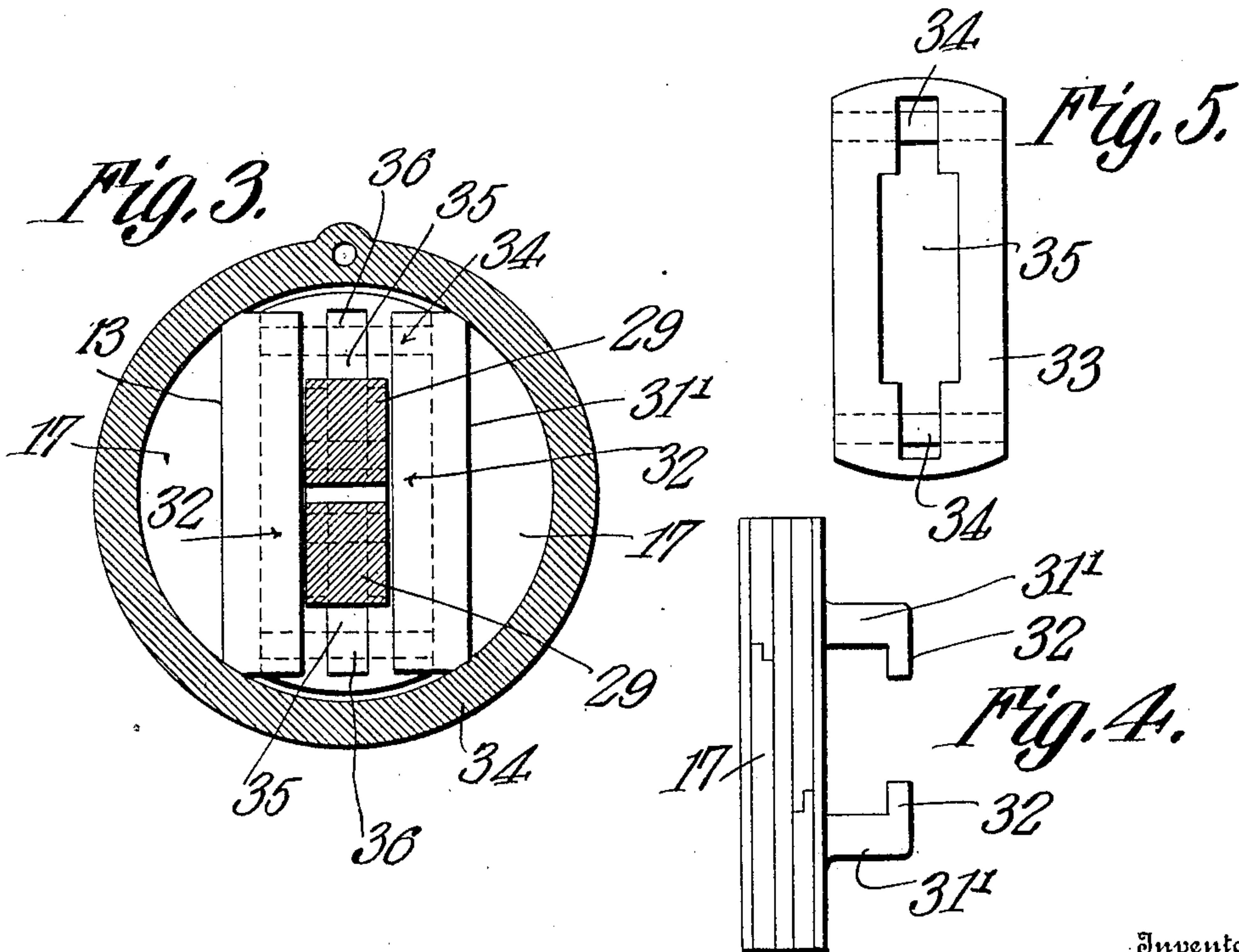
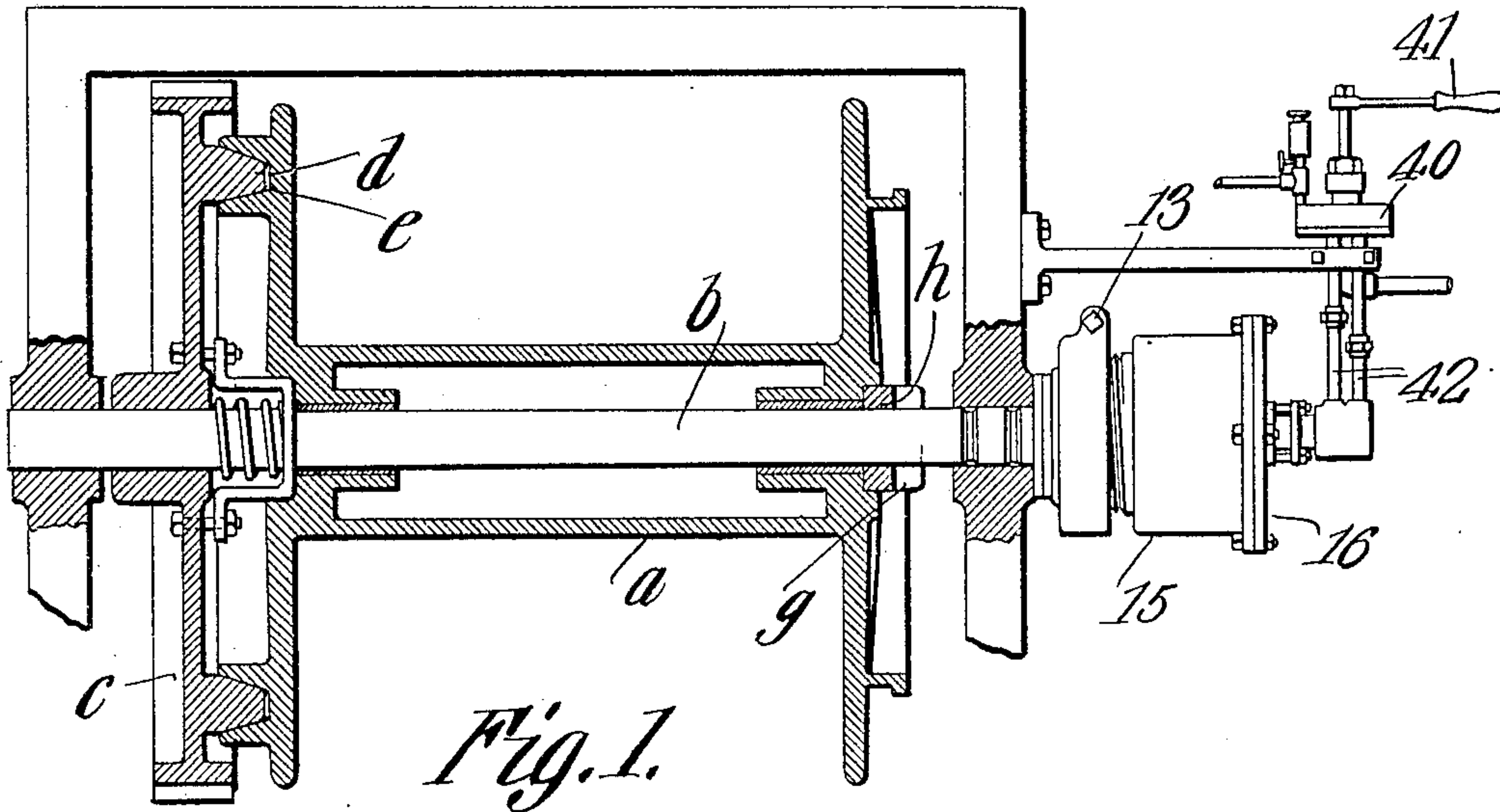


H. L. TURNEY.
CLUTCH OPERATING MECHANISM.
APPLICATION FILED JUNE 10, 1908.

906,585.

Patented Dec. 15, 1908.
2 SHEETS—SHEET 1.



Inventor

Harry L. Turney.

By

Chas. Snowden.

Attorney

Witnesses

E. J. Stewart
W. J. Miller

H. L. TURNEY.
CLUTCH OPERATING MECHANISM.
APPLICATION FILED JUNE 10, 1908.

Patented Dec. 15, 1908.
2 SHEETS—SHEET 2.

906,585.

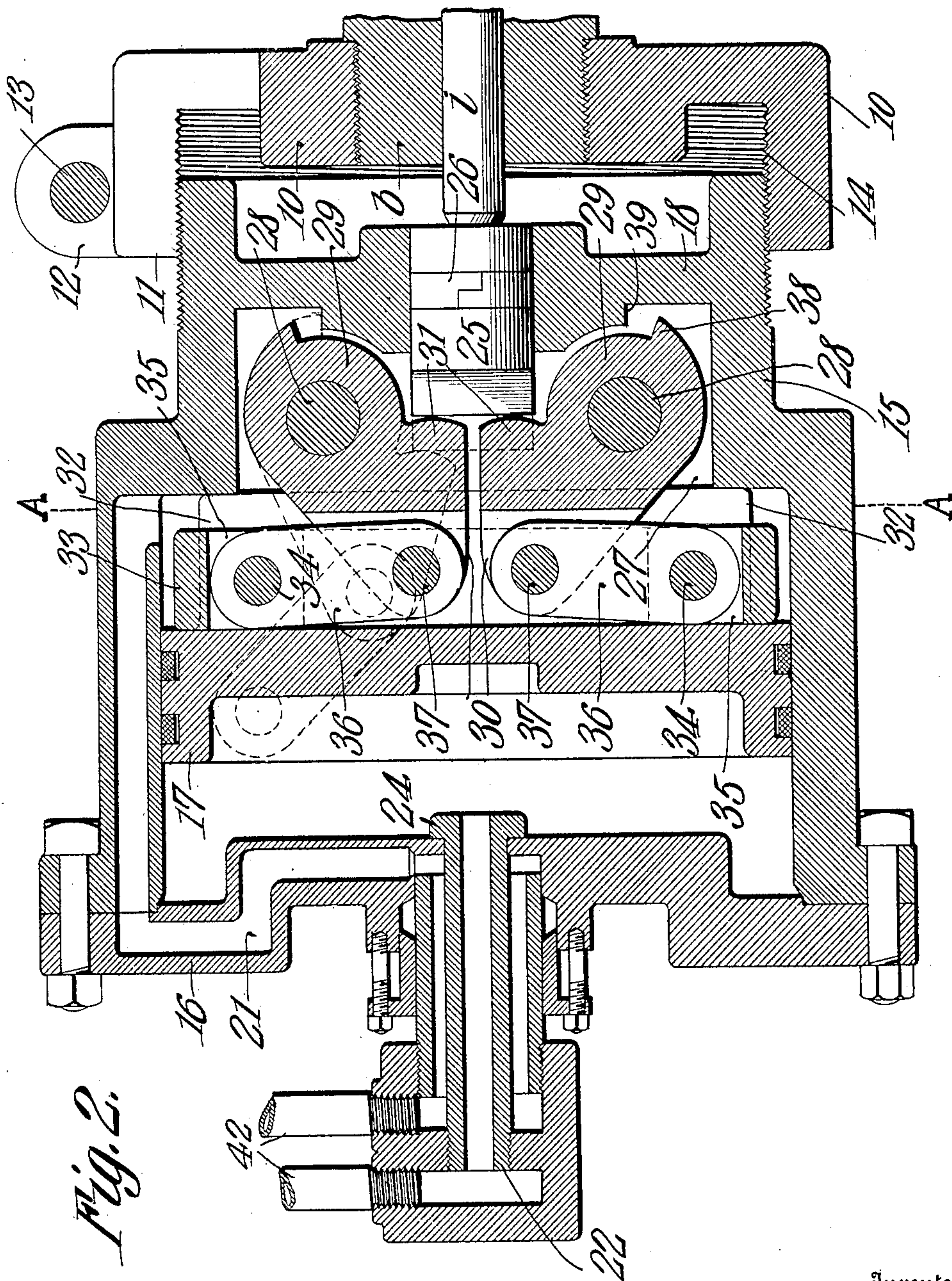


Fig. 2.

Inventor
Harry L. Turney.

Witnesses

Edw. H. Hunt
W. H. Miller

By

C. A. Snow & Co.
Attorneys

UNITED STATES PATENT OFFICE.

HARRY LEON TURNEY, OF PORTLAND, OREGON.

CLUTCH-OPERATING MECHANISM.

No. 906,585.

Specification of Letters Patent.

Patented Dec. 15, 1908.

Application filed June 10, 1908. Serial No. 437,773.

To all whom it may concern:

Be it known that I, HARRY LEON TURNEY, a citizen of the United States, residing at Portland, in the county of Multnomah and State of Oregon, have invented a new and useful Clutch-Operating Mechanism, of which the following is a specification.

This invention relates to clutch operating mechanisms, and more particularly to devices employed for applying and releasing a clutch for logging and hoisting engines.

One of the principal objects of the invention is to provide a form of clutch operating mechanism in which steam or other actuating fluid is employed to move the clutch to locking and release positions, and which shall be an improvement upon the clutch operating mechanism for which a patent was granted to me 876,609 and bearing the date Jan. 14, 1908.

A further object of the invention is to provide in this improved mechanism, a novel arrangement of certain of the parts whereby extensive wear will be obviated.

A still further object of the invention is to provide an improved means whereby the piston may at all times float freely in the cylinder and yet positively actuate the clutching members.

With these and other objects in view, as will more fully hereinafter appear, the invention consists in certain novelties in construction and arrangement of parts hereinafter fully described and illustrated in the accompanying drawings and specifically pointed out in the claims.

In the accompanying drawings like characters of reference indicate like parts in the several views:—

Figure 1 is an assembled side elevation partly in section showing the device as applied to the hoisting drum of an engine of the character described. Fig. 2 is a longitudinal end view of the improved form of the clutch operating mechanism, the same being enlarged, more distinctly to bring out the parts. Fig. 3 is a detail section to reduced scale, taken on the line A—A of Fig. 2. Fig. 4 is a plan view of the piston removed from the cylinder. Fig. 5 is a detail elevation of the equalizing bar.

In the aforesaid Letters-Patent there was shown a winding drum *a* loosely mounted on a shaft *b*, to which is keyed or otherwise secured a driving gear *c*. The gear carries an annular friction ring *d* which is arranged to

engage the tapered walls of an annular groove *e* formed in one end of the drum, and suitable means is provided for normally forcing these clutch members *d* and *e* apart. One end of the shaft is provided with a diametrically disposed slot through which extends a cross key *g* arranged to operate against a collar *h* bearing against one end of the winding drum. This cross key is engaged by a thrust pin *i* slidably mounted in a recess formed in the end of the shaft.

The present invention relates to means for actuating the thrust pin *i*. One end of the shaft is recessed and carries a nut 10 provided with a partially split portion as indicated at 11 whereon is formed lugs 12 having openings for the passage of a clamping bolt 13. The nut is provided with a hollow cylindrical portion having a screw thread 14 formed therein and adapted to receive the threaded end of a cylinder 15. By means of the bolt 13 the cylinder can be held firmly in any desired position after being screwed into the nut 10. The cylinder 15 is provided with a head 16, and in said cylinder is arranged a piston 17 having suitable packing rings. At the inner end of the cylinder 15 is a diaphragm or inner head 18.

Extending through a stuffing box in the outer head of the cylinder is a fluid supply pipe 20 which communicates with a port 21 that leads through the outer head and the wall of the cylinder to the inner end of said cylinder, this port serving for the admission of steam or other fluid to force the piston outwards or to clutch releasing position. Within the steam supply pipe 20 is arranged a second steam supply pipe 22 that communicates with the outer portion of the cylinder and is held in place by a suitable flange 24 fitting against the inner wall of the cylinder head. The inner head 18 of the cylinder is bored to form a small cylinder for the reception of a plunger or thrust block 25 having suitable packing rings 26 and this thrust block engages against the end of the thrust pin *i*. Extending across the inner portion of the cylinder, and preferably formed integral therewith are two spaced bridge pieces having openings for the reception of transversely disposed pins 28 on which are mounted two cams 29. These cams have arms 30 whereon are formed lugs 31 arranged to bear against the end of the thrust block 25 as clearly seen in Fig. 2.

In order to provide a means for permitting

a free lateral movement of the piston during the operation of the device, there is formed on the inner face of said piston, a pair of guides 31' having inwardly bent lips or flanges 32. Slidably mounted within the guides 31' is an equalizing bar 33, having suitable openings for the reception of pins 34. The equalizing bar 33 is recessed interiorly as indicated at 35, and links 36 are mounted on the pins 34 to lie in the recess 35. The arms 30 of the cams 29 are forked at the ends and receive the links 36, the same being held to the arms by means of suitable pivot pins 37.

In order to prevent the piston 17 striking the head 16 when it be in release position, the cams 29 are provided with shouldered portions as indicated at 38 and the inner head 18 is provided with similar shouldered portions 39 arranged to contact with the shouldered portion 38 when the piston is at the nearest point desired to the head 16.

In order to actuate the device a valve 40 is provided arranged to be operated by a suitable handle 41. The valve 40 is connected to the pipes 22 and 20 by suitable pressure pipes 42 and is so arranged that the steam may be admitted through either of the pressure pipes 42 while being exhausted from the other pipe. This valve and the parts connected thereto may be precisely the same as that described in the Letters-Patent above referred to and no detailed description of the same is deemed necessary in the present case as it forms no part of the invention herein set forth.

It will be noticed that when the piston is forced inward, or to the right of Fig. 2, the equalizing bar 33 will permit the pivot 34 to assume such position that the pressure on each of the lugs 31 will be equal and the thrust rod 25 will thrust the parts in with an equal pressure on both sides thereof, thus obviating binding or undue lateral pressure. It is further to be noticed that by reason of the peculiar construction of the guides and equalizing bar 33, the piston 17 is allowed a free lateral movement within the cylinder so that there is no binding at any point and undue wear of such parts of the cylinder or piston is thus obviated.

It is obvious that minor changes may be made in the form and proportions of the de-

vice without departing from the material principles thereof. It is not therefore desired to confine the invention to the exact form herein shown and described but it is wished to include all such as properly come within the scope thereof.

Having thus described the invention, what is claimed, is:—

1. In a device of the kind described, a cylinder, a thrust block mounted therein, a piston, a cam lever for actuating said thrust block, and a connection between the cam lever and piston arranged to permit free lateral movement of said piston.
2. In a device of the kind described, a cylinder, a thrust block mounted therein, a piston, a cam lever pivoted in said cylinder to actuate the thrust block, a link connected to said cam lever and means to connect the link and piston and permit free lateral movement of the latter.
3. In a device of the kind described, a cylinder, a thrust block mounted therein, a piston, a cam lever pivoted in said cylinder to actuate the thrust block, a link connected to said cam lever, and a bar held on said piston free to slide laterally thereon and connected to said link.
4. In a device of the kind described, a cylinder, a thrust block mounted therein, a piston, a cam lever pivoted in said cylinder to actuate the thrust block, a link connected to said cam lever, guides formed on said piston, and a bar held on said piston by said guides and freely movable in the guides and pivotally connected to said links.
5. In a device of the kind described, a cylinder, a thrust block mounted therein, a piston held to reciprocate in said cylinder, cam levers pivoted in said cylinder to actuate the thrust block, links connected to said cam levers, guides formed on said piston, and a bar held on said piston by said guides and freely movable therein and pivotally connected to said links.

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

HARRY LEON TURNEY.

Witnesses:

CHAS. E. MACK,
J. L. JENNINGS.