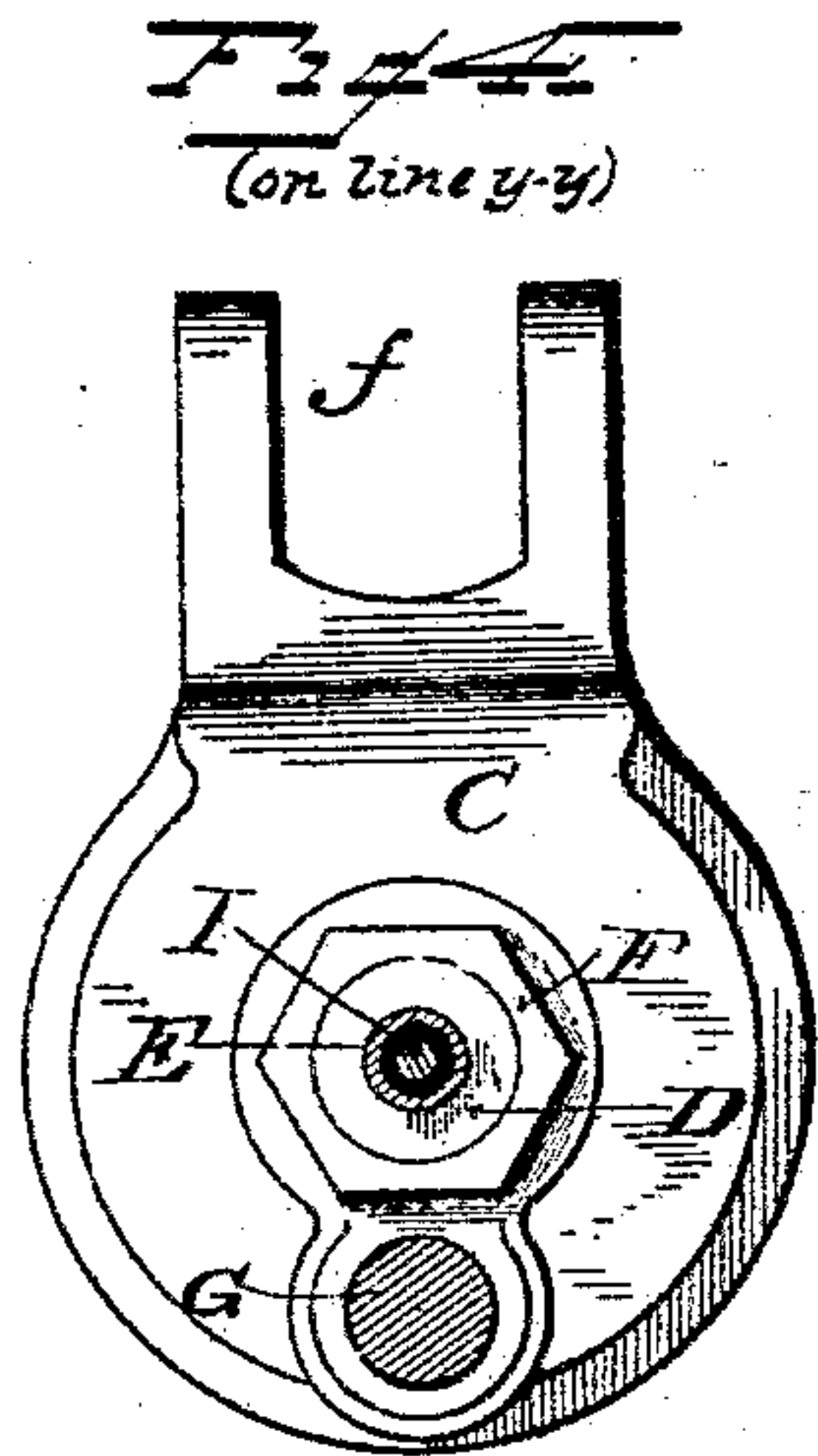
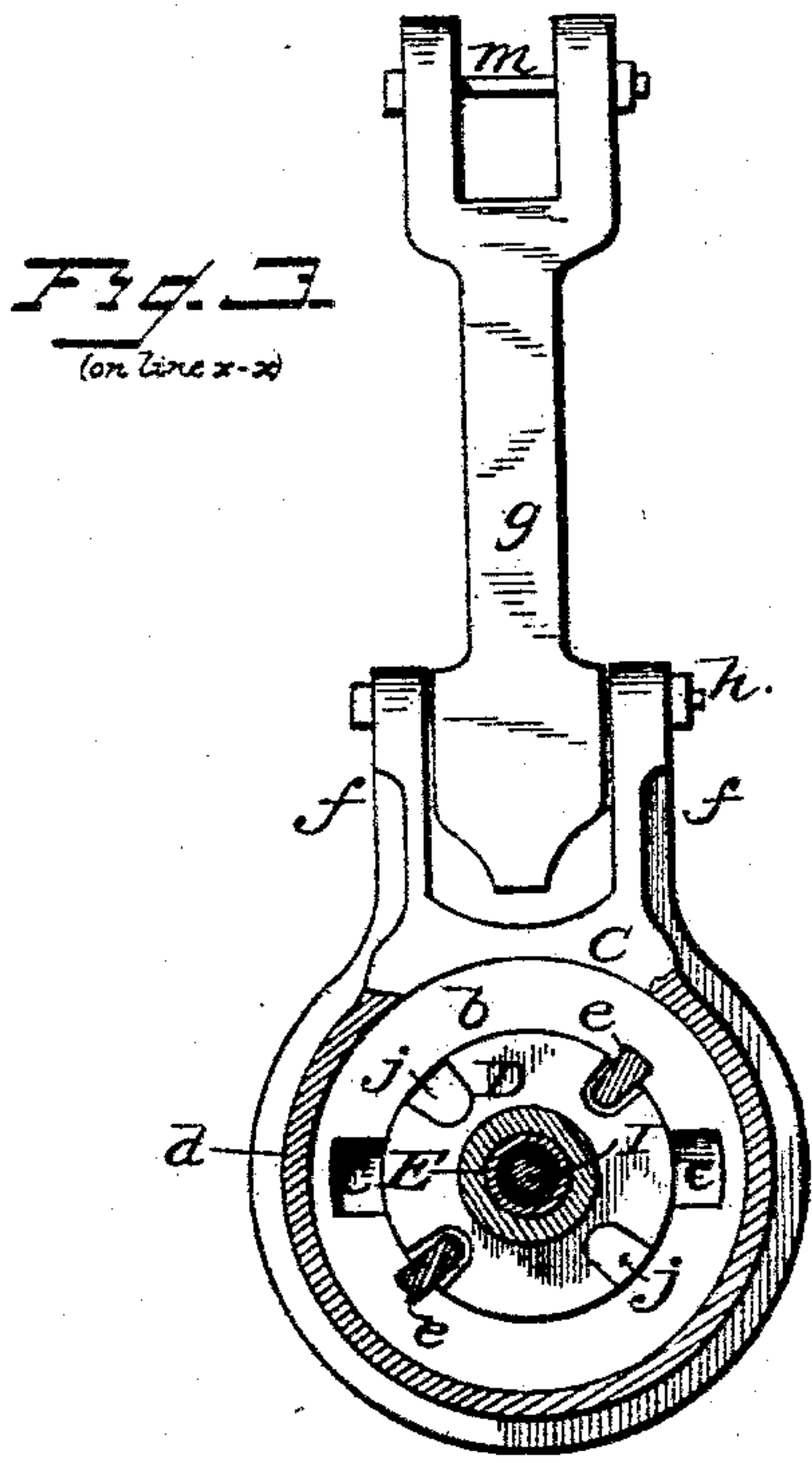


(No Model.)

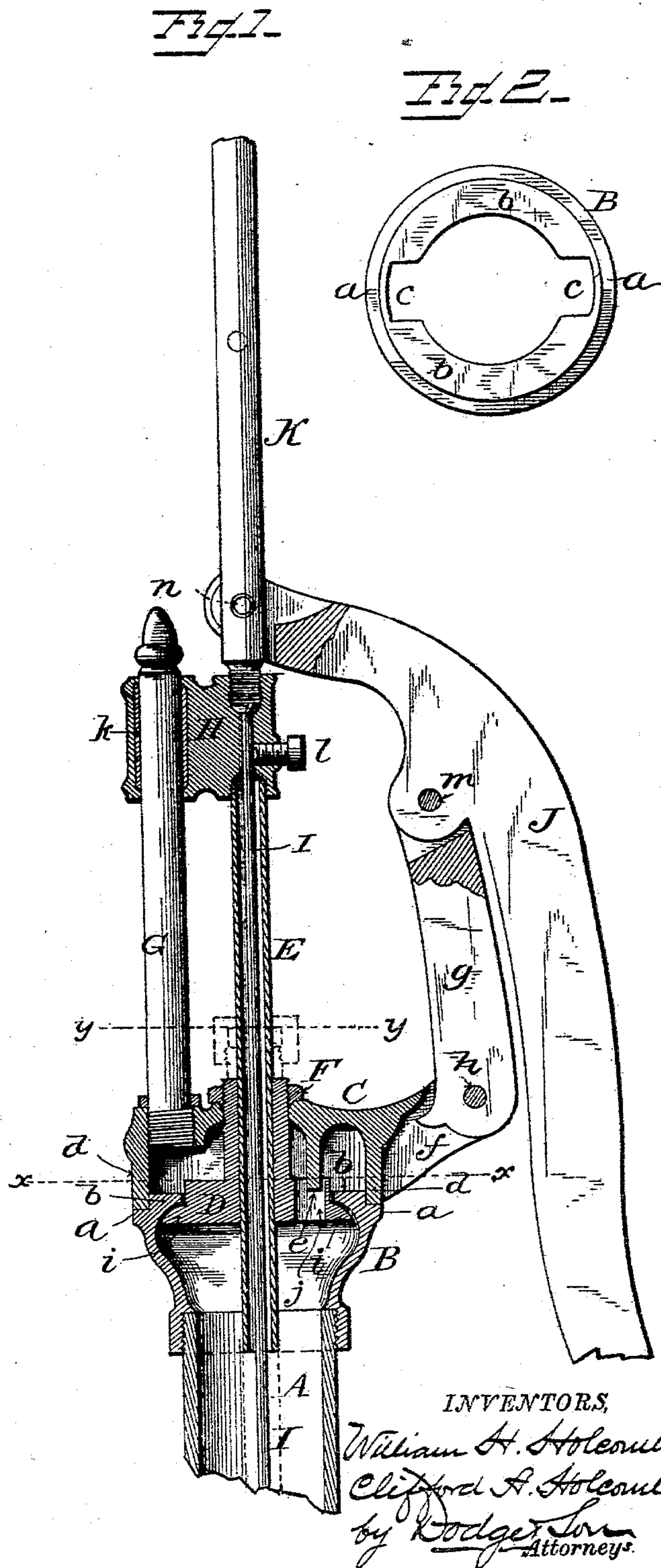
W. H. & C. A. HOLCOMBE.
PUMP.

No. 321,499.

Patented July 7, 1885.



WITNESSES:
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UNITED STATES PATENT OFFICE.

WILLIAM H. HOLCOMBE AND CLIFFORD A. HOLCOMBE, OF BELOIT, WISCONSIN, ASSIGNORS TO HOLCOMBE BROS. & STONE MANUFACTURING COMPANY, (LIMITED,) OF SAME PLACE.

PUMP.

SPECIFICATION forming part of Letters Patent No. 321,499, dated July 7, 1885.

Application filed May 31, 1884. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM H. HOLCOMBE and CLIFFORD A. HOLCOMBE, of Beloit, in the county of Rock and State of Wisconsin, have invented certain new and useful Improvements in Pumps, of which the following is a specification.

Our invention relates to pumps; and it consists in a novel construction of the same, as hereinafter more fully set forth and claimed.

In the accompanying drawings, Figure 1 is a vertical central section of our improved pump; Fig. 2, a plan view with the top and connecting-plug removed; Fig. 3, a horizontal section on the line *x x*, Fig. 1; Fig. 4, a similar view on the line *y y*.

The object of our invention is to simplify and cheapen the construction of pumps; and it relates more especially to pumps designed to be operated by windmills and to those to which the cap or top of the pump is made adjustable to bring the lever or connecting devices into any required position.

A indicates the pump-barrel, and B the top, which is detachably secured thereto by being screwed on, as shown in Fig. 1, or in any suitable manner. The top B has a circumferential shoulder, *a*, and also an internal flange, *b*, as shown in Figs. 1 and 2, the flange *b* being of greater width than shoulder *a*, and provided with two openings, *c*, at opposite sides of the top, as shown in Fig. 2.

C indicates the cap, provided with a downwardly-turned circumferential flange, *d*, resting upon the shoulder *a* of the top B, as shown in Fig. 1, and also provided with two depending arms or lugs, *e*, the purpose of which will be presently explained. The cap C is provided with two laterally-extending arms, *f*, as shown in Figs. 1, 2, and 4, which carry the connecting-arm *g*, said arm being secured to the arms *f* by a pivot pin, *h*, passing transversely through them, as shown in Figs. 1 and 3.

J indicates the pump-handle, jointed to the pitman or connecting-rod *g* by a pivot, *m*, and at the upper end detachably connected to the windmill-rod K by a pivot, *n*. The rod K is usually of flat iron, and is threaded at its enlarged lower end so as to screw into the cross-head H, as shown in Fig. 1.

D represents a plug, which serves to connect the cap to the top of the pump, and passes through a central opening in the cap, as shown in Fig. 1, said plug being provided with a flanged base of the same diameter as the opening in the pump-top B, with the exception of two lugs, *i i*, which are adapted to enter the openings *c c* in the flange *b* of the top B. In the projecting base of the plug D are also recesses *j*, into two of which the lugs *e* of the cap C project, as shown in Figs. 1 and 3, so as to cause the plug to turn positively with the cap when the latter is moved.

The plug D is provided with a central perforation, through which slides the hollow rod E, and the upper end of the plug is threaded to receive a nut, F, which has a conical seat in the top of the cap and firmly secures the latter to the top, as shown in Fig. 1, the flanged base of the plug engaging under the inwardly-projecting flange *b* of the top B, and causing the flange *d* of the cap to bear down squarely upon the circumferential shoulder *a* of the top when the nut F is tightened.

Secured to the cap C, preferably screwed therein, is a vertical guide-rod, G, which may be cylindrical or any other desired form in cross-section.

The hollow piston-rod E, which, as before stated, slides freely through the slide D, is threaded at its upper end and screwed into a cross-head, H, which latter encircles the guide-rod G, and moves vertically thereon as the piston-rod H moves through the plug D. Babbitt metal or other suitable bushing, *k*, may be seated in that portion of the cross-head sliding on the guide-rod G, in order to avoid unnecessary wear of the parts and to render their working easy.

I indicates the plunger-rod, which has one end secured to the cross-head H by means of a set-screw, *l*, passing through one side of the same, and is placed within the hollow rod H, as shown in Fig. 1. This construction avoids the necessity of accurate fitting of the plunger-rod. The plug D serves as a packing for the rod E, and when worn out is replaced without much trouble and at a small expense.

When it is desired to use the windmill for pumping, the handle J is disconnected from the rod K by removing the pin *m*, and the pis-

ton-rod and the cross-head are free to rise and fall independently of the handle.

It will be seen that the construction above set forth is exceedingly cheap, and at the same time possesses the required strength.

The parts may all be made of cast-iron or other suitable material.

One of the advantages of the use of the hollow piston-rod E is the ease with which proper adjustment of the stroke is effected, as by moving the windmill bar or rod K an opening is afforded through the cross-bar head and the piston-rod, out of which the piston-rod projects regardless of length, provided only that the rod be long enough to reach through, when the stroke can be easily adjusted, the rod cut off, and secured by the set-screw l.

By simply loosening the nut F, it will be seen that the cap can be removed to any position desired or as circumstances may require, and that as a firm bearing is afforded along the circumference of the top there is no tendency to rock or tip, as is the case in the ordinary constructions.

The construction above described is intended for use in connection with the ordinary lift-pumps, where the presence of a closed chamber above the piston is not essential; but when it is desired to employ it on force-pumps, it will be necessary that there be no escape of air through the top, and we then extend the plug D upward above the top C and provide it with a packing-box, as indicated by dotted lines in Fig. 1.

If it should be desirable to change the position of the handle on account of an obstruction, or for any other reason, it will simply be necessary to loosen the nut F, whereupon the cap-plate can be turned to any desired position, and as the lugs *e* thereof engage with the plug D the latter will move with the cap. It will sometimes happen that when the cap has thus been moved to such position as to allow the free and unobstructed movement of the handle the lugs *i* of the plug D will come directly in line with the slots or openings *c*, and there would be nothing to prevent the whole top of the pump from being lifted bodily off. It is to obviate this that we provide a second set of notches *j* in the plug D. For example, suppose that when the lugs are in one set of notches the cap is moved and it is found that the handle will meet with an obstruction before reaching the desired position, or that if it does reach this position the lugs *i* and notches *c* coincide. It is only necessary then to lift off the cap and place the lugs *e* thereof in the other set of notches, *c*, when the cap and han-

dle can be turned far enough to carry the lugs *i* on the plug D past the openings or notches *c*. The nut F is then screwed firmly down upon the cap-plate, thus binding the plug firmly to the pump-body and preventing the rotation of the cap.

The hollow rod E may be extended downward, and have attached to it a secondary piston when the pump is used as a force-pump; or it may have a stirrer secured on its end to stir the water and prevent it becoming stagnant.

We are aware that pumps have been patented in which the cross-head attached to the piston-rod moved in guides or ways formed upon the stationary plate by which the pump is secured in position, and this we do not claim; neither do we claim a pump in which the piston-rod is extended upward and carried by a stationary guide.

Having thus described our invention, what we claim is—

1. The combination, in a pump, of top B, cap C, guide-rod G, cross-head H, carrying tubular piston-rod E, pump-rod L, arranged within the latter, and the tubular bolt D, connecting the top and cap and forming a guide for the piston-rod, as shown.

2. In a pump, the combination, with top B, rotatable cap C, tubular plug D, connecting the top and cap, as described, guide-rod G, attached to and rotatable with the cap-plate, cross-head H, sliding upon the guide-rod, tubular rod E, and pump-rod L, attached to the cross-head and arranged to work through the tubular bolt, as set forth.

3. In a pump, the combination of top B, rotatable cap C, provided with guide-rod G, tubular bolt D, connecting the cap and top, cross-head H, sliding upon the guide-rod and carrying tubular rod E and piston-rod I, and set-screw l, whereby the rods E and I may be connected or disconnected at will, as and for the purpose set forth.

4. In a pump, the combination of top B, provided with flange *b*, having notches *c*, cap C, resting and adapted to be rotated upon said top, and provided with depending lugs *e*, and tubular bolt D, binding said cap and top together, as described, and provided with lugs *i* and two sets of notches, *j, j*, as and for the purpose set forth.

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