

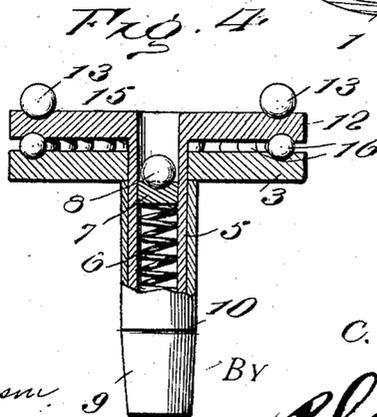
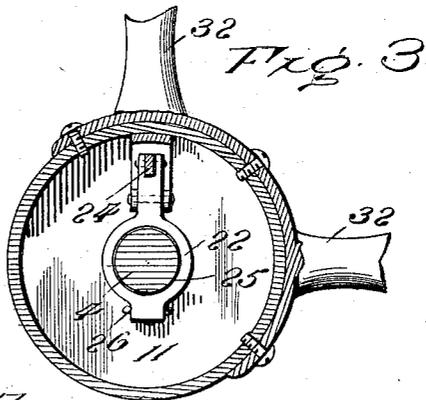
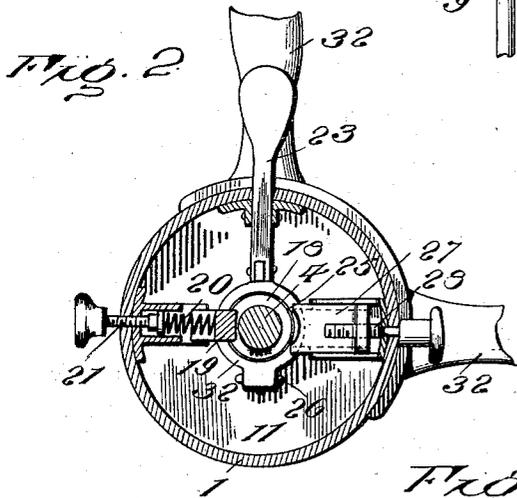
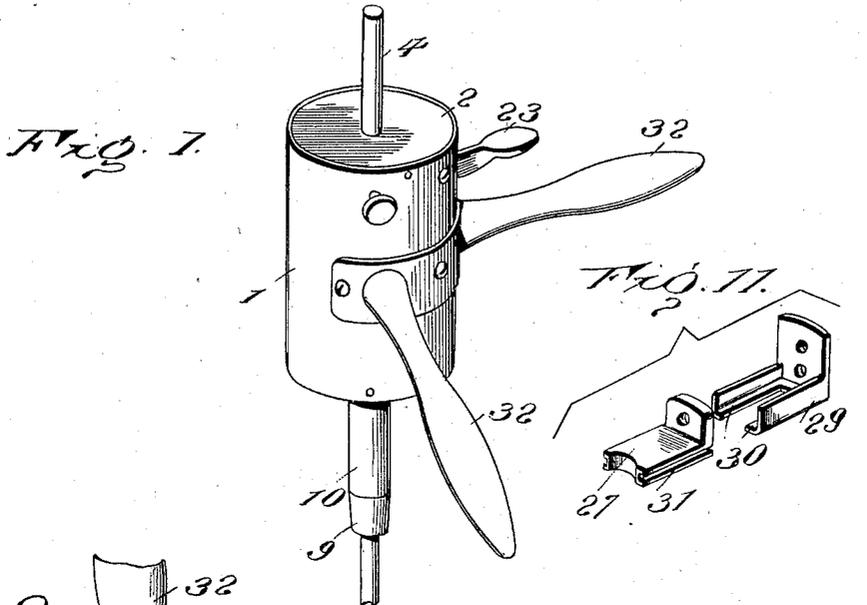
No. 748,018.

PATENTED DEC. 29, 1903.

C. J. ROWE.
WORK AND TOOL HOLDER.
APPLICATION FILED NOV. 17, 1902.

NO MODEL.

2 SHEETS—SHEET 1.



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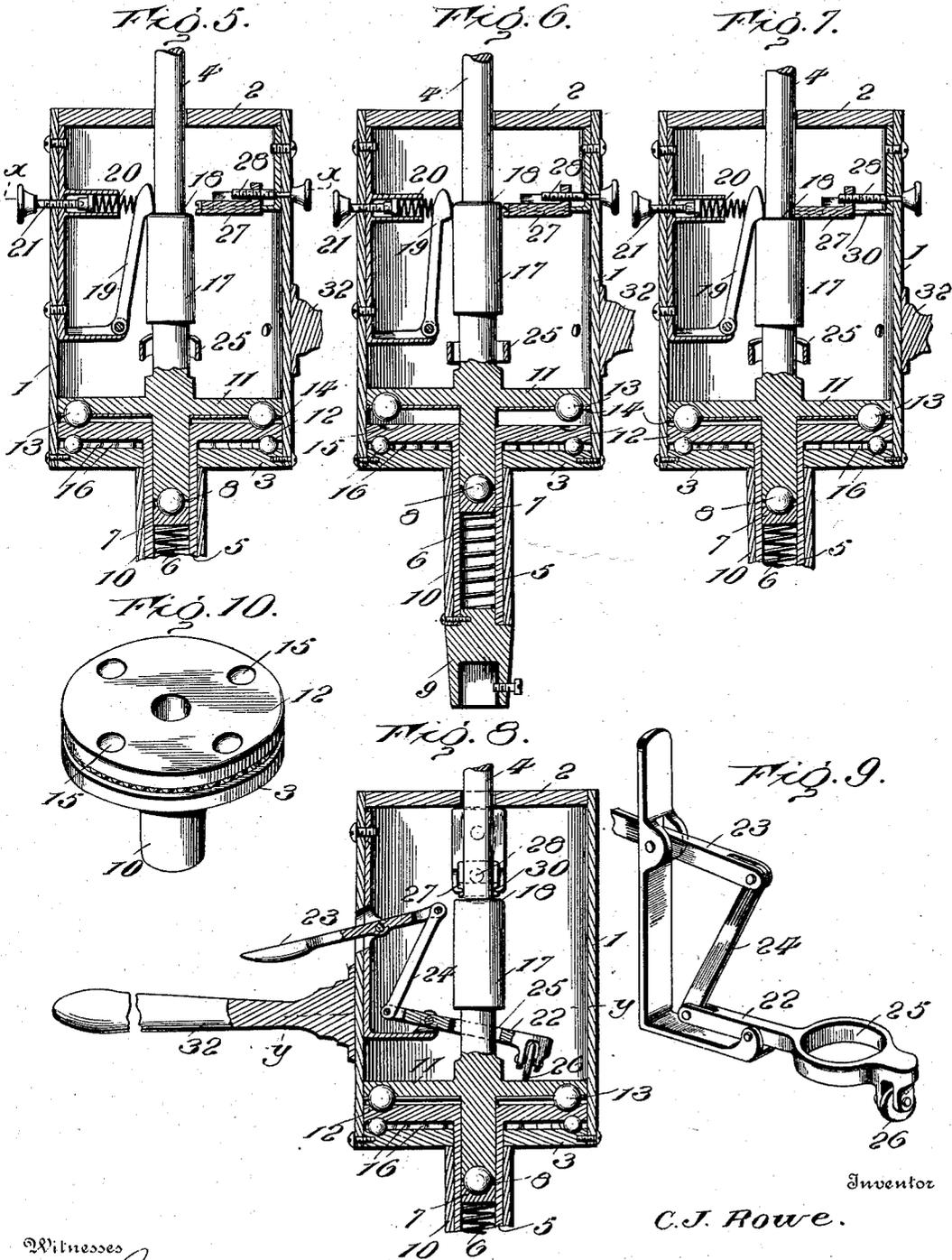
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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

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WORK AND TOOL HOLDER.

SPECIFICATION forming part of Letters Patent No. 748,018, dated December 29, 1903.

Application filed November 17, 1902. Serial No. 131,770. (No model.)

To all whom it may concern:

Be it known that I, CONIE J. ROWE, a citizen of the United States, residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Work and Tool Holders, of which the following is a specification.

In factories using many bolts, nuts, and screws it is desirable to have as a complement to the outfit a tool for quickly turning said fastenings as well as drills and like boring-tools.

The holder embodies a two-part shaft, one part, the driver, having the power applied thereto, and the other part, the carrier, receiving the fastening or tool to be rotated, a clutch between said parts to cause them to rotate together and constructed to separate when a given resistance is reached to prevent injurious strain coming upon either the tool or work, a regulable stop to hold the parts of the shaft in clutched engagement, a resetting mechanism for restoring the tool to a normal or working position, and a lock to hold the parts of the shaft in engagement against automatic separation, as when the holder has a boring, reaming, or like rotatable tool fitted thereto.

For a full description of the invention and the merits thereof and also to acquire a knowledge of the details of construction of the means for effecting the result reference is to be had to the following description and drawings hereto attached.

While the essential and characteristic features of the invention are susceptible of modification, still the preferred embodiment of the invention is illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view of a device embodying the invention. Fig. 2 is a plan section thereof about on the line X X of Fig. 5. Fig. 3 is a plan section about on the line Y Y of Fig. 8. Fig. 4 is a vertical central section of the lower member of the shaft and the parts cooperating therewith. Fig. 5 is a vertical central section of the device, showing the parts of the shaft in clutched engagement. Fig. 6 is a view similar to Fig. 5, showing the parts of the shaft unclutched. Fig. 7 is a view similar to Fig. 5, showing the parts of the

shaft clutched and the lock projected to prevent unshipping or disengagement of the clutch members. Fig. 8 is a view similar to Fig. 5, taken at a right angle thereto and showing the operation of the resetting device. Fig. 9 is a perspective view of the resetting mechanism. Fig. 10 is a perspective view of the parts shown in Fig. 4. Fig. 11 is a perspective view of the lock and its support.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings by the same reference characters.

The device comprises a case 1 for housing and supporting the working parts, said case being preferably of cylindrical form and closed at its ends by heads 2 and 3. The shaft journaled in the heads 2 and 3 is composed of parts 4 and 5, the part 4 being adapted to be rotated in any convenient way, as by means of a flexible shaft or other contrivance and designated as the "driver." The part 5 is the driven member and is adapted to have the work or tool to be rotated applied thereto, and in contradistinction to the part 4 is designated by the term "carrier." The carrier 5 is tubular, so as to receive the spring 6 and lower end of the driver 4. By having the lower end of the part 4 telescope with the part 5 the two parts are held in alinement. A block 7 is loosely fitted in the part 5 and is pressed upward by the spring 6 and is recessed in its upper side to form a seat to receive the ball 8, which is interposed between said block and the lower end of the driver 4, the latter being correspondingly recessed in its lower end for reception of the upper portion of the ball. A head or chuck 9 is formed with or applied to the lower end of the part 5 and is adapted to receive either the work or the tool to be rotated, said parts being fitted thereto in any convenient way. A sleeve 10 is applied to the part 5 and comes between the lower head 3 and an outer shoulder of the part 9 and prevents upward movement of the part 5.

A clutch is provided and arranged so as to connect the parts 4 and 5 and comprises the elements 11, 12, and 13. The elements 11 and 12 are plates or disks and are formed with or applied to the respective parts 4 and 5, so as to rotate therewith. The elements 13 are

balls and are seated in depressions formed in the opposing faces of the elements 11 and 12. The balls 13 constitute clutch-dogs and are carried by the part 11, being retained
 5 in the seats thereof in any accustomed way and, as shown, by means of a keeper-plate 14. The parts are so proportioned that when the spring 6 is free from restraint the driver 4 is moved upward, so as to hold the clutch-dogs
 10 13 out of the seats 15 of the parts 12, as indicated most clearly in Fig. 6, thereby permitting the driver 4 to rotate without imparting any movement to the carrier 5. Ball-bearings are interposed between the clutch and the
 15 head 3 to reduce the friction to the smallest amount possible. Corresponding grooves are formed in the opposing faces of the parts 3 and 12 to form braces to receive the balls 16, constituting the antifriction-bearings between the clutch and head 3. The driver 4 has
 20 a portion enlarged, as shown at 17, to form a shoulder 18, over which engages a stop 19, as shown most clearly in Fig. 5, to hold the elements of the clutch in engagement. A spring 20 yieldingly holds the stop 19 in engagement with the shoulder 18, and its tension is regulated by means of a set-screw 21, threaded into an opening in the side of the case 1. The part
 30 of the stop 19 in engagement with the shoulder 18 is slightly beveled to cause automatic disengagement of the stop from the shoulder when the upward thrust of the driver exceeds the tension of the spring 20. By varying the tension of the spring 20 the stop 19
 35 may be caused to release the driver at a greater or less resistance. The clutch-dogs 13, being of rounded form, tend to ride out of the seats 15 and are held therein by engagement of the stop 19 over the shoulder 18,
 40 as indicated in Fig. 5, and when the resistance met with by the driver overcomes the tension of the spring 20 the clutch becomes automatically disengaged and the driver is moved upward by the spring 6 and assumes the position substantially as shown in Fig. 6. The clutch is thrown into engagement by a resetting mechanism, comprising levers 22 and 23, the latter having an end portion projected outward from the case forming a fin-
 45 ger-piece to be pressed upon for actuating the lever 22 to move the clutch element 11 into clutched engagement with the element 12. The levers 22 and 23 are connected by a link 24, and the lever 22 has an opening 25 intermediate of its ends to receive the shaft. A roller 26 is applied to the inner end of the lever 22 and is adapted to bear against the part 11. When it is required to throw the
 50 clutch into engagement, the projecting end of the lever 23 is pressed upon, thereby exerting a pressure upon the element 11 and causing the driver 4 to move toward the carrier 5 until the shoulder 18 clears the engaging part of the stop 19, which springs there-
 65 over and holds the clutch in engagement until the tension of the spring 20 is overcome

by the superior force tending to separate the clutch due to the resistance met with by the part applied to the carrier 5.

In some classes of work it is desirable that
 70 the shaft as a whole rotate under all conditions, and to meet this requirement a lock 27 is provided and engages with the driver 4, preferably by passing over the shoulder 18. The lock 27 is slidably mounted and is oper-
 75 able by means of a set-screw 28, mounted in an opening of the case. A bearing 29 slidably supports the lock 27 and is formed with inner ways 30 to enter grooves 31 in opposite edges of the lock, whereby the latter is di-
 80 rected in its movements and prevented from movement parallel with the shaft. The lock 27 is moved out of the way when the stop 19 is used for holding the parts of the shaft in clutched engagement to admit of their auto-
 85 matic separation under certain conditions; but when a boring-tool or like implement is to be positively rotated under all conditions of strain the lock 27 is moved into engagement with the driver, as shown in Fig. 7,
 90 thereby holding the clutch in engagement. The lock may be supplemented by the stop 19, as indicated in said Fig. 7.

The case 1 is provided with handles 32 to enable easy manipulation of the tool when in
 95 operation, thereby enabling great pressure being brought to bear when forcing home a screw or when drilling through metal or wood.

A chuck or contrivance of any kind may be fitted to the head 9 to hold dies, screws, nuts,
 100 drills, and tools of any kind, according to the required use of the tool or holder in any capacity or application.

Having thus described the invention, what is claimed as new is—

1. In a work and tool holder, a two-part
 105 shaft, one part constituting a driver and the other part the carrier, a shoulder, projected from the driver and a clutch connecting the parts of the shaft, independent detent means,
 110 one of which is adapted for positive and the other of which for yielding coöperation with the aforesaid shoulder of the driver.

2. In a work and tool holder, a two-part
 115 shaft, one part constituting the driver and the other part the carrier, a clutch for connecting the two parts of the shaft, spring means normally tending to hold the parts of the shaft apart, and stop means adapted to counteract the tendency of the said spring to connect the
 120 parts of the shaft for synchronous rotation, said stop means permitting unshipping of the clutch members and separation of the shaft parts at any given point of resistance, sub-
 125 stantially as specified.

3. In a work and tool holder, a two-part
 130 shaft, one part constituting the driver and the other part the carrier, a clutch for connecting the two parts of the shaft and adapted to automatically separate when a given resistance is met with, a spring-actuated stop for holding the parts of the shaft in clutched engage-

ment, and means for holding the stop in engagement with the driver under variable degrees of pressure, substantially as set forth.

4. In a work and tool holder, a casing, a two-part shaft, one part constituting the driver and the other part the carrier, a clutch for connecting the two parts of the shaft and adapted to automatically separate when a given resistance is met with, a detent extended from the casing for engagement with the driver to hold same in engagement with the carrier, the engaging portions of the detent and driver being beveled, and means for holding the detent in engagement with the driver under variable degrees of pressure.

5. In a work and tool holder, a two-part shaft, one part constituting the driver and the other part the carrier, a clutch for connecting the two parts of the shaft and adapted to automatically separate when a given resistance is met with, a spring-actuated stop for holding the parts of the shaft in clutched engagement, means for holding the clutch elements separated when out of engagement, and a resetting mechanism for throwing the clutch into engagement, the same comprising corresponding levers, the one adapted to be operated by hand and the other provided at

its free end with a roller to exert a pressure upon the movable clutch element, substantially as described.

6. In a work and tool holder, a two-part shaft, one part constituting the driver and the other part the carrier, a clutch for connecting the two parts of the shaft and adapted to automatically separate when a given resistance is met with, and a lock for holding the parts of the shaft in clutched engagement under all conditions, substantially as specified.

7. In a work and tool holder, a two-part shaft, one part constituting the driver and the other part the carrier, a clutch for connecting the two parts of the shaft and adapted to automatically separate when a given resistance is met with, a spring-actuated stop adapted to engage with the driver, and a lock supplemented in its action by the said stop to prevent unshipping of the clutch, substantially as specified.

In testimony whereof I affix my signature in presence of two witnesses.

CONIE J. ROWE. [L. s.]

Witnesses:

E. M. SCHWEIN,
M. J. SCHWEIN.