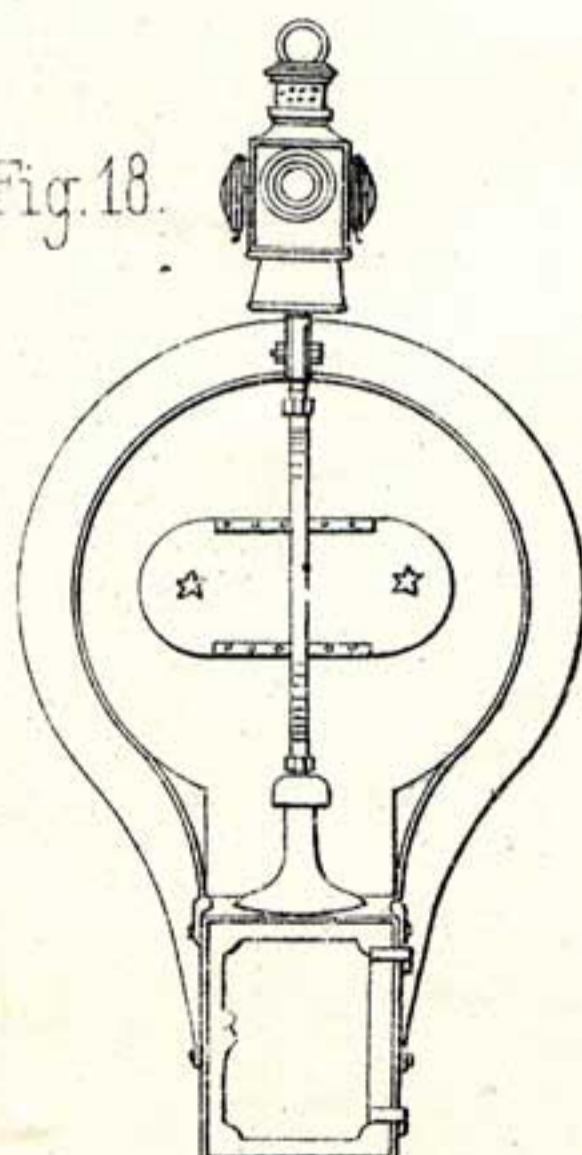


Fig. 19.

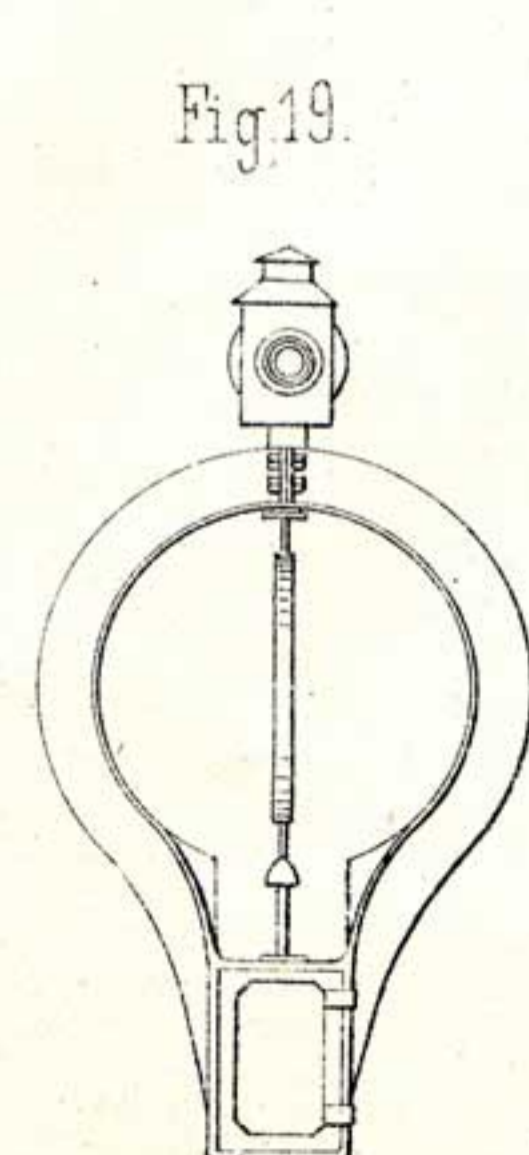


Fig. 20.

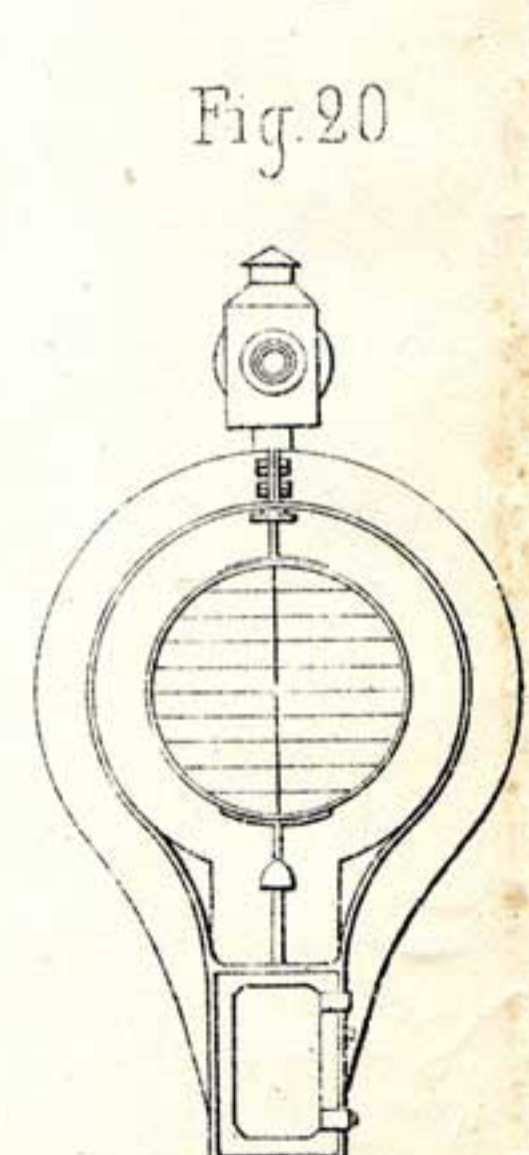


Fig. 21.

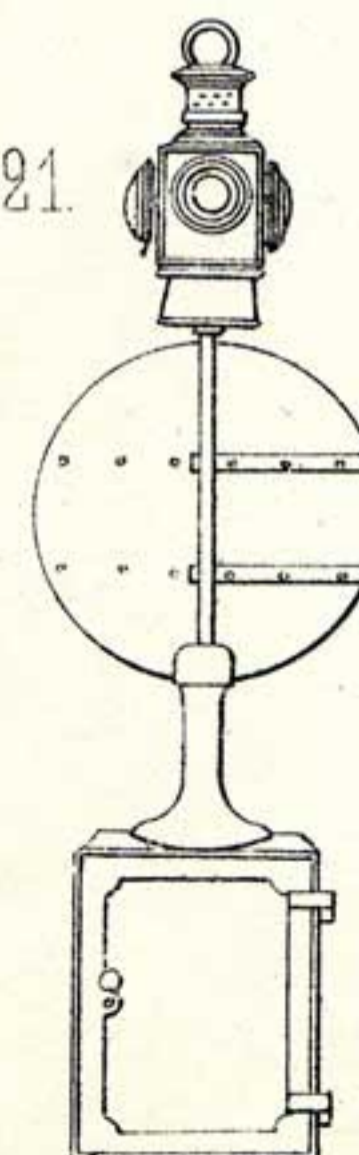
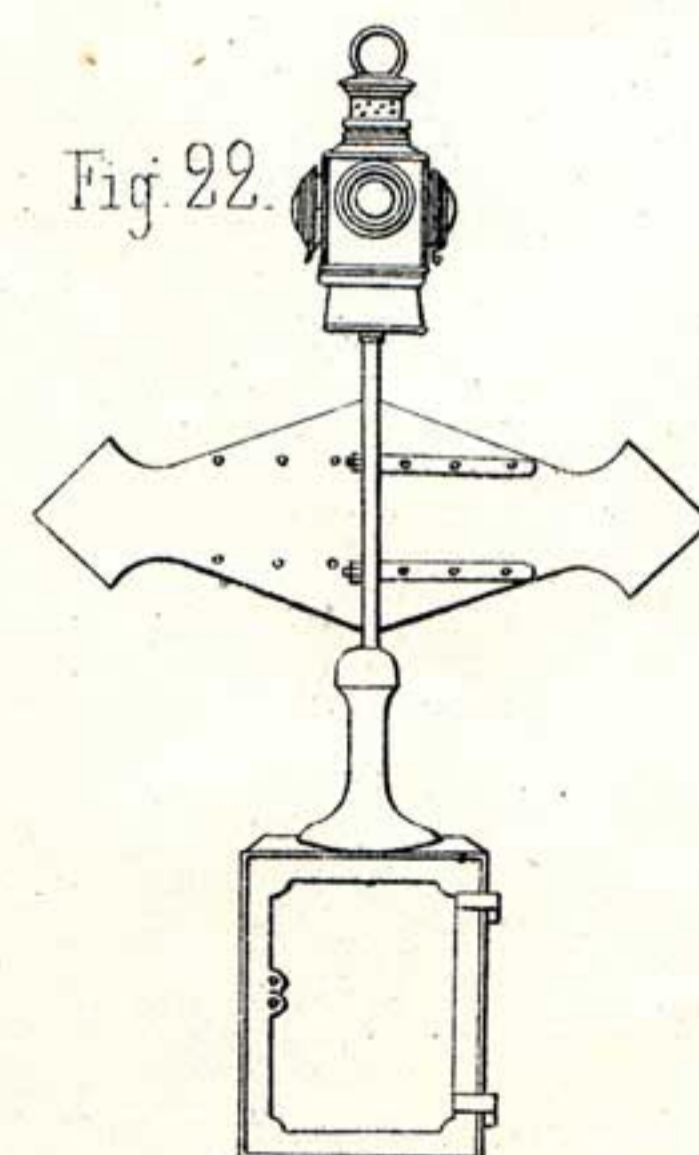


Fig. 22.



Voyants de signaux Americains Types divers. Fig. 17 à 22.

Fig.1 et 2.  
Mat sémaphorique en tôle  
de la Ruhr-Sieg-Bahn.

Mat sémaphorique a  
treillis du Rhénan.  
Fig.3.

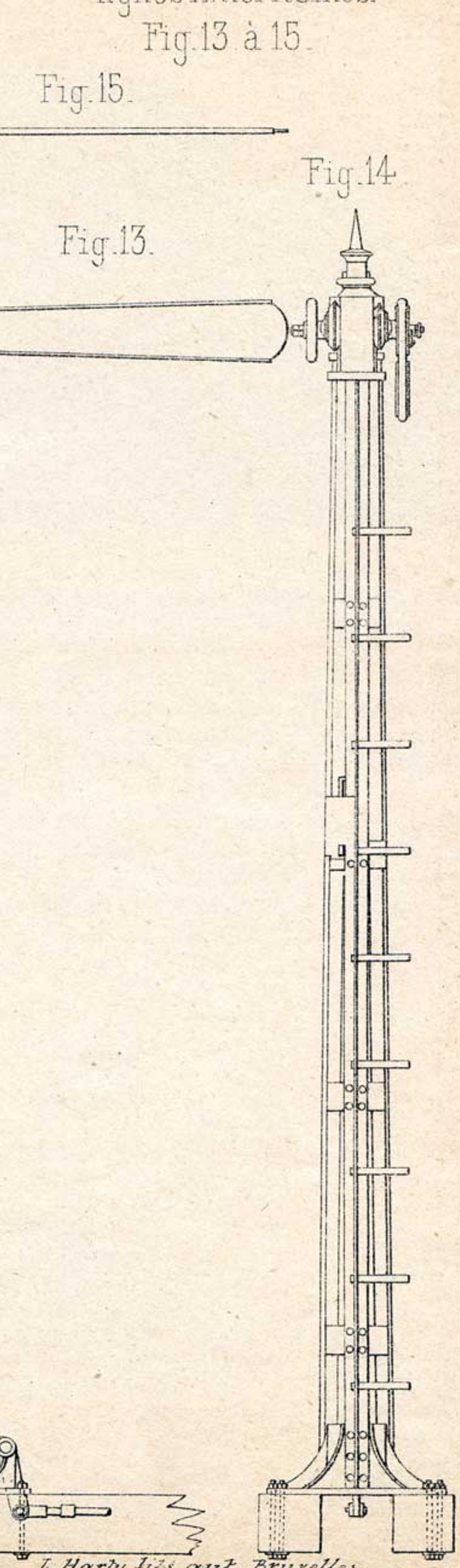
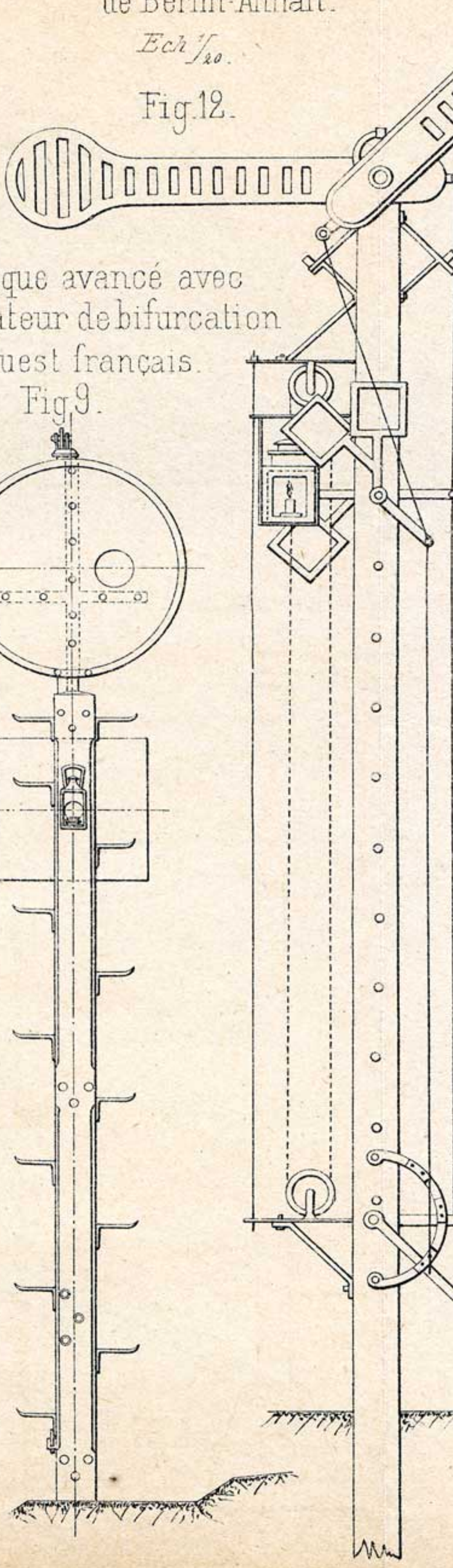
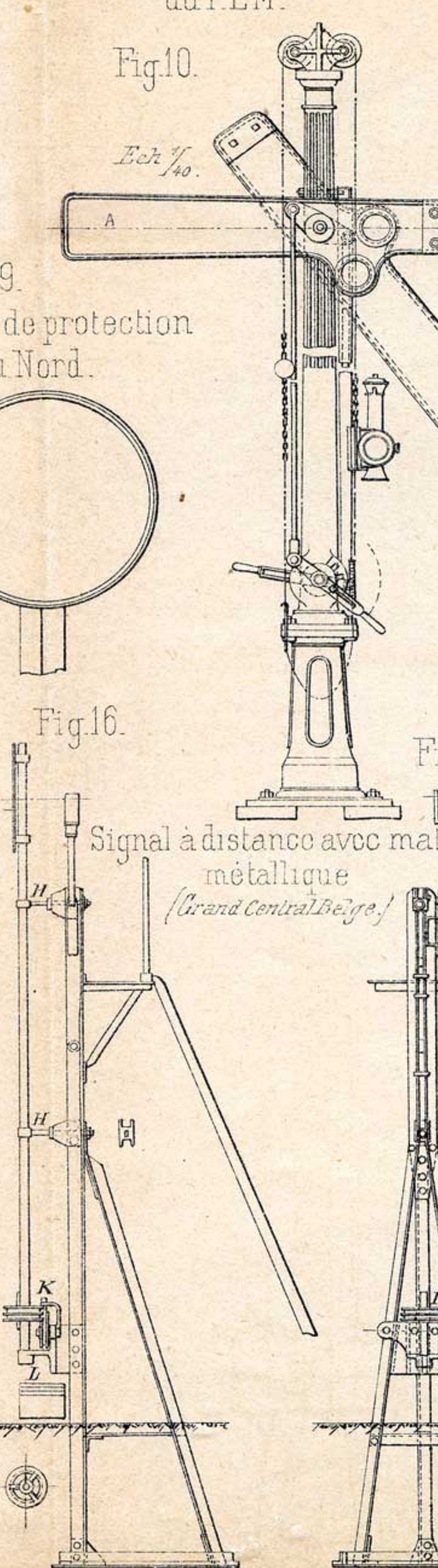
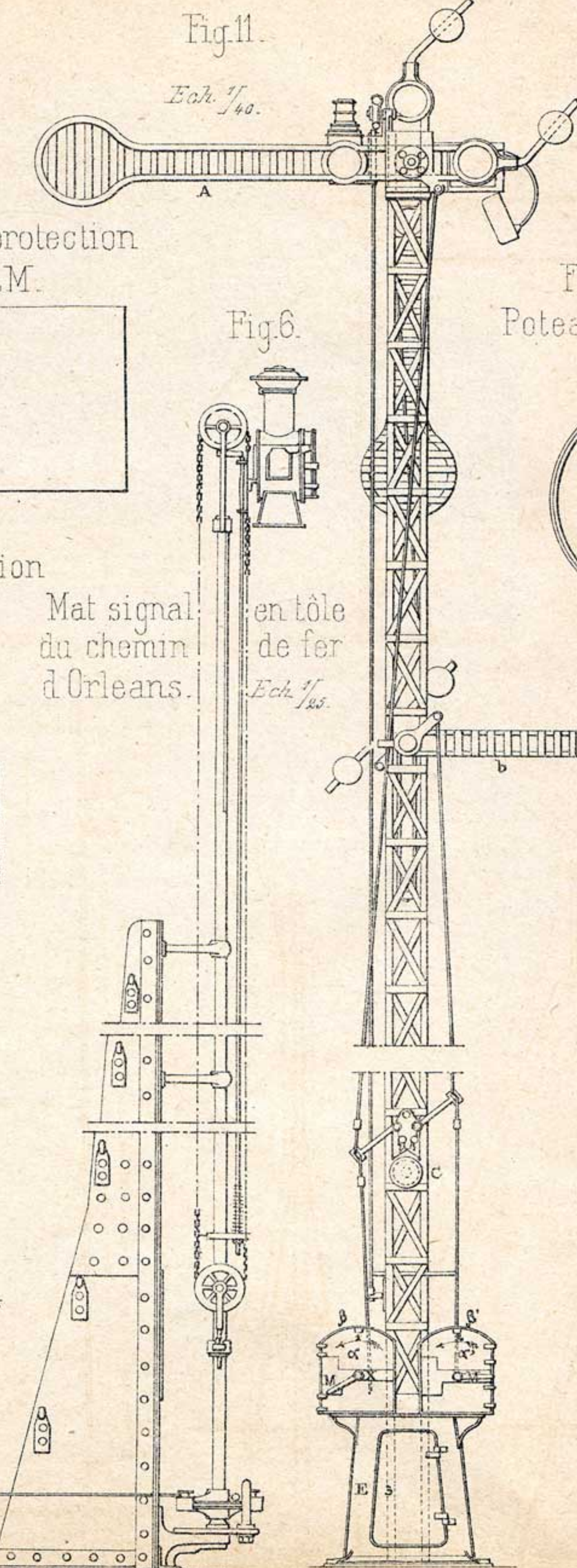
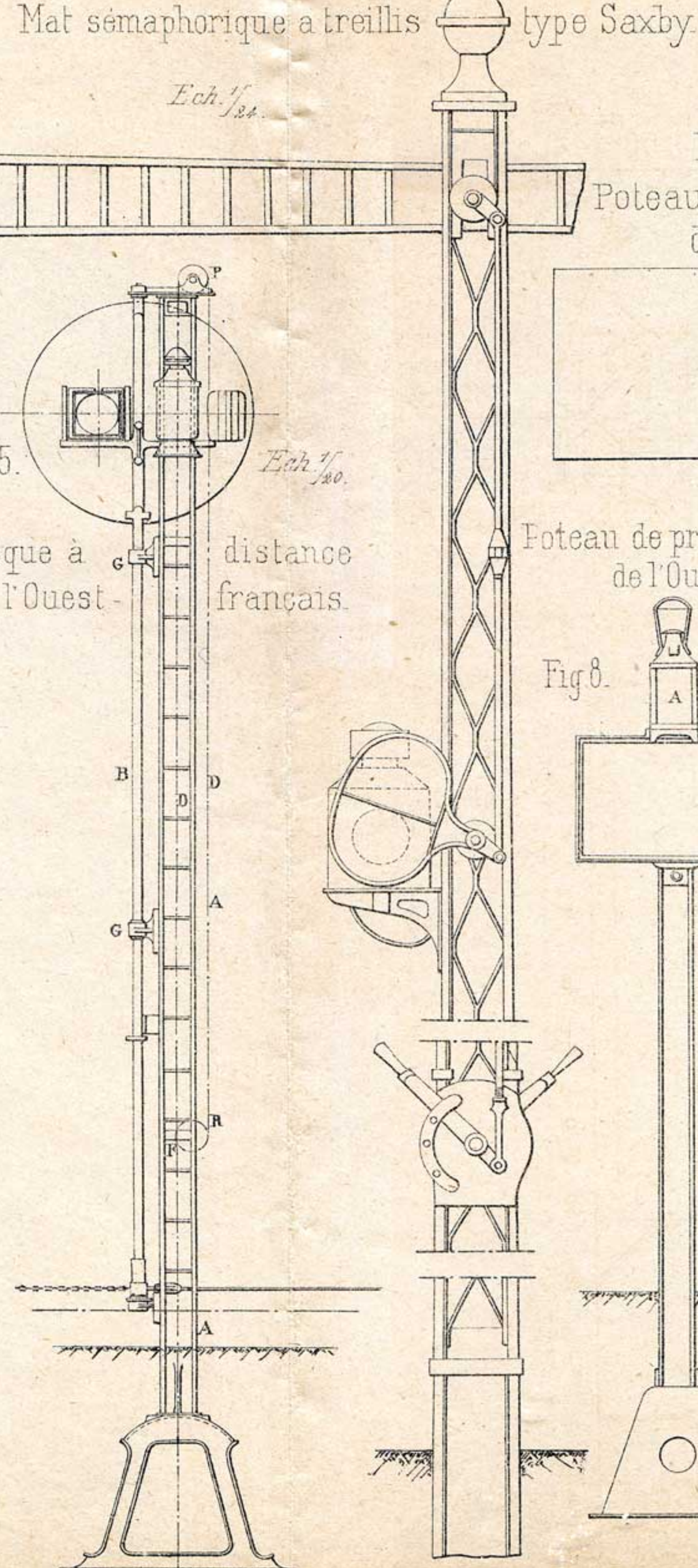
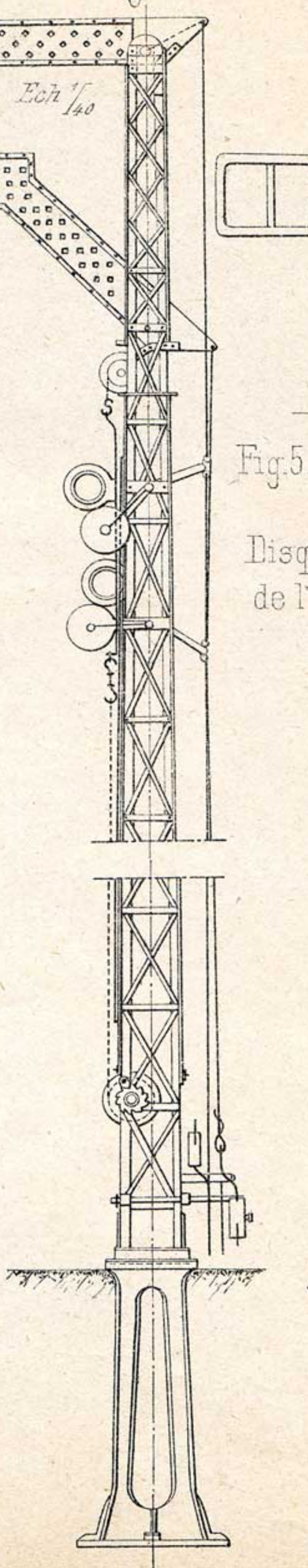
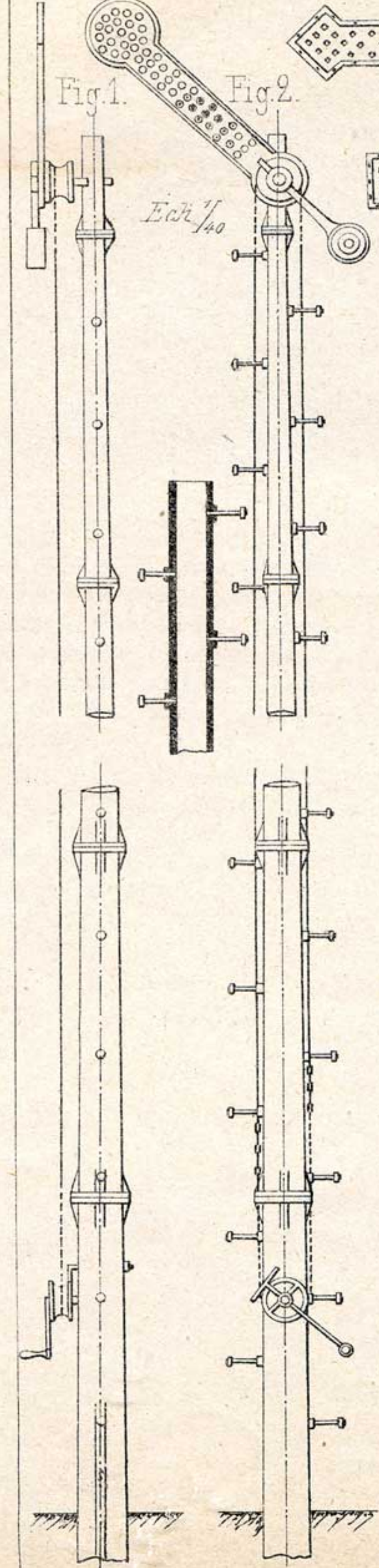
Fig.4.  
Mat sémaphorique a treillis  
type Saxby.

Electro-sémaphore Lartigue

Mat sémaphorique en fonte  
du P.L.M.

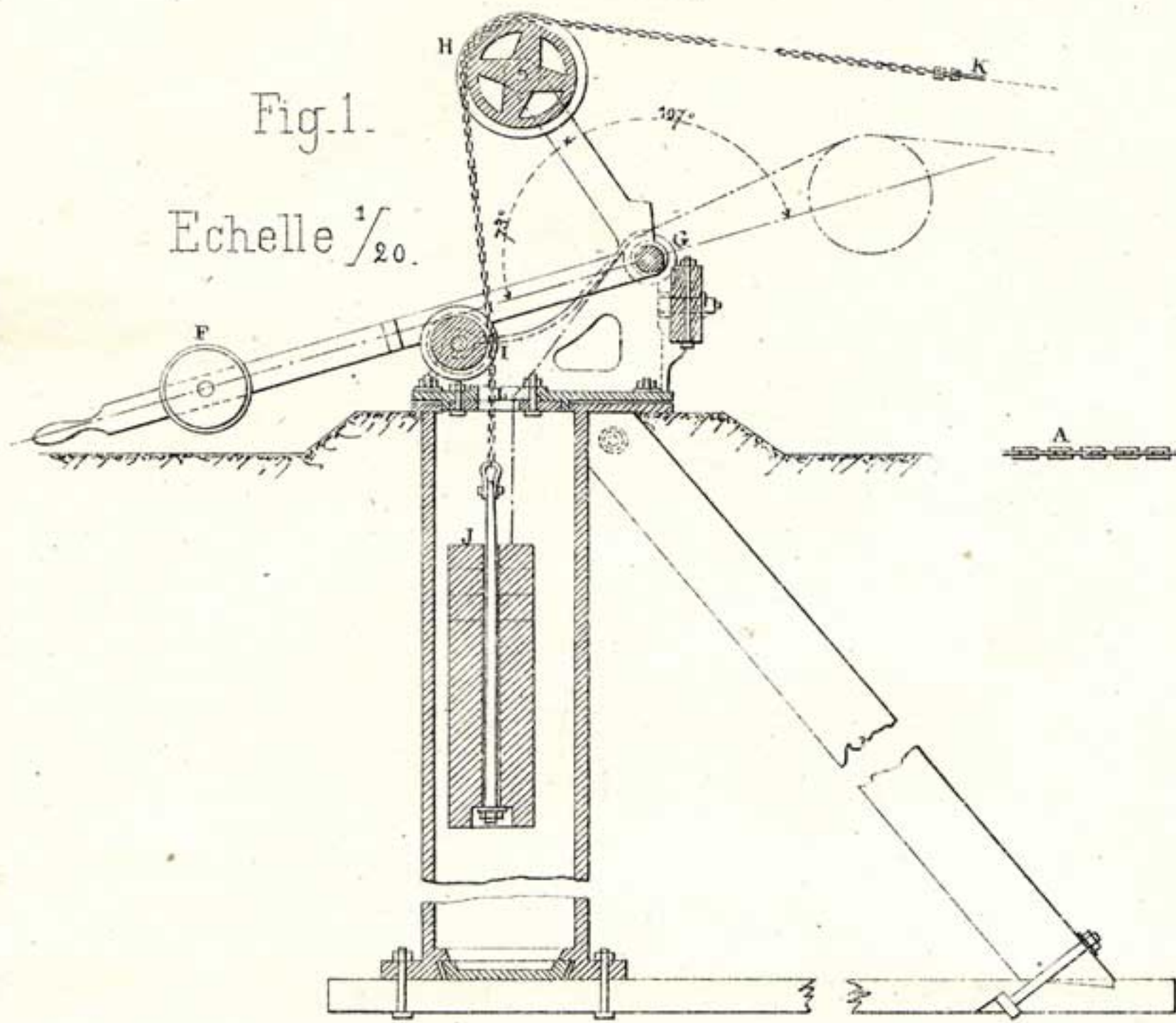
Mat sémaphorique en bois de  
Berlin-Anhalt.

Mat sémaphorique en fer des  
lignes Américaines.  
Fig.13 à 15.

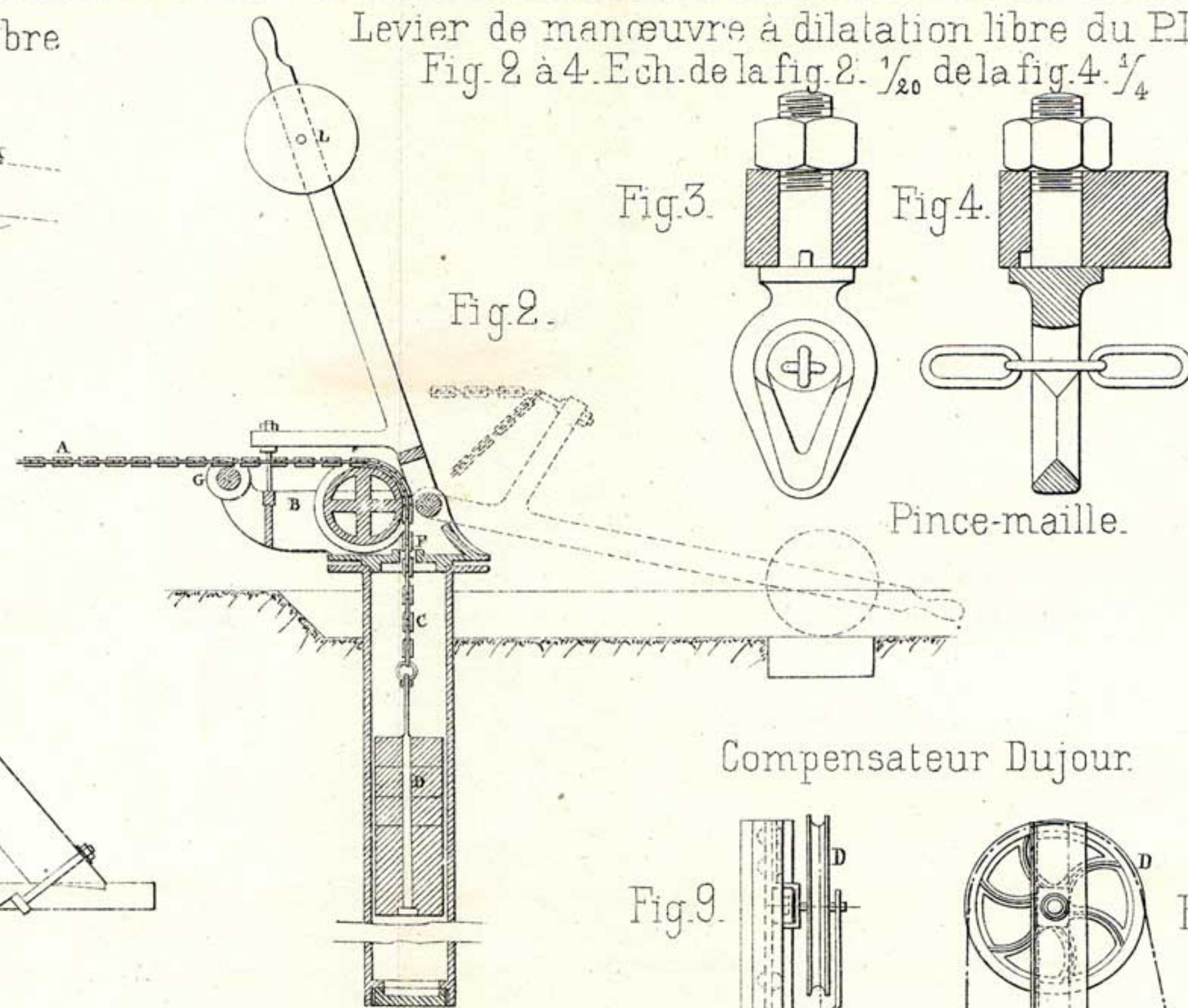


J. Hardy fils aut. Bruxelles.

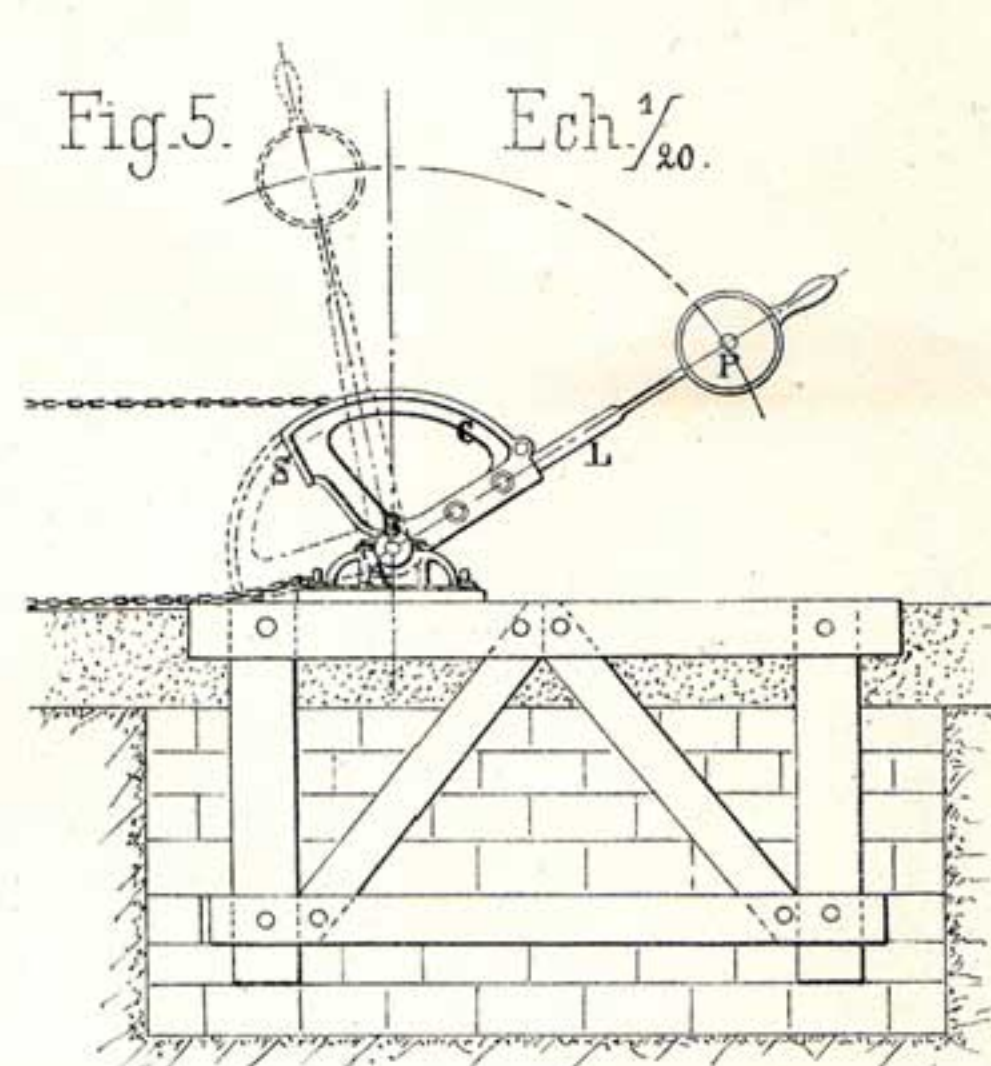
Levier de manœuvre à dilatation libre de l'Est-français.



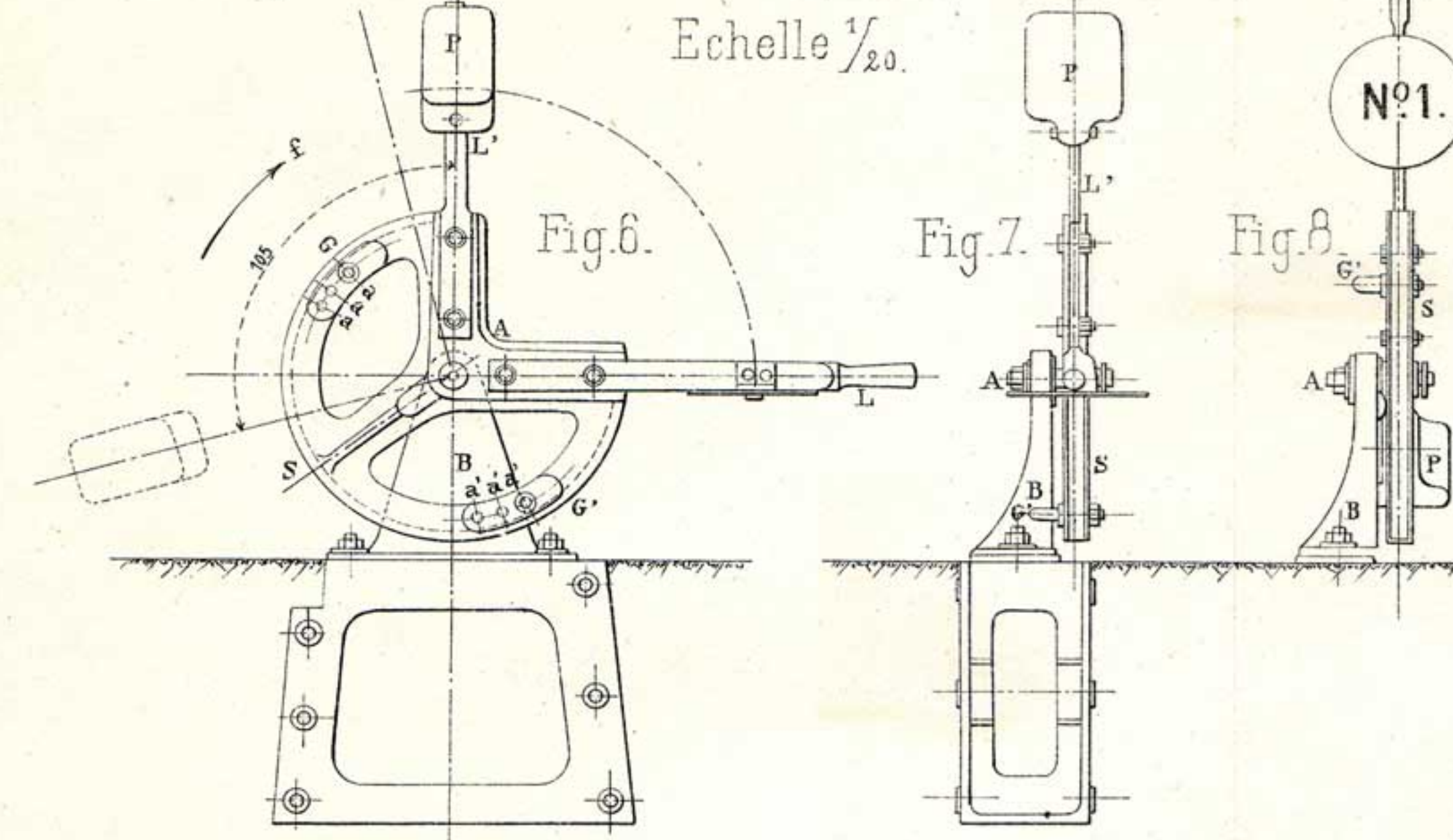
Levier de manœuvre à dilatation libre du PLM. Fig. 2 à 4. Ech. de la fig. 2. 1/20 de la fig. 4. 1/4



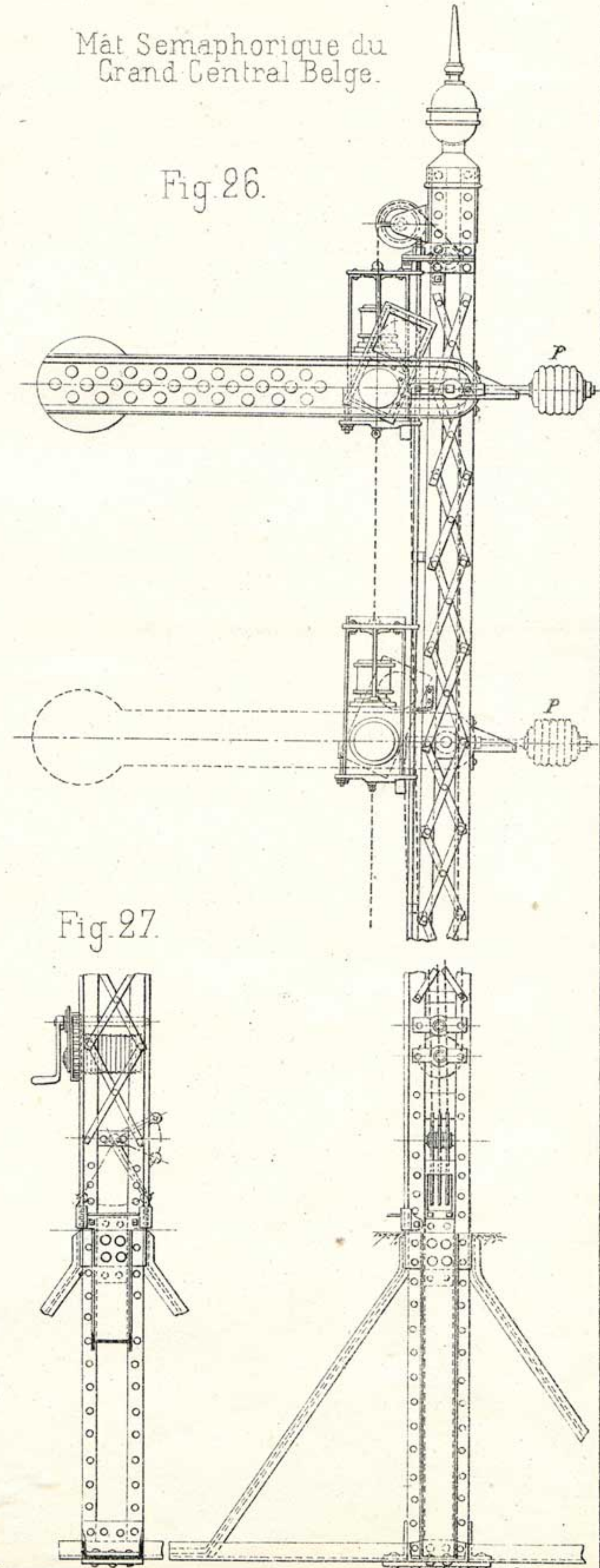
Levier de manœuvre de l'Ouest-français.



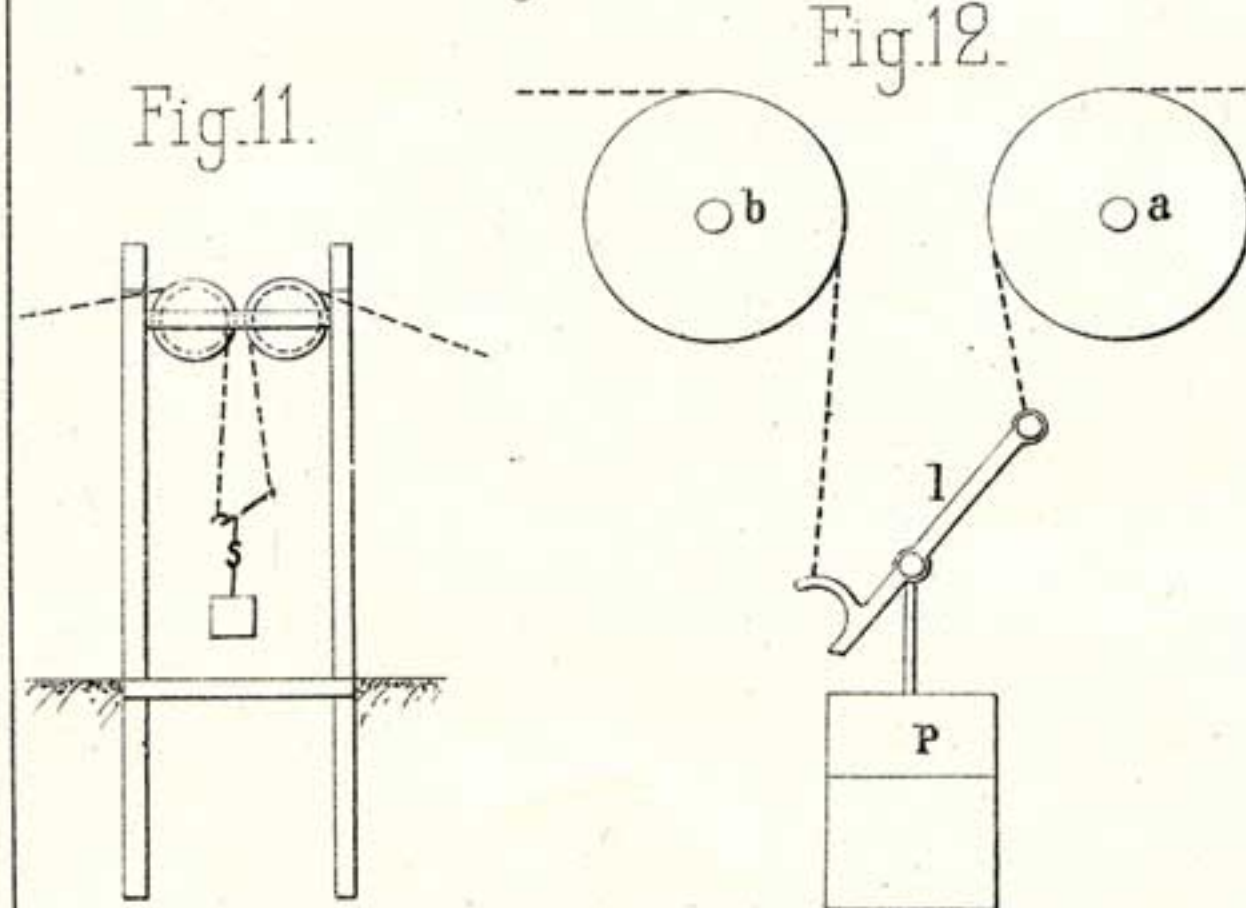
Levier de manœuvre de l'Ouest-français à libre dilatation pour les transmissions de plus de 1000 mètres.



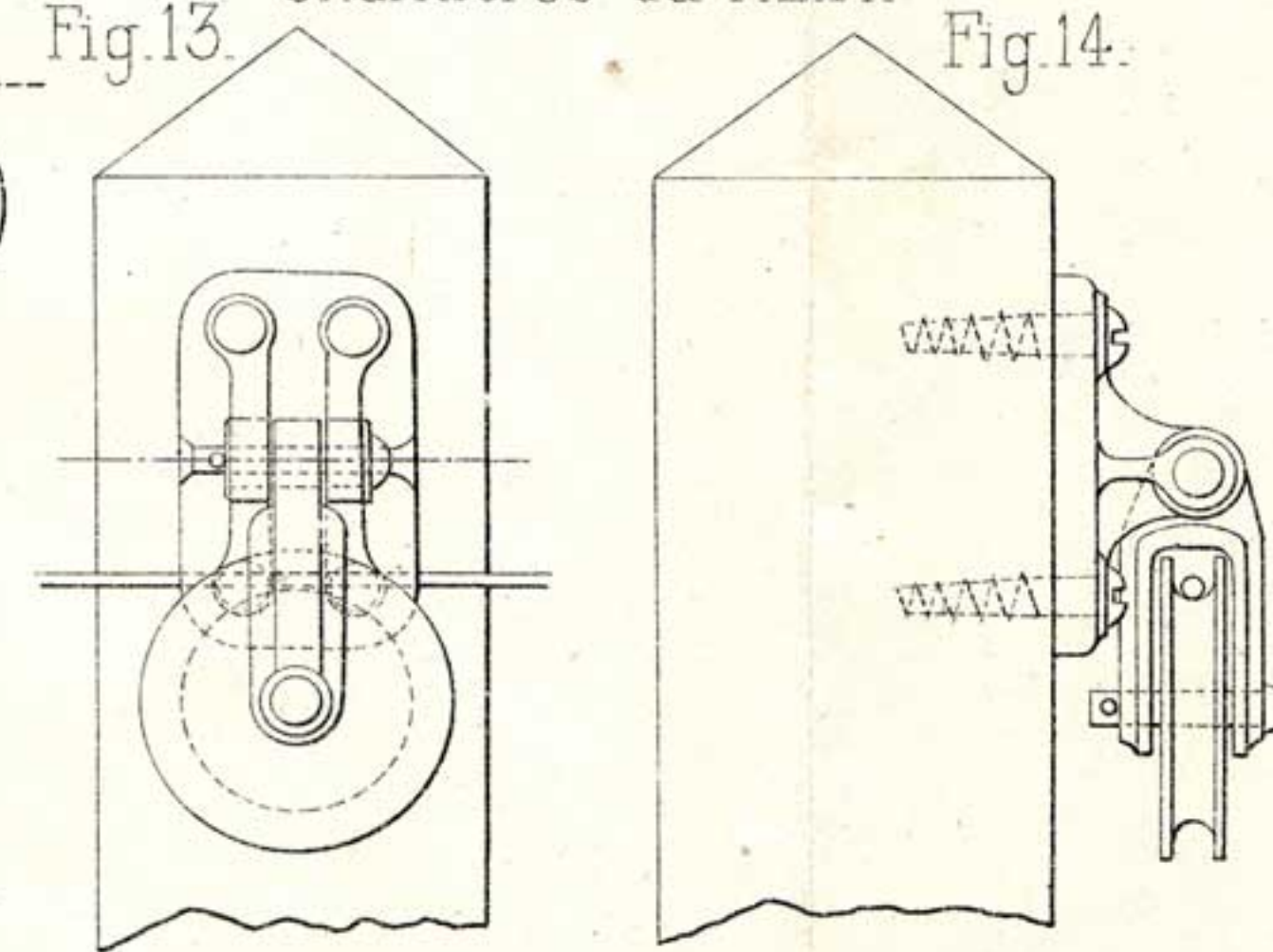
Mât Semaphorique du Grand Central Belge.



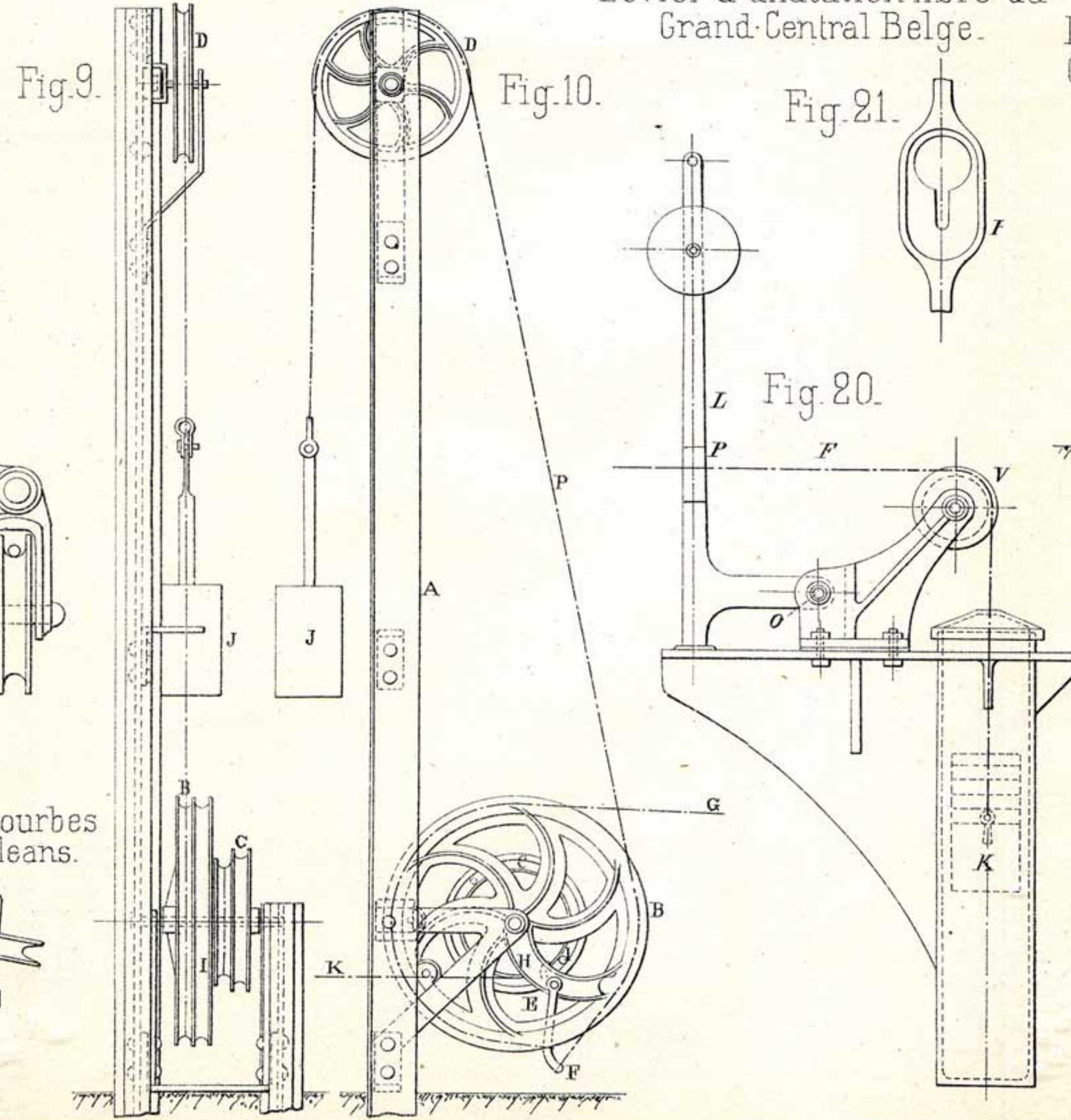
Compensateur Robert. Fig. 11 et 12.



Poulies de transmission à charnières du P.L.M.



Levier à dilatation libre du Grand-Central Belge.



Levier de manœuvre à 2 fils du Chemin de fer d'Orléans.

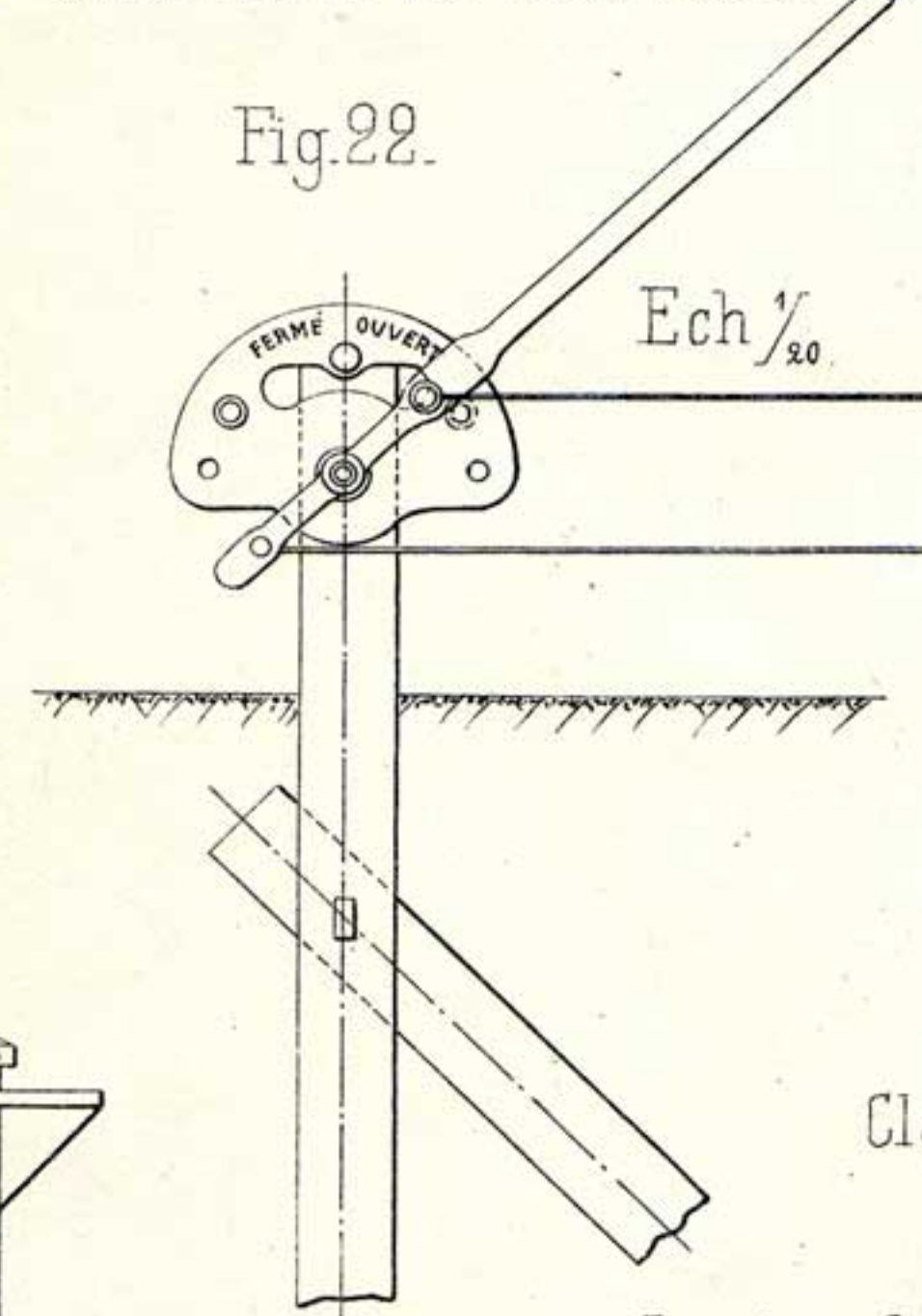
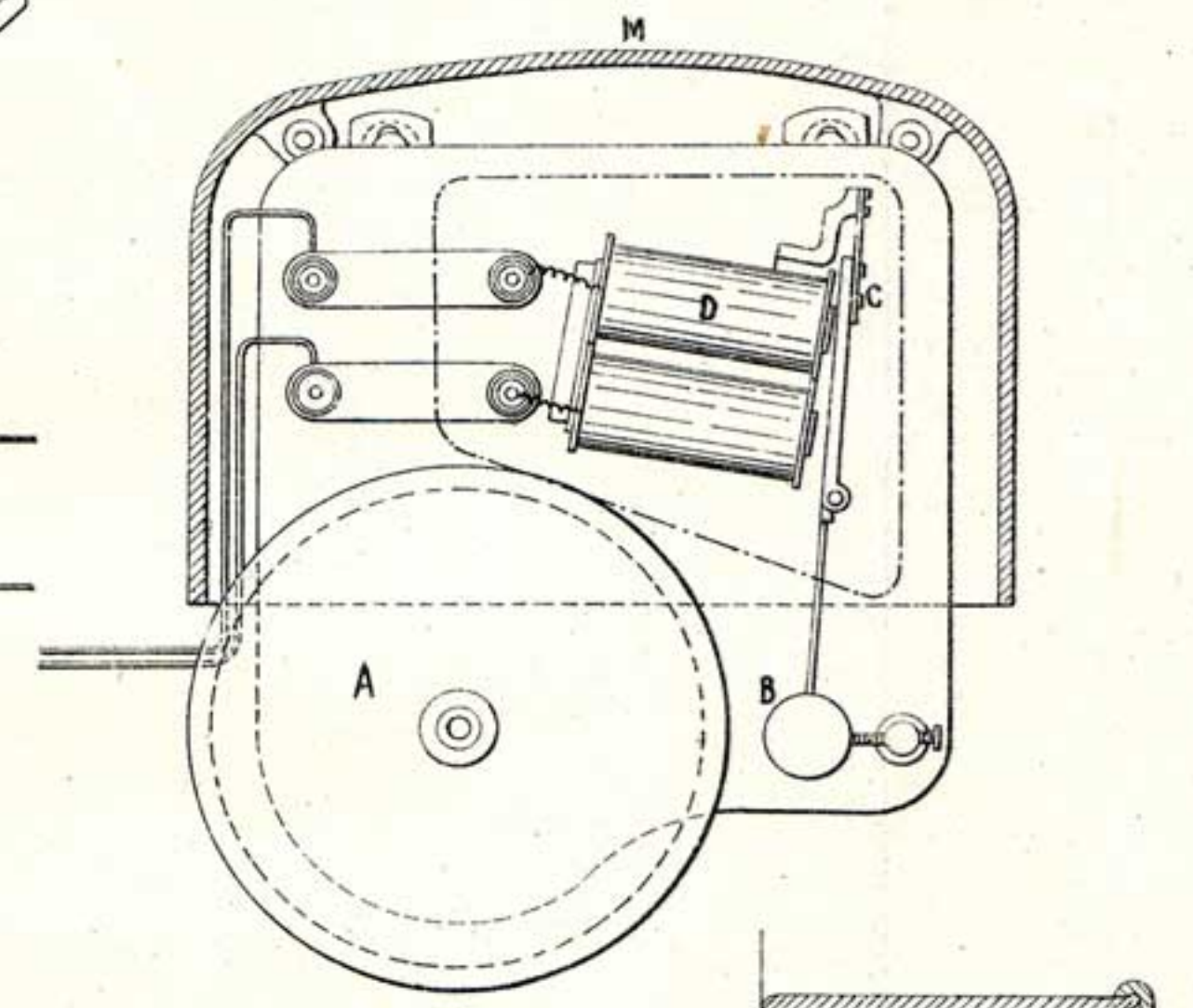
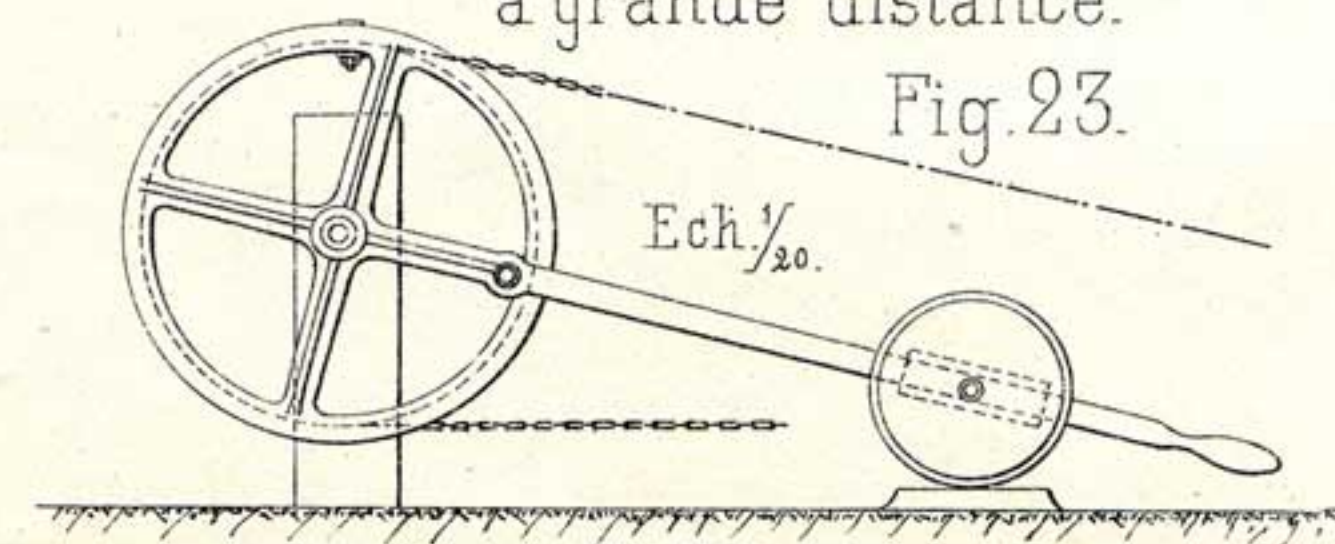


Fig. 24 et 25. Cloche électrique de l'Ouest Système Regnault.



Levier de manœuvre à grande distance.



Poulies de transmission diverses.

Poulies obliques pour les courbes transmission à 2 fils de l'Orléans.

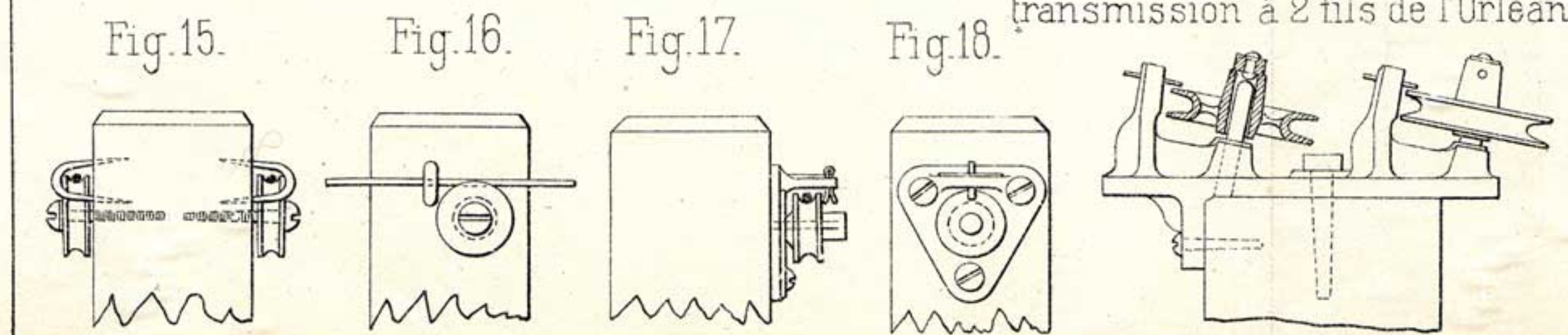


Fig 1 Vue extérieure du manipulateur.

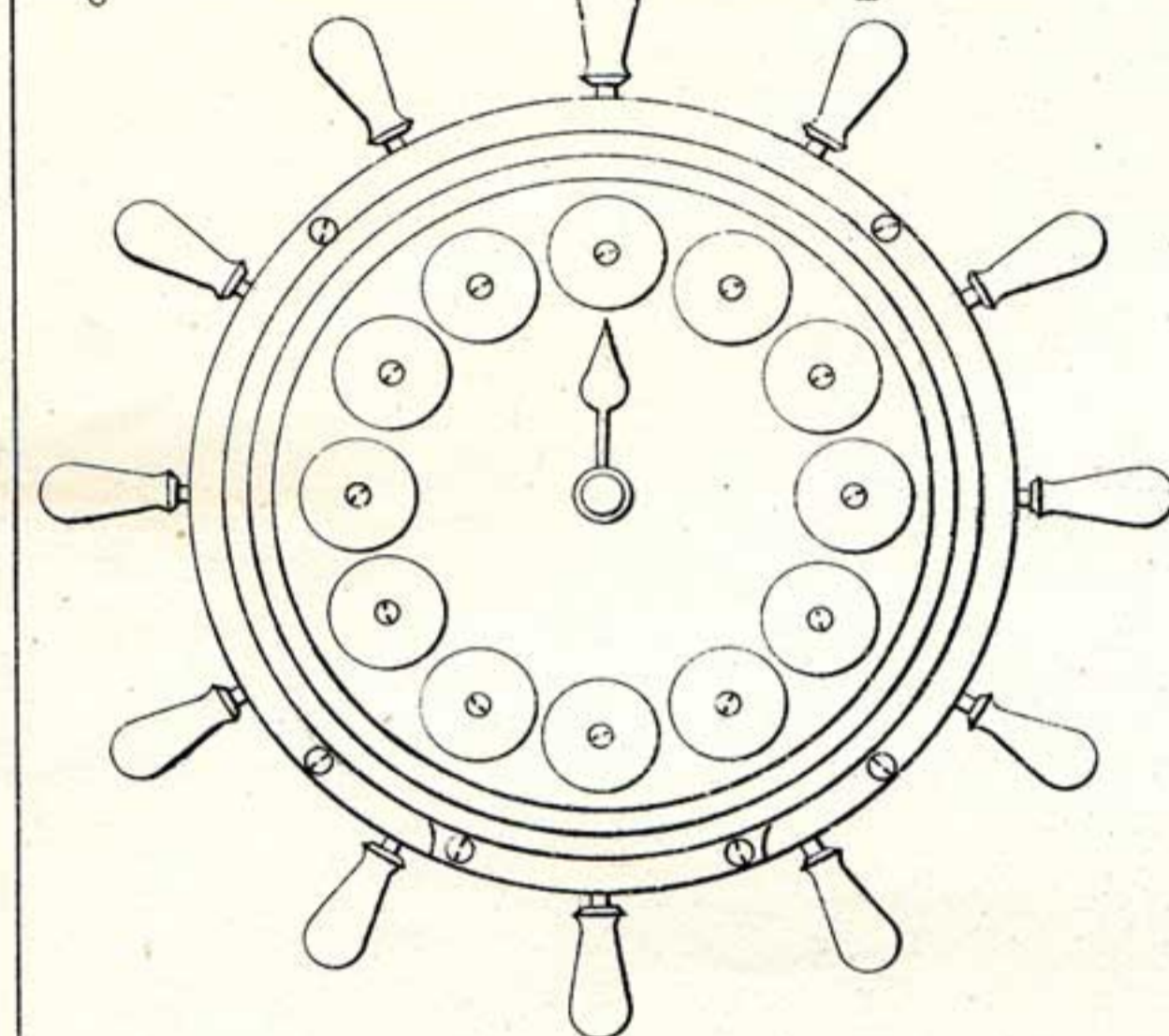


Fig. 1 à 4. Avertisseur. (Train Descrber) de Walker

Fig. 2 et 3 Mécanisme du manipulateur

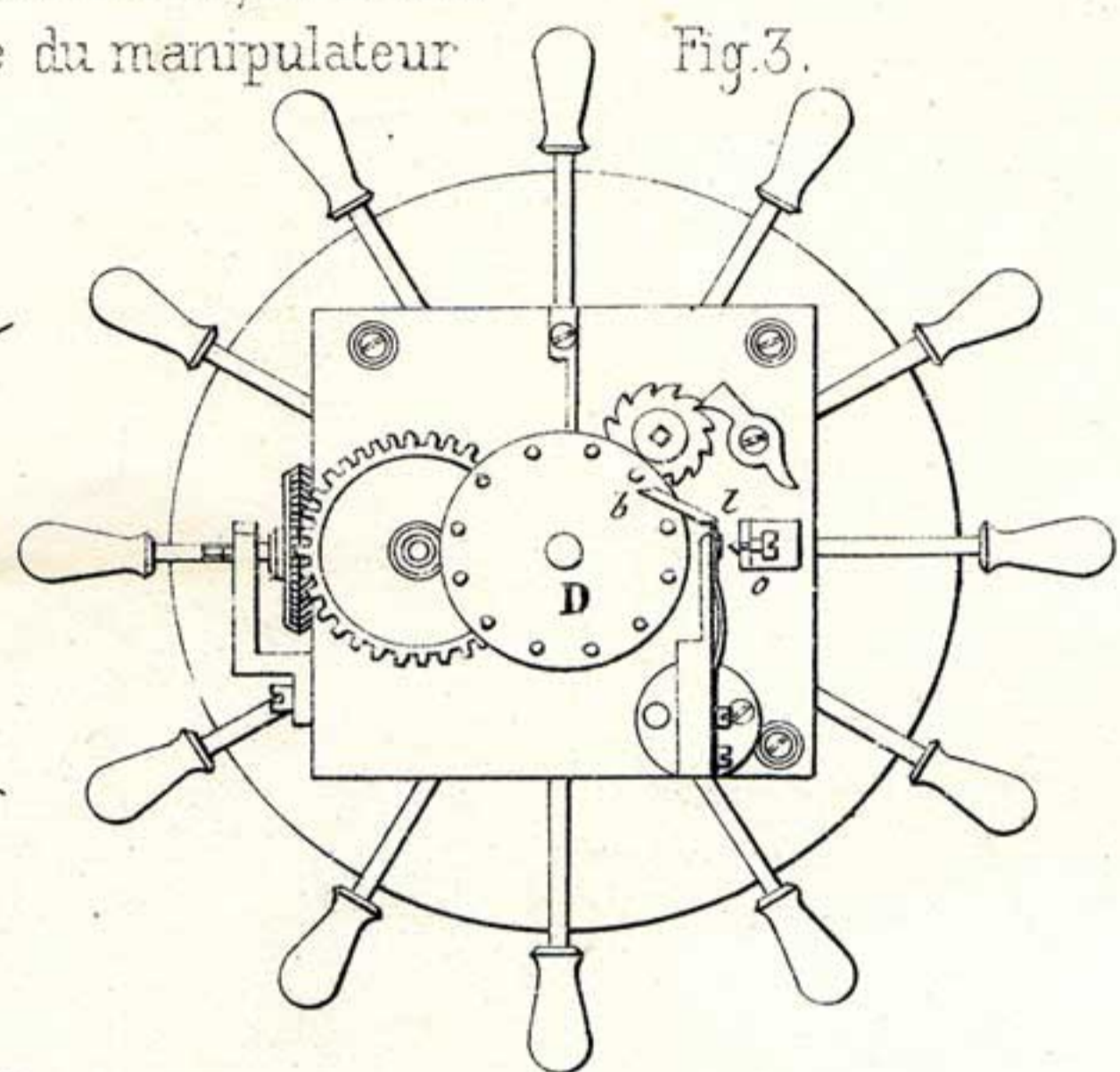
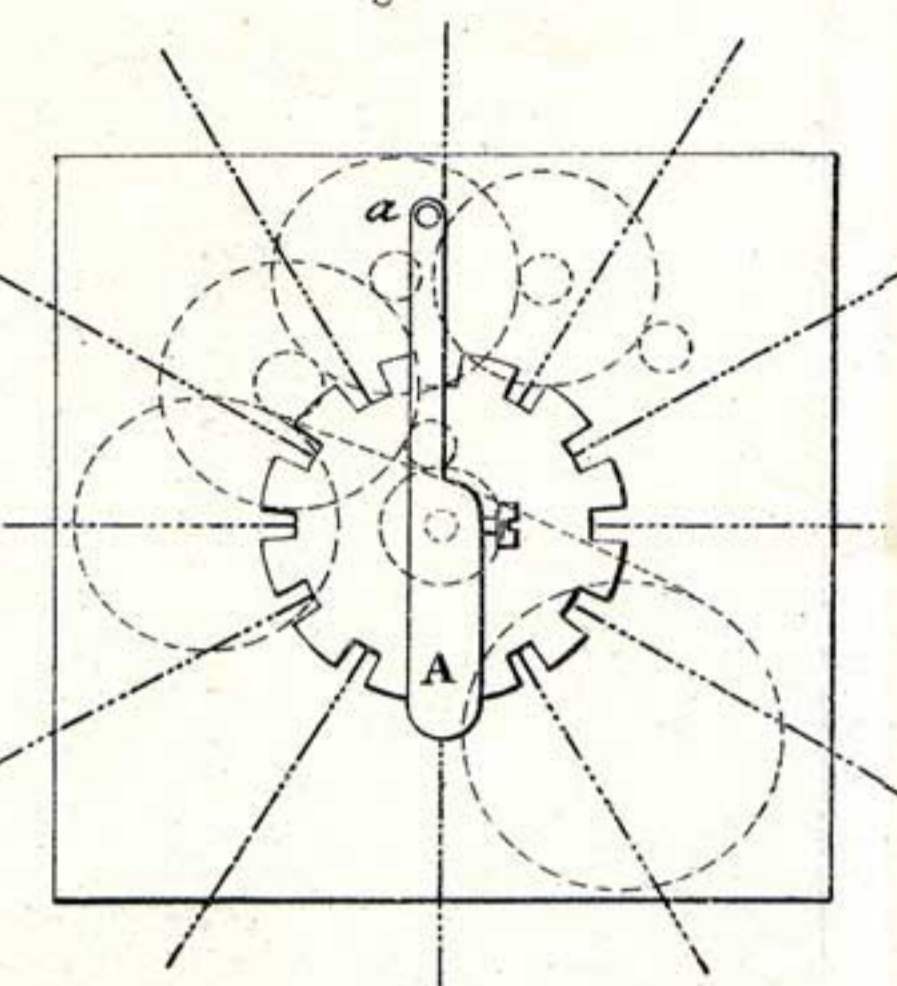


Fig. 4. Mécanisme du Récepteur.

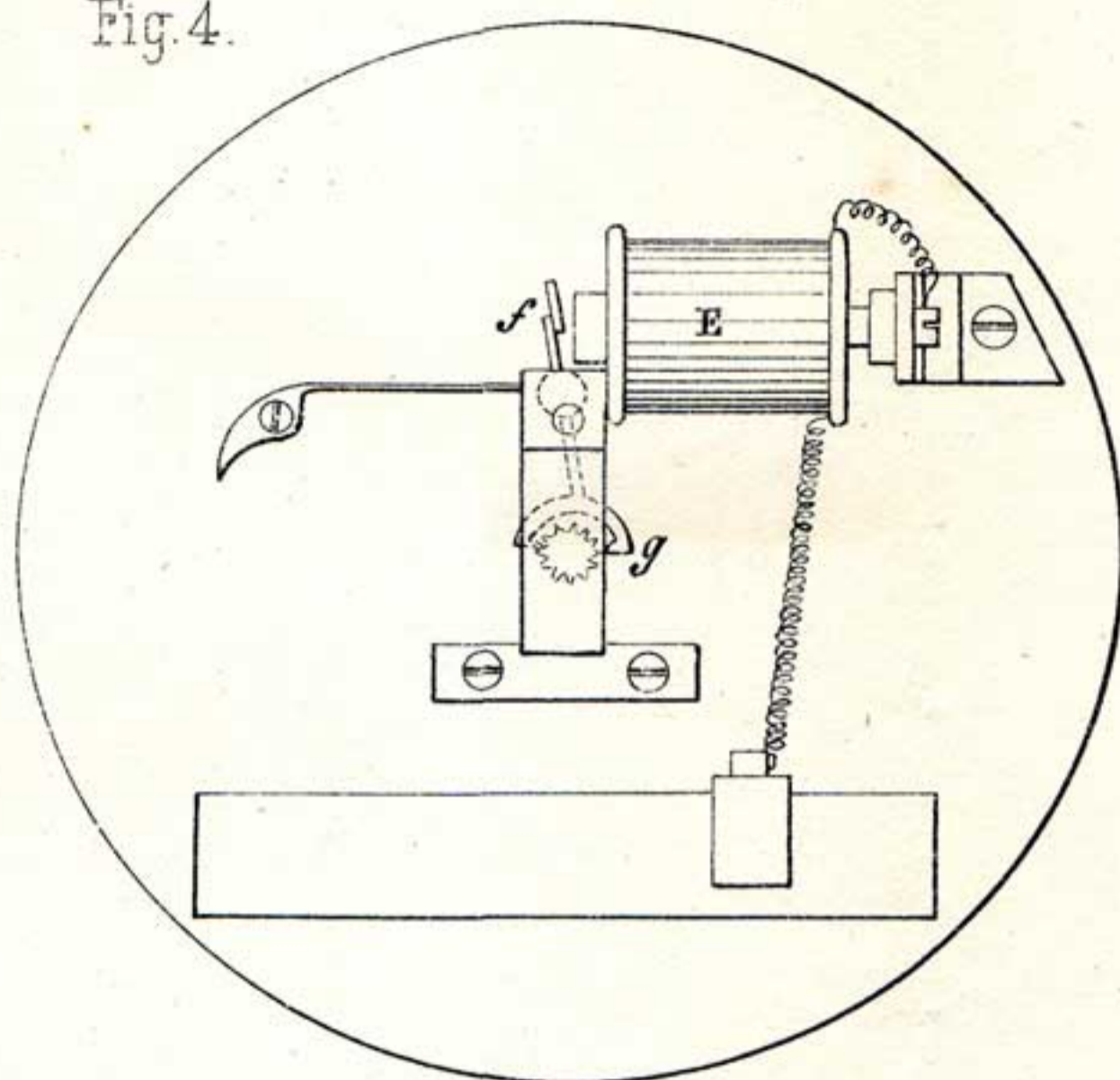
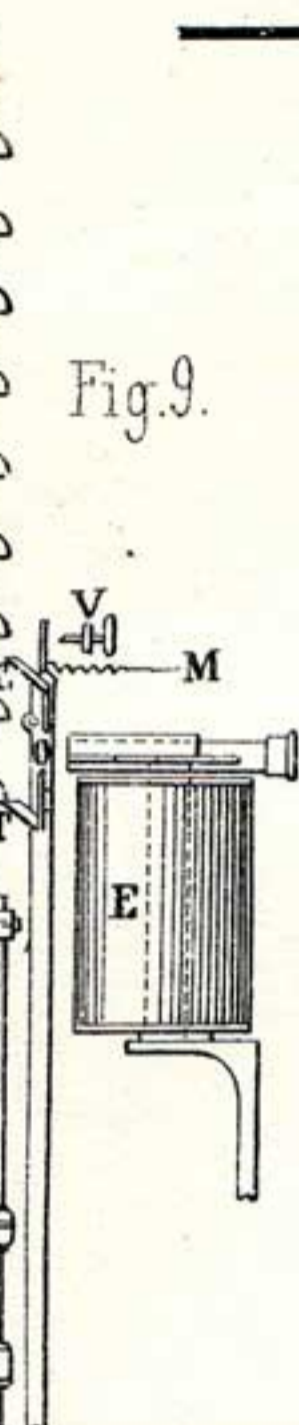


Fig. 9 et 11 Avertisseur Leduc.

Louvain.
band.
Malines.
Luxembourg.
Machine à vide.
Voyageurs.
Marchandises.



Vues intérieures.

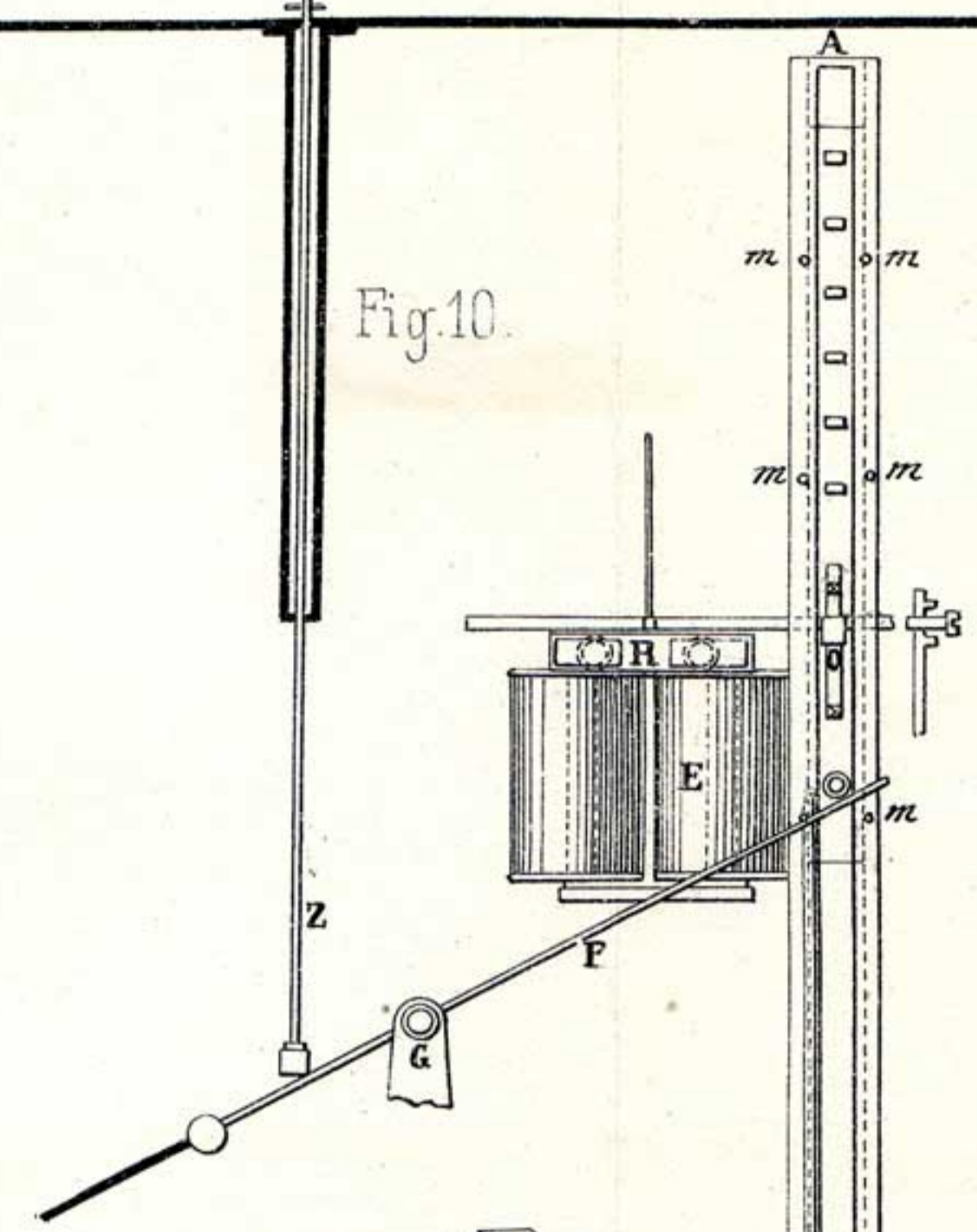


Fig. 15 Ensemble de la sonnerie de route Léopolder.

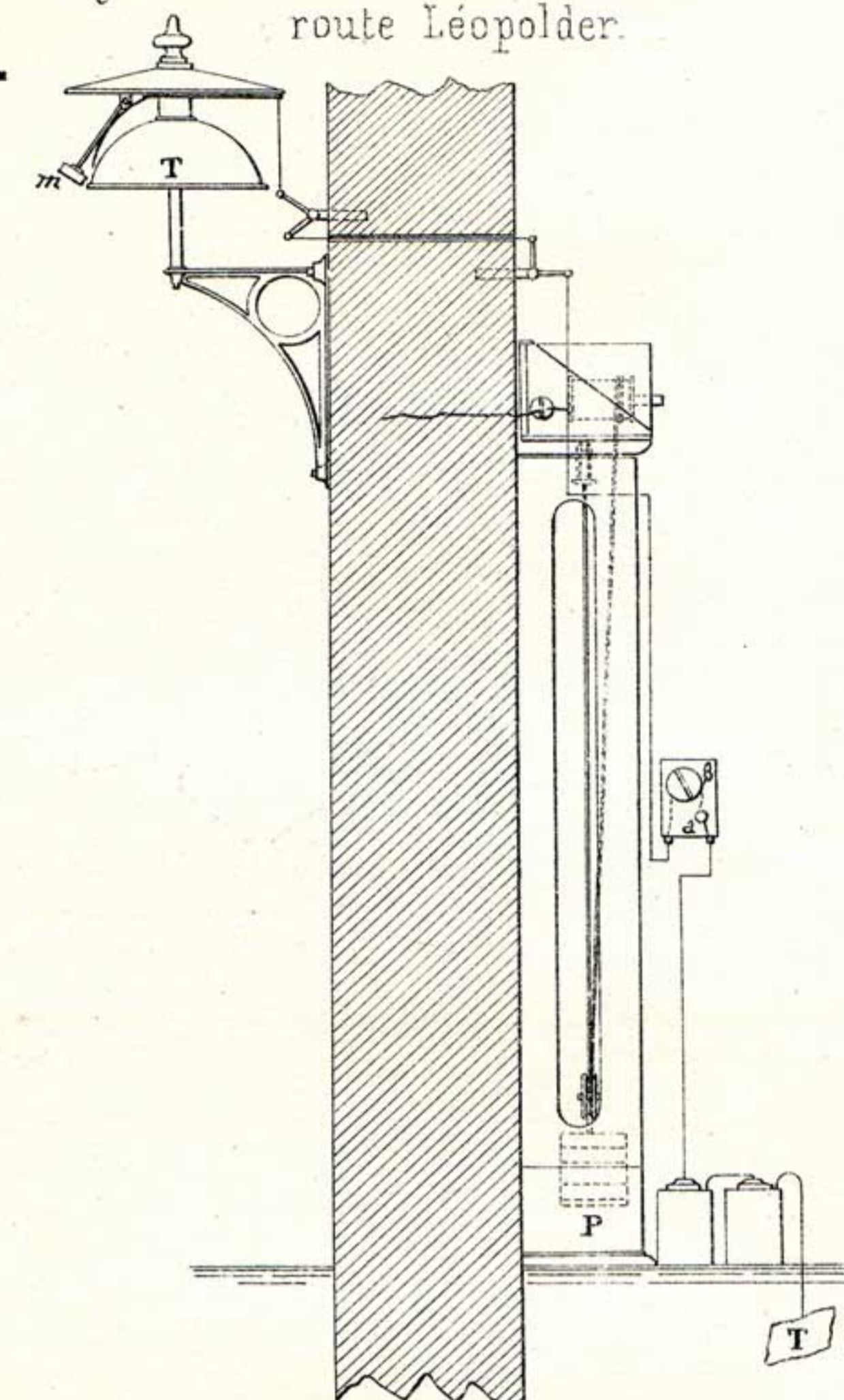


Fig. 5. Vue extérieure du Récepteur.

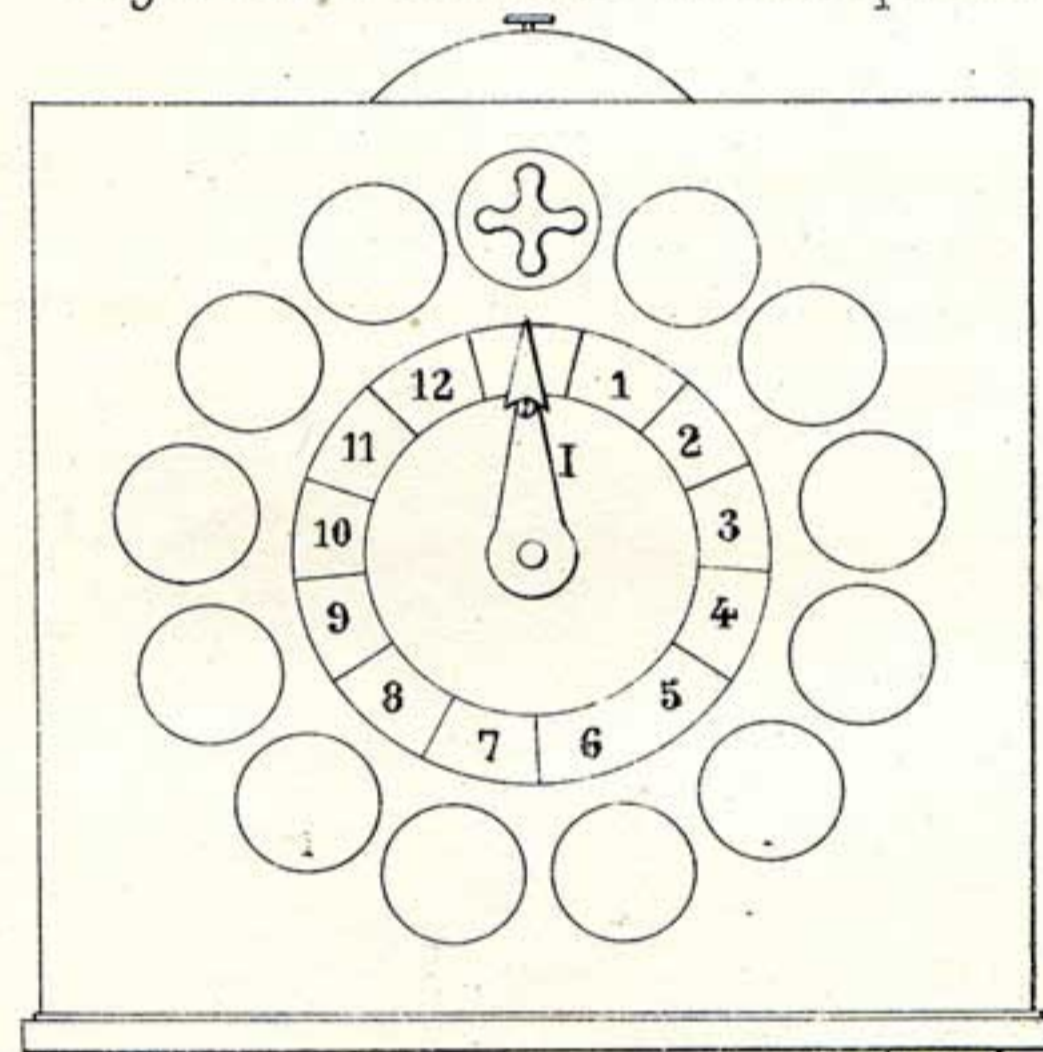


Fig. 5 à 7. Avertisseur Jousselin.

Fig. 6. Mécanisme du Récepteur.

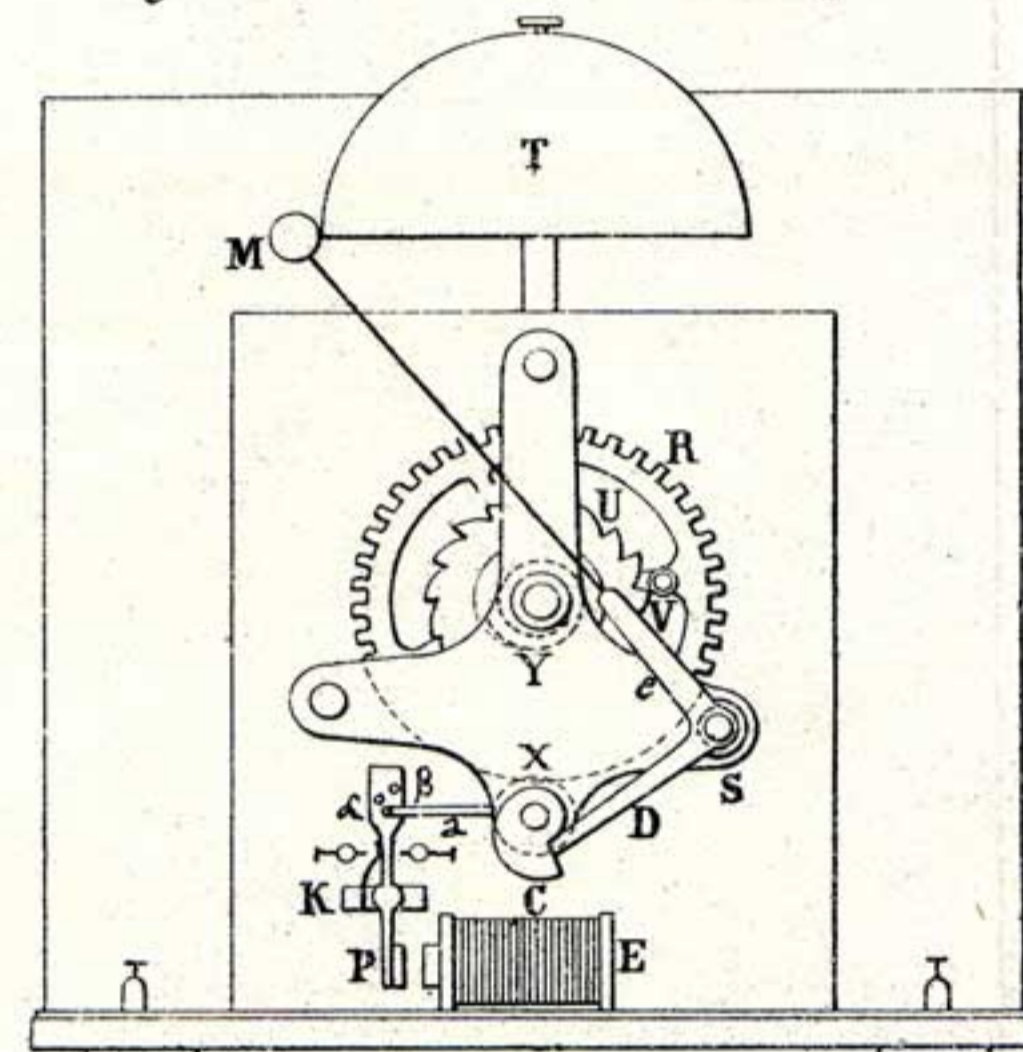


Fig. 7. Transmetteur.

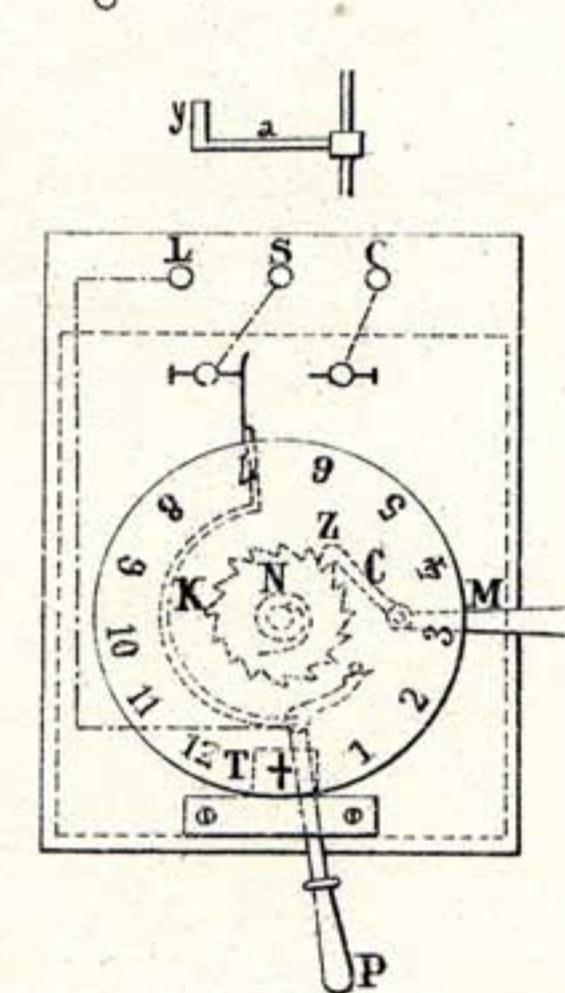


Fig. 8. Appareil à guichets du Nord.

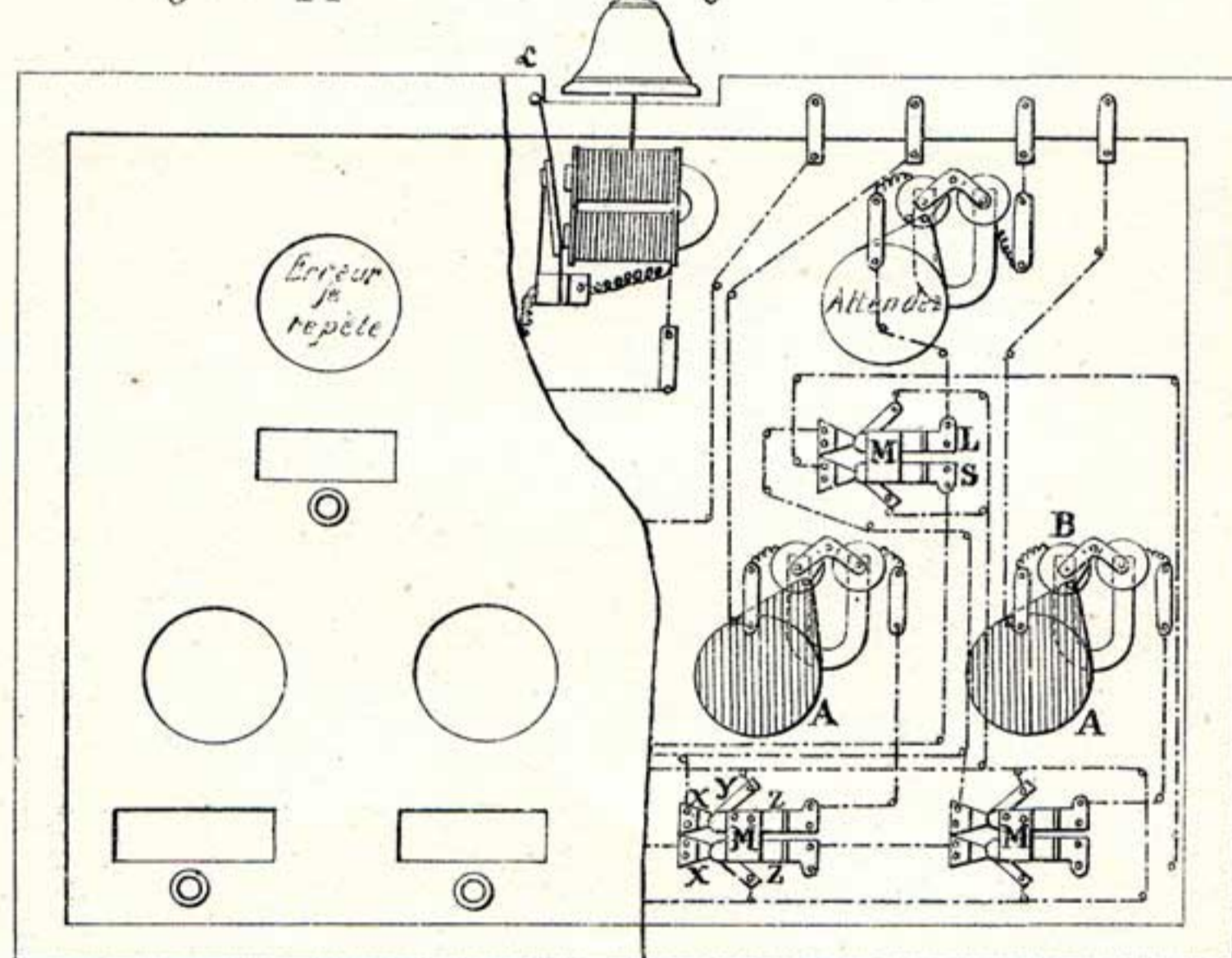


Fig 14. Diagramme du commutateur automatique des sonneries Siemens.

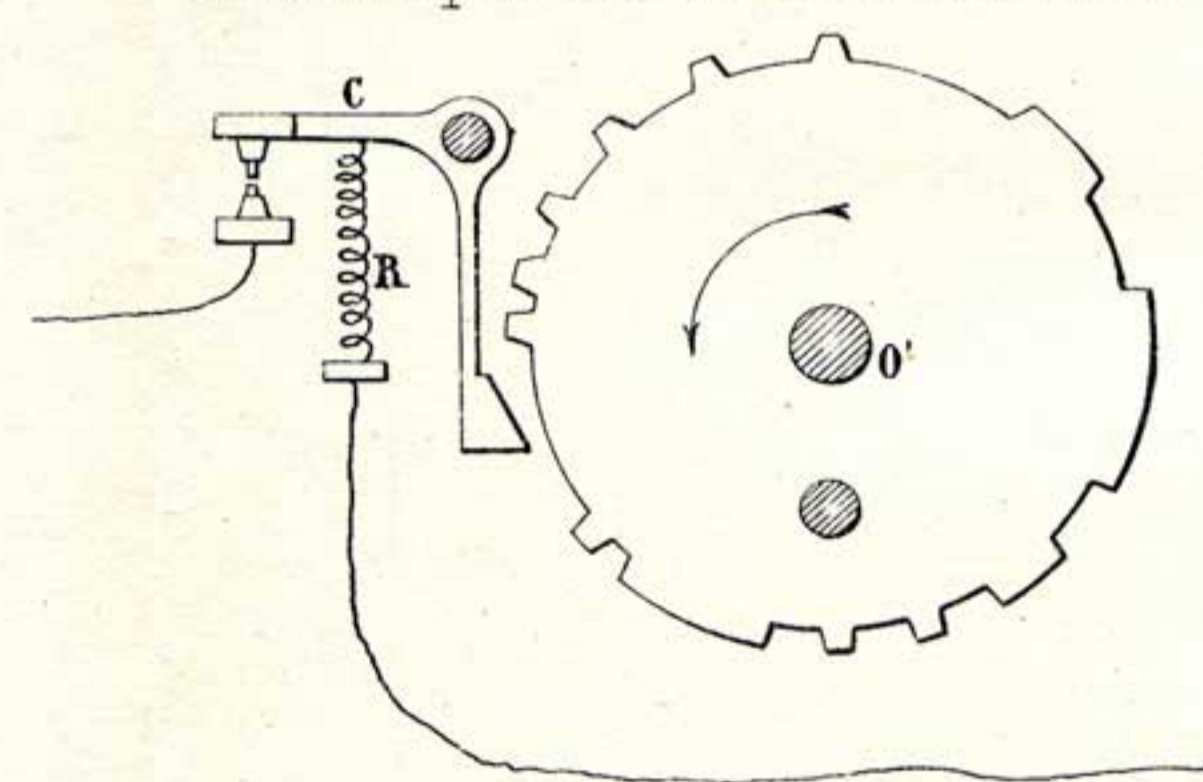


Fig. 16. Mécanisme de la sonnerie de route Léopolder.

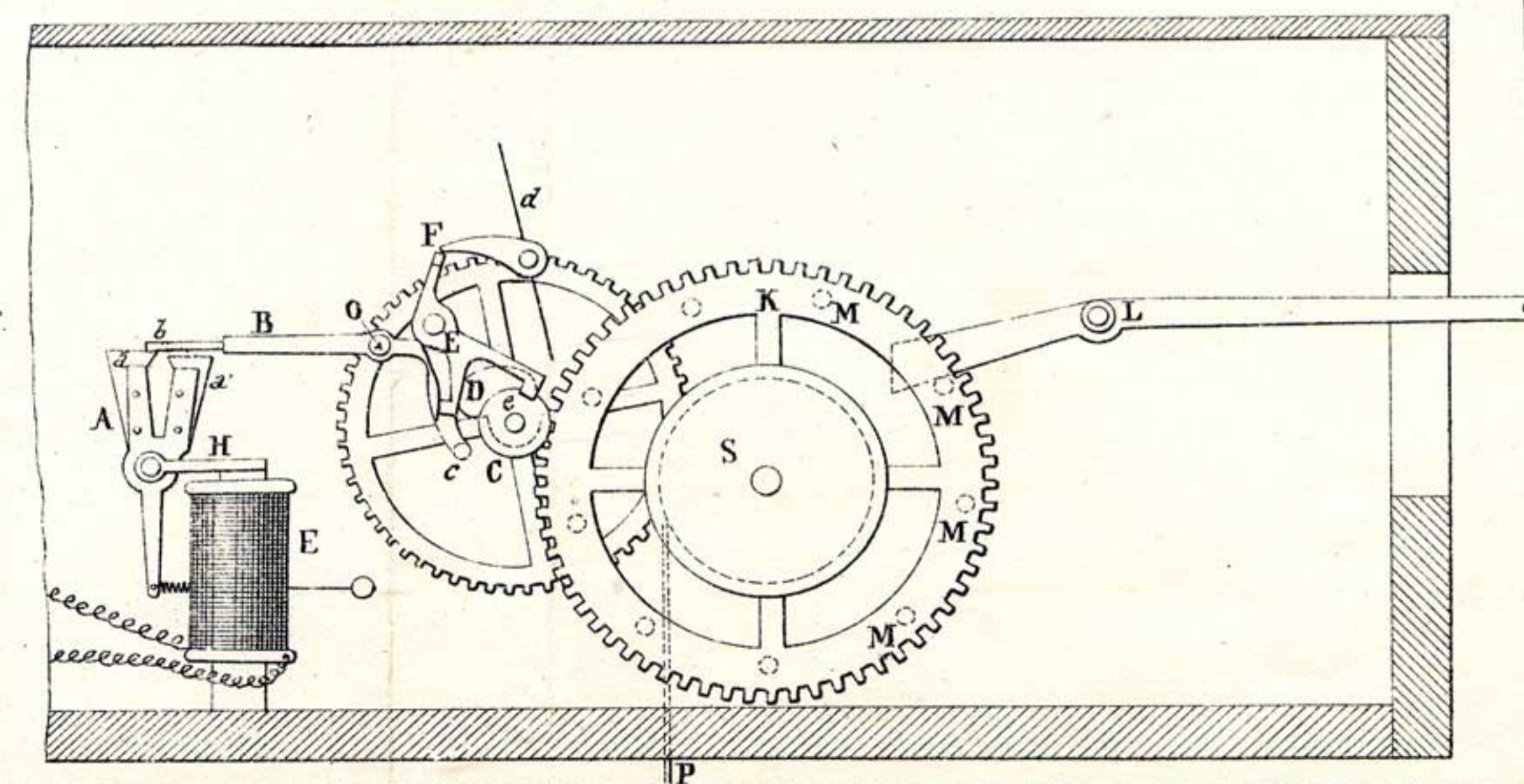


Fig. 12. Diagramme du mécanisme des sonneries de route Siemens.

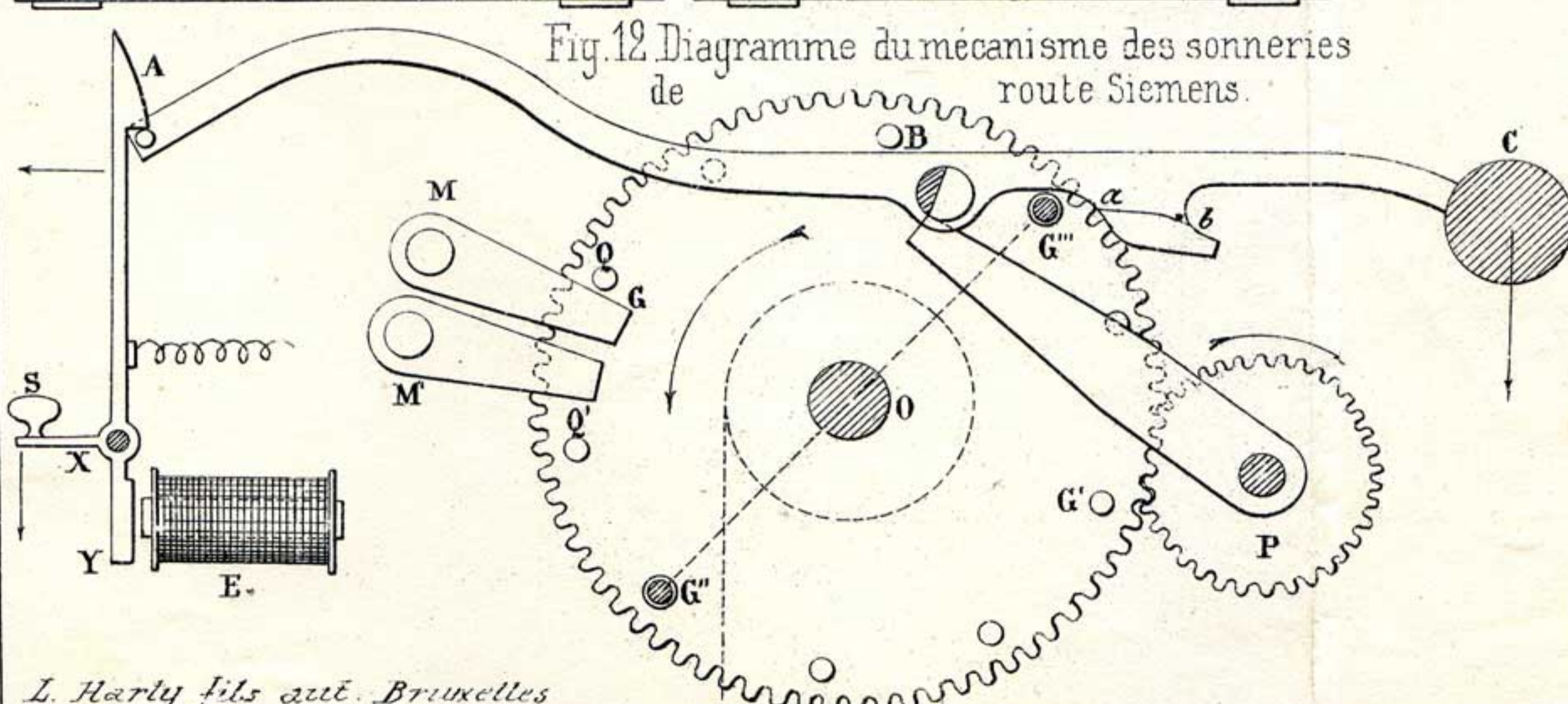


Fig. 13. Disposition de l'ancre d'échappement des sonneries Siemens à courants alternatifs.

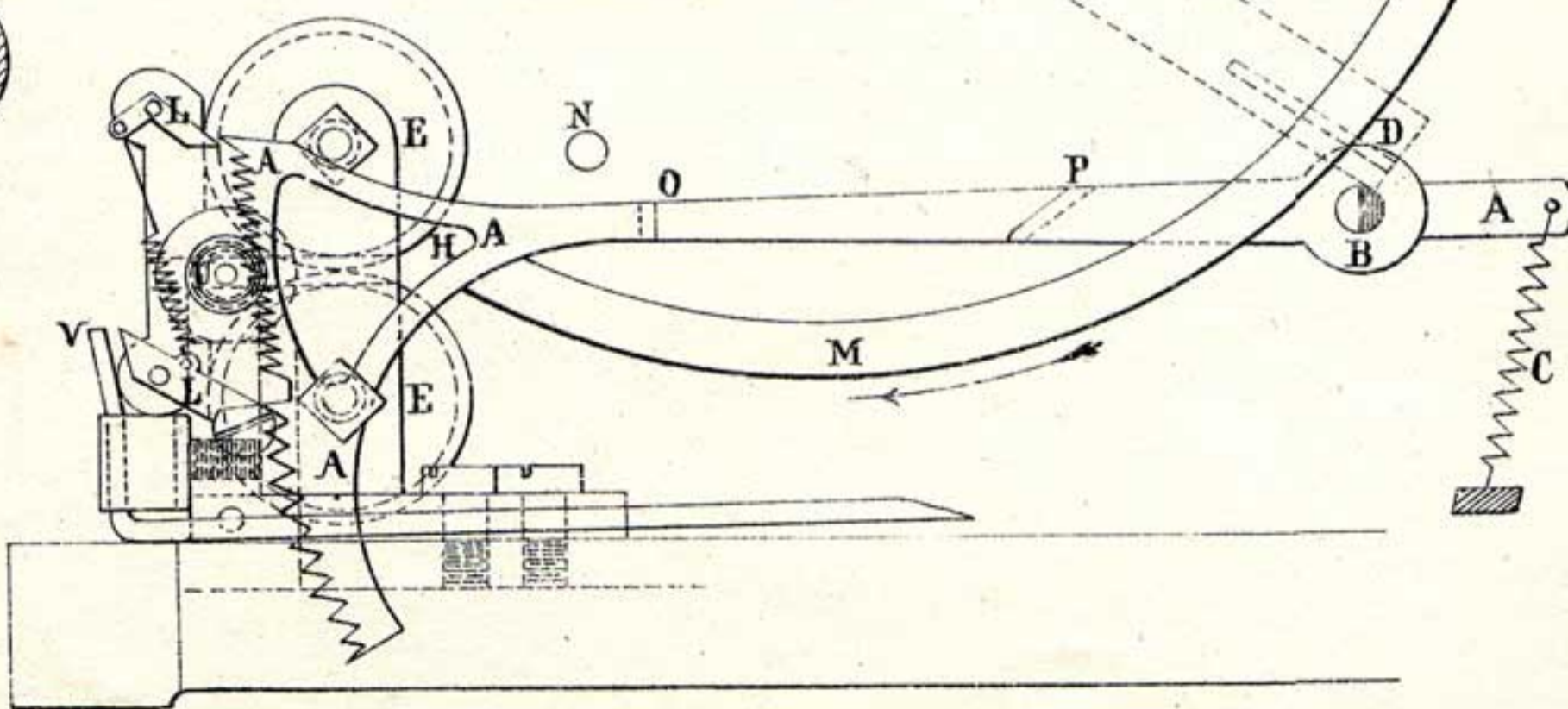


Fig. 17.

Ancre d'échappement de la sonnerie Léopolder.

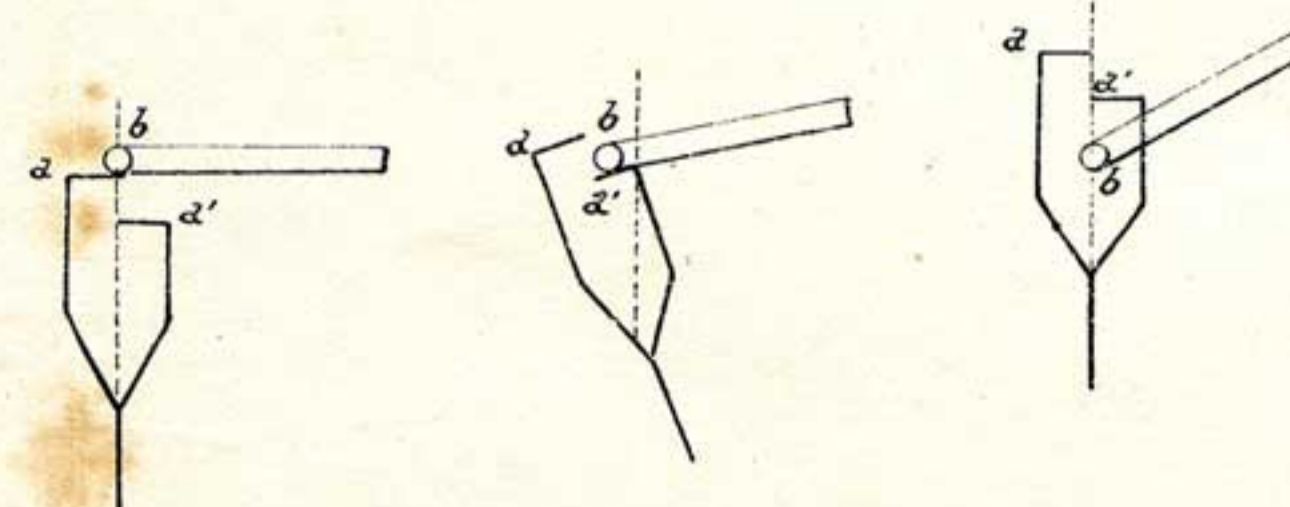




Fig.1. Indicateur d'aiguille de l'Ouest-français.

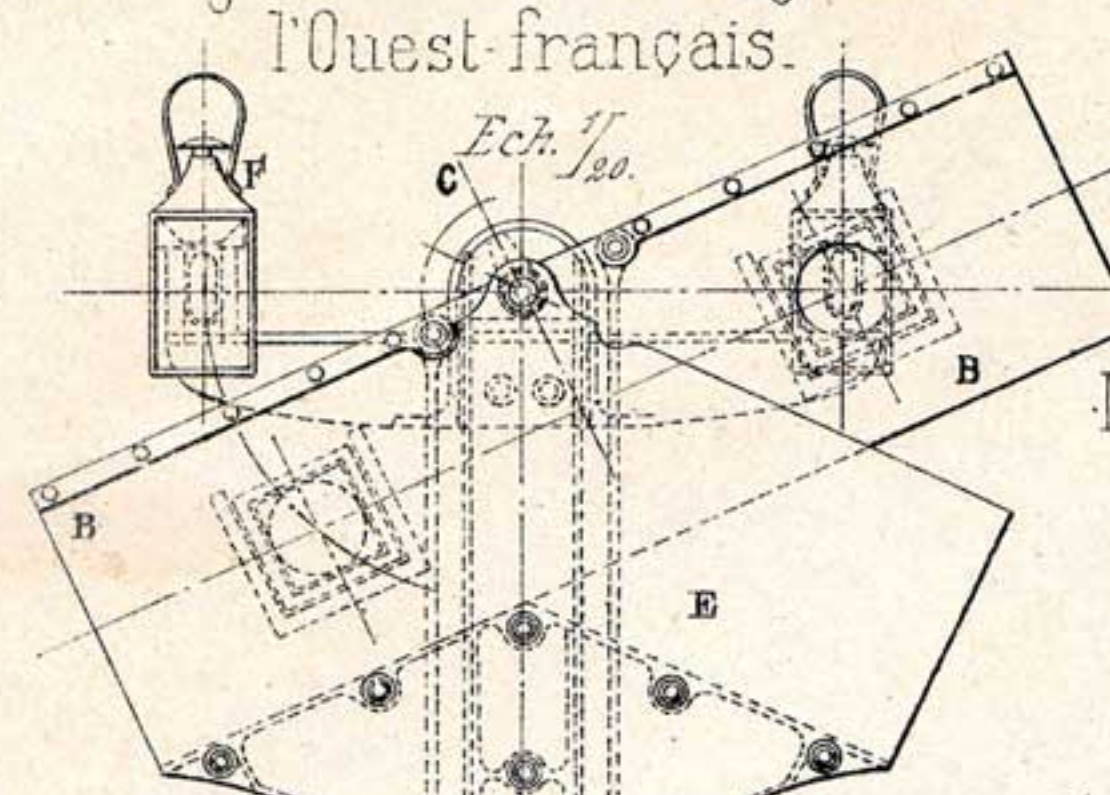


Fig.2. Indicateur de direction Nord-français à 3 voies

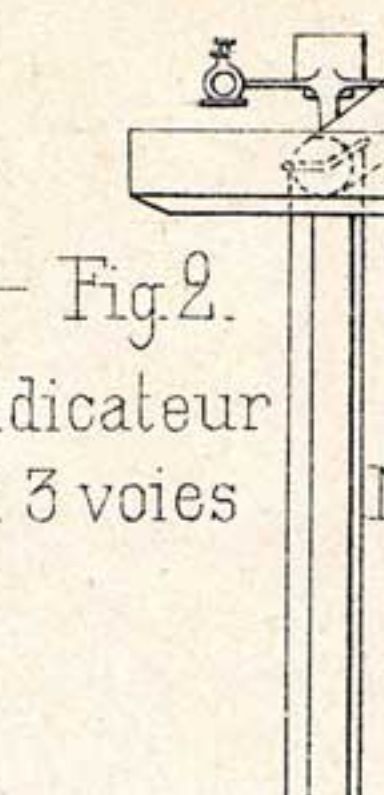


Fig.3. Indicateur d'aiguille à flamme. [Nord et Est français]



Fig.4. Signal d'aiguille à reflexion Est-français. Ech. 1/30.

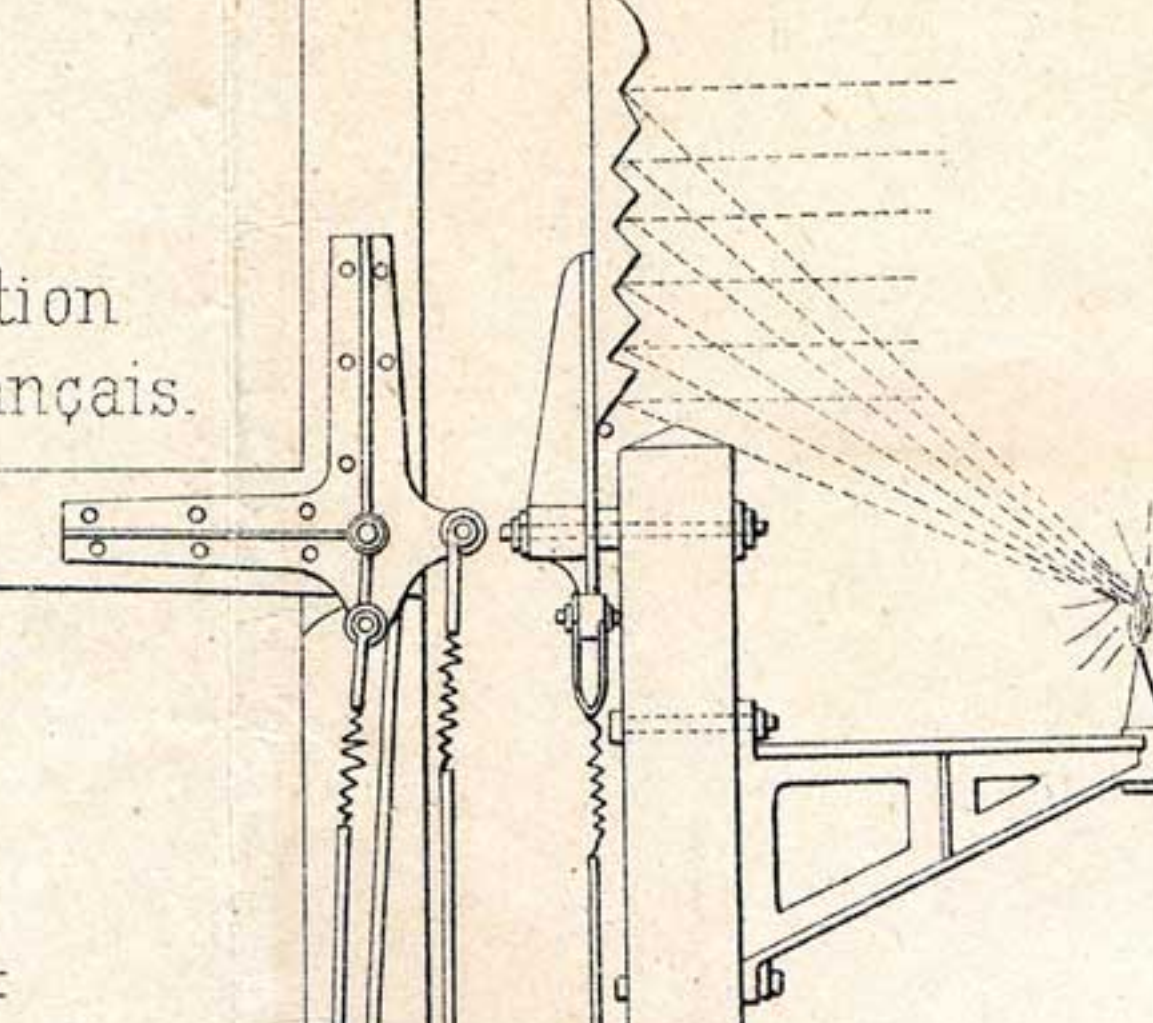


Fig.9. Signal d'aiguille Ouest-Prussien. Ech. 1/5.

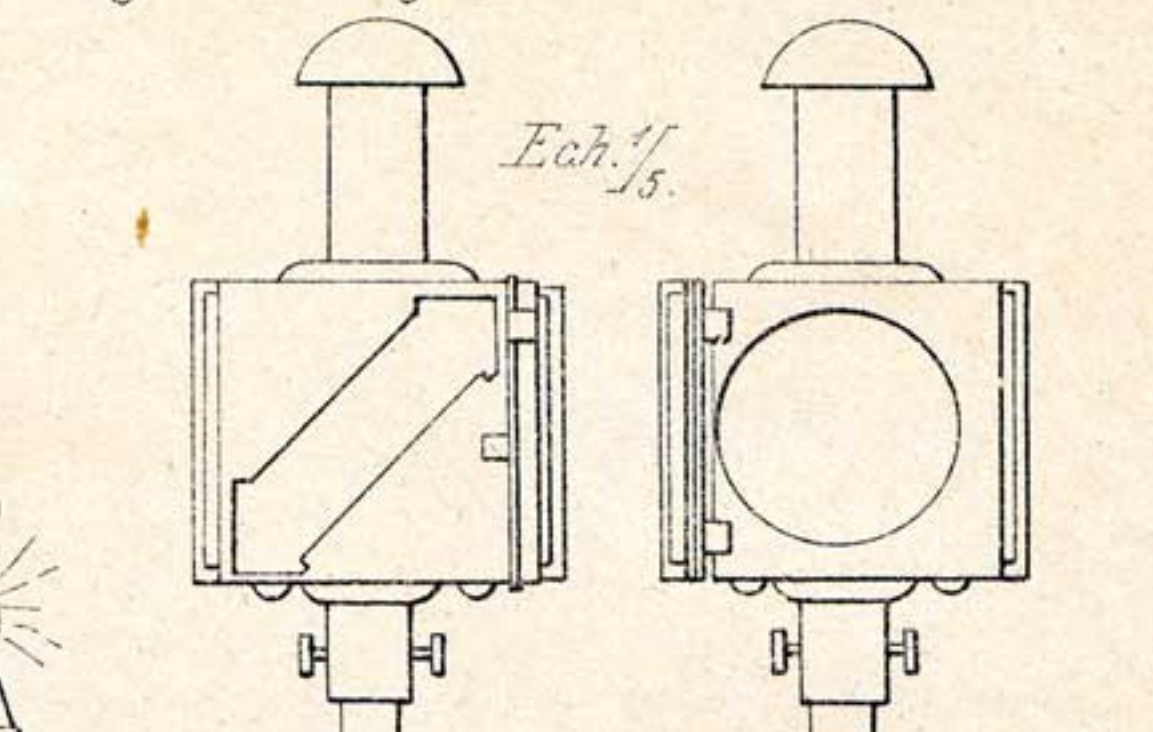


Fig.10. Signal d'aiguille à voyant Kaiserin Elisabeth. Ech. 1/15.

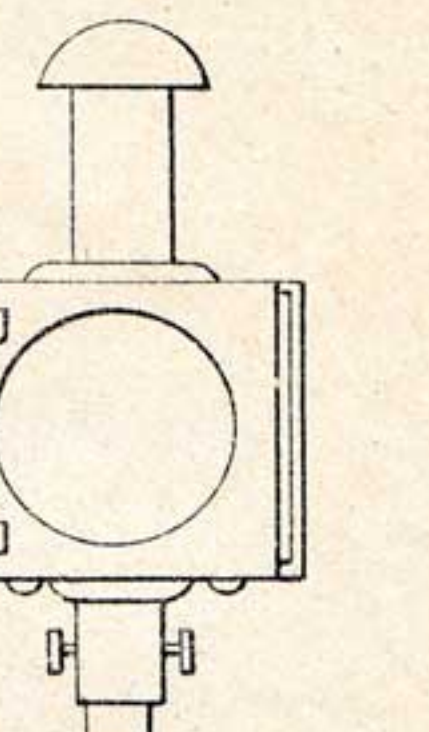


Fig.13. Signal d'aiguille à voyant Kaiserin Elisabeth. Ech. 1/15.

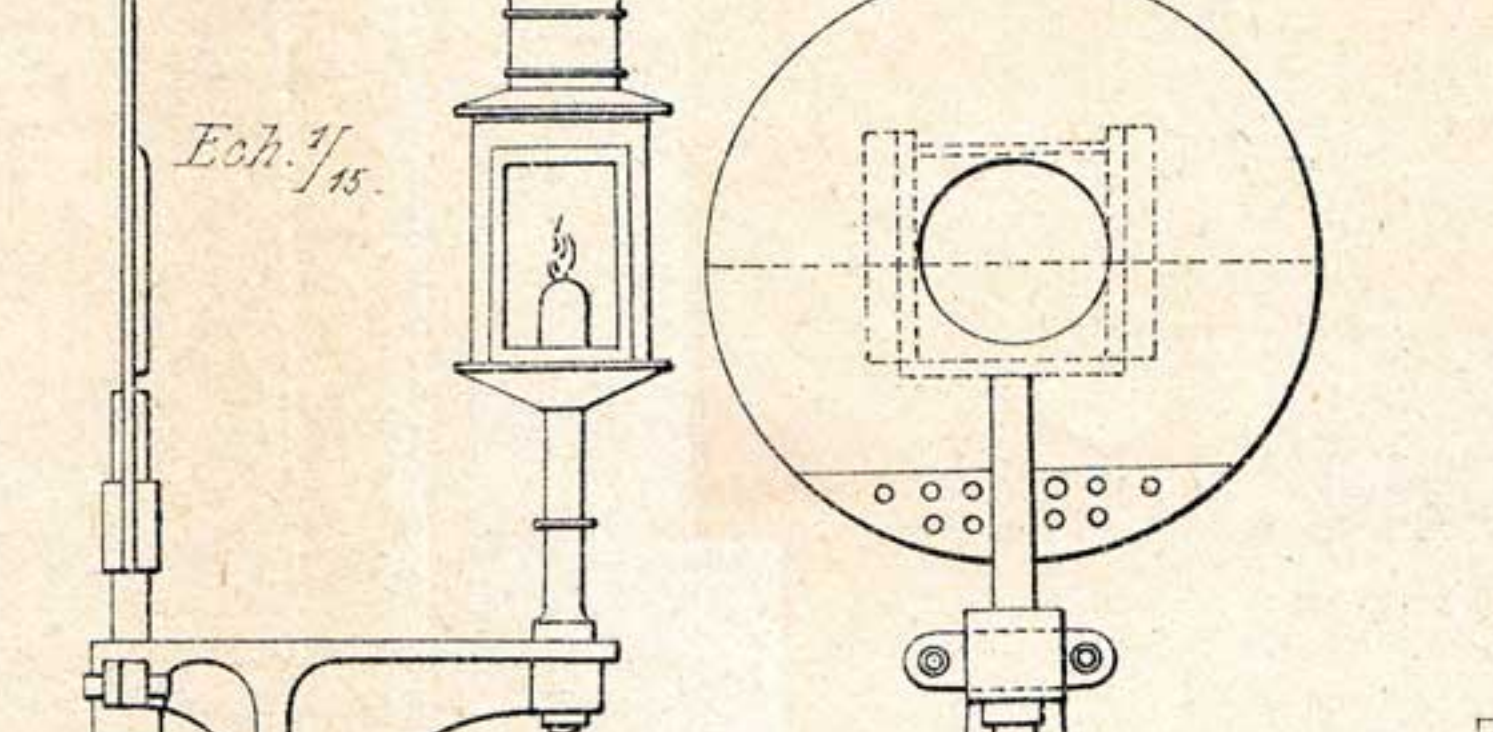


Fig.14. Signal Bender ancien modèle. Ech. 1/15.

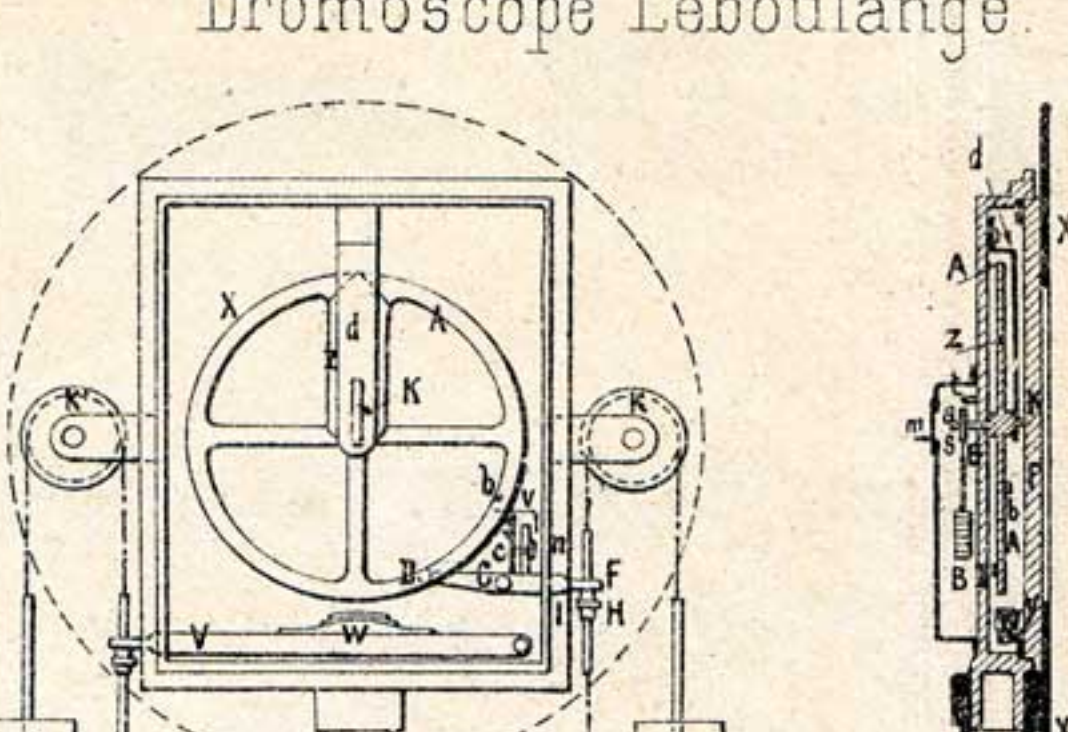


Fig.22. Dromoscope Leboulangé. Ech. 1/40.

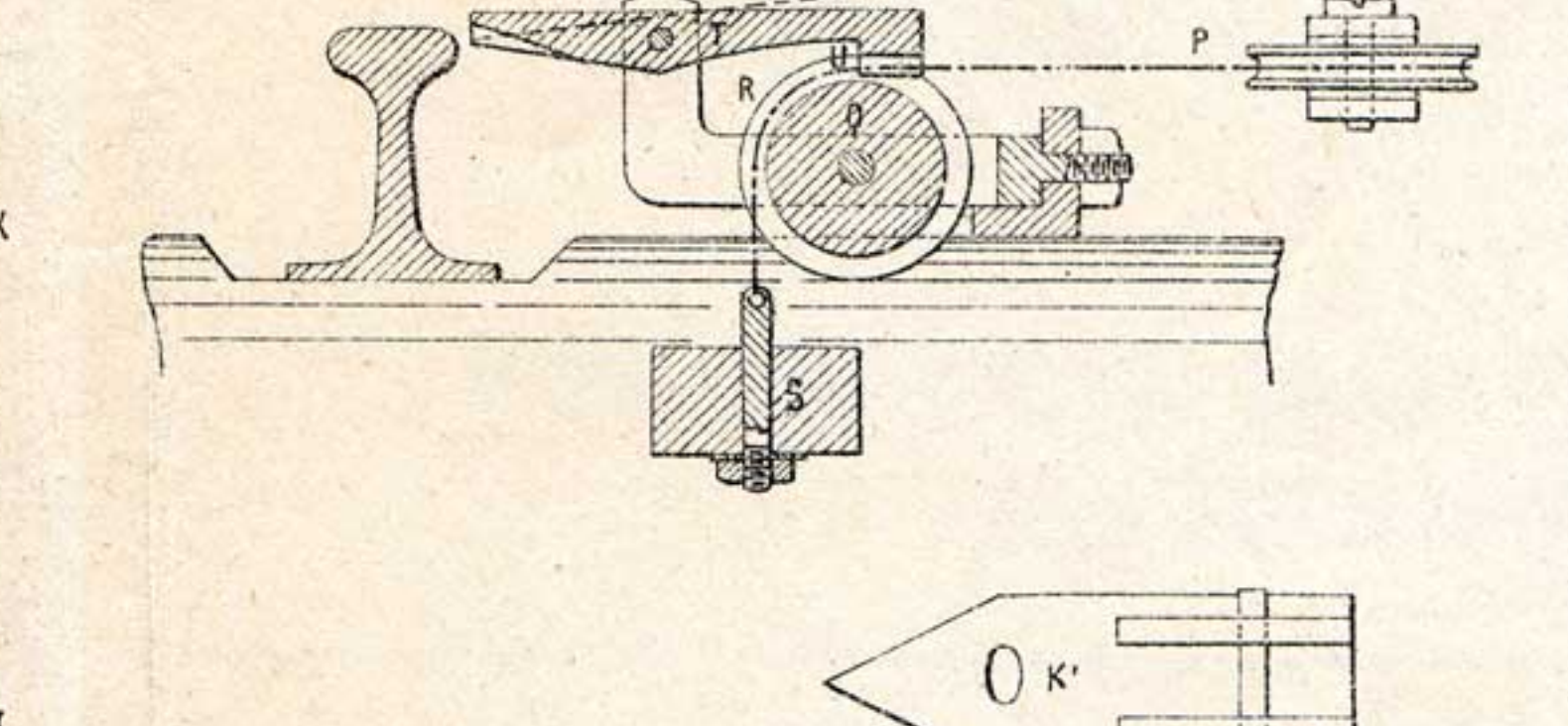


Fig.11. Signal d'aiguille Rhenan. Ech. 1/15.

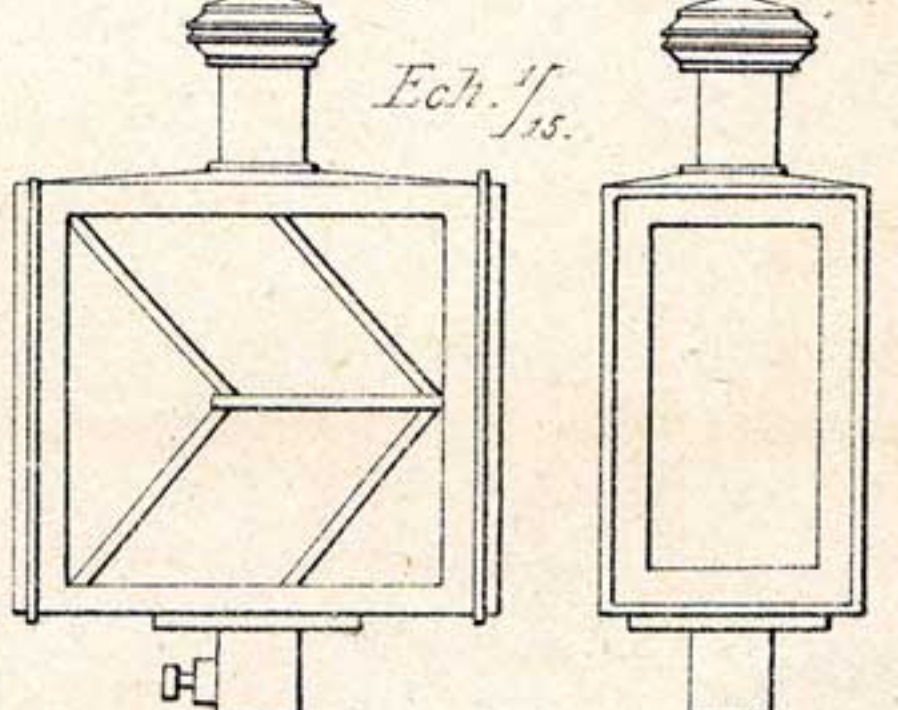


Fig.12. Signal d'aiguille Rhenan. Ech. 1/15.

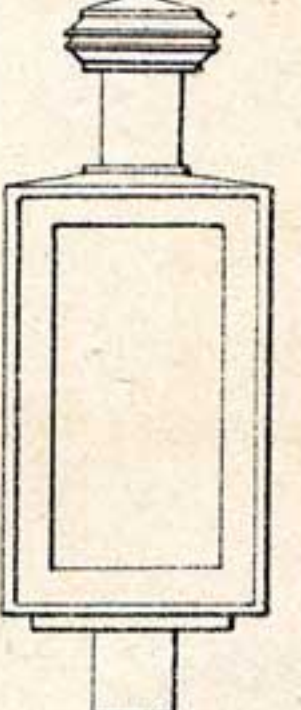


Fig.17. Signal Bender avec voyant en fleche Nouvelle disposition. Ech. 1/10.

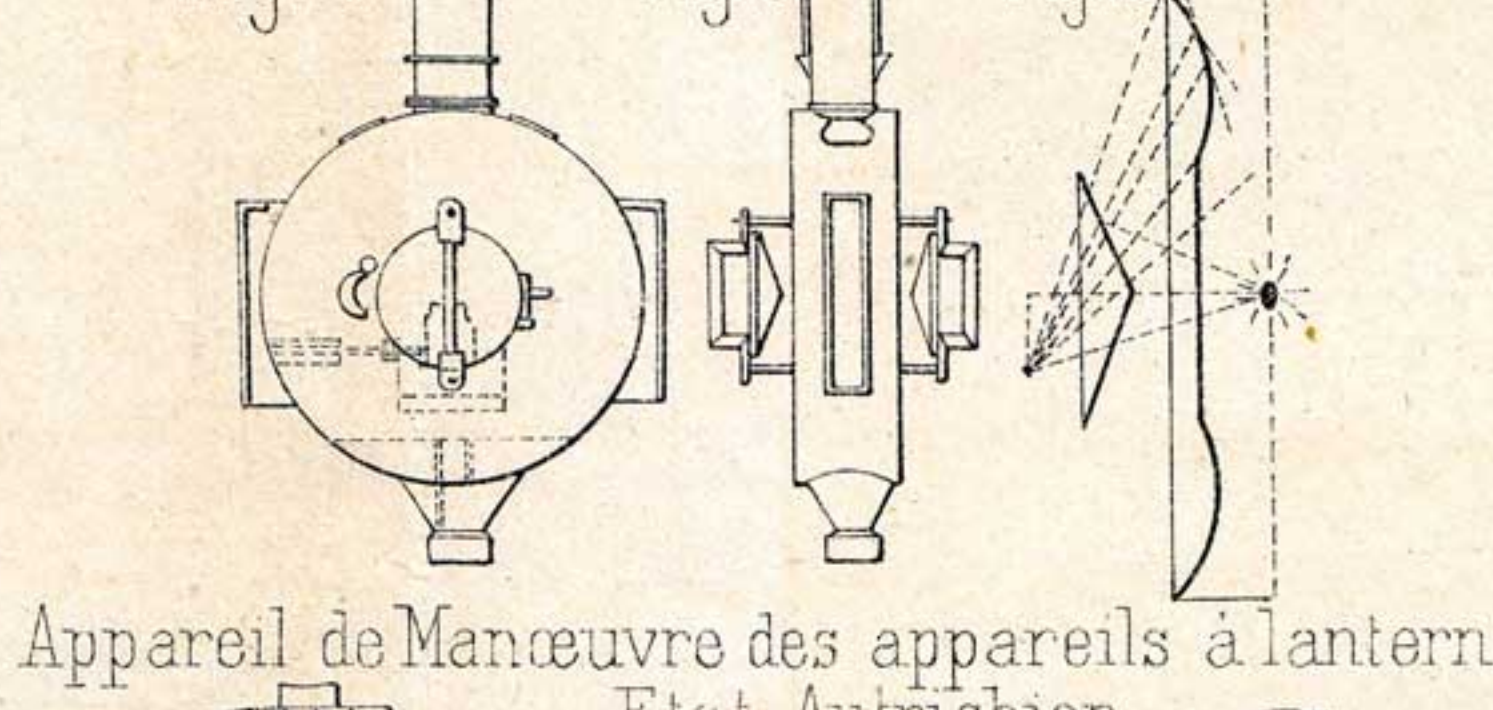


Fig.18. Signal Bender avec voyant en fleche Nouvelle disposition. Ech. 1/10.

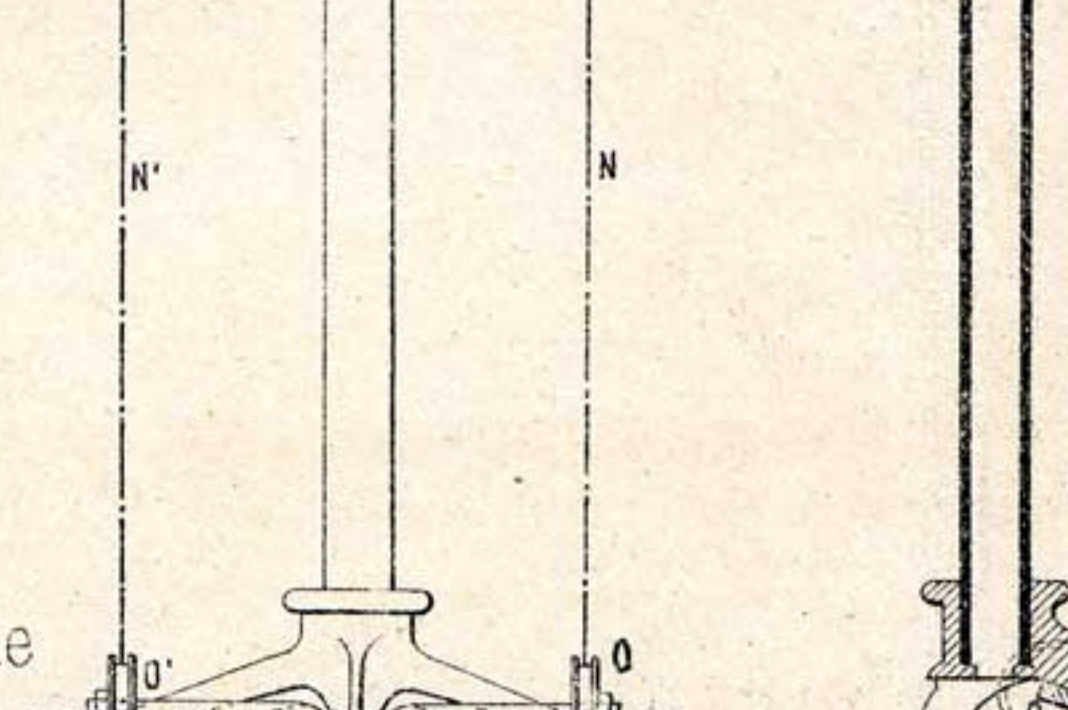


Fig.19. Signal Bender avec voyant en fleche Nouvelle disposition. Ech. 1/10.



Fig.5. Signal d'aiguille du Midi. Ech. 1/20.

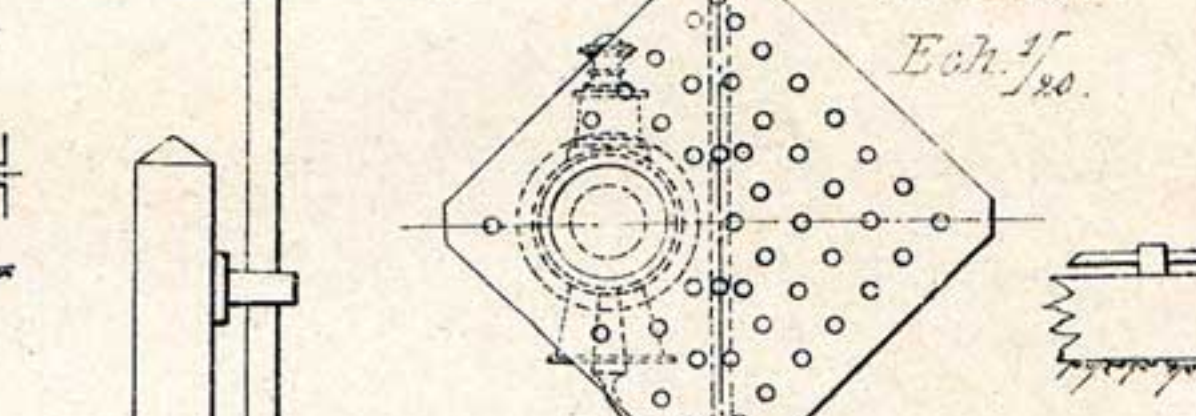


Fig.7. Signal d'aiguille du Cologne Minden. Ech. 1/15.

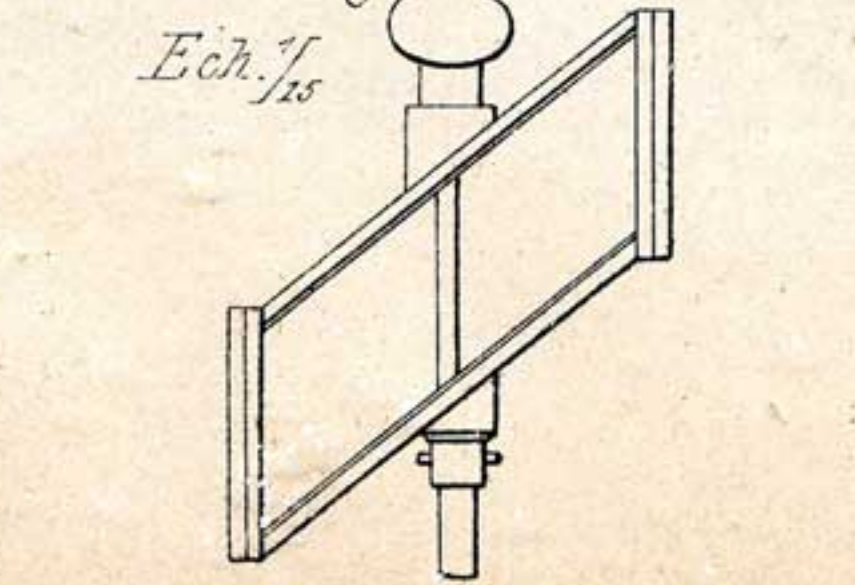


Fig.8. Signal d'aiguille de Saarbrück Trèves. Ech. 1/15.

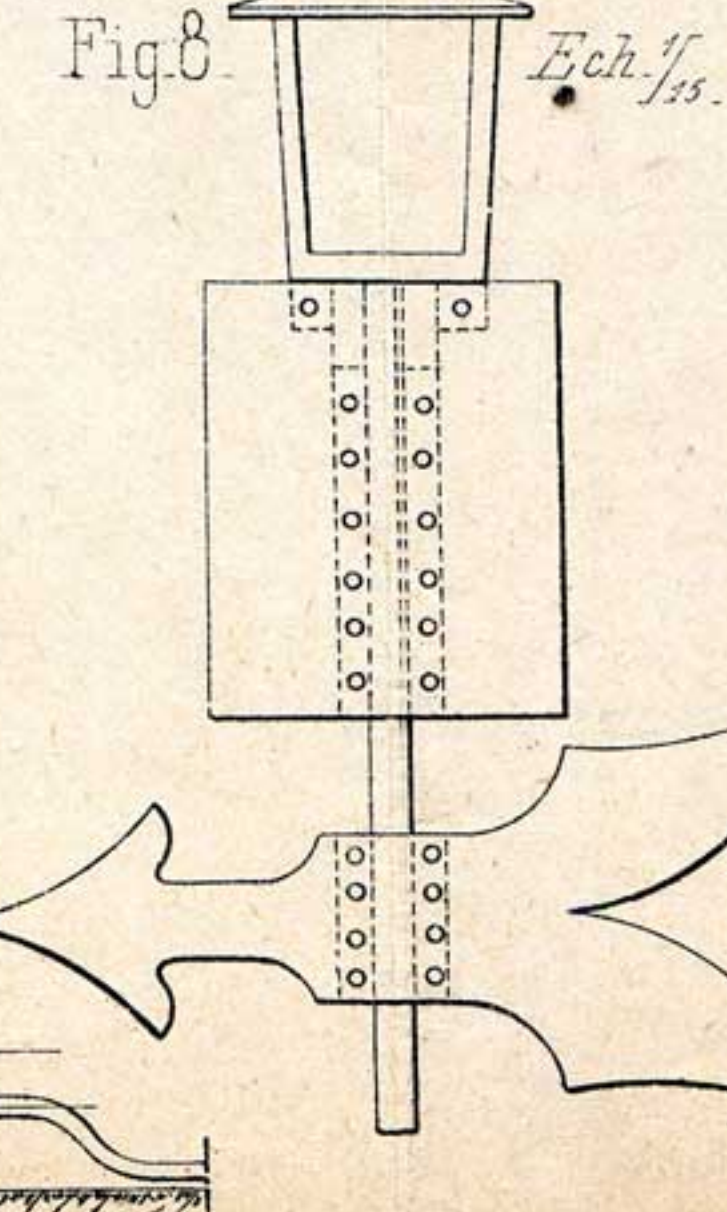
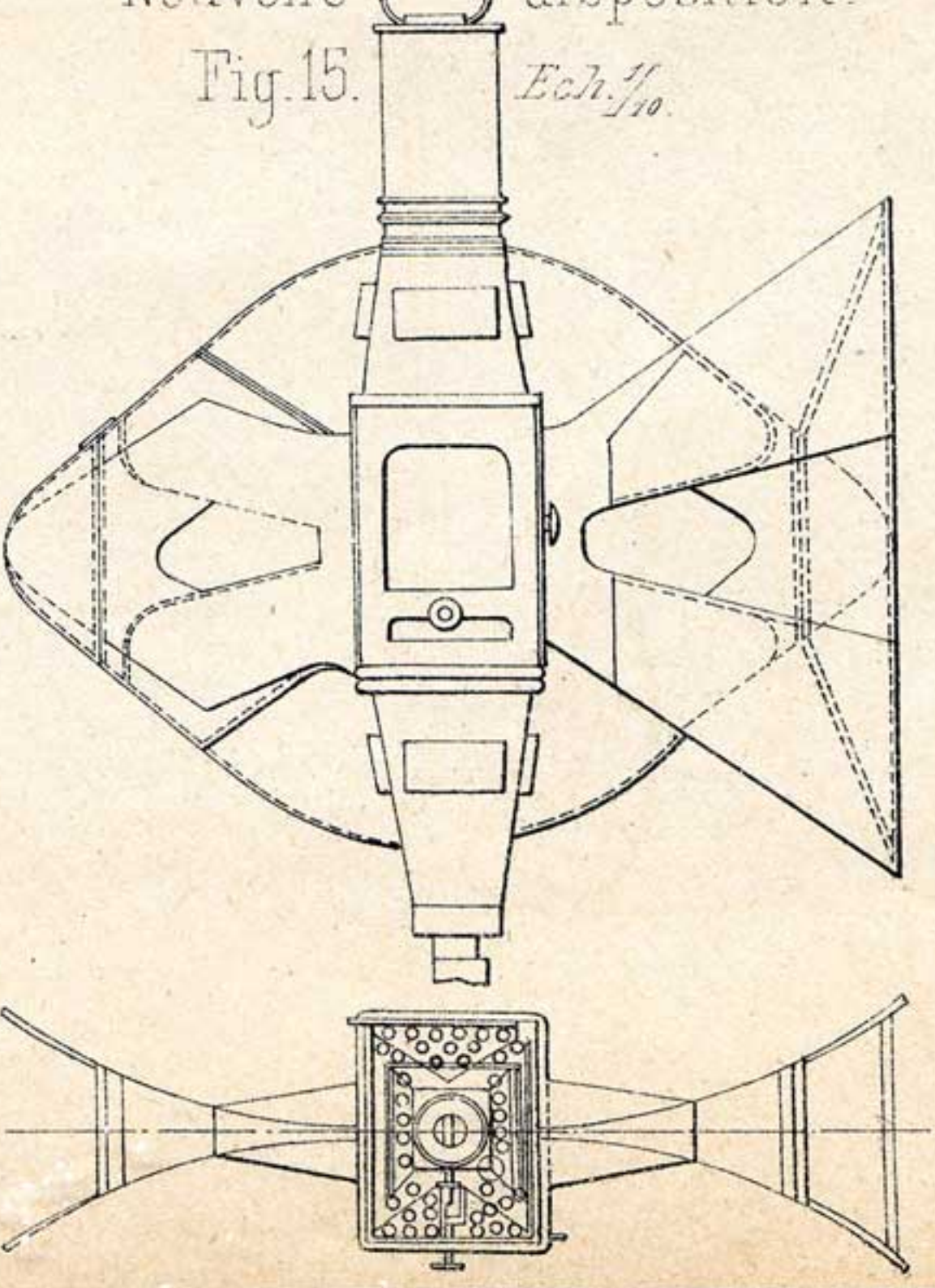


Fig.15. Signal Bender avec voyant en fleche Nouvelle disposition. Ech. 1/10.



Appareil de Manœuvre des appareils à lanterne Etat-Autrichien.

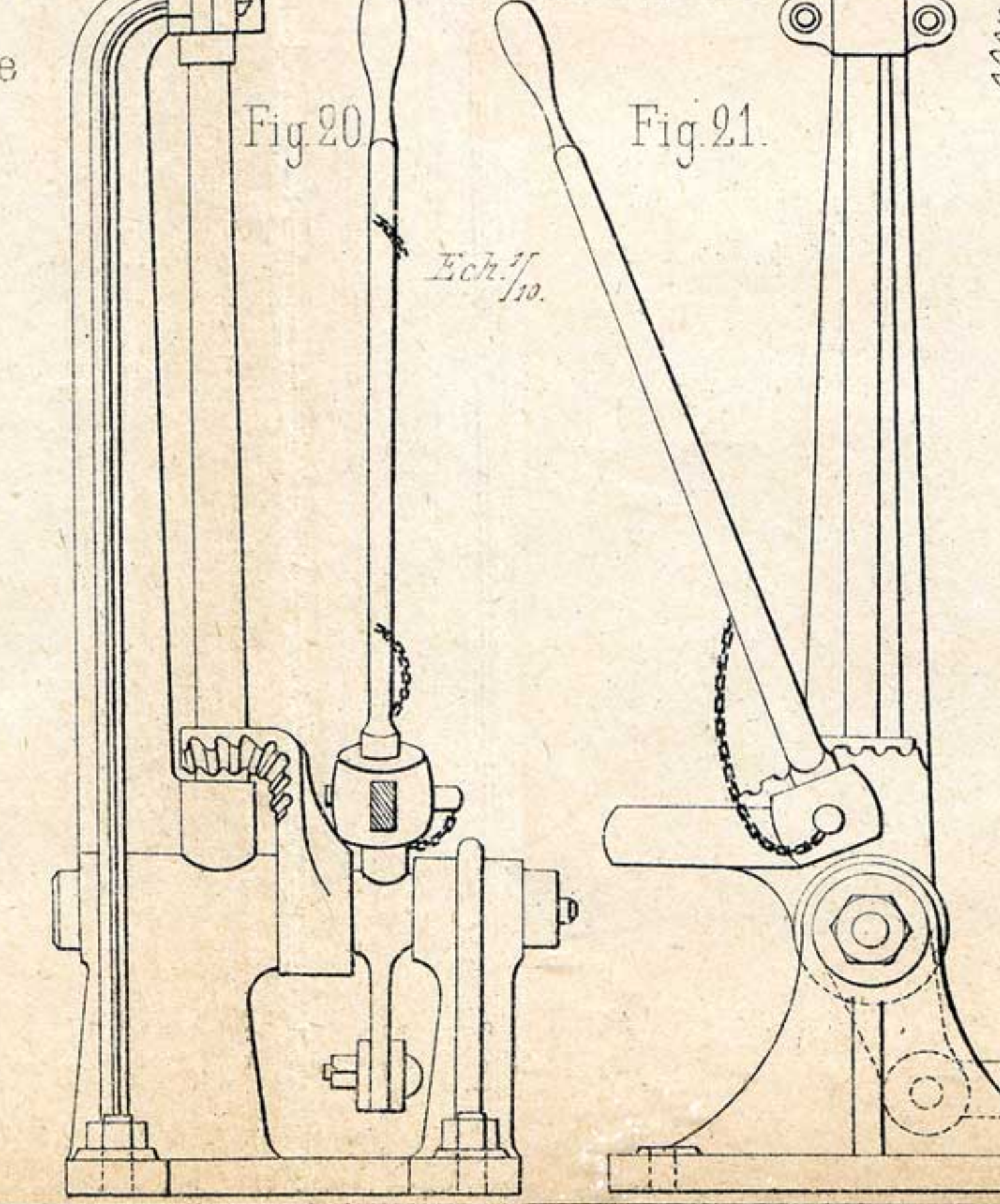


Fig.20. Appareil de Manœuvre des appareils à lanterne Etat-Autrichien. Ech. 1/10.

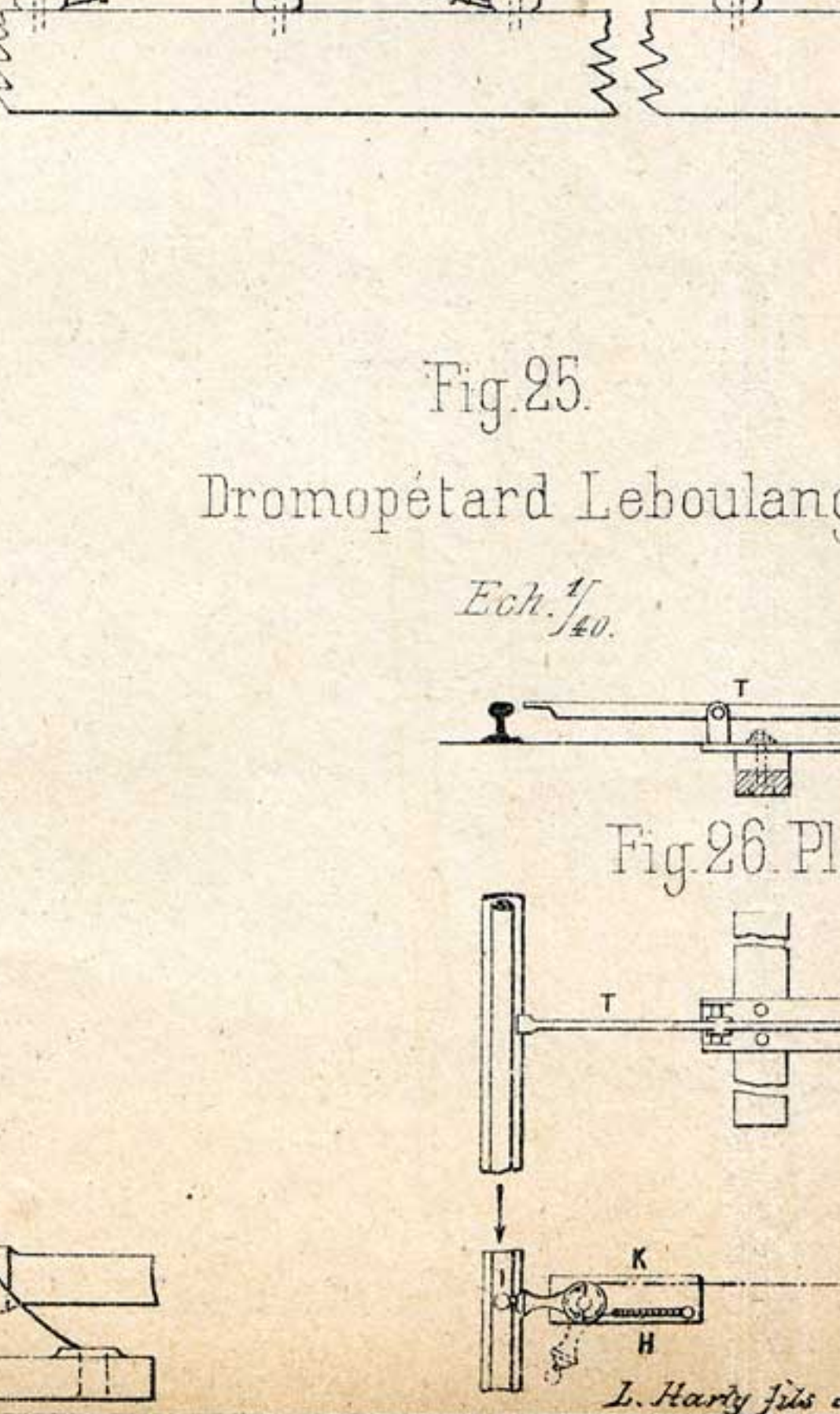
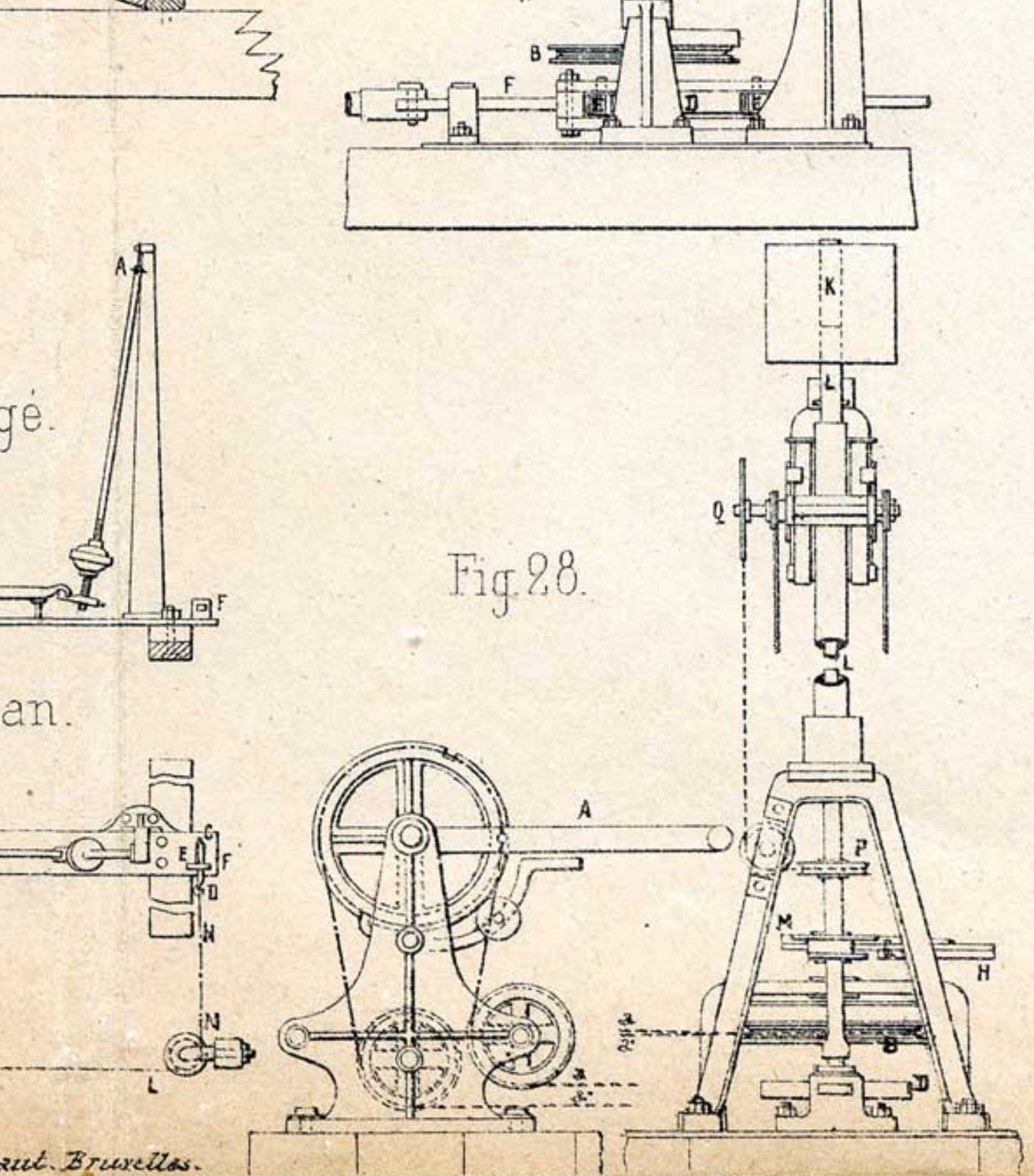


Fig.21. Appareil de Manœuvre des appareils à lanterne Etat-Autrichien. Ech. 1/10.



Signal Hollandais de Taurel pour aiguilles manœuvrées à distance.

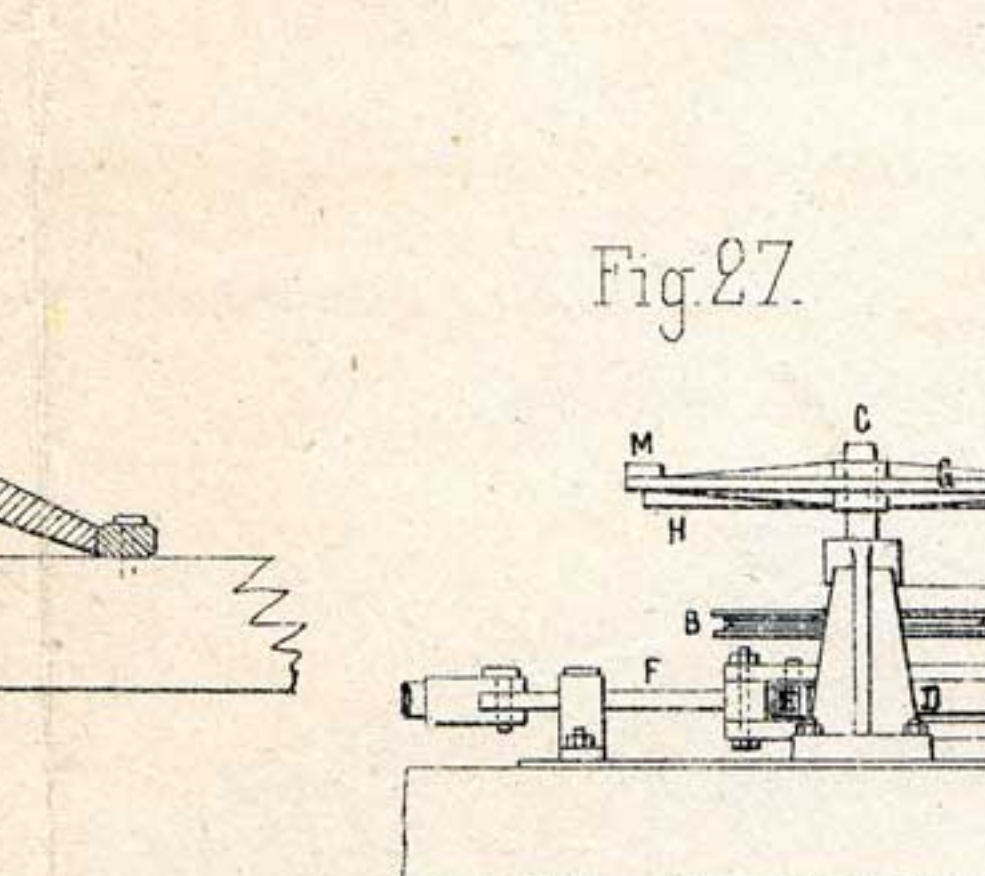


Fig.27.

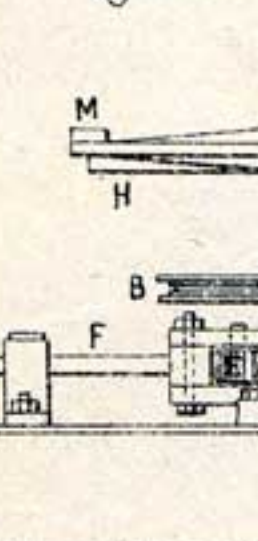


Fig.25. Dromopétard Leboulangé. Ech. 1/40.

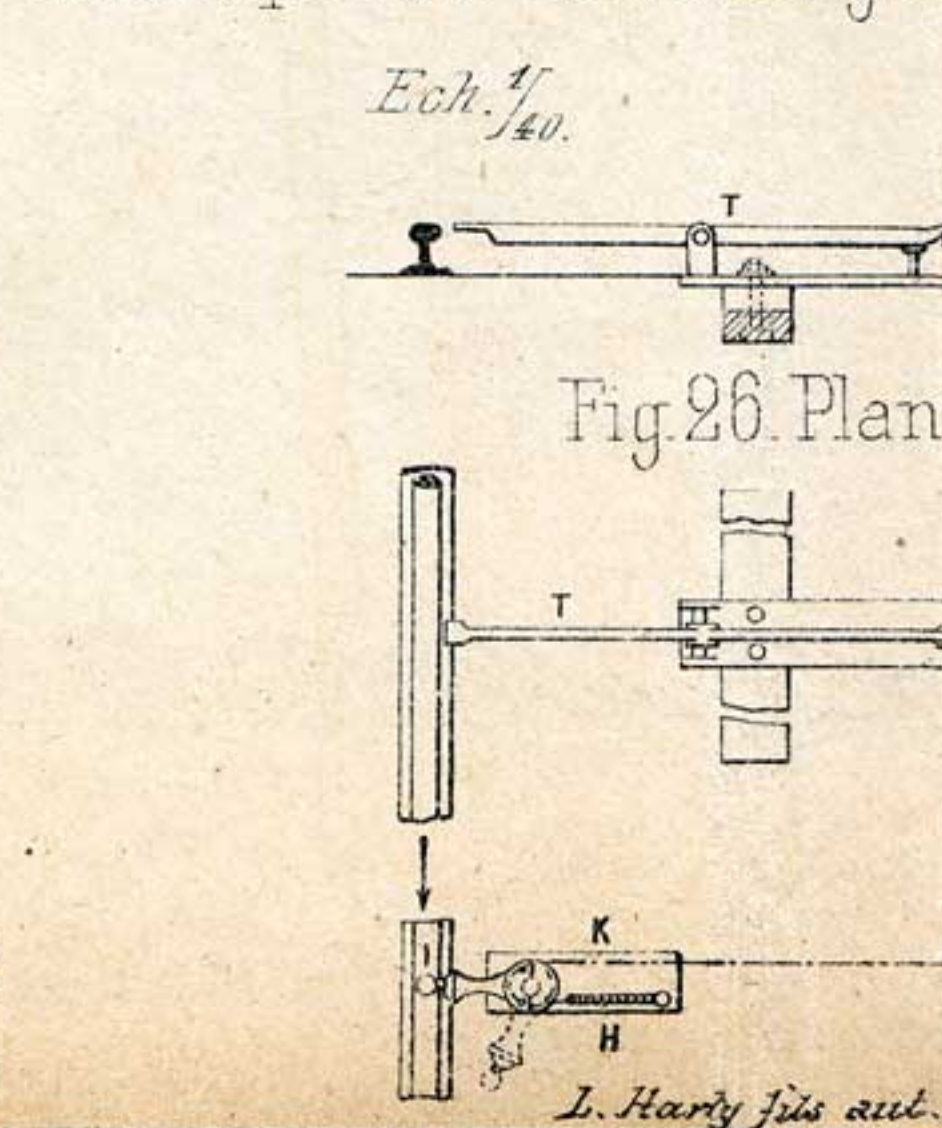


Fig.26. Plan.

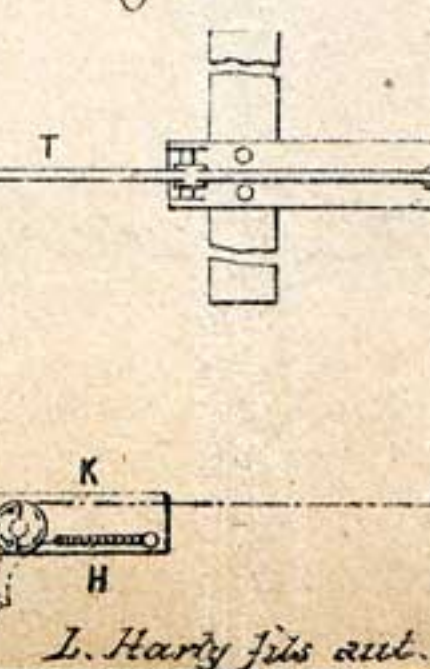
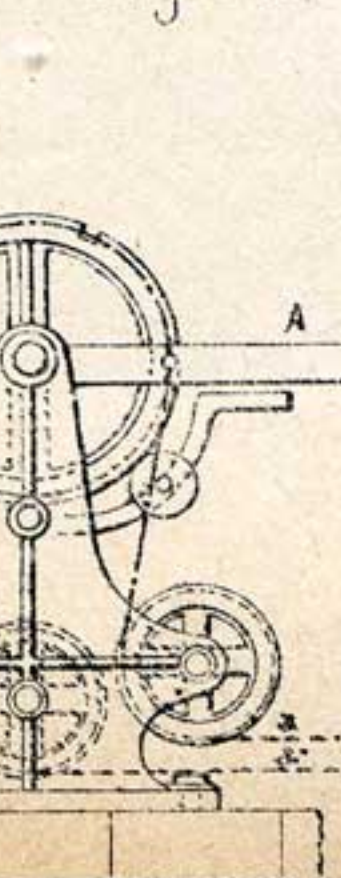
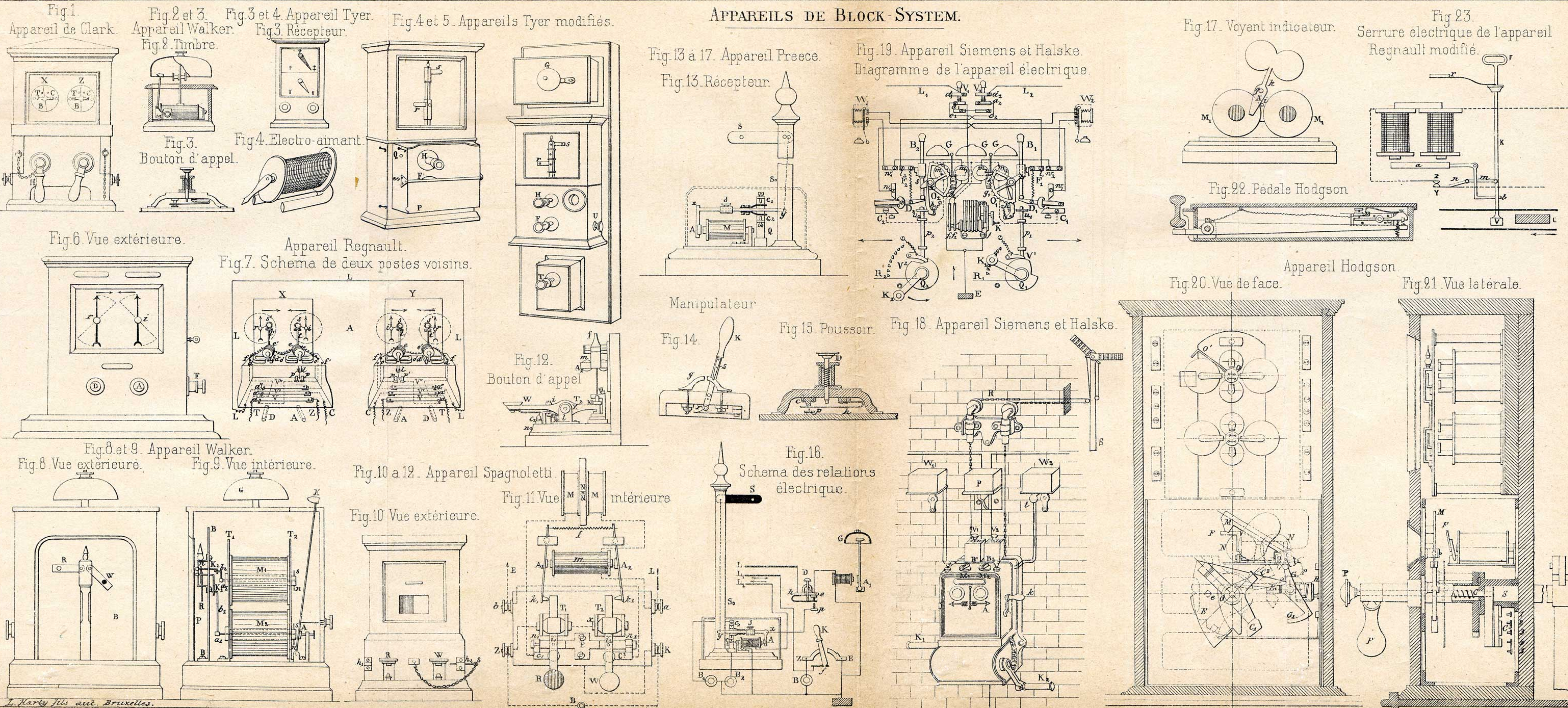


Fig.28.



## APPAREILS DE BLOCK-SYSTEM.



Appareil de Block du P.L.M. Fig. 9. à 13.

### APPAREILS de BLOCK-SYSTEM.

Fig 10. Vue intérieure de la boîte.

Fig. 11. Coupe ab. Fig. 12. Coupe cd.

Fig 1 à 8. Electro-sémaphore Lartigue Terse et Prudhomme. Fig. 2. Dispositions de la boîte électrique. Fig. 3. Fig. 4. Boîte modifiée.

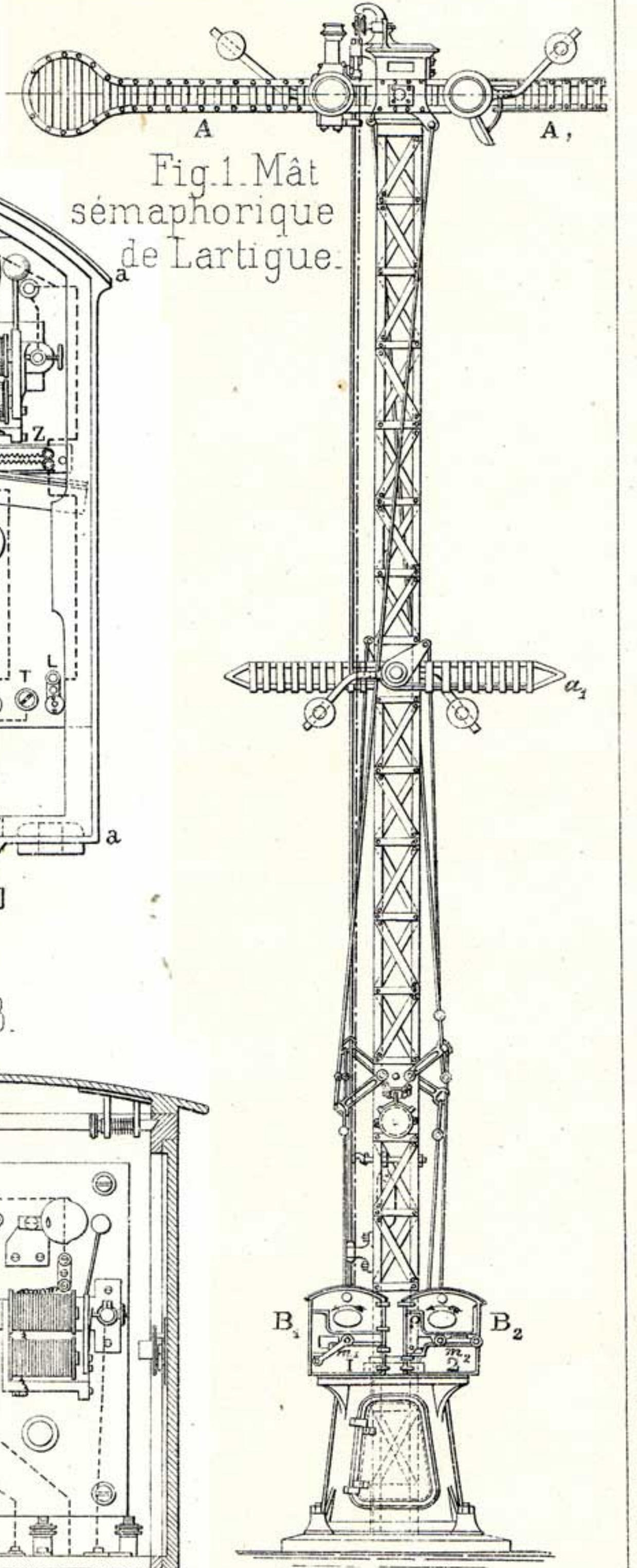
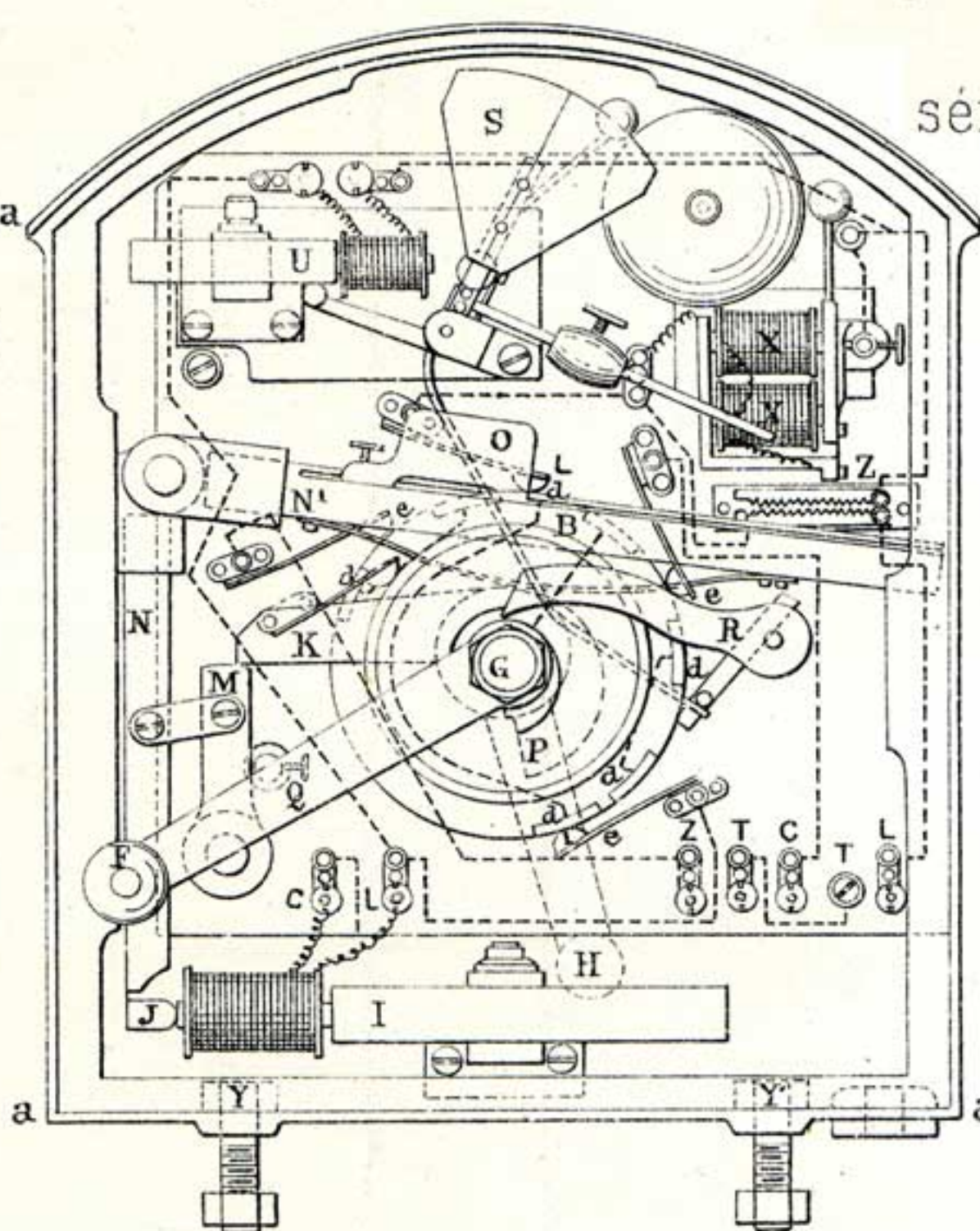
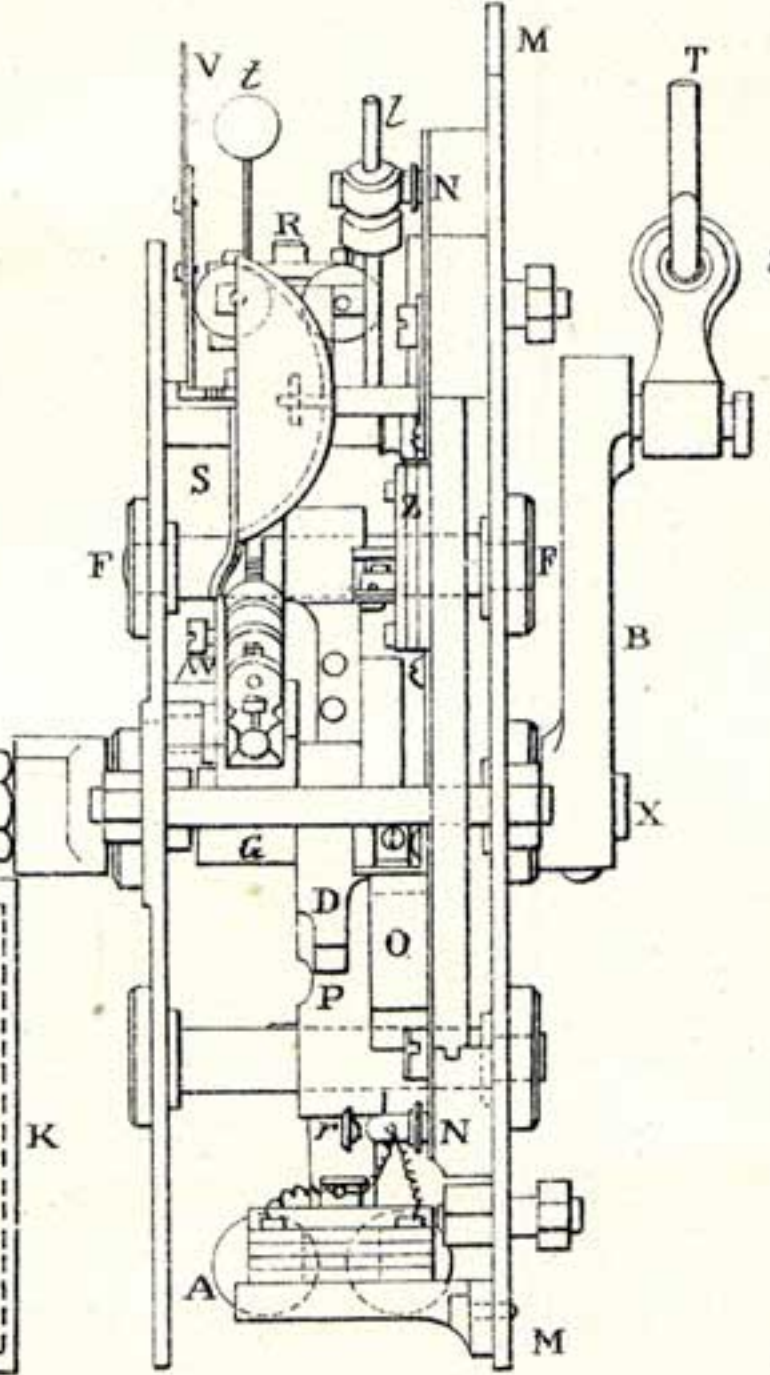
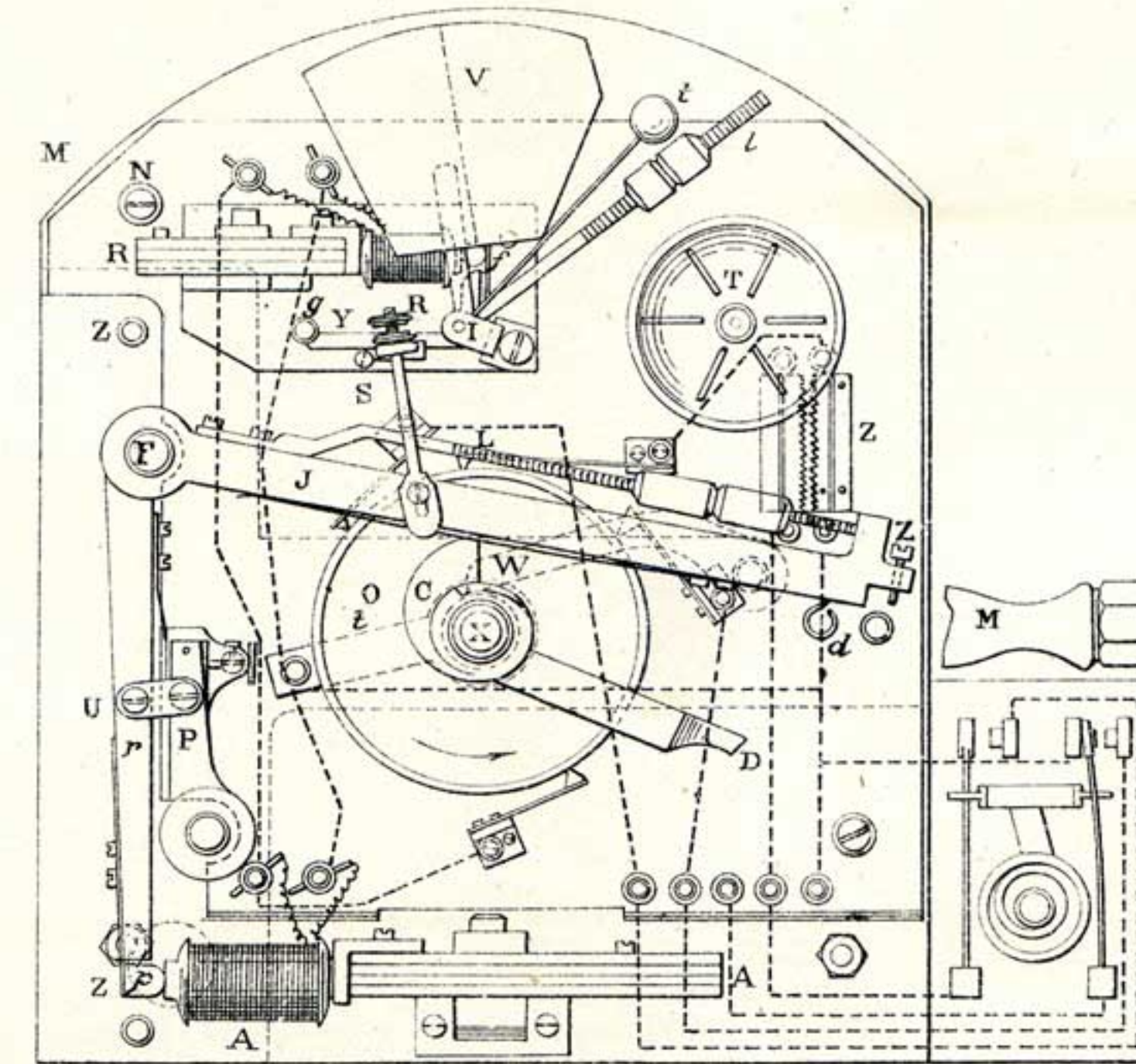
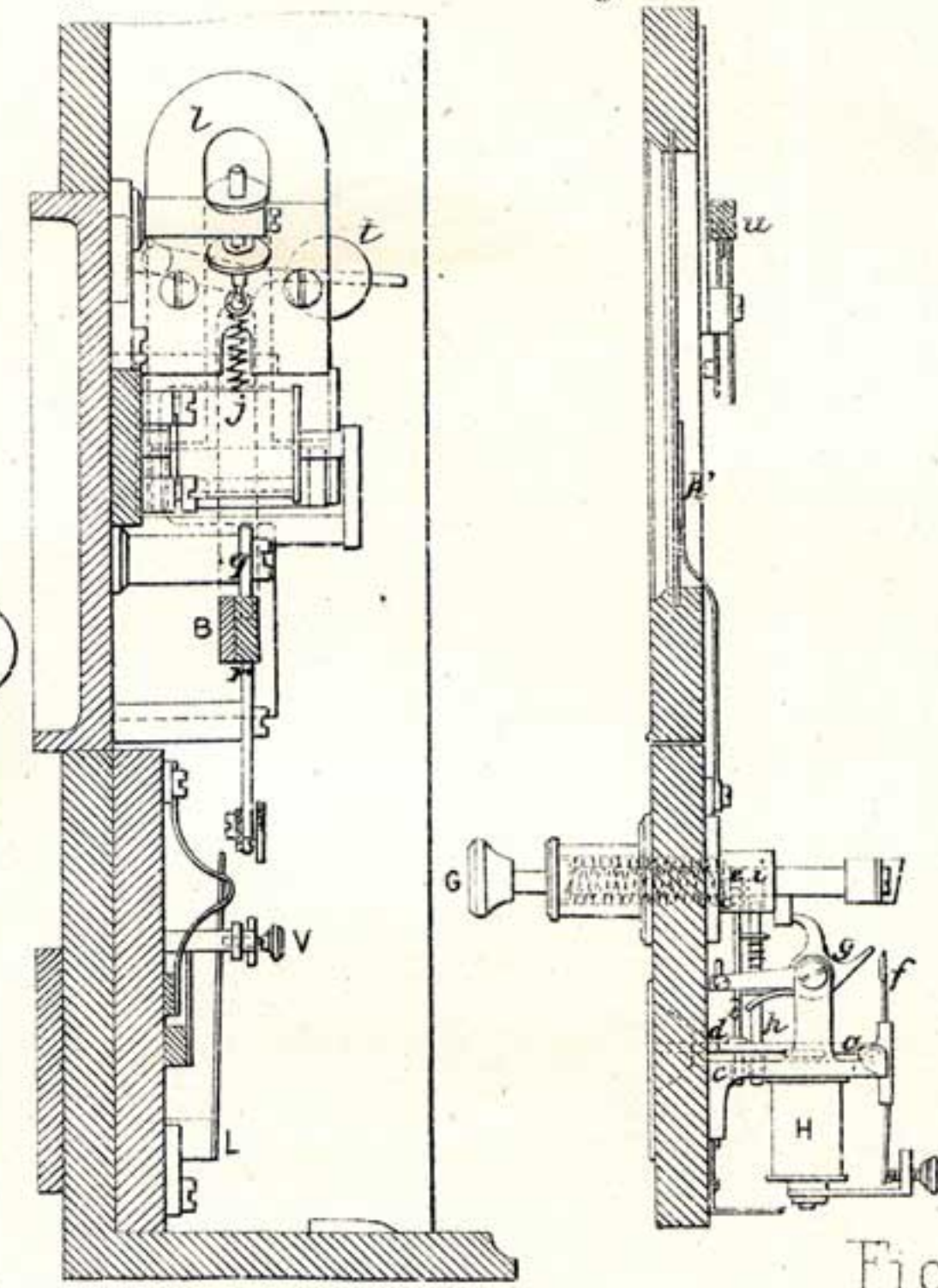
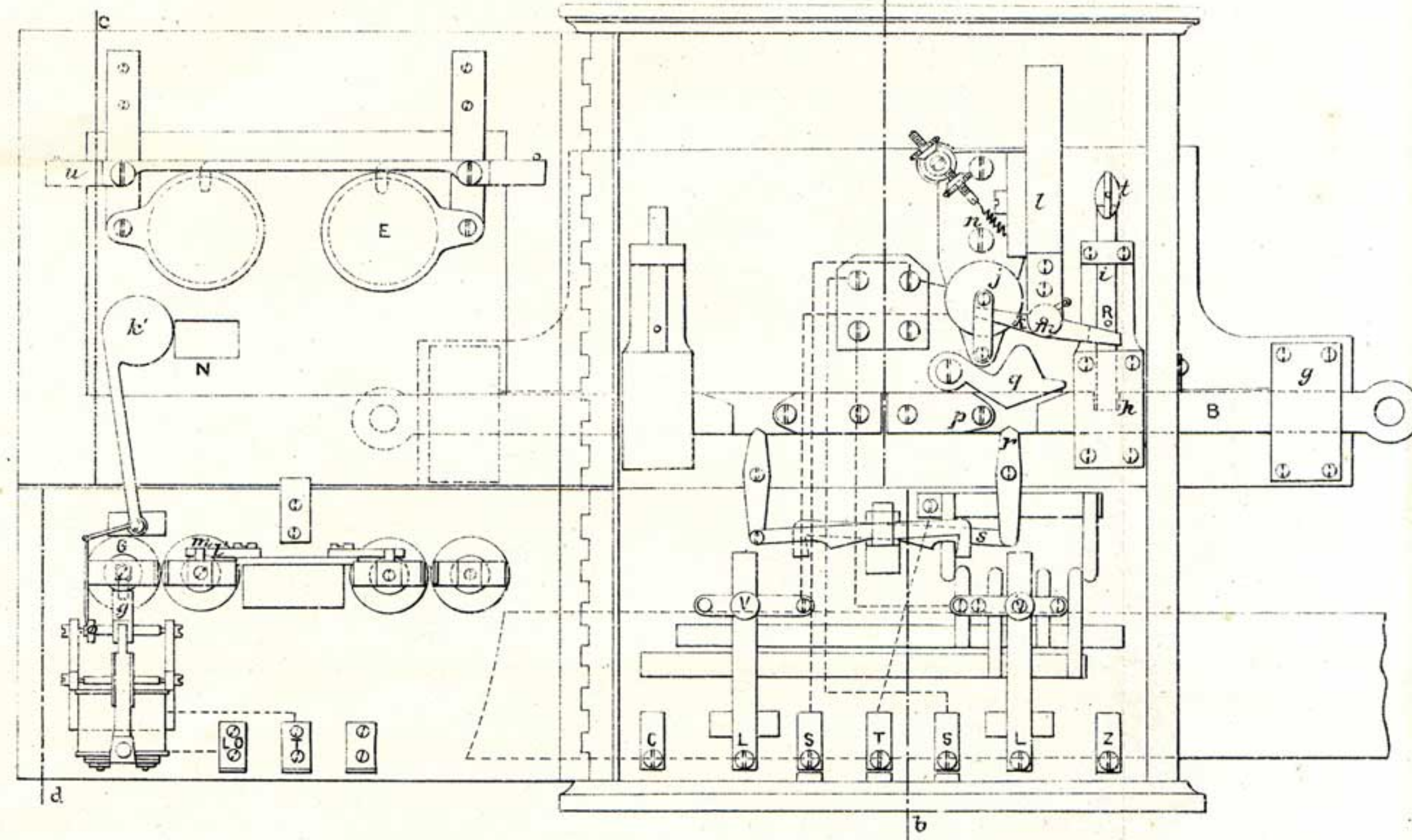


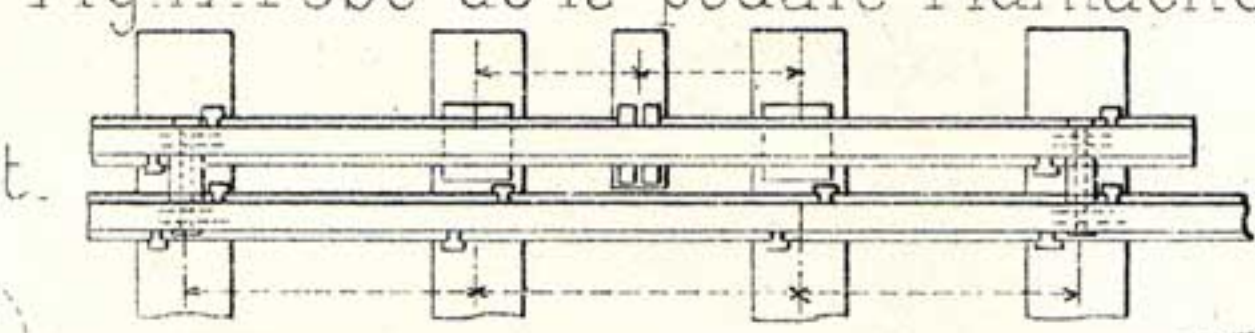
Fig. 1. Mât sémaphorique de Lartigue.

Appareil Flamache Fig. 14 à 17.

Fig. 14. Boîte électrique.

Fig. 15.

Fig. 5. Poste volant.

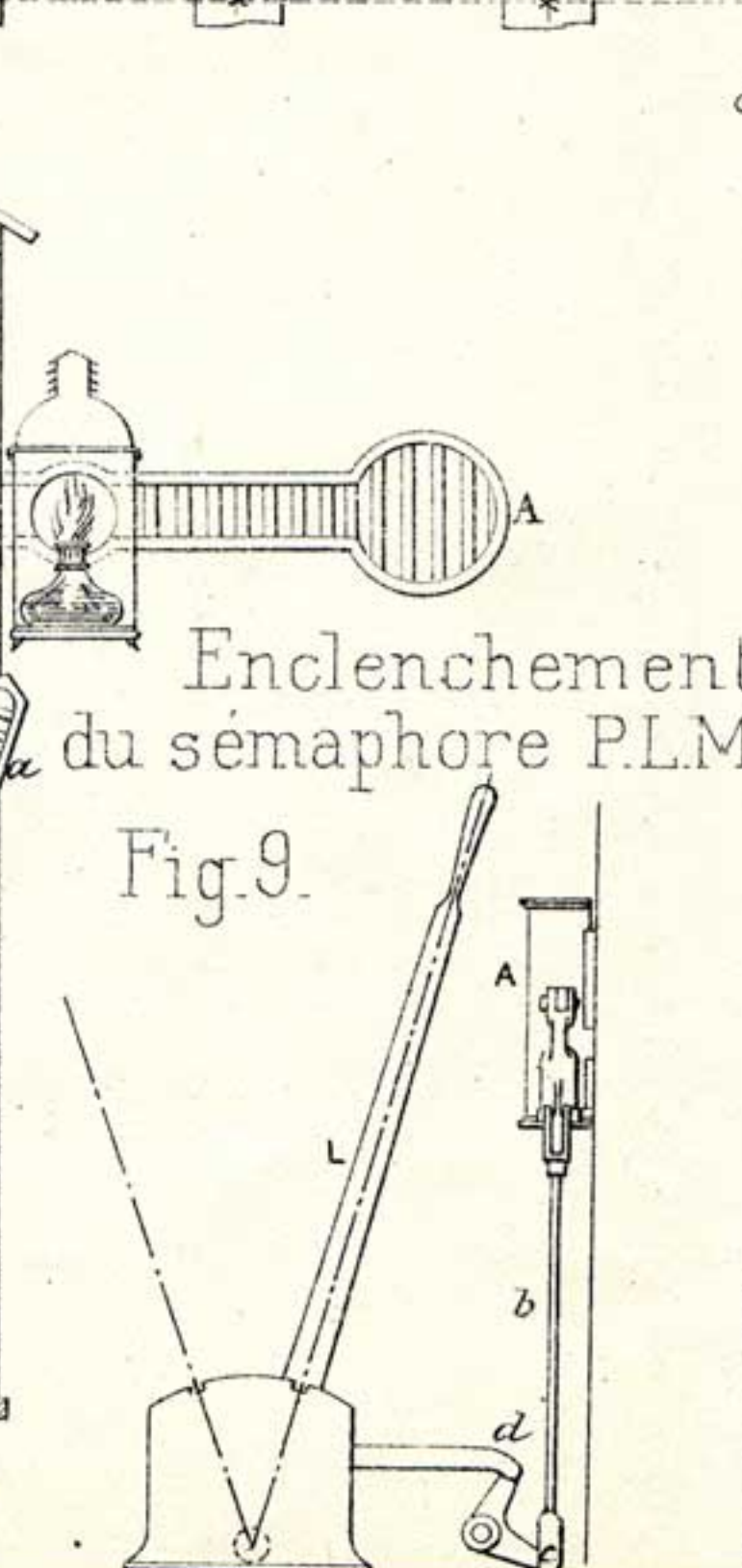
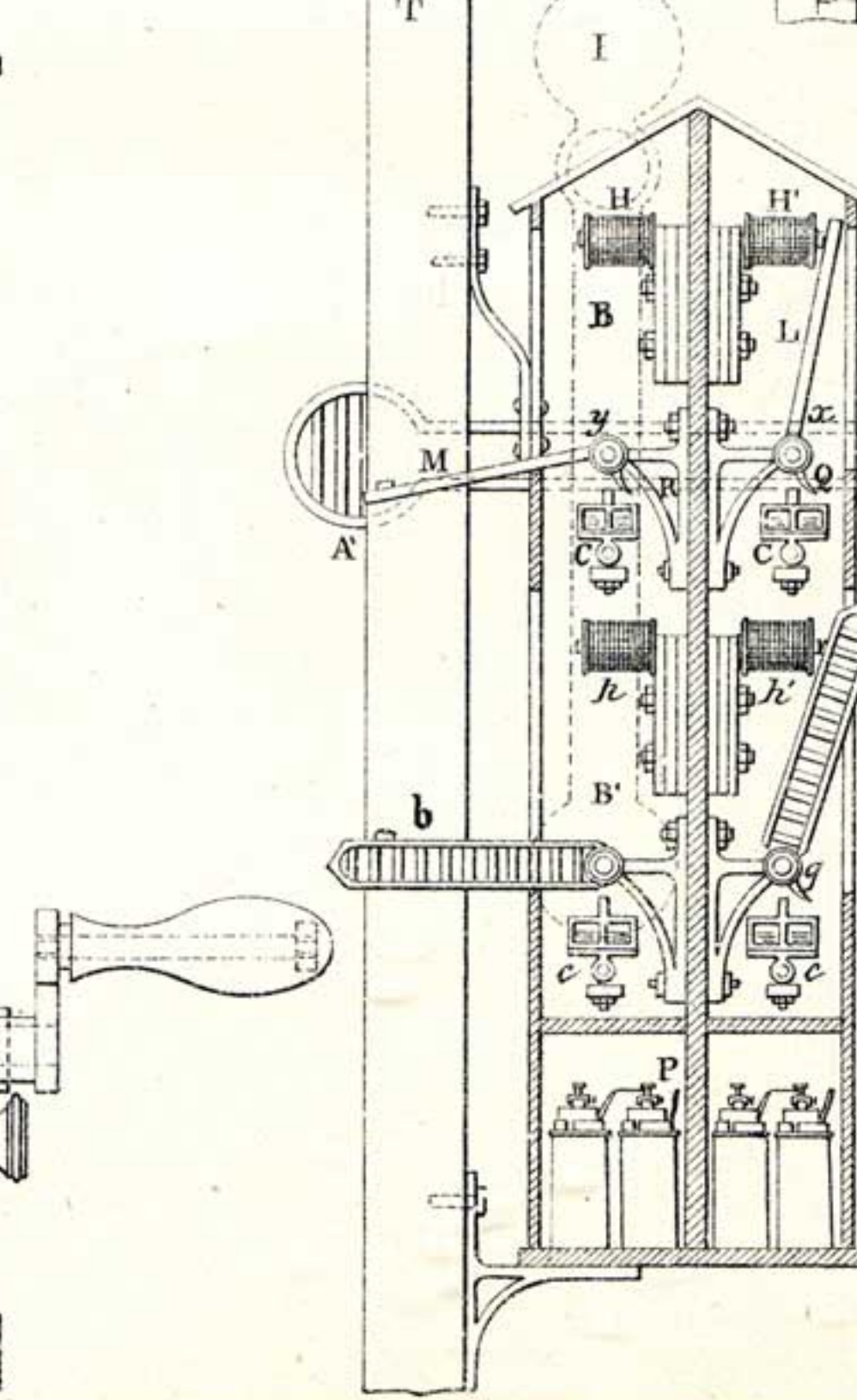
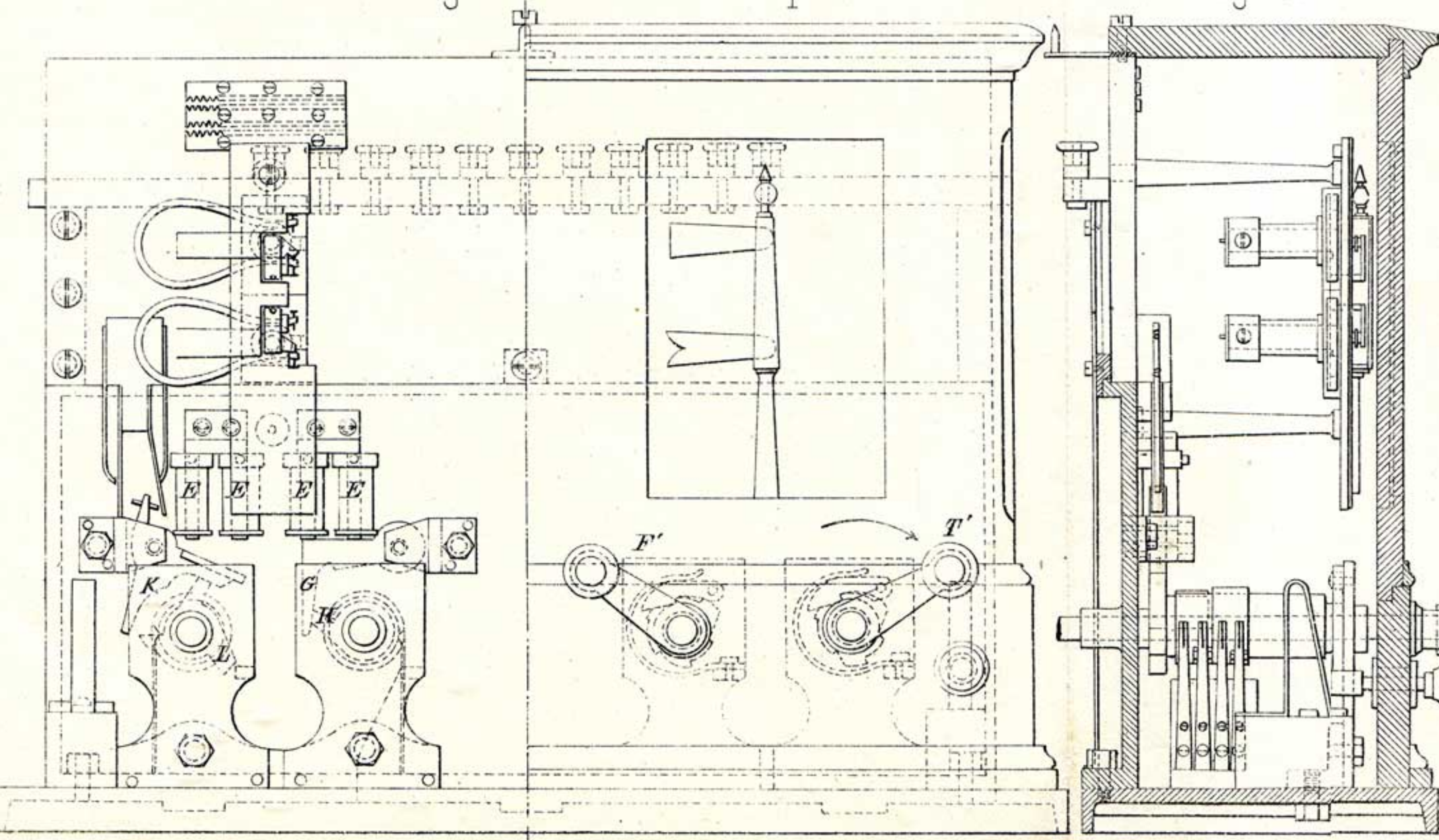


Enclenchement des sections d'aval et d'amont.

Fig. 6.

Fig. 7.

Fig. 8.



Enclenchement du sémaphore P.L.M. Fig. 9.

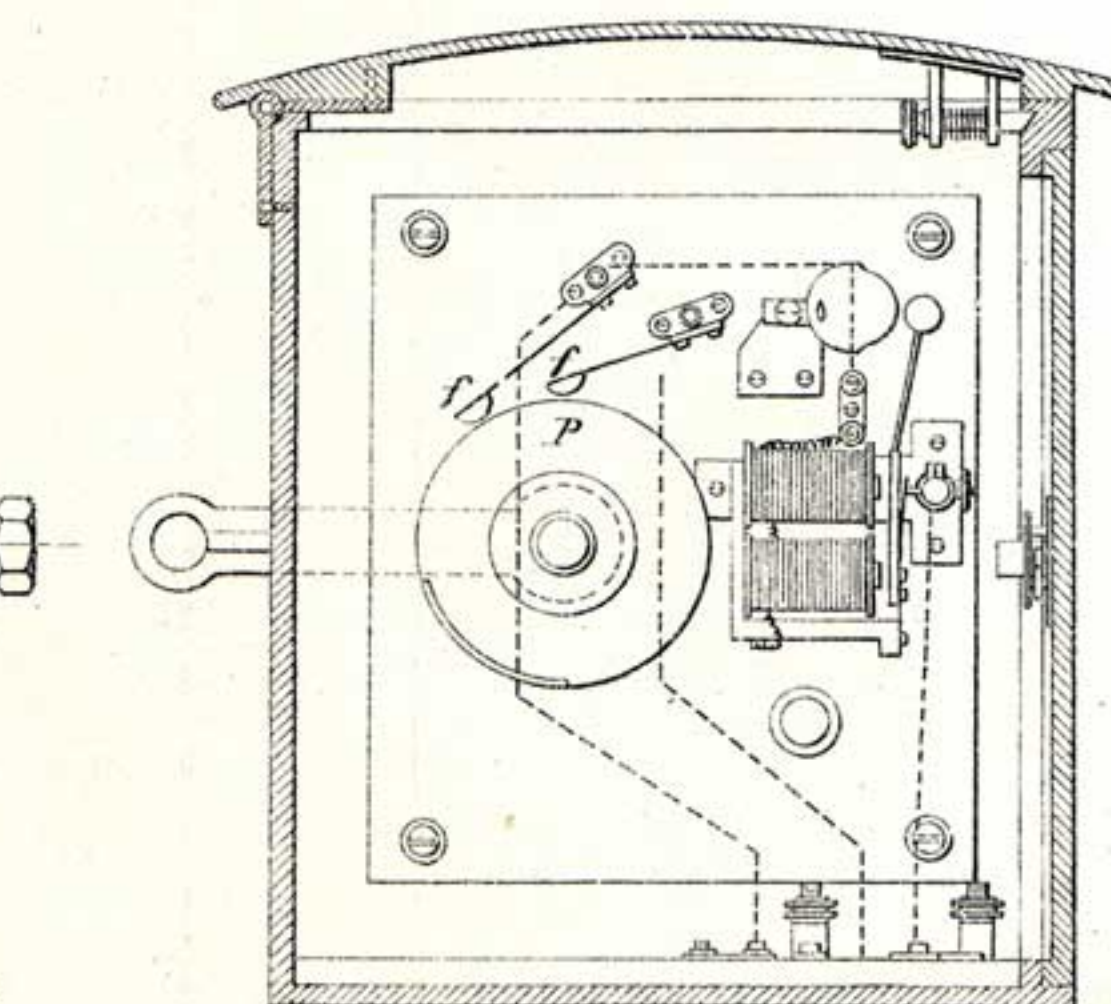
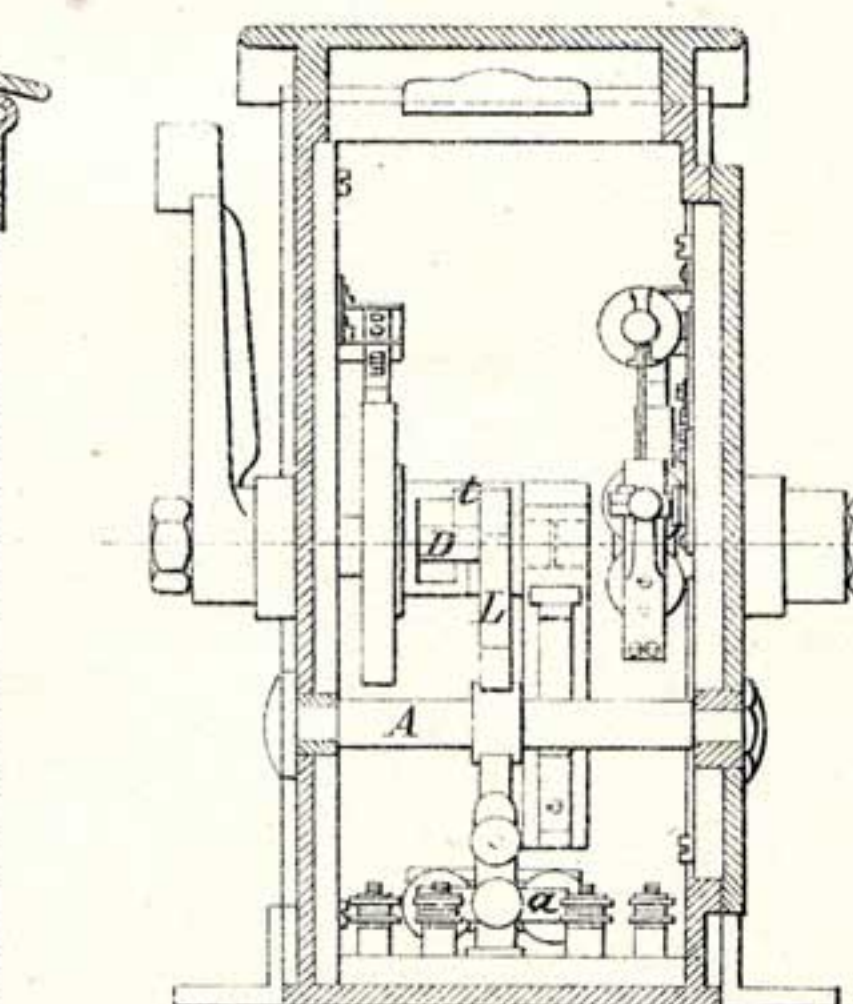
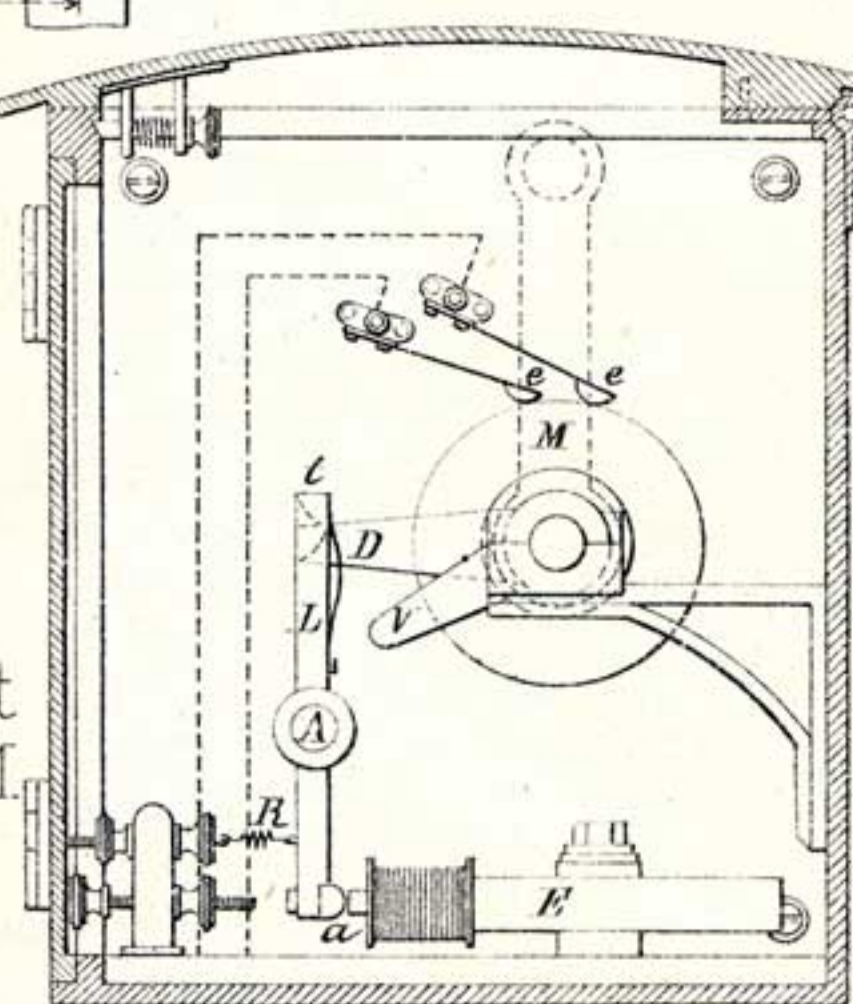
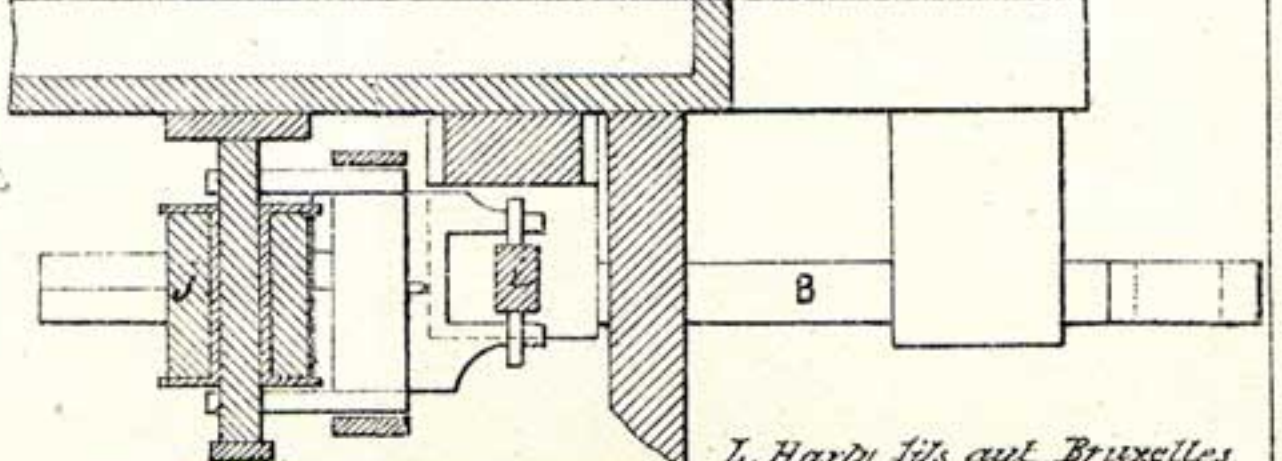
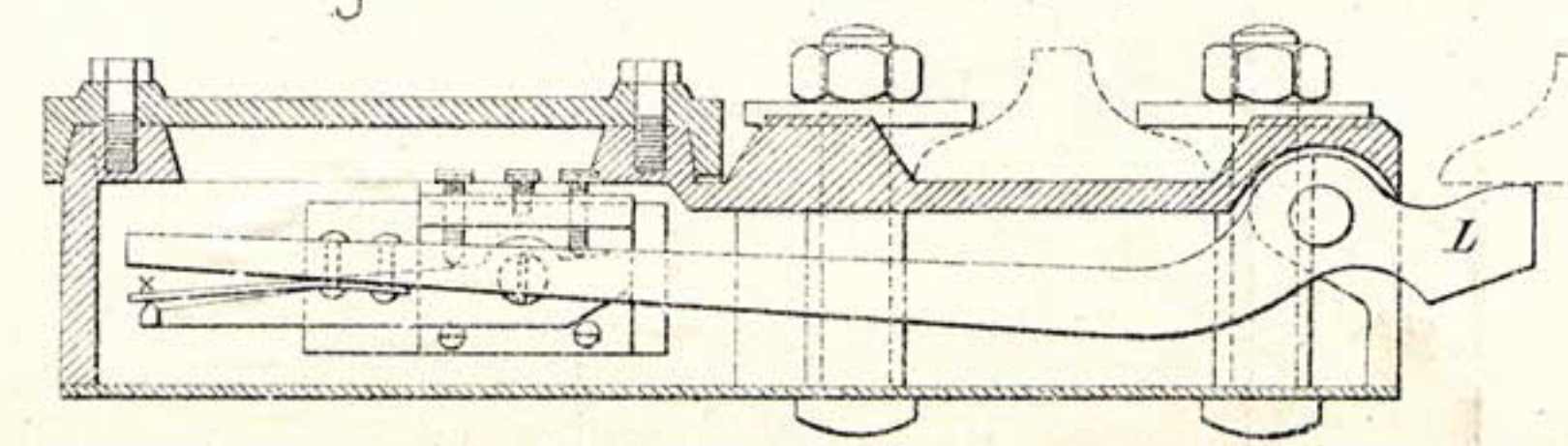
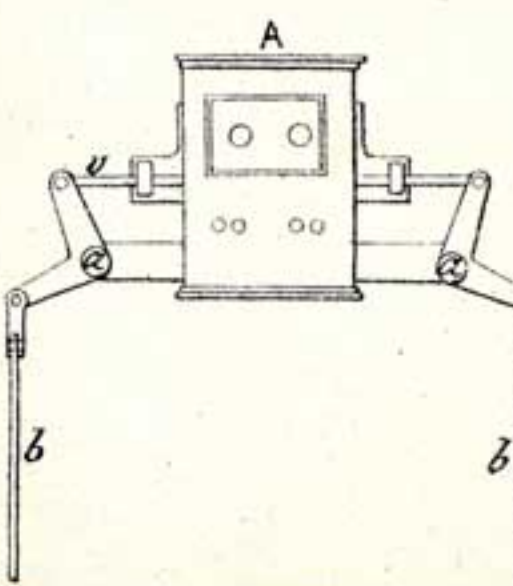


Fig. 16. Pédale Flamache.

Fig. 13. Coupe horizontale de la boîte.





Calage des Aiguilles.  
Roulette de Siemens.

Fig. 1.

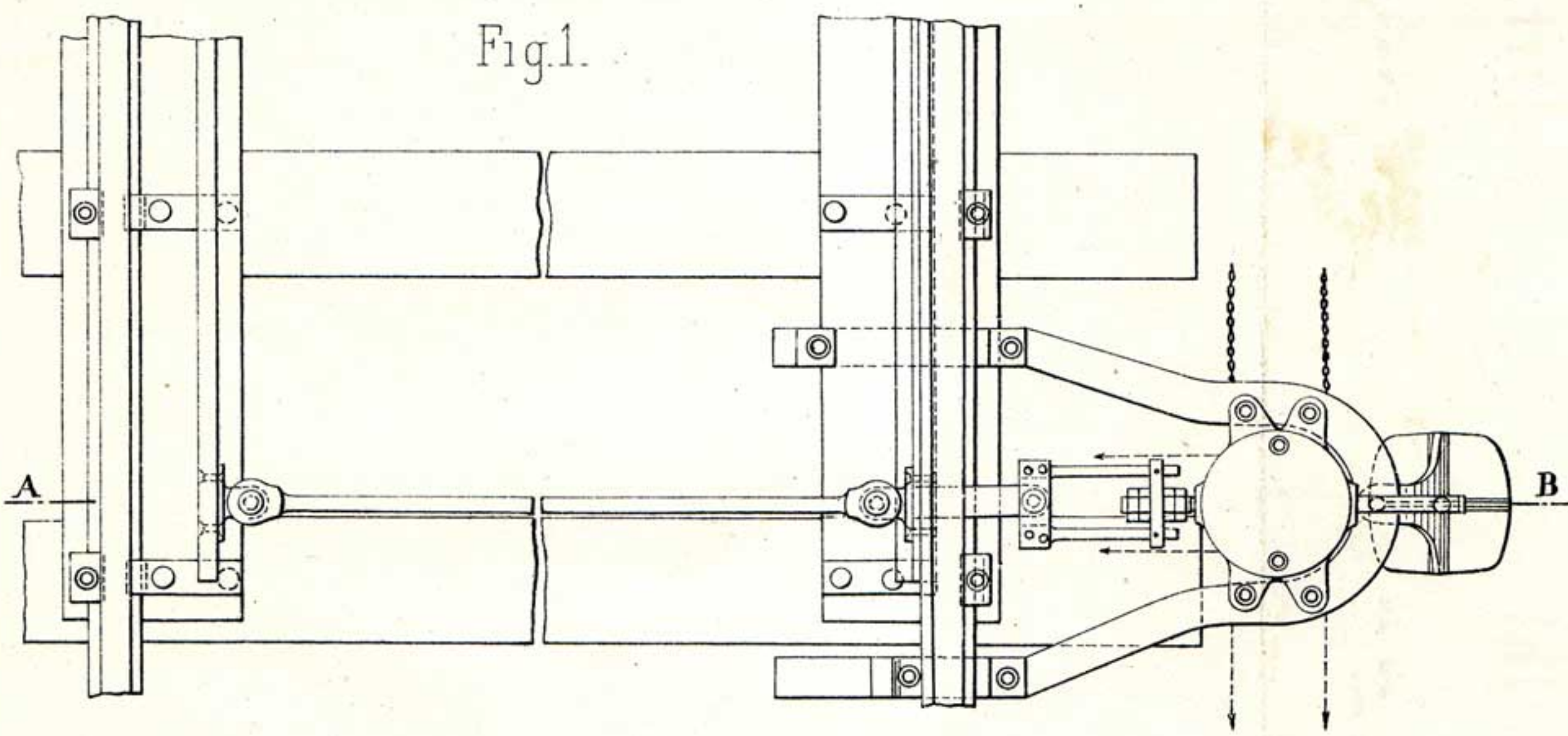


Fig. 2.

Coupe suivant AB.

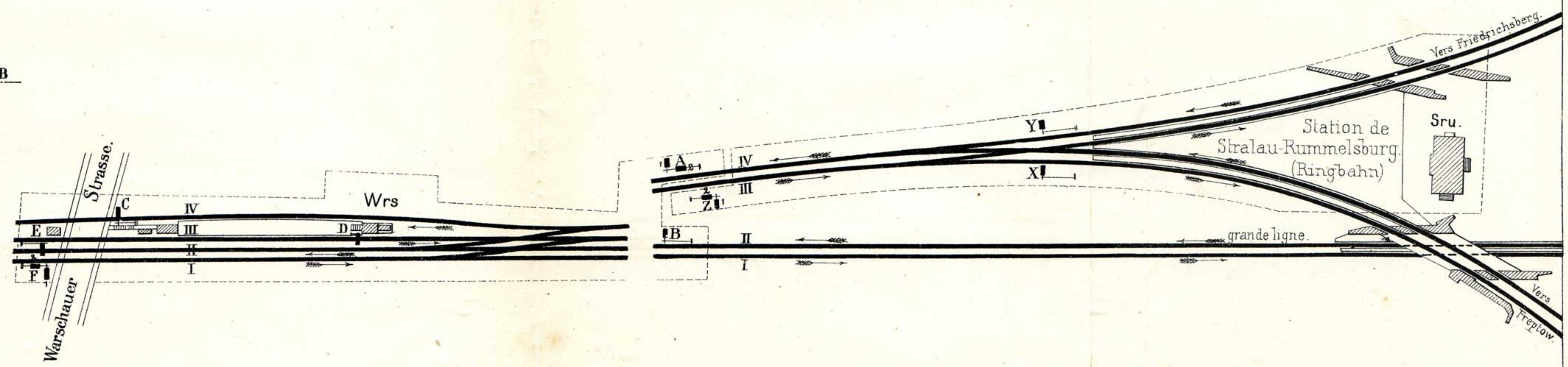
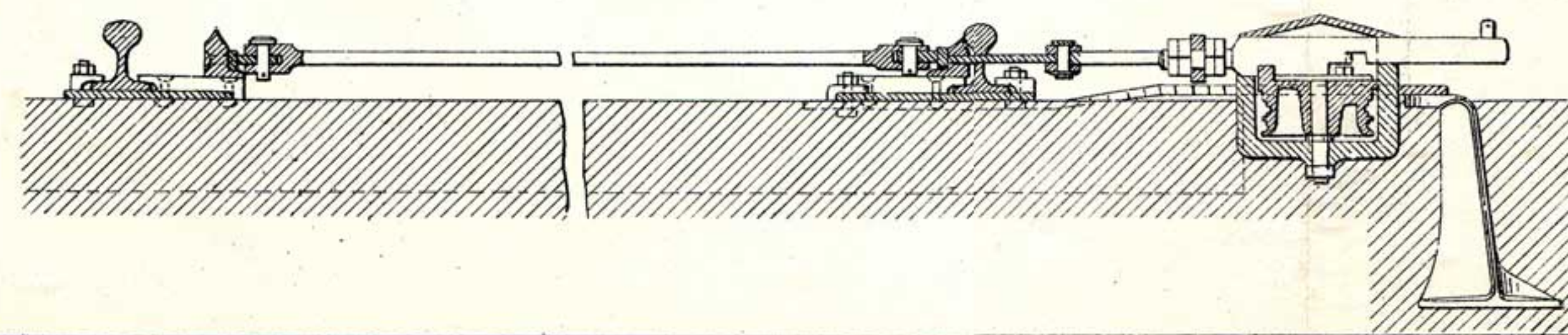


Fig 1 à 4. Avertisseur Prudhomme.

Fig. 1. Schéma des Courants.



Fig. 2. Sonnerie.

Fig. 3. Attelage

Fig. 4. Anneau d'appel dans la cloison du Compartiment.

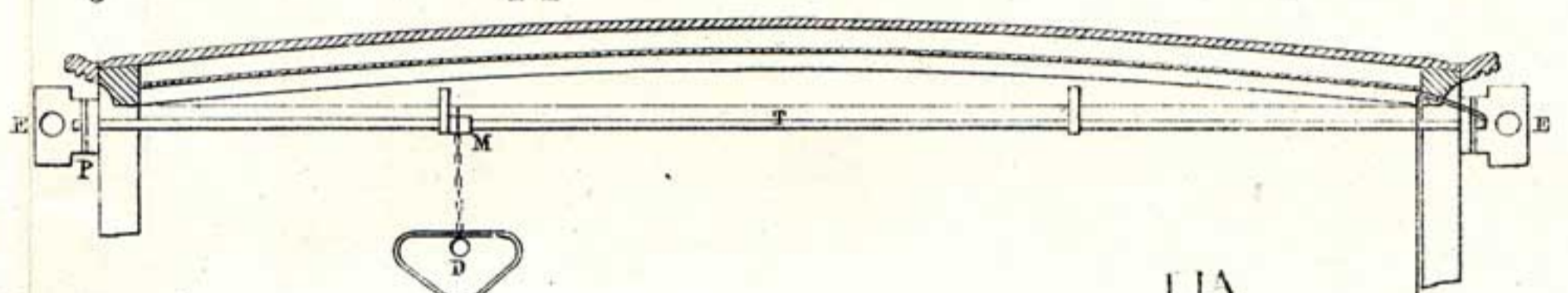
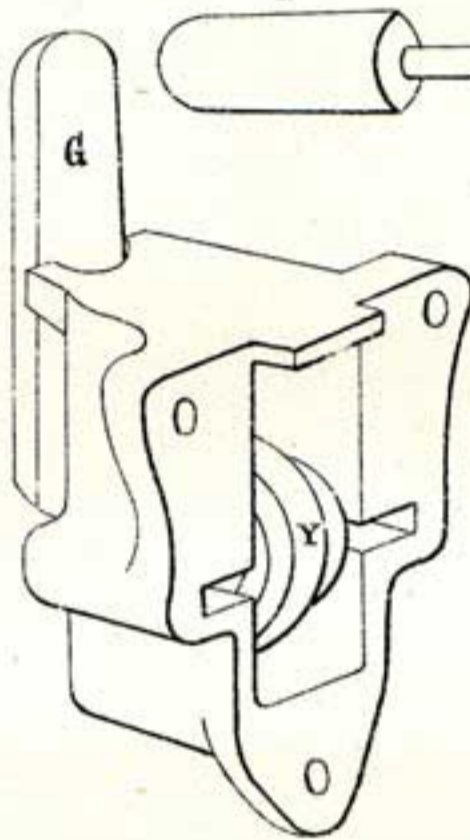
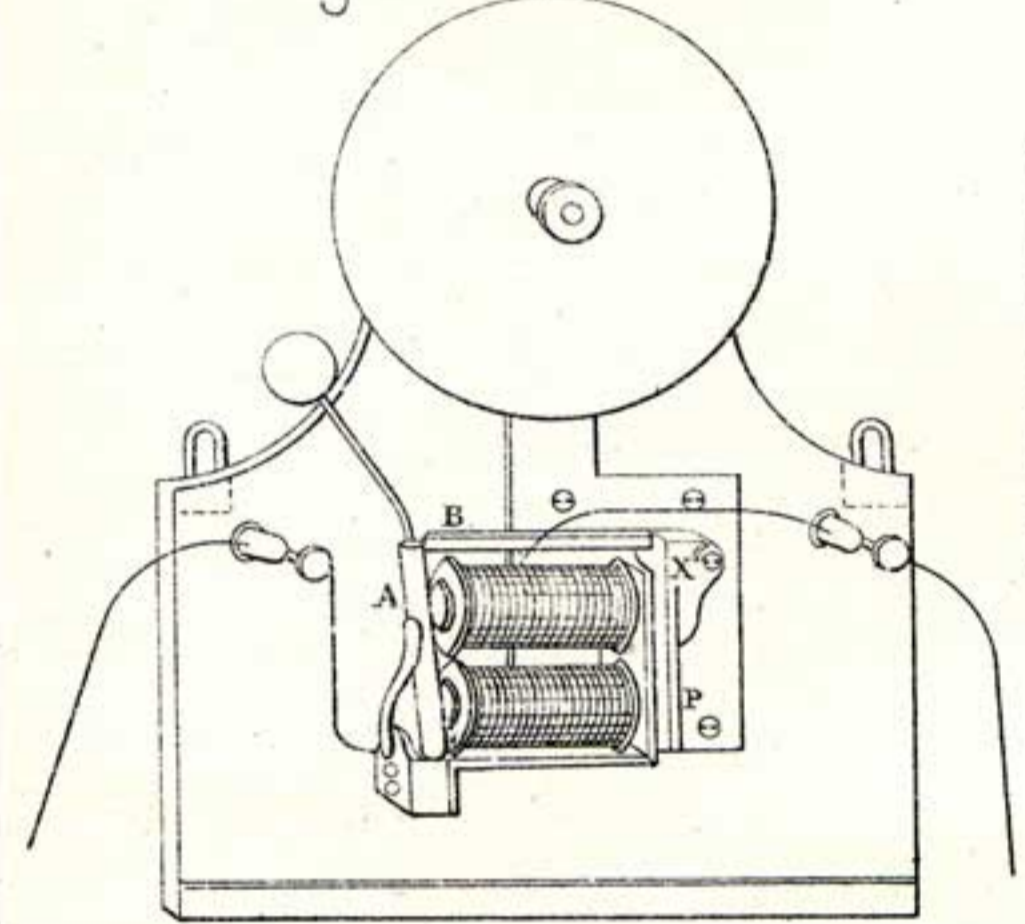


Fig. 5 à 8. Avertisseur Westinghouse.

Fig. 6. Coupe du sifflet. Soupape spéciale sur la locomotive.

Fig. 7.

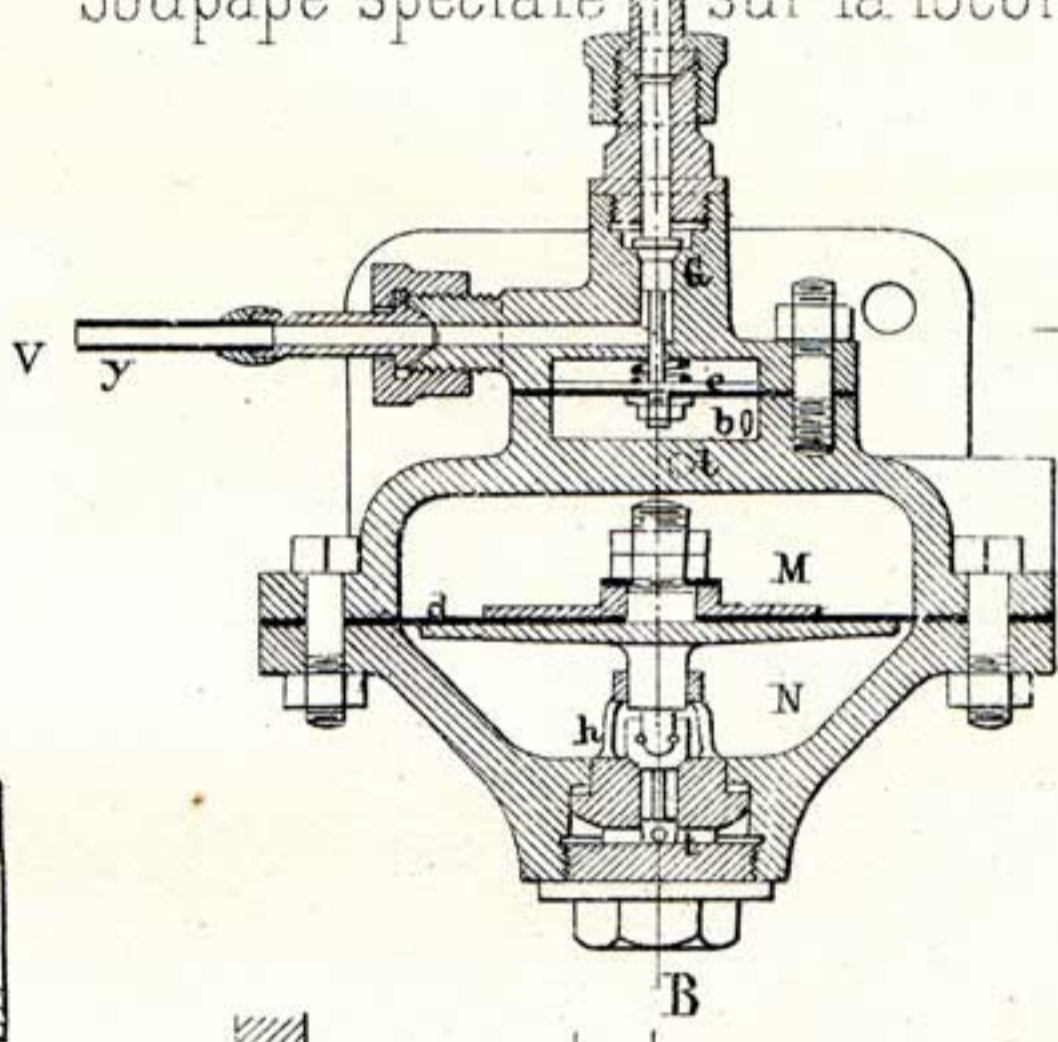
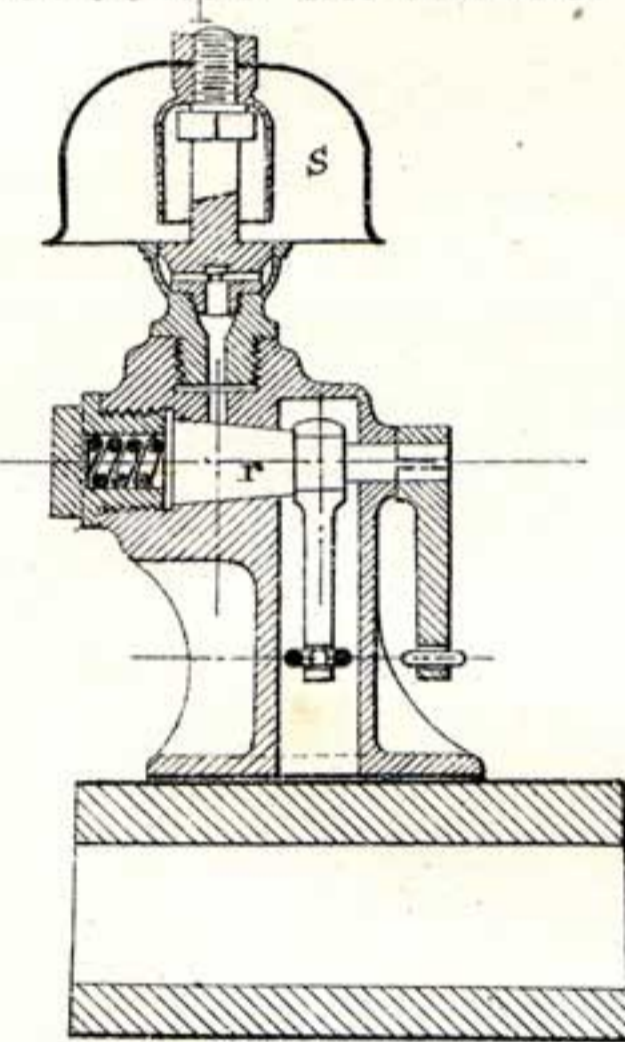
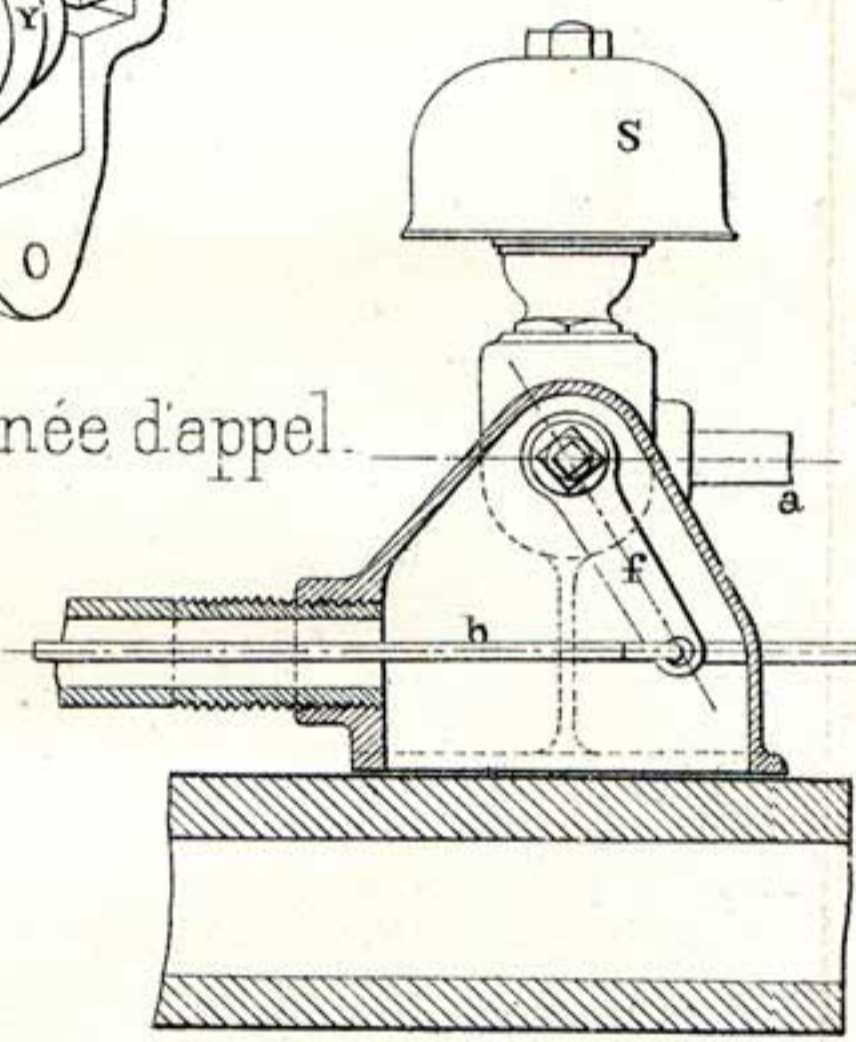
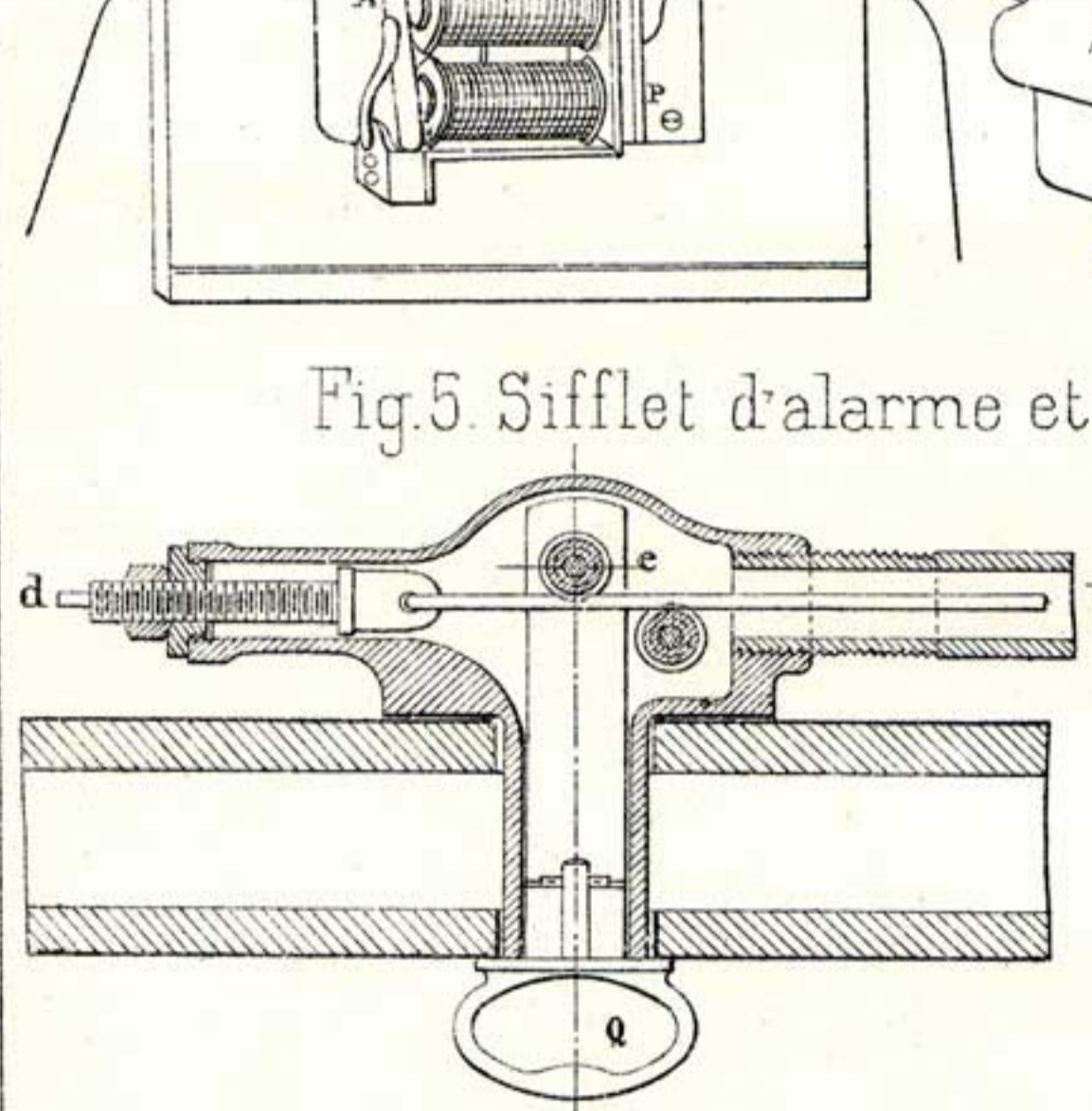
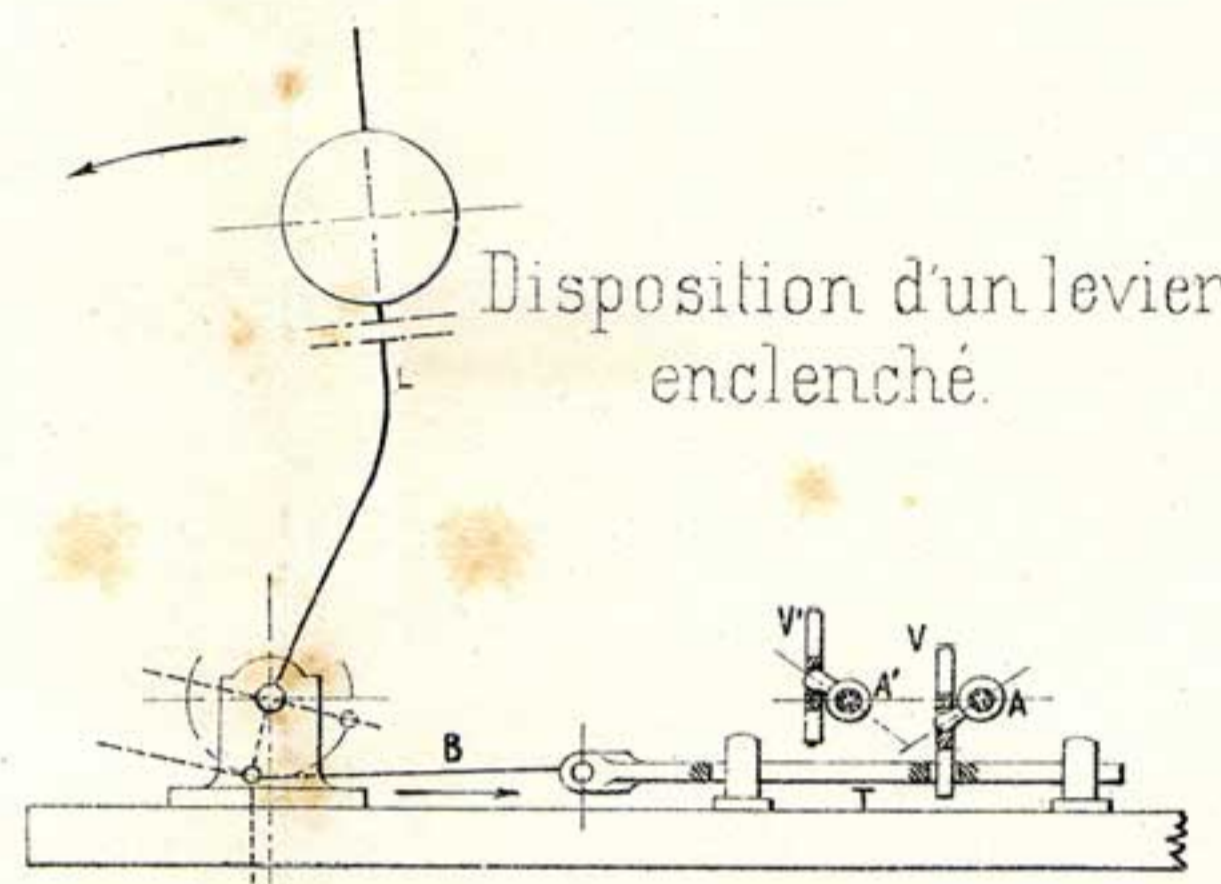


Fig. 10. Appareil Vignier de l'Ouest.



Disposition d'un levier enclenché.

Fig. 11.

Disposition d'un levier enclancheur.

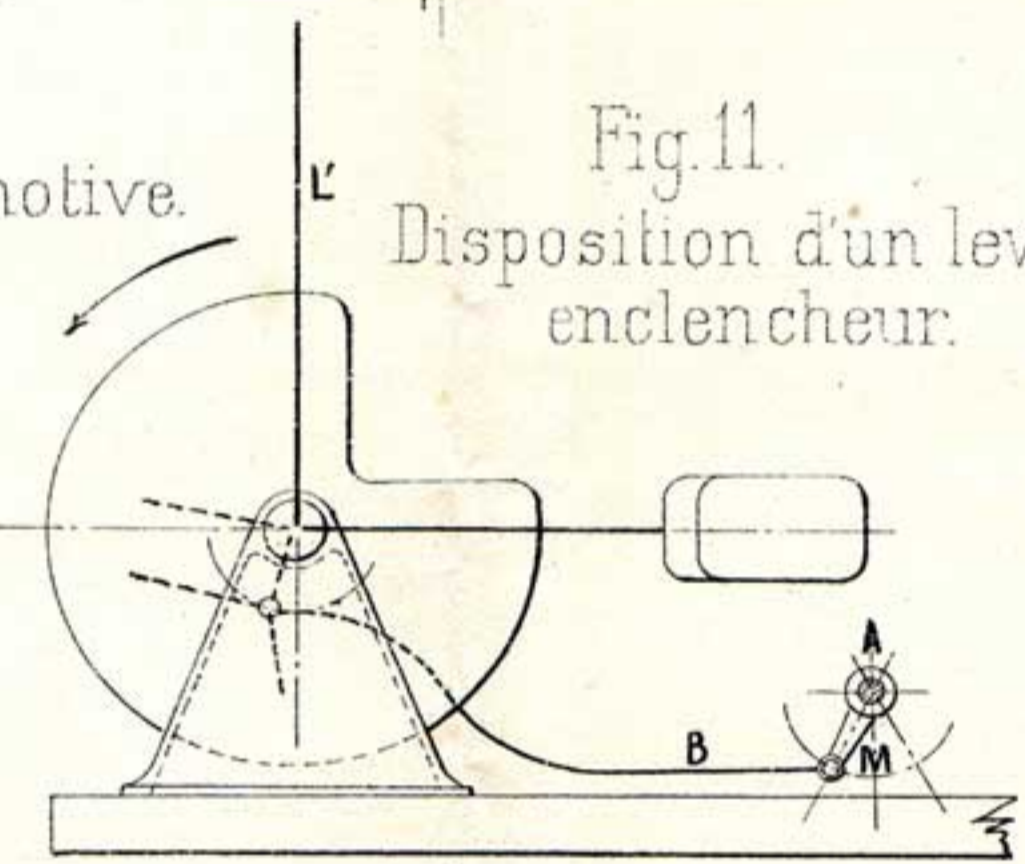


Fig. 12. Appareil Vignier du Midi.

Plan de la table d'enclenchement

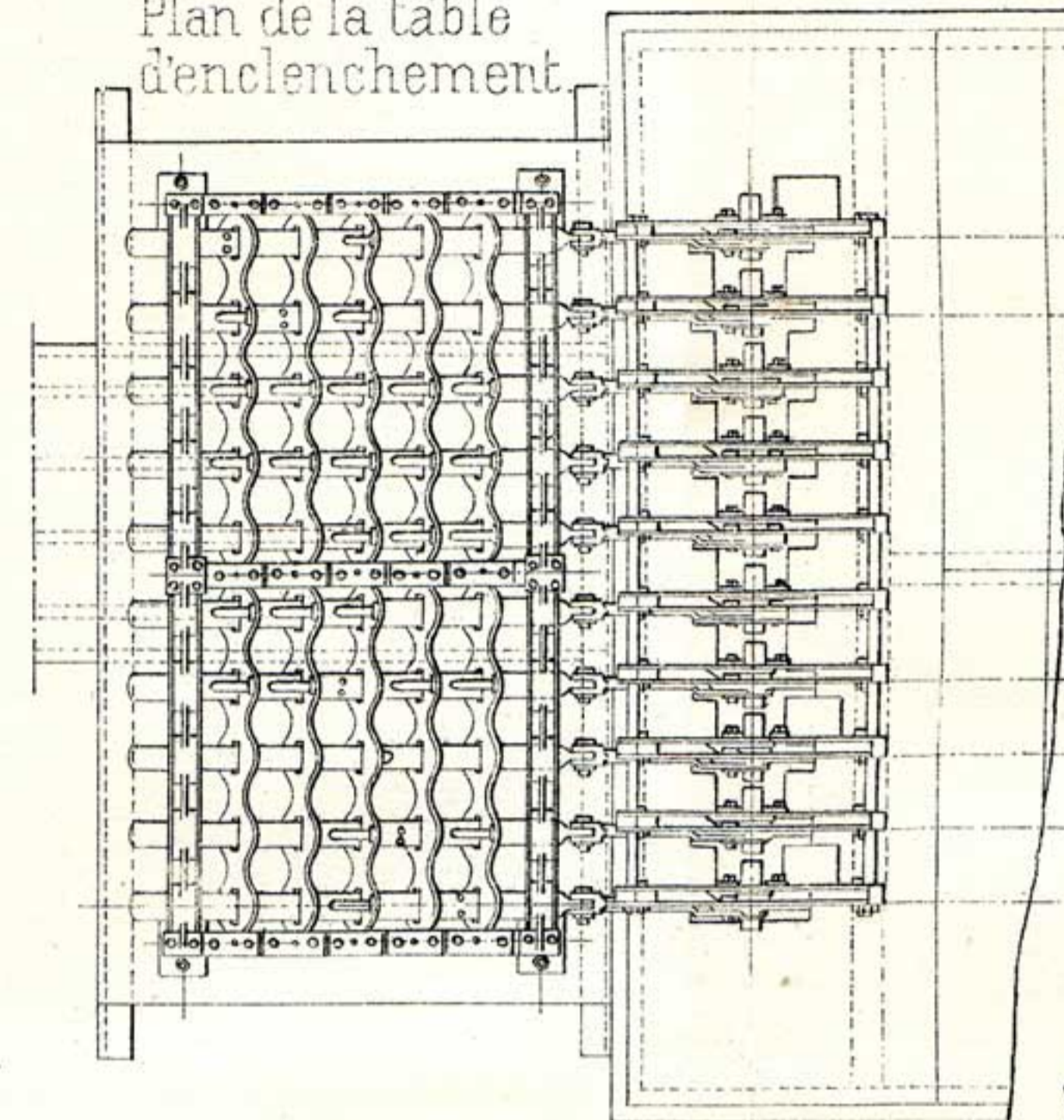


Fig. 18 à 22. Appareil Saxby.

[2nd type]

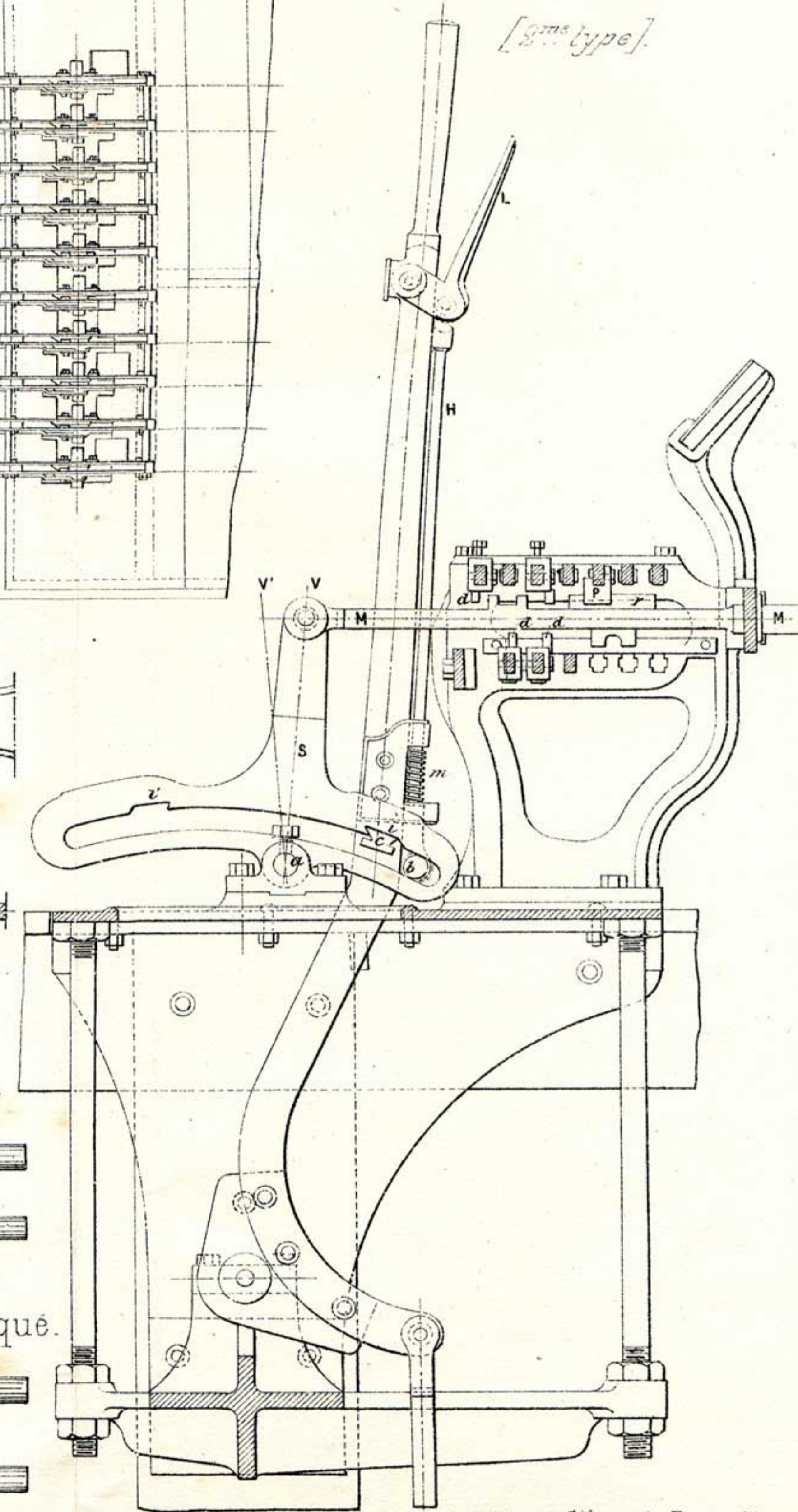
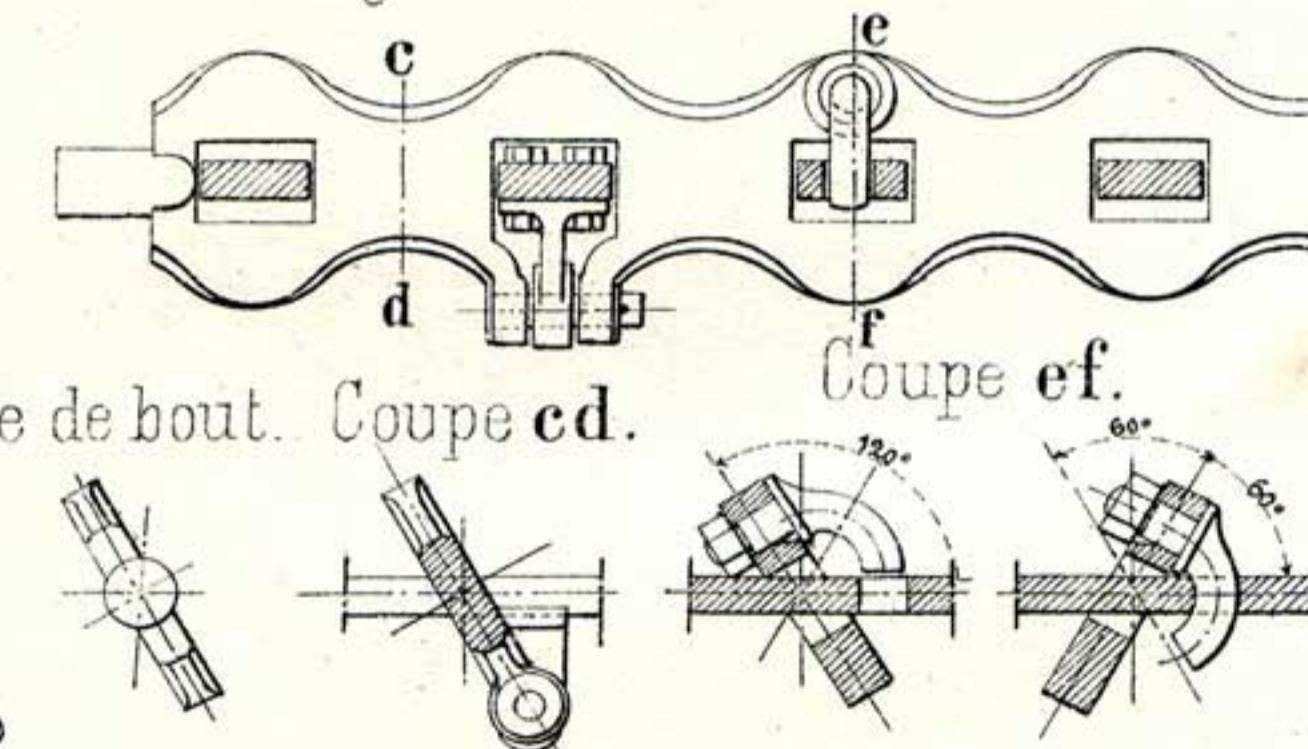


Fig. 13. Arbres et Verrous



Vue de bout. Coupe cd.

Coupe ef.

Fig. 14 Appareil Saxby (1<sup>er</sup> type)

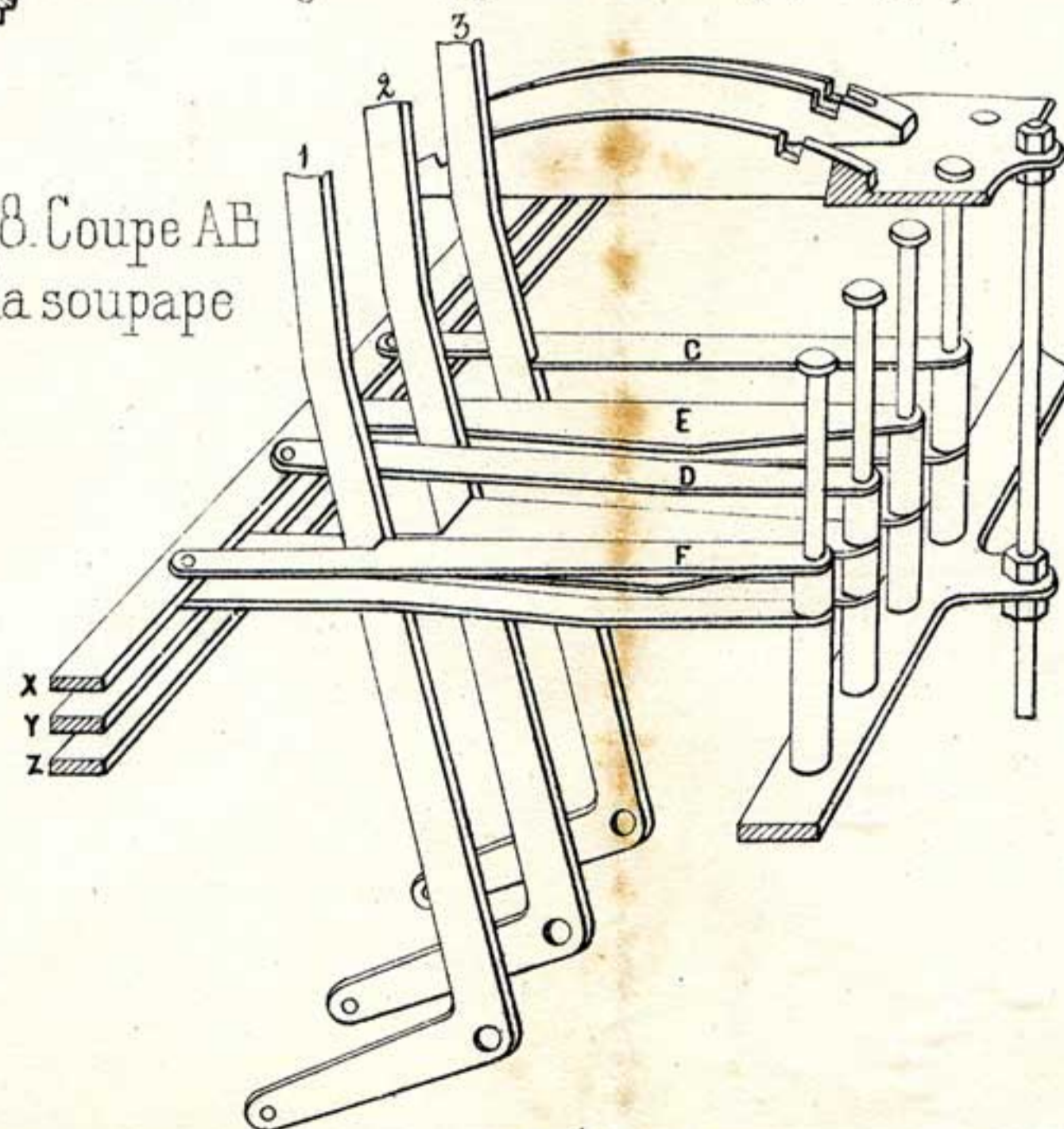


Fig. 8. Coupe AB de la soupape

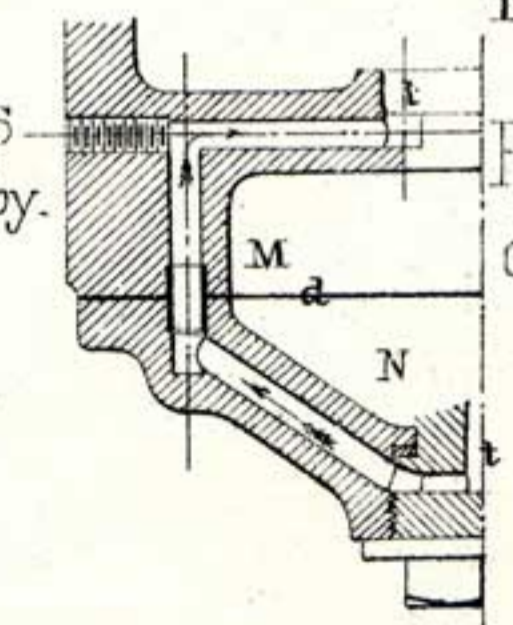


Fig. 15 à 17. Diagrammes des enclenchements de l'appareil Saxby. (1<sup>er</sup> type)

Fig. 9. Schéma des combinaisons de l'appareil Vignier.

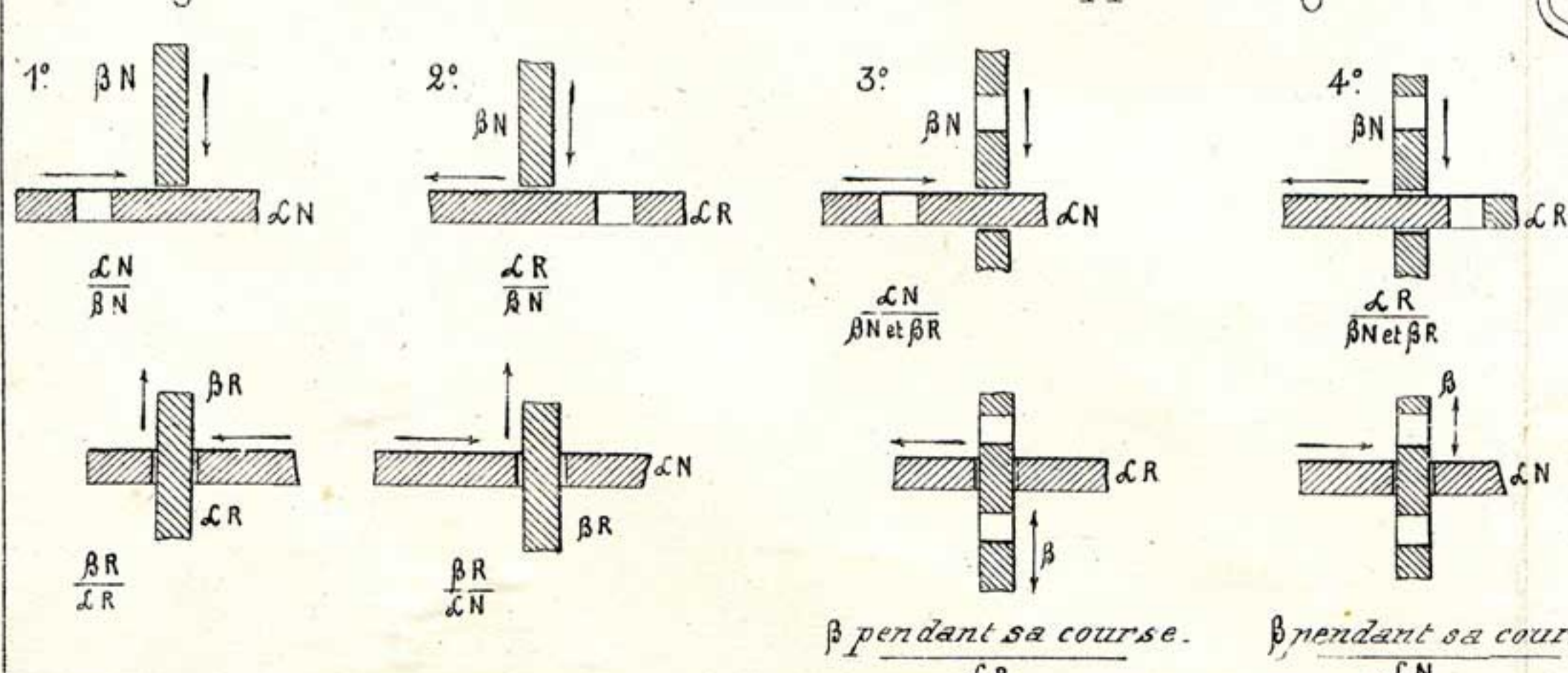


Fig. 19 et 20.

Barre M a encoches.

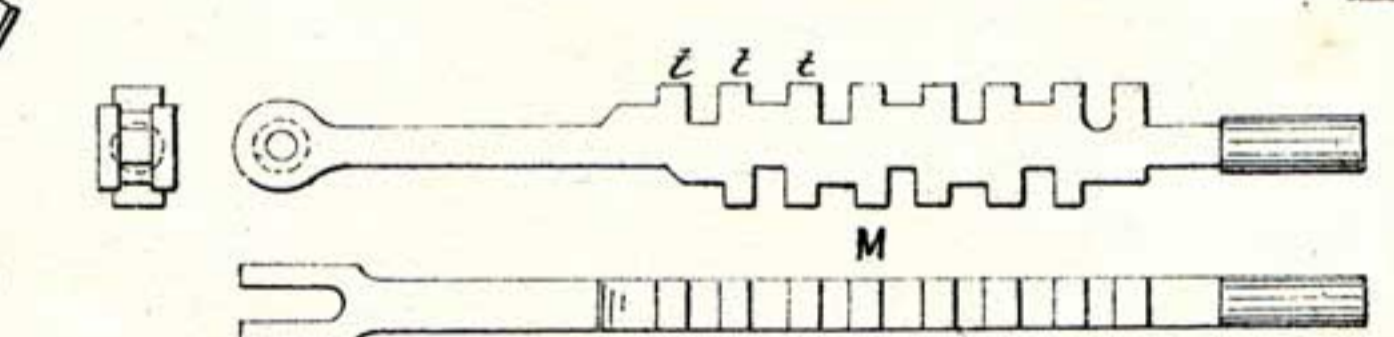
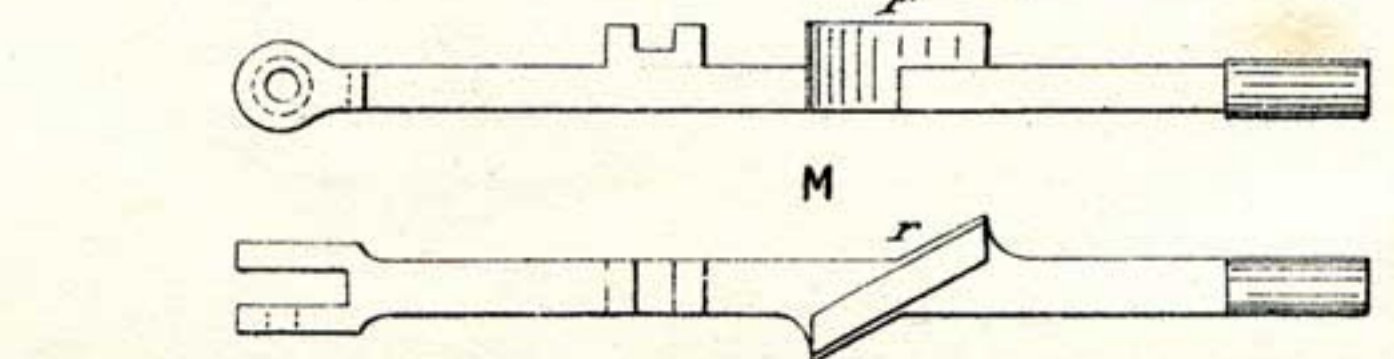
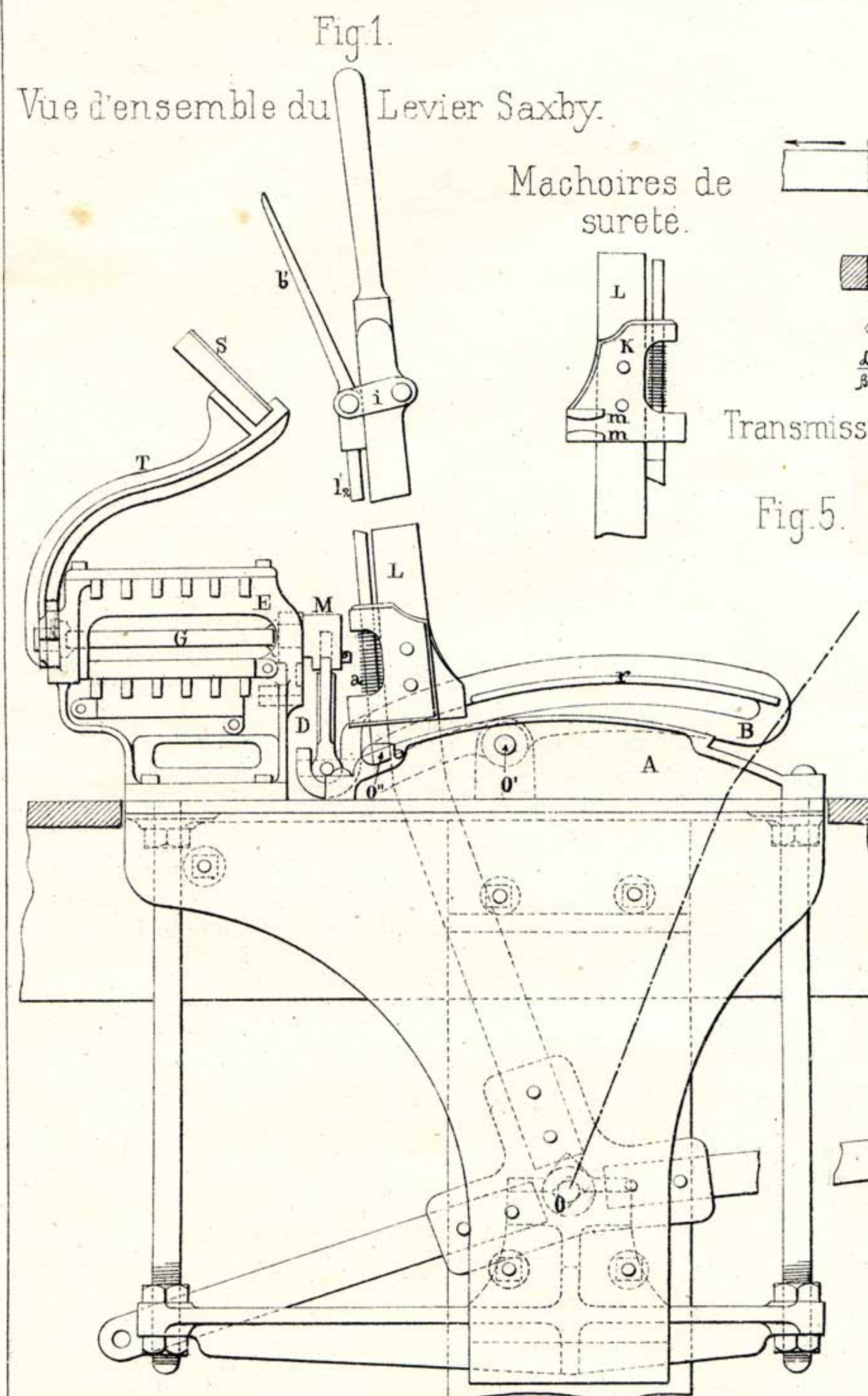


Fig. 21 et 22.

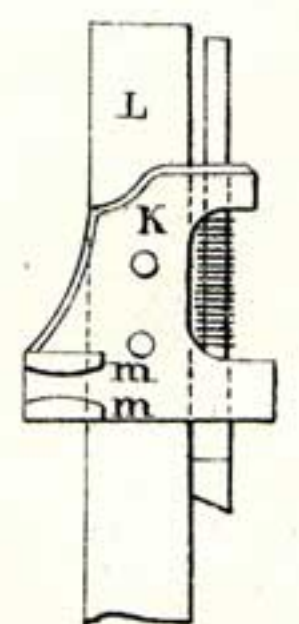
Barre M Conductrice à taquet oblique.



## ENCLÈCHEMENTS. - APPAREILS SAXBY & FARMER



Machoières de sureté.



Transmission de mouvement des barres.

Fig. 5.

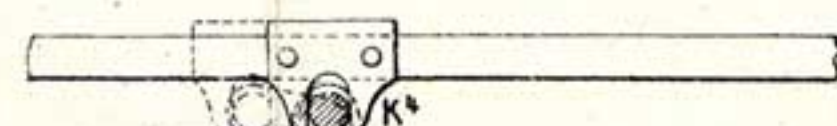
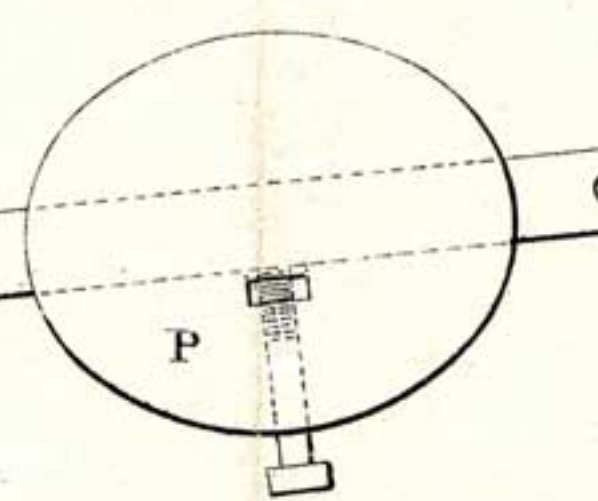
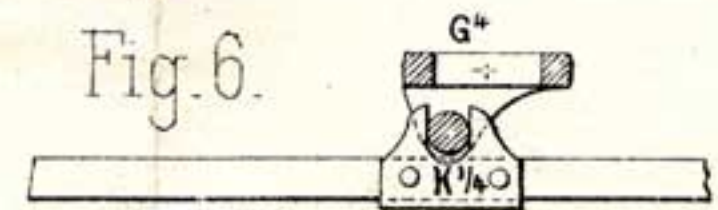


Fig. 6.



Détails des grils.

Fig. 2.

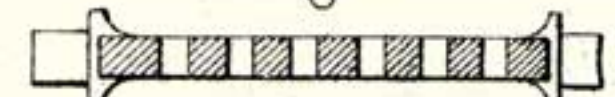


Fig. 3.

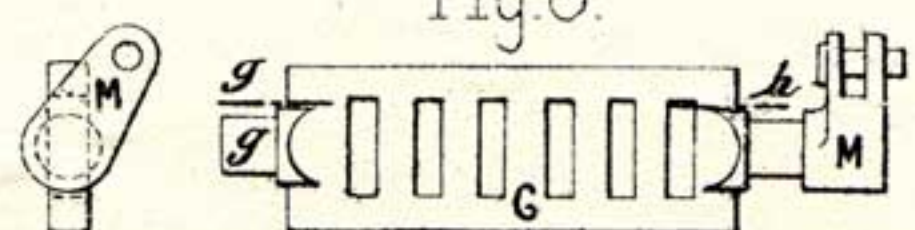


Fig. 4.

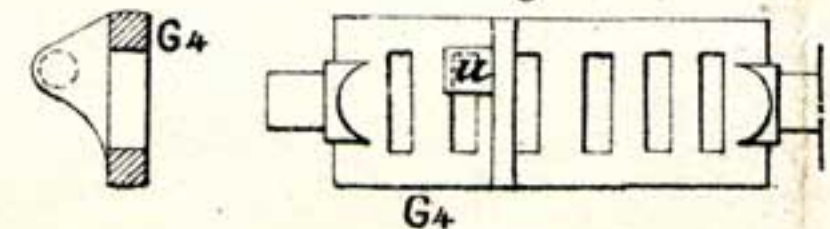
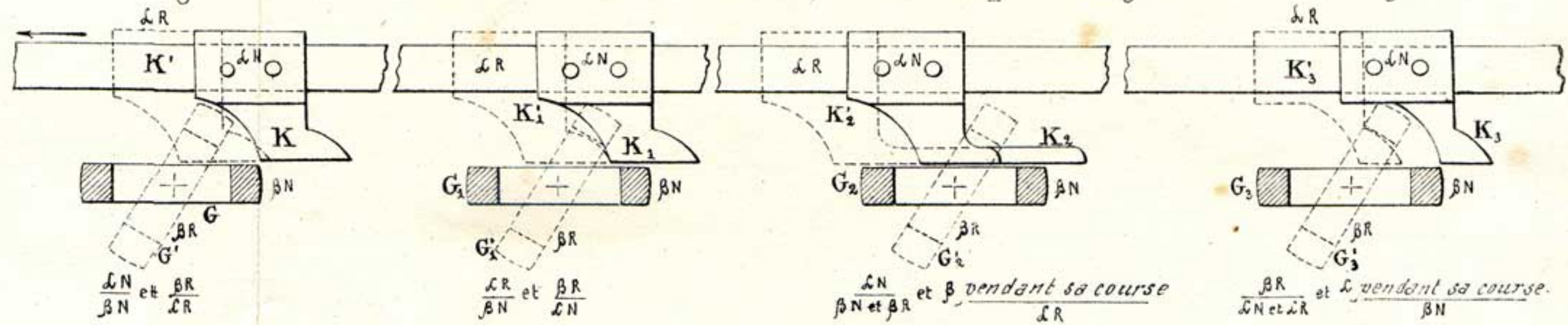


Fig. 7. Enclèchements élémentaires réalisés par le système Saxby.



Solution générale des enclèchements conditionnels.

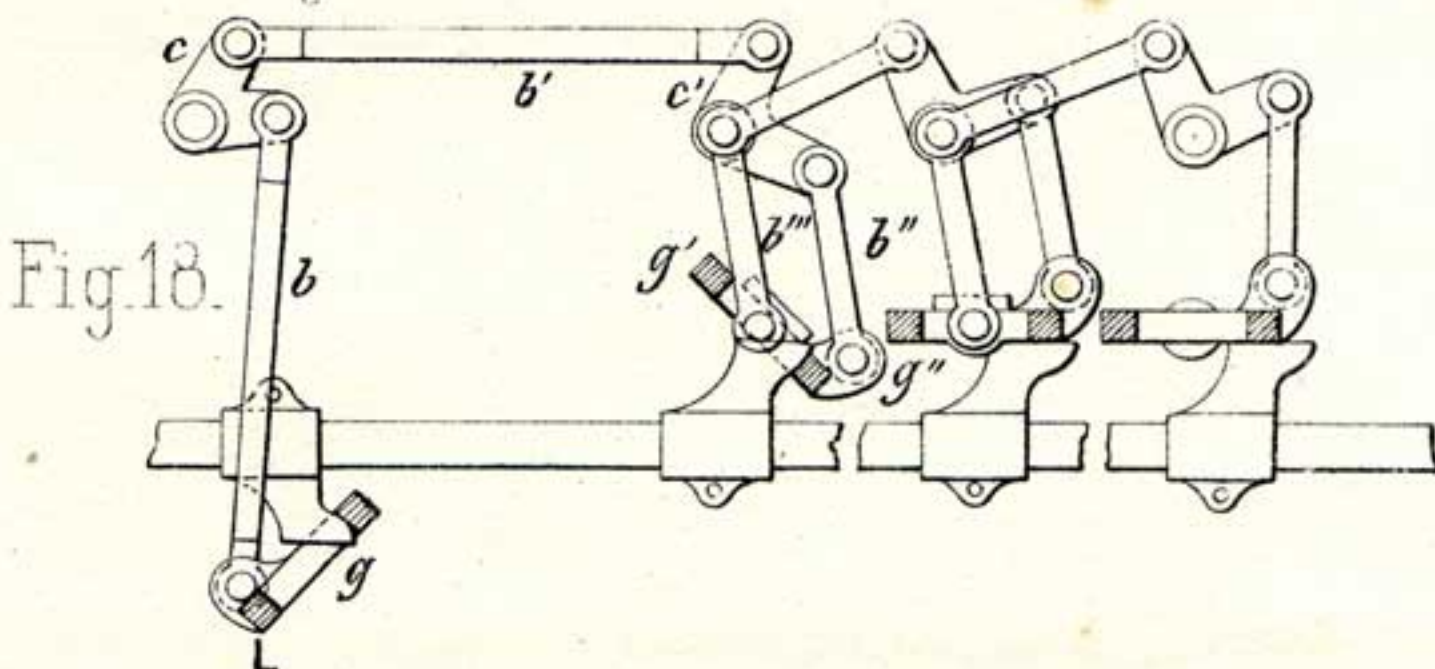


Fig. 8 à 10. Appareil au niveau du sol.

Fig. 8. Vue de face.

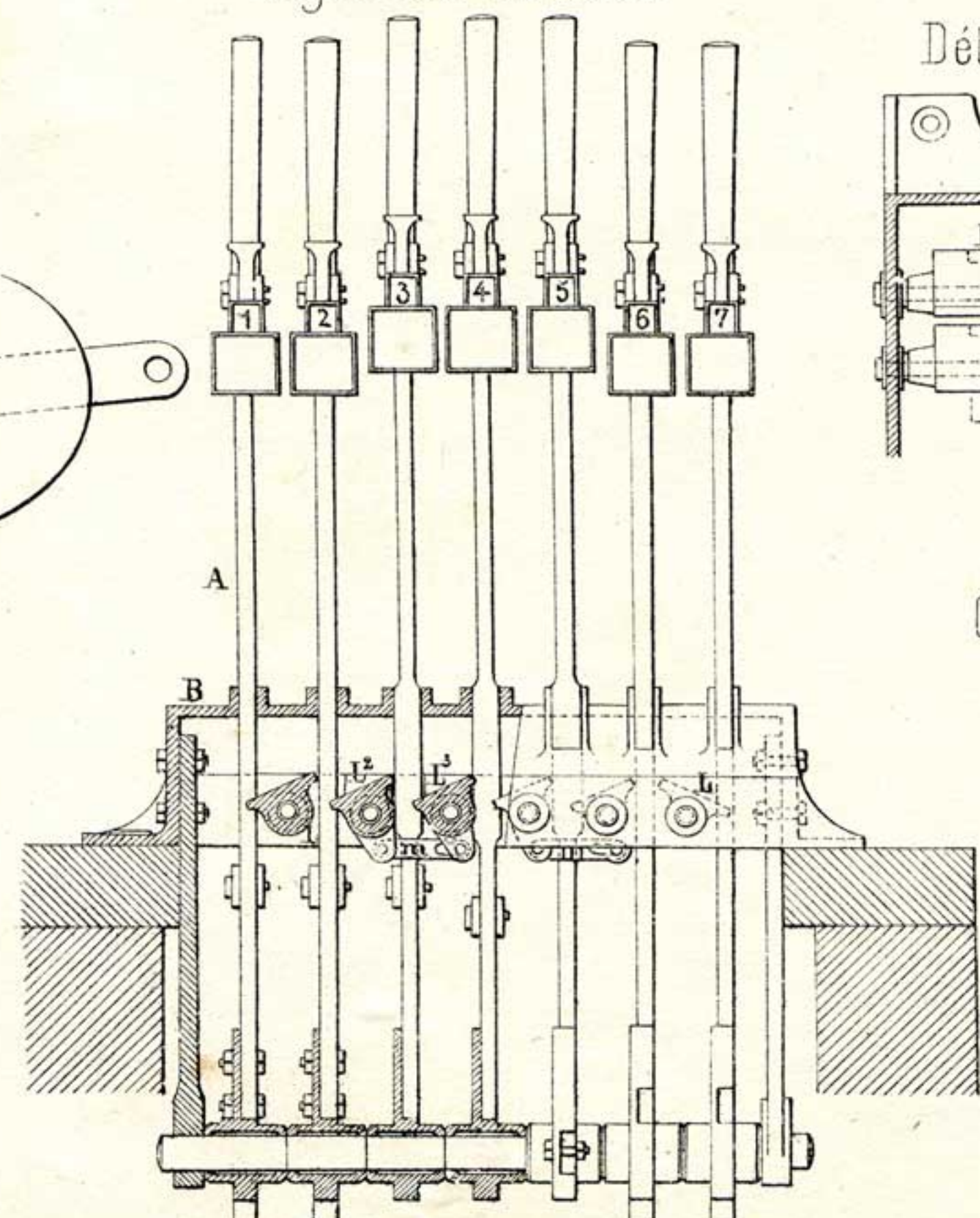


Fig. 10. Détail des verroux.

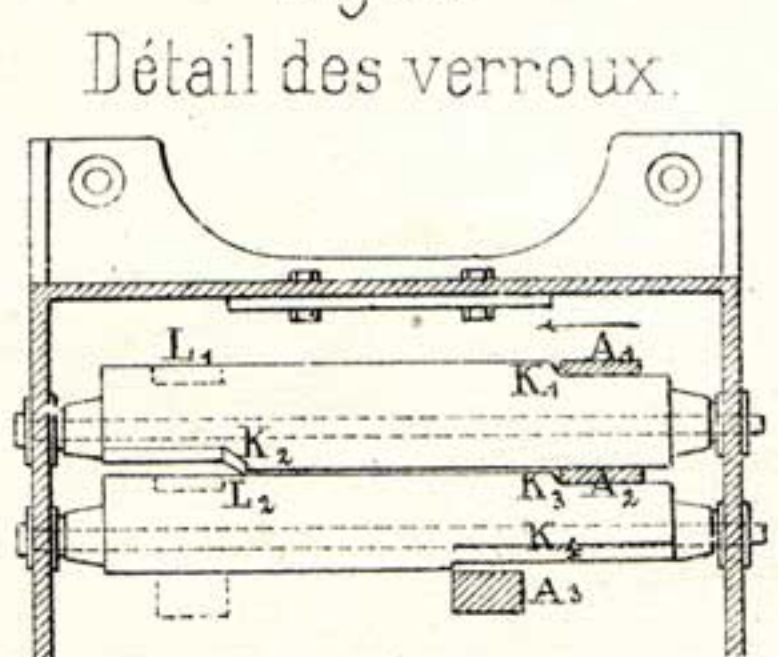


Fig. 9.

Coupe transversale.

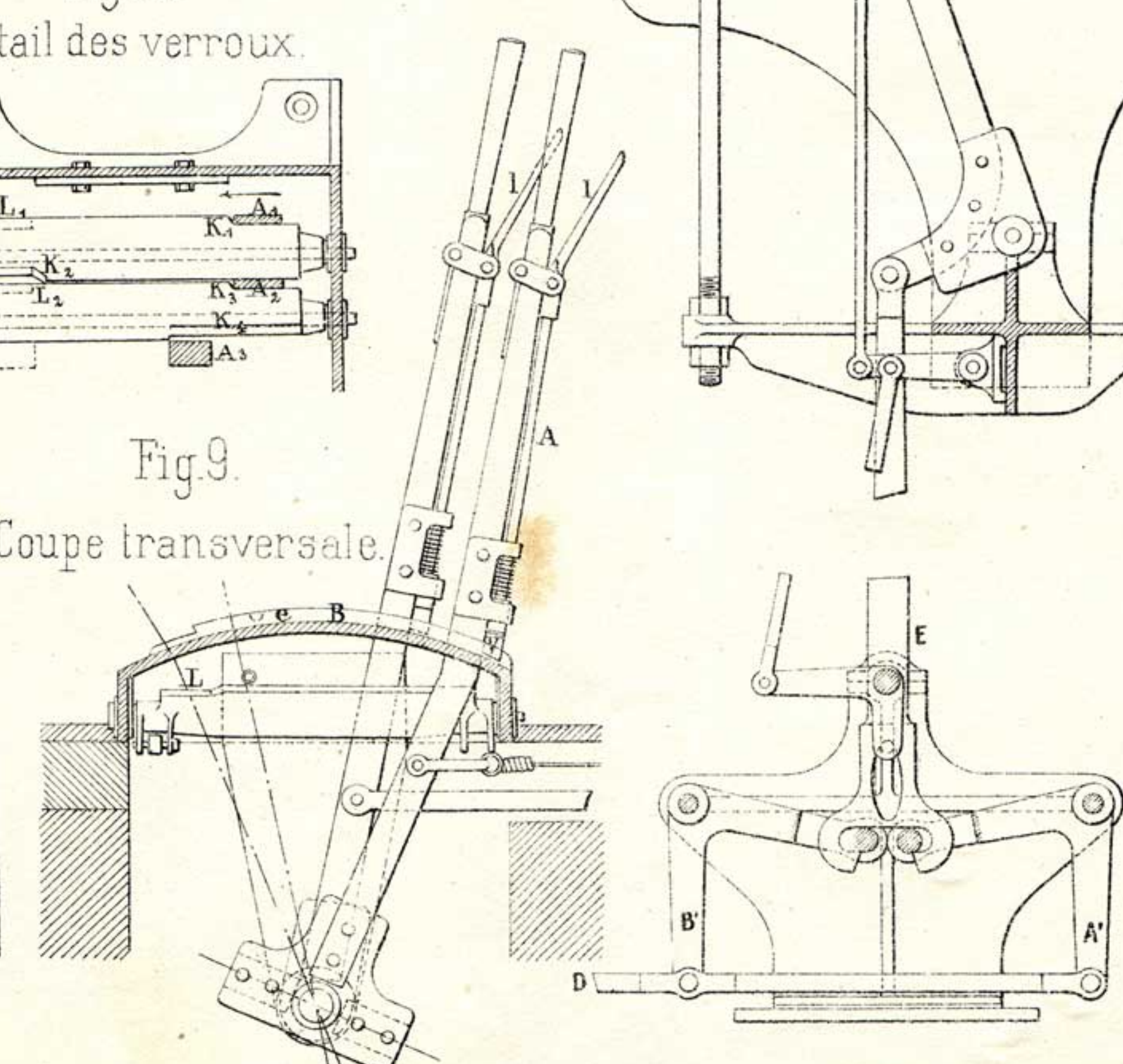


Fig. 11. Setting lever.

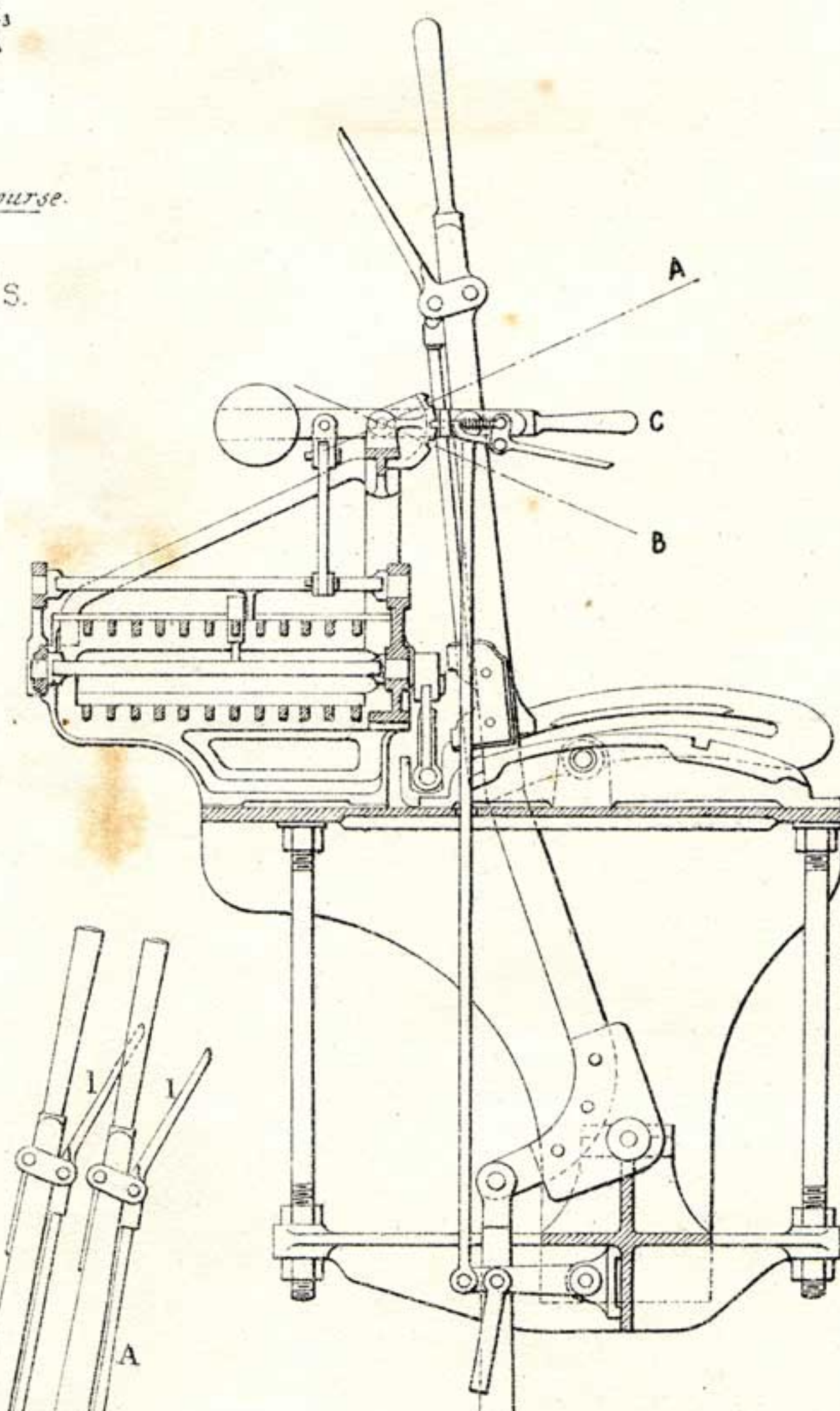


Fig. 12. Enclèchement conditionnel par taquet articulé.

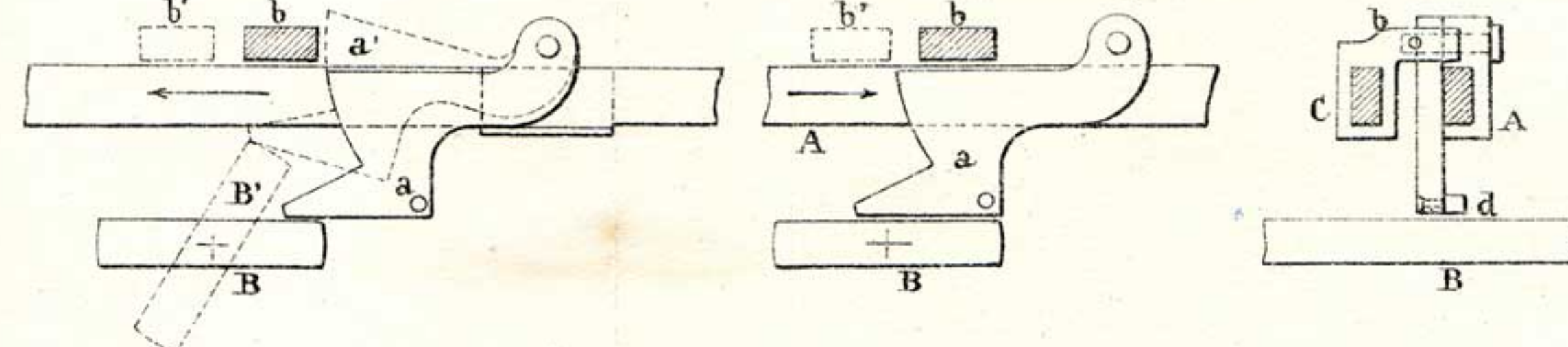


Fig. 13.

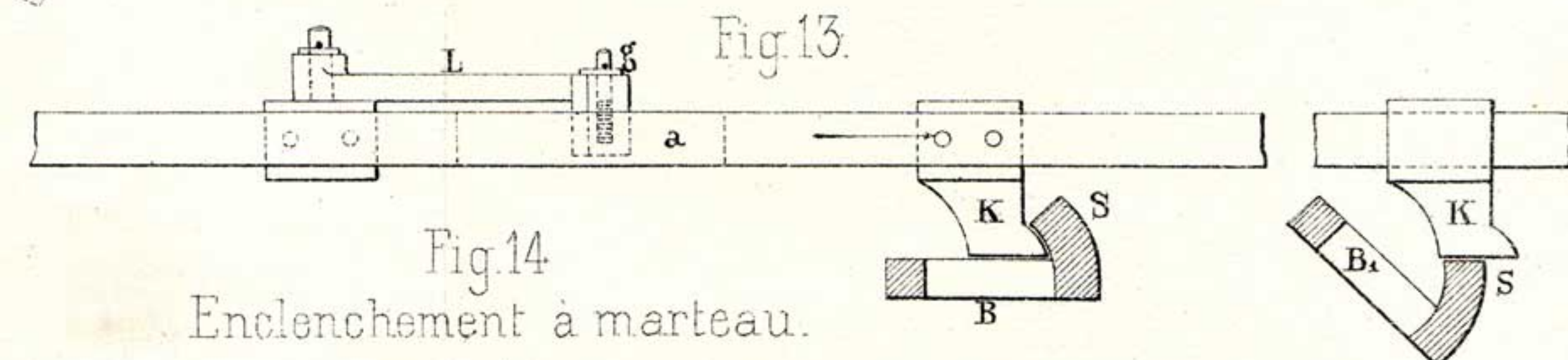


Fig. 14.

Enclèchement à marteau.

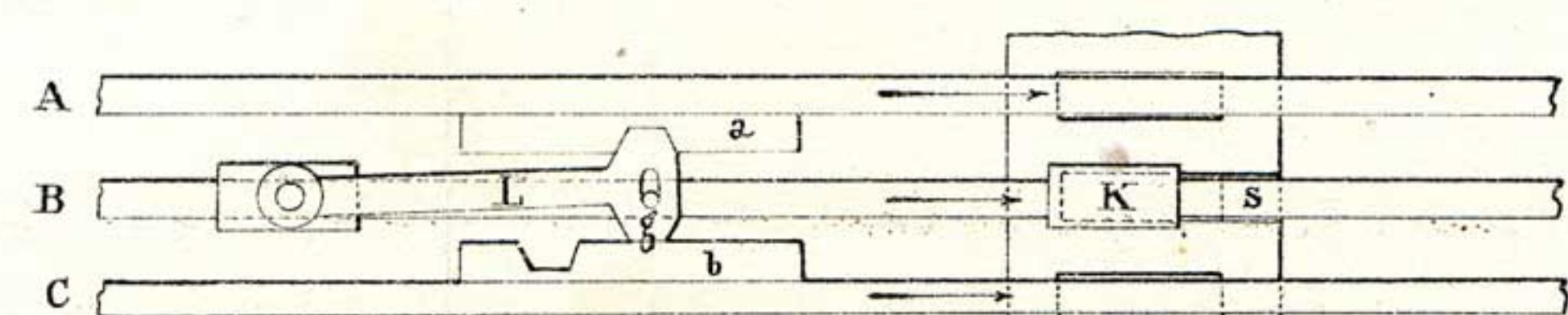
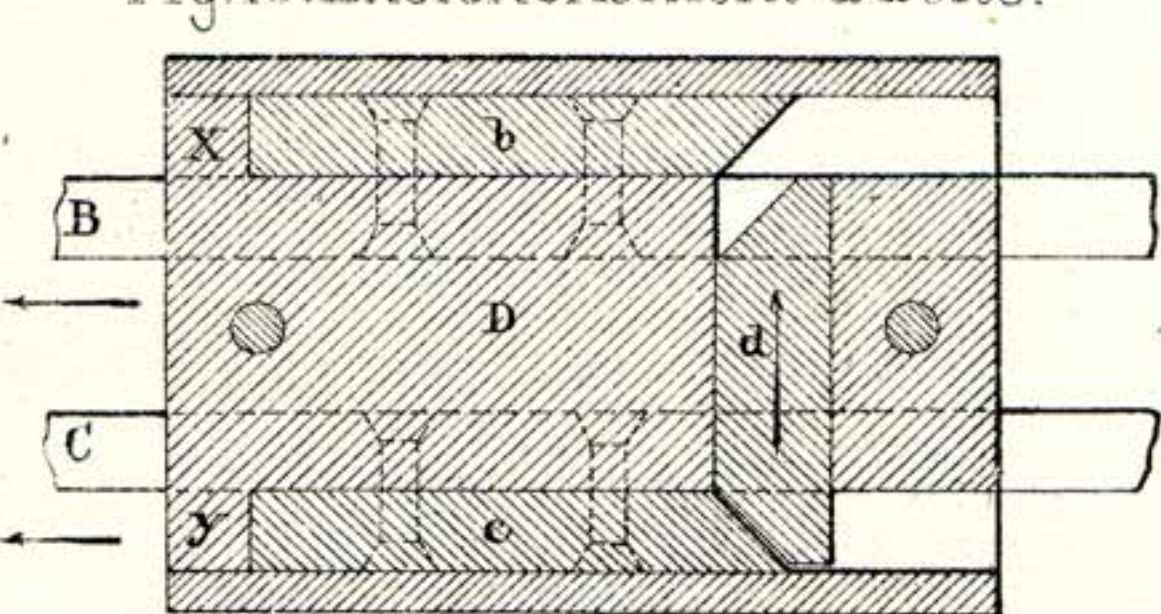


Fig. 15. Enclèchement à boîte.



Enclèchement à glissière.

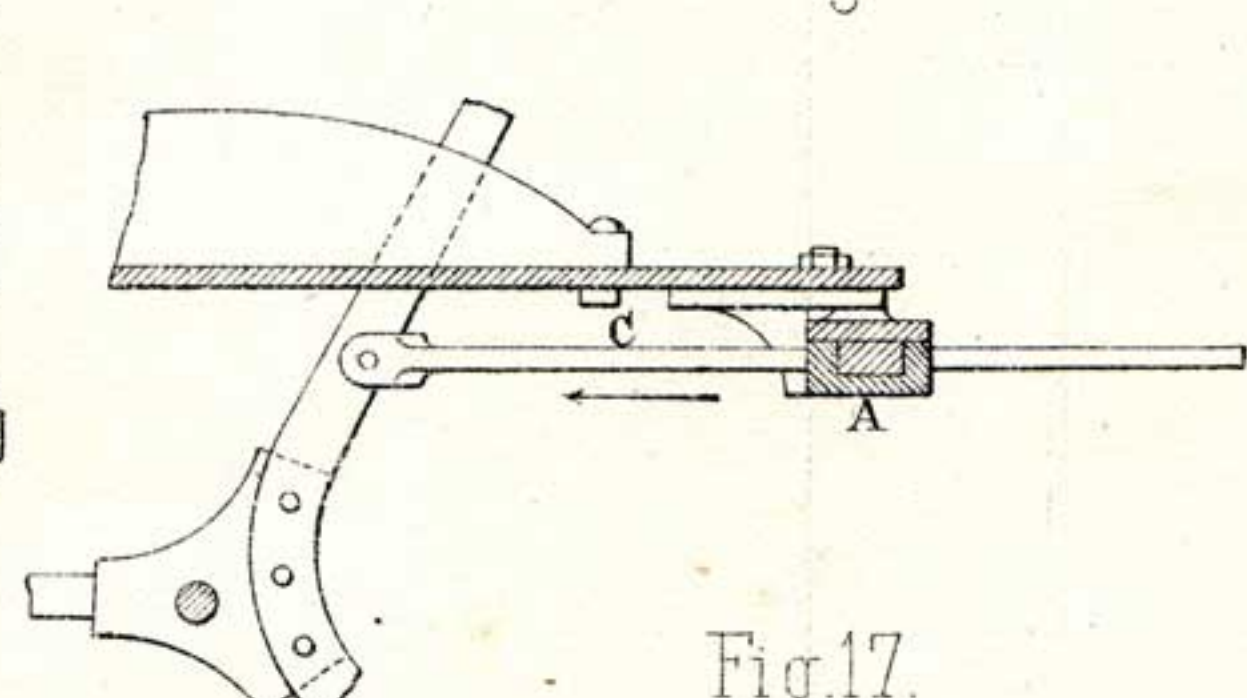


Fig. 17.

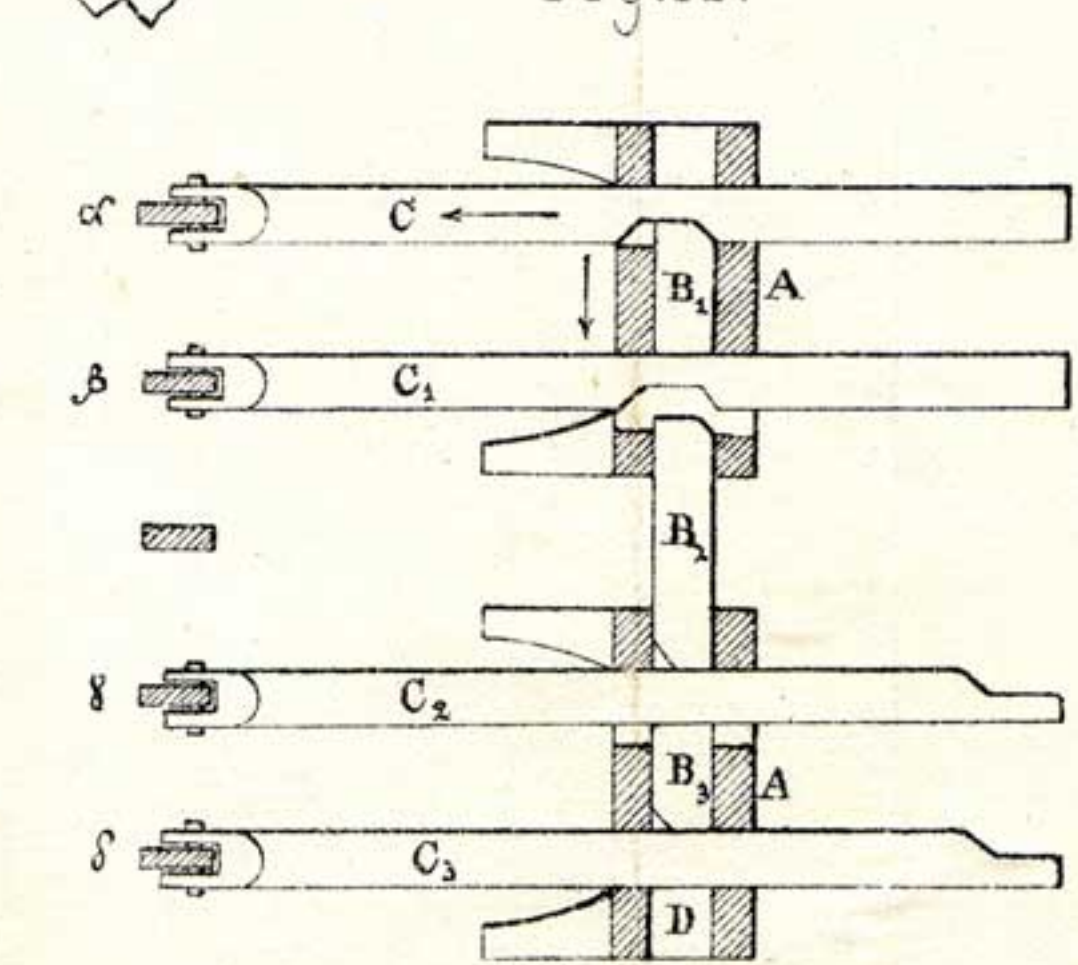
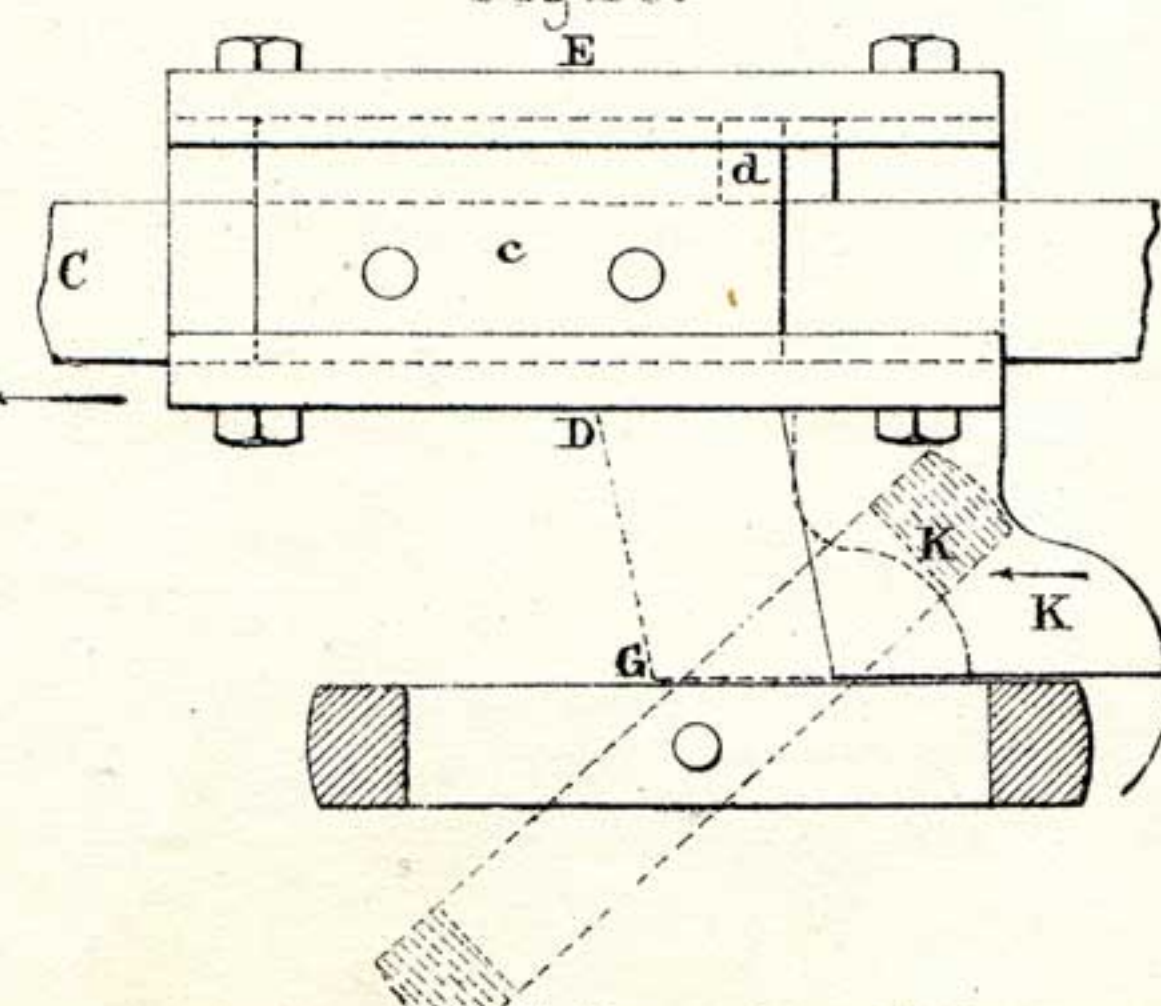
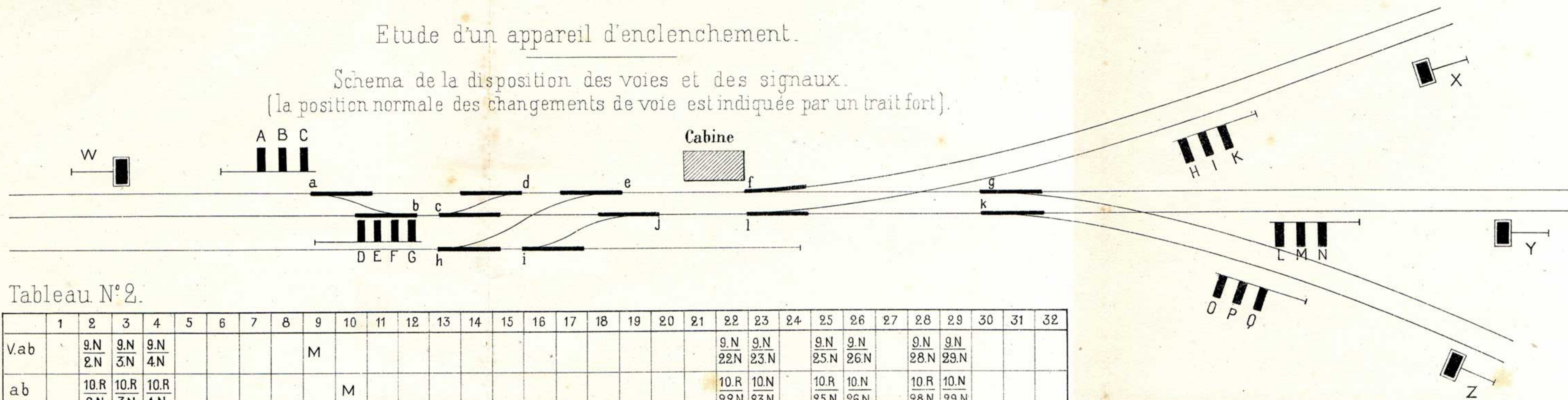


Fig. 16.



## Etude d'un appareil d'enclenchement.

Schema de la disposition des voies et des signaux.  
[la position normale des changements de voie est indiquée par un trait fort].



## Schema d'un appareil d'enclenchement.

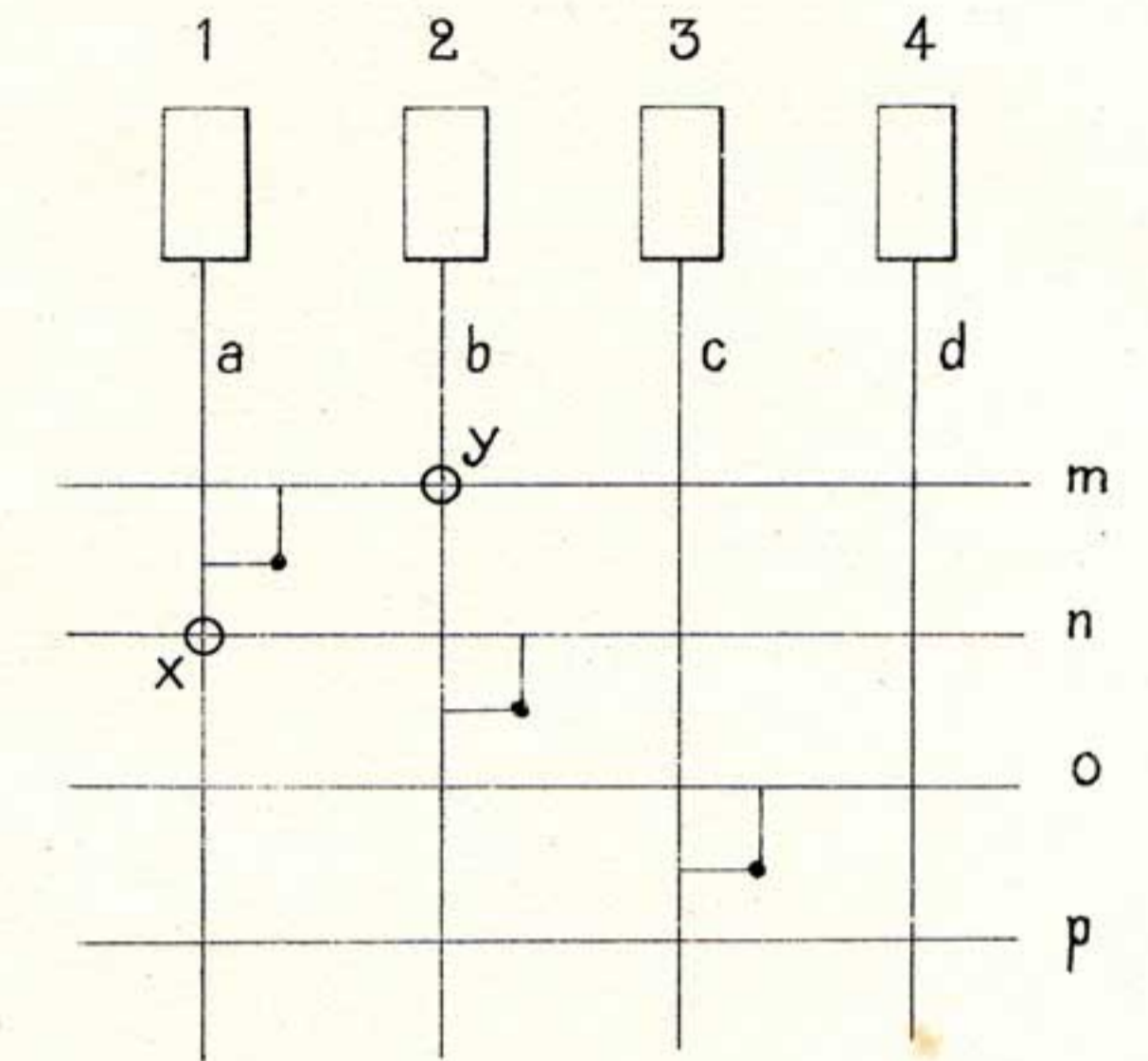


Tableau N° 2.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32										
Vab		9.N 2.N	9.N 3.N	9.N 4.N					M													9.N 22.N	9.N 23.N		9.N 25.N	9.N 26.N		9.N 28.N	9.N 29.N													
ab		10.R 2.N	10.R 3.N	10.R 4.N						M													10.R 22.N	10.N 23.N		10.R 25.N	10.N 26.N		10.R 28.N	10.N 29.N												
cd		11.R 2.N	11.R 3.N	11.R 4.N							M												11.R 22.N	11.R 23.N		11.R 25.N	11.R 26.N		11.R 28.N	11.R 29.N												
eh		12.R 2.N	12.R 3.N	12.R 4.N	12.R 5.N	12.N 6.N	12.N 7.N	12.N 8.N			M												12.R 22.N	12.R 23.N		12.R 25.N	12.R 26.N		12.R 28.N	12.R 29.N												
f		13.N 2.N	13.N 3.N	13.R 4.N		13.N 6.N	13.N 7.N	13.R 8.N				M											13.R 21.N	13.R 22.N	13.R 23.N	13.R 24.N	13.R 25.N	13.R 26.N														
V.f		14.N 2.N	14.N 3.N	14.N 4.N		14.N 6.N	14.N 7.N	14.N 8.N					M										14.N 21.N	14.N 22.N	14.N 23.N	14.N 24.N	14.N 25.N	14.N 26.N														
g		15.N 2.N	15.R 3.N			15.N 6.N	15.R 7.N						M												15.R 24.N	15.R 25.N	15.R 26.N															
V.g		16.N 2.N	16.N 3.N			16.N 6.N	16.N 7.N							M											16.N 24.N	16.N 25.N	16.N 26.N															
l																		M					17.N 21.N	17.N 22.N	17.N 23.N	17.R 24.N	17.R 25.N	17.R 26.N	17.R 27.N	17.R 28.N	17.R 29.N											
k																			M						18.R 24.N	18.R 25.N	18.R 26.N	18.N 27.N	18.N 28.N	18.N 29.N												
ij																				M				19.N 21.N	19.R 22.N	19.R 23.N	19.R 24.N	19.R 25.N	19.R 26.N	19.N 27.N	19.R 28.N	19.R 29.N										
V.ij																					M			20.N 21.N	20.N 22.N	20.N 23.N	20.N 24.N	20.N 25.N	20.N 26.N	20.N 27.N	20.N 28.N	20.N 29.N										
x																						M														30.R 31.N	30.R 32.N			N N		
y																																					31.R 30.N	M	31.R 32.N			N N

Tableau N° 1.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32									
	W	A	B	C	D	E	F	G	Y	ab	ab	cd	eh	f	f	g	g	l	k	ij	Y	H	I	K	L	M	N	O	P	Q	X	Y	Z								
1 W																																									
2 A										R	N	N	N	R	R	R	R																								
3 B										R	N	N	N	R	R	N	R																								
4 C										R	N	N	N	N	R		R																								
5 D													N																												
6 E														R	R	R	R																								
7 F														R	R	R	N																								
8 G														R	N	R																									
21 H														N	R				R	R	R																				
22 I																			R	N	N	N	N	R				R	N	R											
23 K																			R	R	N	N	N	R				R	N	R											
24 L															N	R	N	R	N	N	R	R																			
25 M																																									
26 N																																									
27 O																																									
28 P																																									
29 Q																																									
30 X																																								N N	
31 Y																																								N N	
32 Z																																								N N	

**Légende.**  
 N. position normale.  
 R. position renversée.  
 M. levier muni d'une barre.  
 V. verrou.  
 Les enclenchements sont indiqués par la notation Cossmann.

Block System. Flamache Fig. 1 à 4.

Fig. 1. Vue de face de l'appareil.

Fig. 2. Enclenchement mécanique du levier.

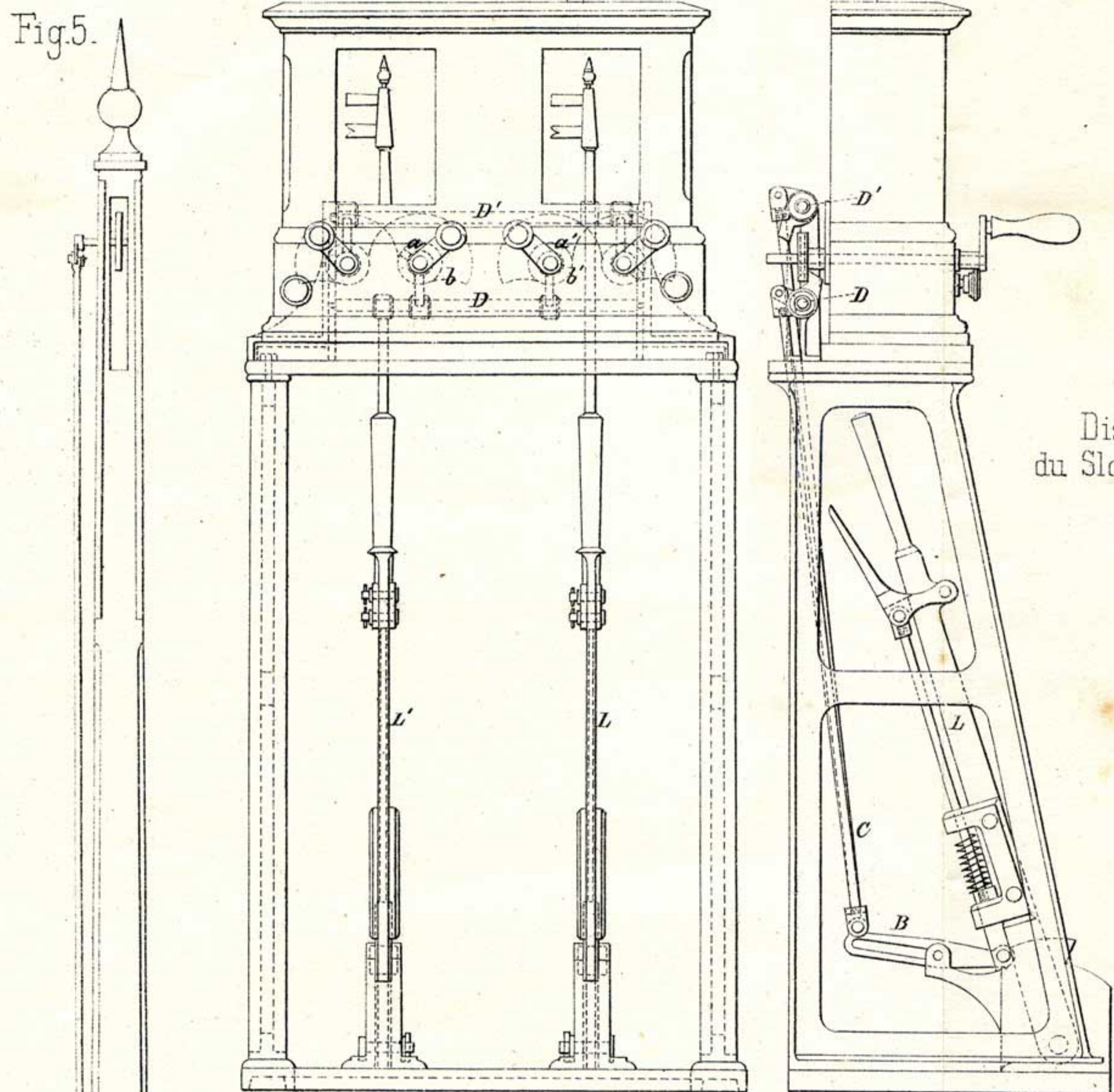


Fig. 3. Poste intermédiaire avec garage.

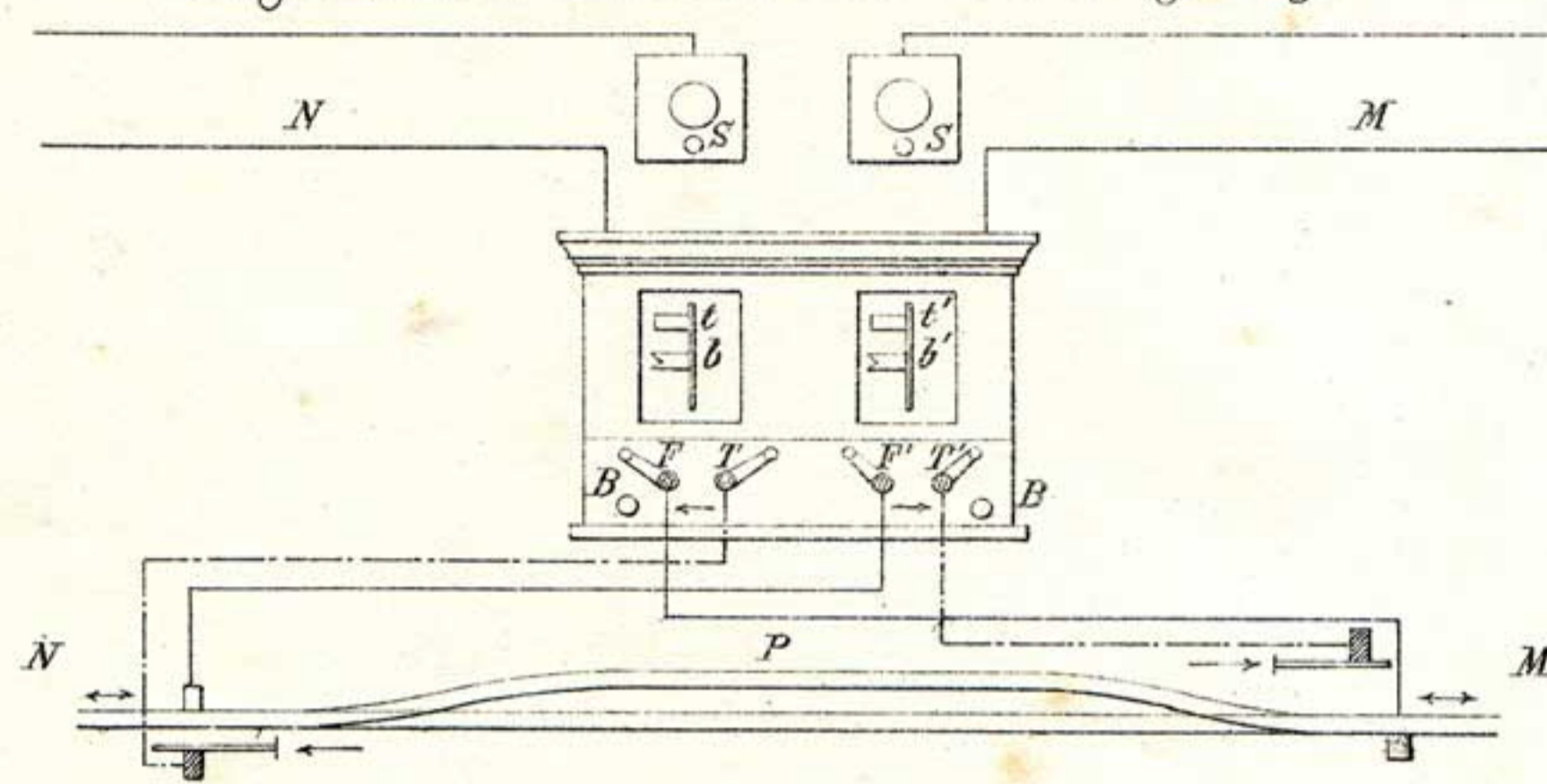


Fig. 9. Slot Saxby et Farmer. Disposition ancienne.

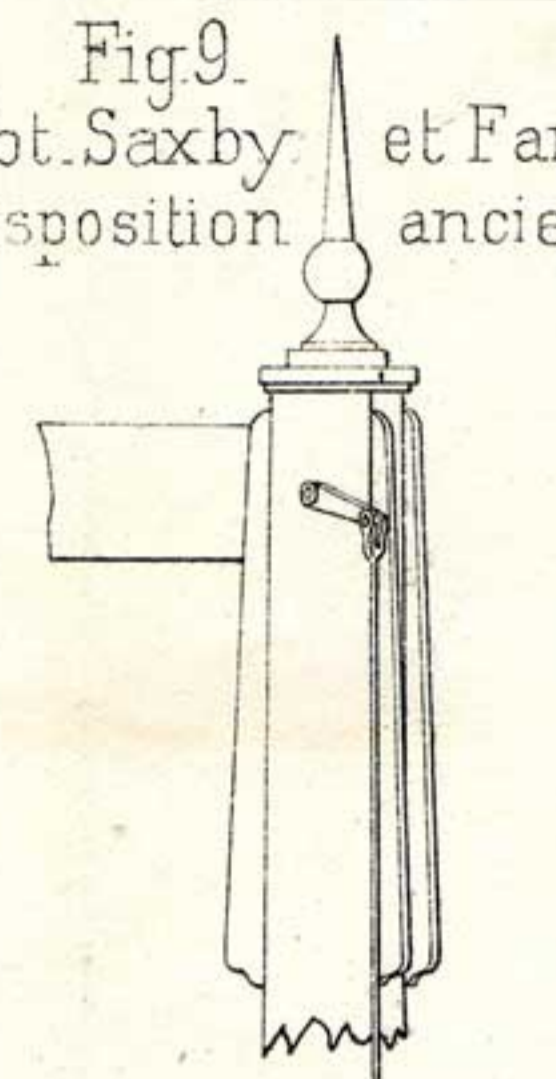


Fig. 10 et 11. Électric Slot.

Vue de face.

Vue de côté.

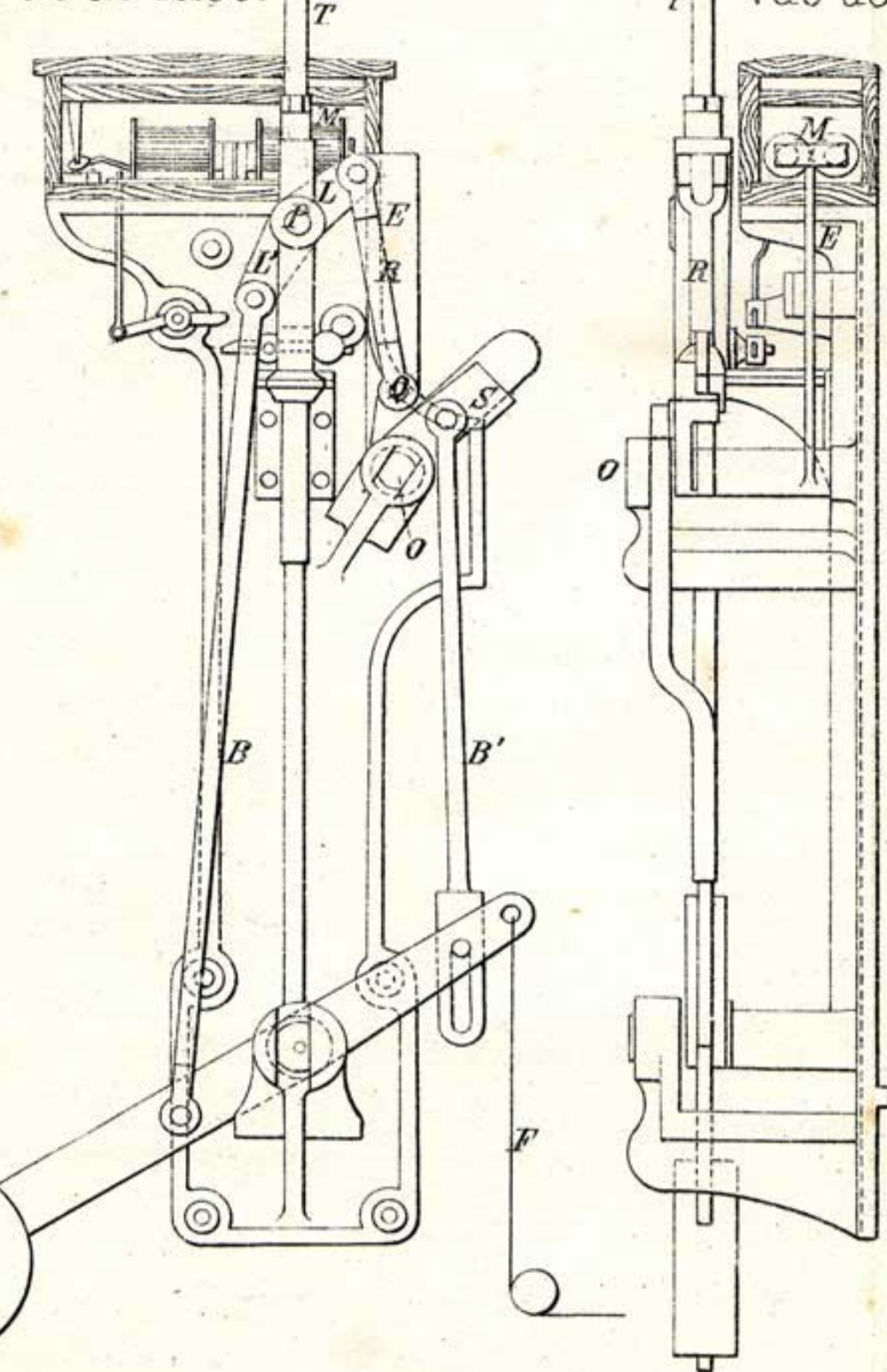


Fig. 7 et 8. Disposition nouvelle du Slot Saxby et Farmer.

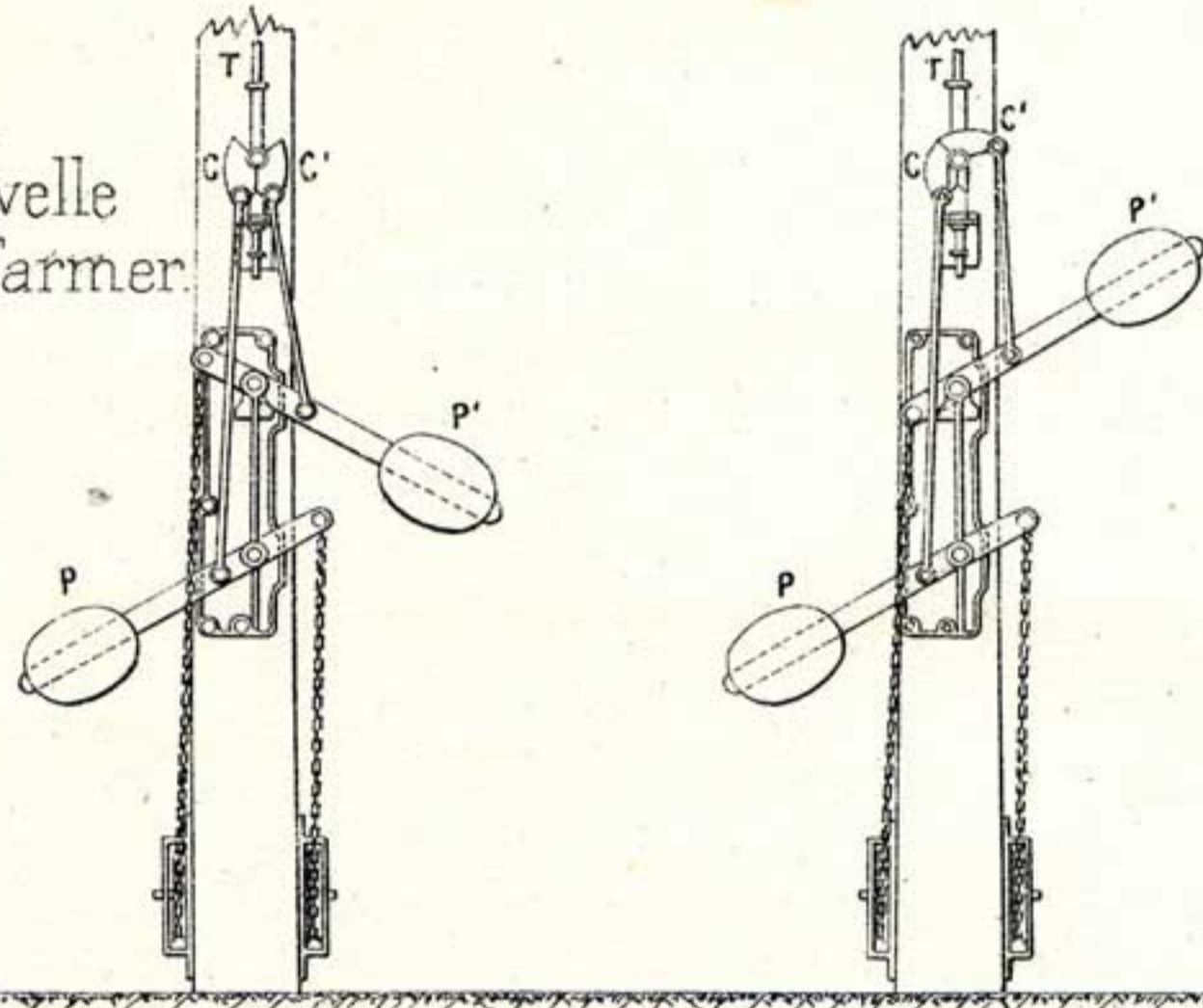
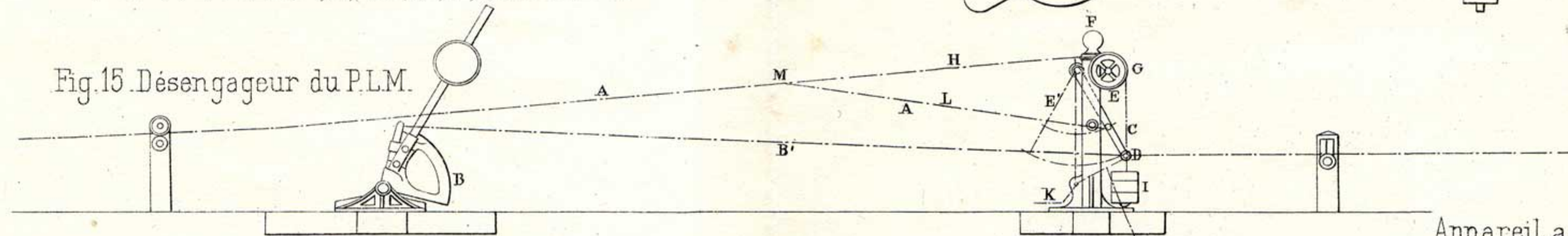
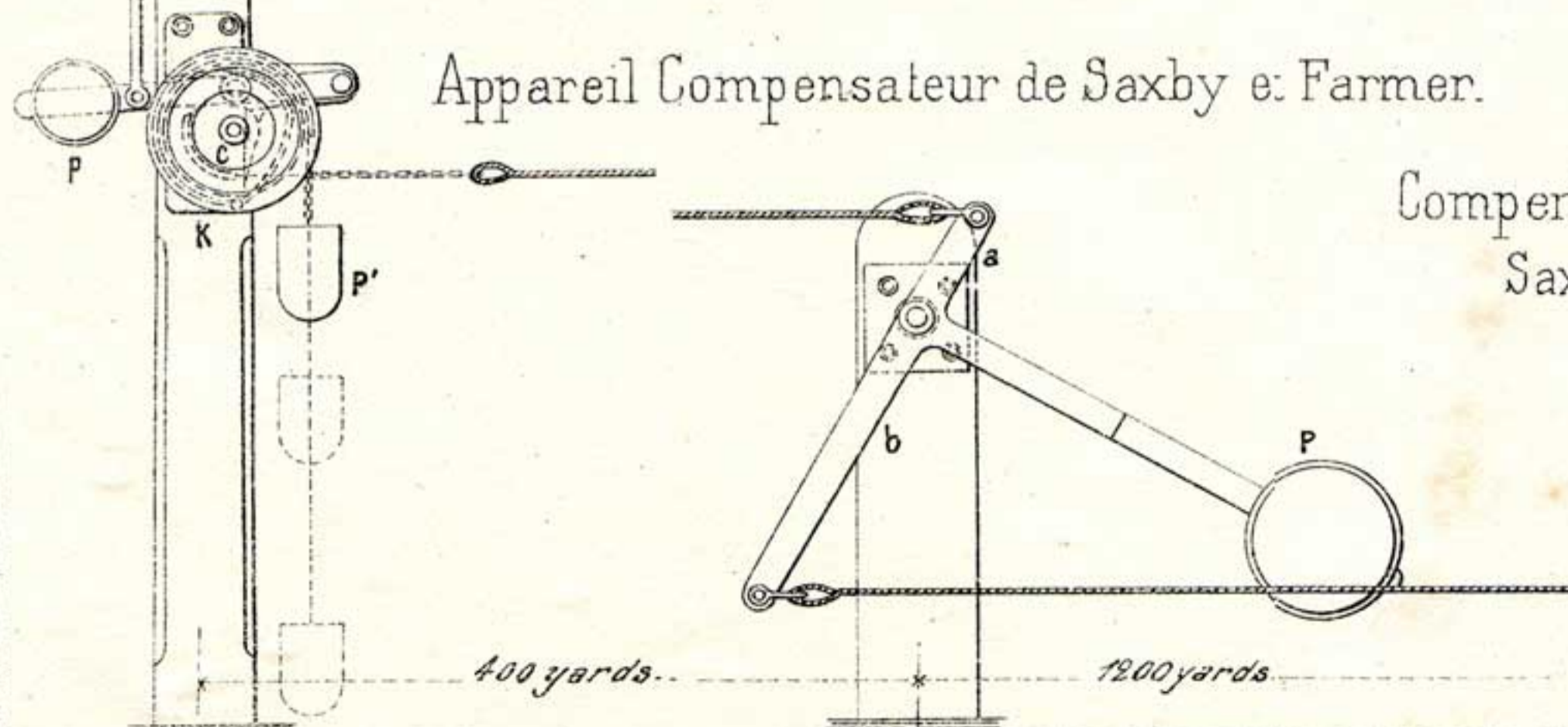


Fig. 15. Désengageur du P.L.M.



Appareil Compensateur de Saxby et Farmer.



Compensateur d'origine de Saxby et Farmer.

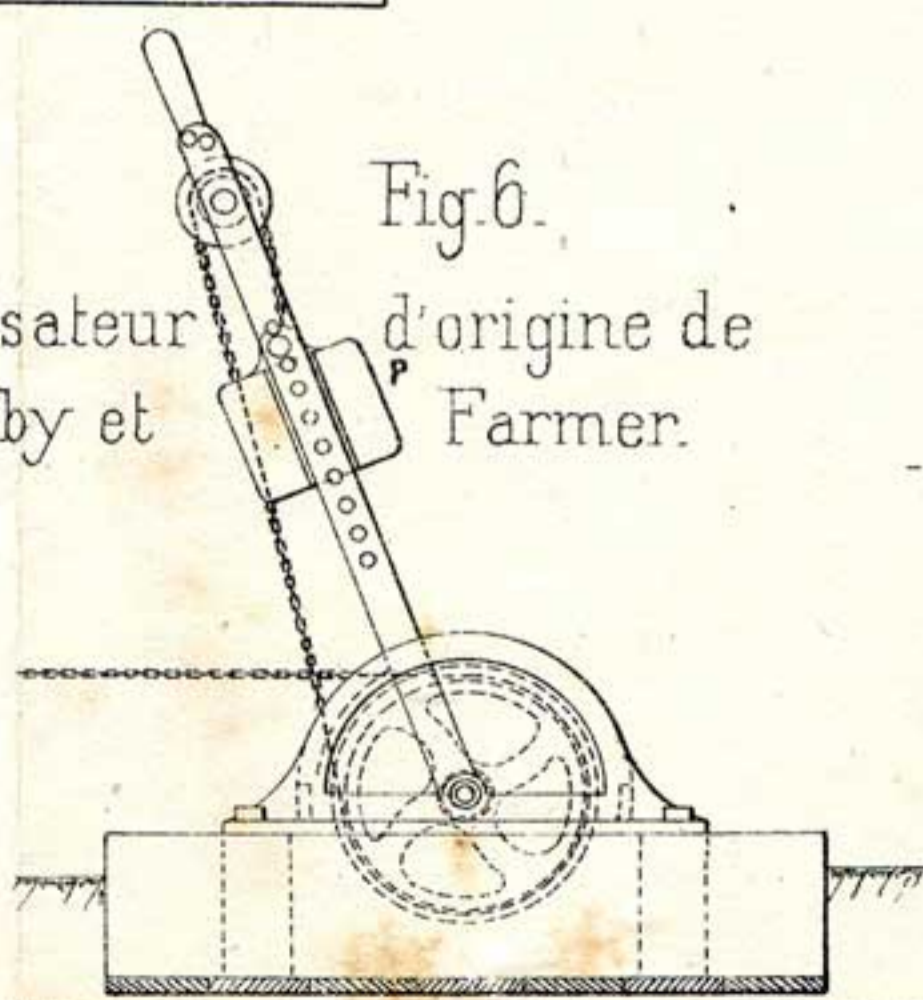


Fig. 16. Désengageur Saxby.

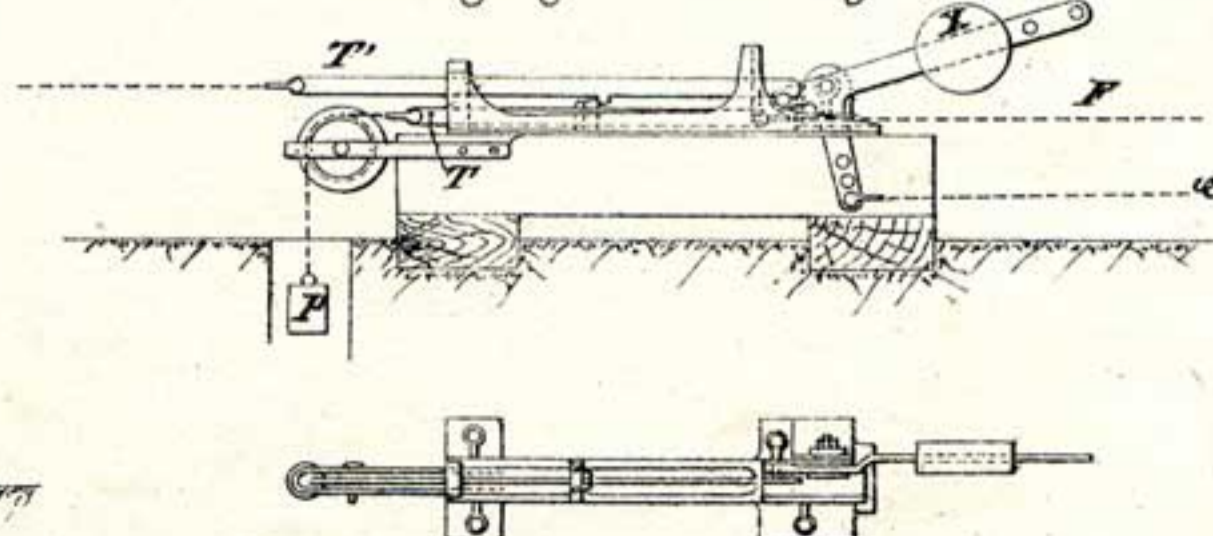
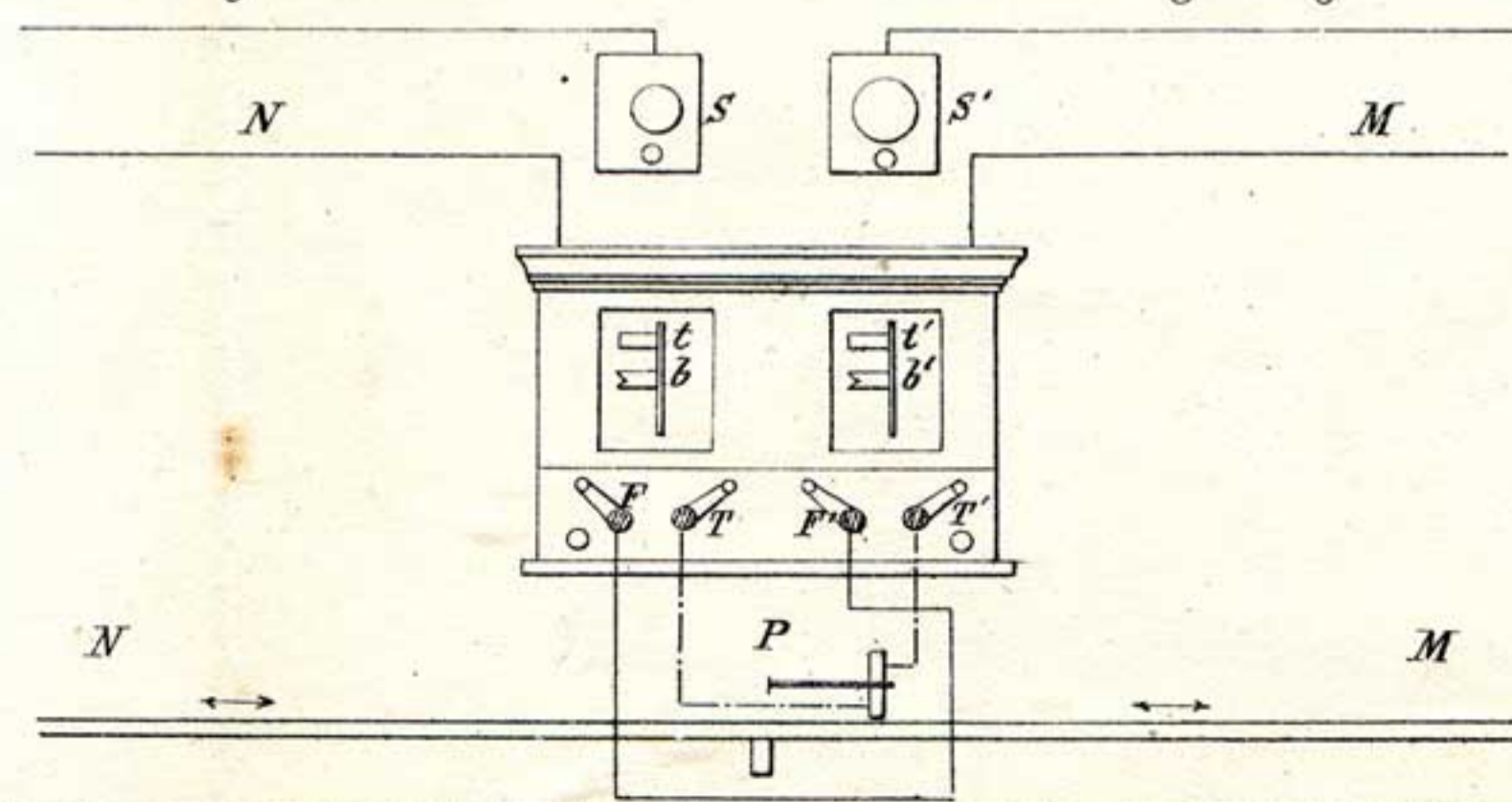


Fig. 4. Poste intermédiaire sans garage.



Signal à distance avec mât en fer de l'Etat Belge.

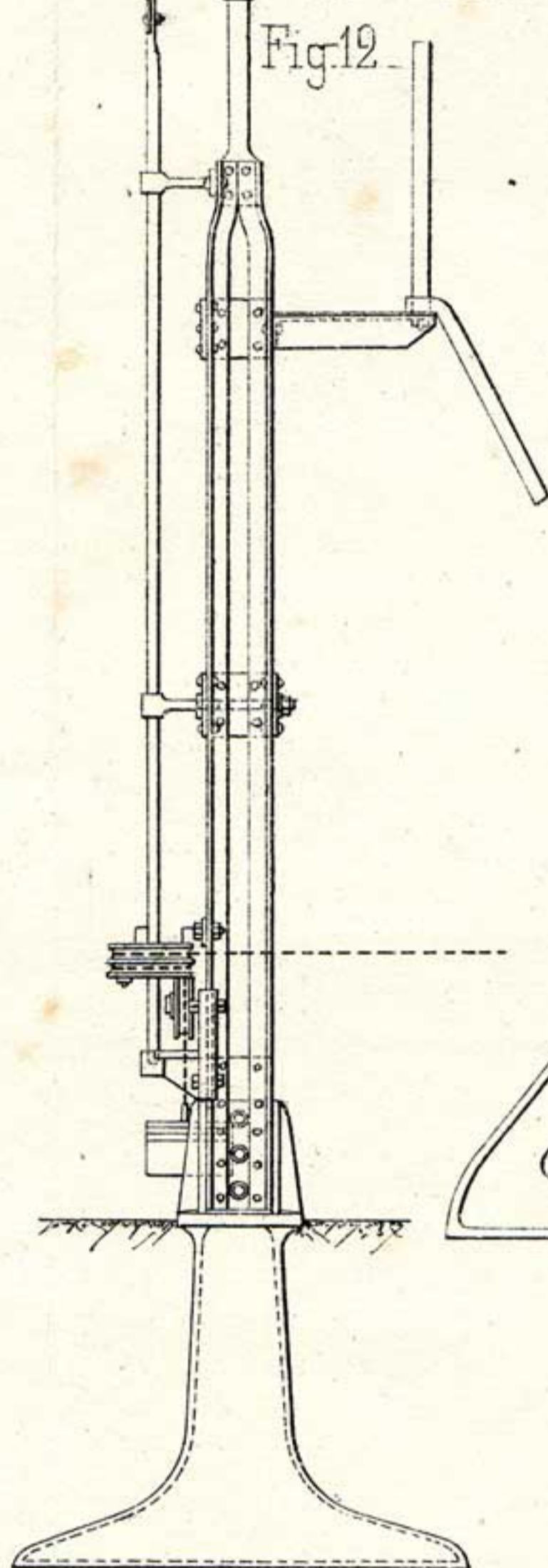
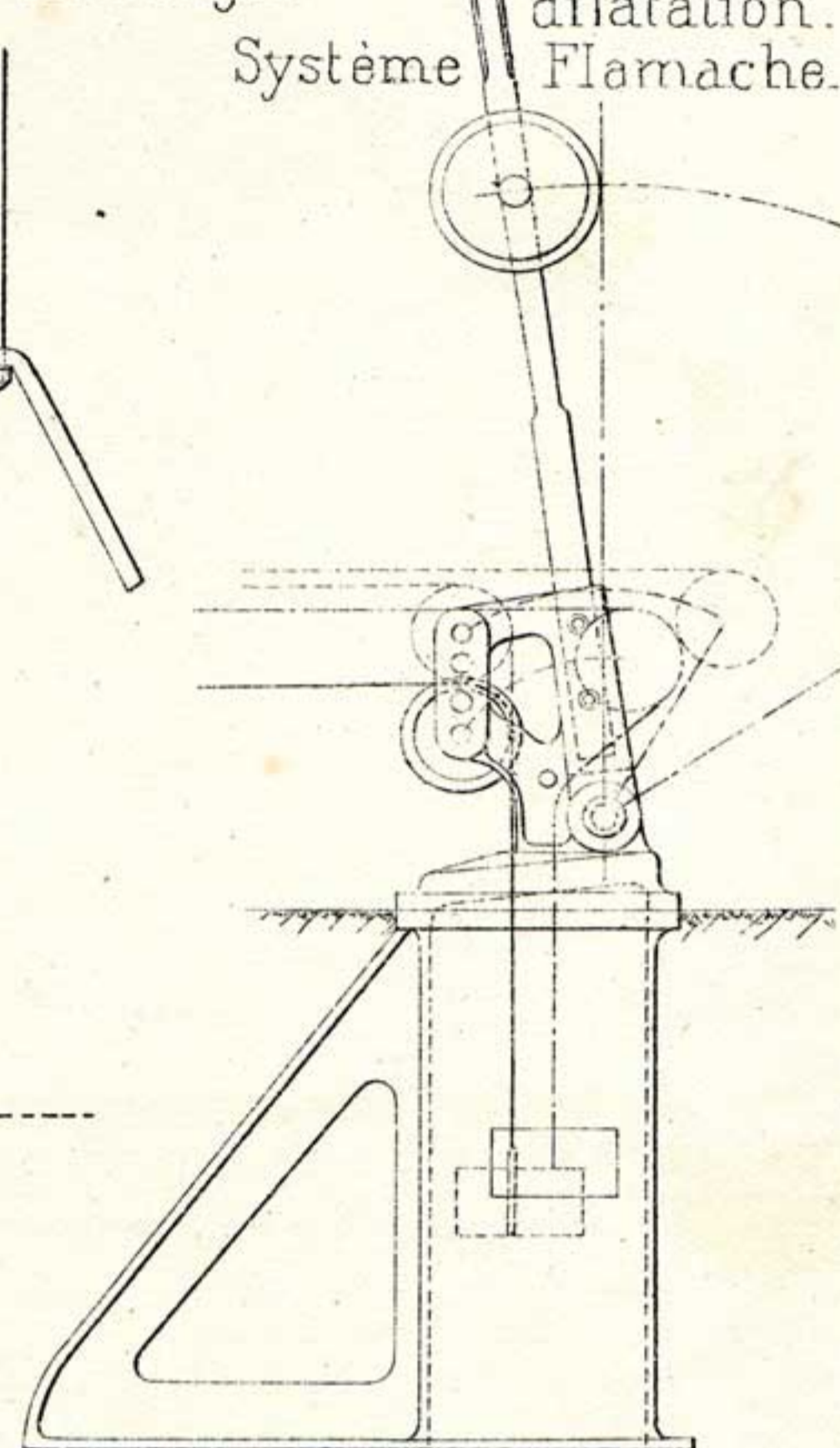


Fig. 13. Appareil à libre dilatation. Système Flamache.



Appareil à libre dilatation Système Lebon. Grand-Central Belge.

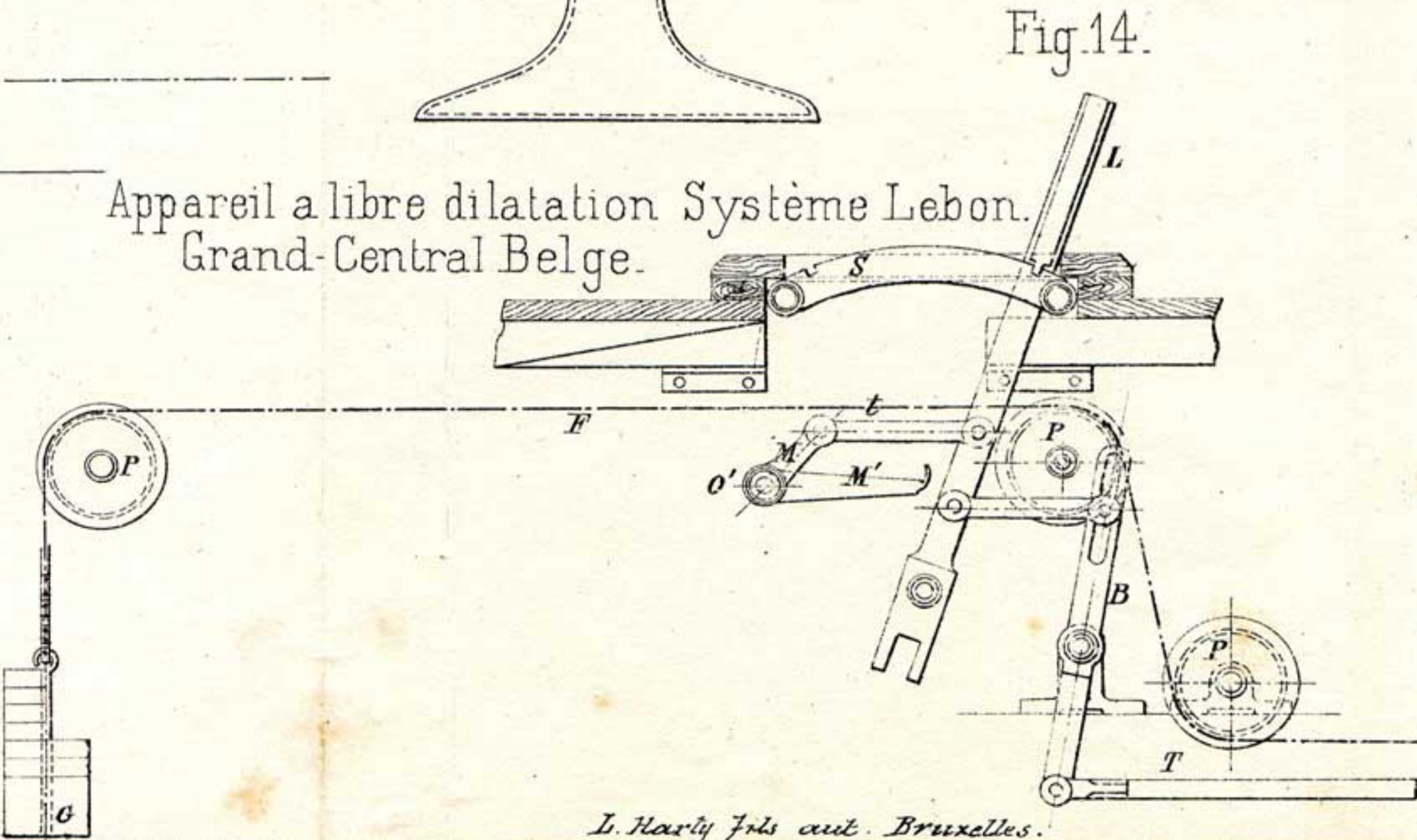




Fig.1 et 2. Grand Central Belge. - Appareil d'enclenchement de pont tournant.

Fig.1. Elevation.

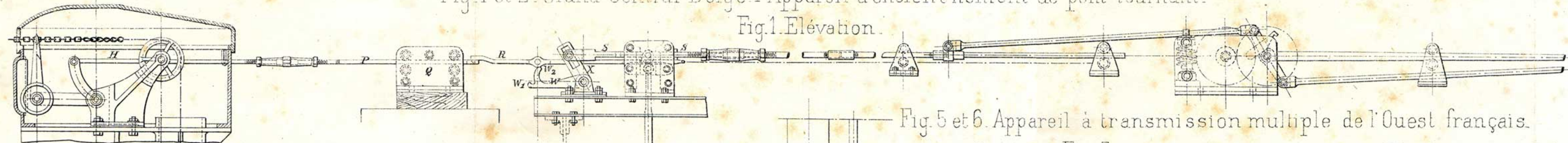


Fig.2. Plan.

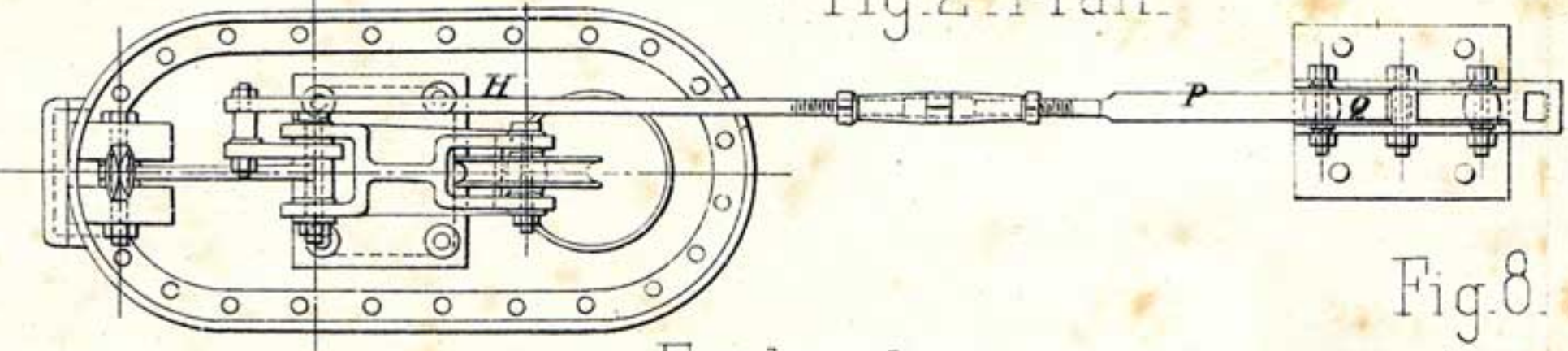


Fig.3 et 4. Etat Belge. Appareil d'enclenchement de pont tournant. Systeme Flamache.

Systeme Flamache.

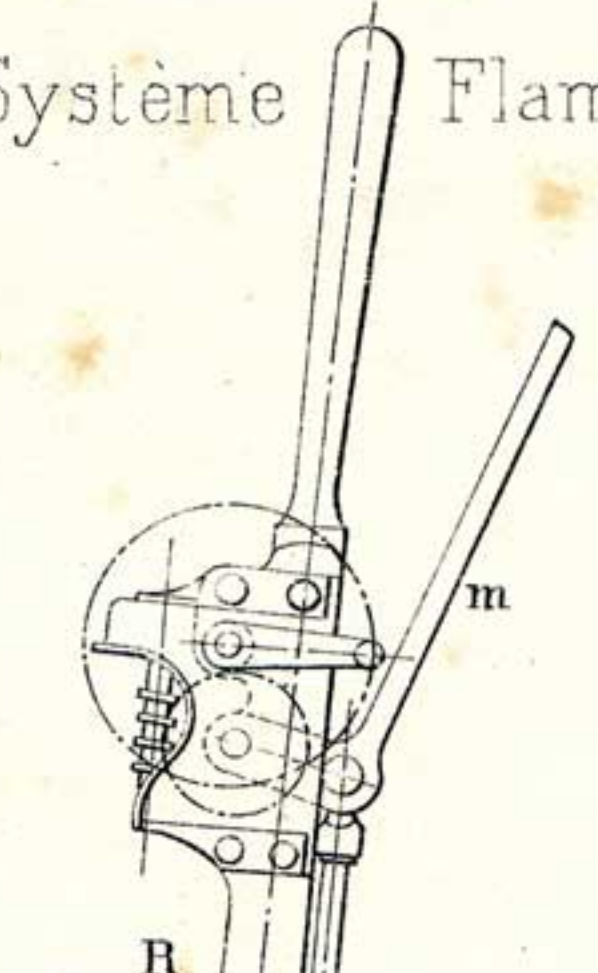


Fig.3. Elevation.

Fig.5 et 6. Appareil à transmission multiple de l'Ouest français.

Fig.5.

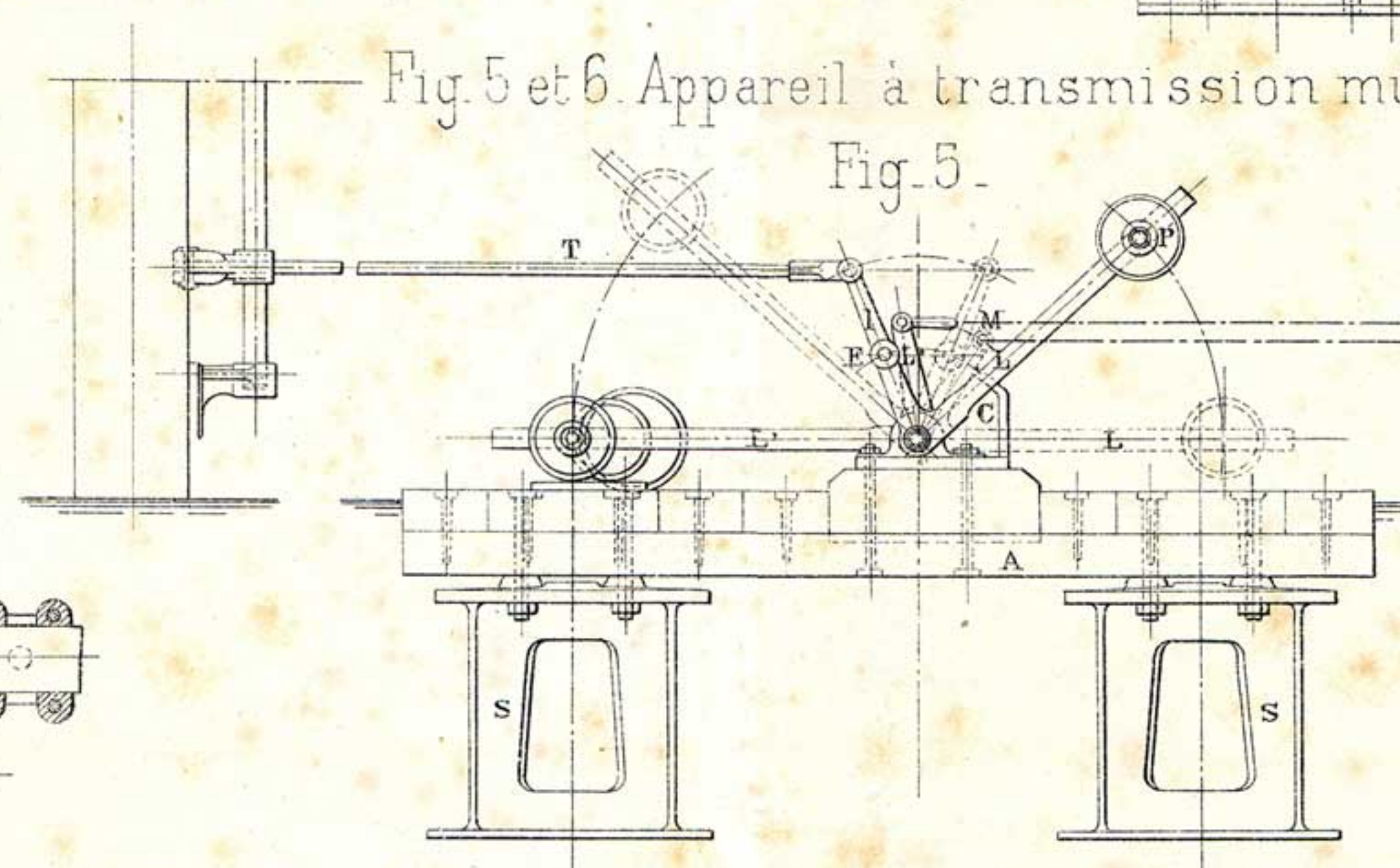


Fig.6.

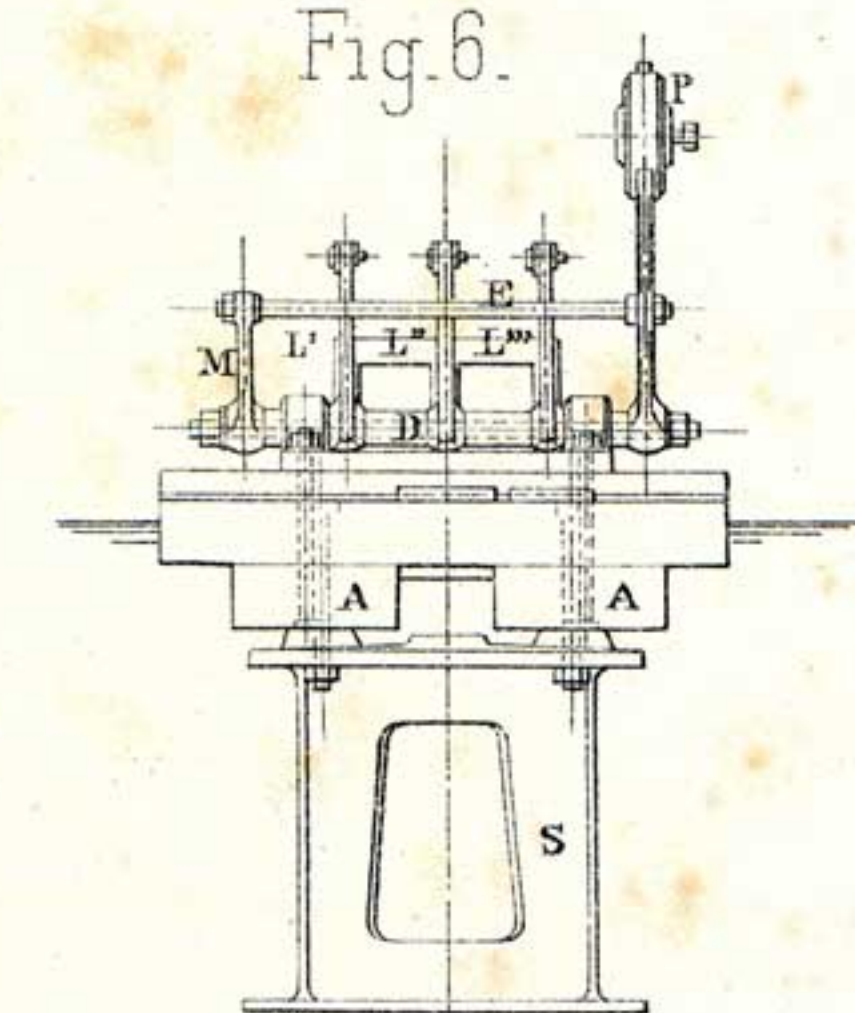


Fig.8. Enclenchement par cames et platines (Systeme Dujour)

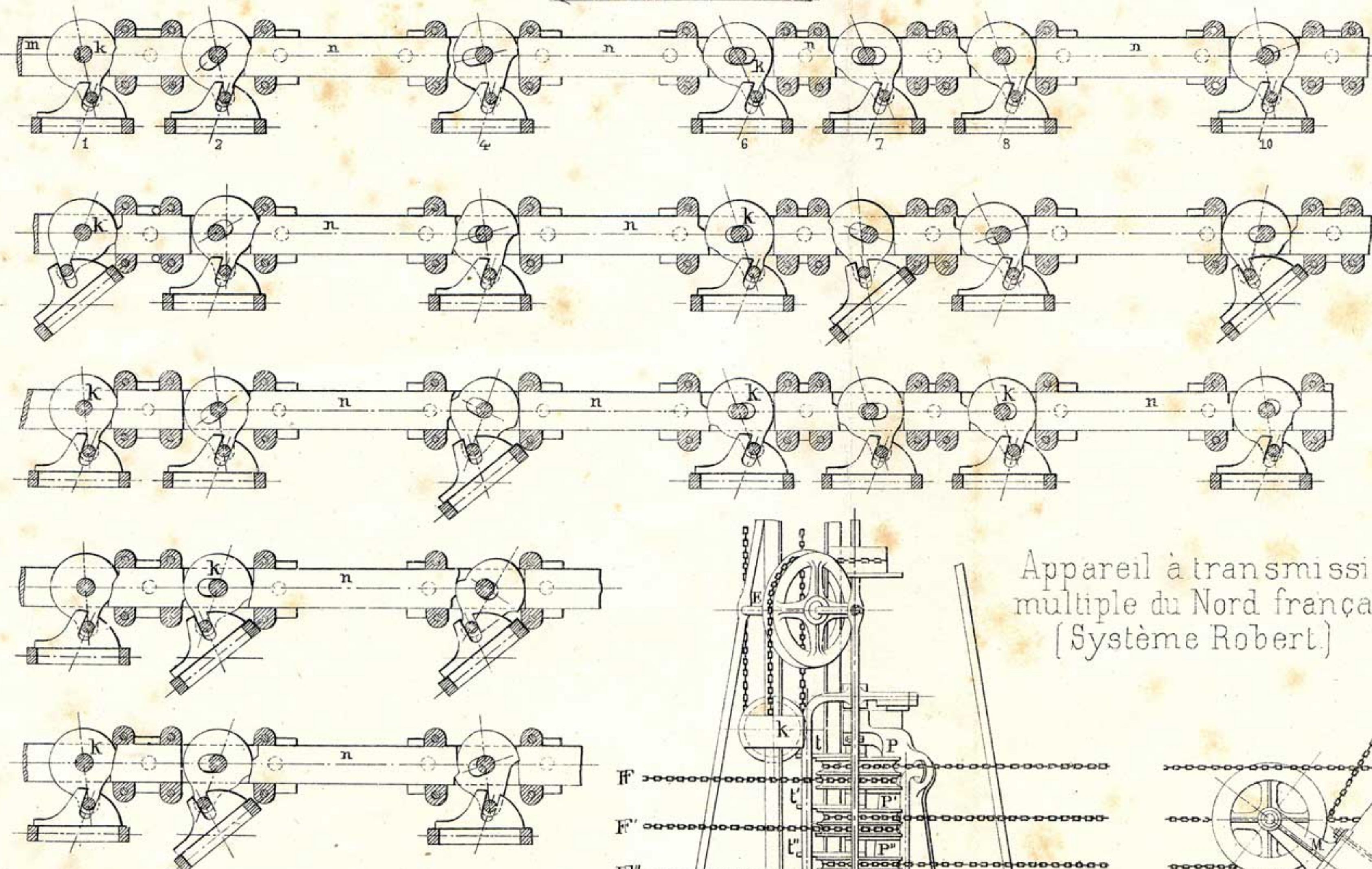


Fig.7.

Fig.4. Boite chronostatique.

Appareil à transmission multiple du Nord français. (Systeme Robert)

