

No. 672,112.

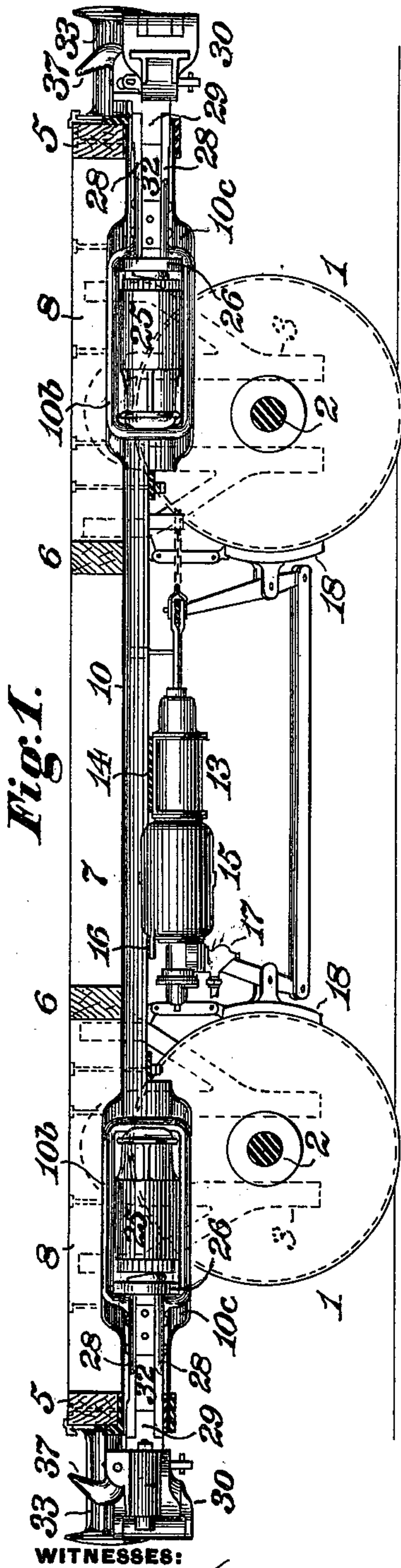
Patented Apr. 16, 1901.

G. WESTINGHOUSE.
DRAFT APPLIANCE FOR RAILROAD CARS.

(No Model.)

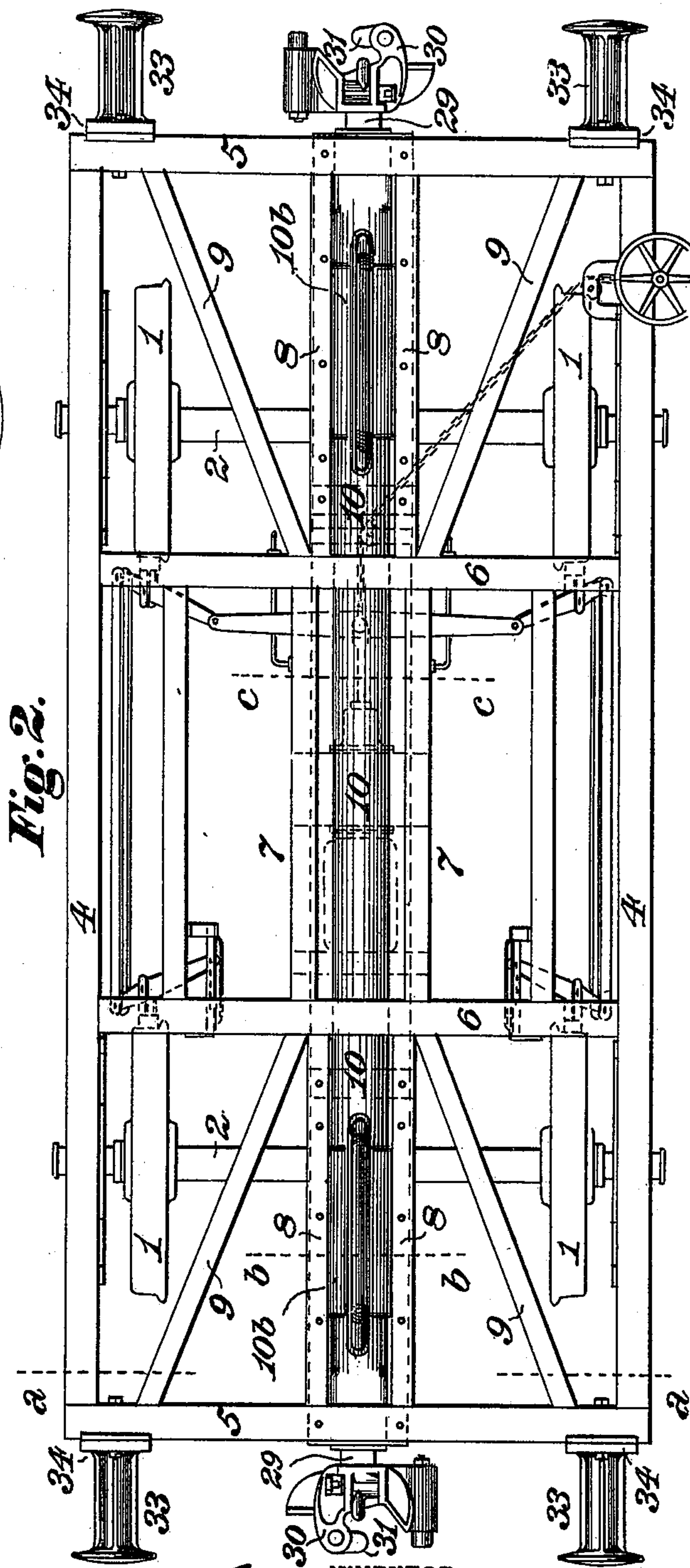
(Application filed Jan. 25, 1900.)

3 Sheets—Sheet 1.



WITNESSES:

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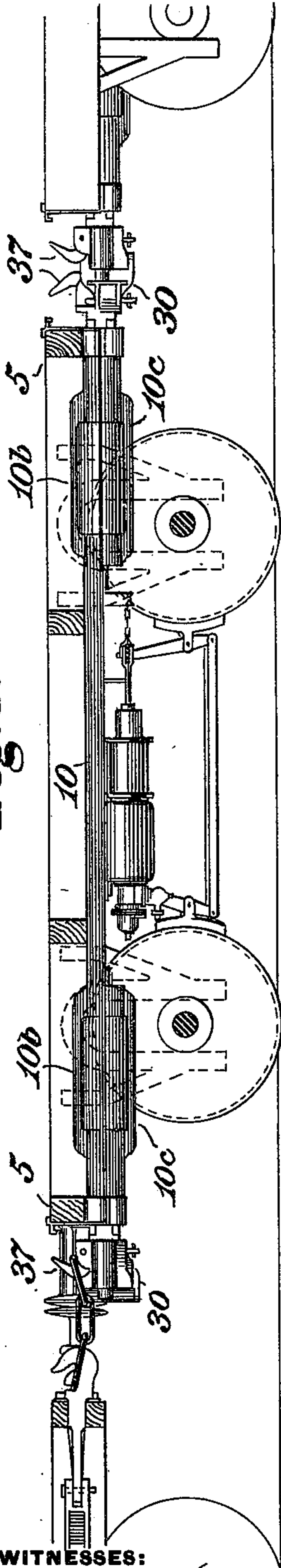
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Fig. 3.



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Fig. 4.

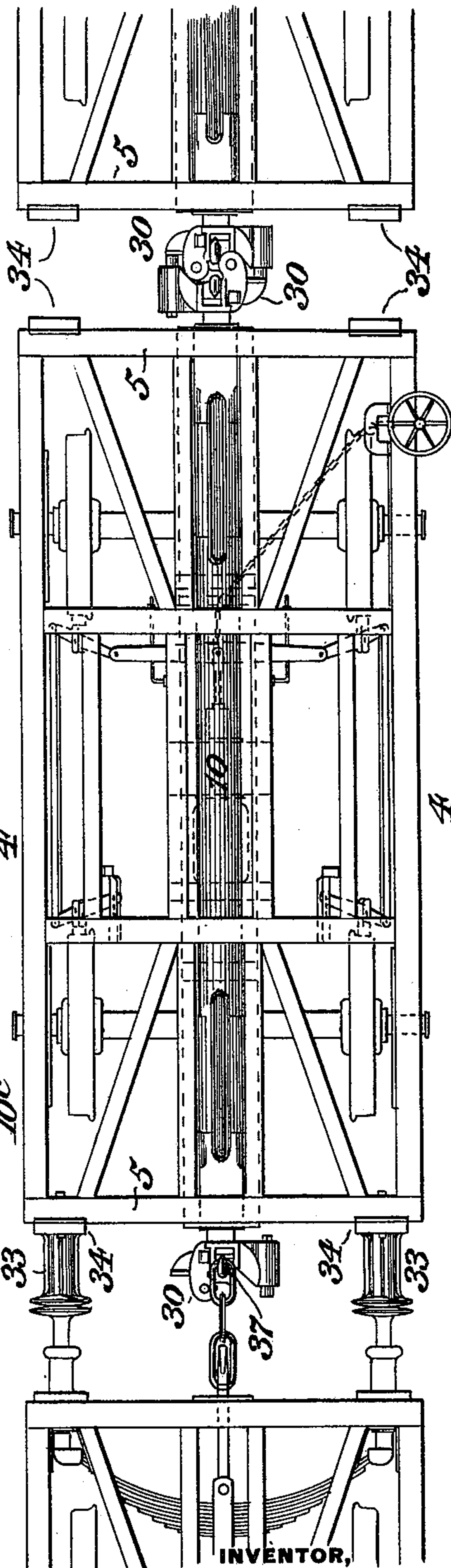
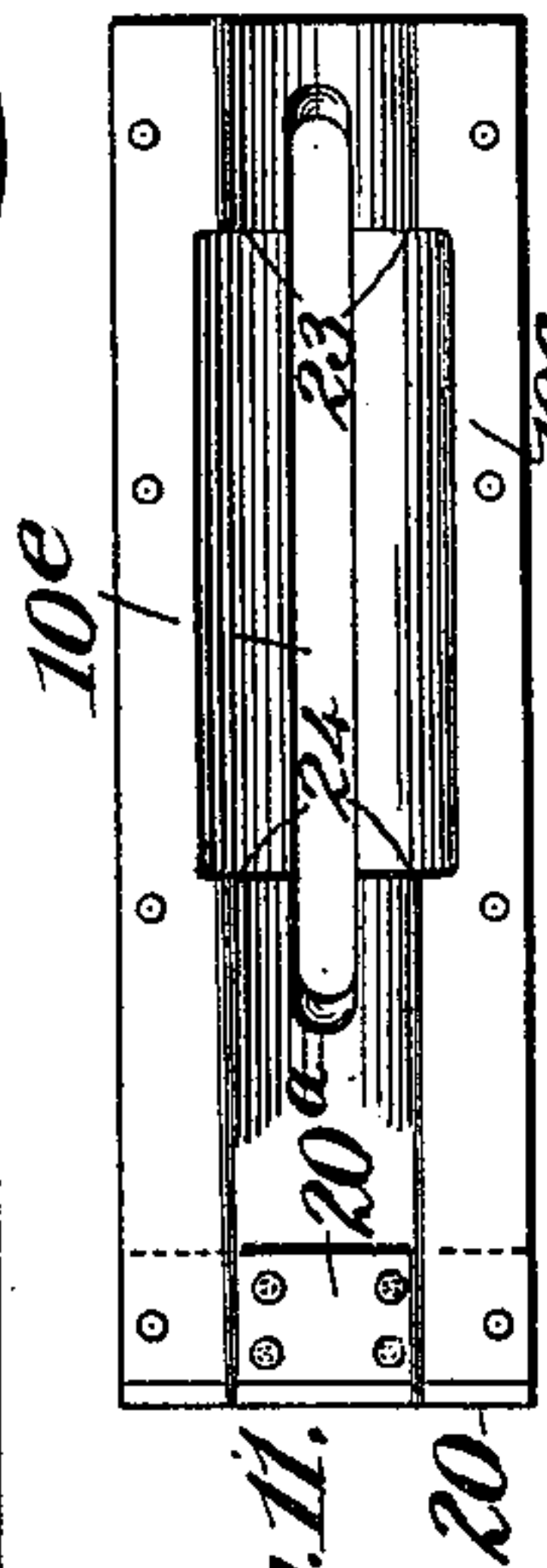


Fig. 11.



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Fig. 5.

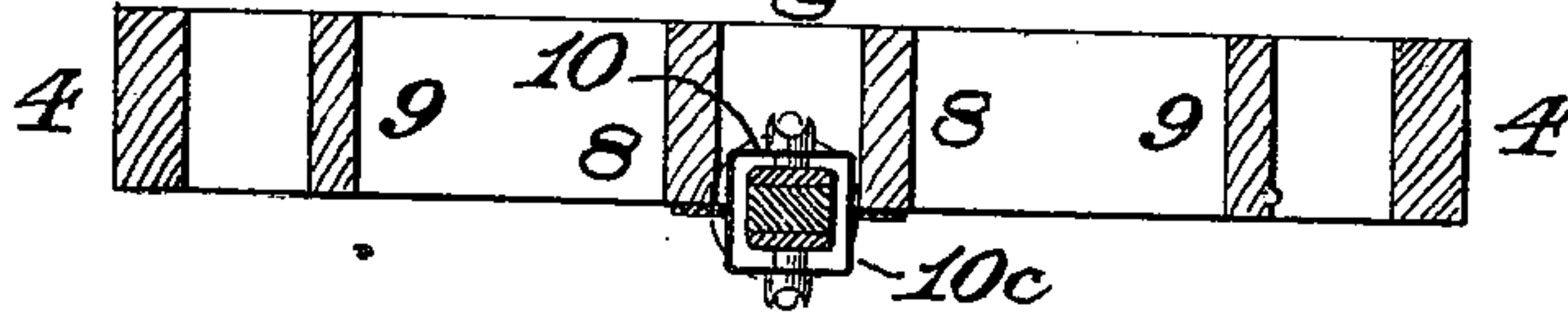


Fig. 6.

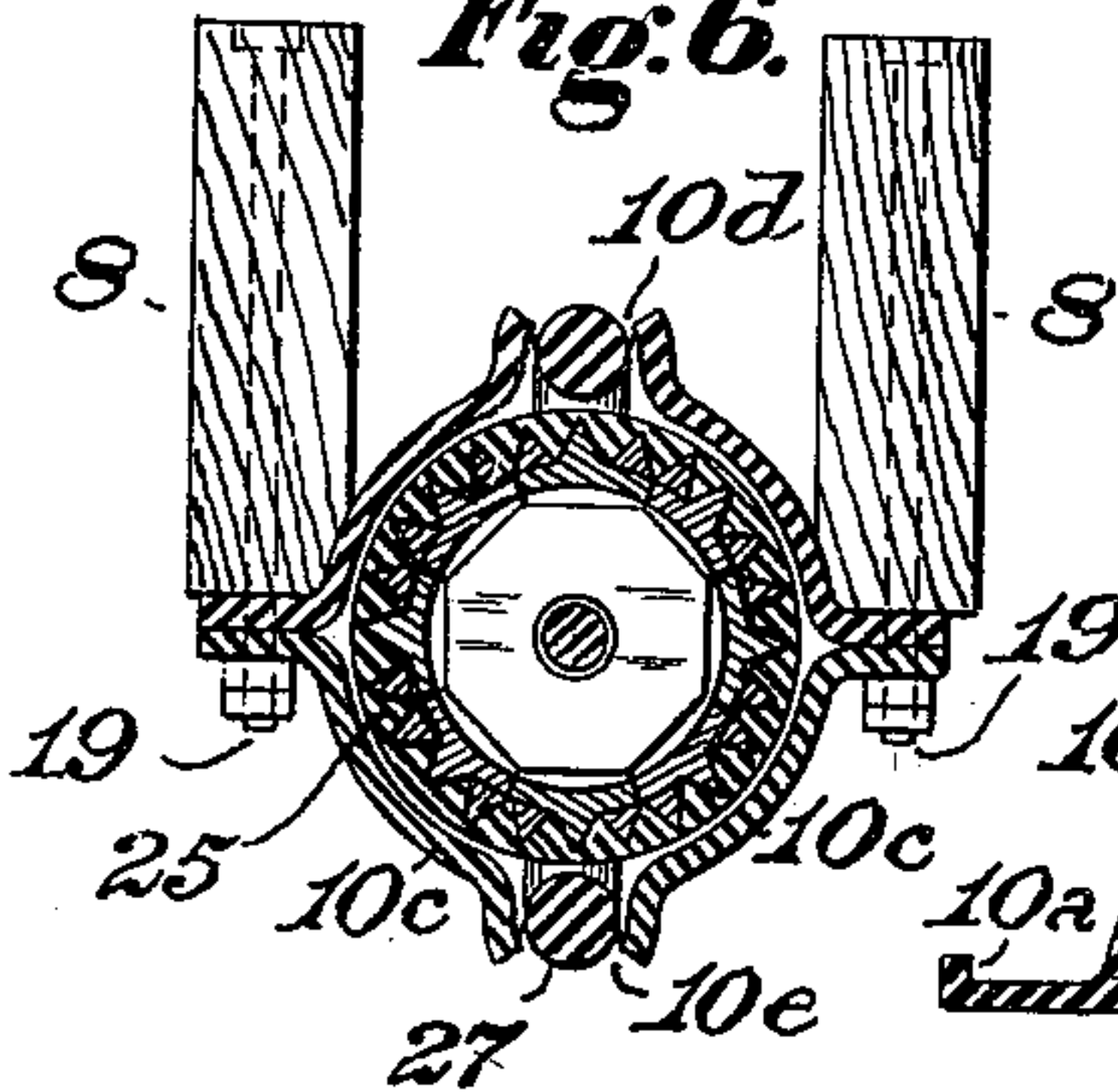


Fig. 7.

Fig. 8.

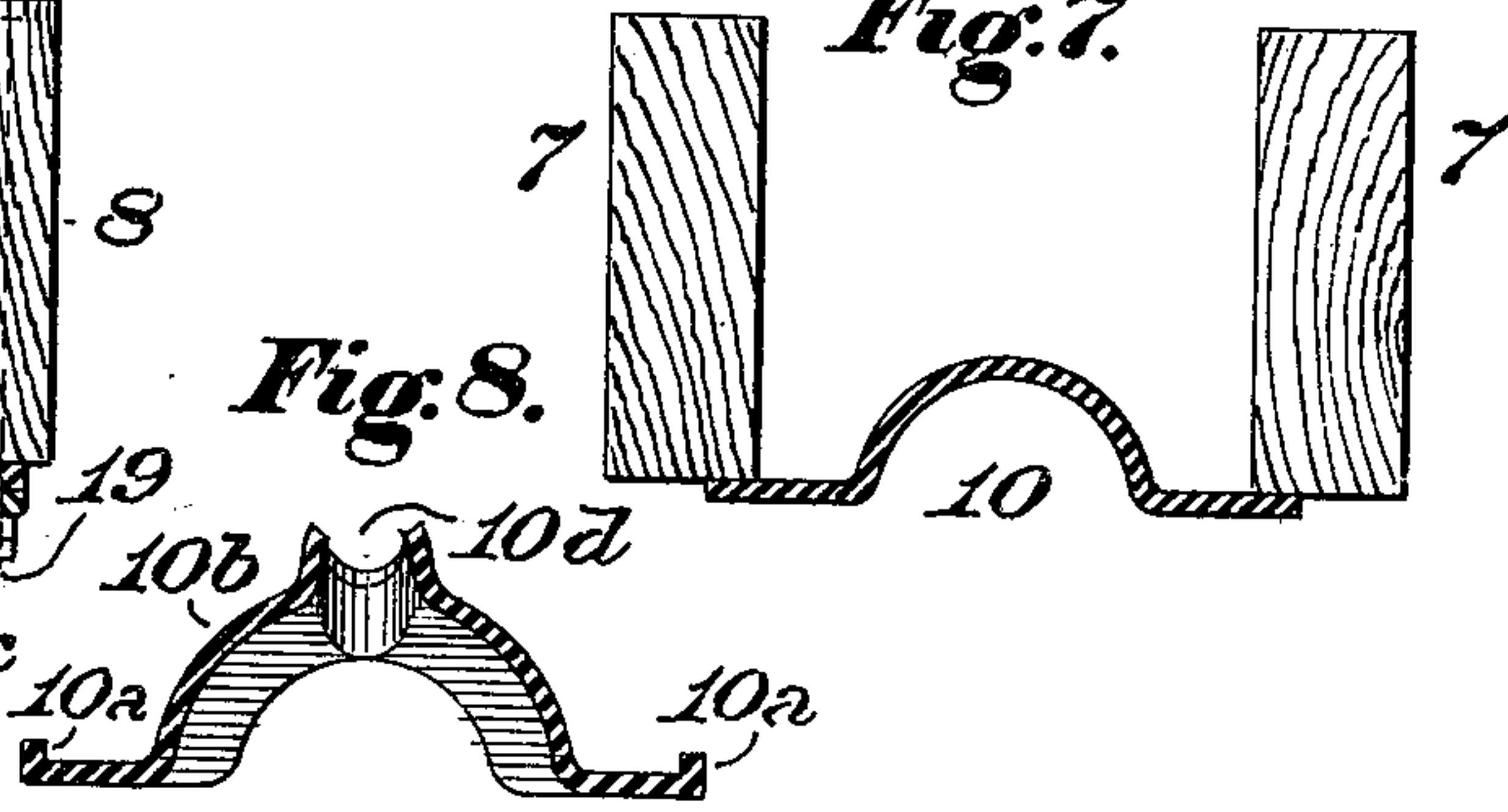


Fig. 9.

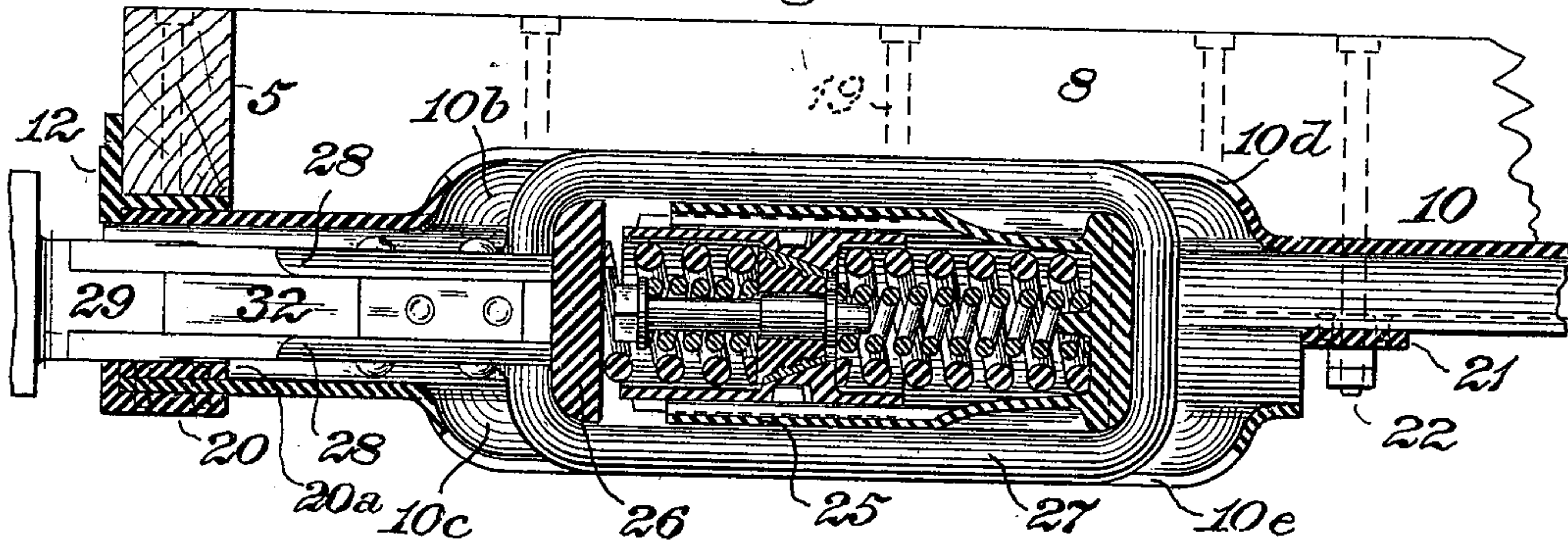
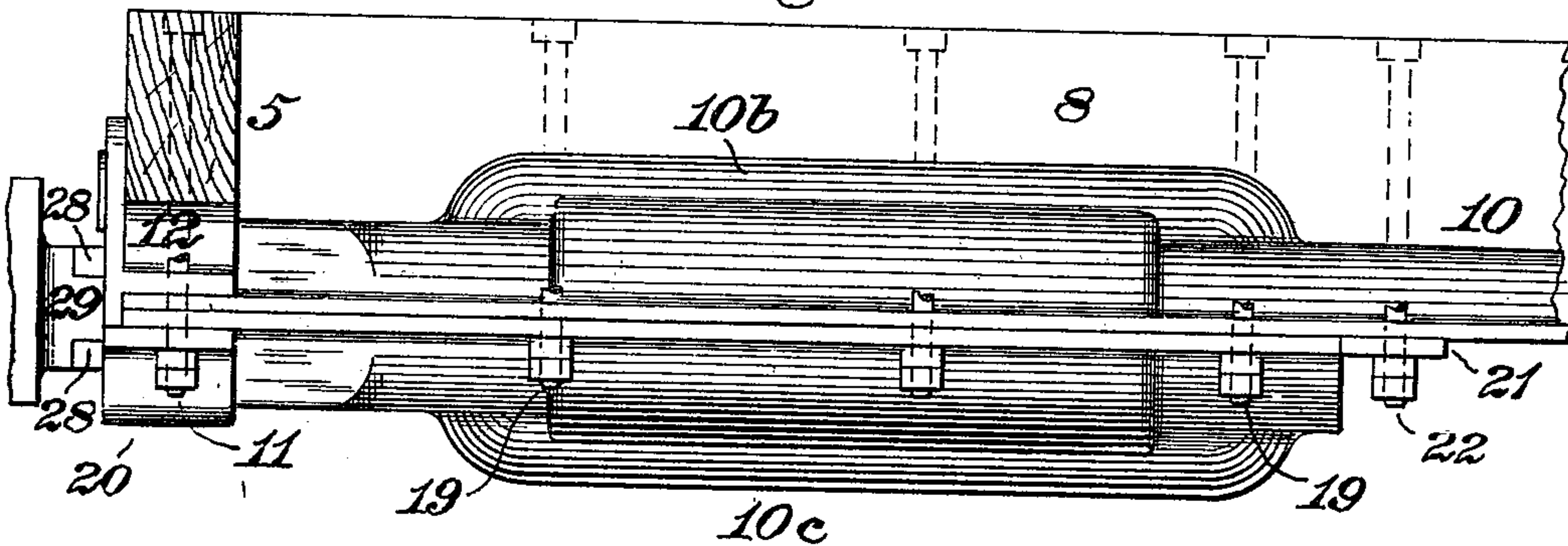


Fig. 10.



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UNITED STATES PATENT OFFICE.

GEORGE WESTINGHOUSE, OF PITTSBURG, PENNSYLVANIA.

DRAFT APPLIANCE FOR RAILROAD-CARS.

SPECIFICATION forming part of Letters Patent No. 672,112, dated April 16, 1901.

Application filed January 25, 1900. Serial No. 2,716. (No model.)

To all whom it may concern:

Be it known that I, GEORGE WESTINGHOUSE, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a certain new and useful Improvement in Draft Appliances for Railroad-Cars, of which improvement the following is a specification.

My invention is more particularly designed for use in connection with railroad-cars having a comparatively short rigid wheel-base, such as are largely employed on the railroads of Great Britain and continental Europe, but is not limited in application to that or any other specific type of railroad-vehicles.

The object of my invention is to provide means readily applicable to existing car-frames and presenting such substantial advantages as will reasonably warrant discarding present constructions, whereby the frames may be materially stiffened and strengthened, a simplification of parts and reduction of weight be attained, and a draft appliance be embodied which will oppose a very great resistance to compression without reaction from springs.

The improvement claimed is hereinafter fully set forth.

In the accompanying drawings, Figure 1 is a longitudinal central section through a car-frame, illustrating an application of my invention; Fig. 2, a plan or top view of the same; Fig. 3, a similar section showing the car as coupled at one end to another car by a link-coupling and coupled at the opposite end to another car by automatic couplers; Fig. 4, a plan or top view of the car-frame and couplings shown in Fig. 3; Fig. 5, a transverse section on the line *a a* of Fig. 2; Fig. 6, a similar section, on an enlarged scale, through one of the draw-gear and buffer casings on the line *b b* of Fig. 2; Fig. 7, a similar section through the channel-beam on the line *c c* of Fig. 2; Fig. 8, a similar section through the upper shell of a draw-gear and buffer casing, showing a modified form of section of the channel-beam; Fig. 9, a longitudinal central section, on an enlarged scale, through a draw-gear and buffer casing, illustrating the application of frictional draft and buffing gear; Fig. 10, a side view in elevation of the casing shown in Fig. 9, and Fig. 11 a plan or top

view of the lower shell of a draw-gear and buffing casing detached.

My invention is herein exemplified as applied in connection with a car of the type generally in service as a "goods-wagon" on English railroads—that is to say, one which is supported on four wheels 1, secured upon two axles 2, the journals of which rotate in bearings fitted in pedestals or horn-plates 3, which are secured to the side sills 4 of the car-frame, the car having a comparatively short rigid wheel-base. The car-frame, which is of the construction ordinarily employed in cars of this type, is composed of two side sills or sole-bars 4, secured at their ends to end sills or buffer-beams 5 and connected intermediate of the axles to cross-bearers or transoms 6. The cross-bearers are connected adjacent to the longitudinal central plane of the car by middle longitudinals 7, and end longitudinals or short center sills 8 extend from the cross-bearers to the buffer-beams. Diagonals 9 are also interposed between the cross-bearers and the buffer-beams.

In the practice of my invention I provide a metal beam 10, which is rolled and pressed or simply pressed from a plate into the form of a central longitudinal channel, either of segmental transverse section, as shown in Fig. 7, or of other form, as preferred, and longitudinal flanges extending along the sides of said central channel. The channel-beam 10 is rigidly secured to the lower sides of the longitudinal central members of the frame, with the concavity of its channel downward, and preferably extends throughout the length of the frame. If preferred, the plate of the channel-beam may be rolled with short flanges 10^a on its sides, as shown in Fig. 8. In the instance shown the channel-beam is made of the same length as the car-frame, its ends being flush with the outer sides of the buffer-beams 5 and being strengthened by end stop-castings 12, which are in the form of bodies fitting over the channeled portion and side flanges of the channel-beam and riveted to the channeled portion thereof and having end plates adapted to fit against the outer sides of the buffer-beams 5. The channel-beam is secured to the buffer-beams by bolts 11, passing through its side flanges and through the

end stop-castings. The channeled form of the beam 10 imparts increased strength to it when serving as a compression member and affords space which enables a brake apparatus to be conveniently located below it.

The plate-metal channel-beam 10 when connected to and combined with the timber members of the frame in the manner above described performs two functions of substantial novelty and practical value—first, in acting as a strong, light, and inexpensive stiffening and strengthening member, and, second, in constituting in effect a continuous draw-bar through and by which strains of draft and buffing are transferred from one end of the frame to the other, and the frame of the car is thereby relieved from the racking and destructive strains of extension and compression to which it is subjected in service when the ordinary timber members receive and themselves directly transmit strains of draft and buffing from an adjoining car at one end to a car at the opposite end.

A quick-action automatic air-brake apparatus may, as shown in Fig. 1, be readily applied to a car the frame of which is constructed in accordance with my invention. The brake-cylinder 13 is connected to and supported by a transverse plate 14, which is preferably connected to the middle longitudinal 7 of the frame, and the auxiliary reservoir 15 is connected to a transverse plate 16, which is also preferably connected to the middle longitudinal frame members. The triple valve 17 is, as usual, connected to one end of the auxiliary reservoir, and the brake-shoes 18 are actuated, through suitable foundation-levers, in the ordinary manner. It will be obvious that a hand-brake apparatus of any suitable and preferred form may be applied either with or without an air-brake apparatus.

The car-frame is provided adjacent to each of its ends with a proper draw-gear and buffing apparatus, which may be of any known and approved construction and which is contained in and supported by a two-part channel-casing, the upper shell or section of which, 10^b, is an outwardly-pressed portion of the channel-beam 10, and the lower section 10^c is secured removably to the upper section and to the end longitudinals 8 of the car-frame by bolts 19. The lower channel-casing sections 10^c abut at their outer ends against the end stops 12 of the channel-beam, and their outer ends are strengthened by end castings 20 and wearing-plates 20^a, which are riveted to their lower and their upper sides, respectively. The connecting-bolts 11 of the upper section pass through the side flanges and end castings 20 of the lower sections and secure the latter to the upper sections and to the buffer-beams 5. The inner ends of the lower sections of the channel-casings abut against inner stops 21 in the form of flat plates, which are riveted to the channel-beam 10 and connected to the longitudinals 8 by bolts 22, passing through

the side flanges of the channel-beam. The upper and lower sections of the channel-casings are pressed into such form as to provide thereon transverse inner and outer stops or abutments 23 and 24, respectively, for the draft and buffing apparatus, the strains applied to which at either end of the frame are received upon the corresponding stops or abutments of the adjacent casing and transmitted by said stops or abutments to the channel-beam 10 and through the same to the opposite end of the frame. Longitudinal slots 10^d 10^e are formed in the upper and lower sections of the channel-casings by splitting the metal thereof before it is pressed into form, said slots serving to permit the draft-straps to traverse freely in their outward and inward movements in the casing and also to admit of observation of the mechanism in the casing.

While I have shown the outer ends of the upper and lower members of the draft apparatus to be fitted with and strengthened by castings which are firmly riveted to the respective ends, it will be obvious that a like result could be attained by flanging the metal into an appropriate form, though I prefer the riveted strengthening-piece, which may be of cast-steel, or cast, malleable, or wrought iron.

The invention, as described, relates to vehicles with a short wheel-base. The pressed channel-casing for the reception of the draft-gear apparatus may, however, be made of a sufficient length only to inclose and support the draft apparatus and need not therefore, so far as its special function is concerned, be made part of a channel-beam extending from end to end of the car.

The specific construction of draw-gear and buffing apparatus which is fitted in each of the channel-casings does not, in and of itself, form part of my present invention, and it is in this instance shown as of the frictional resistance type exemplified in Letters Patent of the United States No. 629,943, granted and issued to me under date of August 1, 1899. The frictional and spring resistance members are inclosed within housings or casings 25, one of which is supported on each of the lower sections 10^c of the channel-casings and is adapted to move longitudinally between the same and the upper section through a limited range of traverse. The resistance members abut at one end of the housing 25 against an inner end wall thereon and at the other against a follower-plate 26, located adjacent to the outer open end of the housing. A draft strap or yoke 27, which is fitted to traverse freely in the longitudinal slots 10^d 10^e of the channel-casing, surrounds the housing 25, its end portions abutting against the end wall of the housing and against the outer side of the follower-plate 26, respectively. Draft strains are imparted to the channel-beam 10 and through it to the opposite end of the car-frame by the follower-plates 26, which bear against the outer stops or abut-

ments 24 of the channel-casings, and buffing strains are imparted to the channel-beam and frame by the inner end walls of the housings 25, which bear against the inner stops or abutments 23.

The outer end of the draft-strap is formed integral with or rigidly secured to a bifurcated draw-bar 28, and the stem or shank 29 of an automatic coupler-head 30 is interposed between and connected by a vertical pivot to the upper and lower sections of the draw-bar. The coupler-heads 30, each of which is provided with a pivoted knuckle 31 and a lock of any suitable and preferred construction, are by reason of their pivotal connection with the draw-bar capable of a range of traverse in a horizontal plane to facilitate the passage of the coupled cars around curves without liability to disconnection of the knuckles and to relieve the frame from strains which would otherwise be incidental in passing around curves, and the coupler-heads are returned to and normally maintained in positions in which the center lines of their shanks are in the longitudinal central plane of the car by lateral springs 32, connected to the draw-bars or draft-straps.

The construction of the coupler-head and draw-bar hereinbefore described is not claimed as of my present invention, as the same constitutes the subject-matter of a separate application for Letters Patent by me.

The form of channel-beam and the construction in general admit of its ready adaptation to vehicles of various lengths, the channeled plate in the first place being cut the exact length of the vehicle from the outsides of the end sills, and the receptacles for the friction or other draft apparatus can then be placed at the required distance from the ends of the plate. In the case of long vehicles it may be found desirable to join the casings at the ends of the cars by tie-rods of well-known construction, such tie-rods serving as truss-rods.

It will be obvious to those skilled in the art that the application of my invention to existing car-frames may be effected practically without change in the construction of their present timber members and without substantial expense. The advantages of such application in point of enhancing the strength and durability of the frames and providing improved facilities for coupling cars and for inclosing, supporting, and providing abutments for the draft and buffing apparatus will also be apparent to constructors and operators of railroad rolling-stock.

I claim as my invention and desire to secure by Letters Patent—

1. The combination, with a car-frame, of a pressed-metal channel-beam, extending longitudinally below and secured to the central frame members, in position to receive draft and buffing strains at either of its ends and transmit such strains to the car-frame and to its opposite end.

2. The combination, with a car-frame, of a pressed-metal channel-beam, extending longitudinally below and secured to the central frame members, in position to receive draft and buffing strains at either of its ends, and having integral casing-sections with abutments for draft and buffing apparatus pressed within it adjacent to its ends.

3. The combination, with a car-frame, of a pressed-metal channel-beam, extending longitudinally below and secured to the central frame members, and having integral casing-sections and abutments for draft and buffing apparatus, and lower casing-sections having corresponding abutments and secured removably to the casing-sections of the channel-beam.

4. The combination, with a car-frame, of a pressed-metal channel-beam, extending longitudinally below and secured to the central frame members, in position to receive draft and buffing strains at either of its ends, and transmit such strains to the car-frame and to its opposite end, and end stops connected to said channel-beam and to the end frame members.

5. The combination, with a car-frame, of a pressed-metal channel-casing upper section, secured to the central frame members and having abutments upon which draft and buffing strains are received and through which they are transmitted to the car-frame, and having also a longitudinal central slot, and a pressed-metal channel-casing lower section, secured removably to the upper section and having corresponding abutments and longitudinal slot.

6. As a new article of manufacture, a rolled plate-metal beam, which is rolled and pressed or formed wholly by pressing into the form of a channel with side flanges, for the major portion of its length, and is, adjacent to its ends, pressed into the form of casing-sections having transverse abutments for draft and buffing apparatus.

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Witnesses:

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