

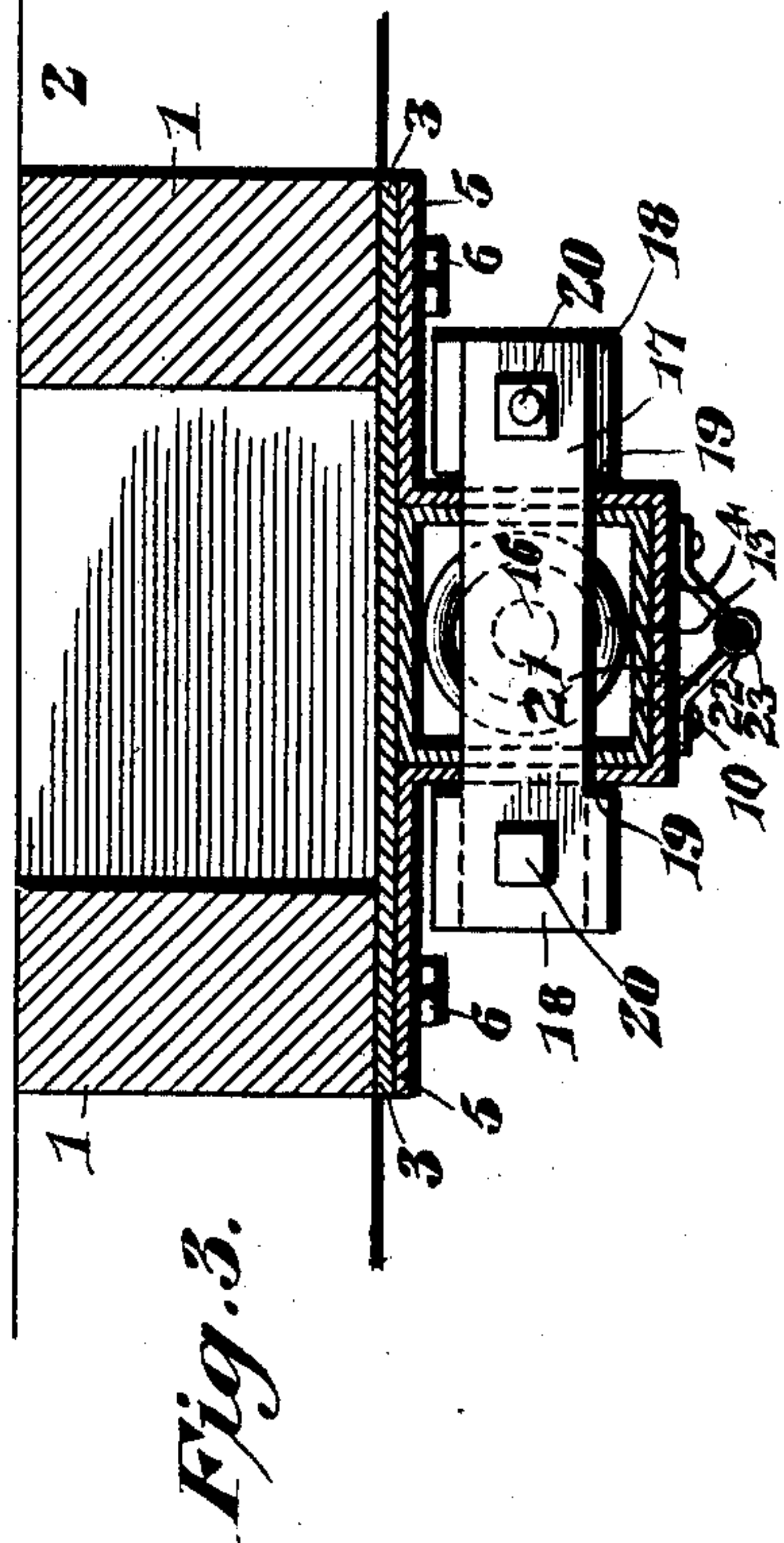
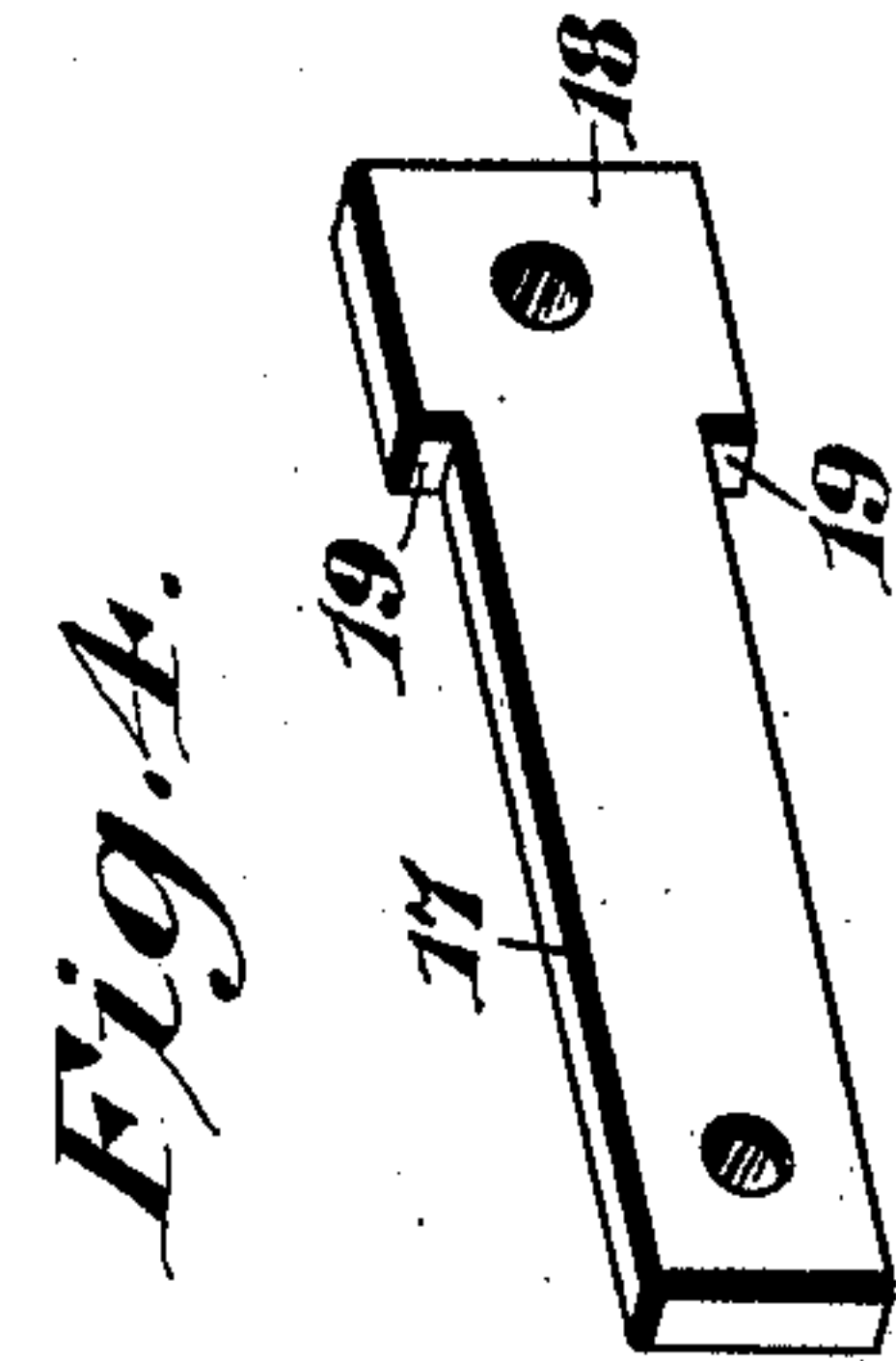
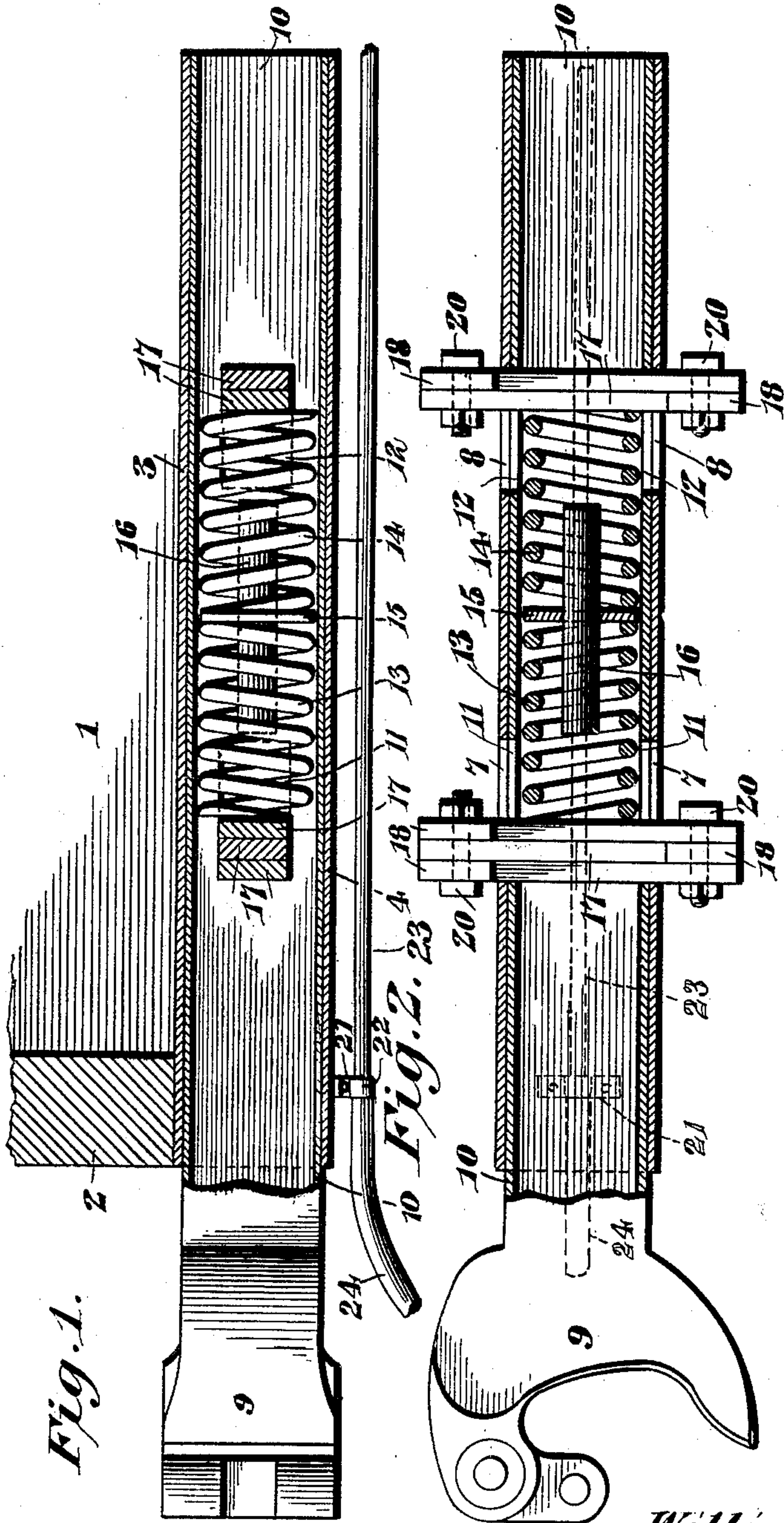
No. 703,118.

Patented June 24, 1902.

W. H. COX.  
DRAFT RIGGING.

(Application filed Mar. 10, 1902.)

(No Model.)



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# UNITED STATES PATENT OFFICE.

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## DRAFT-RIGGING.

SPECIFICATION forming part of Letters Patent No. 703,118, dated June 24, 1902.

Application filed March 10, 1902. Serial No. 97,632. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM H. COX, a citizen of the United States, residing at Iron Mountain, in the county of Dickinson and State of Michigan, have invented a new and useful Draft-Rigging, of which the following is a specification.

This invention relates to draft-rigging, and has for its object to provide an improved mounting for the draw-bars of that type of couplings now in general use without altering the construction of the cars. It is also designed to arrange for convenience in fitting the rigging in place, especially for substituting a broken or worn coupling, and also to prevent portions of the draw-bar from falling upon the track should it become broken.

Another object is to provide for mounting the draft and buffing springs in a manner to instantly take up strains without any lost motion, to house and protect the springs against the weather, to facilitate the replacing of the springs, and finally to provide for conveniently taking up wear on the springs, so as to maintain the draw-bar in a relatively tight condition, and thereby to obviate unnecessary looseness or play.

With these and other objects in view the present invention consists in the combination and arrangement of parts, as will be hereinafter more fully described, shown in the accompanying drawings, and particularly pointed out in the appended claims, it being understood that changes in the form, proportion, size, and minor details may be made within the scope of the claims without departing from the spirit or sacrificing any of the advantages of the invention.

In the drawings, Figure 1 is a longitudinal sectional view of draft-rigging means constructed and arranged in accordance with the present invention. Fig. 2 is a horizontal sectional view thereof. Fig. 3 is a cross-sectional view. Fig. 4 is a detail perspective view of one of the spring-engaging cross-heads or abutments.

Like characters of reference designate corresponding parts in all the figures of the drawings.

Referring to the accompanying drawings, 1 designates the center sills, and 2 the end sill, of any ordinary car-underframing, these

parts being shown to adequately illustrate the application of the improved draft-rigging.

In carrying out the present invention there is provided a top or cover plate 3, which is secured flat across the bottom edges of the center sills 1, so as to close the space between said sills. To the under side of this plate a draw-bar casing 4 is applied, said casing consisting of a metallic plate having a central longitudinal depression which forms the casing proper, while the opposite side portions of the plate form flanges 5, which fit flat against the under side of the plate 3 and are secured to the center sills by means of suitable fastenings 6, which also pierce the plate 3 to hold the same to the sills. It will now be apparent that the purpose of the plate 3 is to cover the otherwise open top of the draw-bar casing and also to serve as a brace against upward strains. This tubular casing is opened at opposite ends and is provided with front and rear pairs of transversely-aligned longitudinal slots 7 and 8, respectively.

The coupler-head 9 may be of any common or preferred type and instead of the usual solid draw-bar is provided with a tubular draw-bar 10, which may be formed integral with or otherwise connected to the coupler-head, and in any event it should be of a cross-sectional size and shape to have an endwise shiftable or working fit within the casing, so as to telescope therewith, and also having an open rear end. The opposite sides of this tubular draw-bar are provided with front and rear pairs of transversely-aligned longitudinal slots 11 and 12, corresponding to and normally aligned with the respective pairs of front and rear slots in the casing.

A helical buffing-spring 13 is introduced into the tubular draw-bar through the rear open end thereof, and in rear of this spring is a draft-spring 14, the two springs being separated by a plate or partition 15, having a central stem 16 projected in opposite directions therefrom and entered into the springs, so as to form a guide therefor, it of course being understood that the plate and stem are entirely independent of the draw-bar and the springs.

To provide bearings or abutments for the outer ends of the springs, removable cross-bars or abutment-bars 17 are passed through



the alined slots of the casing and the draw-bar, each cross-bar or abutment having a laterally-enlarged head 18, which forms opposite laterally-projected shoulders 19, that bear  
 5 against the outer side of the casing, so as to limit the insertion of the abutment in one direction, it being observed that the abutment projects at opposite ends beyond the casing. It is preferable to have at least two of these  
 10 abutment-bars for each spring, said bars being inserted from opposite sides of the casing and detachably connected by means of suitable fastenings, preferably bolts 20, which pierce the contiguous ends of the bars externally of the  
 15 casing in order that they may be readily accessible. By having the abutment-bars reversely arranged and also mutually connected their shoulders lie at opposite sides of the casing, and thereby hold the bars against  
 20 endwise displacement and play. When the springs become worn and weakened, additional cross-bars or abutment-bars may be inserted in the slots, as shown at the front of the rigging, thereby to compress the springs  
 25 and maintain as near as possible the desired tension thereof.

Under normal conditions—that is to say, when there is no strain on the rigging—the tension of the springs forces the abutment-bars against the outer ends of the slots, and thereby maintains the draw-bar at an intermediate position with its slots alined with the slots of the casing. Should a draft strain be applied to the coupler, the draw-bar will be  
 30 moved forwardly, thereby carrying the rear abutment-bar in a forward direction, as it is free to move in the slots 8 of the casing, and by this forward movement of the rear abutment-bar the springs are compressed and a  
 40 sudden jar or jerk is obviated. It will be understood that the springs are held against forward movement without compression by reason of the fact that the front abutment-bar remains fixed, as it is in engagement with the  
 45 front ends of the slots 7 in the casing and therefore cannot move forwardly. Hence in addition to forming abutments for the spring the abutment-bars also form stops to limit the endwise movement of the draw-bar, and thereby  
 50 by prevent the same from being entirely withdrawn from the casing. As the draft strain decreases the springs will expand, and thereby force the rear abutment and the draw bar in a rearward direction until the strain entirely  
 55 ceases and the rear abutment-bar engages with the rear ends of the slots 8 in the casing, when the rigging will be in its normal position. It will of course be understood that the parts have a similar operation under the action of a buffing strain—that is to say, the rear  
 60 abutment-bar remains fixed and the forward abutment-bar is moved rearwardly, and thereby compresses the springs between the two abutment-bars.

65 From the foregoing description it is apparent that one of the abutment-bars always remains fixed, while the other bar is moved to-

ward the fixed bar, thereby to compress the springs and to take up jars. Moreover, should the draw-bar become broken it is im- 70 possible for any of the parts thereof to fall upon the track, as the casing entirely envelops the draw-bar.

To replace a broken draw-bar, the fastenings 20 are removed from the abutment-bars 75 and the latter are withdrawn from the slots, whereby the draw-bar is free to be withdrawn from the casing, and in drawing out the draw-bar the springs are also carried therewith, and it is of course obvious that a new draw- 80 bar may be as readily fitted to the casing.

It will be noted that the usual draft-timbers are dispensed with and the casing is secured directly to the under sides of the center sills, whereby the casing depends there- 85 from and assumes the proper position for the mounting of a draw-bar. The function of the plate 3 is to close the upper side of the casing, so as to prevent upward displacement of the draw-bar and also to brace the same and 90 the casing, and therefore it is apparent that this plate may be dispensed with without materially interfering with the rigging, and, if desired, the casing may be inclosed at all sides instead of as shown in Fig. 3. 95

I also contemplate supporting the train-pipe from the draw-bar casing, which is accomplished by means of a bracket 21 applied to the bottom of the casing and adjacent to the forward end thereof and having an open- 100 ended tubular socket or collar 22 for the reception of the train-pipe 23, the usual flexible pipe-section 24 being fitted to the forward end of the train-pipe 23 in any suitable manner. As best illustrated in Fig. 3, it will be 105 noted that the socket 22 is disposed centrally below the casing, so that the train-pipe may lie centrally below the casing, and thereby the flexible pipe portion 24 is disposed centrally below the draw-head, whereby the 110 coupling between the train-pipes of adjacent cars may be made in a straight line directly below the car-coupling, thereby materially facilitating the coupling and uncoupling of the train-pipes and also employing consider- 115 ably less flexible pipe than is now commonly used, as the train-pipe coupling is ordinarily made at one side of the car-coupling.

What I claim is—

1. In a draft-rigging, the combination of 120 tubular telescoped support and draw-bar members, the latter member having an endwise movement upon the former member, and both members having front and rear pairs of corresponding slots, front and rear abutment- 125 bars lying in the respective pairs of slots, and a spring housed within the inner member and bearing in opposite directions against the abutment-bars to normally hold the same at the outer ends of the slots. 130

2. In a draft-rigging, the combination with a fixed tubular casing having front and rear pairs of transversely-alined slots, of a tubular draw-bar working within the casing and



provided with pairs of front and rear slots normally corresponding to the slots in the casing, front and rear abutment-bars lying in the corresponding front and rear slots, and a  
5 spring housed within the draw-bar and bearing in opposite directions against the abutment-bars to hold the same at the outer ends of the slots.

3. In a draft-rigging, the combination of  
10 telescoped support and draw-bar members, of which the draw-bar member is tubular, and both members are provided with front and rear pairs of alined slots, front and rear abutments lying in the respective pairs of slots, a  
15 pair of alined helical springs located between and bearing in opposite directions against the respective abutments, and a plate interposed between the inner ends of the springs and provided with a stem projected in opposite di-  
20 rections therefrom and entering the respective springs.

4. In a draft-rigging, the combination of telescoped support and draw-bar members which are provided with front and rear pairs  
25 of alined slots, pairs of headed abutments lying in the respective front and rear slots, the members of each pair being detachably connected and having their heads reversely arranged to lie exteriorly at opposite sides of  
30 the device to prevent endwise displacement of the abutments, and a spring located between the pairs of abutments and bearing in opposite directions thereagainst.

5. The combination of telescoped support  
35 and draw-bar members which are provided with front and rear pairs of transversely-alined slots, pairs of headed abutments lying in the respective pairs of slots and projected beyond opposite sides of the device, the heads  
40 of the members of each pair of abutments being reversely arranged and lying exteriorly against the opposite sides of the device to prevent endwise displacement of the abutments, detachable fastenings connecting the  
45 ends of the members of each pair of abutments, and a spring lying between the pairs of abutments and bearing in opposite directions thereagainst.

6. In a draft-rigging, the combination with  
50 a casing having front and rear pairs of transversely-alined slots, a tubular draw-bar working in the casing and having front and rear slots corresponding to the slots in the casing, pairs of headed abutments lying in the re-  
55 spective pairs of slots, the members of each pair of abutments being reversely disposed with their heads lying exteriorly at opposite sides of the casing and overlapping the slots, detachable fastenings connecting the oppo-  
60 site ends of said members, front and rear helical springs within the draw-bar and between the abutments, and a plate interposed

between the springs and having a stem projected in opposite directions therefrom and lying within the respective springs.

7. In a draft-rigging, the combination of a substantially tubular casing which is open at its front end, and is provided at its top with opposite longitudinal flanges for attachment to the underframing of a car, a tubular  
70 draw-bar working within the casing, the latter and the draw-bar being provided with front and rear pairs of transversely-alined slots, front and rear abutments lying in the slots and movable with the draw-bar, and a  
75 spring housed within the draw-bar and between the abutments and bearing in opposite directions against the latter.

8. The combination with the center sills of a car-underframing, of a plate secured to the  
80 under edges of the sills and closing the space therebetween, a substantially tubular casing which is open throughout its top and its front end, and is provided at its top with opposite longitudinal flanges, which are fastened flat  
85 against the plate, whereby the latter closes the top of the casing, a tubular draw-bar working in the casing, the latter and the draw-bar having front and rear pairs of transversely-alined longitudinal slots, front and  
90 rear abutments lying in the respective pairs of slots, and a spring located within the draw-bar and between the abutments and bearing in opposite directions against the latter.

9. The combination of a substantially tubu-  
95 lar casing which is open at its front end and is provided at its top with opposite outwardly-directed longitudinal attaching-flanges, a tubular draw-bar working in the casing and having an open rear end, the casing and the  
100 draw-bar being provided with front and rear pairs of transversely-alined longitudinal slots, front and rear pairs of headed abutments lying within the respective slots and projected at opposite sides of the casing, the members  
105 of each pair of abutments being reversely arranged with their heads lying exteriorly at opposite sides of the casing and overlapping the slots thereof, detachable fastenings connecting the opposite ends of said members, a  
110 pair of helical springs located within the draw-bar and between the abutments and bearing in opposite directions against the latter, and a plate interposed between the springs and having a central stem projected  
115 in opposite directions therefrom and entering the respective springs.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

WILLIAM H. COX.

Witnesses:

R. T. MILLER,  
DAVID T. REESE.