

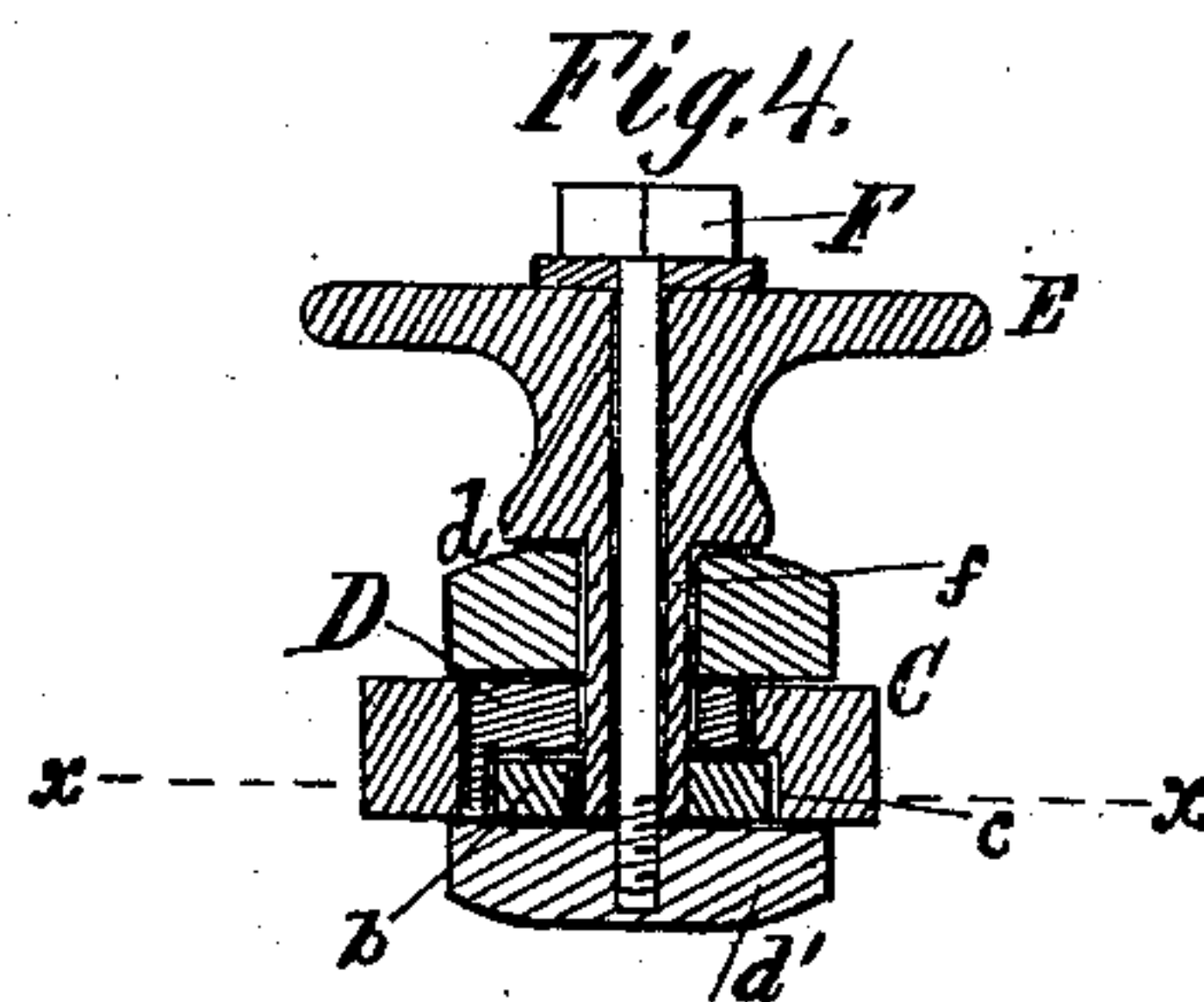
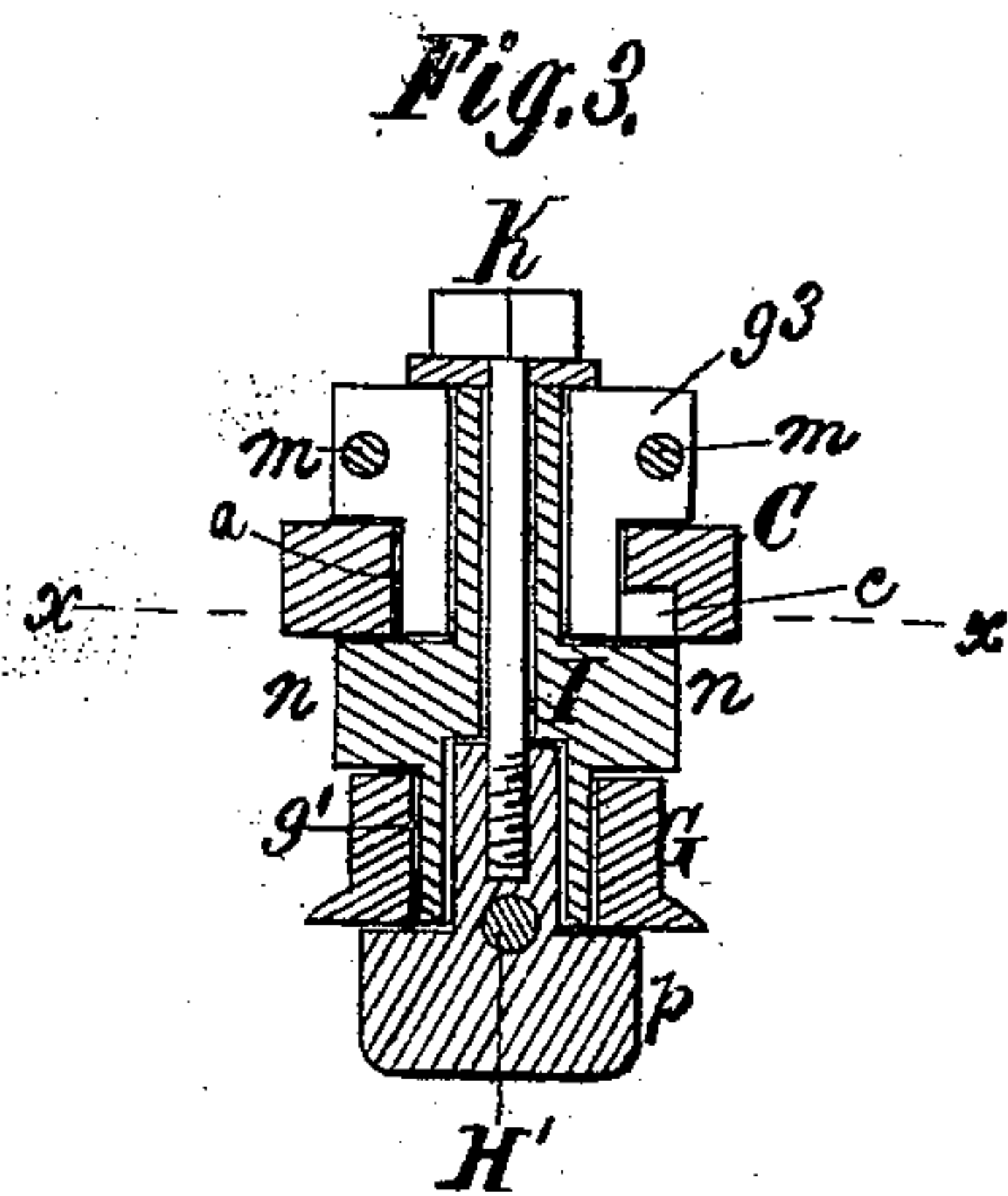
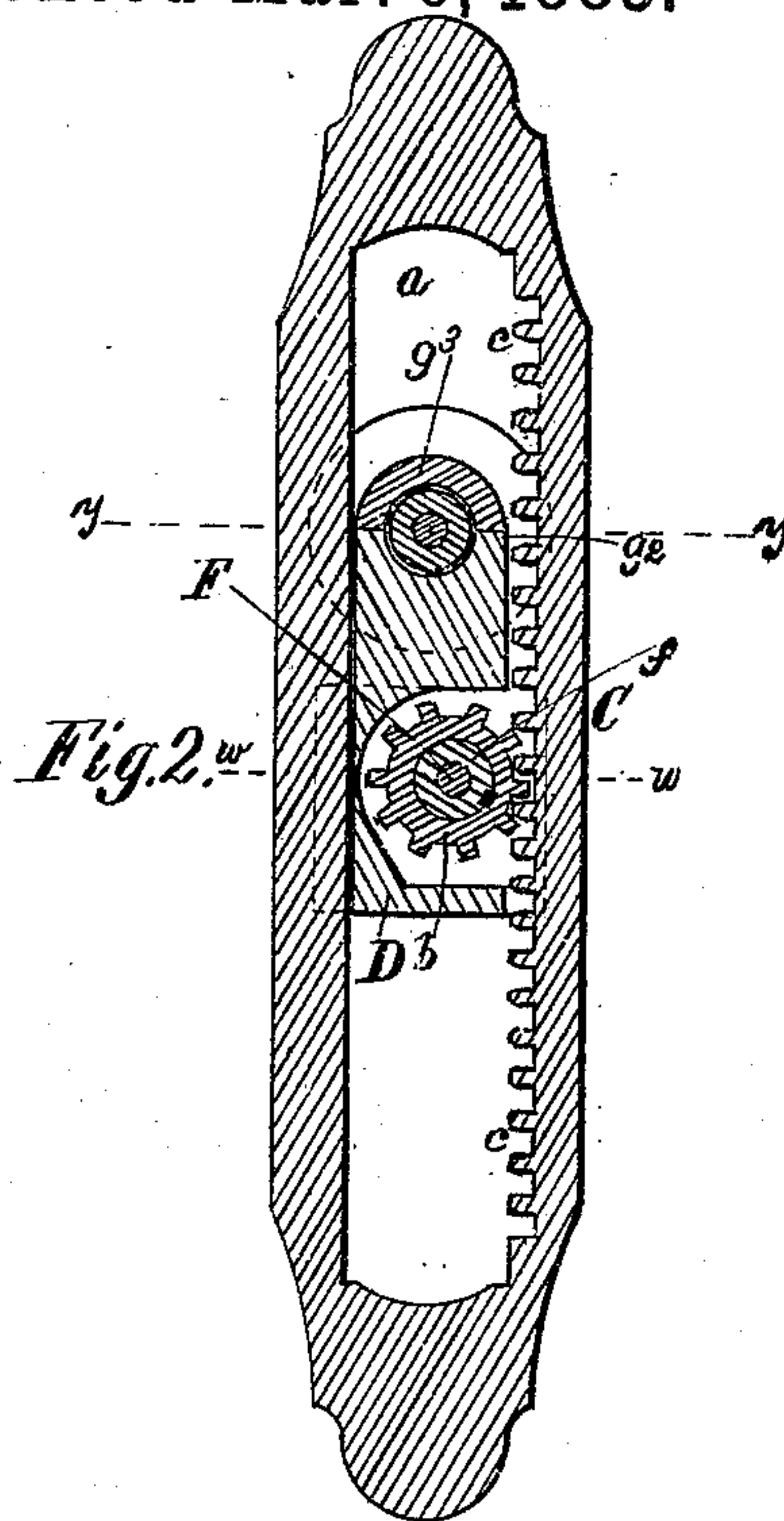
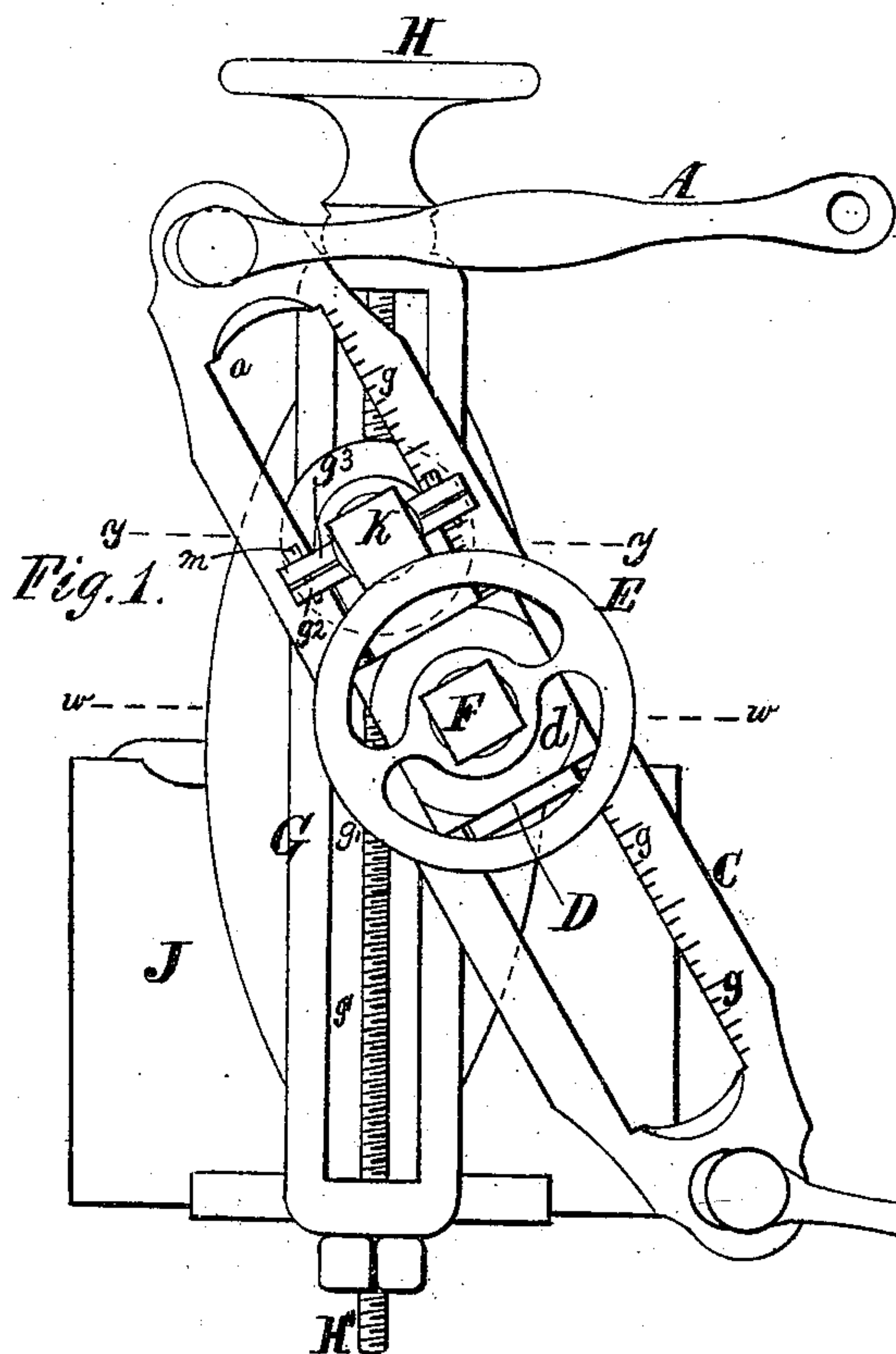
(No Model.)

N. W. HAWKINSON.

FEED WATER ADJUSTMENT FOR PUMPS.

No. 273,276.

Patented Mar. 6, 1883.



Witnesses:

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Inventor:

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UNITED STATES PATENT OFFICE.

NELS W. HAWKINSON, OF LITCHFIELD, MINNESOTA.

FEED-WATER ADJUSTMENT FOR PUMPS.

SPECIFICATION forming part of Letters Patent No. 273,276, dated March 6, 1883.

Application filed November 17, 1882. (No model.)

To all whom it may concern:

Be it known that I, NELS W. HAWKINSON, a citizen of the United States, residing at Litchfield, in the county of Meeker and State of Minnesota, have invented a new and Improved Feed-Water Adjustment for Pumps, of which the following is a specification.

With the adjusting devices or means heretofore employed for regulating the supply of feed-water to boilers difficulty is experienced from the oblique relation which the connecting rod or rods are made to occupy with respect to the center of the cylinder or cylinders when the throw of the vibrating lever is increased from near the minimum to near the maximum extent, or to an intermediate extent.

My invention is designed to provide a more useful adjustable means than heretofore devised, and while the adjustments can be made for preventing the pump sometimes working dry, and thereby soon getting out of order, or for the purpose of avoiding a lack in the supply of water to the boiler, which would result in a destructive explosion, my invention enables me to compensate for the throwing of the connecting rod or rods out of a proper working range with the center of the cylinders of the pump, which invention I shall hereinafter describe and claim, and the same being represented in the annexed drawings.

A pump provided with my invention can always be kept in motion, supplied with as much water as it will take, can be adjusted so that it will force as much water as is necessary into the boiler, and while this is so the connections can be adjusted so as to work without such strains as will render them liable to get out of order as quickly as when the ordinary devices are adopted.

My invention is designed for use with various kinds of engines, either portable or stationary, and in the accompanying drawings Figure 1 may represent either a plan view or a front elevation of the invention as adapted for connection with a pump and the power which drives the same. The movable parts would appear and operate the same if the mechanism were applied upon either a vertical or horizontal bracket or bed-plate. Fig. 2 is a detail horizontal section in the line $x x$ of Figs. 3 and 4.

Fig. 3 is a vertical section in the line $y y$ of Figs. 1 and 2, and Fig. 4 is a vertical section in the line $w w$ of Figs. 1 and 2.

The invention represented is intended mainly to provide means for adjusting the stroke of the pump for feeding water into the boiler or other vessel where more or less water is to be used; and the means which I shall now specifically describe will admit of the pump being set from a very long stroke to a very short one while in motion, and the same may be connected in a suitable manner between the pump and power to drive the pump, such power being either steam, a common crank, or a belt.

A in Fig. 1 is a rod which will be connected with the pump, and B a rod which will be connected with the power to drive the pump.

C is a lever; D, an adjustable box fitted in an oblong slot, a , of the lever, and adjusted from one end of the slot to the other by means of a hand-wheel, E, toothed pinion b inside the box, and a toothed rack-bar, c , on one side of and below the top surface of the slotted lever C, as shown.

F is a set-screw to fasten the box D, so that it shall remain firm and stationary after the desired adjustment has been effected. The box D is provided with an upper nut, d , and a lower nut, d' , forming a bottom flange, the nut d bearing upon the top of the box and the lever, while the nut d' bears against the under side of the lever. The shank f of the hand-wheel E is tubular, and on its lower end the pinion b is keyed or otherwise suitably fastened. The set or clamping screw F passes down through the hand-wheel E and takes into the nut d' , as shown in Fig. 4. By turning the set-screw F, by its broad, square head, in one direction, the clamping action of the screw upon the nuts, lever, and box will be released, and the box can be moved along, either back or forward, in the slot a of the lever C, and then by turning up the screw in a reverse direction the clamping action will again be restored. Any other well-known equivalent mode of loosening and tightening the box D may be adopted without departing from my invention.

The lever C is marked off with a scale, as indicated at g , and the box D can be moved to and clamped at any one of the scale-marks, as

circumstances may require. In the drawings, Fig. 1, the box D is shown clamped about the center of the length of the lever. Below or behind the lever C and box D is a frame, G, with an oblong slot, g' , and provided with an adjusting hand-wheel, H, and screw H', said box being fastened to a bracket or a suitable bed-piece, as illustrated at J. In the slot g' of the frame G the fulcrum or wrist pin I for the lever is fitted by means of a half-bearing, g^2 , on an extension of the box D, and another half-bearing, g^3 , fastened to the half-bearing of the box D by means of screws m , as shown. This wrist or fulcrum pin I is formed with a flange-collar, n , which bears upon the upper surface of frame G and under surface of lever C, as shown in Fig. 3. A set or clamping screw, K, passes down through the wrist-pin I and half-bearings $g^2 g^3$ and enters the stem of a flanged nut, p , as shown. The adjusting hand-screw H' passes through the flanged nut p just below the screw-thread, and by turning the hand-wheel H, and thereby screw H', the lever C, connecting-rods A and B, box D, and wrist or fulcrum pin I can be adjusted upon the frame G so that the connecting-rods A and B shall be in proper working range with the piston of the pump, notwithstanding the fact that one arm of the lever C is adjusted to have a much longer leverage than the other arm. In Fig. 1 this adjustment of the parts is clearly illustrated, and from the same will be fully understood. By means of the set or clamping screw K the fulcrum or wrist pin I can be slackened for adjustment, and then clamped so as to be firm and steady, and by means of the scale g and a suitable pointer the length of stroke ob-

tained by any adjustment will be indicated. The indicator may be attached to the sliding box D or to the bearing of the wrist-pin, as deemed most convenient and desirable.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination of a lever, C, applied to an adjustable fulcrum or wrist pin, and having connecting-rods A B, with a frame, G, having a clamping-nut and an adjusting-screw, H, whereby the lever is rendered adjustable independently of the frame G and the wrist-pin or fulcrum on which it vibrates, and then is adjustable with the wrist-pin, substantially as and for the purpose described.

2. The combination of the lever C, provided with a toothed rack and connecting-rods, with the clamping-box D, provided with a pinion, and with a wrist-pin applied to an adjustable clamping-nut, substantially as and for the purpose described.

3. The combination of the slotted frame provided with the hand-screw H', the sliding wrist-pin I, the adjustable clamping-box D, with the lever C and its connecting-rods, substantially as and for the purpose described.

4. The combination of the hand-wheel E, block d , and nut d' with the box D and lever C, substantially as and for the purpose described.

5. The combination of the flanged wrist-pin I, half-bearings $g^2 g^3$, and box D with the lever C, frame G, and set-screw K, substantially as and for the purpose described.

NELS W. HAWKINSON.

Witnesses:

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