

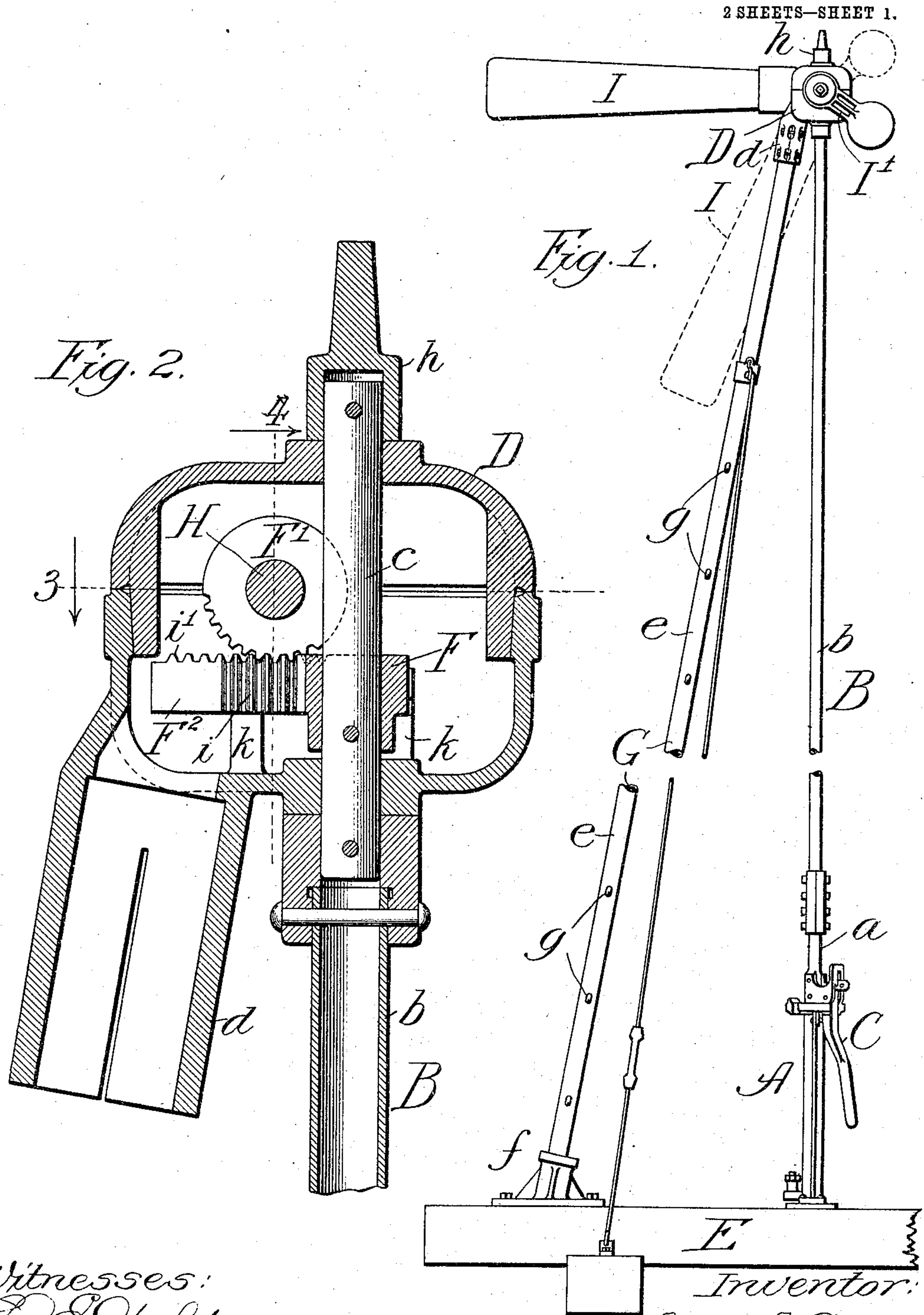
No. 782,529.

PATENTED FEB. 14, 1905.

A. A. STROM.
SEMAPHORE SWITCH STAND.

APPLICATION FILED DEC. 12, 1904.

2 SHEETS—SHEET 1.



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2 SHEETS—SHEET 2.

Fig. 3.

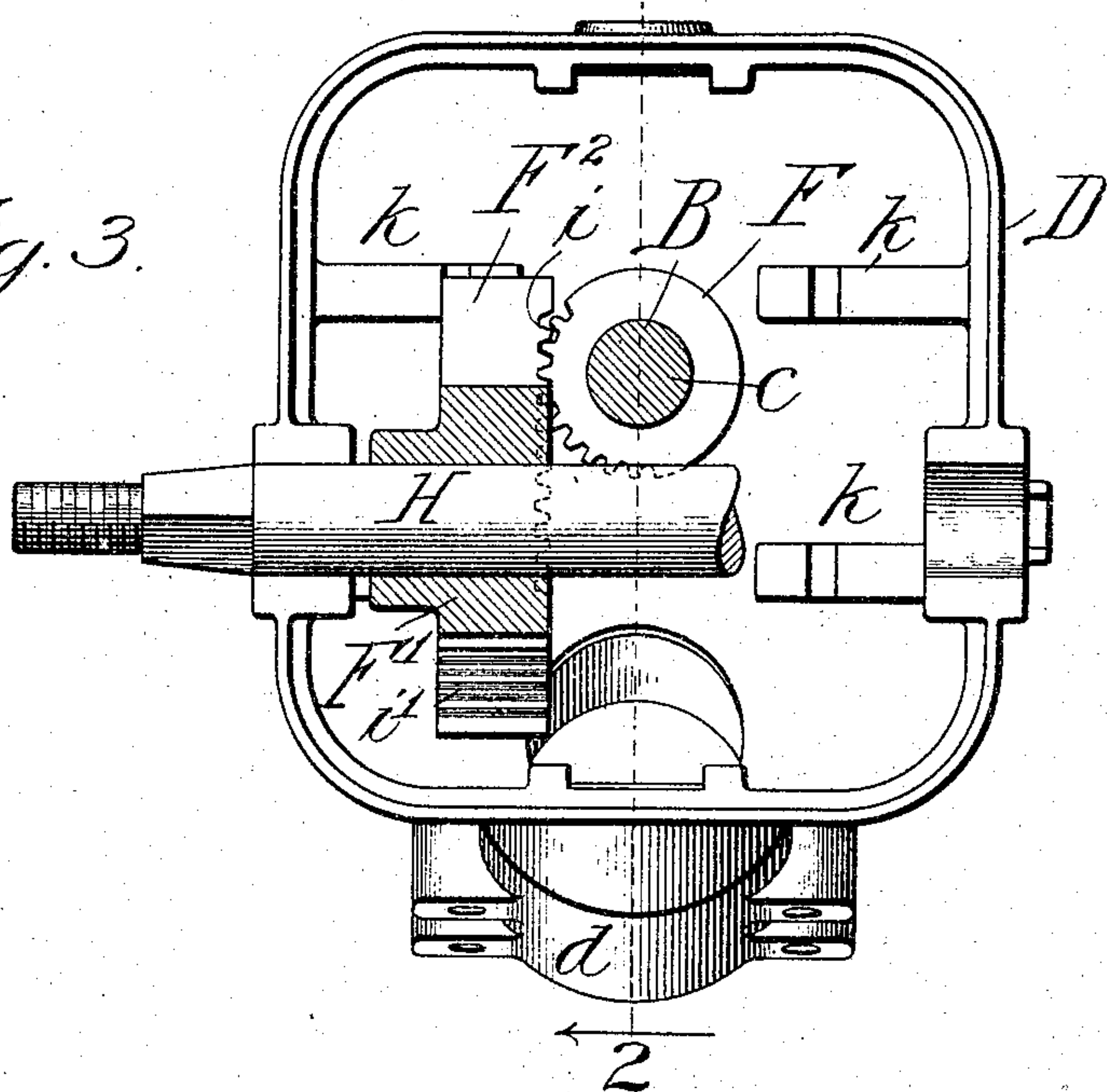
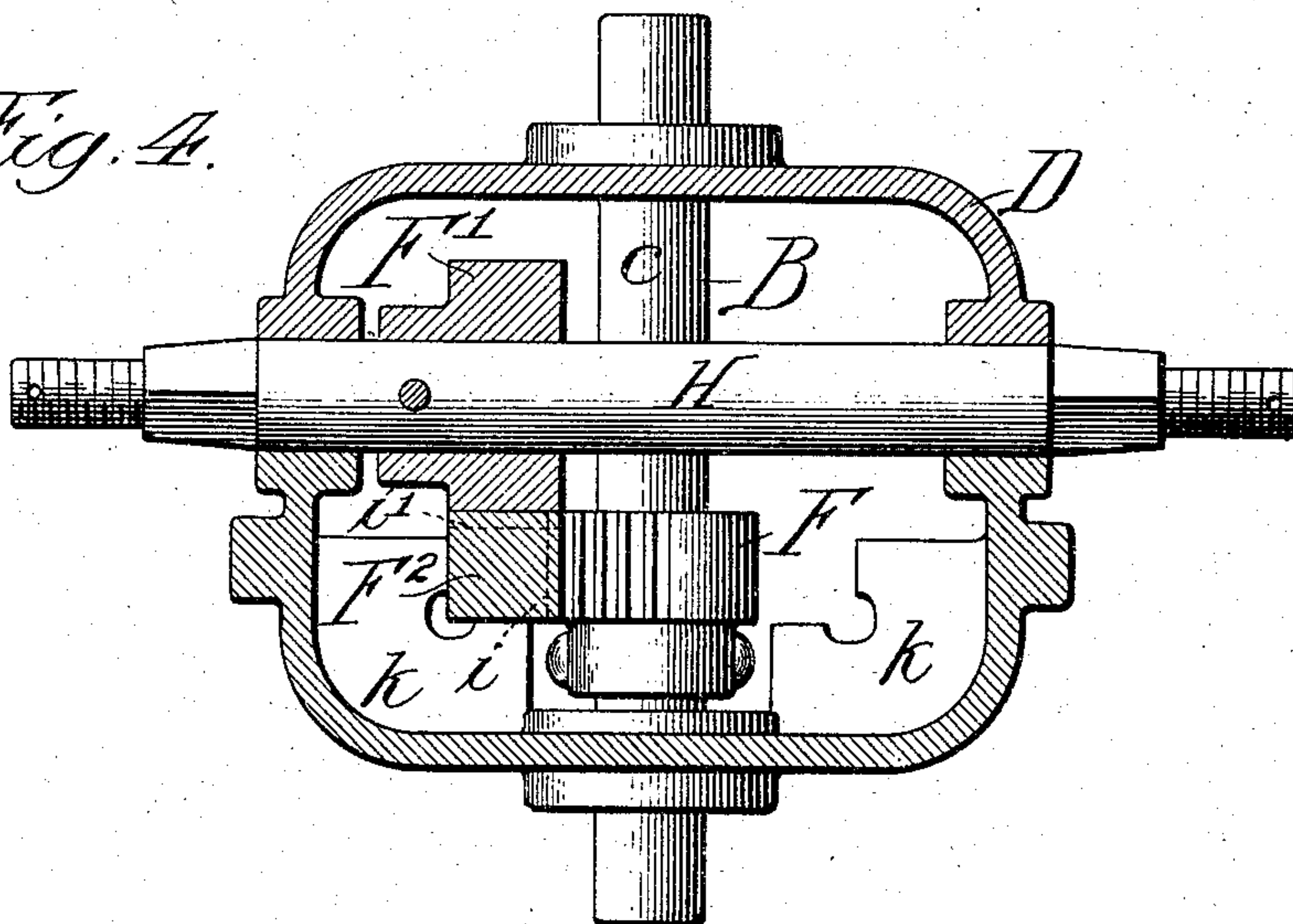


Fig. 4.



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UNITED STATES PATENT OFFICE.

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SEMAPHORE SWITCH-STAND.

SPECIFICATION forming part of Letters Patent No. 782,529, dated February 14, 1905.

Application filed December 12, 1904. Serial No. 236,522.

To all whom it may concern:

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

My invention relates to an improvement in the class of so-called "high semaphore switch-stands," in which a casing containing the gear mechanism for simultaneously actuating the semaphore-arm and lamp-signal provided on the casing is supported in stationary elevated position accessible through the medium of a ladder, and the gear mechanism is actuated from a switch-stand below the casing to raise and lower the semaphore-arm and turn the lamp-signal through a true quarter-turn in accordance with that of the switch-stand.

My improvement relates more particularly to the gear mechanism in the casing, my primary object being to adapt the essential rotary motion of the vertical switch-stand spindle in turning the signal-lamp to be transmitted to the rotary cross-shaft carrying the signal-arm by a longitudinally-reciprocating motion.

Referring to the accompanying drawings, Figure 1 is a broken view in elevation of a semaphore switch-stand embodying my invention; Fig. 2, a section taken at the line 2 on Fig. 3 and viewed in the direction of the arrow, showing the casing and the gear mechanism thereon in its preferred form, in elevation, connecting the lamp and signal-arm operating-shafts; Fig. 3, a section taken at the line 3 on Fig. 2 and viewed in the direction of the arrow, and Fig. 4 a section taken at the line 4 on Fig. 2 and viewed in the direction of the arrow.

A is a switch-stand of any suitable construction involving a vertical spindle B, provided with an operating-lever C. The spindle B, which may extend to any desired height, is represented as being formed in three sections joined together, of which the lowermost section *a* is the spindle proper of the switch-stand, the intermediate section *b* tubular for

the sake of lightness, and the uppermost section *c* the one which passes vertically through and is journaled in the elevated casing D. A vertically-slotted sleeve *d* is shown extending from one corner of the casing to receive and clamp the upper end of a rod *e*, shown tubular and seated at its lower end in a socket *f*, fastened like the switch-stand to head-blocks E, the rod extending inclinedly and being provided at intervals with rungs *g*, forming the ladder G. The rod *e* thus affords the main supporting medium for the casing, though the latter may be otherwise stationary supported without departure from my invention. The upper section *c* of the spindle enters and is fastened in the socket of a lamp-holder *h*, rotatably mounted on the casing D, and this spindle-section carries in the lower part of the casing a pinion F, shown mutilated.

H is a horizontal shaft journaled in opposite sides of the casing to one side of the spindle-section *c*, which it crosses, this shaft carrying on its opposite ends, respectively, the semaphore-arm I and the weighted arm I' and between its ends a pinion F', like the pinion F, the two pinions being disposed thus at right angles to each other.

F² is a rack supported on guides *k k* in the casing between the pinions F' and F², to be reciprocated longitudinally and provided on one lateral side with teeth *i*, to be engaged by those of the pinion F, and on its upper side with teeth *i'*, to be engaged by the pinion F'. Two pairs of the rack-guides *k* are shown, one at each inner side of the casing, to enable the rack to be used on either side of the spindle-section *c*.

The prescribed quarter-turn of the spindle B in throwing a switch at the switch-stand turns to a corresponding extent a signal-lamp on the holder *h*, and such turning of the spindle turns the pinion F to move the rack F² longitudinally, whereby its engagement with the pinion F' turns the latter to rotate the shaft H with the effect of raising or lowering the semaphore-arm I according to the direction of throwing the switch, the arrangement

being such as to accompany each turning of the signal-lamp with the raising or lowering of the signal-arm to the proper position.

An important advantage of my improvement consists in enabling the spindle B to be used for controlling the lamp independently of the gear mechanism, thus to have the lamp unaffected in turning it by any lost motion due to gears, since the spindle engaging the lamp-holder is continuous, so that the lamp must turn correspondingly with it, and the rack and pinion or analogous mechanism for transmitting the rotary motion of the spindle to that of the semaphore-arm shaft enables the ordinary straight form of spindle-section to be employed without causing the mutually-crossing shaft H and spindle B to interfere with each other.

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

1. In combination with a switch-stand, a casing supported above it, through which the rotary switch-stand spindle extends into engagement with the lamp-holder on the casing, a shaft for the signal-arm journaled in the casing to extend across the spindle therein, and gear mechanism connecting said shaft and spindle in the casing, including a longitudinally-reciprocating member for transmitting to the shaft the turning motion of the spindle, substantially as described.

2. In combination with a switch-stand, a casing supported above it, through which the rotary switch-stand spindle extends into engagement with the lamp-holder on the casing, a shaft for the signal-arm journaled in the casing to extend across the spindle therein, a pinion on said shaft, a pinion on said spindle, and a rack reciprocally supported in the casing to engage said pinions, substantially as described.

3. In combination with a switch-stand, a

casing supported above it, through which the rotary switch-stand spindle extends into engagement with the lamp-holder on the casing, a shaft for the signal-arm journaled in the casing to extend across the spindle therein, a pinion on said shaft, a pinion on said spindle, and a rack having teeth on two sides at right angles to each other and reciprocally supported in the casing to engage one set of said teeth with said shaft-pinion and the other set thereof with said spindle-pinion, substantially as described.

4. In combination with a switch-stand, a casing supported above it, through which the rotary switch-stand spindle extends into engagement with the lamp-holder on the casing, a shaft for the signal-arm journaled in the casing to extend across the spindle therein, a pinion on said shaft, a pinion on said spindle, rack-guides in the casing on opposite sides of the spindle, and a rack reciprocally supported on said guides at one side of the spindle and having teeth on two sides at right angles to each other to engage, respectively, with said shaft-pinion and said spindle-pinion, substantially as described.

5. In combination with a switch-stand, a casing supported above it, through which the rotary switch-stand spindle extends into engagement with the lamp-holder on the casing, a shaft for the signal-arm journaled in the casing to extend across the spindle therein, a mutilated pinion on said shaft, a similar pinion on said spindle, rack-guiding means in the casing, and a rack reciprocally confined on said guiding means and engaging said pinions, substantially as described.

AXEL A. STROM.

In presence of—

M. I. MACKENZIE,
JOSEPH H. LANDES.