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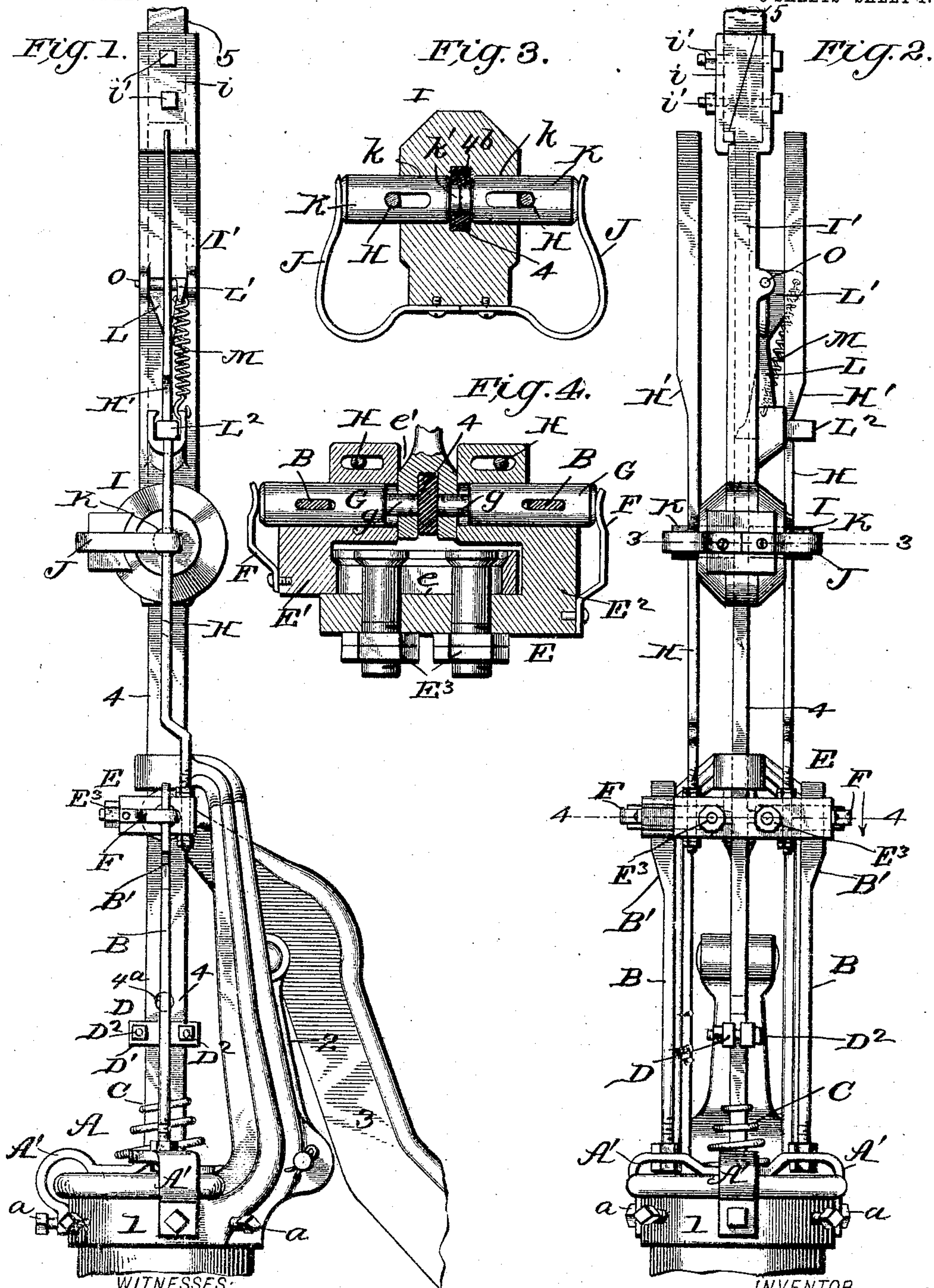
PATENTED OCT. 11, 1904.

C. W. DECKER.
PUMP COUPLING.

APPLICATION FILED MAY 20, 1903.

NO MODEL.

3 SHEETS—SHEET 1.



WITNESSES:
Fred. B. Bradford
Perry B. Turpin

INVENTOR
Carl W. Decker
BY *Munn & Co*

ATTORNEYS.

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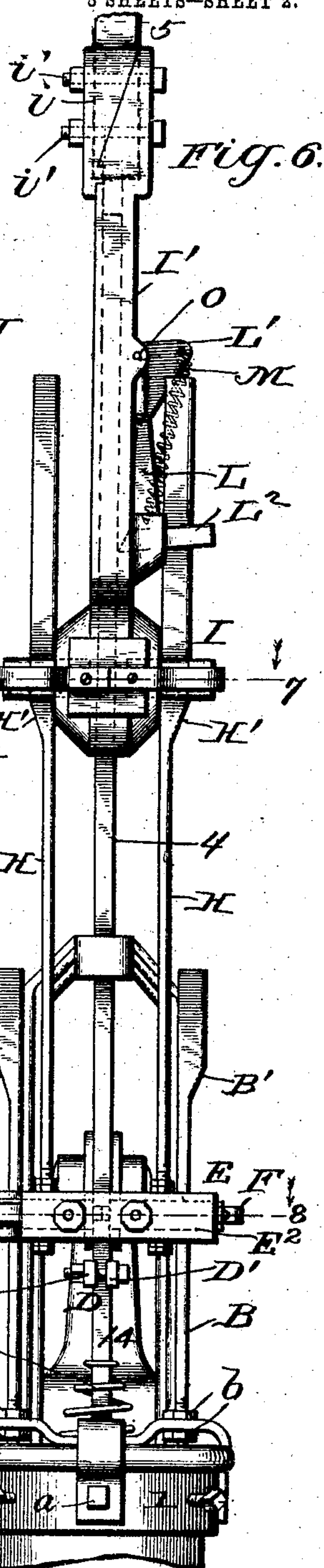
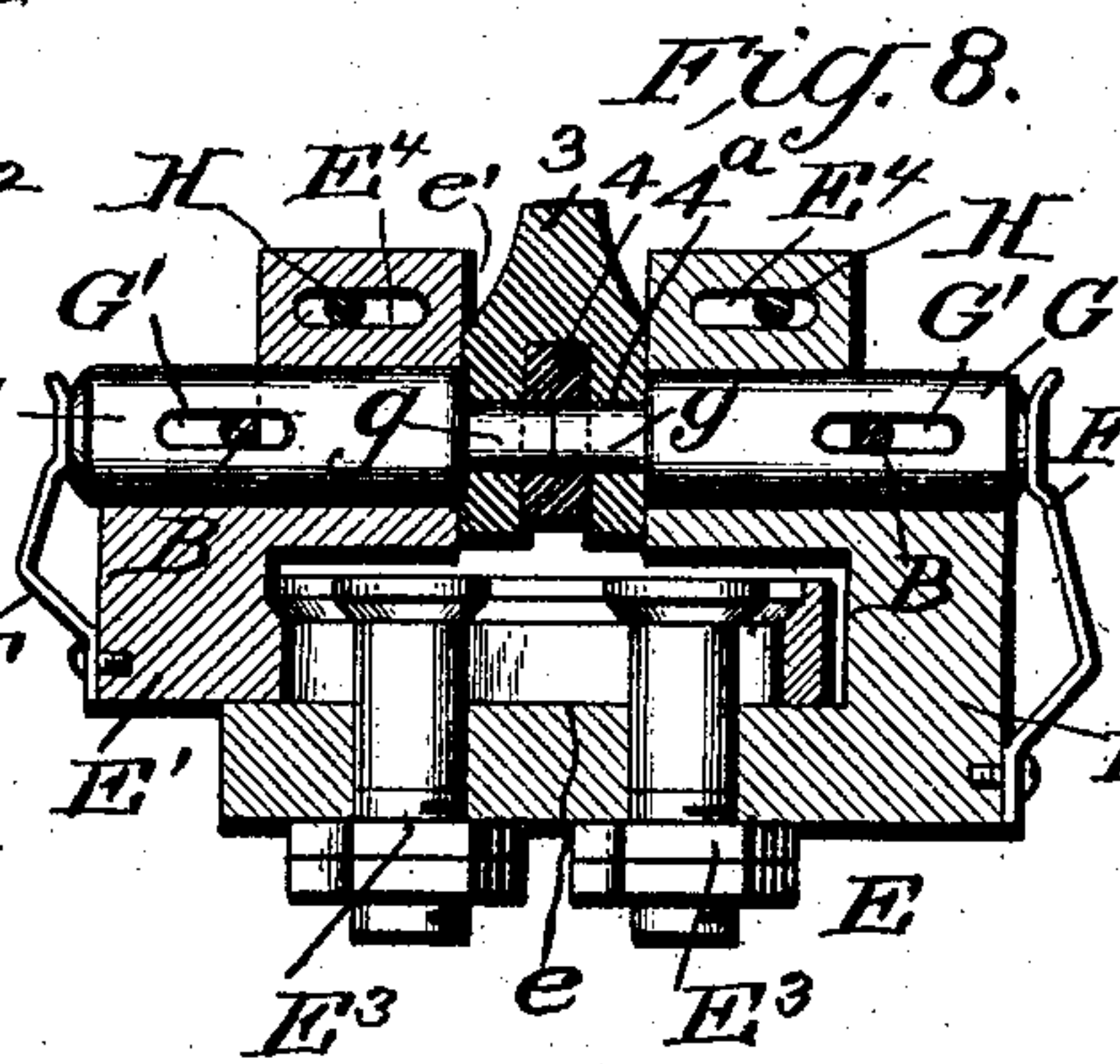
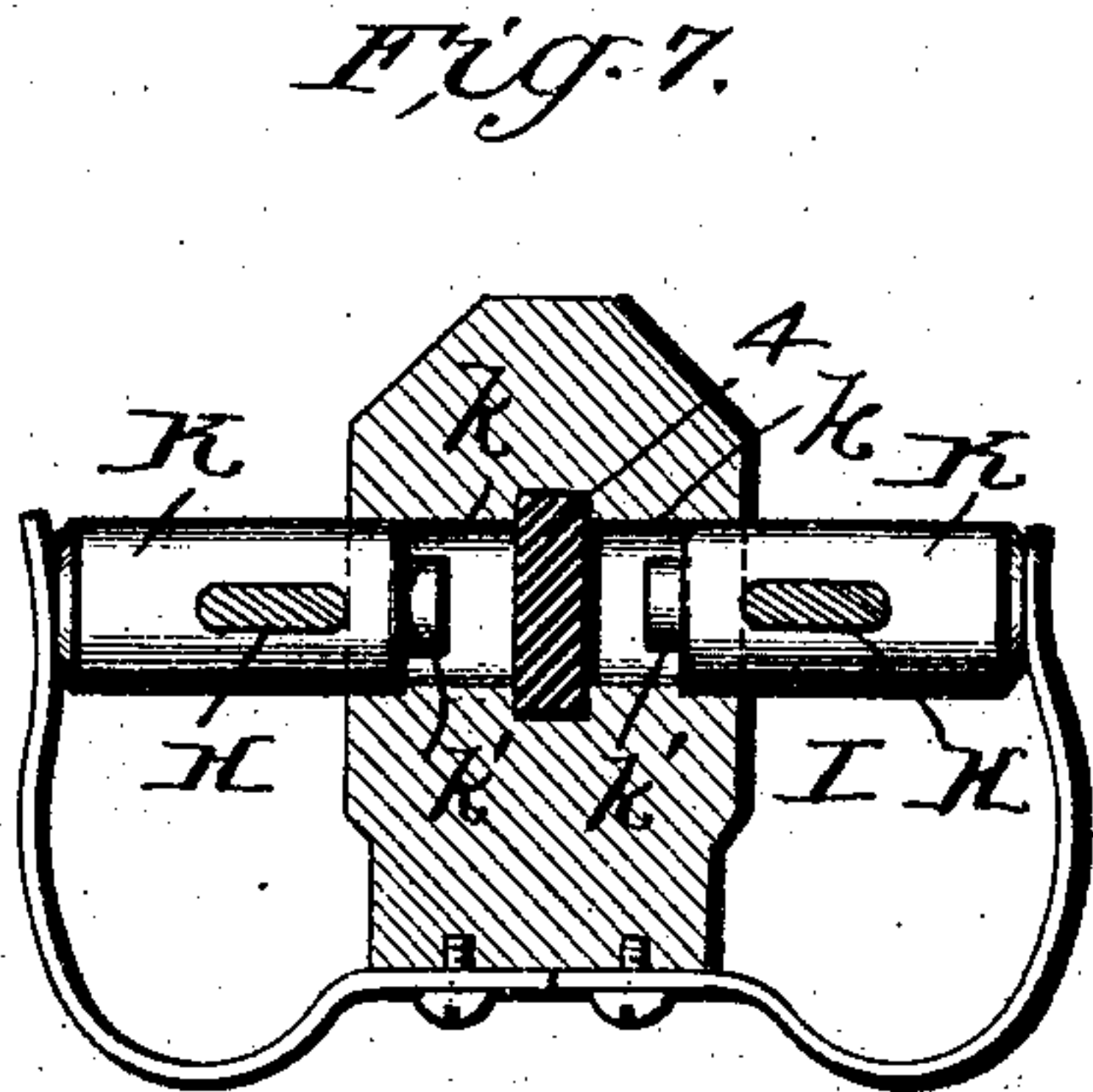
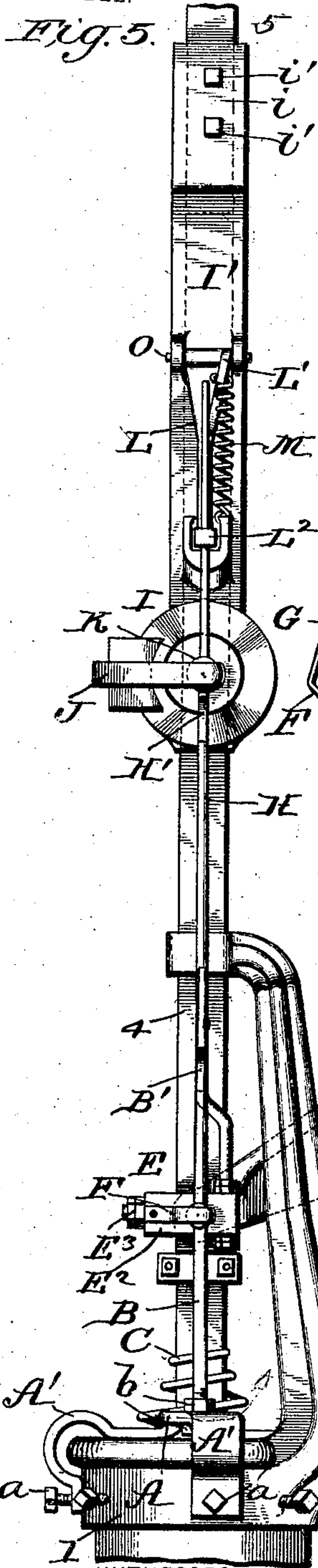
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3 SHEETS—SHEET 2.



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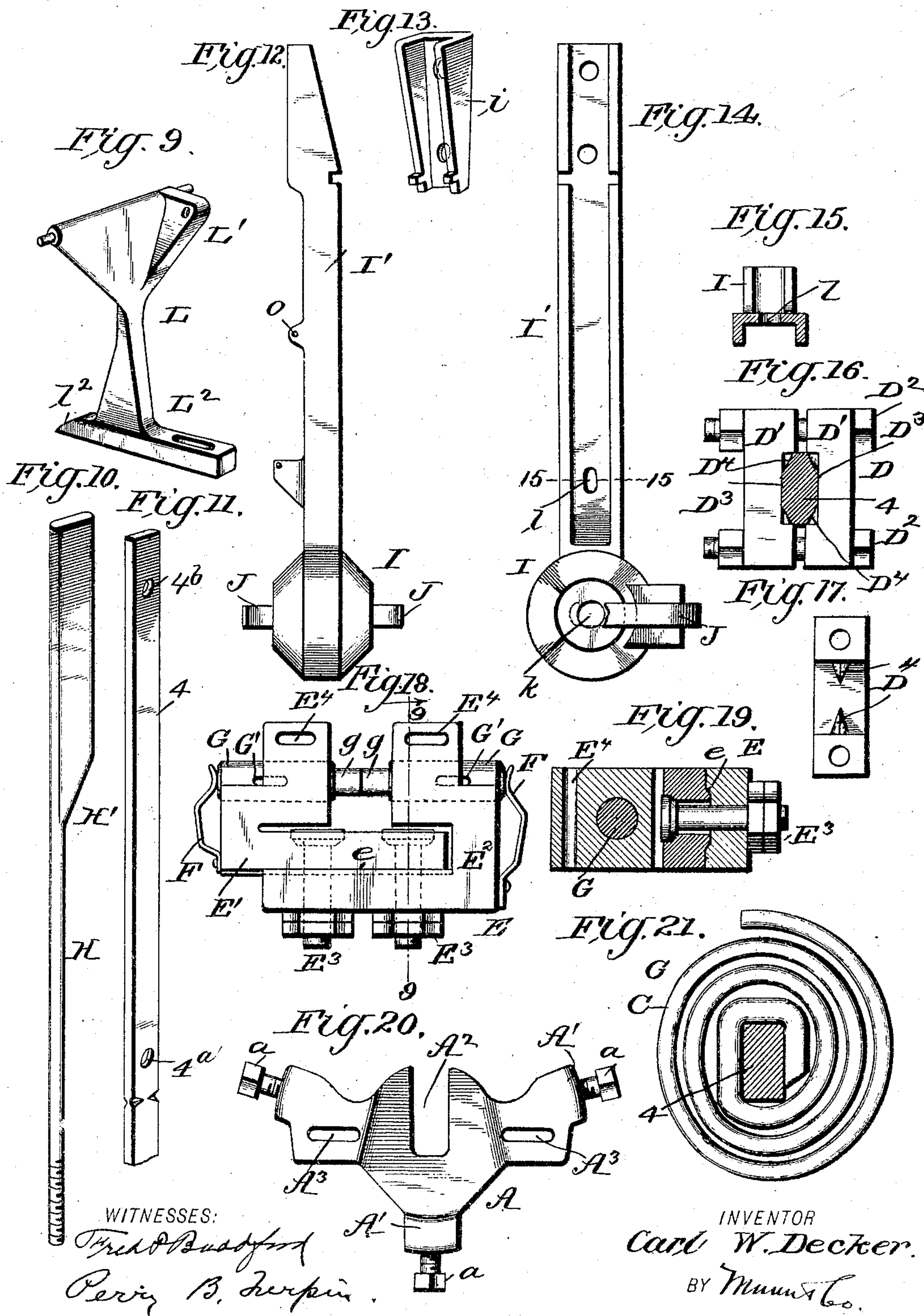
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NO MODEL.

3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

CARL WASHBURN DECKER, OF CHARLES CITY, IOWA, ASSIGNOR OF TWO-THIRDS TO FRANK E. HIRSCH AND GEORGE W. VON BERG, OF CHARLES CITY, IOWA.

PUMP-COUPLING.

SPECIFICATION forming part of Letters Patent No. 772,311, dated October 11, 1904.

Application filed May 20, 1903. Serial No. 157,927. (No model.)

To all whom it may concern:

Be it known that I, CARL WASHBURN DECKER, a citizen of the United States, and a resident of Charles City, in the county of Floyd and State of Iowa, have made certain new and useful Improvements in Pump-Couplings, of which the following is a specification.

My invention relates to windmill-pumps, and has for an object to provide a novel construction for coupling the pump-handle to the pump-rod and at the same time uncoupling the windmill-rod from the pump-rod, and vice versa, by the movement of the pump handle or lever and to so construct the parts that they may be easily and quickly attached to any ordinary windmill-pump by means of a wrench and file; and the invention consists in certain novel constructions and combinations of parts, as will be hereinafter described and claimed.

In the drawings, Figure 1 is a side view, and Fig. 2 a front elevation, of the improved devices with the pump-rod coupled with the windmill-rod. Fig. 3 is a cross-section on about line 3 3 of Fig. 2. Fig. 4 is a cross-section on about line 4 4 of Fig. 2. Fig. 5 is a side view, and Fig. 6 an elevation, of the improvement with the pump-rod coupled with the pump handle or lever. Fig. 7 is a cross-section on about line 7 7 of Fig. 6. Fig. 8 is a cross-section on about line 8 8 of Fig. 6. Fig. 9 is a detail perspective view of the rocking latch. Fig. 10 is a detail perspective view of one of the cam-rods. Fig. 11 is a detail perspective view of a portion of the pump-rod. Figs. 12, 13, and 14 illustrate the slide for connection with the windmill-rod. Fig. 15 is a detail cross-section on about line 15 15 of Fig. 14. Figs. 16 and 17 illustrate in detail the buffer projection for application to the pump-rod. Fig. 18 is a detail top plan view of the lower coupling. Fig. 19 is a sectional view on about line 9 9 of Fig. 18. Fig. 20 is a detail plan view of the base-plate, and Fig. 21 is a detail plan view of the cushioning-spring.

In the construction shown the parts 1, 2, 3, 4, and 5 are those of an ordinary windmill

pump-head, pump handle or lever, pump-rod, and lower end of windmill-rod, respectively, while the letters of reference indicate the improved devices.

By my invention I seek to provide means whereby to couple the pump handle or lever to the pump-rod and at the same time uncouple the windmill-rod from the pump-rod, and vice versa, by the movement of the pump handle or lever, as will be more fully described, and in doing this I employ a base A for supporting the several devices, which base is secured to the pump-head 1 by means of set-screws α . The base is formed with the arms or prongs A' , which extend down alongside the pump-head and receive the said screws α , and the said base is also provided with a slot A^2 for the pump-rod and with slots A^3 for the lower ends of the lower cam-rods B, which latter are secured to the base A by nuts b above and below the said base, so the cam-rods B can be held securely upon the base in position to operate upon the coupling devices of the lower coupling presently described in the operation of the invention.

The rods B are provided near their upper ends with the cams or inclined surfaces B' for the purpose presently described. A buffer projection D is secured upon the pump-rod 4 and preferably consists, as shown, of two side plates or sections D' , united by bolts D^2 and having mortises D^3 in their inner faces to receive the pump-rod 4 and also provided with edged projections or lugs D^4 to enter notches filed in the pump-rod, so the buffer projection D may be held securely to the pump-rod at any desired point. A spring C encircles the pump-rod and rests upon the base-plate A and cushions the downward stroke of the pump-rod by forming a yielding stop for engagement by the buffer projection D, as will be understood from Figs. 1, 2, 5, and 6.

Means are provided for detachably coupling the pump handle or lever 3 with the pump-rod consisting in the construction shown of the lower coupling E, which is shown in detail in Figs. 8, 18, and 19 and consists, preferably, of the opposite sections E' and E^2 , slid-

ing along each other at e and connected by the bolts and nuts E^3 , so the coupling E can be adjusted to fit different sizes of pump-rods and pump-handles. The sections E and E' are provided with laterally-elongated slots E^4 , in which are secured the rods H for operating the coupling devices of the upper coupling, such rods being secured to the coupling E by means of nuts above and below the said coupling permitting the adjustment of the bars H longitudinally to accommodate the said bars to differences in distance between the openings 4^a and 4^b , (described presently,) as found in different pump-rods, while the slots E^4 permit a limited lateral adjustment of the lower ends of bars H , so that lateral adjustment of E and E' still permits of the adjustment of the said bars to be parallel with the pump-rod. It will be noticed that the bars for operating the coupling devices of the lower coupling are carried by the base A and are stationary, while the bars for operating the devices of the upper coupling are carried by the lower coupling and move up and down with the movements of the said lower coupling. The lower coupling is provided with an opening at e' sufficiently wide to receive the pump-rod 4 and the bifurcated end of the pump-lever 3. The rod 4 is provided with an opening 4^a , arranged to be entered by the inner ends g of pins G , which also project through openings in the bifurcated end of the pump-lever 3. These pins are provided with laterally-elongated slots G' to receive the operating-bars B and are arranged to be actuated by the springs F , which tend to press the pins inwardly into the opening in the pump-rod, and so lock the handle-lever 3 to the said pump-rod so the operation of the pumping-lever will not only operate the pump-rod, but will also operate to move the lower coupling up and down as the handle-lever is rocked. It will be noticed from the arrangement of the pumping-lever, the pump-rod, the coupling G , and the inclined surfaces B' on the bars B that when the parts are in the position shown in Figs. 5 and 6 the connecting-pins G will couple the handle-lever to the pump-rod, so the working of the lever will operate the pump-rod when the lever is oscillated in the ordinary manner. If now the lever be depressed at its handle end to such an extent as to cause the coupling to move up sufficiently high for the pins G to ride out on the inclined surfaces of the bars B , the pins G will be withdrawn from engagement with the pump-rod 4 and the latter will be freed from connection with the handle-lever so the pump-rod may be worked by its connection with the windmill when so desired without causing any oscillation of the pump handle or lever. When the parts are in the position shown in Figs. 5 and 6, the coupling devices of the upper coupling I are freed from

engagement with the pump-rod 4, so that the working of the pump-rod by the operation of the handle-lever will not cause any movement of the devices connected with the windmill-rod, which will now be described. The mill-rod 5 is secured at its lower end within a sleeve I' , which carries the upper coupling at its lower end. This sleeve I' is divided longitudinally at its upper end and receives the clasp or clamp i , which is secured by the bolts i' , which secure the mill-rod 5 in the connection I' , as will be understood from Figs. 1, 2, 5, 6, 12, 13, and 14. The upper coupling, which is shown in detail in Figs. 3 and 7, embraces the pump-rod 4 and is provided with the openings k for the pins K , which slide laterally into and out of engagement with the pump-rod 4, being adapted at their inner ends at k' to enter an upper opening 4^b in the pump-rod when such opening is brought into register with the pins K and the latter are free to be pressed by their springs J into such engagement with the pump-rod, as will be understood from Figs. 3 and 7, Fig. 3 showing the upper coupling with its coupling devices interlocking with the pump-rod, while Fig. 7 shows the upper coupling freed from the pump-rod, so the latter will reciprocate independently of the upper coupling and the upper coupling will not operate the pump-rod. It will also be noticed that when the parts are moved from the position shown in Figs. 1 and 2, in which the upper coupling is locked to the pump-rod and the lower coupling is released from the pump-rod, the operation of the mill-rod 5 will cause an operation of the pump-rod. It will also be noticed that if the lower coupling be moved from the position shown in Figs. 1 and 2 to that shown in Figs. 5 and 6 the inclined surfaces or cams H' of the bars H will operate upon the pins K to free them from engagement with the pump-rod, so the pump-rod may be operated by the handle-lever.

A latch L is carried by the sleeve or connection I and is intended to engage in the upper hole 4^b in the rod 4 in case such hole should be left at a point above the highest point reached by the pins K and depress the pump-rod to a point where it may be engaged by the pins K in the operation of the devices, as will be presently described. This latch L is pivoted at its upper end at O to the connection I' and is provided at its upper end with an outwardly-projecting arm L' , to which is connected the spring M , by which the lower end of the latch is pressed inwardly toward the connection I , which is provided with an opening l , through which a bolt L^2 at the lower end of the latch L protrudes in position to engage with the opening 4^b in the pump-rod and depress said pump-rod when desired, as will be described, the upper edge of the bolt L^2 being beveled or sloped at l^2 , so it will slip

out of the said opening 4^b on the upward movement of the latch L. It will be understood that the purpose of this latch L is to depress the pump-rod to a point where the pins K may engage in the upper opening 4^b of the said rod in the operation of the invention.

In operation if the pump-handle be at rest with its upper end at highest point of stroke, as shown in Figs. 1 and 2, and the lower end of the lever or handle be raised the upper end of the handle, carrying with it the lower coupling, will move downward and the rods H, carried by the lower coupling, will move downward, so that their cam or inclined portions are directly opposite the upper hole in the pump-rod. By the bars H the pins K will be drawn out of the upper hole 4^b in the rod 4 and the windmill-rod will be disconnected from the pump-rod. As the lower end of the pump-handle is moved still farther upward and the upper end of the said handle is moved still farther downward the pins G will be carried by the lower coupling to a point where the cam portions of the bars B will move out of engagement with the pins G, which will be forced by their springs into the hole 4^a in the pump-rod, thus coupling the pump-rod and lever, so the lever may be operated manually to work the pump-rod.

It should be understood that the point in rods B where the cam portions B' end is opposite a point in the motion of the lower coupling far enough below the upper limit of its motion to allow the bars H to be carried to a point where their upper wide portions are directly opposite the upper hole 4^b in the pump-rod before the pins G can engage the lower hole 4^a in the pump-rod, so that it is impossible for the pins K and G to engage their respective holes in the rod 4 at the same time. If now the pump-handle after being used in the operation of the pump manually be moved by the hand so that its upper end approaches the upper limit of stroke, by reversing the process described above in relation to the movement of the pins G when they move on the rods B the pins G will be forced out of the hole 4^a in the pump-rod, and a continuation of this motion of the pump-handle will cause a reversal of the operation described in regard to the pins K and the rods H, so that the said pins K will be forced into the upper hole 4^b in rod 4 by their springs if the hole 4^b in the rod B is directly opposite these pins, and, if not, as soon as the hole registers with the said pins. Now if the stroke of the pump-handle is greater in length than the stroke of the windmill-rod the upper hole 4^b of the rod 4 when the upper end of the pump-handle is at its highest point of stroke will be left at a point above the highest point reached by the pins K, the distance between these two points just mentioned depending upon the difference in the length of stroke of the pump-

handle and of the windmill-rod. By means of the latch L, the action of which has been described, the downward movement of the mill-rod 5, carrying with it the connection I, will bring the upper hole 4^b in the rod B to a point opposite the highest point reached by the pins K or below this point, so that as soon as the windmill is put in operation the pump-rod 4 will be moved to a point where the pins K will be made to engage in the upper hole 4^b in the rod 4.

It will also be noticed from the preceding description that the upper hole 4^b will be maintained by means of the buffer projection D and the spring C at a point high enough above the guide at the upper end of the pump-head, so that the pins K may engage its upper hole when the pump-rod, being free, has dropped to the lowest extremity of its stroke. In securing the above-mentioned operations it will be noticed that the distance of the upper wide portions of the bars H immediately above the cams or inclined portions of the bars H from the pins G in the lower coupling is exactly the same as the distance from the lower hole 4^a to the upper hole 4^b in the pump-rod 4, so that when the pins G engage in the hole 4^a of rod 4 it is manifestly impossible for the pins K to engage in the upper hole 4^b in the rod 4, and the pins G are and must be withdrawn from the lower hole 4^a before the narrow portions of the bars H can be carried up to a point opposite the upper hole 4^b to allow the pins K to engage in said hole.

It will also be seen from the description given that in the reverse of the operation just mentioned when the pins K engage in the hole 4^b in the pump-rod 4 it is impossible for the pins G to engage in the lower hole 4^a of rod 4, and the pins K are and must be withdrawn from the upper hole 4^b before the pins G, carried by the lower coupling and sliding on the bars B, can reach the narrow portions of the bars B, and thus be allowed to engage the lower hole 4^a in rod 4 if said hole registers with this position of the pins G.

The feature just mentioned obviates any possibility of windmill-rod and hand-lever being coupled to the pump-rod, at the same time preventing accidents to the device and danger to the person operating it.

With reference to the function of the buffer D and the spring C, I would state that as the pump piston-rod from its own weight and that of the water above the piston is liable to drop to its extreme lowest position when uncoupled it is necessary that said piston-rod should be held up to a point above the extreme lowest position in order that the upper end of the hand-lever may reach low enough down along the piston-rod to properly operate the couplings.

Having thus described my invention, what I

claim as new, and desire to secure by Letters Patent, is—

1. The combination as herein described of the pump-lever, the pump-rod, the windmill-rod, the lower coupling provided with means for connecting the pump-lever with the pump-rod, stationary means for disconnecting said coupling devices at a predetermined point in the movement of the pump-lever, an upper coupling provided with devices for coupling the pump-rod with the mill-rod, means carried by the lower coupling for releasing the coupling devices of the upper coupling, and a latch movable with the upper coupling and adapted to readjust the pump-rod to position for engagement by coupling devices of the upper coupling substantially as set forth.

2. The combination of the pump-rod having upper and lower openings, a buffer projection on the pump-rod below the lower opening, a cushioning-spring below the buffer projection, the lower coupling having devices to engage in the lower opening of the pump-rod, the mill-rod, the upper coupling carried by the mill-rod and having coupling devices to engage in the upper opening of the pump-rod, means for operating the lower coupling and devices carried by the lower coupling for operating the coupling devices of the upper coupling substantially as set forth.

3. The combination of the pump-rod, the mill-rod, the lower coupling, the handle-lever, the upper coupling and a readjusting-latch movable with the mill-rod and adapted to adjust the pump-rod to the position for engagement therewith of the coupling devices of the upper coupling substantially as set forth.

4. The combination of the pump-rod, the mill-rod, the pumping-lever, the lower coupling having lateral pins for connecting the pumping-lever with the pump-rod, the upper coupling having coupling-pins for connecting the upper coupling with the pump-rod and devices carried by the lower coupling whereby the coupling-pins of the upper coupling may be adjusted out of engagement with the pump-rod when the pins of the lower coupling are adjusted into engagement with said rod and vice versa substantially as set forth.

5. The combination of the pump-lever, the pump-rod, the mill-rod, a lower coupling for connecting the pump-lever with the pump-rod and having movable devices for engagement with the pump-rod, bars held from movement with the lower coupling and arranged to operate the movable devices of said coupling, an upper coupling for securing the mill-rod to the pump-rod and having movable devices to engage with the pump-rod, and bars carried by and movable with the lower coupling and operating the movable devices of the upper coupling substantially as set forth.

6. The combination of the pump-head, the pump-lever, the pump-rod, the mill-rod, a

base, bars supported on the base and having cams or inclined portions, a coupling for connecting the pump-lever with the pump-rod and having lateral pins arranged for operation by the said bars, bars mounted on said coupling and having cams or inclined portions, the mill-rod, a coupling for securing the mill-rod to the pump-rod and having lateral pins arranged for operation by the cams or inclines of the bars carried by the lower coupling, and springs for operating the pins in opposition to the said bars, substantially as set forth.

7. The combination with the pump-rod and a coupling device movable thereon and having laterally-movable pins for engagement with the rod, of bars having cam-surfaces for operating the pins in one direction, said bars and couplings being movable relatively in a longitudinal direction, substantially as set forth.

8. The combination of the mill-rod, the pump-rod, the lower coupling, the handle-lever for operating the lower coupling, the upper coupling, the connection carrying said upper coupling and secured to the mill-rod, the readjusting-latch carried by said connection, stationary devices for operating the coupling devices on the lower coupling and bars carried by the lower coupling for operating the coupling devices of the upper coupling substantially as set forth.

9. The combination of the mill-rod, the pump-rod, an upper coupling carried by the mill-rod and having movable devices for engaging with the pump-rod to lock the mill-rod to the said pump-rod, a lower coupling having movable devices for interlocking with the pump-rod, the handle-lever connected with the lower coupling, fixed devices for operating the movable devices of the lower coupling and devices carried by the lower coupling for positively operating the movable devices of the upper coupling substantially as set forth.

10. An apparatus for use on pumps substantially as described comprising the base-plate having clamping devices for connection with the pump-head, the upright bars secured to said base-plate and having cams or inclined portions, the lower coupling having laterally-movable pins sliding on said bars and arranged for operation by the cams or inclined surfaces thereof, bars carried by the lower coupling and having cams or inclined surfaces, and the upper coupling having laterally-movable pins sliding on said bars and arranged for operation by the cams or inclined surfaces thereof substantially as set forth.

11. The combination of the pump-rod, the windmill-rod, the pump-lever, upper and lower coupling devices, having opposite laterally-movable pins, movable into and out of engagement with the pump-rod and the wind-

mill-rod, and devices for operating said laterally-movable pins, substantially as set forth.

12. In an apparatus substantially as described, a coupling having opposite laterally-
5 movable pins, movable at their inner adjacent ends into and out of engagement with the rod with which they couple, combined

with said rod and means for operating the pins, substantially as set forth.

CARL WASHBURN DECKER.

Witnesses:

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G. W. VON BERG.