L. B. COTTERMAN & J. L. ALGER.

SAFETY CHUCK CLUTCH.

APPLICATION FILED MAR. 29, 1917.

1,246,554. Patented Nov. 13, 1917.

Fig. 1.

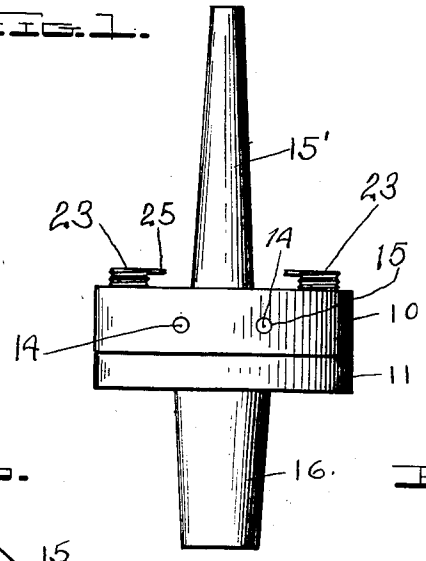


Fig. 3.

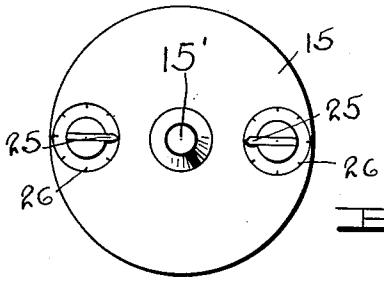


Fig. 4.

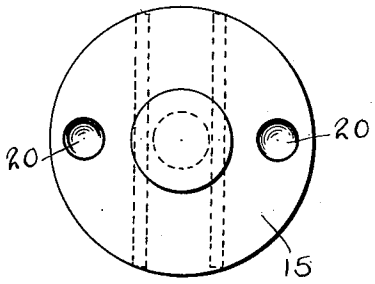
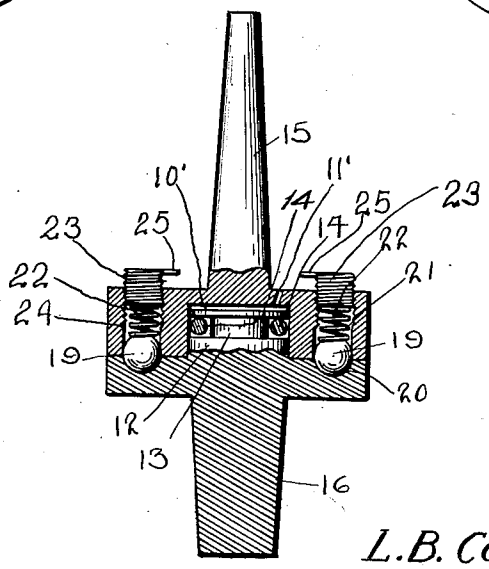


Fig. 2.



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SAFETY CHUCK-CLUTCH.

1,246,554. Specification of Letters Patent. Patented Nov. 13, 1917.

Application filed March 29, 1917. Serial No. 158,336.

To all whom it may concern:

Be it known that we, LEGRAND B. COTTERMAN and JESSE L. ALGER, citizens of the United States, residing at Indianapolis, in the county of Marion and State of Indiana, have invented certain new and useful Improvements in Safety Chuck-Clutches, of which the following is a specification.

Our invention relates to means for connecting a chuck, carrying a bit or other tool, with the spindle of a drill press, in a manner to automatically arrest the rotation of the bit when it is subjected to excessive strains, for preventing injury to the bit.

An important object of the invention is to provide means of the above mentioned character, which is adjustable for regulating its action, whereby the same may be employed in connection with a chuck, which holds bits of different sizes, and which are adapted to withstand different degrees of strain without breakage or injury.

Other objects and advantages of the invention will be apparent during the course of the following description

In the accompanying drawings forming a part of this specification and in which like numerals are employed to designate like parts throughout the same,

Figure 1 is a side elevation of a device embodying my invention,

Fig. 2 is a similar view, parts being shown in central vertical section,

Fig. 3 is a plan view of the same, and,

Fig. 4 is a plan view of the lower head or member.

In the drawings, wherein for the purpose of illustration is shown a preferred embodiment of my invention, the device is shown as comprising an upper head or member 10, which is preferably cylindrical, and a lower head or member 11, which is also preferably cylindrical. The upper head is provided in its lower face with a cylindrical chamber 10′, having a lubricant supply port 11′, in communication therewith. The lower head is provided centrally thereof with an upstanding cylindrical stud 12, which enters the opening 10′, and has an annular groove 13, for receiving a pair of spaced pins 14, passing through openings 15 in the upper head 10, as shown. It is thus apparent that the heads 10 and 11 are pivotally connected so that they will not separate and that they are adapted to be rotated with respect to each other. The upper head 10 is provided with an upstanding shank 15′, to fit within the socket of the rotating head (not shown) of the drill press. Depending from the lower head or member 11 is a tapered member or shank 16, for connection with a chuck (not shown) which carries the bit or other tool.

Means are provided to normally lock the heads 10 and 11 together, so that they rotate together, comprising elements or balls 19, adapted to enter spherically curved recesses 20, in the head 11, and to operate within vertical cylindrical openings 21, in the head 10. The balls 19 are moved downwardly by suitably stiff compressible coil springs 22, the tension of which may be regulated by adjusting screws or members 23, operating within screw-threaded openings 24. The adjusting screws 23 carry pointers 25, traveling in proximity to scales 26, formed upon the top of the head 10, thus indicating the degree of compression of the springs 22.

In operation, the screws 23 are turned to obtain a desired degree of compression upon the springs 22, depending upon the size of the bit which is employed. In normal operation, the springs 22 are sufficiently stiff to retain the balls 19 in the recesses 20, thereby locking heads 10 and 11 for rotation together. However, when the bit stops or becomes jammed, the upper head 10 may rotate with respect to the lower head 11, thus preventing the bit being broken.

It is to be understood that the form of our invention herewith shown and described is to be taken as a preferred example of the same, and that various changes in the shape, size, and arrangement of parts may be resorted to without departing from the spirit of the invention or the scope of the subjoined claims.

Having thus described our invention, we claim:

1. In a device of the character described, the combination with an upper head provided with openings and scales arranged in proximity to the openings, of an element secured to the head to rotate it, a lower head having pivotal connection with the upper head and provided with recesses, locking elements mounted to move within the openings and to enter the recesses, springs arranged within the openings to move the locking elements into the recesses, adjusting screws operating within the openings to regulate the tension of the springs and

having pointers traveling in proximity to the scales, and an attaching member secured to the lower head.

2. In a device of the character described, the combination with an upper head provided with a recess formed in its lower face, a lower head carrying an upstanding stud projecting into the recess and having an annular groove, a pin passing through the upper head and entering the annular groove, yielding means to normally lock the heads for rotation together, a device secured to the upper head to rotate it, and an attaching member carried by the lower head.

In testimony whereof we affix our signatures in presence of two witnesses.

LEGRAND B. COTTERMAN.
JESSE L. ALGER.

Witnesses:
W. D. GIBSON,
H. E. HARRIS.