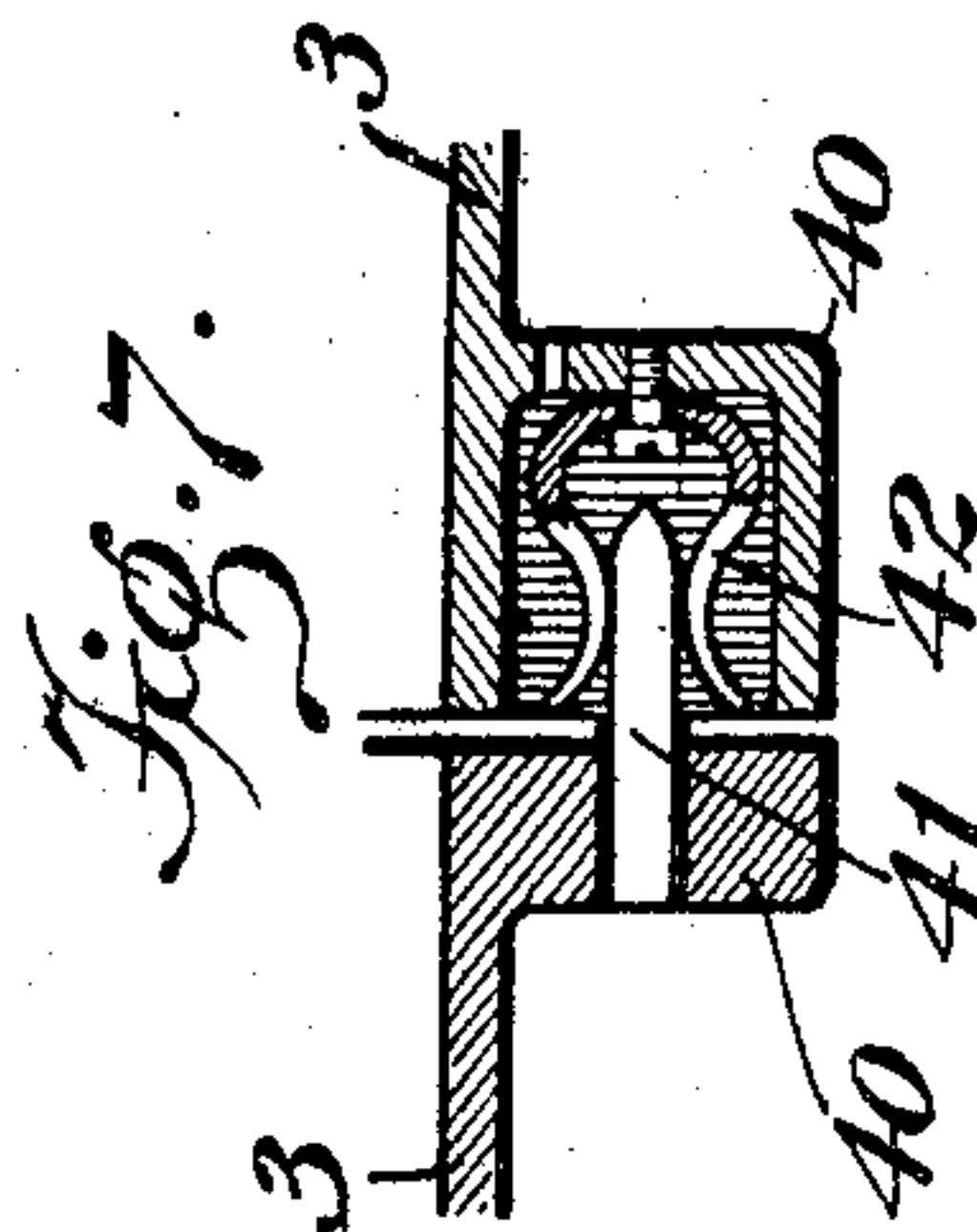
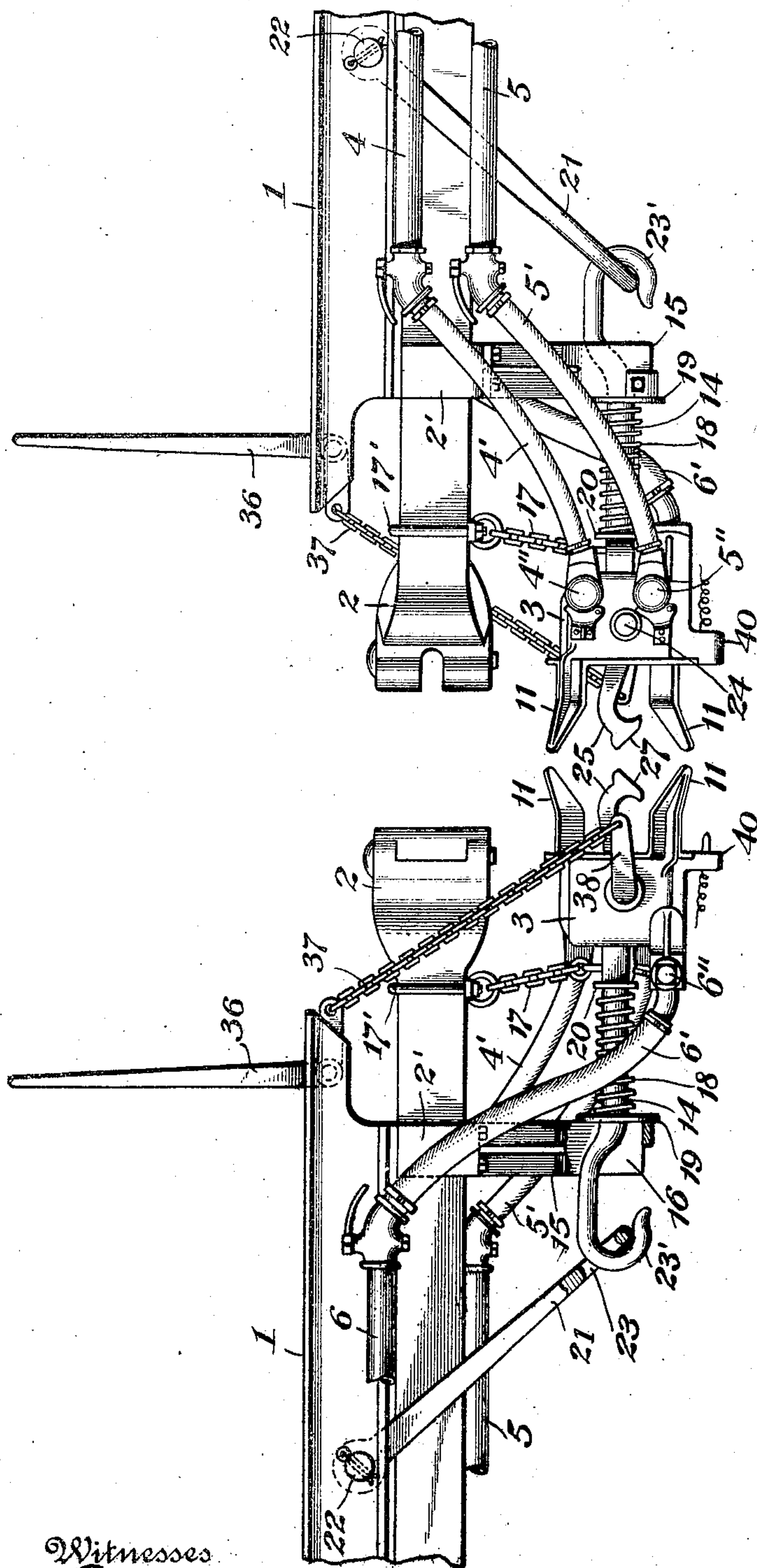


No. 876,929.

PATENTED JAN. 21, 1908.

S. D. BARNETT.
TRAIN SERVICE COUPLING.
APPLICATION FILED MAR. 21, 1904.

5 SHEETS—SHEET 1.



Witnesses
A. Reppe
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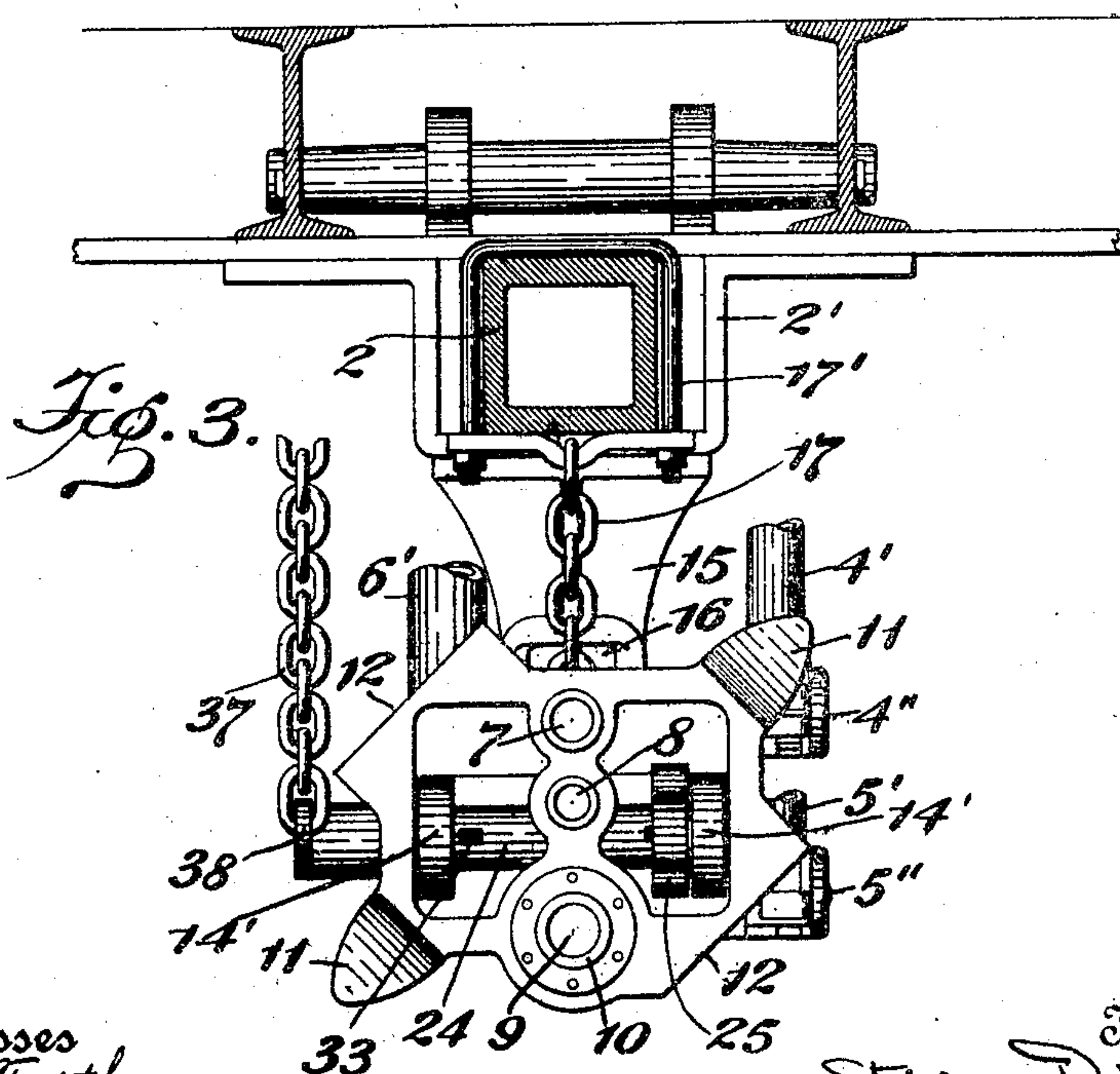
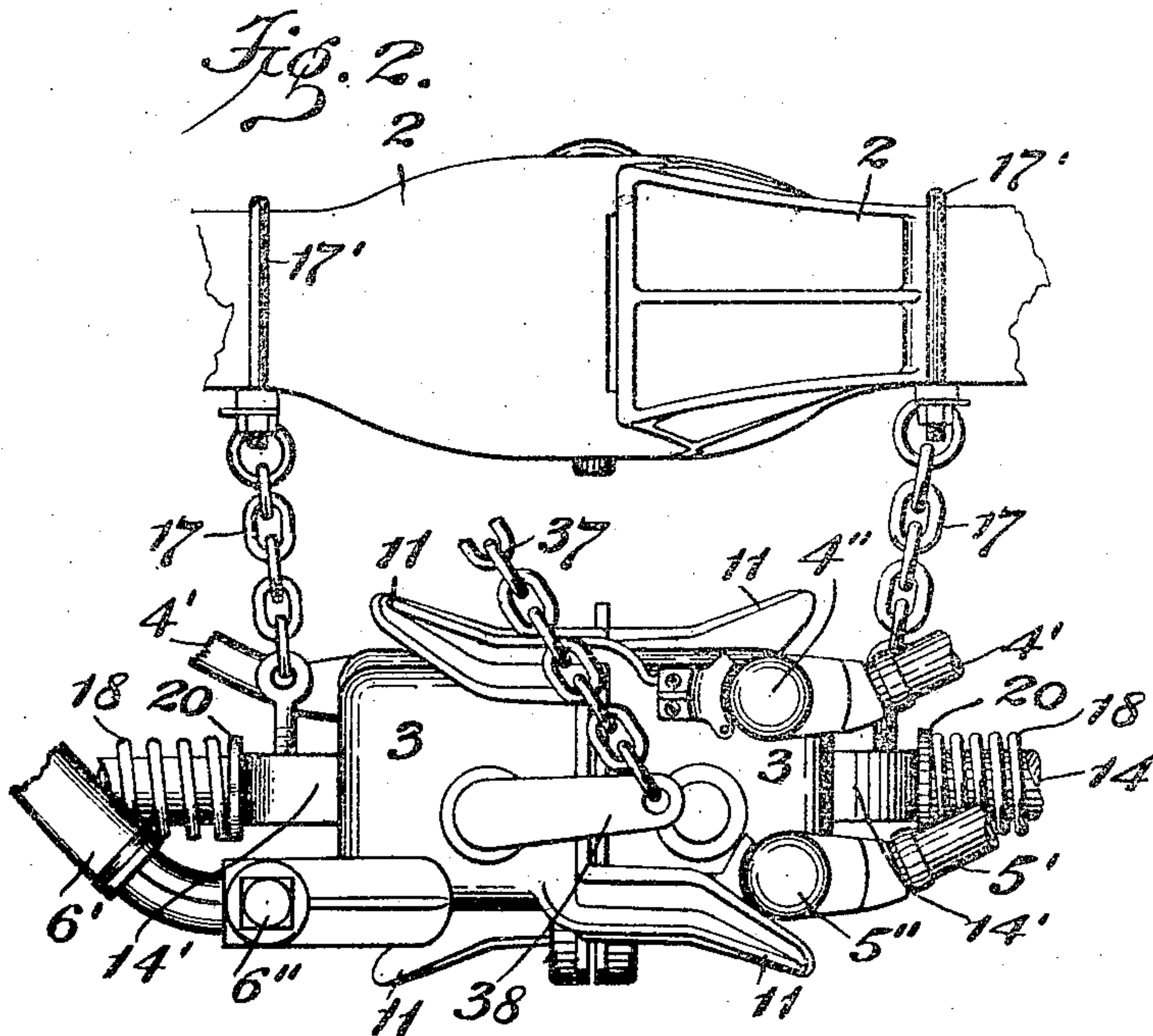
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5 SHEETS—SHEET 2.



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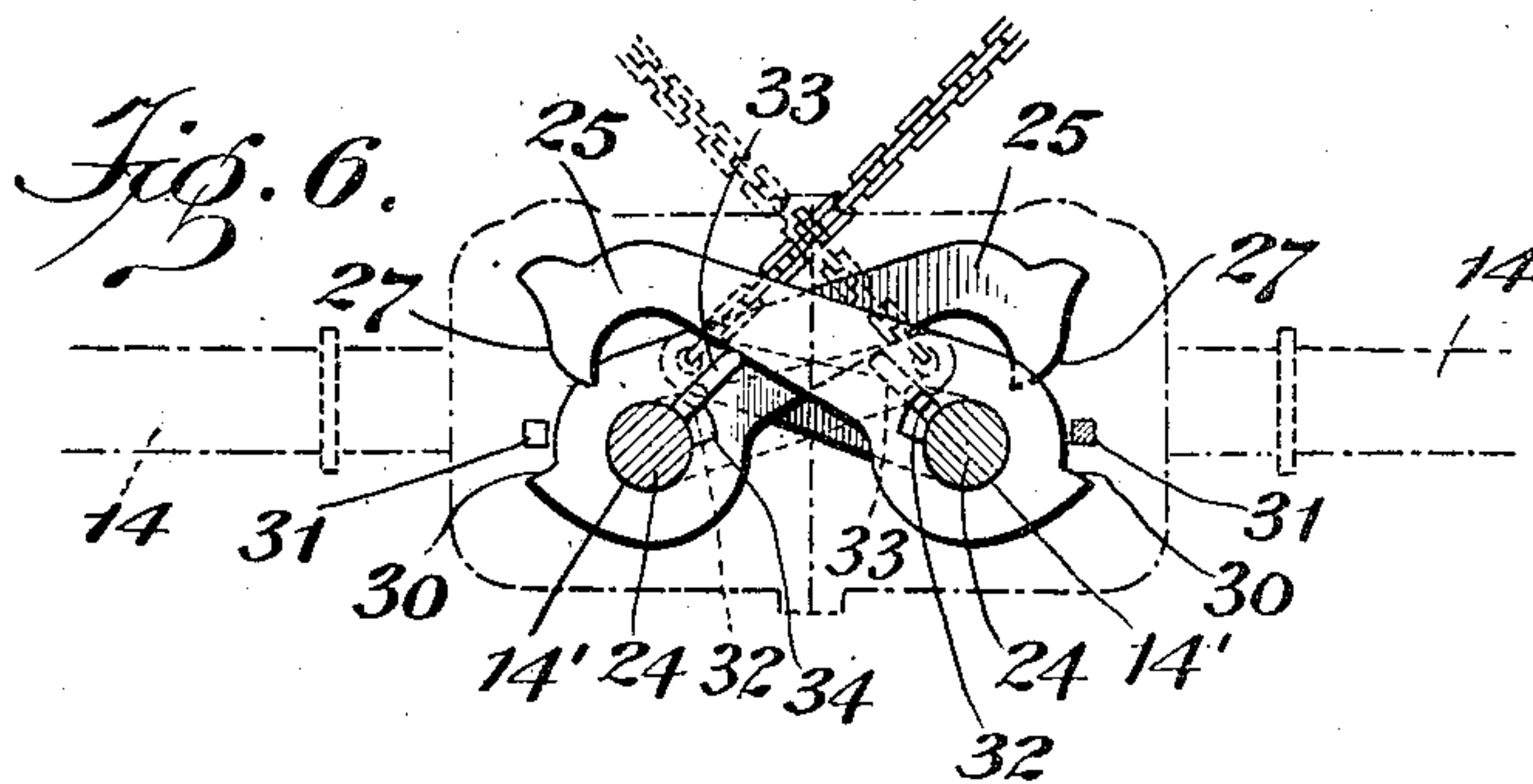
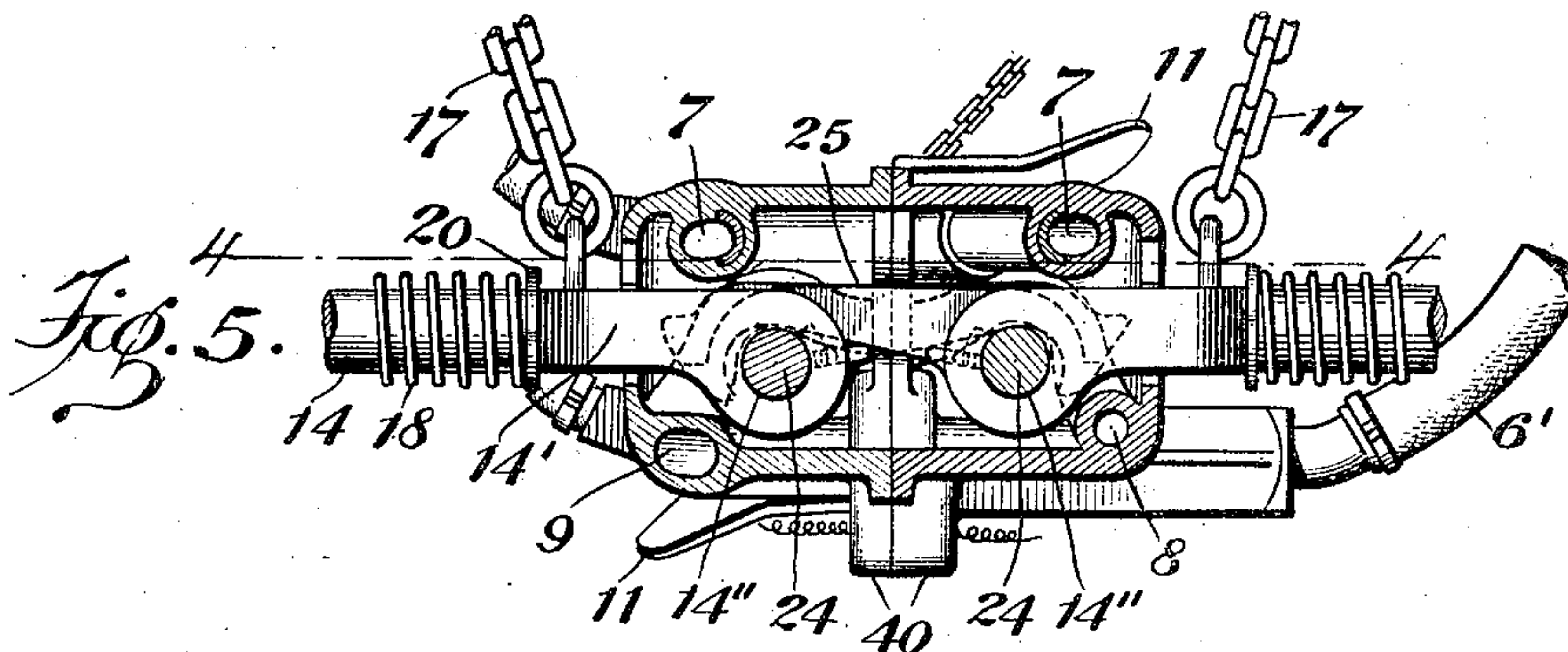
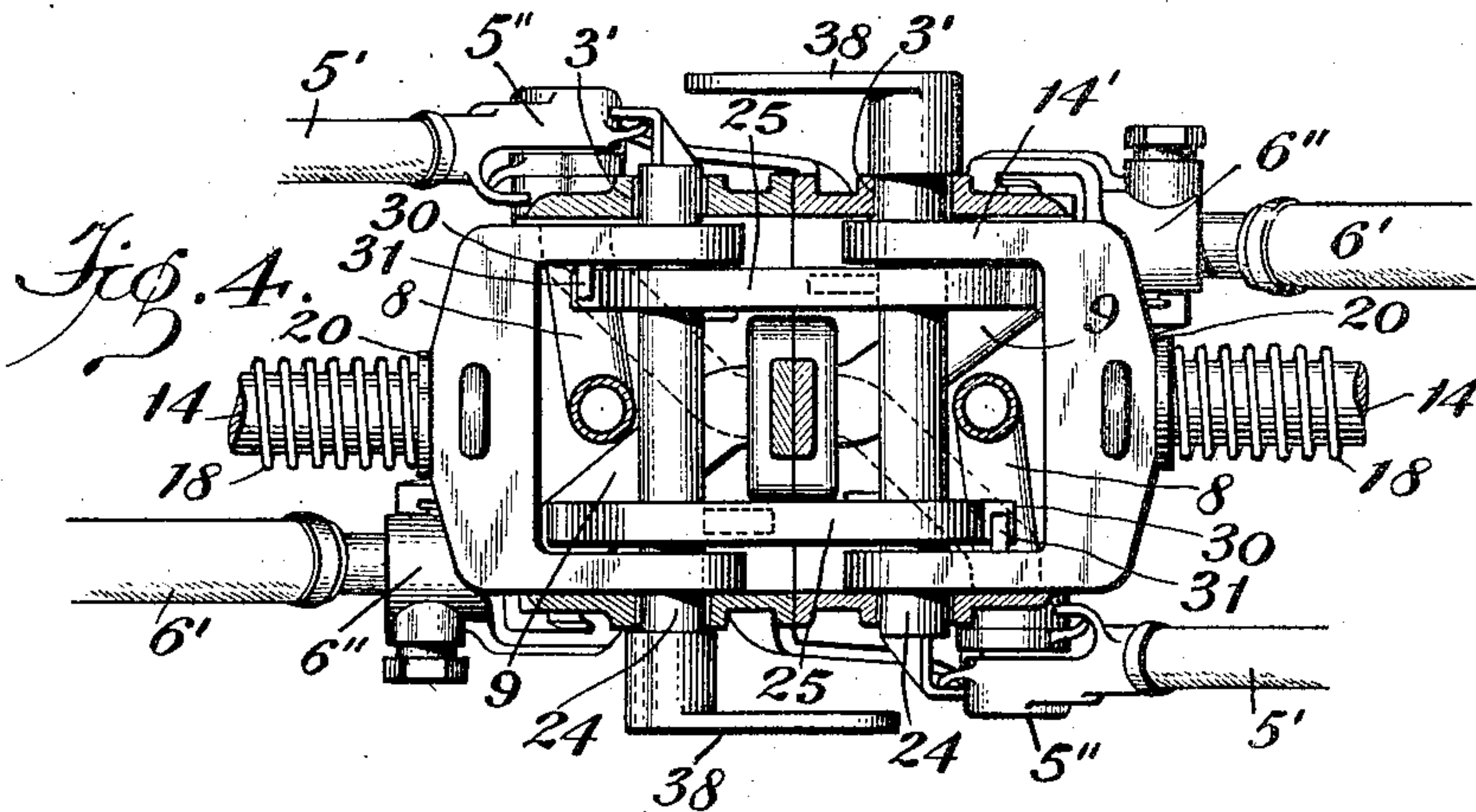
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APPLICATION FILED MAR. 21, 1904.

5 SHEETS—SHEET 3.



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TRAIN SERVICE COUPLING.
APPLICATION FILED MAR. 21, 1904.

5 SHEETS—SHEET 4.

Fig. 8.

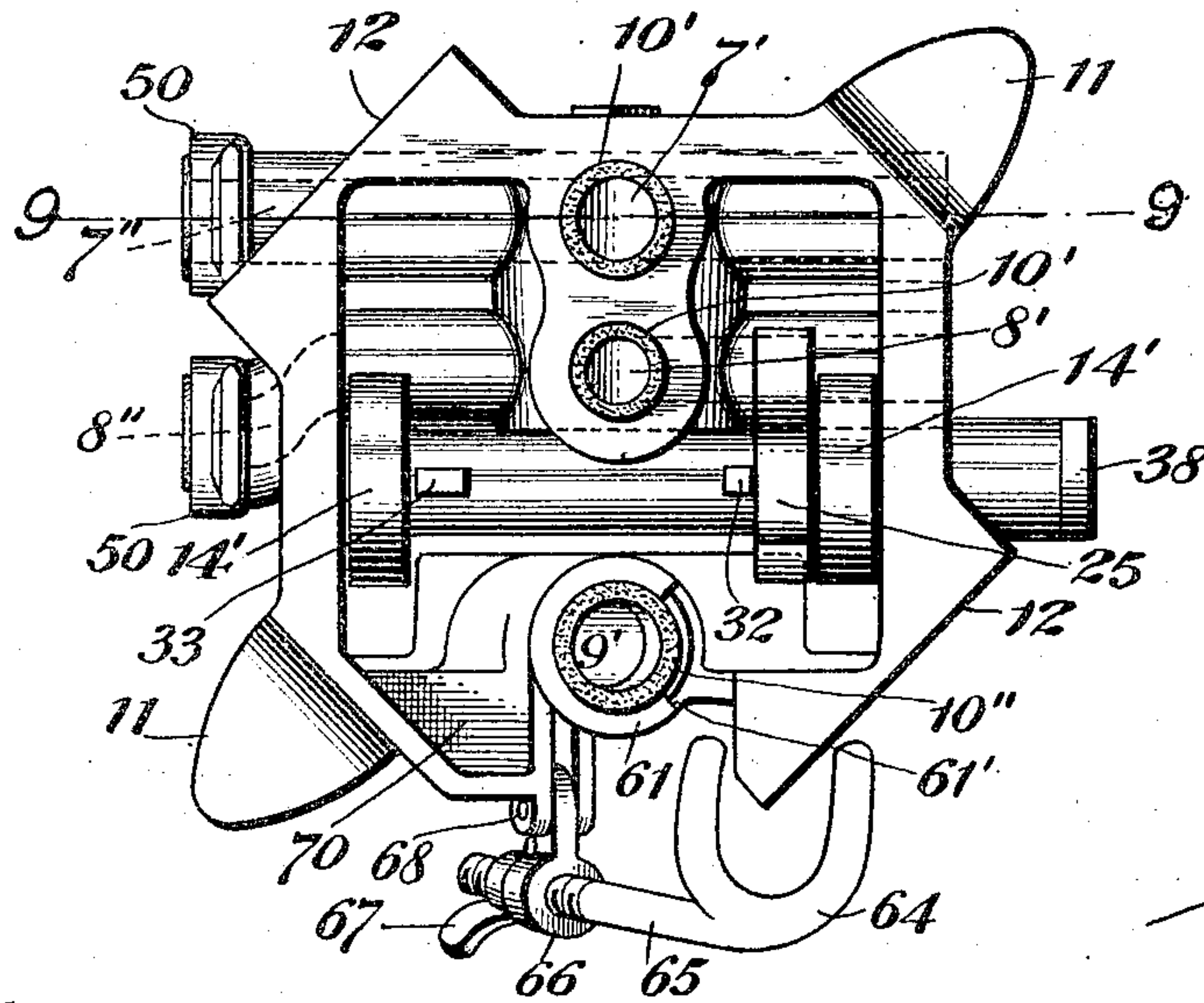


Fig. 11.

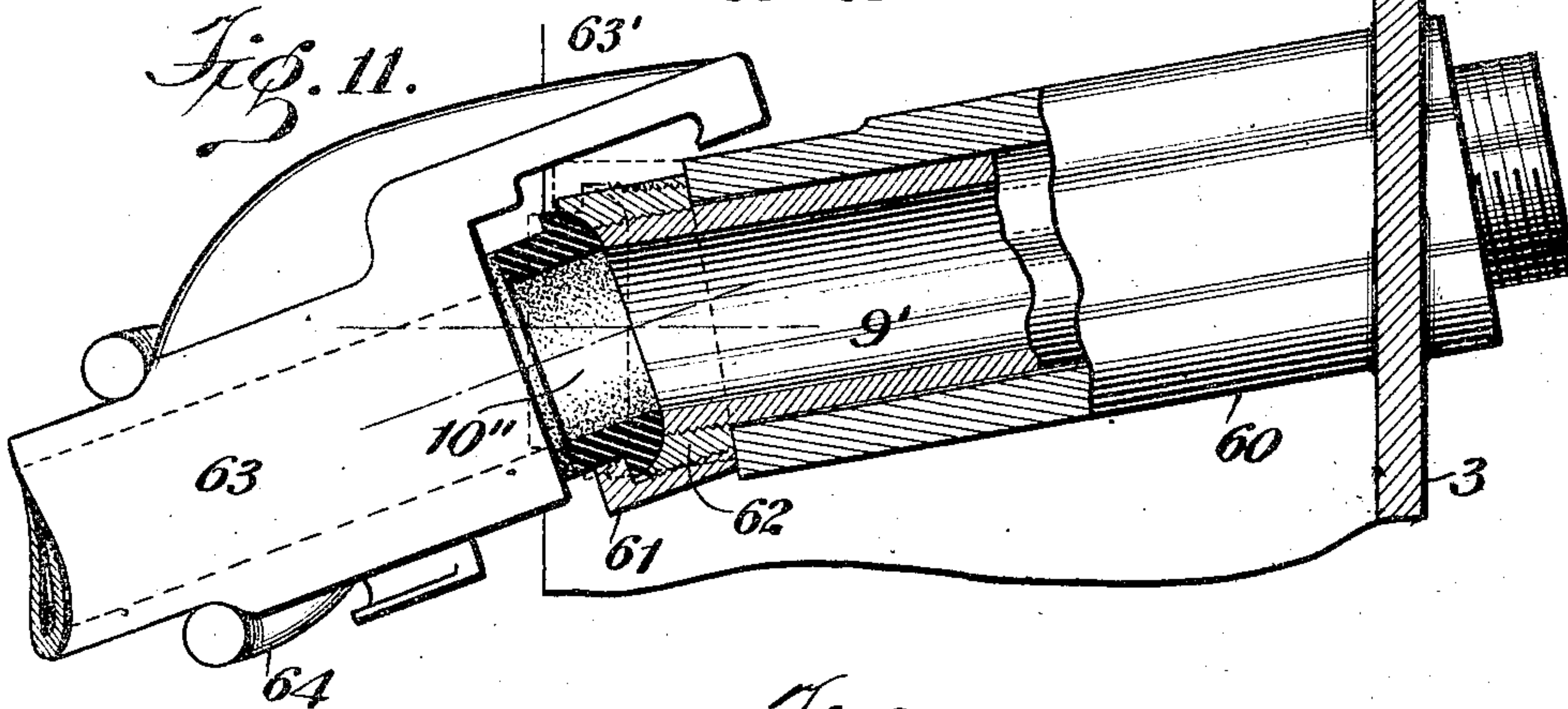
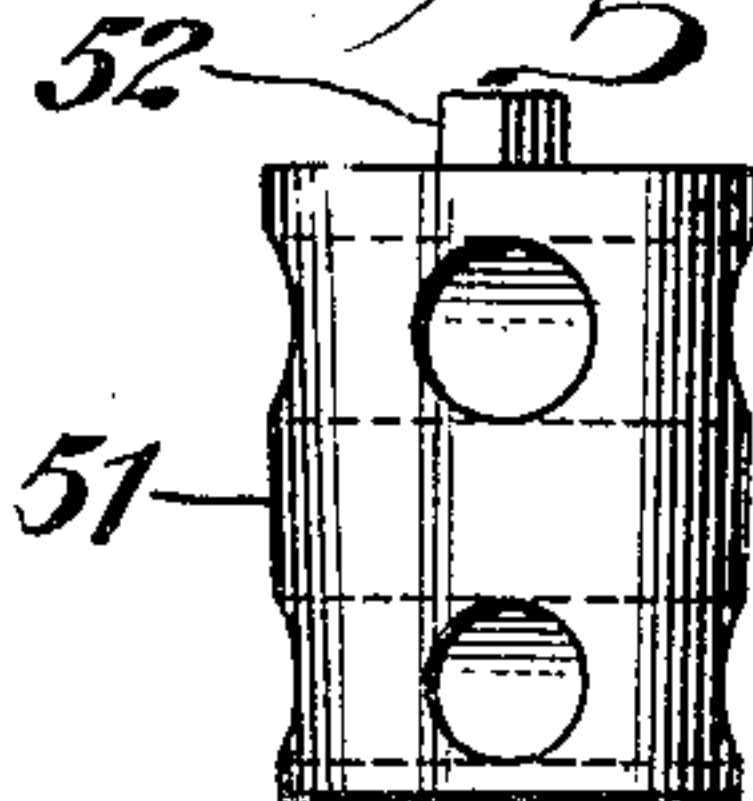


Fig. 12.



Witnesses
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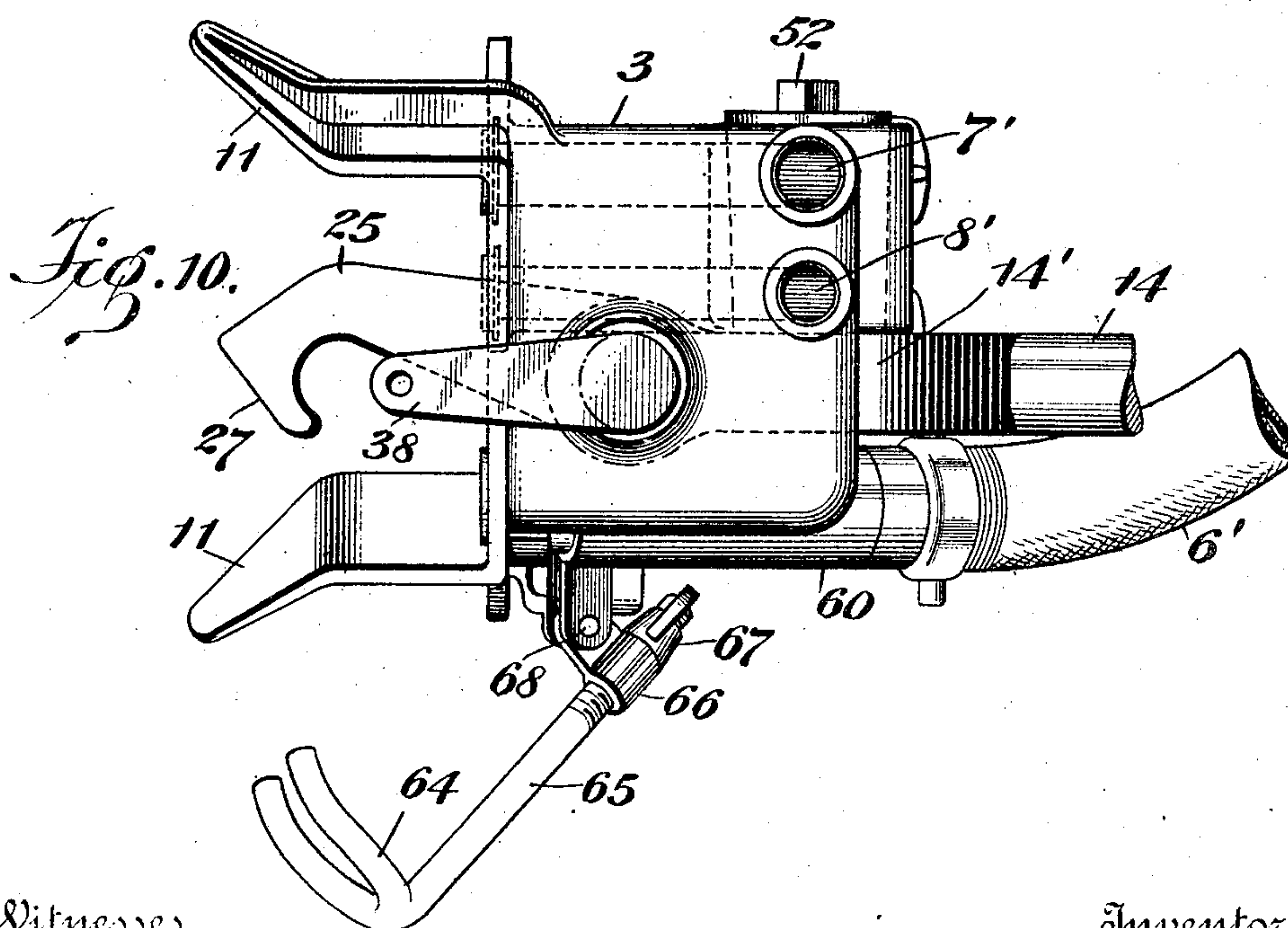
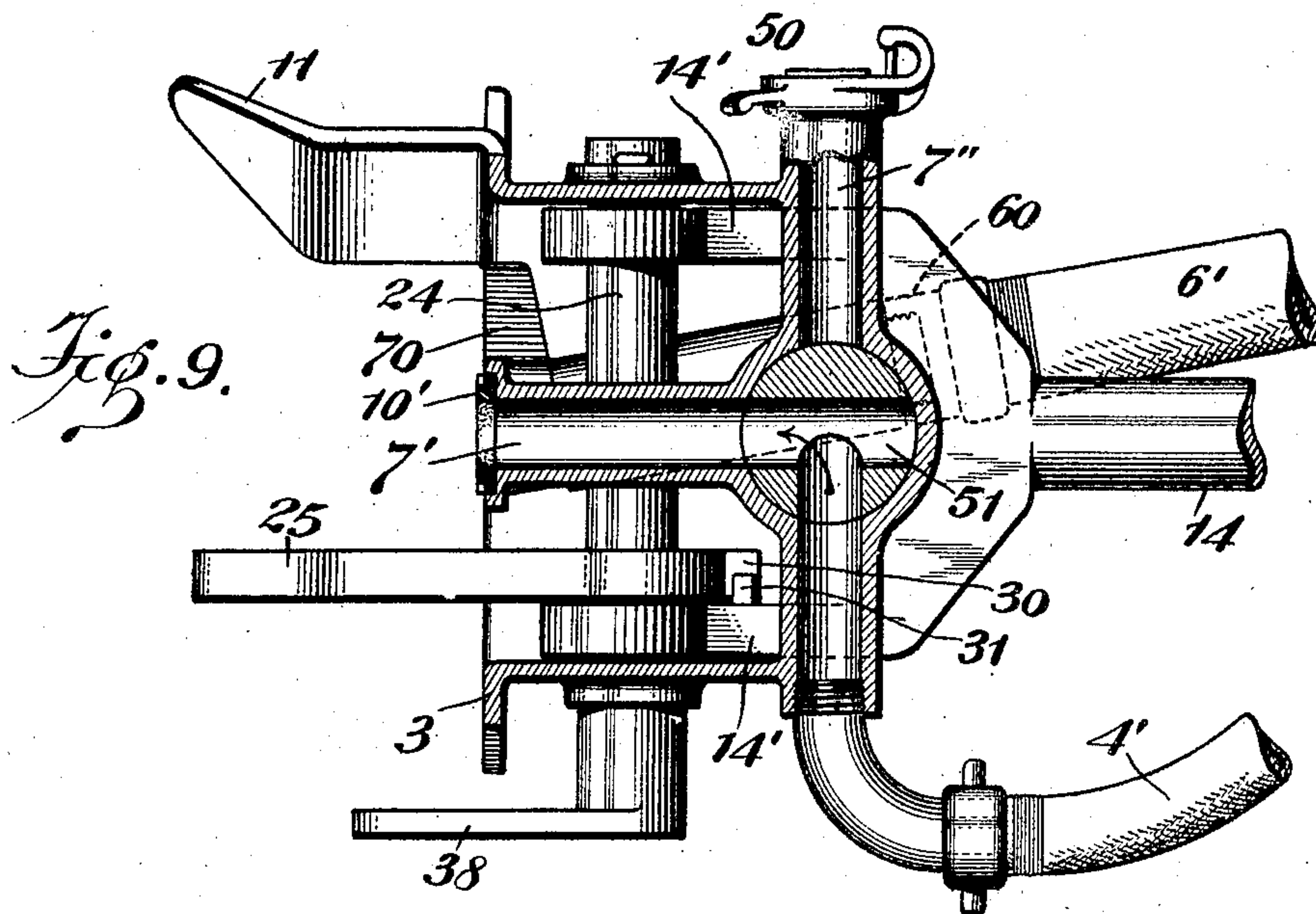
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5 SHEETS—SHEET 5.



Witnesses
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UNITED STATES PATENT OFFICE.

STEPHEN D. BARNETT, OF NEWARK, NEW JERSEY.

TRAIN-SERVICE COUPLING.

No. 876,929.

Specification of Letters Patent.

Patented Jan. 21, 1908.

Application filed March 21, 1904. Serial No. 199,070.

To all whom it may concern:

Be it known that I, STEPHEN D. BARNETT, a citizen of the United States, and resident of Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Train-Service Couplers, of which the following is a specification.

In coupling railway cars together it is customary to employ two so-called "safety" chains for connecting the cars in addition to the regular car-couplers, these chains being employed only as a precautionary measure to prevent disconnection of the cars or parts of a train in the event of the breakage or accidental uncoupling of the car-couplers, and therefore being of such length as to normally hang in a slack or inactive condition between the connected cars. In coupling two cars together, the construction of the car-couplers carried thereby is such that the coupling operation will be effected automatically when the cars are brought together, but in order to effect the further coupling of the cars by the chains it is necessary that the trainman go between the cars for such purpose, the chains being usually carried by one car and being adapted to be detachably placed in connection with a hook or eye carried on the opposite car. This manual operation of coupling the chains is objectionable, however, both on account of the delay and time caused in effecting the same and also on account of the danger incurred by the trainman in going between the cars. To avoid these objectionable features incident to the use of the usual safety chains, I have provided, as a substitute for such chains, so-called safety couplers, as disclosed in Letters Patent No. 717,525, issued to me January 6, 1903; which are so constructed and arranged as to automatically assume a coupled position simultaneously with the coupling of the regular car-couplers when the cars are brought together, and having provision for a longitudinal or endwise movement relatively to each other somewhat in excess of that between the car-couplers, whereby they will normally be held by the latter in a position of non-working engagement so as to remain inactive except at such times as they may be required for use, that is, when the car-couplers break or become accidentally uncoupled or otherwise inoperative.

In accordance with my present invention, I have combined an automatic safety coupler of the general character referred to, with

an automatic train-pipe or train-service coupler, with the object of rendering the use of the latter more effective and desirable. Train-service couplers, as well understood, are adapted merely for effecting the coupling of the air-brake, signal, and steam pipes, or any one or more of them, when two cars or an engine and car are coupled together, and do not operate to effect a draft coupling of the cars. Moreover, as they are usually supported by the car-couplers, they are not adapted to serve as safety or emergency couplers for the reason that upon the breakage or accidental uncoupling of the car-couplers they would also be thereby rendered inoperative.

In carrying my present invention into effect, I connect the train-service coupler with the car by a draft connection independent of the car-coupler and provide the same with means for draft coupling with a companion coupler, whereby it may be employed as a car-coupler if so required, the said draft coupling means of the coupler being preferably so constructed and arranged as to be maintained normally inoperative or in a position of non-working coupling engagement with a companion coupler during coupling engagement of the car-couplers and being operative to automatically effect a draft coupling with its companion-coupler in the event of the breakage or accidental uncoupling of the car-couplers.

Referring to the accompanying drawings forming part of this specification and illustrating a preferred embodiment of my invention, Figure 1 is a side elevation of the end portions of the sub-structure of two cars provided with car-couplers and with my improved train-service couplers, both sets of couplers being shown uncoupled. Fig. 2 is an enlarged side elevation of both sets of couplers in coupled position, with their shanks and certain connecting parts broken away. Fig. 3 is a front end elevation of one of the train-service couplers in connection with a car-coupler and a portion of the supporting car sub-structure, the latter parts being in section and elevation. Fig. 4 is a horizontal section through a pair of train-service couplers in coupled position, the section being taken through the coupler head on line 4—4 of Fig. 5. Fig. 5 is a vertical section through the couplers on line 5—5 of Fig. 4. Fig. 6 is a detail view showing the draft-hooks of the train-service couplers in their raised or

uncoupled position. Fig. 7 is a sectional detail to be hereinafter referred to. Fig. 8 is a front end elevation of a train-service coupler embodying a modified form of my invention. Fig. 9 is a horizontal section through line 9—9 of Fig. 8. Fig. 10 is a side elevation of the coupler shown in Figs. 8 and 9, and Figs. 11 and 12 are detail views to be hereinafter referred to.

As the construction and operation of each of the companion couplers illustrated in the drawings is substantially identical, the further detailed description of one will be applicable to both.

In the drawings, and referring more particularly to Figs. 1 to 7 inclusive, 1 indicates a portion of the frame or sub-structure of a car, and 2 an automatic car-coupler of the vertical-plane type which is adapted to be connected with the car frame in any usual or suitable manner, the same in the present instance shown being supported adjacent to its forward end in a bracket or carry-iron 2' attached to the under side of the frame.

Supported beneath the car-coupler 2 is my improved train-service coupler, which comprises a coupler-head 3 herein shown as connected with the usual air-brake, signal, and steam pipes of the car, indicated at 4, 5 and 6 respectively, through the medium of flexible connections 4', 5', and 6' which are respectively coupled with the said coupler-head at 4'', 5'', and 6''. Located within the coupler-head 3 and communicating with these several hose connections are corresponding air-brake, signal and steam passages or conduits, indicated at 7, 8 and 9, respectively, the orifices of which are arranged in a vertical plane at the front end of the coupler-head, as most clearly shown in Fig. 3, and provided with the usual rubber gaskets, such as 10, seated therein for effecting the proper coupling of the conduits with those of a companion coupler-head when brought into coupling engagement therewith.

In order to assure the proper positioning of two companion couplers relatively to each other when brought into coupling engagement, whereby the conduit orifices of one coupler-head will properly register with those of the other, each coupler-head is provided with substantially the usual positioning means employed in this class of couplers and comprising two diagonally opposite forwardly-projecting outwardly-flaring guide-arms 11, 11, for engagement with diagonally opposite coöperative guide surfaces 12, 12, on the opposing companion coupler, the said guide surfaces 12, 12, as shown in Fig. 3, being located at those corners of each coupler-head opposite the guide-arms and being so arranged that the distance between them will correspond to the distance between the bases of the guide-arms whereby the proper

positioning of the coupler-heads relatively to each other when brought into coupling engagement, as shown in Fig. 2, will be positively assured.

The coupler-head 3 is carried at the front end of a supporting shank 14 which is preferably supported beneath the car-coupler 2 in a manner to permit of the coupler-head being movable both laterally, vertically and longitudinally relatively to the car whereby it may be self-adjusting for coupling with companion couplers supported at different heights and also be capable of maintaining coupling engagement with a companion coupler during the change in position of the adjacent ends of the cars when passing over curves.

Any suitable means may be employed for supporting the shank 14 in the manner referred to, the means as herein shown comprising a fixed bracket-arm 15 depending from the under side of the car-coupler carry-iron 2' and having an opening 16 at its lower end through which the rear end of the shank 14 loosely extends and is supported, a chain or flexible connection 17 attached to the car-coupler 2 by a suitable tie-strap 17' and having connection with the shank 14 adjacent to its front end serving to suspend the latter vertically in position and permit of any desired movement of the supported coupler-head relatively to the car as referred to. A coiled spring 18 located on the shank 14 with one end bearing against a stationary washer 19 resting against the face of the bracket-arm 15 and its other end bearing against a collar 20 on the said shank 14 operates to yieldingly hold the latter in its normal forwardly extending position and also cause the coupler-head carried thereby to maintain a close coupling engagement with a companion coupler when two cars are brought into coupling engagement, this action of the spring being the same as that of similar springs in couplers of this class.

The shank 14 with its attached coupler-head, in addition to being supported in operative position beneath the car-coupler in the manner described, also has a draft connection with the car independent of the car-coupler through the medium of suitable connections, these connections as herein shown comprising a suitable link 21 pivotally connected or anchored to the car-frame at 22 and having its lower or free end provided with an eye 23 to receive a hook 23' at the rear end of the shank 14, as shown in Fig. 1, this particular form of hook and eye connection between the shank and the link 21 being employed to permit of the ready connection and disconnection of such parts in the operation of placing the coupler in connection with the car or disconnecting it therefrom. Having thus described a draft connection between the train-service coupler

and the car, I will now describe the means employed for effecting an automatic draft connection between companion couplers when brought into coupling engagement.

5 The shank 14 of the coupler is provided with a yoke at its front end comprising two forwardly projecting arms 14', 14', having eyes or opening 14'', 14'', in which is supported a transversely arranged rock-bar 24, as most
10 clearly shown in Figs. 4 and 5. Pivotaly mounted upon this rock-bar is a coupling-hook 25, the forward or hook end of which is adapted to engage with the rock-bar 24 of a companion coupler to effect a draft coupling
15 therewith, the said coupling-hook being arranged at one side of the center of its supporting rock-bar so as to also permit of the engagement with the latter of the coupling-hook of the opposing or companion coupler, as most clearly shown in Fig. 4, this arrange-
20 ment of the parts being such that the rock-bar 24 of each coupler forms a coupling member for coöperation with the coupling-hook of the companion coupler.

25 In order to assure the coupling of the coupling hook of one coupler with the coöperative member of a companion coupler, the forward end of the hook is provided with a tapering or inclined surface 27 which, when brought
30 into engagement with the rock-bar of the companion coupler, will cause the free end of the hook to ride thereon into coupling position as shown.

Any suitable means may be employed for
35 movably holding the coupling-hook with its free end in a raised substantially horizontal position for effecting coupling engagement with a companion coupler as described, the means as herein shown comprising a shoul-
40 der 30 on the heel of the coupling-hook engaging with a stop-pin 31 on the adjacent yoke-arm 14', this means permitting of the upward movement of the free end of the hook during the coupling operation but op-
45 erating to limit its downward movement.

In view of the employment of a coupling-hook in each companion coupler, whereby a double locking of the couplers is effected, it is desirable that the hooks of both couplers
50 should be operated to simultaneously uncouple or disengage from their coöperative coupling members upon the uncoupling of the car-couplers. As a simple means for effecting this operation, the rock-bar 24 is provided with two arms or cams 32 and 33,
55 the cam 32 being arranged to engage with the coupling-hook supported on its rock-bar and the cam 33 being arranged to engage with the coupling-hook of the companion coupler, whereby, upon the rocking of the rock-bar in the proper direction, its said
60 cams will operate to raise and disengage both coupling-hooks from their coöperative coupling members, as shown in Fig. 6. By rea-
65 son of the said cams engaging with the coup-

ling-hooks at different points with respect to their axis, that is, the cam 32 engaging with one hook adjacent to its axis and the cam 33 engaging the other hook nearer its free end, provision is made for a differential action of
70 the cams with respect to the time of their engagement with the hooks so as to assure the simultaneous uncoupling of the latter from the rock-bars 24. To effect this differential
75 action, the opening 34 in the coupling-hook in which the cam 32 works, as most clearly shown in Fig. 6, is made sufficiently large to permit of a certain lost motion of the cam therein before it engages with the hook in the
80 uncoupling operation, so that the cam 33 will have engaged the hook of the companion coupler and partially raised the same by the time the cam 32 engages with the hook oper-
85 ated by it, the parts being so organized that the continued upward rocking movement of the cams will operate to simultaneously raise the hooks to uncoupling position, as shown in Fig. 6. By providing each rock-bar 24 with duplex hook-releasing means, in the
90 form of the two cams described, the uncoupling operation of the two hooks will be effected by the operation of the rock-bar, and this rock-bar will preferably be operated from the usual car-coupler uncoupling-lever
95 36 on the car through the medium of a chain or flexible connection 37 and a crank-arm 38 on one end of the rock-bar, whereby the uncoupling of both the car-couplers and the train-service couplers may be effected simul-
100 taneously.

The coupler-head 3, herein shown in the form of a substantially rectangular casing or housing open at its front and rear ends, is
105 loosely fitted over the front end of the yoke on the supporting shank 14 so as to partially inclose or house the parts carried thereby and is pivotaly connected therewith by means of the rock-bar 24 which extends at its opposite ends through openings 3', 3', in the sides of the said head, as most clearly
110 shown in Fig. 4. This connection of the coupler-head with the shank permits of an oscillating movement of the head relative to the shank in a vertical plane, and the connections of said head with its adjacent support-
115 ing parts are preferably made sufficiently loose to also permit of a movement of the head relative to its shank in a horizontal plane. Such relative movement of the coupler-head with respect to its supporting shank
120 is desirable as a further means for assuring the maintenance of coupling engagement of two companion coupler-heads when the cars are passing over curves or switches, in addition to the lateral and vertical movements of
125 the couplers relatively to the cars permitted by the supporting of the shank 14 as hereinbefore described.

The coupler-head 3 has hereinbefore been described as provided with passages or con- 130

duits forming the terminals of the usual air, signal and steam pipes carried by a car. In addition to thus performing the function of a coupler for the usual so-called train-pipe connections, however, the coupler-head may also be employed as a coupler for the electric train-service with which the cars might be provided, and for such purpose be provided with a suitable switch element for effecting automatic contact with a companion switch element carried by the opposing coupler, the coupler-heads as herein shown (see Figs. 1 and 7) being provided with projecting portions 40 at their under sides carrying the companion elements of an ordinary plug-switch, the plug-element 41 being carried by one head and the contact-element 42 being carried by the companion head.

The operation of the train-service coupler as described, in brief, is as follows: When two cars equipped with the coupler are brought together, an automatic coupling of both the car-couplers and the train-service couplers is effected. When the train-service couplers are thus brought into coupling engagement, the adjacent faces of the coupler-heads 3 will be maintained in close engagement with each other by the springs 18 so as to assure a tight joint between the rubber gaskets at the orifices of the corresponding conduits carried by each coupler-head, and the draft coupling hooks will be maintained in a position of non-working engagement with their respective cooperative coupling members, as most clearly indicated in Fig. 5, so as to be normally inoperative as draft coupling means during the coupling engagement of the train-service couplers and the car couplers, this position of non-working engagement of the draft coupling hooks with their cooperative coupling members being effected by reason of the said hooks being made of greater length than the distance between the cooperating rock-bars as shown. Whenever it is desired to uncouple the cars, the draft coupling hooks of the train-service couplers will be uncoupled from their cooperative coupling members about simultaneously with the releasing or unlocking of the hooks of the car-couplers, through the medium of the uncoupling lever 36, so as to permit of the substantially simultaneous parting or uncoupling of the train-service couplers and the car-couplers. In the event of the accidental uncoupling of the car-couplers, however, either because of breakage or withdrawal from position of either one or both of the same, the draft coupling hooks of the train-service couplers will then become operative to effect a draft coupling of the cars and prevent their separation.

The train-service coupler hereinbefore described is more particularly adapted for automatic coupling with a companion coupler. It sometimes becomes necessary, however,

to couple a car equipped with such automatic coupler with a car not so equipped, in which event it is desirable that the coupler should be capable of effecting coupling engagement with the ordinary train-pipe couplings. Having this in mind, I have provided a coupler, as shown in Figs. 8 to 12 inclusive, which is substantially identical in construction and operation as that hereinbefore described except as to the air, signal and steam conduits, these being somewhat modified to adapt the coupler for coupling engagement with the ordinary train-pipe couplings. In this modified form of coupler, the air and signal conduits, indicated at 7' and 8' respectively, extend through the coupler-head from a point at one side thereof, where they communicate with the usual train-pipe hose connections, to a point at the front or face-side thereof, where they are provided with the usual rubber gaskets, such as 10', seated therein. This arrangement of these conduits is practically the same as that in the first described coupler, but in the present case I have provided additional branch conduits 7'' and 8'' communicating respectively with these main conduits 7' and 8' and extending therefrom through the wall of the coupler-head at that side thereof opposite the inlet ends of the conduits and being provided at the projecting ends thereof with the usual form of standard coupling, such as 50, for coupling engagement with the ordinary train-pipe coupling. Seated within these conduits at the points of intersection between the main parts and the said branches thereof is a duplex two-way valve 51 by means of which the flow of the fluid may be directed through the main conduits when the coupler is intended for automatic coupling with a companion coupler, or through the connecting branch conduits when the coupler is to be coupled with the ordinary train-pipe couplings, the said valve as herein shown being provided with a squared-head 52 at its upper end for the engagement therewith of a wrench or other suitable device by which the valve may be operated. This construction provides a simple and effective means whereby a car provided with my improved train-service coupler may automatically couple with a similarly equipped car or couple with one not so equipped in which the air and signal pipes are provided with the usual standard non-automatic couplings.

In addition to providing my improved coupler with means for effecting both automatic and non-automatic coupling of the air and signal pipes as described, I have also provided the same with means for effecting a similar interchange of coupling of the steam pipes. In effecting the coupling of the steam pipes of two cars in the usual manner, the hose connections thereof are crossed between the cars at an angle for the reason that the

main steam pipes of the two cars are supported at opposite sides thereof. This of course brings together the abutting faces of the gaskets carried by the metallic coupling members in a substantially vertical oblique plane. It therefore becomes necessary, when it is desired to effect coupling with one of these non-automatic coupling-members, that the coupling end or member of the steam conduit in my improved coupler should be located in a substantially corresponding oblique plane in order to effect proper coupling of the parts without necessitating undue bending of the hose connection carrying the non-automatic coupling member. As the coupling end or member of the steam conduit 9' in my improved coupler, however, herein shown as the rubber gasket 10'', is normally supported, when in position for automatic coupling, with its face lying in a vertical transverse plane at the face side of the coupler-head, it therefore becomes desirable, in order to adapt the coupler for both automatic and non-automatic coupling, that its said coupling member or gasket 10'' should be adjustable from its said normal position in a transverse plane for automatic coupling to a position in an oblique plane for non-automatic coupling, and vice versa. Any suitable means may be employed for rendering the coupling-member 10'' thus adjustable, the means as herein shown being as follows: The conduit pipe 9', as most clearly shown in the sectional plan view Fig. 11, is rotatably supported in an endwise stationary position within a fixed bearing sleeve 60 herein shown as an integral part of the coupler-head. At its rear end this conduit pipe is threaded for connection with the usual hose coupling, as shown in Figs. 9 and 10, and at its forward end carries the coupling-member or gasket 10'' which is retained in operative connection therewith by a flanged retaining sleeve 61 which connects with the conduit pipe through the medium of an interposed sleeve 62 which is internally and externally threaded for connection with the said respective parts. To provide for the adjustment or changes in position of the coupling-member 10'' in the manner hereinbefore referred to, the conduit pipe 9' is arranged with its axis at an angle to the face of the coupler-head 3 and the coupling-member 10'' is arranged with its axis at an angle to the axis of the said conduit pipe; this arrangement of the parts permitting of the coupling-member 10'' being shifted from a position for automatic coupling with its face or coupling end in a transverse plane, as shown by dotted lines in Fig. 11, to a position for non-automatic coupling in an oblique plane, as shown by full lines in said Fig. 11, simply by the turning of the conduit pipe in its bearing.

In effecting the coupling of a non-automatic coupling member, such as indicated at

63 in Fig. 11, with the steam coupling-member 10'' of my improved coupler, any suitable means may be employed for holding the said members in coupling engagement, the means as herein shown comprising a yoke 64 for embracing the neck of the non-automatic coupling-member 63 and being carried by a rod 67 which extends at its rear end through a supporting sleeve 66 and is screw-threaded for cooperation with a winged-nut 67 thereon, the said nut being adapted to bear against the rear side of the sleeve 66 and operate, when turned in the proper direction, to cause the yoke 64 to draw the coupling-member 63 into close coupling engagement with the coupling-member 10'', as shown in Fig. 11. The yoke 64 may be supported in any suitable manner to be movable to and from its operative holding position, its supporting sleeve 66 as herein shown being pivoted to the coupler-head at 68 whereby the said yoke may be swung in a vertical plane to and from its said operative position.

Another feature of my invention in connection with the means for effecting an interchange of automatic and non-automatic coupling of the steam connections, is the provision made for permitting the non-automatic coupling member to be brought into coupling engagement with the companion coupling member of my improved coupler. The non-automatic steam-pipe coupling-members, such as the one indicated at 63 in Fig. 11, are formed with their orifices opening at the end thereof in a transverse plane, and with their interlocking extension 63' projecting forwardly beyond their orifice-containing ends. This necessitates the provision of a space or pocket in the face of the coupler-head adjacent to the steam coupling member, such as indicated at 70, into which the said forwardly-projecting locking extension of the coupling-member may be entered when a coupling of automatic and non-automatic coupling members is effected.

What I claim is:

1. The combination, with a car coupler, of a train-service coupler having a draft connection with the car independent of the car-coupler and being provided with means for draft coupling with a companion coupler.
2. The combination, with a car-coupler, of a train-service coupler having a draft connection with the car independent of the car-coupler and being provided with means for automatic draft coupling with a companion coupler.
3. The combination, with a car-coupler, of a train-service coupler having a draft connection adjacent to its rear end with the car independent of the car-coupler and a flexible connection adjacent to its forward end with the car-coupler and being provided with means for draft coupling with a companion coupler.

4. The combination, with a car-coupler, of a yieldingly supported train-service coupler having a draft connection with the car independent of the car-coupler and being provided with means for draft coupling with a companion coupler.

5. The combination, with a car-coupler, of a yieldingly supported train-service coupler having a draft connection with the car independent of the car-coupler and being provided with means for draft coupling with a companion coupler, and a bracket supporting the train-service coupler and being connected with the car independent of the car coupler.

6. The combination, with a car-coupler, of a train-service coupler having a draft connection with the car independent of the car-coupler and being provided with means for draft coupling with a companion coupler, a bracket loosely supporting the train-service coupler and being connected with the car independent of the car-coupler, and a flexible connection between the train-service coupler and the car-coupler.

7. The combination, with a car-coupler, of a train-service coupler having a draft connection at its rear end with the car independent of the car-coupler and being provided at or adjacent to its front end with means for draft coupling with a companion coupler, and means carried by the car independent of the car-coupler for supporting the train-service coupler at a point between its ends.

8. The combination, with a car-coupler, of a train-service coupler having a draft connection at its rear end with the car independent of the car-coupler and being provided at its front end with means for draft coupling with a companion coupler, and a rigid bracket attached to the car independent of the car-coupler and having an opening therein through which the train-service coupler loosely extends and is supported.

9. The combination, with a pair of train-service couplers and means for holding the same in coupling engagement, of means for effecting a draft coupling of said couplers, said draft coupling means being normally inoperative during coupling engagement of the said couplers.

10. The combination, with a pair of train-service couplers and means for yieldingly holding the same in coupling engagement, of means for effecting a draft coupling of said couplers, said draft coupling means being normally inoperative during coupling engagement of the said couplers.

11. The combination, with a pair of train-service couplers and means embodying a spring for holding the same in coupling engagement, of independent means for effecting an automatic draft coupling of said couplers.

12. The combination, with a pair of train-service couplers and means for holding the

same in coupling engagement, of means for effecting an automatic draft coupling of said couplers, said draft coupling means being normally inoperative during coupling engagement of the said couplers.

13. The combination, with a pair of train-service couplers and means for holding the same in coupling engagement, of means, including a pivoted hook, for effecting a draft coupling of said couplers, said draft coupling means being normally inoperative during coupling engagement of the said couplers.

14. The combination, with a pair of train-service couplers and means for holding the same in coupling engagement, of independent means for effecting a draft coupling of said couplers, comprising a hook and a bar carried by each of the couplers, the hook of one coupler being adapted to engage with the bar of the other coupler.

15. The combination, with a pair of train-service couplers and means for holding the same in coupling engagement, of means for effecting a draft coupling of said couplers, comprising a hook and a rock-bar carried by each of the couplers, the hook of one coupler being adapted to engage with the rock-bar of the other coupler and the rock-bars of both couplers being provided with hook-releasing means.

16. The combination, with a pair of train-service couplers and means for holding the same in coupling engagement, of means for effecting a draft coupling of said couplers, comprising a hook and a rock-bar carried by each of the couplers, the hook of one coupler being adapted to engage with the rock-bar of the other coupler and the rock-bars of both couplers being provided with duplex hook-releasing means.

17. The combination, with a pair of train-service couplers and means for holding the same in coupling engagement, of means for effecting a draft coupling of said couplers, comprising a hook and a rock-bar carried by each of the couplers, the hook of one coupler being adapted to engage with the rock-bar of the other coupler and the rock-bars of both couplers being each provided with duplex differentially acting hook-releasing means.

18. The combination, with a pair of train-service couplers and means for holding the same in coupling engagement, of means for effecting a draft coupling of said couplers, comprising a hook and a rock-bar carried by each of the couplers, the hook of one coupler being adapted to engage with the rock-bar of the other coupler and the rock-bars of both couplers being provided with hook-releasing cams.

19. A train-service coupler, comprising a supporting shank, a coupler-head, a bar forming a pivotal connection between said shank and coupler head, and a draft coupling-hook pivoted on said bar.

20. A train-service coupler, comprising a supporting shank, a coupler-head, a rock-bar forming a pivotal connection between said shank and coupler-head and being provided with hook-releasing means, and a draft coupling-hook pivoted on said rock-bar.

21. A train-service coupler, comprising a supporting shank, a coupler-head, a rock-bar forming a pivotal connection between said shank and coupler-head and being provided with hook-releasing means and with an operating arm, and a draft coupling-hook pivoted on said bar.

22. A train-service coupler, comprising a coupler-head, a pivoted draft coupling-hook, and a bar having hook-releasing means for engagement with said hook.

23. A train-service coupler, comprising a coupler-head, a pivoted draft coupling-hook, and a rock-bar on which said hook is pivoted and having hook-releasing means for engagement therewith.

24. A train-service coupler, comprising a coupler-head, a pivoted draft coupling-hook, and a rock-bar on which said hook is pivoted 25 and being adapted to be engaged by the hook of a companion coupler, the said rock-bar being provided with duplex hook-releasing means for engagement with the hook pivoted thereon and with the engaging hook of a 30 companion coupler respectively.

25. A train-service coupler, comprising a supporting shank having a yoke at one end, a coupler-head, a bar carried by said yoke and pivotally connecting with the coupler- 35 head, and a draft coupling-hook connected with said bar.

Signed at New York, in the county of New York and State of New York this 2nd day of March A. D. 1904.

STEPHEN D. BARNETT.

Witnesses:

CHAS. F. DANE,
E. M. FAITH.