

No. 671,367.

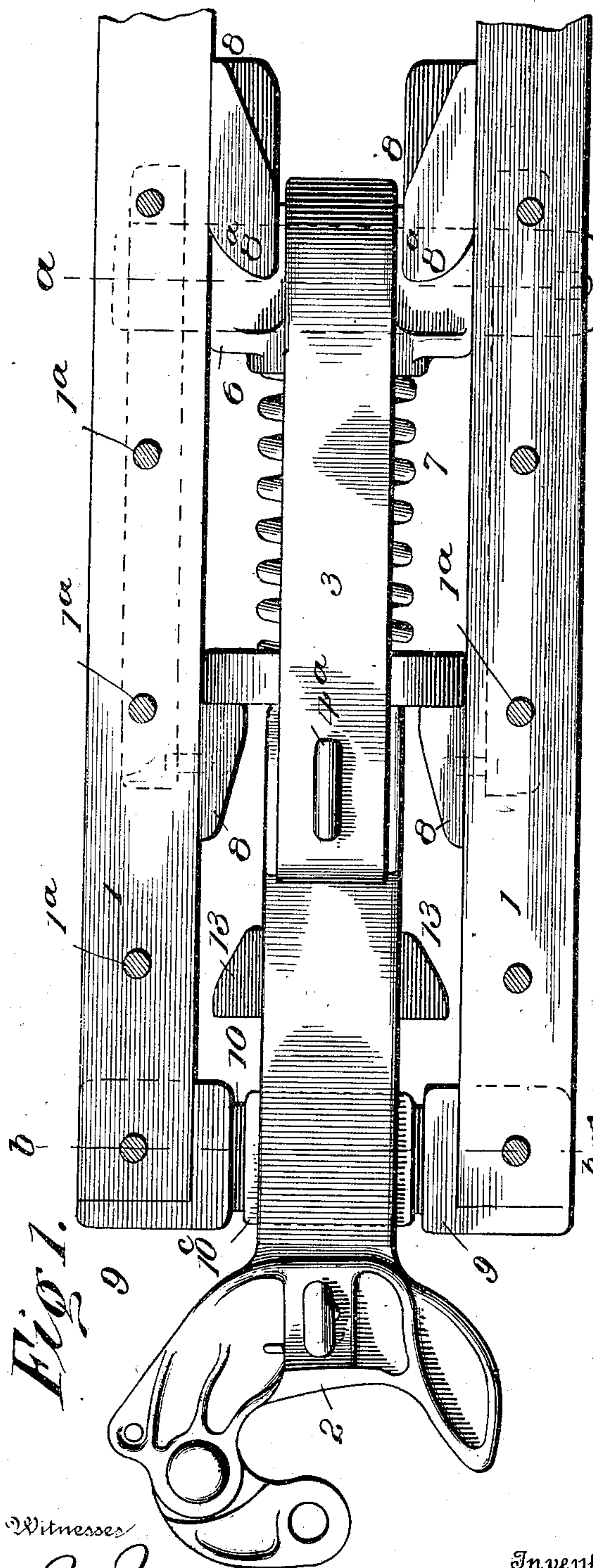
Patented Apr. 2, 1901.

P. BROWN.
DRAFT MECHANISM.

(Application filed Dec. 8, 1899.)

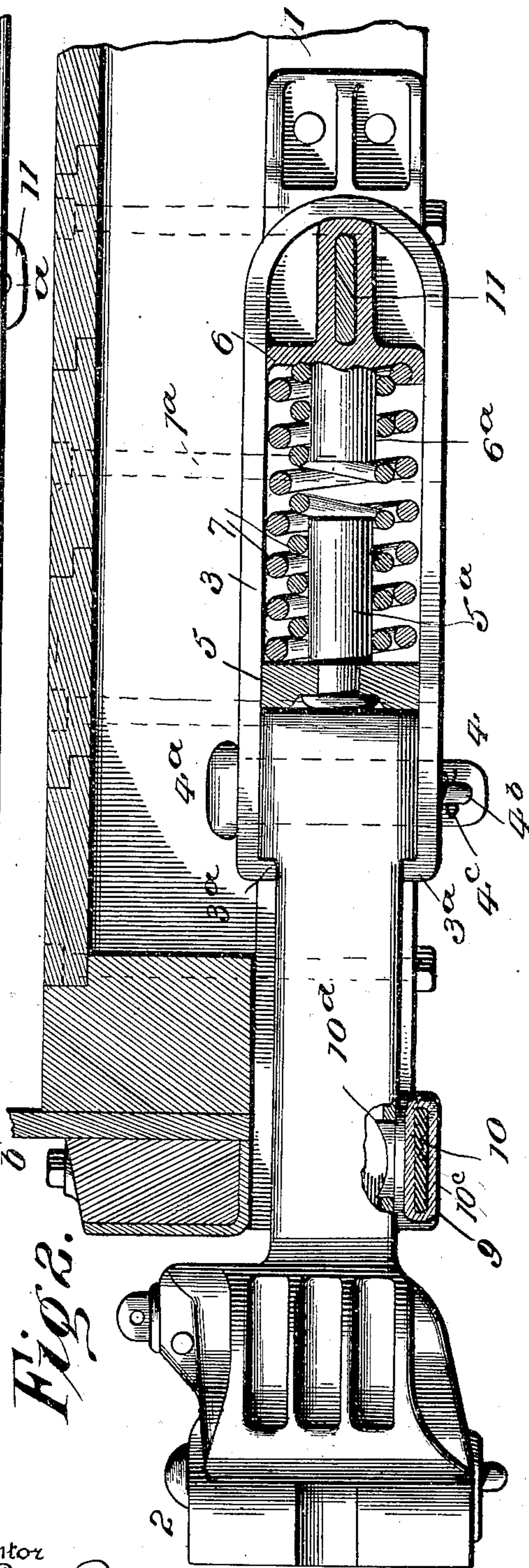
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Witnesses

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By Thos. E. Robertson Attorney

No. 671,367.

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DRAFT MECHANISM.

(Application filed Dec. 6, 1899.)

(No Model.)

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Fig. 3.

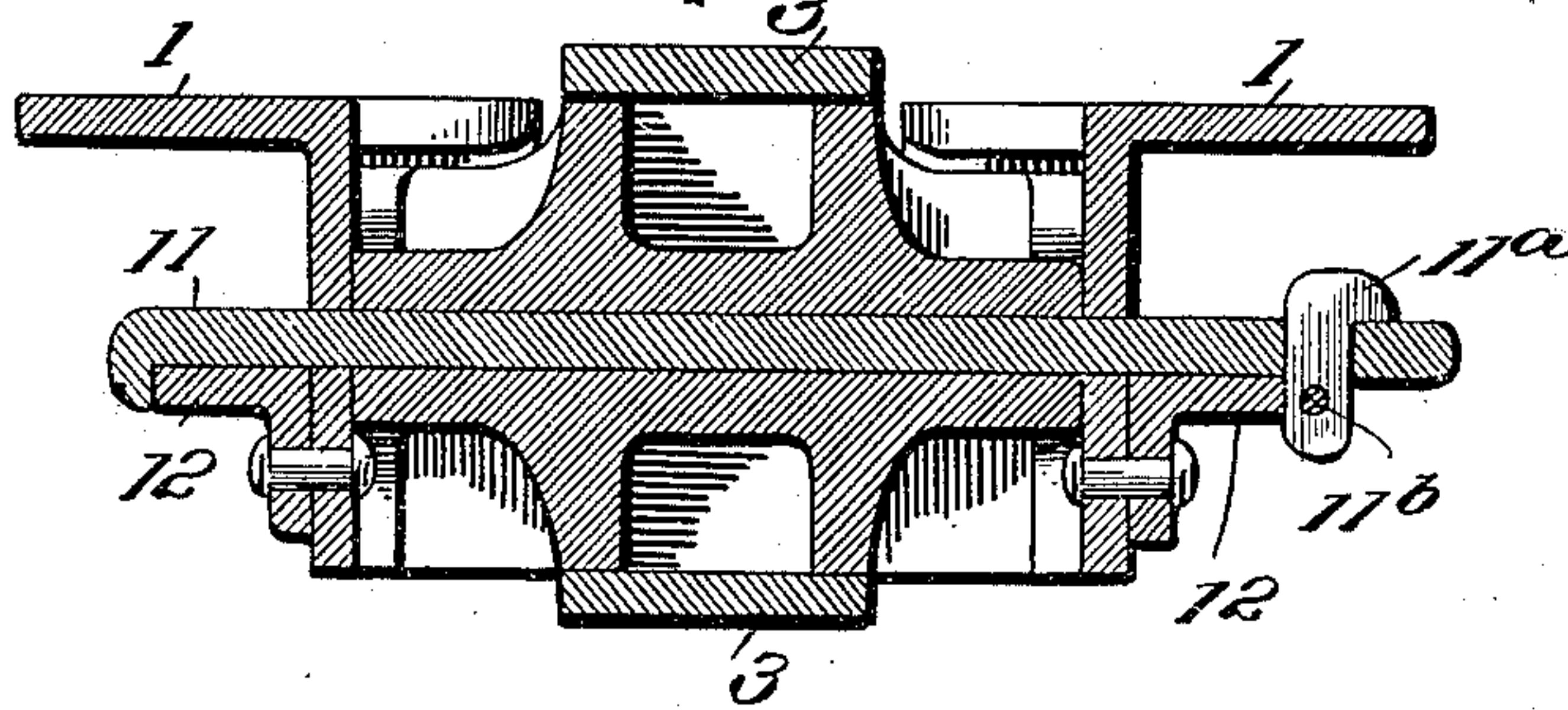


Fig. 4.

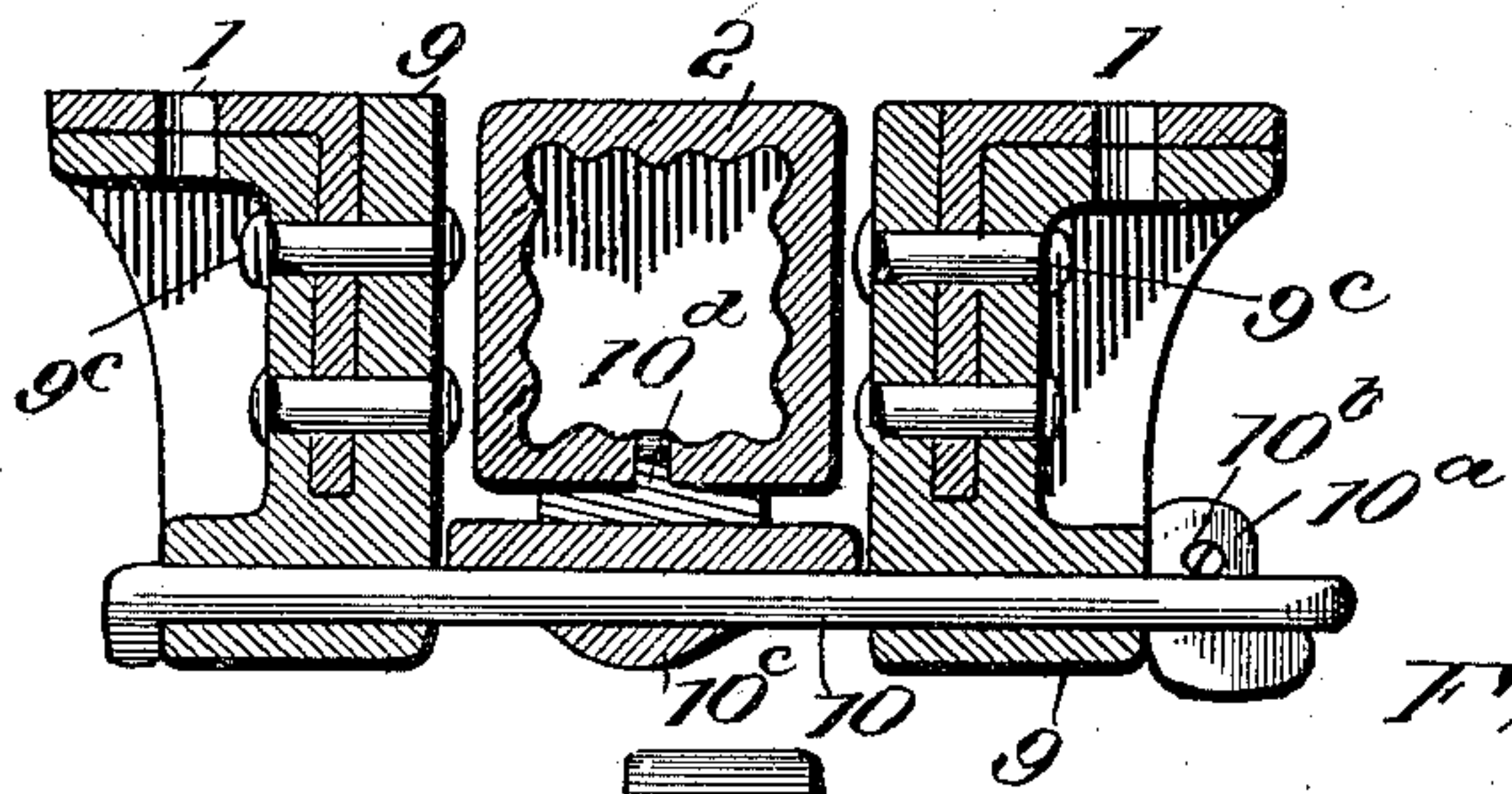


Fig. 5.

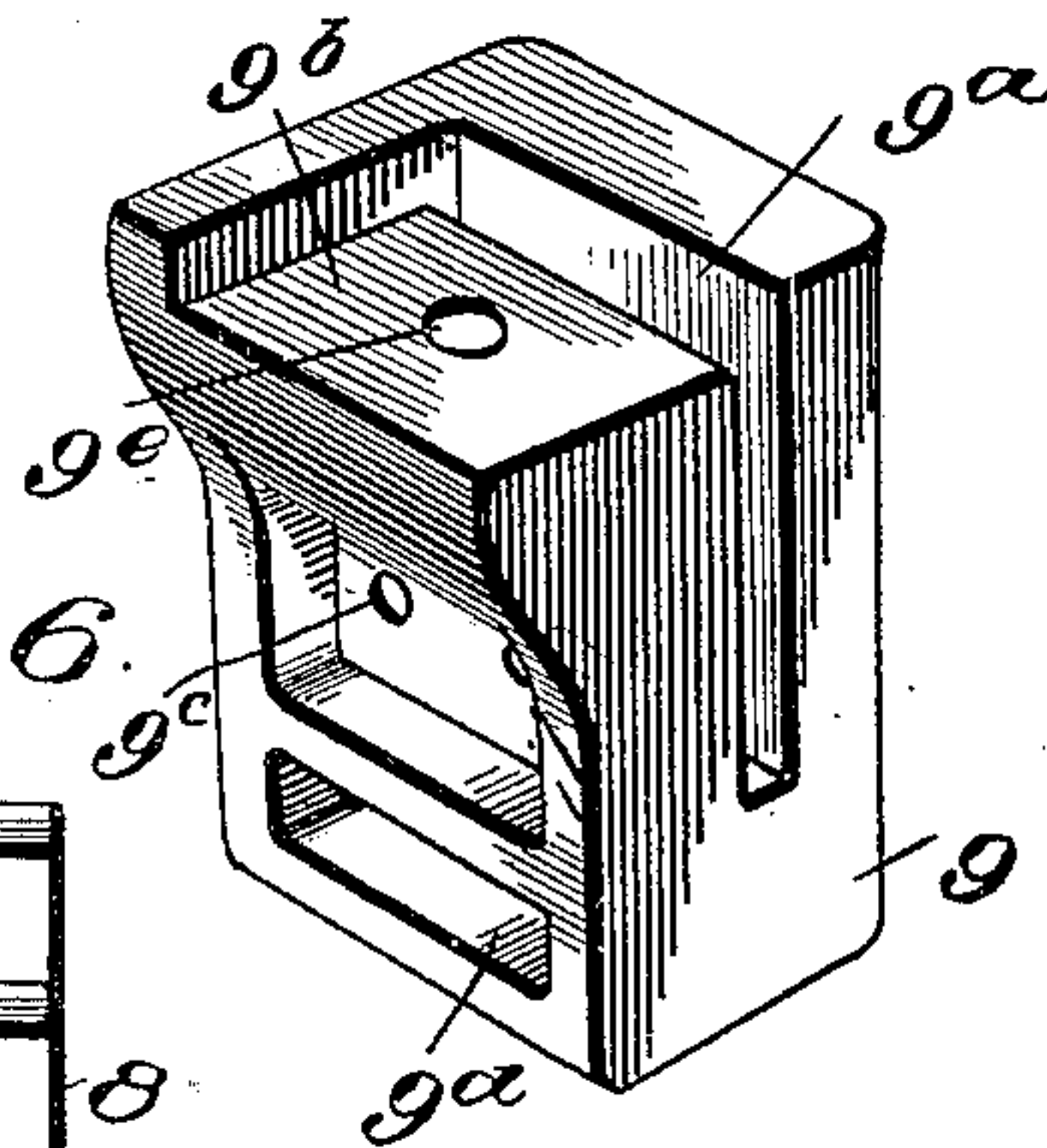


Fig. 6.

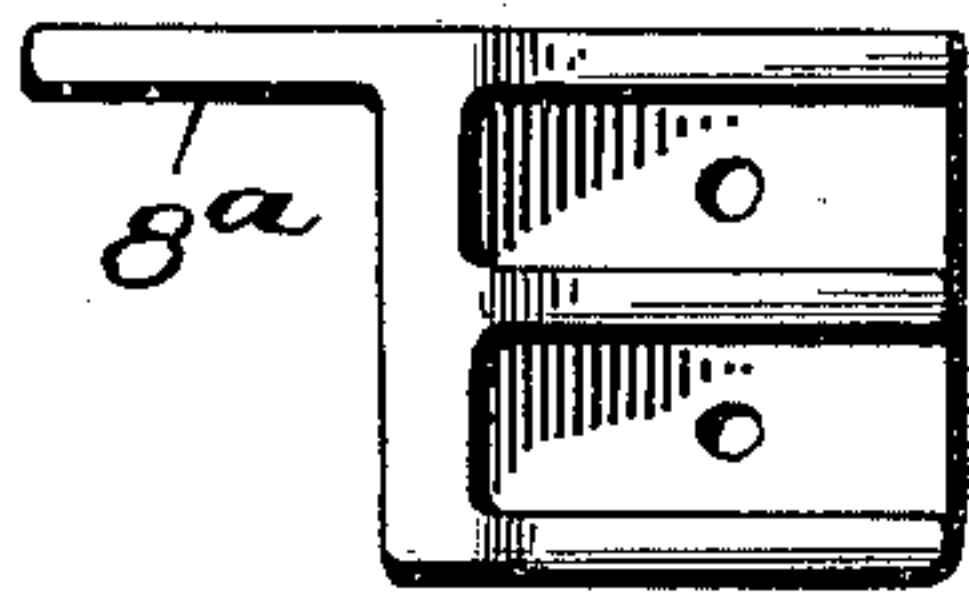


Fig. 7.

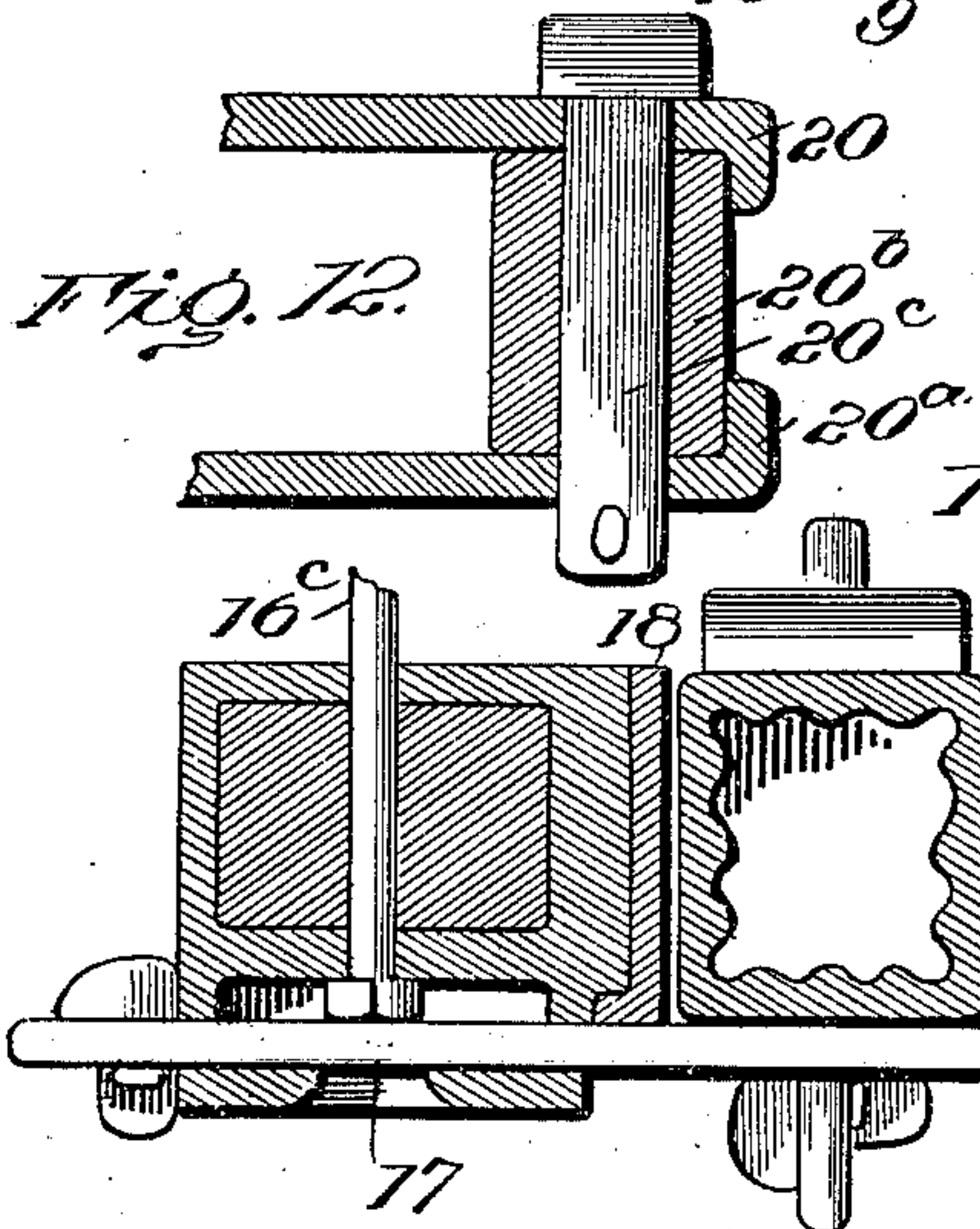


Fig. 9.

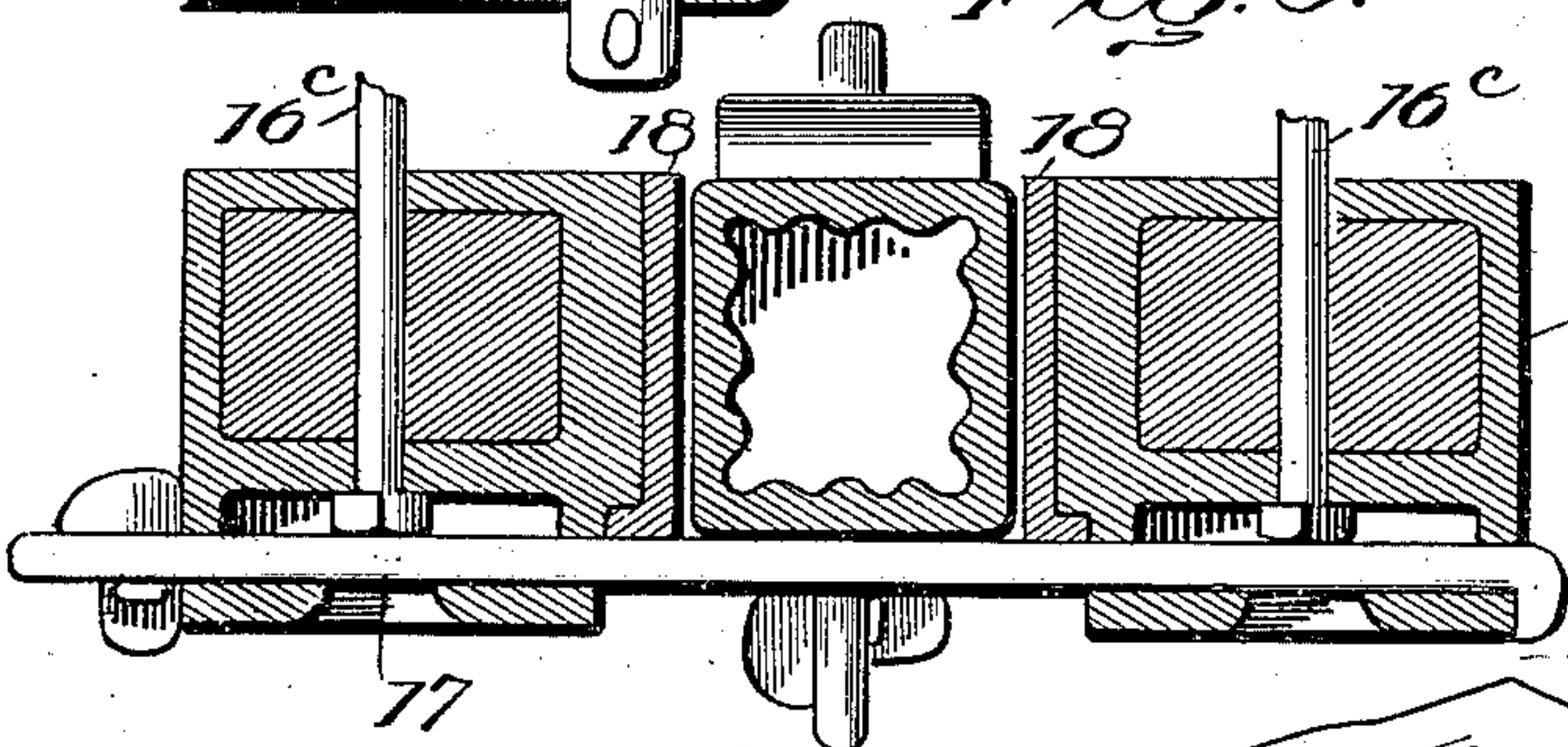


Fig. 10.

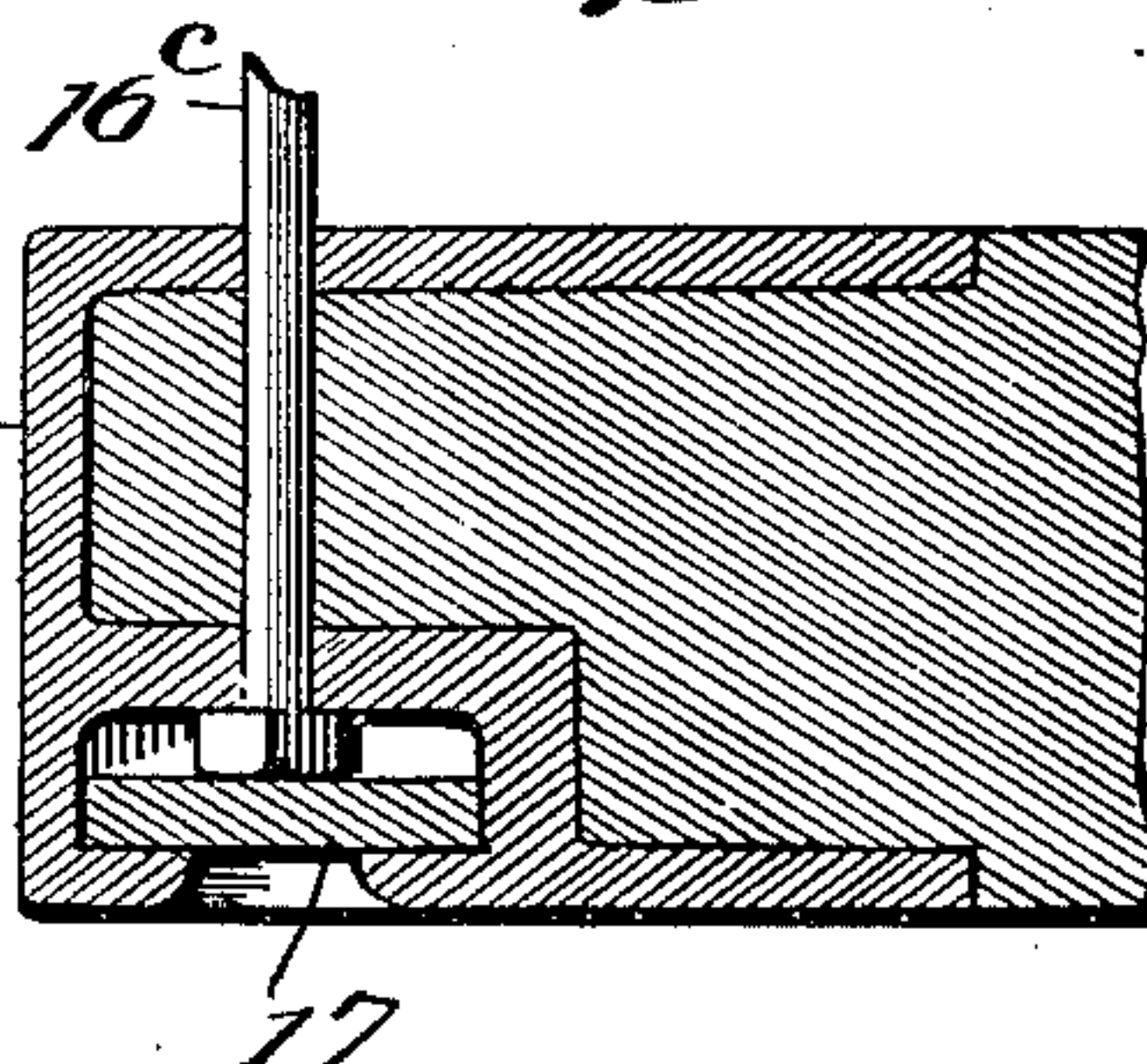
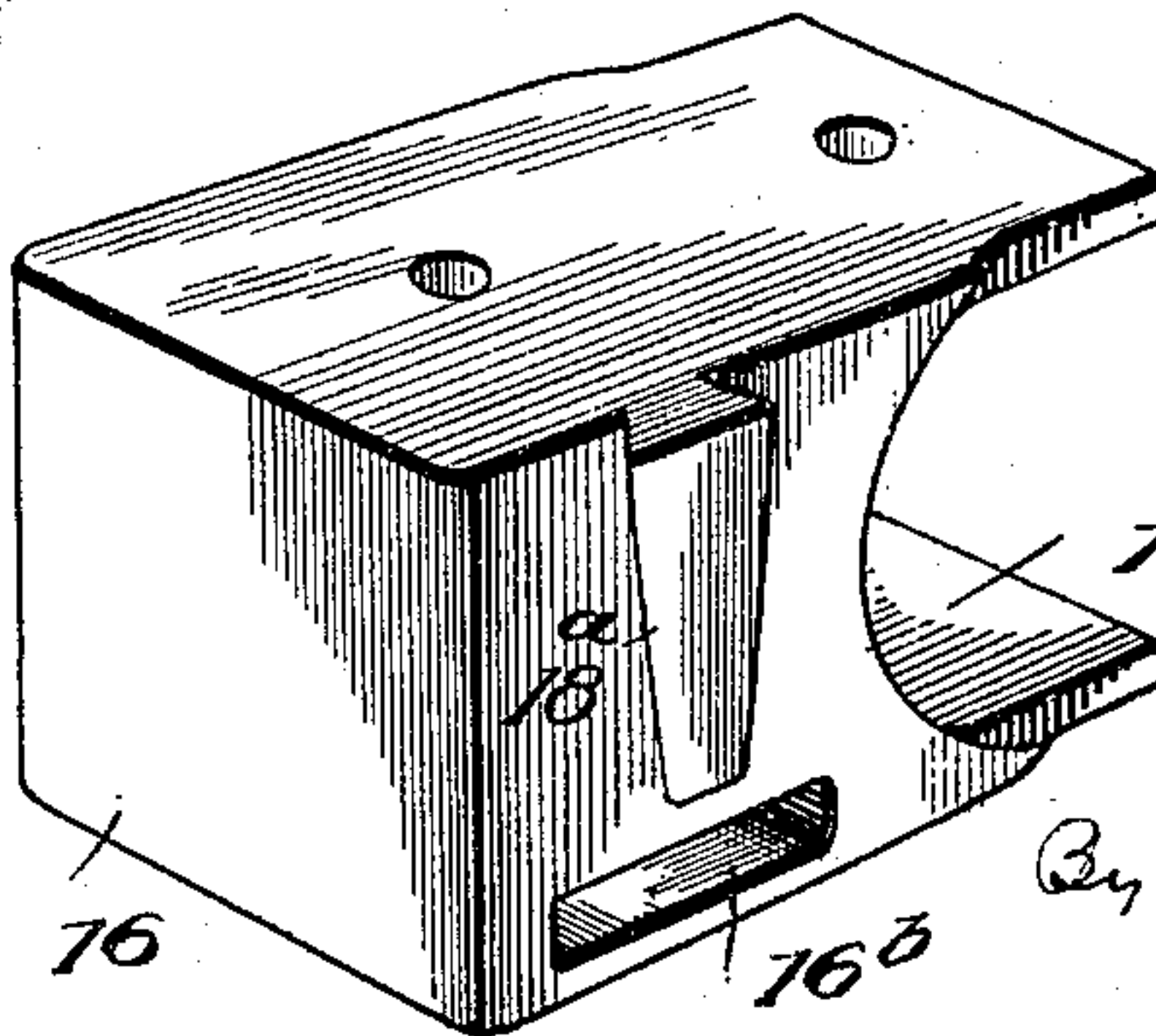


Fig. 11.



Witnesses

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Fig. 7.

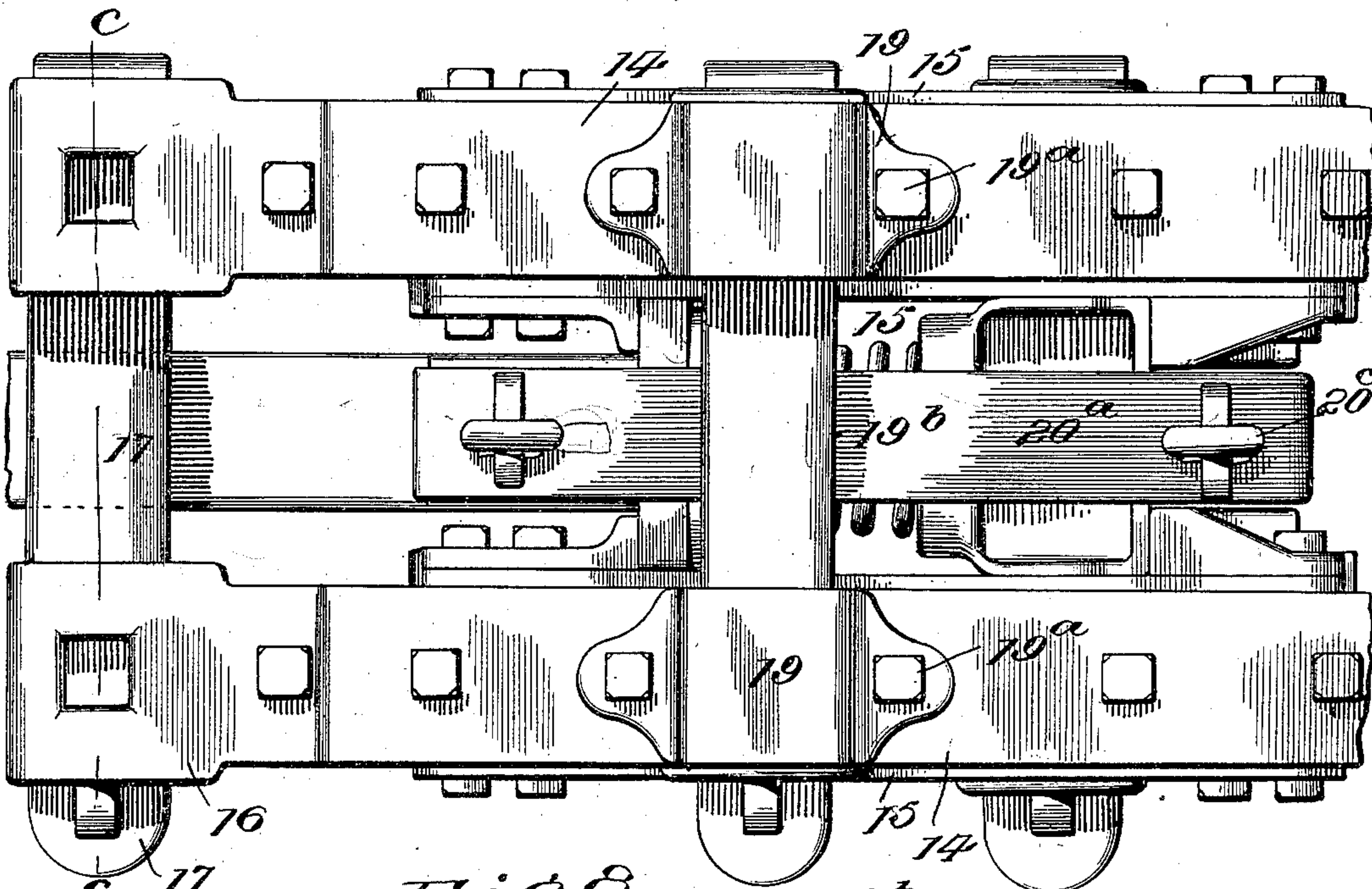
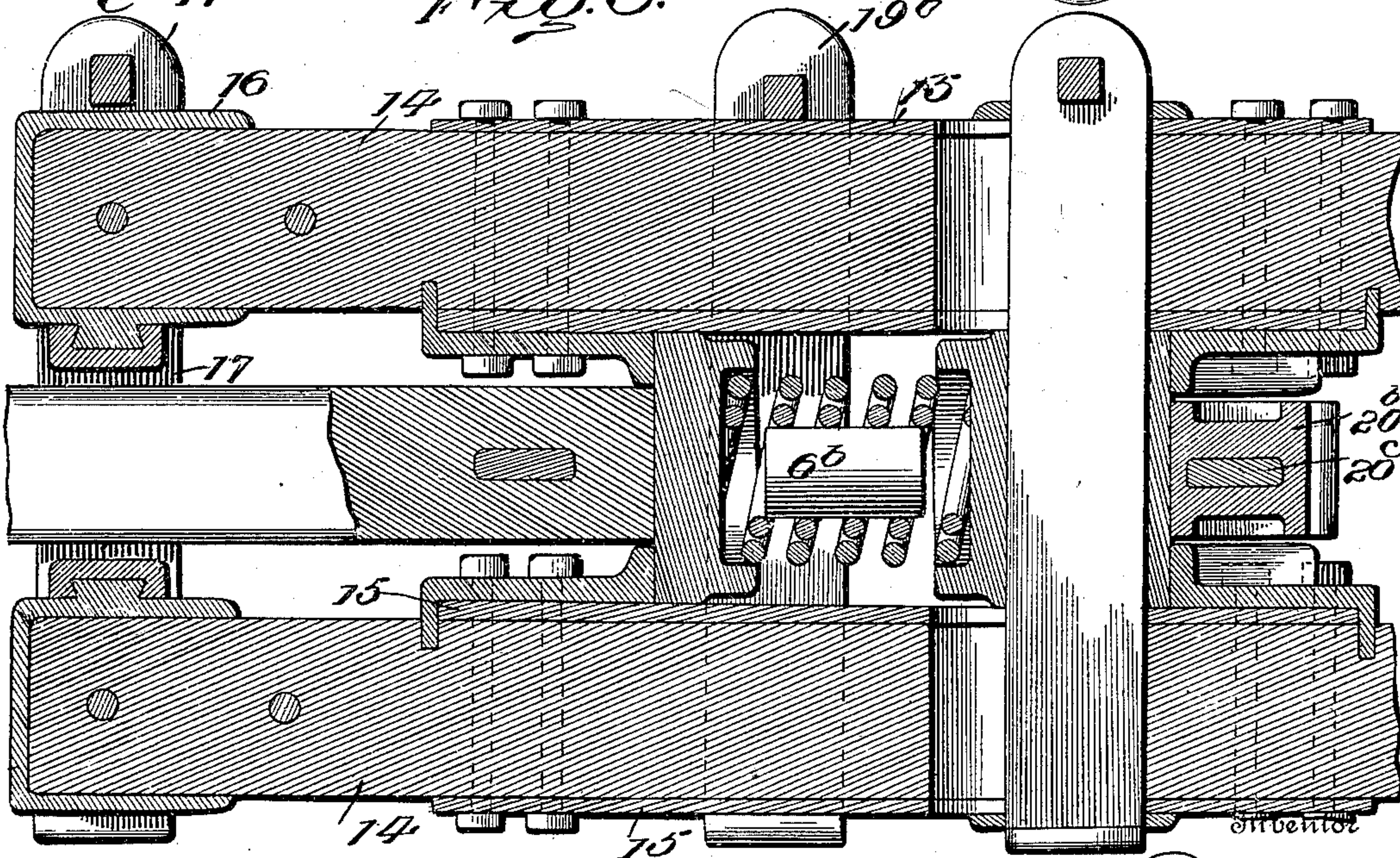


Fig. 8.



Witnesses
Mr. J. M. Rice
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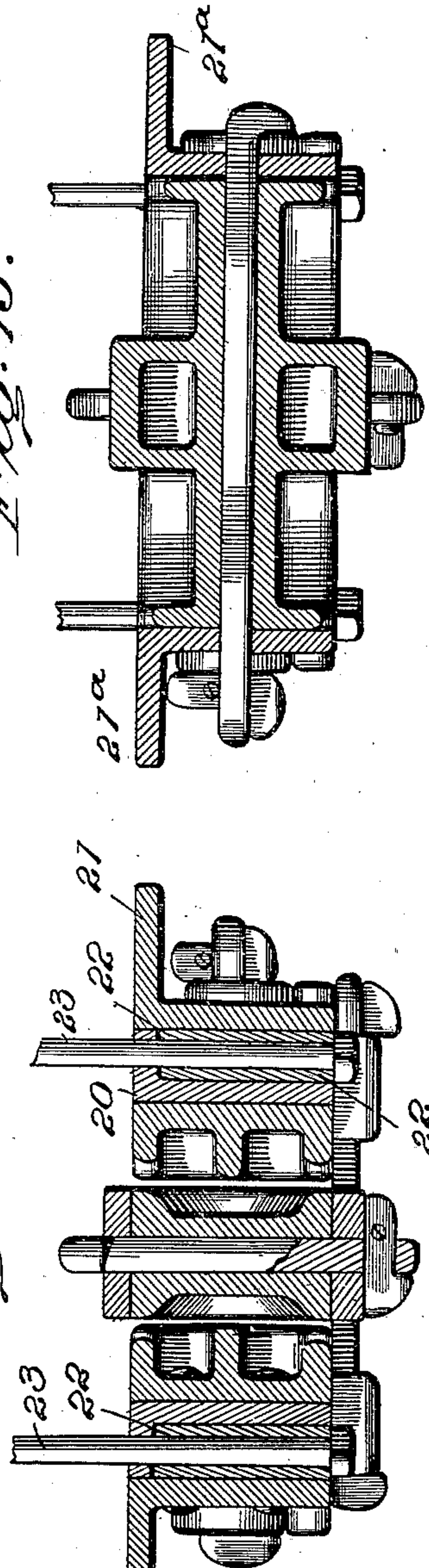
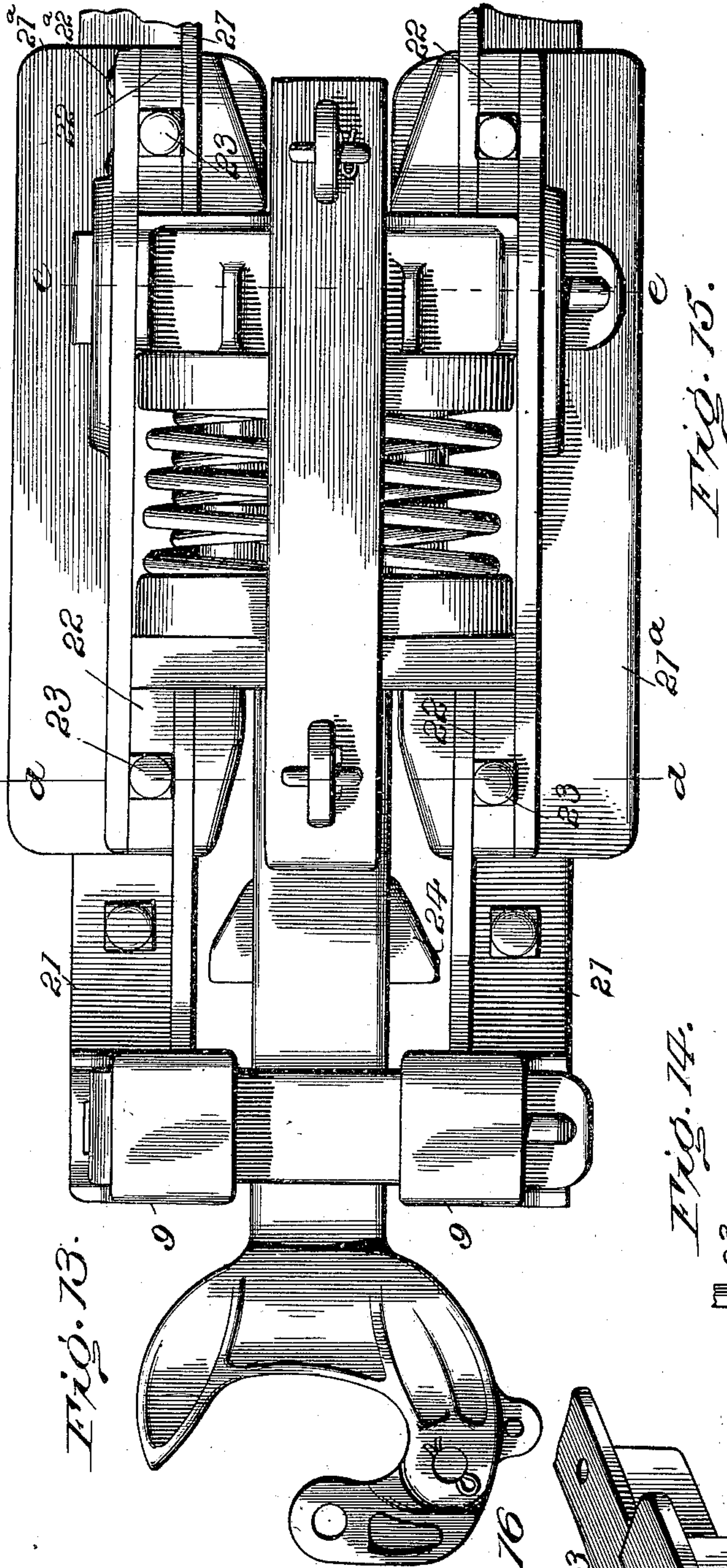
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P. BROWN.
DRAFT MECHANISM.

(Application filed Dec. 6, 1899.)

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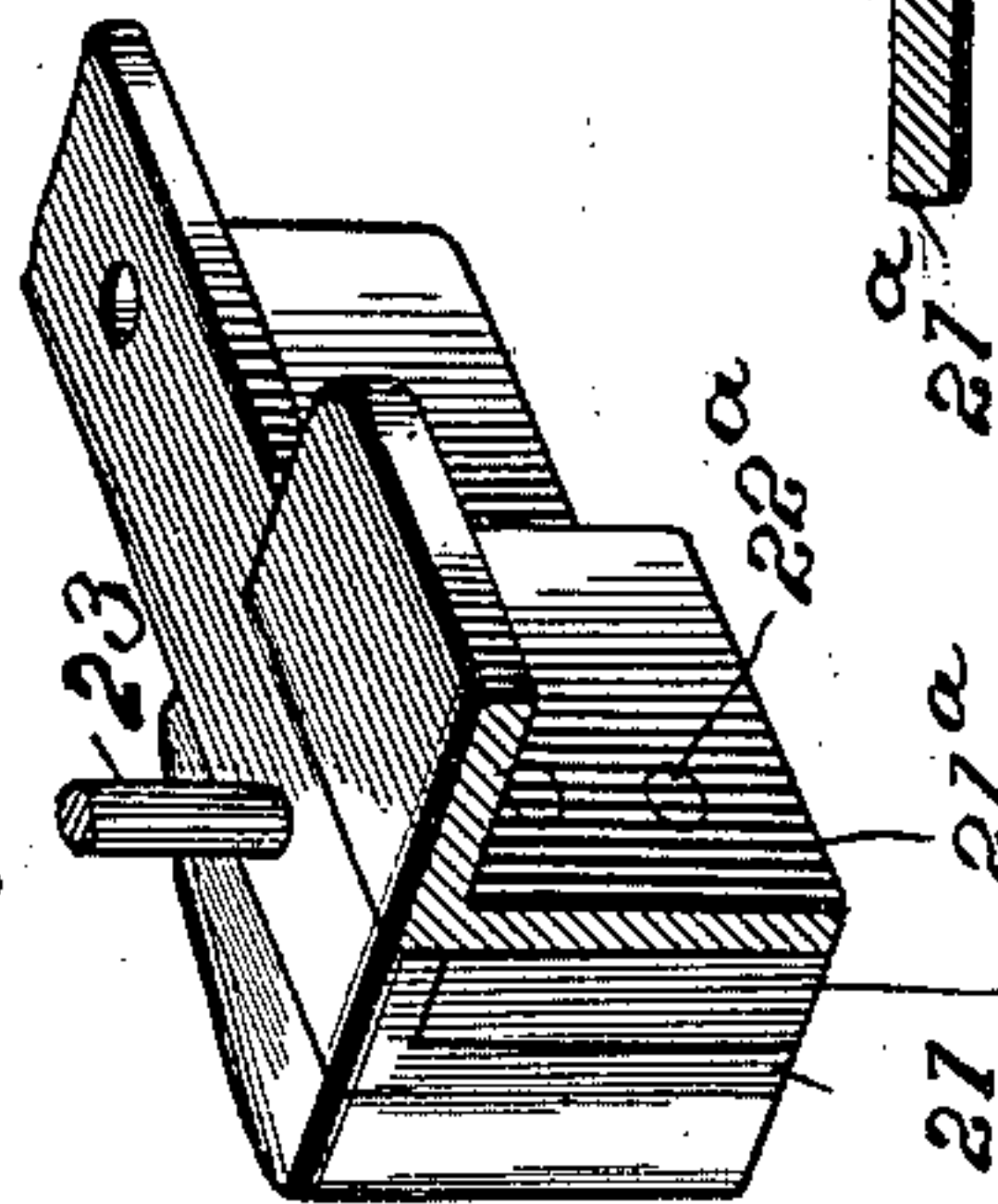
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Fig. 16



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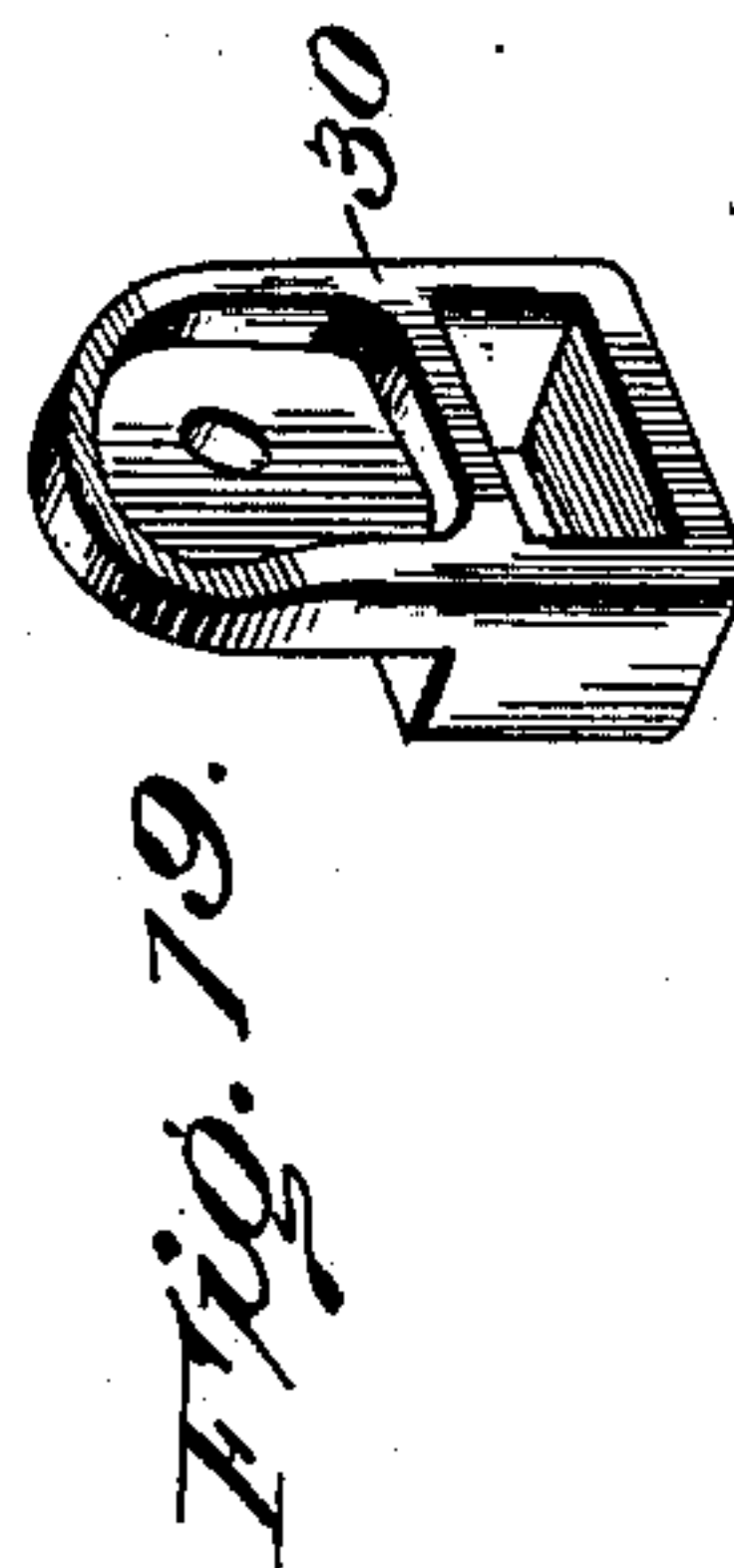
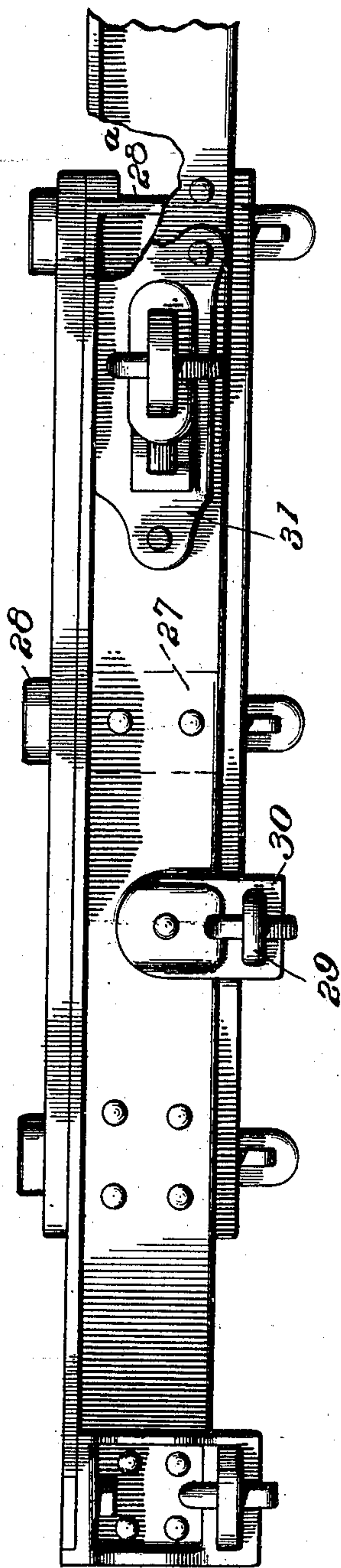
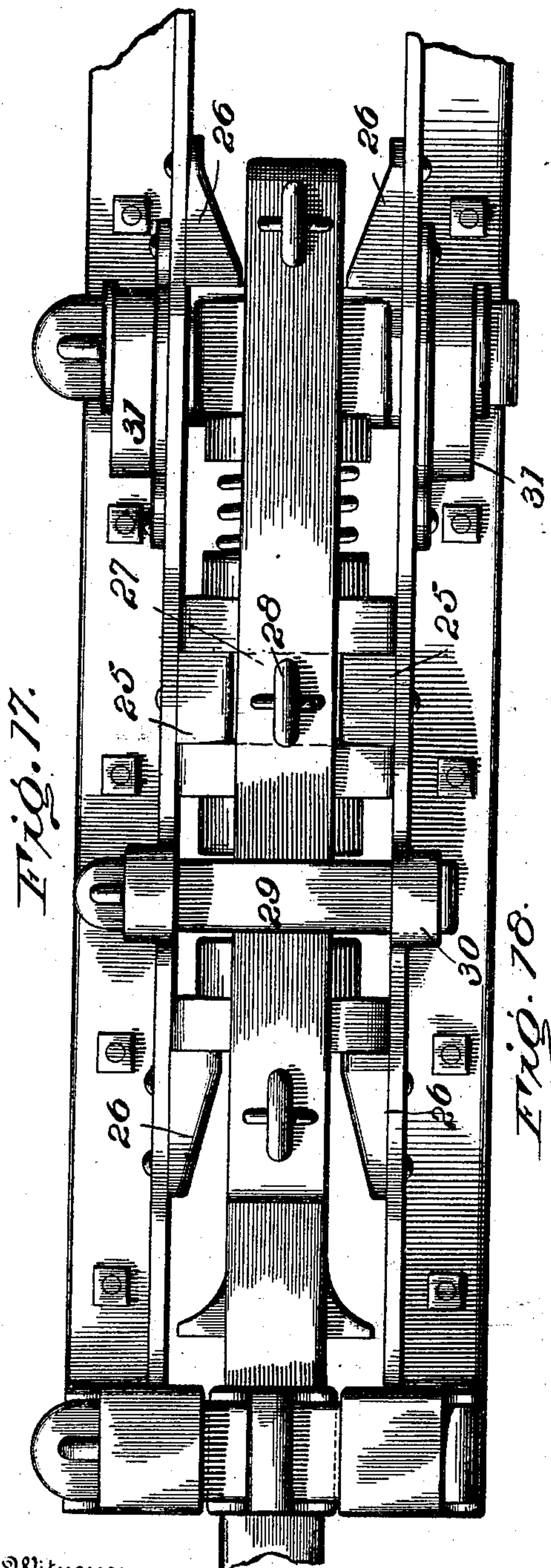
Patented Apr. 2, 1901.

P. BROWN.
DRAFT MECHANISM.

(Application filed Dec. 6, 1899.)

(No Model.)

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Witnesses

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Attorney

UNITED STATES PATENT OFFICE.

PERRY BROWN, OF WILMINGTON, DELAWARE.

DRAFT MECHANISM.

SPECIFICATION forming part of Letters Patent No. 671,367, dated April 2, 1901.

Application filed December 6, 1899. Serial No. 739,420. (No model.)

To all whom it may concern:

Be it known that I, PERRY BROWN, a citizen of the United States, residing at Wilmington, in the county of Newcastle and State of Delaware, have invented a certain new and useful Improvement in Draft Mechanism, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to improvements on that class of draft mechanism shown in my Patents Nos. 598,765 and 632,912, granted, respectively, on February 8, 1898, and September 12, 1899; and it consists in the peculiar construction, arrangement, and combinations of parts hereinafter more particularly described and then definitely claimed.

In the accompanying drawings, Figure 1 is a top plan of the simplest form of my invention. Fig. 2 is a central vertical longitudinal section of the same. Fig. 3 is a cross-section through the line *a a* of Fig. 1. Fig. 4 is a section through the line *b b* of Fig. 1. Fig. 5 is a perspective detail of a cap on the end of the draft-irons. Fig. 6 is a detail of a "stop" riveted to the draft-timbers. Fig. 7 is a top plan of my invention as used with timbers. Fig. 8 is a horizontal section through the same. Fig. 9 is a cross-section through the line *c c* of Fig. 7. Fig. 10 is a section through the front end of one of the timbers of Figs. 7 and 8. Fig. 11 is a perspective view of a cap on the end of one of the timbers shown in Figs. 7, 8, 9, and 10. Fig. 12 is a detail of a modified form of a yoke. Fig. 13 is a bottom plan of a draft mechanism similar to that shown in Fig. 1, but with springs arranged side by side. Fig. 14 is a cross-section through the line *d d* of Fig. 13. Fig. 15 is a cross-section through the line *e e* of the same figure. Fig. 16 is a perspective detail relating to Figs. 13, 14, and 15. Fig. 17 is a bottom plan of a draft mechanism constructed with springs and followers arranged in tandem. Fig. 18 is a side elevation of the same. Fig. 19 is a detail relating to Figs. 17 and 18, and which will be referred to more particularly hereinafter.

Referring now to the details of the drawings by numerals, and particularly to Figs. 1 to 6, 1 1 represent the draft-irons, which are usually made of angle-iron and which

are secured to the intermediate sills of the car-body by the bolts 1^a.

2 represents the draw-bar heretofore patented by me, but which may be of any ordinary construction. This draw-bar is supported between the draft-irons 1 1 in a manner to be hereinafter described.

3 represents a strap or yoke of the usual form and which has its front ends placed above and below the rear end of the shank of the draw-bar 2 (see Fig. 2) and securely fastened there by a flat bar 4 passing through the shank of the draw-bar 2 and each end of the yoke. This flat bar is preferably provided with a head 4^a and is prevented from moving out of place by a key 4^b, which may be held in place by a cotter 4^c. It will be observed that the flat bar 4 is inserted through the said yoke and draw-bar, so that the strain is received on its edges instead of on its flat side. To partially relieve the strain on the bar 4 when a pull is exerted, the ends of the yoke 3 are formed with turned-over ends 3^a, engaging the oppositely-formed shank of the draw-bar in the ordinary way of connecting these parts. At each end of the yoke are situated the followers 5 and 6, the first of which normally bears against the shank of the draw-bar 2 and the other is held within the curved rear end of the yoke. Between the followers are the usual springs 7.

All of the parts so far described may be of the ordinary construction and their relative arrangement is old, with the exception of the flat bars 4, arranged to receive the load on its edges. In their normal positions (shown in Figs. 1 and 2) the followers rest against brackets in stops 8, riveted to the draft-irons 1 1, the rear stops having flanges 8^a (see Figs. 1 and 6) projecting over the rear followers and preventing them from rising when pulled slightly forward.

On the front end of each of the draft-irons are secured caps 9 9, which are preferably cast and of the peculiar shape shown in perspective detail in Fig. 5. One side of the draft-iron enters the recess 9^a and the other side rests on the seat 9^b, and the iron is riveted to the cap, as shown at 9^c. At the bottom of these caps 9 9 are formed horizontal openings 9^d, and the caps are perforated at 9^e

to provide a means for securing the draft-iron and cap to the dead-wood block or end sill of the car. Through the horizontal openings 9^d is passed a flat bar 10 (similar to the flat bar 4, hereinbefore described) and which is secured in place by a key 10^a and cotter 10^b. (See Fig. 4.) The purpose of this bar 10 is the same as the bar usually employed here, (that of supporting the front end of the draw-bar;) but its novelty in the present instance consists in having it passed through the slotted openings, so that it can be easily withdrawn in a manner manifest from the drawings. This bar 10 receives a large amount of wear and tear due to the constant motion of the shank of the draw-bar, which is carried by it, and frequently the bar is worn so badly as to endanger its safety. To prevent this, I slip over said bar a slotted wearing-plate 10^c, (see Fig. 4,) which can wear away without weakening the supporting-bar 10. To prevent wear on the shank of the draw-bar, I also insert therein a removable wearing-button 10^d, which when worn can be easily removed and replaced by another. Some means of supporting the followers is also necessary, and for this purpose I use another flat bar 11, which is passed horizontally through the elongated slots in the draft-irons and through a horizontal slot in the rear follower, (see Figs. 2 and 3,) and which bar is also held in place by a key 11^a and cotter 11^b, similar to those used in the bars 4 and 10. It will be observed that this bar passes through the draft-irons and follower horizontally, so that all strain is exerted on its edges instead of on its sides, and hence it can be made of lighter material, do more effective work, and necessitate slots in the draft-irons of a shape and size least likely to weaken them. To further strengthen the draft-irons where they are slotted for the passage of the bar 11, I rivet on the outside thereof a slotted piece of angle-iron 12, (see Fig. 3,) which also serves to provide an additional bearing for the head of the flat bar 11 and prevents wear on the side of the draft-iron itself. These angle-irons 12 are preferably riveted to the draft-irons by the same rivets used to secure the stops 8 in place.

It has usually been the custom to make each of the followers 5 and 6 with an annular ring or flange to hold the spring in place and with a lug projecting from the center of the follower a short distance into the center of the spring, and in some cases a continuous rod has been passed from one follower to the other entirely through the springs. The followers shown in my drawings, however, and particularly in Fig. 2, involve a departure from this practice, and consist of the follower proper, (marked 5,) and riveted to the center of this follower is a projecting stud 5^a, and I cast on the rear follower a similar lug 6^a, and instead of making these lugs projecting into the springs for a short distance only they project for a sufficient distance to pre-

vent the springs from being driven beyond their capacity. In other words, the studs 5^a and 6^a will come together and prevent further motion, and thus prevent the springs "crowding." Instead of having a stud projecting from each follower I may place between the springs a loose block 6^b, as shown in Fig. 8, and which is of such size as to act in substantially the same manner as the studs. It is obvious that this block could be secured to one of the followers, if desired. These studs or the block, as the case may be, are of such a diameter as to allow the springs to move easily over them and at the same time are large enough to prevent the springs from becoming displaced.

In Fig. 1 it will be noticed that two lugs 13 project from the shank of the draw-bar 2 and are preferably cast thereon. These lugs are for the purpose of coacting with the caps 9 and preventing the pulling out of the draw-bar 2 in the event of the breakage of any of the rear parts.

Referring now to that form of my invention shown in Figs. 7, 8, 9, 10, 11, and 12 and particularly to Figs. 7 and 8, 14 represent draft-timbers which are substituted for the draft-irons 11 of Figs. 1 and 2. The main parts of this form are identical with the parts described in Figs. 1 and 2, but are changed to adapt them for use on timbers instead of angle-irons. In order to strengthen the draft-timbers, I provide on each side thereof reinforcing-plates 15 15, to which the follower-stops are securely bolted, as clearly shown in Figs. 7 and 8. I also use a slightly-different form of cap 16, the use of which is necessitated by the use of large timbers instead of the irons. These caps are shown in detail in Figs. 9, 10, and 11 and consist of a casting having a large central aperture or socket 16^a, which is adapted to fit over the end of the draft-timber, the end of which is suitably formed for that purpose. (See Fig. 10.) The end of this cap has a horizontal recess 16^b formed therein and is perforated vertically, and through these perforations pass the bolts 16^c to secure the draft-timbers to the dead-wood block or end sill of the car. (Not shown.) A flat bar 17, identical with the flat bar 10 hereinbefore described, is passed through the horizontal openings and serves the double purpose of preventing the spreading of the draft-timbers and the dropping down of the bolts 16^c, besides acting as a support for the draw-bar. On the inside of each of these caps I secure a dovetailed wearing-plate 18, secured to the cap by the dovetail 18^a, (see Fig. 11,) and these wearing-plates are prevented from falling down and out of place by the flat bar 17 above referred to, as clearly shown in Fig. 9. In addition to the above differences I provide two carrying-plates 19, (see Fig. 7,) one secured to each draft-timber by the bolts 19^a, through which carrying-plates are passed a flat bar 19^b, similar to the ones hereinbefore described, and which assist in supporting the follow-

ers and their connected parts. It will be observed that in Figs. 7 and 8 that I provide two flat bars for the purpose of preventing the dropping down of the rear end of the yoke and its followers, and while both of these are preferred on some forms of cars it is evident that either one may be dispensed with, if desired. In this form of my invention I have also changed the form of the strap or yoke 3 of Figs. 1 and 2 and have made it in the form of two plates 20 20^a instead of the continuous yoke, and between the ends of these plates 20 20^a is inserted a slotted filler 20^b, (clearly shown in Fig. 12,) and passing through the plates 20 20^a and this slotted filler is a flat bar 20^c. (Shown in Figs. 7, 8, and 12.) The rear ends of the plates 20 20^a are turned over to engage with the filler, as clearly seen in Fig. 12. This form of yoke is the equivalent of the continuous yoke heretofore used, but is much preferable to it on account of the fact that the whole yoke does not have to be taken off the shank of the draw-bar in order to adjust or replace the parts held by it.

In Figs. 13, 14, and 15 I have shown the followers arranged to receive two sets of springs side by side, and in order to accommodate the extra width of followers necessitated thereby I have to cut the draft-irons 21 and secure thereto an additional angle-iron 21^a. Between the additional angle-iron and the draft-irons proper I secure a filler 22, (see Figs. 13 and 16,) all of these parts being riveted together by the rivets 22^a, in this instance the bolts for securing the draft-irons to the intermediate sills of the car passing through the fillers, as shown at 23. It will be observed in Fig. 13 that the thrust from the followers is received by the fillers 22 and the ends of the draft-irons 21, as well as by the stops secured to the inside of said draft-irons.

Figs. 17, 18, and 19 show my mechanism arranged in tandem, and the parts here follow the general construction shown in Figs. 1 and 2; but of course the tandem arrangement necessitates the use of two sets of followers and springs to be secured within the yoke, and of course a longer yoke must be provided and means connected therewith for transmitting the load to both the rear followers or to both front followers simultaneously. In Fig. 17 blocks 25 are fixedly secured to the angle-irons midway between the brackets or stops 26, and a set of followers is arranged on each side of these blocks 25. Normally situated between these blocks is a slotted filler 27, (similar to that shown in Fig. 12,) which is firmly secured to the yoke by a flat bar 28, passing "edgewise" through the yoke and filler. If the yoke is made of two plates, a similar filler 28^a is used at the end of the yoke and a bar is passed through the ends of the plates and filler, as in Fig. 12; but if a continuous yoke is used this filler is not used, as the bent end of the yoke passes around the rear part of the rear follower. The great length of the yoke in this tandem

arrangement necessitates the use of a flat bar under one of the followers for the same purpose as that shown in Fig. 7. This flat bar is shown at 29, and to support it it is necessary to provide some support, such as the slotted hanger 30. (Shown in Fig. 18 and in detail in Fig. 19.) These hangers 30 are the equivalents, of course, of the carrying-plates 19, supported by the draft-beams of the said Fig. 7.

Instead of the slotted angle-bars 12, riveted to the side of the draft-irons for strengthening them and affording a bearing, as shown in Figs. 1, 2, and 3, I use in Figs. 17 and 18 a slotted and flanged bearing-iron 31, riveted securely to the draft-iron, and I consider this slotted and flanged iron the equivalent of the slotted angle-iron 12, above referred to.

Figs. 17 and 18 show very well the advantage of using the flat bars passing between the yoke and draw-bar shank or the yoke and fillers, as in this figure all the strain on one set of followers in each direction is carried by the flat bars, and as they are arranged edgewise and receive the load on their edges instead of on their flat sides they are capable of standing the maximum of load without weakening the yoke to any undue extent by causing large openings to be made transversely therein.

It is believed the operation of the various forms of my device will be obvious to those skilled in the art to which it pertains. At the same time it will not be out of place to state that by the arrangement shown it is only necessary to remove the flat bar under and supporting the draw-bar and the one going through or under the followers in order to be able to remove the draw-bar, the yoke, and their connection parts all intact. This is of course a decided advantage, as the draft irons or timbers do not have to be disturbed in any way whatever, and, furthermore, if it is desired to remove the yoke and its inclosed parts without removing the draw-bar it is necessary to remove only the said bar passing through or under the followers and the flat bar passing through the yoke and the shank of the draw-bar.

In the accompanying drawings I have shown four forms of my invention, as follows: First, as applied with single springs and followers to angle-iron draft-irons; second, as applied to draft-timbers; third, two sets of followers and springs arranged side by side, and, fourth, arranged with the springs in tandem. In each of these various forms is found a flat bar passing through one of the followers and supporting the yoke and its connected parts and in several of them a flat bar passing under the followers for the same purpose. Each of the forms also shows a cap on the end of the draft-irons or draft-beams and a flat bar passing through slots in said caps to support the draw-bar. Brackets or stops are shown in all of the forms to receive the load from the followers. In addition to these ele-

ments, common to all of the figures, minor improvements are also shown; but the parts common to all the forms are shown in slightly-modified forms, so as to adapt them to the special service for which they are intended. It is evident that other changes may be made without departing from the bounds of my invention, and of course I do not intend to unnecessarily limit my claims to the exact forms shown.

It will be noticed in the foregoing specification that I have referred in some figures to "draft-timbers" and in others to "draft-irons;" but in the following claims I use the broad term "draft-beams" and intend it to cover any of the various forms of draft-irons or draft-timbers. Likewise when I use the term "yoke" in the claims I intend it to cover the continuous yoke or the one made of plates connected at their ends.

What I claim as new is—

1. In a draft mechanism; the combination of a draw-bar; spring-actuated followers; a yoke connecting the said followers with said draw-bar; draft-beams on the sides of said draw-bar and yoke; a detachable plate or bar passing through slots near the ends of said draft-beams and connecting them and supporting the said draw-bar; and a detachable plate or bar connecting said draft-beams and followers and springs to said draft-beams, whereby the said draw-bar and its yoke and followers may be removed from said draft-beams by removing the said plates or bars, substantially as described.

2. In a draft mechanism; the combination of a draw-bar; spring-actuated followers; a yoke connecting the said followers with said draw-bar; draft-beams on the sides of said draw-bar, yoke and followers; a detachable plate or bar passing through slots near the ends of said draft-beams and connecting them and supporting the said draw-bar; and a detachable plate or bar passing through one of said followers and thereby connecting and holding said followers, yoke and springs to said draft-beams, whereby the said draw-bar and its yoke and followers may be removed from said draft-beams by removing the said plates or bars, substantially as described.

3. In a draft mechanism; the combination of a draw-bar; spring-actuated followers; a yoke connecting the said followers with said draw-bar; draft-beams on the sides of said draw-bar, yoke and followers; a detachable plate or bar passing through one of said followers, and thereby connecting and holding said followers, yoke and springs to said draft-beams; a key securing said plate or bar in place; and an iron connected to each of said draft-beams on the outsides thereof, and having a horizontal flange receiving the wear from said detachable plate or bar on its horizontal surface and the wear of said key on its edge; substantially as described.

4. In a draft mechanism; the combination of a draw-bar; a plurality of followers; a

spring between said followers; means for connecting said followers and said draw-bar; draft-beams on the sides of said parts; stops carried by said draft-beams and engaging said followers and receiving the load therefrom; and a plate connecting and holding said followers, draw-bar and their connecting means to said draft-beams, substantially as described.

5. In a draft mechanism, the combination of a draw-bar; a plurality of followers; a spring between said followers; means for connecting said followers and said draw-bar; draft-beams on the sides of said parts; stops carried by said draft-beams and engaging said followers and receiving the load therefrom; and a plate or bar passing through one of said followers and thereby connecting and holding said followers, draw-bar and their connecting means to said draft-beams, substantially as described.

6. In a draft mechanism; the combination of a draw-bar; a plurality of followers; a spring between said followers; means for connecting said followers and said draw-bar; draft-beams on the sides of said parts; and stops carried by said draft-beams and engaging said followers and receiving the load therefrom; and a plate passing through one of said followers and thereby connecting and holding said followers, draw-bar and their connecting means to said draft-beams; said plate passing through the follower with its edge against the line of thrust, substantially as described.

7. In a draft mechanism; the combination of a draft-beam having a slot near the end thereof; a bolt passing through the said beam; and a plate in said slot securing the bolt in place; substantially as described.

8. In a draft mechanism; the combination of draft-beams having slots near the ends thereof; a draw-bar; a plate or bar passing through said slots and underneath said draw-bar, thereby supporting the weight of the latter; and a detachable wearing-plate slipped over the aforesaid plate or bar; substantially as described.

9. In a draft mechanism; the combination of a draft-beam having a slot near the end thereof; a bolt passing through said beam; a plate in said slot securing the bolt in place; and a wearing-plate supported by the aforesaid plate, substantially as described.

10. In a draft mechanism; the combination of draft-beams; a draw-bar working between them; independent caps secured on the ends of said draft-beams; and having slots therein; and a plate or bar passing through the slots in said caps and under and supporting the said draw-bar, substantially as described.

11. In a draft mechanism; the combination of draft-beams; a draw-bar working between them; caps on the ends of said draft-beams; and detachable wearing-plates secured to said caps between them and said draw-bar; substantially as described.

12. In a draft mechanism; the combination of draft-beams; spring-actuated followers set between them; a draw-bar; means connecting said followers and draw-bar; caps or heads on said draft-beams and having slots therein; and a plate or bar passing through the slots in said caps or heads and supporting said draw-bar; substantially as described.

13. In a draft mechanism; the combination of draft-beams; spring-actuated followers set between them; a draw-bar; means connecting said followers and draw-bar; a plate or bar arranged to hold said followers; springs and connecting means between said draft-beams; caps or heads on said draft-beams and having slots therein; and a plate or bar passing through the slots in said caps or heads and supporting said draw-bar; substantially as described.

14. In a draft mechanism; the combination of a draft-beam; a slotted cap on the end thereof; a bolt passing therethrough; and a plate in said slot securing the bolt in place, substantially as described.

15. In a draft mechanism; the combination of draft-beams; slotted caps on the ends thereof; a draw-bar between said beams; bolts passing through said caps; and a plate passing through said slots and securing said bolts in place and supporting said draw-bar, substantially as described.

16. In a draft mechanism; the combination of draft-beams; caps on the ends thereof; a

draw-bar between said draft-beams; means for supporting said draw-bar between said beams; and stops projecting from the shank of said draw-bar and coacting with the caps on the beams; whereby the caps and stops prevent the pulling out of the draw-bar in the event of the breakage of the supporting means; substantially as described.

17. In a draft mechanism; the combination of spring-actuated followers; draft-beams; angle-irons secured thereto; fillers between said draft-beams and angle-irons; and stops secured to said draft-beam; the said stops, draft-beams and fillers receiving the load from said followers, substantially as described.

18. A railroad-car, provided with metallic caps secured to the ends of the draft-beams, loops integral with the bottoms of the caps, and a carry-iron held in said loops, as set forth.

19. A railroad-car, provided with metallic caps inclosing the ends of the draft-beams, and having integral loops depending from the bottoms of the caps to receive and support a carry-iron, as set forth.

In testimony whereof I affix my signature, in the presence of two witnesses, this 24th day of November, 1899.

PERRY BROWN.

Witnesses:

J. STEWART RICE,
THOS. E. ROBERTSON.