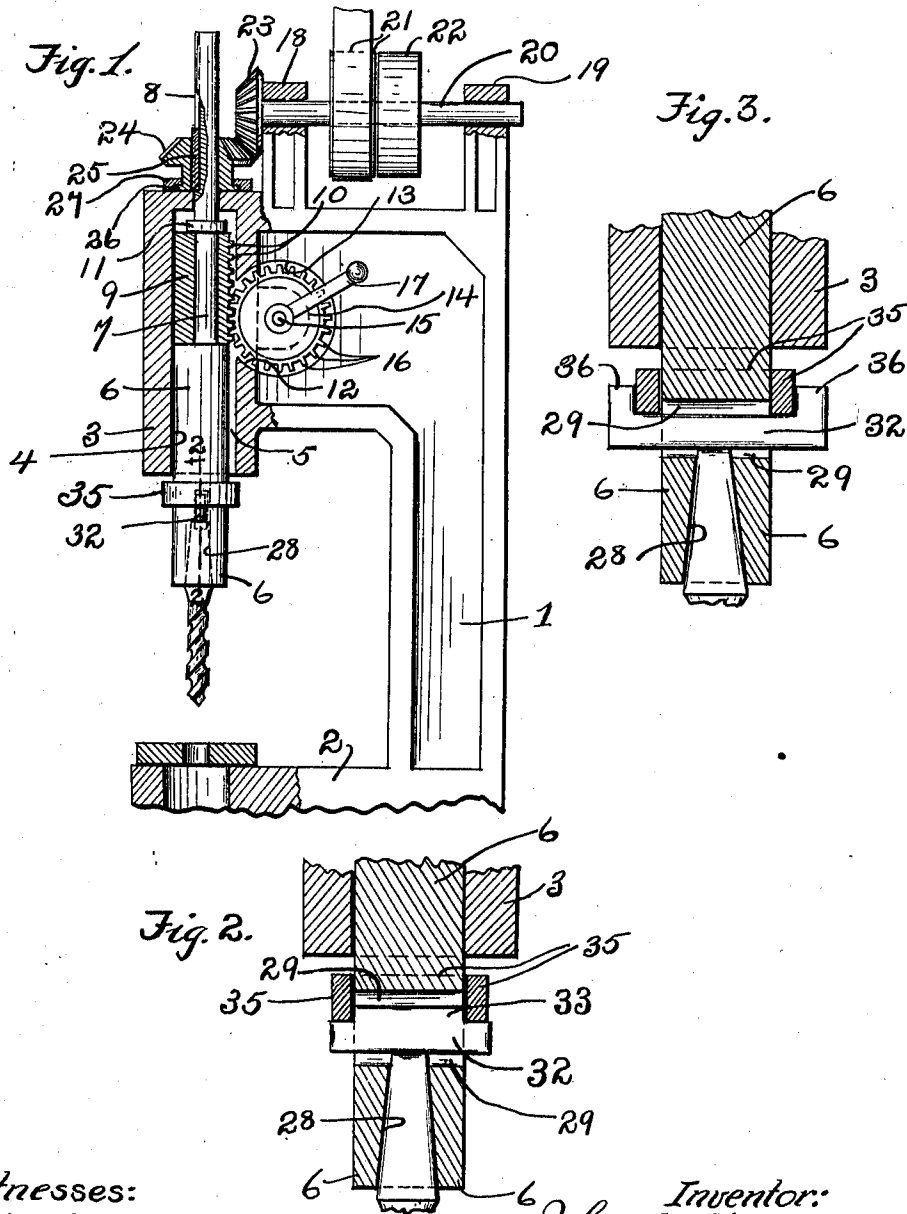


J. C. MULLINIX.
 DRILL PRESS.
 APPLICATION FILED NOV. 30, 1908.

982,740.

Patented Jan. 24, 1911.



Witnesses:
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UNITED STATES PATENT OFFICE.

JOHN C. MULLINNIX, OF CLEVELAND, OHIO.

DRILL-PRESS.

982,740.

Specification of Letters Patent.

Patented Jan. 24, 1911.

Application filed November 30, 1908. Serial No. 465,037.

To all whom it may concern:

Be it known that I, JOHN C. MULLINNIX, a citizen of the United States of America, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Drill-Presses; and I hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use the same.

This invention relates to improvements in drill-presses and particularly to an improvement on the patent granted to me June 14th, 1904, No. 762,647.

The object of this invention is to provide means which may be applied to the usual construction of drill presses without altering the same, whereby the drill may be disengaged from the chuck-head by a continuation of the same operation which raises the drill from the work.

My invention therefore consists in certain features of construction and combination of parts hereinafter described in the specification, pointed out in the claim and illustrated in the accompanying drawings.

In the accompanying drawings Figure 1 is a central vertical section of a drill press embodying my improvement. Fig. 2 is a section on line 2—2, Fig. 1 on an enlarged scale. Fig. 3 is a similar view to Fig. 2 showing a modification of my device.

Again referring to the drawings, 1 represents a standard which is rigidly mounted on the table 2, which supports the work. On this standard 1 is arranged a head 3, which is preferably formed integral therewith. This head 3 forms a support for the chuck-spindle and also constitutes an abutment which coöperates with the mechanism hereinafter described for expelling the tool from the chuck-head. In the head 3 is formed a vertical guideway 4, and in the side wall of the guideway 4 is formed a longitudinally-extending groove 5. In the head 3 is arranged the chuck-head 6, in the upper end of which is secured the chuck-spindle 7, which extends upwardly through and above the top of the head 3. In the end of the chuck-spindle 7, which projects above the head 3, is formed a longitudinally-extending groove 8. On the chuck-spindle 7 within the head 3 is arranged a sleeve 9. A rack 10 is formed integral with the sleeve 9 and is arranged so that the teeth thereof may

enter the groove 5. A collar 11 is secured on the chuck-spindle 7 above the sleeve 9. Extending through the side of the head 3 and communicating with the groove 5 is formed a slot 12. The standard 1 is cut away in the vicinity of the slot, as at 13, and a small arm 14 is formed on the side of the head 3, at the side of the said slot 12. In this arm 14 is secured a stud 15, on which is rotatably mounted a gear-wheel 16 of sufficient size to extend through the slot 12 and mesh with the teeth of the rack 10. A crank arm 17 is rigidly secured to the gear 16 by means of which the said gear-wheel may be revolved. It will be readily seen that by turning the crank-arm in one or the other direction the spindle and the chuck-head secured thereto will be raised and lowered in the head 3. On top of this standard 1 in suitable bearings 18 and 19 is journaled a shaft 20, on which are mounted driving drums 21 and 22. At one end of the shaft 20 is rigidly secured a gear-wheel 23, which is arranged to mesh with a gear-wheel 24, mounted on the upper end of the spindle 7. This gear 24 is operatively secured on the spindle 7 by means of a feather 25, which is secured to the gear and extends into the groove 8, formed in the said spindle 7, which arrangement allows the end of the spindle 7 to travel up and down through the gear while operatively connected therewith. An annular flange 26, is formed on the gear 24 and engages lugs 27 formed on the head 3, so as to hold said gear in its operative position and prevent the upward displacement thereof. When the shaft 20 is actuated by means of some motive power (not shown) the motion is communicated through the medium of the gears 23 and 24 to the spindle 7 and consequently the chuck-head is turned so as to drive the tool into the work or to remove it therefrom according to the direction in which the shaft 7 is being actuated.

In the lower end of the chuck-head 6 is formed a conical-shaped socket 28 for receiving the head of the tool. A horizontal slot 29 is formed on the chuck-head 6 extending from side to side of the said chuck-head and passing through the top of the socket 28. In the slot 29 is arranged a rigid bar 32 having a cross section less than the cross section of said slot so that the said bar will be free to move vertically in said slot. In the preferred form as shown in Fig. 2 this bar is provided with a central

projection 33 of approximately the same length as the length of the slot in the chuck-head. Around the lower end of the chuck-head and above the bar 32 is arranged a
5 ring or collar 35 which is free to move up and down on said chuck-spindle. When the said collar rests on the rigid bar 32 it will inclose the projection on said bar and thereby prevent the longitudinal shifting of said
10 bar.

In Fig. 3 I have shown a modification of the bar in which form the bar is provided with a projection 36 at each end which engages the outer surface of the collar and is
15 thereby held in place.

The chief advantage of my present invention over that shown in my former patent is that with this arrangement no alterations are necessary in an ordinary drill
20 press as now made. All that is necessary to do is to place the collar 35 around the lower end of the spindle and then slip the bar 32 through the slot 29, which is already formed in the chuck-head. Then by elevat-
25 ing the chuck-head in the usual manner and a little higher than is necessary to remove the work the ring will be brought into contact with the bottom of the frame of the drill press and the further upward move-

ment of the spindle will force the bar 32 30 downwardly in its slot and thereby expel the tool.

What I claim is,—

The combination with an abutment, a spindle shiftable relative to said abutment 35 and a chuck head arranged on the end of said spindle, said chuck head being provided with a socket for receiving the head of a tool and having a slot extending from side to side and communicating with said 40 socket, of a rigid bar arranged in said slot and projecting at each side of the chuck head and capable of vertical movement in said chuck head and a ring arranged on the chuck head and adapted to rest on the pro- 45 jecting ends of said rigid bar, the arrangement being such that when the said spindle is shifted relative to said abutment the said ring will be brought into contact with
50 said abutment.

In testimony whereof, I sign the foregoing specification, in the presence of two witnesses.

JOHN C. MULLINNIX.

Witnesses:

VICTOR C. LYNCH,
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