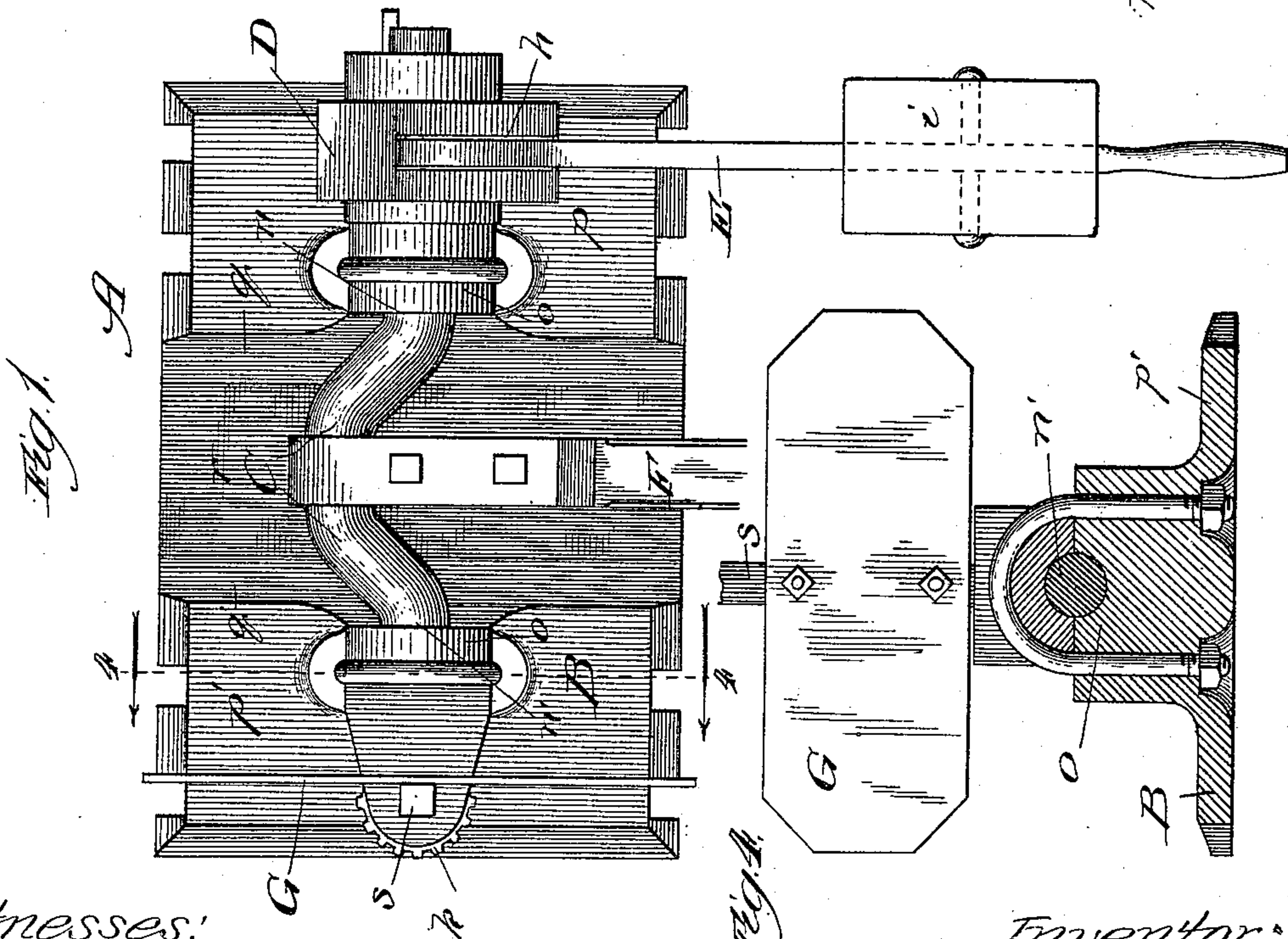
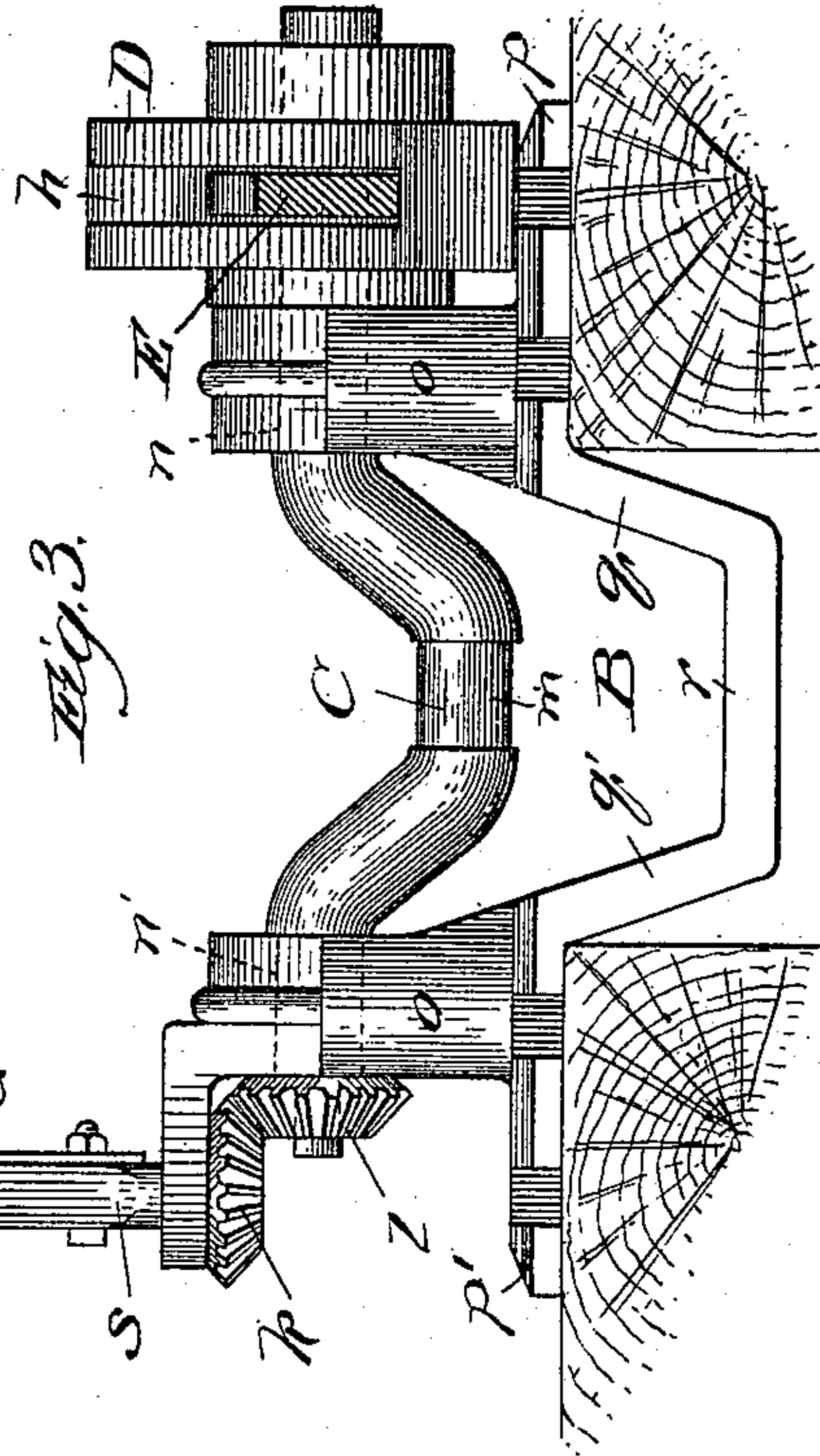
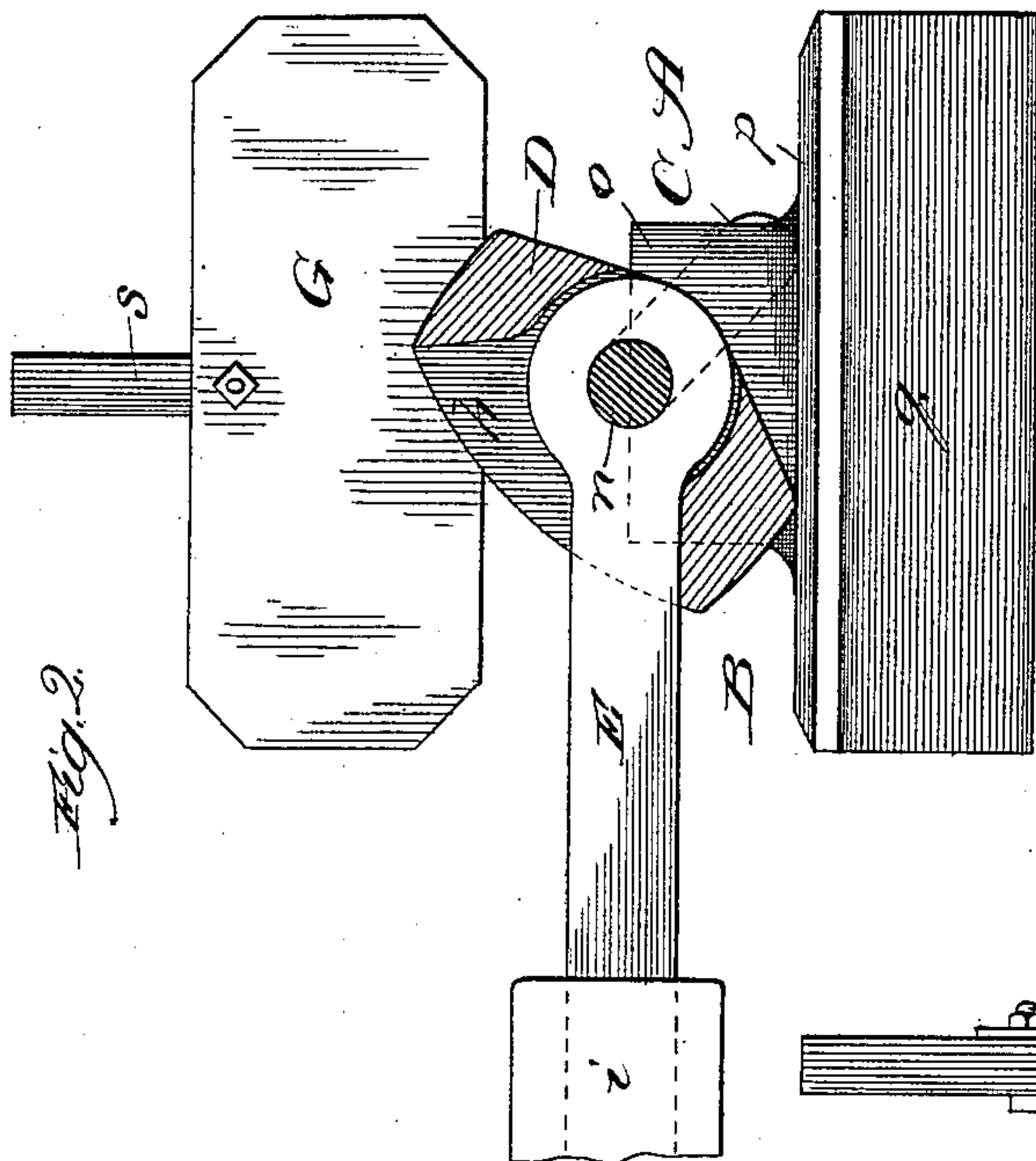


(No Model.)

A. A. STROM.
SWITCH STAND.

No. 441,601.

Patented Nov. 25, 1890.



Witnesses:
Ed. Claydon,
Clifford G. White.

Fig. 4.

Fig. 4.

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UNITED STATES PATENT OFFICE.

AXEL A. STROM, OF AUSTIN, ASSIGNOR TO THE STROM MANUFACTURING COMPANY, OF CHICAGO, ILLINOIS.

SWITCH-STAND.

SPECIFICATION forming part of Letters Patent No. 441,601, dated November 25, 1890.

Application filed June 10, 1890. Serial No. 354,958. (No model.)

To all whom it may concern:

Be it known that I, AXEL A. STROM, a citizen of the United States, residing at Austin, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Switch-Stands, of which the following is a specification.

My invention relates to an improvement in the class of switch-stands designed to be "automatic" in their operation—that is to say, to be actuated by the wheel-flange of the first wheel which engages a switch-rail to throw the latter and thereby actuate the switch-stand to lock the switch in the position to which it is so thrown and to turn the semaphore to indicate the condition of the switch.

More definitely stated, my improvement relates to the form of switch-stand in the class referred to in which a crank whence the connection is made with the switch through the medium of the connecting-bar is adapted to be connected with the vertical spindle of a semaphore to turn the latter when actuated, as by the throwing of the switch, and is controlled by a laterally-extending arm carrying a weight. In switch-stands involving the construction thus generally outlined the weighted arm, which, as aforesaid, projects transversely from the crank, should be normally as much out of the way and in as safe a position as is practically possible against accidental displacement, such as would produce throwing of the switch into a false position. It should therefore when at rest extend horizontally, or substantially so; but to attain that position with each throw of the switch it must obviously be moved through a half-circle, while the semaphore on its vertical rotary spindle to display one of its two signals, and the crank may only be rotated through a quarter-turn.

My improvement relates particularly to means for producing a quarter-turn of the crank while the weighted arm is being moved from one horizontal or substantially horizontal position to the other.

The object of my improvement is to provide simple but reliably operative mechanism for starting such quarter-turn of the crank and completing it by a half-turn of the weighted transverse arm, which shall be initially

moved by the positive force exerted by the wheel-flange upon the switch, and the throw of which (as also that of the switch) to its horizontal position of locking the switch, as also the quarter-turn of the semaphore, shall be completed by the inertia of the weighted arm under the impetus of such initial positive force.

In the accompanying drawings, Figure 1 is a plan view of my improved device; Fig. 2, a view of the same in sectional end elevation, with the weighted lever partly broken away; Fig. 3, a front view of the device in operative position, and Fig. 4 a section taken on the line 4 4 of Fig. 1 and viewed in the direction of the arrows.

A is the switch-stand.

B is a bed for supporting the operative parts and which preferably, though not necessarily, (since my improvement is not limited to any particular kind of form or base,) involves the form illustrated—namely, a flat rectangular base *r*, the sides *q* and *q'* extending upward from its lateral edges and provided with lateral horizontal flanges *p* and *p'*, extending outward from their upper edges. On the flanges *p* and *p'*, centrally between their extremities, are the journal-bearings *o*, of any suitable construction, to receive the journal ends *n* and *n'* of a crank *C*, bent between its extremities to form the crank portion *m* and the journal ends, which support it between the sides *q* and *q'* and extend beyond their bearings *o*. On the projecting end of the journal *n'* is a beveled gear *l*, meshing with a similar horizontally-disposed gear *k*, which may be of the same size as the gear *l* and which is provided on the vertical spindle *s* of a semaphore *G*. Other means for connecting or gearing the journal end *n'* of the crank with a semaphore-spindle may be employed without thereby departing from my invention. On the opposite end *n* of the crank *C*, and preferably on the part thereof projecting beyond its bearing *o*, is secured to move with the crank a cam-like projection, preferably in the form of a block *D*, which may be of the general segmental form illustrated and which is provided lengthwise through it in the direction perpendicular to the journal forming its axis with a slot *h*, the length of which

should slightly exceed one-quarter of a circle or one-half the extent of the throw of an arm E, loosely secured to the journal end *n*, in position to extend through the slot *h* in the block or head D, and having secured to its part projecting beyond the slot or toward its free end a weight *i*.

To the part *m* of the crank C is properly fastened the switch or connecting-bar F, Fig. 1, at one end thereof, to be connected at its opposite end with the switch in any suitable or well-known manner.

With the switch thrown in one direction the part *m* of the horizontally-supported arm C extends at an angle, say, of about forty-five degrees, toward the track, while with the switch thrown in the opposite direction it extends to the same angle from the track. In each position the head D is secured to its supporting-journal in such relative position as to be disposed vertically, the arm E then extending horizontally through the slot at its lower end; and with the aforesaid parts in the relative positions thus described the semaphore G displays to the main track, according to the position of the switch, its "danger" or "safety" signal. When therefore the flange of a wheel of a passing train strikes a switch-rail, the force, through the medium of the switch-bar F, turns the crank, and with it the head D, the latter imparting its impetus to the arm E to throw the latter against the opposite end of the slot *h*, thus beyond a vertical position, and the weight of the weighted arm finishes the turn of the crank through the extent of its throw. Obviously the gear *l* is thereby also caused to rotate one-fourth around, turning to the same extent the gear *k*, and, through the latter, the semaphore G one-quarter around.

The construction forming my improvement consists, in its broadest sense, in providing a horizontal crank and the weighted lever loosely supported on it with means whereby a half-turn of the weighted lever shall produce only a quarter-turn of the crank, and a quarter-turn of the crank shall turn the weighted lever into a horizontal or substantially horizontal position, wherein it will be out of the way of obstructing train-men in performing their duties and of being struck by passing trains or the like. Obviously other forms of cam-like projection than that of the slotted head D may be used to produce the described operation. Hence I do not wish to be understood as limiting my improvement to the exact construction thereof illustrated and described, nor to the exact situation of the said means described and shown.

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

1. In a switch-stand, the combination, with a suitable base, of a crank C, journaled thereon in horizontal position and having the switch-bar F connected directly with it, an arm E, weighted at one end and loosely connected at

its opposite end with the crank and movable to be thrown from the position of extending at an angle from one side of the crank to extend at an angle from the opposite side thereof, and a cam-like projection connected with the crank to produce, by turning either the crank or weighted arm, engagement between the two, substantially as and for the purpose set forth.

2. In a switch-stand, the combination of a crank C, journaled in horizontal position on a suitable base and connected with a semaphore to effect by its throw that of the semaphore, an arm E, weighted at one end and loosely connected at its opposite end with the crank and movable to be thrown from the position of extending at an angle from one side of the crank to extend at an angle from the opposite side thereof, and a slotted head D, secured to the crank, and through which the weighted arm projects, substantially as and for the purpose set forth.

3. A switch-stand comprising, in combination, a crank C, journaled toward its opposite ends in horizontal position in bearings *o*, a semaphore G on a vertical rotary spindle *s*, geared to one end of the crank, a weighted arm E, loosely secured to the crank and movable to be thrown from the position of extending at an angle from one side of the crank to extend at an angle from the opposite side thereof, and a slotted head D, secured to the crank, and through which the weighted arm projects, substantially as and for the purpose set forth.

4. A switch-stand comprising, in combination, a bed B, formed with a base *r* and diverging sides having flanges *p* and *p'*, supporting journal-bearings *o*, a crank C, journaled in the said bearings, a semaphore G on a vertical rotary spindle *s*, geared to one end of the crank, a slotted head D, secured to the crank toward its opposite end, and a weighted arm E, loosely secured to the crank and extending through the slotted head, the whole being constructed and arranged to operate substantially as described.

5. In a switch-stand, the combination, with the bed B, of a semaphore G on a vertical rotary spindle *s*, provided with a beveled gear-wheel *k*, a crank C, journaled on the bed and having at one end a beveled gear-wheel *l* of the same size as and meshing with the gear-wheel *k*, a weighted arm E, loosely secured to the crank and movable to be thrown from the position of extending at an angle from one side of the crank to extend at an angle from the opposite side thereof, and a slotted head D, secured to the crank toward its opposite end, and through which the weighted arm projects, substantially as and for the purpose set forth.

AXEL A. STROM.

In presence of—

J. W. DYRENFORTH,
M. J. FROST.