

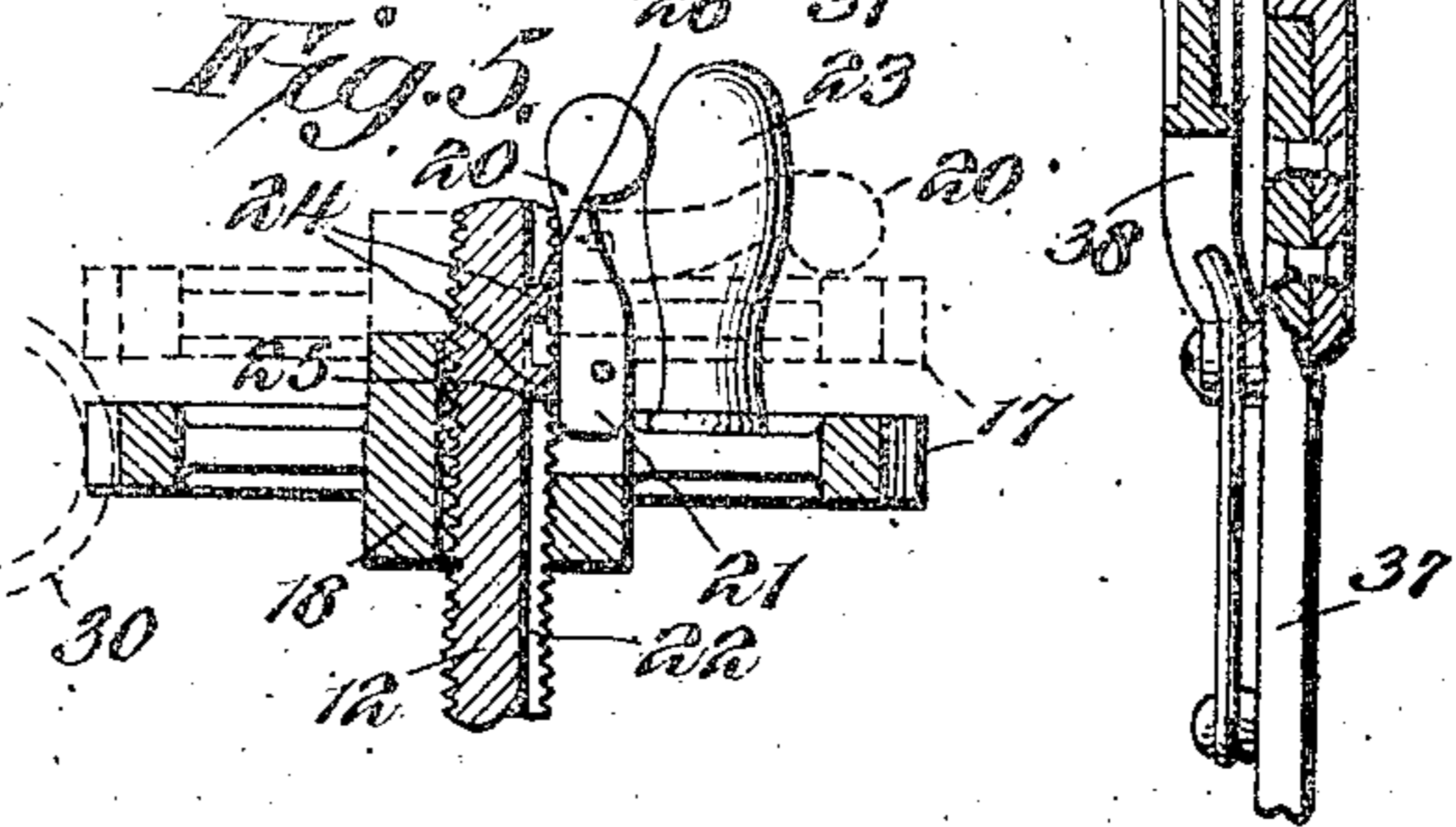
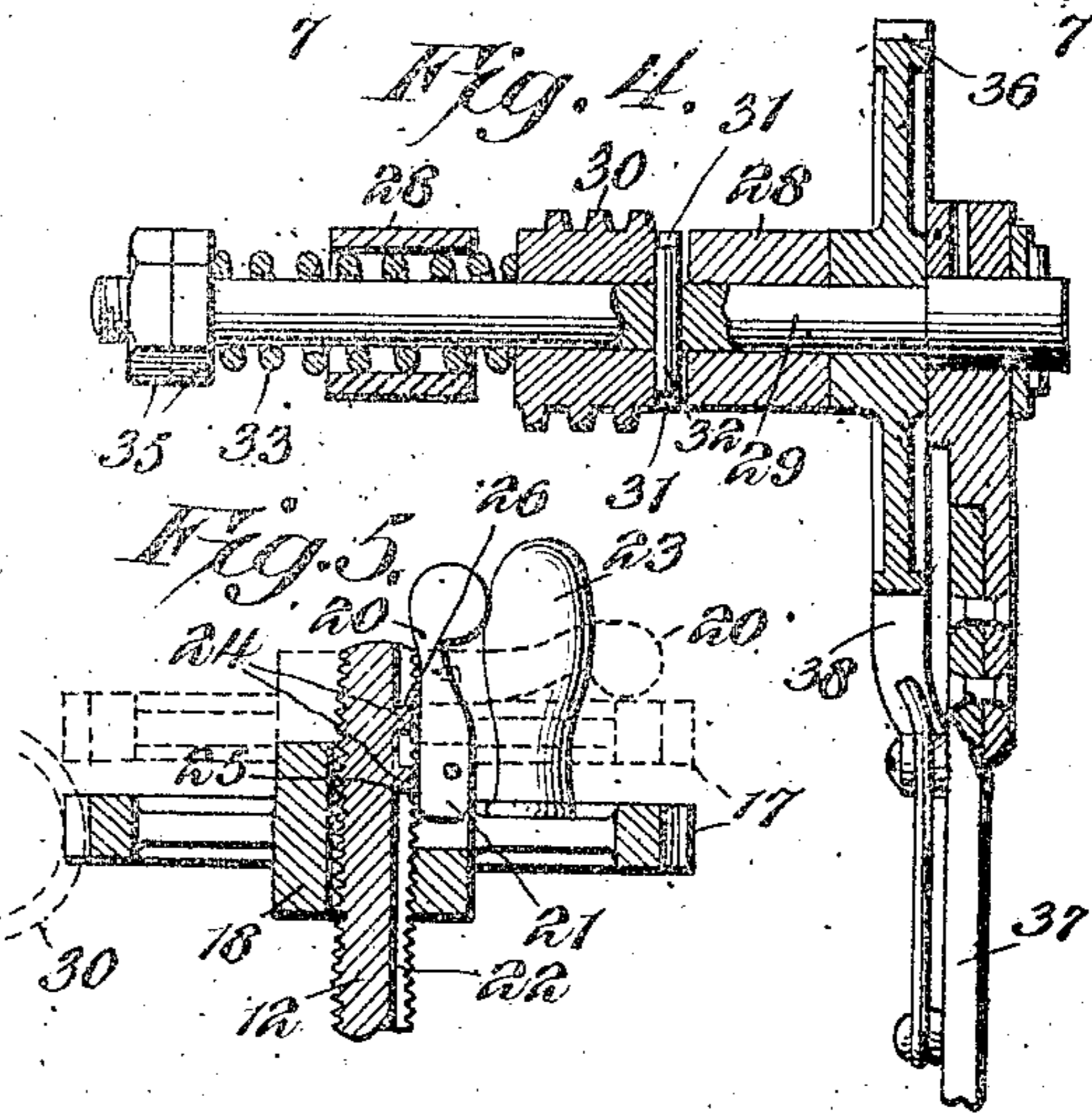
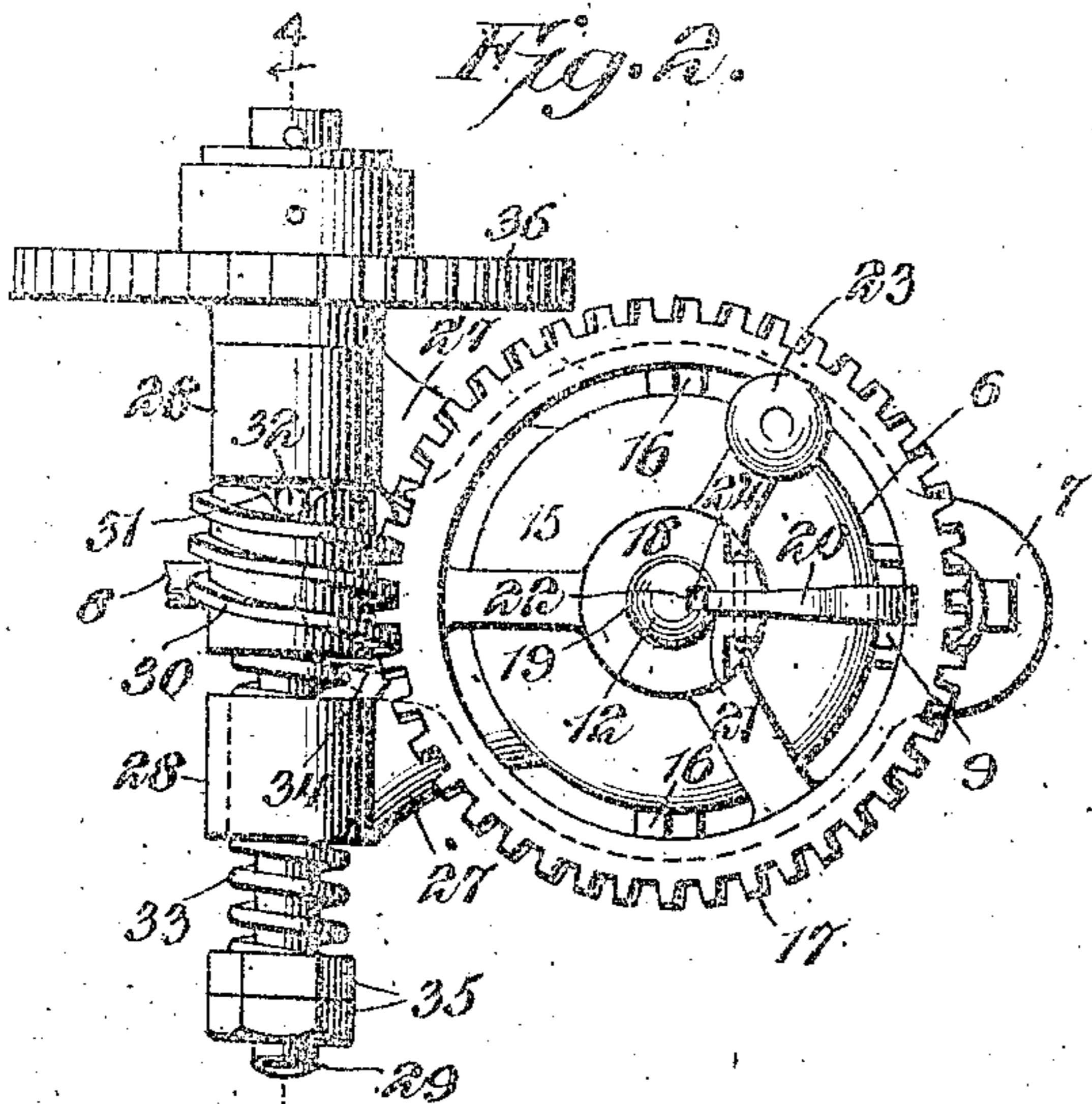
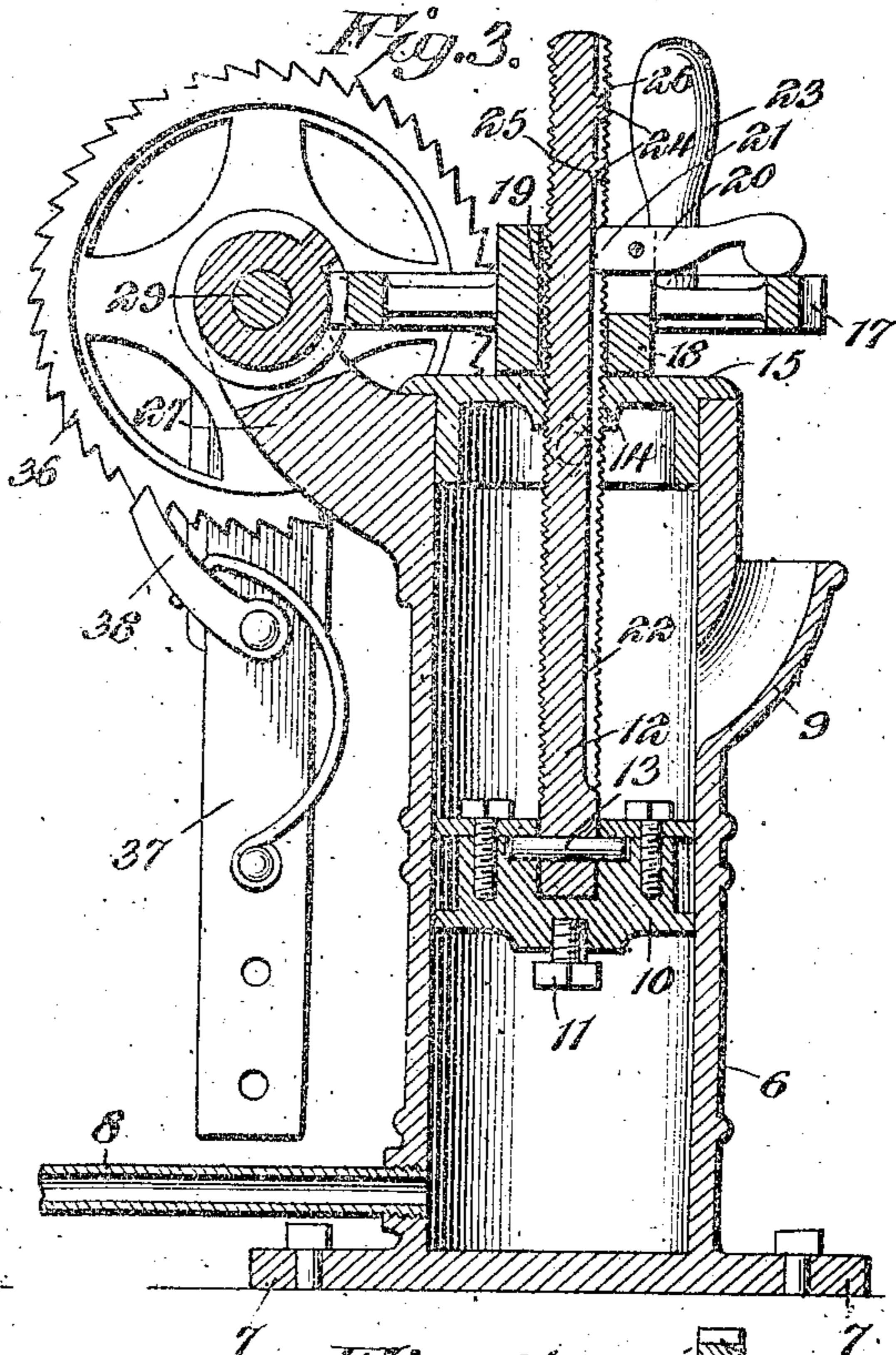
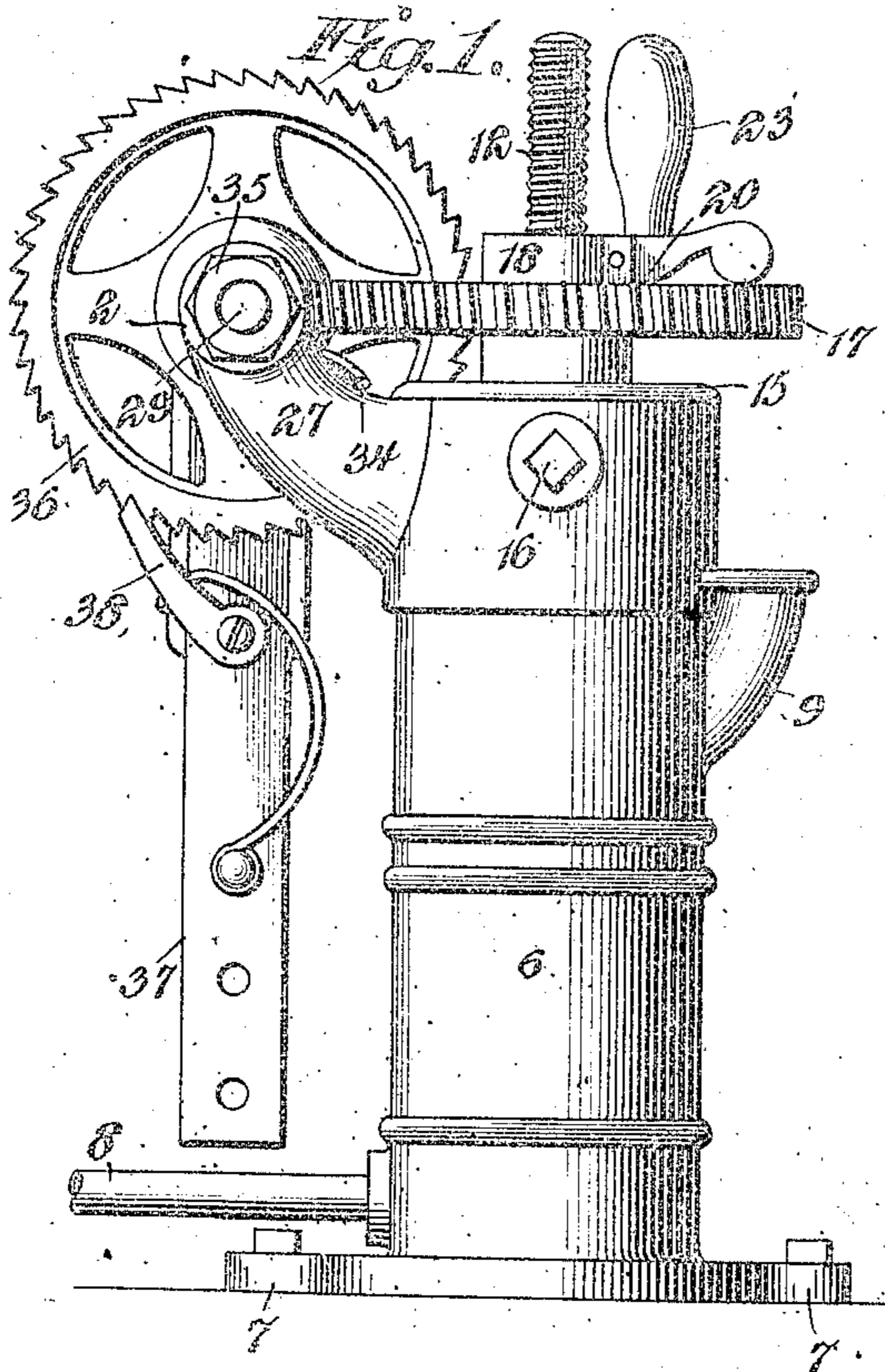
No. 812,428.

PATENTED FEB. 13, 1906.

O. O. KITTLESON.

LUBRICATOR.

APPLICATION FILED MAY 15, 1905.



Witnesses

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OLE O. KITTLESON, OF LEE, ILLINOIS

LUBRICATOR.

No. 812,428.

Specification of Letters Patent.

Patented Feb. 13, 1906.

Application filed May 15, 1905. Serial No. 260,433.

To all whom it may concern:

Be it known that I, OLE O. KITTLESON, a citizen of the United States, residing at Lee, in the county of Dekalb and State of Illinois, have invented a new and useful Lubricator, of which the following is a specification.

This invention relates to improvements in force-feed lubricators of that type disclosed in Patent No. 648,386, dated May 1, 1900, and now owned by me.

One of the objects of the invention is to provide improved means that is exceedingly simple and effective for detaching the plunger from the driving mechanism when abnormal resistance to the movement of said plunger is occasioned through any cause, thus permitting the continued movement of said driving mechanism without the operation of the plunger and avoiding the liability of breakage.

A further and important object is to provide novel means of a simple nature that will effect the stoppage of the plunger and the detachment thereof from the driving mechanism when the same has reached the limit of its movement, said means permitting the ready return of the plunger for the purpose of supplying the lubricator with a fresh charge of lubricant and feeding the same therefrom.

The preferred embodiment of the invention is illustrated in the accompanying drawings, wherein—

Figure 1 is a side elevation of the lubricator. Fig. 2 is a top plan view of the same. Fig. 3 is a vertical sectional view. Fig. 4 is a detail sectional view on the line 4-4 of Fig. 2. Fig. 5 is a detail vertical sectional view showing the relation of the parts when the driving mechanism is disconnected from the plunger.

Similar reference-numerals designate corresponding parts in all the figures of the drawings.

In the embodiment illustrated a receptacle-body is employed that is in the form of a tubular body 6, having ears 7 at its lower end by means of which the lubricator can be secured upon a support. Extending from the lower portion of the body is a supply-pipe 8, and located on one side of the upper portion of said body is a receiving funnel or spout 9, communicating with the upper portion of the interior of the receptacle. The said receptacle constitutes a holder for the lubricant. Slidably mounted in the receptacle is a plunger 10, that is movable from a position above

the inlet 9 to a position in the lower portion of the receptacle, its downward movement being limited by a suitable stop-bolt 11, screwed into the under side of said plunger. A stem 12 is swiveled, as shown at 13, in the upper portion of the plunger and extends through the receptacle above the top of the same. This stem has a threaded engagement, as shown at 14, with a cap 15, that fits in the open top of the receptacle and is secured against movement by suitable set-screws 16.

Mounted upon the cap 15 is a worm-wheel 17, constituting a driving device, said worm-wheel having a hub 18, provided with a central bore 19, that loosely receives the stem 12, said stem being thus slidable through the wheel and said wheel being rotatable upon the stem. Under normal conditions, however, the wheel is held against rotation about the stem by means of a dog 20, pivoted upon the hub of the wheel, the inner end 21 of said dog engaging in longitudinal slot or keyway 22, formed in one side of the stem, the outer end of the dog being weighted. A handle 23 is carried by the wheel. Located in the upper portion of the keyway is a pair of lugs 24, the lower end of the lower lug constituting a shoulder 25, adapted to abut against the inner end 21 of the dog, as hereinafter described, the upper end 26 of the upper lug constituting a supporting-shoulder, as is also hereinafter set forth.

Located upon one side of the upper portion of the receptacle or holder are spaced brackets 27, terminating in journal-bearings 28, through which passes a driving-shaft 29. Loosely journaled upon the shaft between the bearings is a worm 30, that meshes with the worm-wheel 17. One end of the worm is provided with sockets 31, in which is engaged the projecting ends of a pin 32, carried by the shaft, said pin and sockets thus constituting a clutch connection between the shaft and worm. The said clutch connection is yieldingly maintained by means of a spring 33, coiled upon the shaft and bearing at its inner end against the end of the worm opposite that having the sockets and passing through the adjacent bearing 28. The inner end of this spring is offset, as shown at 34, and rests upon the adjacent bracket 27, whereby said spring is held against rotation. The outer end of said spring is borne against by one of a pair of jam-nuts 35, threaded upon the end of the shaft outside the adjacent bearing, said

nuts thus constituting means for varying the tension of the spring. Secured to the opposite end of the shaft and outside the opposite bearing is a ratchet-wheel 36, and loosely journaled on said end of the shaft directly adjacent to the ratchet-wheel is an arm 37, having a spring-pressed dog 38 engaging the teeth of said wheel.

In use the arm 37 is connected to a suitable moving part of the engine that will effect the oscillation of said arm, and the supply-pipe 8 leads to the part to be lubricated. Assuming, therefore, that the plunger is in its highest position, it will be apparent that lubricant may be poured into the receptacle through the spout 9. The oscillation of the arm 37 will cause the intermittent rotation of the ratchet-wheel, thus revolving the shaft, the worm 30, and consequently the worm-wheel 17. If the dog 20 is engaged in the keyway, it will be evident that the stem will also be rotated, and thus threaded downward through the stationary cap 15, which constitutes a supporting device. The plunger will therefore be moved downwardly and the lubricant beneath the same expelled through the delivery-pipe 8. If, however, there should be any abnormal resistance to the movement of the plunger—for instance, by the failure of the lubricant to pass through the pipe—the worm-wheel will be brought to a standstill and the worm operating upon the stationary teeth will act as a wedge. Consequently said worm will be moved longitudinally of the shaft 29 against the tension of the spring 33. Said worm will thus be unclutched from the shaft and said shaft will rotate without imparting any movement to the gearing and the plunger. The breakage of parts is thus avoided. When in working condition, however, the spring not only maintains the worm clutched to the shaft, but being stationary acts as a brake to prohibit the retrograde movement of the worm, shaft, and ratchet-wheel with the return of the arm and dog, so that said dog will always ride over the teeth of the ratchet-wheel when operating in one direction. As the plunger approaches its lowermost position the shoulder 25 of the lower lug 24 will strike the inner end 21 of the dog, and consequently said dog will be swung until it is entirely disengaged from the keyway, as illustrated in Fig. 5. Thereupon the worm-wheel will be unlocked from the stem, and said wheel will consequently rotate freely about the stem without moving the same and without affecting the plunger. It will therefore be seen that the plunger is automatically stopped in a predetermined position. To return the plunger to its original position above the feed-spout, it is only necessary to elevate the worm-wheel until the inner end 21 of the dog 20 will reengage the keyway above the shoulder 26, thereupon, said inner end of the dog will rest upon said shoulder, supporting

the wheel out of engagement with the worm. By turning said wheel through the medium of the handle, the plunger can be readily elevated, and after having been returned to a proper position about the feed-spout the wheel is disengaged and dropped, so that it is again in mesh with the worm and the dog is engaged in the keyway. The receptacle is then filled and the lubricator ready for action.

From the foregoing it is thought that the construction, operation, and many advantages of the herein-described invention will be apparent to those skilled in the art without further description.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination with a holder, of a piston operating therein, a support, a stem connected to the piston and having a threaded engagement with the support, operating means including a device rotatable about the stem, a dog for holding said device and stem against relative movement and permitting the sliding movement of the stem through the device, and means for automatically operating the dog to disengage the stem and driving device to permit the rotation of the latter with respect to the former when said stem has reached a predetermined position.

2. The combination with a holder, of a piston operating therein, a stationary support, a stem connected to the piston and having a threaded engagement with the support, an operating-wheel rotatable about the stem, a dog carried by the wheel for holding said wheel against relative rotation and permitting the sliding movement of the stem through the wheel, and means carried by the stem and engaging the dog when said stem has reached a predetermined position to unlock the wheel from the stem and permit the free rotation of said wheel.

3. The combination with a holder, of a piston slidable therein, a cap secured upon the upper end of the holder, a stem connected to the piston and having a threaded engagement with the cap, an operating-wheel mounted on the cap and rotatable upon the stem, said stem also being slidable through the wheel and being provided with a longitudinally-disposed keyway, a dog pivoted upon the wheel and normally engaged in the keyway to prohibit the relative rotation of the wheel and stem to permit the sliding movement of said stem, said stem having a shoulder located at the upper portion of the keyway and arranged to engage the inner end of the dog and move it out of said keyway when the stem moves downwardly to a predetermined position.

4. The combination with a holder, of a piston operating therein, a stationary support, a stem connected to the piston and having a threaded engagement with the support, said

stem having a keyway, a wheel having a bore that slidably receives the stem, said wheel being rotatable about the stem, a worm engaging the wheel for operating the same, a dog movably mounted on the wheel and normally engaging in the keyway to prevent the rotation of said wheel about the stem, means located in the keyway for moving the dog out of the same when the stem reaches its predetermined position, said stem having a supporting-shoulder located in the keyway above said means, said dog being arranged to rest upon the shoulder in the keyway and support the wheel out of engagement with the worm, and a handle carried by the wheel.

5. The combination with a holder, of a piston operating therein, means for moving the piston including a worm-wheel, spaced journal-bearings located at one side of the wheel, a shaft passing through the bearings, means connected to the shaft for rotating the same, a worm loosely journaled on the shaft between the bearings and meshing with the worm-wheel, a clutch connection between one end of the worm and the shaft, a coiled spring bearing against the other end of the worm for yieldingly maintaining the clutch connection, said spring being mounted on the shaft and passing through the adjacent bearing, and means adjustably mounted on the shaft outside the bearing and engaging the spring to vary the tension thereof.

6. The combination with a holder, of a piston operating therein, means for moving the piston including a worm-wheel, spaced journal-bearings located at one side of the wheel, a shaft passing through the bearings, a ratchet-wheel secured to the shaft on the outer side of one of the bearings, a worm loosely journaled on the shaft between the bearings and meshing with the worm-wheel, a clutch connection between the shafts and the end of the worm that is adjacent to the ratchet-wheel, and means for yieldingly maintaining said clutch connection, said means

bearing against the other end of the worm and passing through the adjacent bearing.

7. The combination with a holder, of a rotatable actuating device having an axial bore, a plunger operating in the holder and having a stem longitudinally slidable in the bore, a key movably associated with the stem and actuating device to prevent their relative rotation and permit the said sliding movement of the stem, means normally engaging the actuating device for operating the same, said device being slidable upon the stem out of operative engagement with the operating means and thus constituting means for manually operating the stem, and means carried by the stem and engaged by the key for holding the actuating device out of engagement with the operating means to permit the said manual operation of the stem.

8. The combination with a holder, of a stationary element associated therewith, a rotatable actuating-wheel having an axial bore, a plunger slidably mounted in the holder, a rotatable stem having a threaded engagement with the stationary element and having a longitudinally-sliding movement through the bore of the wheel, a key movably mounted on the wheel and having a slidable engagement with the stem to hold said stem and wheel against relative rotation, operating means engaging the wheel for rotating the same, said wheel having a handle and being movable on the stem to a position out of engagement with the operating means, and said stem having means engaged by the key to maintain said wheel out of such engagement to permit the manual rotation thereof.

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

OLE O. KITTLESON.

Witnesses:

F. A. BACH,
S. M. SANDERSON.