C. R. HARE.

HAND OPERATED FEED DEVICE.

APPLICATION FILED JUNE 4, 1910.

1,047,936. Patented Dec. 24, 1912.

Fig. 1.

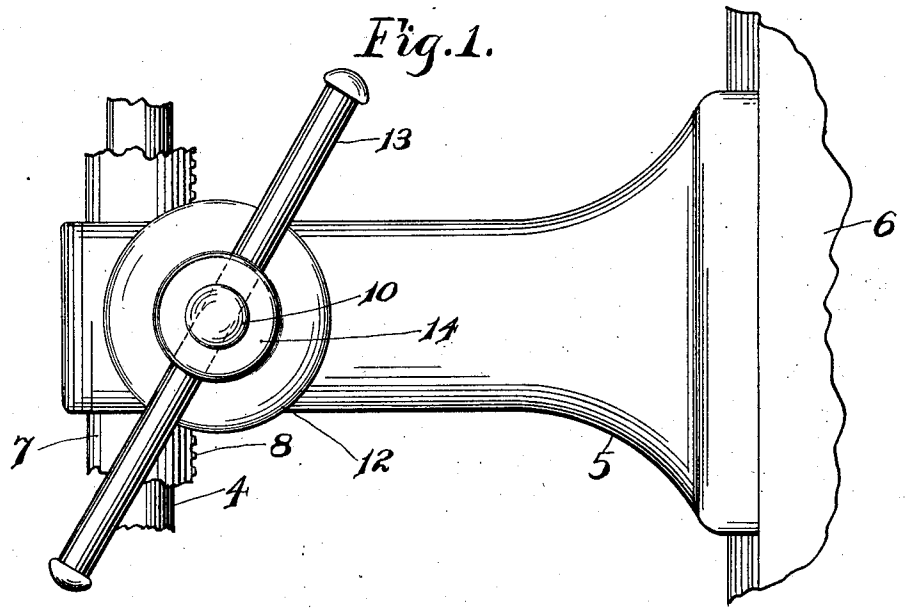


Fig. 3.

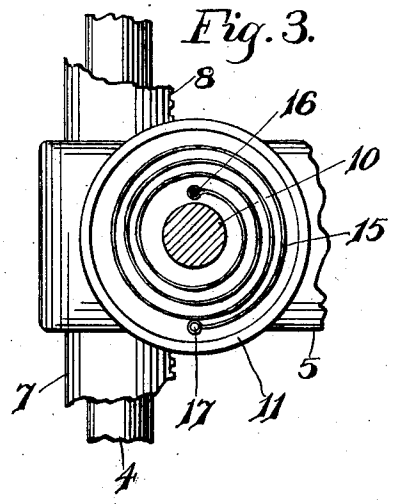
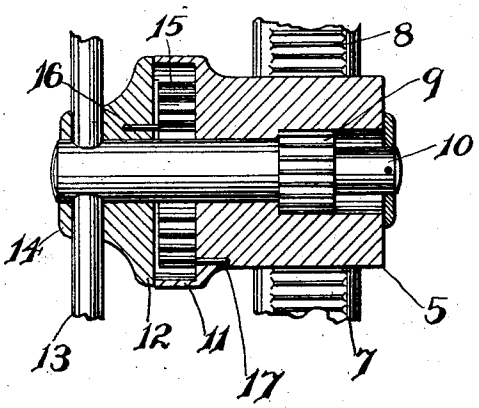


Fig. 2.



WITNESSES:

P. E. Berkowitch.

INVENTOR.

Charles R. Hare.

BY

Arthur B. Jenkins.

ATTORNEY.

UNITED STATES PATENT OFFICE.

CHARLES R. HARE, OF NEWINGTON, CONNECTICUT, ASSIGNOR TO SAMUEL E. ELMORE, OF HARTFORD, CONNECTICUT.

HAND-OPERATED FEED DEVICE.

1,047,936. Specification of Letters Patent. Patented Dec. 24, 1912.

Application filed June 4, 1910. Serial No. 564,936.

To all whom it may concern:

Be it known that I, CHARLES R. HARE, a citizen of the United States, and a resident of Newington, in the county of Hartford and State of Connecticut, have invented a new and Improved Hand-Operated Feed Device, of which the following is a specification.

My invention relates to that class of devices which are manually operated as by means of a handle which is moved to different positions to facilitate the operation, and the object of my invention is to provide a device of this class having numerous novel features of advantage and utility.

One form of structure embodying my invention and in the use of which the object herein set out, among others, may be attained is illustrated in the accompanying drawings, in which—

Figure 1 is a side view of a porton of a drill press showing my improvement applied thereto. Fig. 2 is a detail view in section through the device shown in Fig. 1 on the line of the axis of the feed shaft. Fig. 3 is a detail view in cross-section through the feed shaft with the spring box cap removed, the pin, however, from the cap to which the spring is secured at one end being shown in position.

While my improvement forming the subject-matter of this application is not limited in its use to any specific form of mechanism, yet as it is especially adapted for use in connection with the feed mechanism of a drill press, I have selected such form of mechanism for the purpose of illustration and description of my invention herein.

In the accompanying drawings the numeral 6 denotes a portion of the frame of a drill press upon which a spindle supporting arm 5 is adjustably mounted and in which a drill spindle 4 is carried. A sleeve 7 bears a rack 8 which meshes with a pinion 9 on a feed shaft 10 mounted in bearings in the arm 5. A box 11 is formed in one side of the arm 5, this box being closed by a cover 12, through which box and cover the feed shaft 10 extends. A handle 13 extends through an opening in a hub 14 of the box cover and through the shaft 10, as shown in Fig. 2 of the drawings. All of the parts thus far described are of old and well-known construction and further and detailed description is therefore omitted herein.

A coil spring 15 is located within the box 11, the inner end of this spring being fastened to a pin 16 secured in the cap 12 while the opposite end of the spring is fastened to a pin 17 secured in the arm 5.

It will be noted from this construction that if the cap 12 be turned toward the left, as in feeding the drill spindle downward, the spring will be wound, or a tension placed upon it, and that when force is released from the handle 13 the force stored in the spring will be exerted through the cap 12 and handle 13 on the feed shaft 10, rotating the latter to the right and moving the sleeve containing the drill spindle upward.

In structures of this class the handle 13 for obvious reasons, is loosely supported in its bearings so that it may be passed freely longitudinally through the bearings, and it is desirable that the handle shall remain in any position in which it may be placed. By utilizing the force of the spring 15 and transmitting such force through the cap 12 to the handle 13 a binding action is exerted upon the handle 13 to frictionally hold it in any position in which it may have been put, and the spring 15 thus serves a double function, that of moving the sleeve containing the drill spindle upward or to its former position, and also that of binding the handle and frictionally holding it in any position in which it may have been placed.

My invention forming the subject-matter of this application contemplates other means than those herein specifically shown and described for causing the force of the spring to exert a binding action between the shaft 10 and the handle 13 to restrain longitudinal movement of the latter, and I do not limit my invention to a device constructed in accordance with the foregoing illustration and description of the preferred form in which it has been embodied.

I claim—

1. A shaft, mechanism connected therewith to be moved thereby, a member loosely mounted on the shaft, a handle extending through said member and shaft and loosely mounted therein, and means arranged to exert force upon said loosely mounted member to turn it in one direction.

2. A shaft, mechanism connected with

said shaft to be moved thereby, a member loosely mounted upon said shaft, a handle extending through said shaft and member and loosely supported therein, and a spring exerting force upon said loosely mounted member to turn it in one direction.

3. A spindle supporting arm, a spindle mounted thereon, a feed shaft mounted therein, operative connections between said feed shaft and spindle, a member loosely mounted on the shaft, a handle extending through and loosely supported in said member and shaft, and a spring exerting force upon the said member to move it in one direction.

4. A spindle supporting arm, a spindle mounted therein, a feed shaft mounted therein, operative connections between said spindle and shaft, said arm having a box formed therein, a cap to close said box, said cap being loosely mounted on said shaft, a handle extending through said cap and shaft and loosely mounted therein, and a spring contained within said box and having one end secured to the arm and the opposite end to said cap.

5. A spindle supporting arm having a box formed therein, a spindle supported by said arm, a feed shaft mounted in said arm, an operative connection between said feed shaft and spindle, a cap closing said box and loosely mounted on said shaft, a handle extending through said cap and shaft and loosely supported therein, and a coil spring having its inner end secured to said cap and its outer end secured to said arm.

6. A spindle supporting arm, a spindle mounted thereon, a feed shaft mounted therein, operative connections between said feed shaft and spindle, a member loosely mounted on the shaft, a handle extending through and movable longitudinally in said member and shaft, and a spring exerting force upon one of said two parts last mentioned which are arranged to bind the handle and frictionally hold it against longitudinal movement.

7. A shaft, mechanism connected therewith to be moved thereby, a member loosely mounted on the shaft, a handle extending through said member and shaft and movable longitudinally therein, and means exerting force upon one of said two parts last mentioned to rotate it.

8. A shaft, mechanism including a spindle connected therewith to be moved thereby, a handle loosely connected with said shaft for feeding it, a spring to counterbalance the spindle and to that end exerting its force through said handle and shaft, and a member to transmit said force and thereby frictionally holding the handle from longitudinal movement through the shaft.

CHAS. R. HARE.

Witnesses:
A. C. TYLER,
F. M. LE CLAIR.