2 Sheets—Sheet 1.

W. R. EDELEN.

Polish-Rod Adjuster for Oil and other Wells.

No. 227,887. **Patented May 25, 1880.**

Fig. 1.

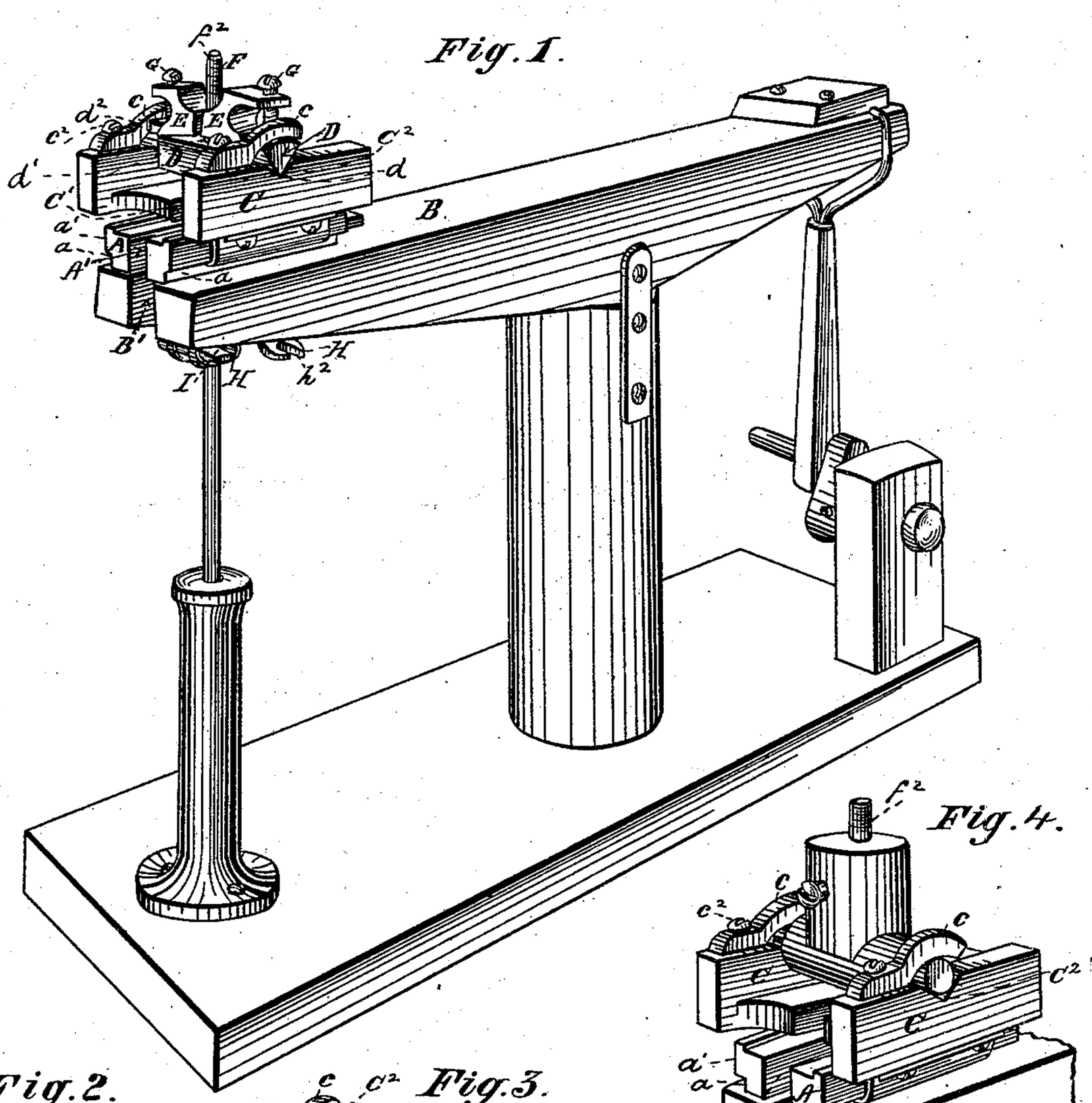


Fig. 2.

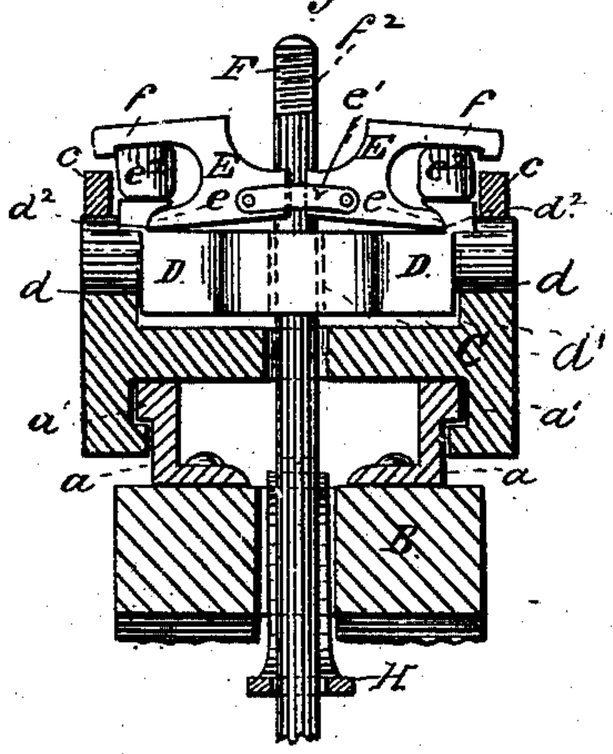


Fig. 3.

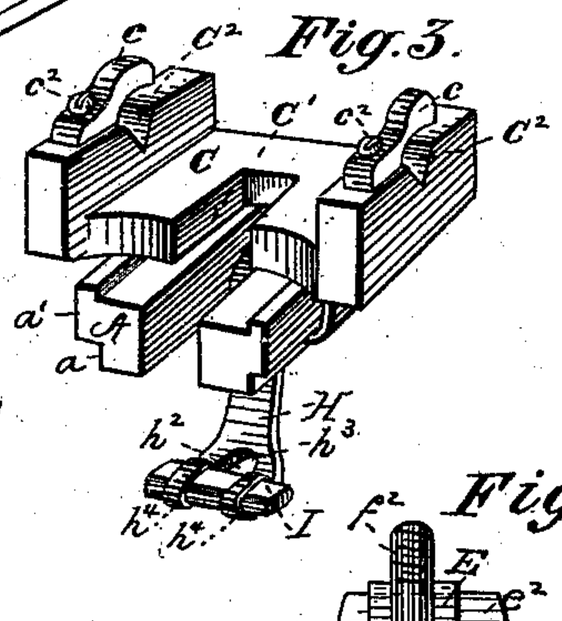
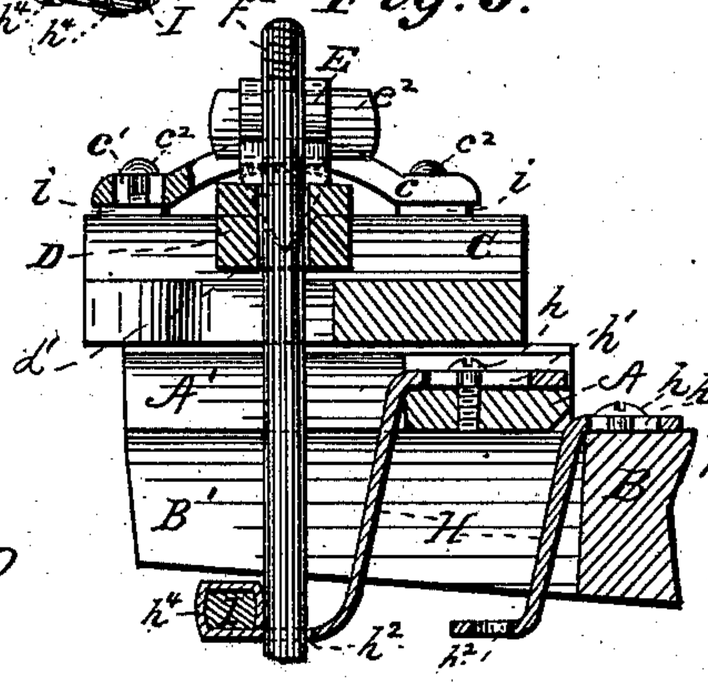


Fig. 4.

Fig. 5.



Witnesses.

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B. F. Brundred

Inventor

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2 Sheets—Sheet 2.

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Polish-Rod Adjuster for Oil and other Wells.

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Fig. 6.

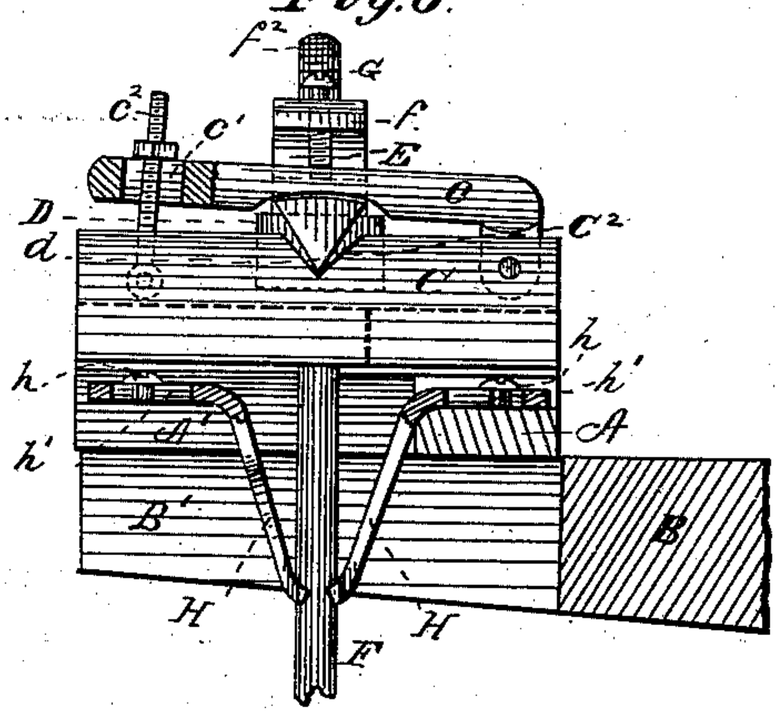

Fig. 7.

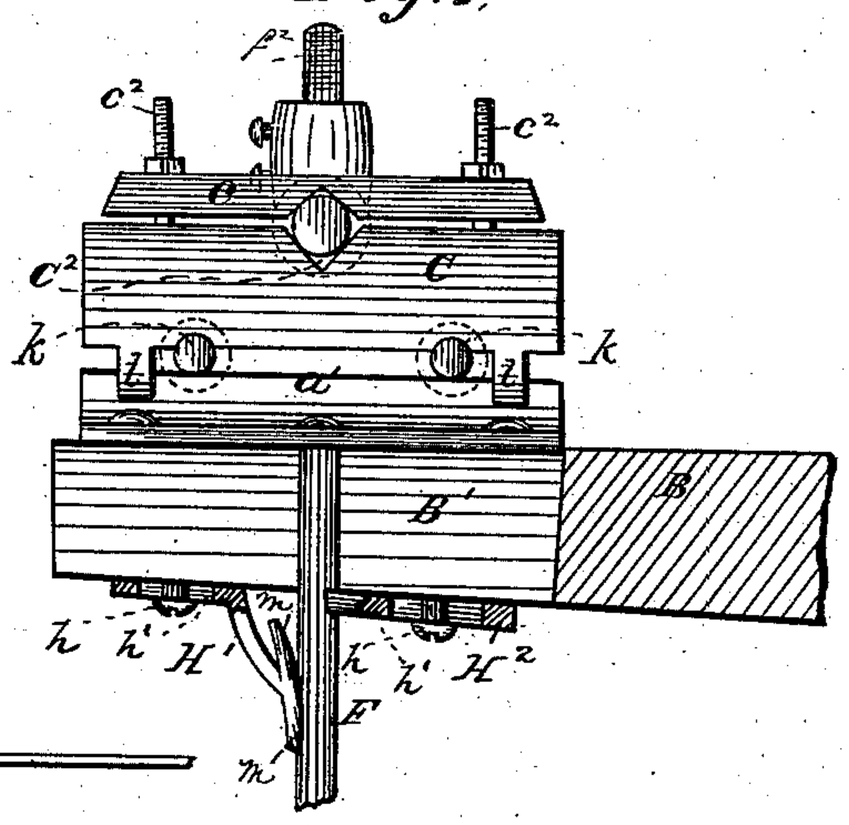

Fig. 8.

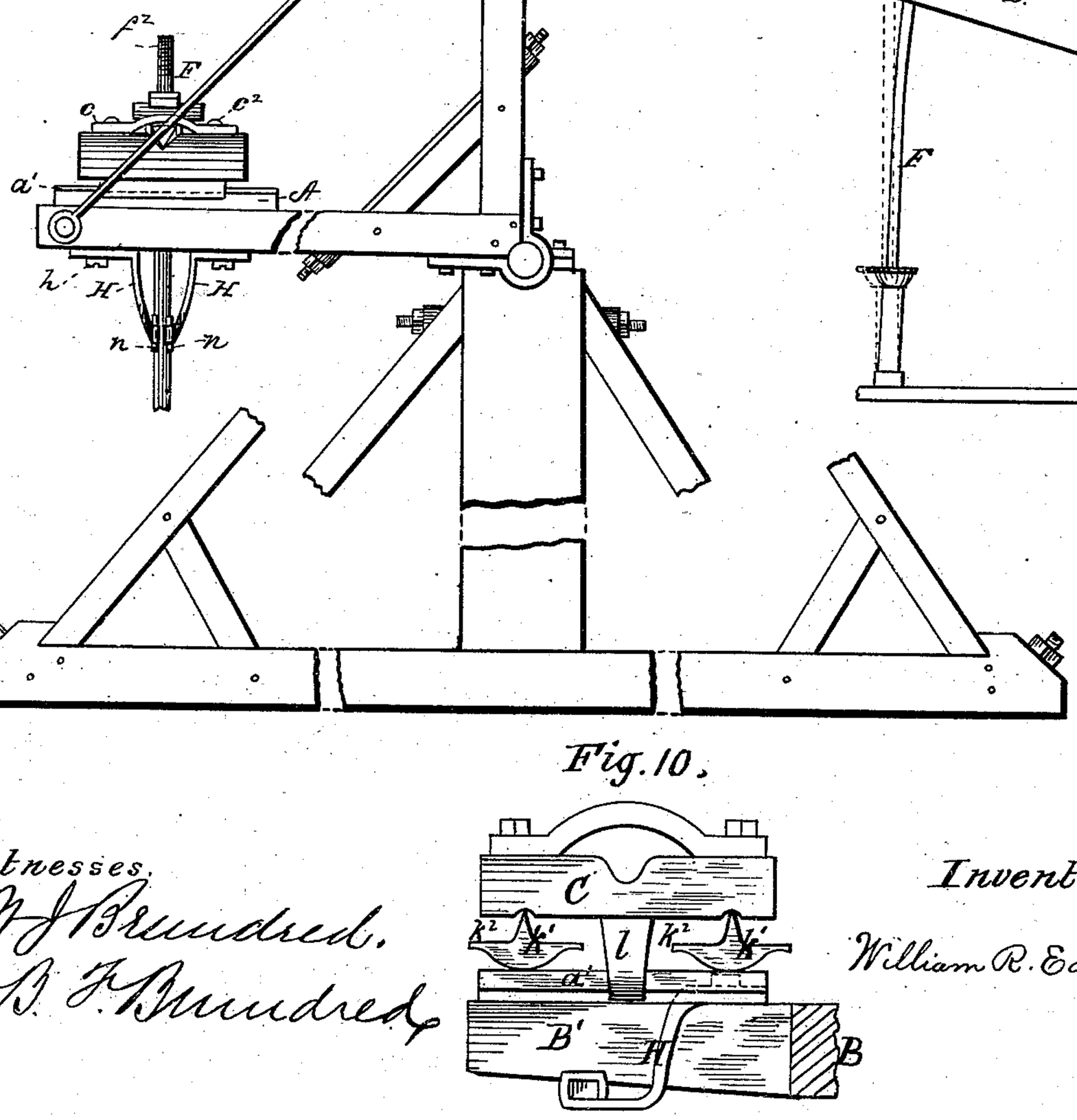

Fig. 9.

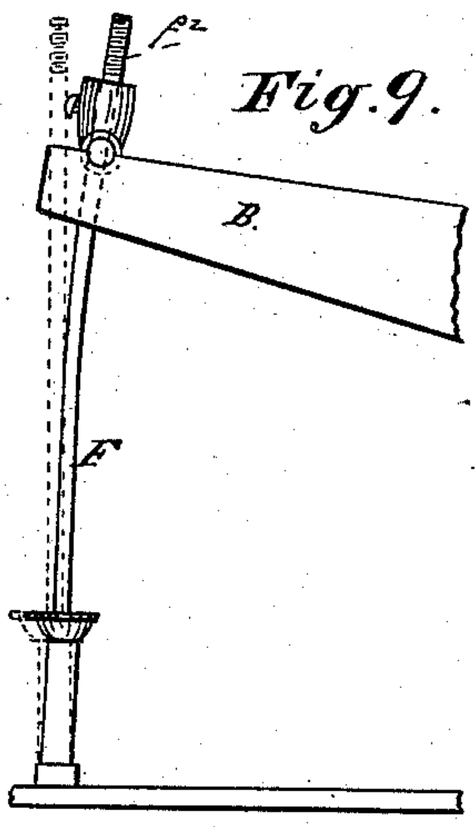

Fig. 10.

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William R. Edelen.

UNITED STATES PATENT OFFICE.

WILLIAM R. EDELEN, OF OIL CITY, PENNSYLVANIA, ASSIGNOR OF ONE-HALF OF HIS RIGHT TO BENJAMIN F. BRUNDRED, OF SAME PLACE.

POLISH-ROD ADJUSTER FOR OIL AND OTHER WELLS.

SPECIFICATION forming part of Letters Patent No. 227,887, dated May 25, 1880.

Application filed September 13, 1879.

To all whom it may concern:

Be it known that I, WILLIAM R. EDELEN, of Oil City, in the county of Venango and State of Pennsylvania, have invented certain new and useful Improvements in Polish-Rod Adjusters for Oil-Wells; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

My invention relates to polish-rod adjusters for oil or Artesian wells, and can also be applied to other machinery where a walking-beam or its equivalent is employed.

The adjusters for operating at oil-wells, as at present used, are secured directly to the walking-beam, constituting a fixture of the same, and having the polished rod secured to the adjuster by various devices, the most common of which is by set-screws passing through the adjuster and pressing against said rod, or by a plug provided with an elliptical hole for the reception of the polished rod and passing at right angles to said rod through the body of the adjuster, and secured on the outside by a nut which draws said elliptical opening against the polished rod.

The object of my invention is to provide an adjuster with its appurtenances, so that the polished rod can be guided in a vertical position during the reciprocating motion of a walking-beam; and, further, to provide means for securing the polished rod in its adjustment without injuring its polished surface, and also for the construction and arrangement of the adjuster proper and of the devices for carrying and securing it. These carrying and securing arrangements are so adapted as to be applicable to the ordinary forms of adjusters in common use, that they can be operated with my improved appliances and keep the polished rod in a vertical plane.

My invention consists of a carriage which travels on guides or ways, and is operated by means of one or more fingers or pushers pressing against a polished rod and actuated by the reciprocating motion of a walking-beam.

It further consists in having the adjuster proper provided with knife-edge bearings, which rest in recesses formed in the carriage and cause little friction. The adjuster is provided with a toggle-clutch for securing the polished rod, and also with set-screws or wedges to prevent the clutch from rising by the upward thrust of said rod.

It further consists of various devices employed for holding the adjuster in position on the carriage, and also for securing any of the adjusters in common use on said carriage by these same devices.

In the accompanying drawings, in which similar letters of reference indicate like parts, Figure 1 is a perspective view of my invention secured to a walking-beam. Fig. 2 is a front view or elevation of my invention, partly in cross-section. Fig. 3 is a perspective view of the carriage and guides with a finger or pusher secured thereto. Fig. 4 is a perspective view of my improved carriage with an ordinary adjuster placed thereon. Fig. 5 is a longitudinal section of the improved devices and part of the walking-beam, exhibiting the yoke for holding down the adjuster, and also showing the finger on the guide-bed and on the walking-beam. Fig. 6 is a side elevation, partly in section, showing a pair of fingers on opposite sides of the polished rod, and also another device for holding varied sizes of adjusters on the carriage. Fig. 7 is also a side elevation with the walking-beam in section, showing still another device for securing varied sizes of adjusters to the carriage. It also shows the carriage on rollers and fingers or pushers of different forms on opposite sides of the polished rod. Fig. 8 is a side elevation of my improved devices secured to a pump-bob, which is the equivalent of a walking-beam. Fig. 9 is a side elevation of a common adjuster secured to a walking-beam, and showing the spring of the polished rod out of a plumb line. Fig. 10 is a side elevation, partly in section, showing the carriage supported on rockers.

The adjuster consists of a bed-plate, A, which is slotted centrally part or all of its length at A′, and secured to a walking-beam, B. Said bed-plate is provided with rabbets *a*, which form ways or guides *a′* for a carriage, C, to

work or move upon. Said carriage is also slotted centrally part or all of its length at C′, and provided with journals C² and a cap or yoke, *c*, for holding in position and allowing the adjuster-bed D to oscillate by the reciprocating motion of the walking-beam on knife-edge bearings *d*, which form the opposite ends of said adjuster-bed.

The cap or yoke *c* is provided with a slotted opening, *c′*, so it can be regulated to suit any size adjuster, and is held in position by a bolt, *c²*.

The adjuster-bed D has a hole, *d′*, passing centrally through it for a polished rod to pass through, and is also provided with shoulders *d²* on its opposite ends, which are adapted to receive and hold in position the outer ends, *e*, of the toggle-clutch E. Said toggle-clutch, which can be held together by links *e′*, hold securely, by means of the grooved-faced inner bearings, a polished rod, F. Said toggle-clutch, being drawn downward by the gravity or weight of the sucker-rods, will properly and sufficiently hold the polished rod, and at the same time will not injure or deface the polished surface thereof. Occasionally an upward thrust of the rod ensues from the valve in the working-barrel sticking when new, or when entering salt-water, or when the sucker-rods rub against the tubing, or from various other causes.

To prevent the polished rod slipping upward through the adjuster by this upward thrust of the sucker-rods the friction or toggle clutches are provided with lips or projections *f*, which are preferably cast with and form part of said clutches. Through said lips pass set-screws G, which press against the top of the adjuster-bed, as shown at Figs. 1 and 6, and act as levers in holding securely in position said toggle-clutch; or said clutches may preferably be secured (on account of economy in manufacturing) by wooden wedges *e²* passing between the lips *f* and the top of the adjuster-bed, as shown at Figs. 2, 5, and 8, and work equally as well and be somewhat more convenient to operate than the set-screws.

To the bed-plate A or the walking-beam is a finger or pusher, H, secured by means of a set-screw, *h*, passing through a slot, *h′*, for securing it, and also for allowing adjustment of said finger or pusher. The finger passes downwardly through a slot, B′, in the end of the walking-beam. The lowermost end of said finger is provided with a slot, *h²*, which terminates at *h³* for the reception of a polished rod, F. The front side of the slot in said finger is preferably formed in the shape of loops *h⁴*, for the reception of a wedge, I, which is to prevent the polished rod leaving the slot, and also intended to close said slot closely around said polished rod as the alternate motion of the walking-beam operates this finger against said polished rod, and consequently moves the carriage which holds the adjuster-bed, and thus keeps the rod in a vertical position. The wedge I is also provided, so that the polished rod can be removed from the slot *h²* when it is necessary to draw the polish-rods.

The finger can be made with the slot at its lowermost end entering from the side and be secured, if desired, to the walking-beam, as shown at Figs. 1, 4, and 5, though the slot B′ in said walking-beam should be made as much larger as the diameter of the polished rod, so it can be removed laterally from the finger-slot and then forward through the walking-beam slot. These fingers H can be placed on the opposite sides of the polished rod F, the rear one being secured either to the guide-bed A or else to the walking-beam. The forward finger can be secured at one side of the slot B′ and still have its lowermost end come directly opposite the rear finger, as shown at Figs. 6, 7, and 8, or a girt can be placed across the slotted end of the walking-beam and the forward finger be secured in this manner. The devices for securing this forward finger when two fingers are used should be simple and afford means for ready removal when drawing the sucker-rods. These fingers can be made of any length to suit special work, or they can be made of any desirable shape. The fingers can be tipped with leather, wood, or other suitable material, as represented at *n*, Fig. 8, to protect the polished-rod surface from wear, and if said fingers are employed for the piston-rod of an engine the tipping would be preferrd in protecting its polished surface.

The modifications shown in the various figures are essentially the same in principle, though varying somewhat in the mechanical devices for accomplishing the same results.

The cap or yoke *c* (shown at Fig. 5) is secured by bolts *c²* on both sides, and also provided with slots *c′* for a slight adjustment. It is also provided with blocks *i*, to be used for varied-sized adjusters, and also to give more stability and security to said cap or yoke. In the above-mentioned figure the fingers H are secured both to the guide-bed A and the walking-beam B. In fact the finger can be so secured as to press against and operate the polished rod from above or below the walking-beam.

The modification shown at Fig. 6 has the cap or yoke *c* hinged at one end, and secured on its opposite end by a swivel-bolt, *c²*, and provided with a slot, *c′*, to adapt itself to any size adjuster. The fingers are secured to the opposite sides of the polished rod.

The modification shown at Fig. 7 represents a cap or yoke, *c*, preferably made of wood, and secured by bolts *c²*, of sufficient length to allow for varied sizes of adjusters. The carriage C moves on rollers *k*, resting on guides *a′*.

The modification shown in Fig. 10 represents a carriage, C, supported on rockers *k′*, extended to present stops *k²*. Said carriage is provided with straps *l*, which pass under the flange or rabbet *a* of the guides *a′*, for preventing the upward thrust of the polished rod raising the carriage.

The fingers are of varied form, and the rear finger, H², can be made preferably of wood, and

(provided the depth of the walking-beam is sufficiently deep) it will answer the same purpose and operate equally as well as a pendent finger. The finger H′ has its face *m* convex, so as to keep part of its surface continually against the polished rod—an advantage where a fine adjustment is required, such as the piston-rod of a steam-engine, or on other machinery where a walking-beam is used.

The operation of the device is as follows: The adjuster-bed D is placed on the polished rod when the rod is in and projecting above the stuffing-box, and the toggle-clutch is placed in position against the opposite sides of the rod, when the weight of the sucker-rods will draw said polished rod down and also cause the toggle-clutch to bite, thus holding it securely. The set-screws G are screwed down until they are tightly pressed against the top of the adjuster-bed, or, when wedges are used, they are forced between the lips *f* and the top of the adjuster-bed, and hold the rod securely in position.

The adjuster is secured on the carriage by pushing laterally the caps or yokes *c* over the extreme ends or sides of said adjuster-bed.

When removing the adjuster from the carriage a "substitute" is placed on the threaded end f^2 of the polished rod, and the caps or yokes *c* are turned sufficiently outward to allow the adjuster to be raised from the carriage by means of a rope secured to the substitute. The wedge I is removed or the set-screw *h* loosened, so the finger can be moved if necessary, and the polished rod and sucker-rods are then raised sufficiently to allow the polished rod with the adjuster-bed attached to be pushed out through slot B′.

If one of the adjusters in common use is to be placed on my carriage, it is first secured to the polished rod by its set-screws, or by any other means there is for securing it, and the trunnions are placed in the proper recesses on the carriage, and the caps or yokes *c* are secured over them, and this adjuster can then be operated and work the same as my improved adjuster in the carriage, and thereby overcome the present trouble caused by bending the tubing and polished rod out of a vertical line.

I do not confine myself to any particular place for securing the fingers, or their equivalents, for keeping the polished rod in a vertical line, as they may be secured to the floor, or the samson-post, or any other convenient places.

I am aware that in machines for boring Artesian wells a cylinder having its surface grooved longitudinally and diagonally has been suspended from one end of a walking-beam; that the rope used in raising the boring-tool has been secured to said cylinder, the latter being alternately guided and revolved by two pins set on the same diametrical line and entering the grooves in the cylinder; and that said pins have been attached to a stationary arm secured to the derrick or frame of the machine; but these pins operate as trunnions, upon which the grooved cylinder and rope can oscillate, and thus differ from my construction and its object, the latter object being to guard a polished rod against oscillation and binding in its bearings.

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

1. An adjuster provided with one or more fingers secured to the walking-beam or guide-bed thereon, in combination with a sliding or pivoted carriage, whereby the polished rod is kept in a vertical position, substantially as described.

2. An adjuster, D, provided with a toggle-clutch, E, set-screws G, or wedges e^2, and secured by means of yokes *c*, substantially as shown and described.

3. In combination with a walking-beam, an adjuster provided with knife-edge bearings *d*, substantially as shown and described.

4. A carriage, *c*, provided with rockers *k′* and straps *l*, in combination with guide-rails *a′*, secured to a walking-beam, substantially as shown and described.

5. A finger or pusher, H, slotted at h^2, and provided with a wedge, I, for retaining and operating a polished rod secured to an adjuster, substantially as shown and described.

6. An adjuster-carriage provided with one or more hinged or double-bolted caps or yokes, *c*, for securing knife-edge trunnions, and in combination with an adjuster, substantially as shown and described.

7. Fingers or pushers provided with slots *h′* and set-screws or bolts *h*, for adjustment, and also the tips *n*, secured at the ends of the fingers, for operating and protecting a polished rod, and in combination with said polished rod, as shown and described.

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

WILLIAM R. EDELEN.

Witnesses:
ALICE A. EDELEN,
MARY A. EDELEN.