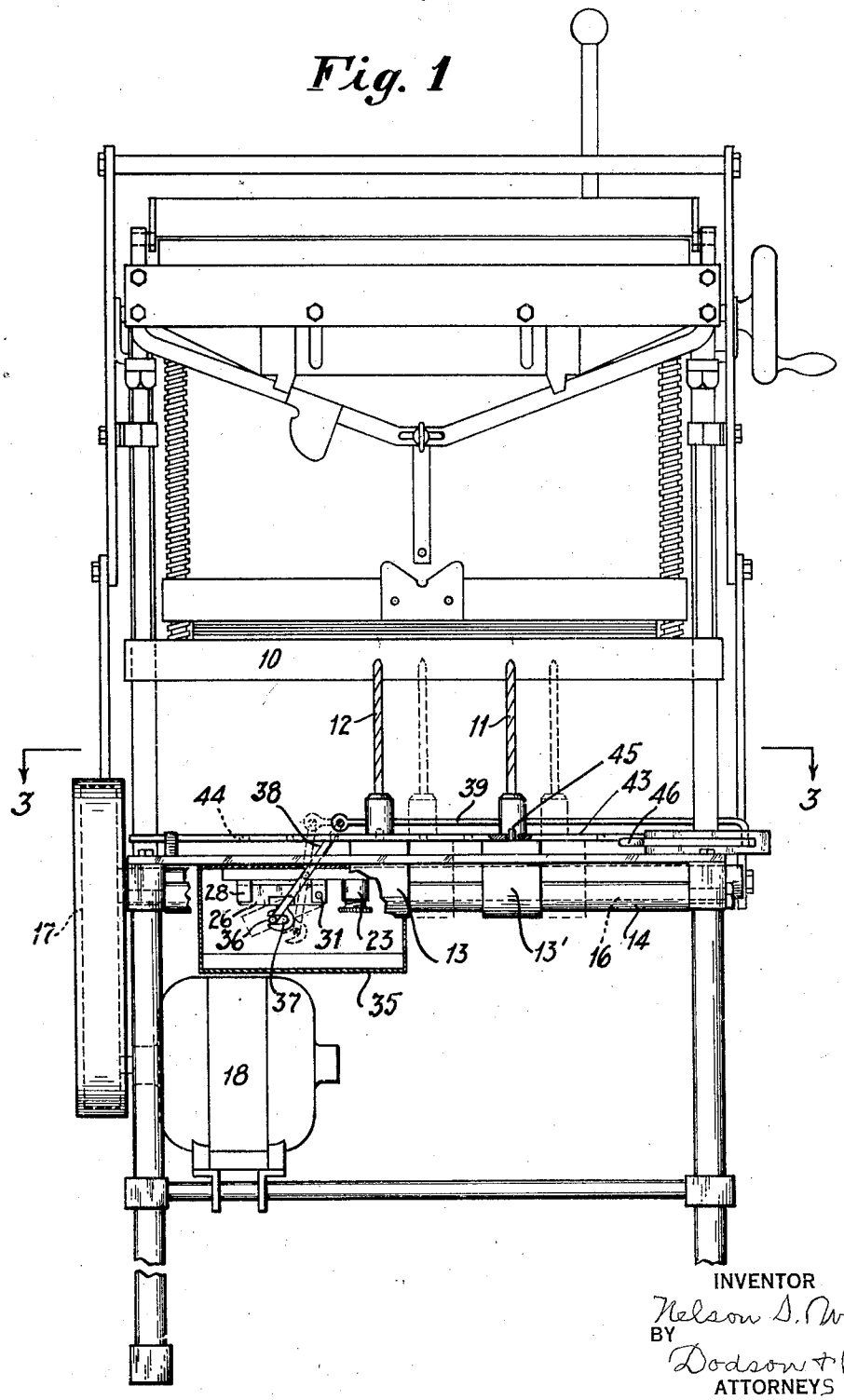
Nov. 20, 1928. 1,692,318

N. S. WELK

SHIFTING DEVICE FOR DRILLS ON BOOKBINDING MACHINES

Filed May 25, 1927 3 Sheets-Sheet 1

Fig. 1



INVENTOR
Nelson S. Welk
BY
Dodson & Roe
ATTORNEYS

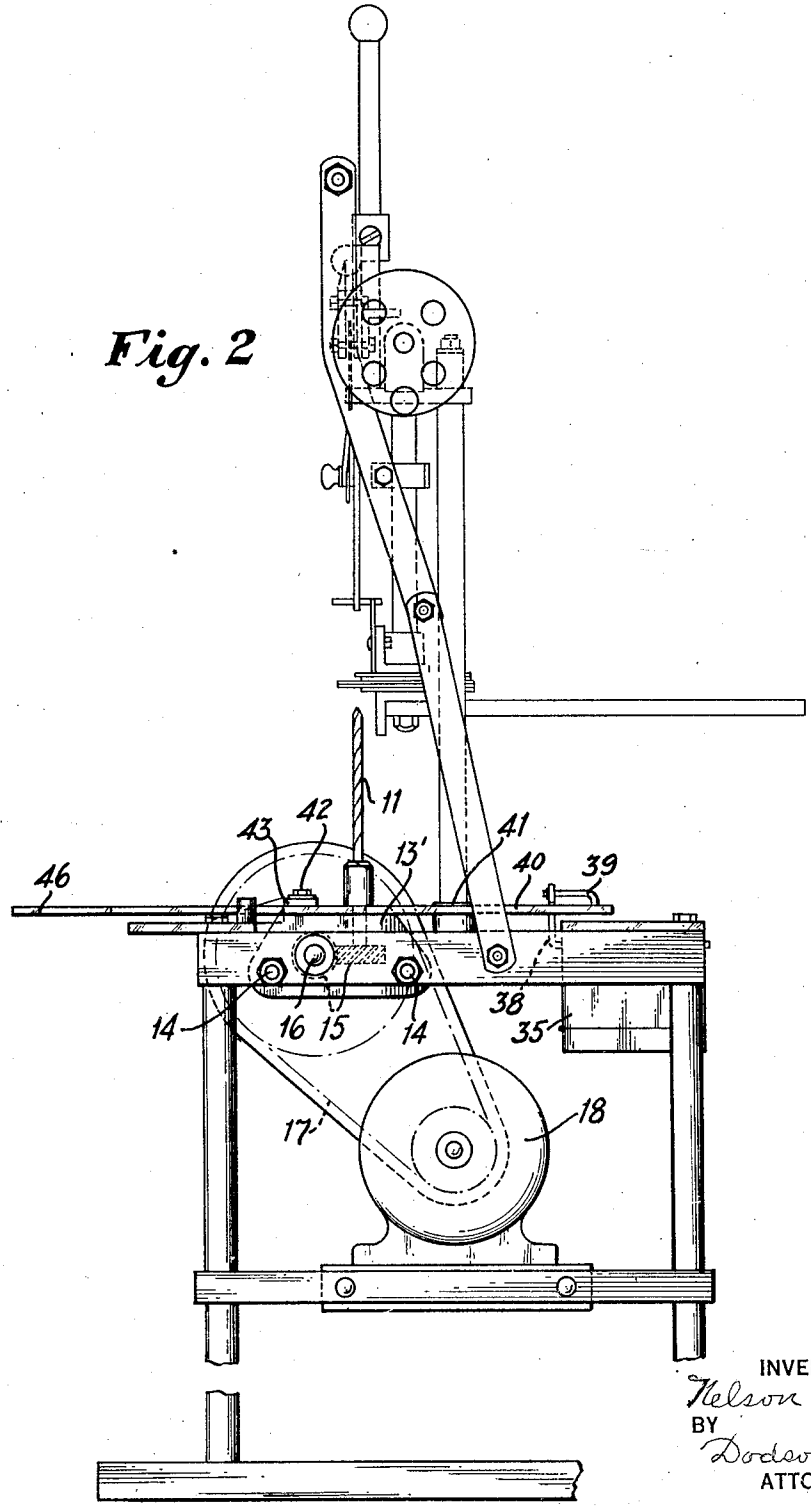
Nov. 20, 1928. 1,692,318

N. S. WELK

SHIFTING DEVICE FOR DRILLS ON BOOKBINDING MACHINES

Filed May 25, 1927 3 Sheets-Sheet 2

Fig. 2



INVENTOR
Nelson S. Welk
BY
Dodson & Roe
ATTORNEYS

Nov. 20, 1928. 1,692,318

N. S. WELK

SHIFTING DEVICE FOR DRILLS ON BOOKBINDING MACHINES

Filed May 25, 1927 3 Sheets-Sheet 3

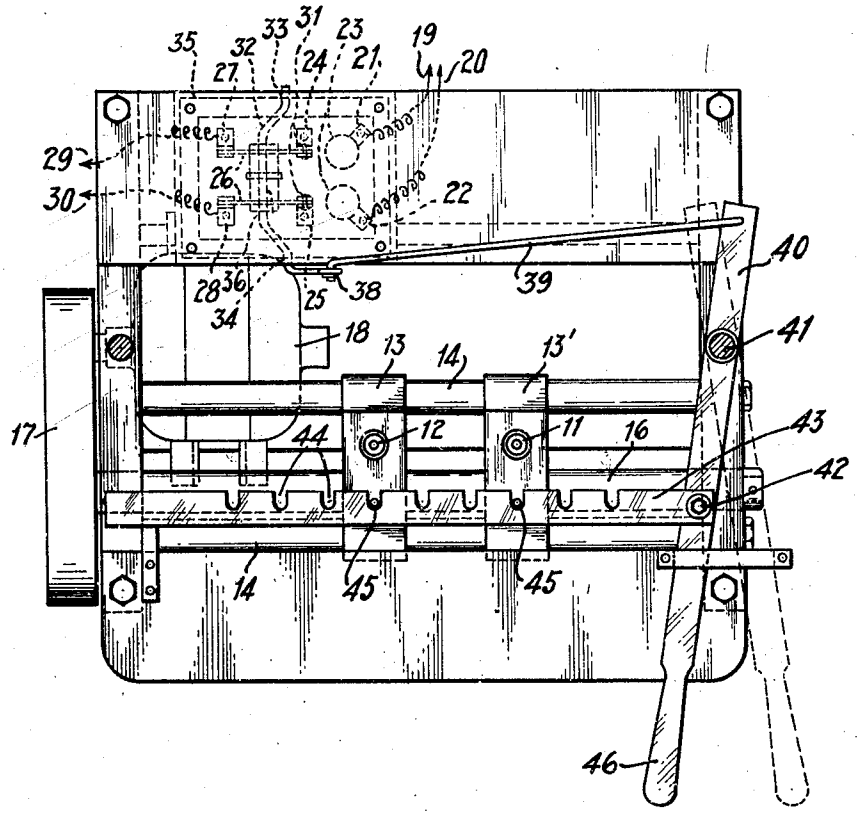


Fig. 3

Nelson S. Welk
INVENTOR

BY Dodson & Ros
ATTORNEYS

Patented Nov. 20, 1928. 1,692,318

UNITED STATES PATENT OFFICE.

NELSON S. WELK, OF ATHENS, OHIO, ASSIGNOR TO THE McBEE BINDER CO., OF ATHENS, OHIO, A CORPORATION OF OHIO.

SHIFTING DEVICE FOR DRILLS ON BOOKBINDING MACHINES.

Application filed May 25, 1927. Serial No. 193,958.

My invention relates to machines of the class set forth and described in my copending application, Serial No. 136,970, and has for its object, to provide means whereby the shifting of the drills into the desired position for drilling the book, or other material to be found, will at the same time operate to close an electrical contact so that the current will reach the electric motor and the drills can be driven thereby.

My invention has for its further object, to provide a device so that after the holes are drilled in the book to be bound the drills can be shifted laterally leaving the space below clear and the binding posts or other fasteners may be inserted in the holes without any danger of operator's hand coming in contact with the sharp points of the drills with the resultant injury.

In the drawings I have shown the upper part of a machine, corresponding to the upper part of the machine described in the copending application hereinbefore referred to, and as, obviously, it forms no part of my present invention and is shown merely for the purpose of illustrating the correct form of use of my present invention, I shall not describe it, but refer simply to the said copending application which contains a full and complete disclosure thereof. In the drawings—

Fig. 1 is a front elevation showing my improvement in position on a binding machine;

Fig. 2 is a side elevation of the same;

Fg. 3 is a cross-sectional view, taken on line 3—3, in Fig. 1, in the direction indicated by the arrows.

Similar reference numerals refer to similar parts throughout the entire description.

The material to be bound is placed upon a supporting plate 10, means being provided to move this plate 10 vertically so as to cause the drills 11 and 12 to drill the desired holes in the material to be bound. These drills 11 and 12 are mounted on carriages 13 and 13′, which are slidable longitudinally upon shafts 14, and are provided with a worm and gear drive 15, the gear being slidably mounted upon a shaft 16, which is driven by means of a silent chain 17, through the medium of an electric motor 18. The electric motor 18 is supplied by current through conductors 19 and 20, which lead from a source of electric current supply (not shown). These conductors 19 and 20 are connected to suitable binding posts 21 and 22, and thence through fuses mounted in fuse boxes 23, to contacts 24 and 25, which are suitably connected to a knife-blade switch 26. This switch 26 is adapted to contact with suitable extensions of binding posts 27 and 28, from which conductors 29 and 30 lead to the motor 18. The knife-blade switch 26 is carried by and swings upon pivots 31, and is attached to a crank 32, the ends of which are journaled in bearings 33 and 34, formed in the side walls of the casing 35, in which the switch 26 is mounted. The end 36 of the crank 32 is adapted to fit within a slot 37 on the switch 26. The opposite end 39 of the crank 32 is secured to a link 39, which is suitably attached to a lever 40, which is mounted upon a pivot 41. This lever 40 has pivotally attached to it, by means of a pivot or pin 42, a bar 43. This bar 43 is provided with a plurality of spaced slots 44, in which may be inserted pins 45, which are rigidly mounted upon the carriages 13 and 13′, these slots 44 being provided so that the drills 11 and 12 may be properly spaced in the desired locations to drill the material being bound. The bar 43 may be elevated sufficiently to permit the carriages 13 and 13′ to be shifted to any predetermined position on the guide bars or shafts 14.

From the foregoing description, to persons skilled in the art it will be obvious that if the operator grasps the handle 46 of the lever 40 and moves it laterally, it will cause the slots 44 to engage the pins 45, and this will operate to move the drill carriages 13 and 13′ laterally along the shafts 14 until they are brought into correct position for performing the drilling operation; but this same movement of the lever 40 will, through the medium of the link 38 and the crank 32, shift the knife-blade switch 26 and cause contact, so that the electric current can flow to the electric motor 18. This will, through the chain drive 17, rotate the drills 11 and 12, so that when the plate 10 is lowered and the material to be bound is brought into contact with the drills 11 and 12, the drilling operation will be properly performed.

When the material has been elevated, so that the drills 11 and 12 are out of the material to be bound, as shown in Fig. 1, by throwing the lever 40 to the position indicated by the dotted lines in Fig. 3, the reverse of the operation hereinbefore described

will take place, and this will break the electrical contact and the drills will cease to rotate.

For the purpose of a full disclosure of my invention, I have described in some detail a specific embodiment thereof, but it will be apparent, to persons skilled in the art, that numerous changes might be made in the physical embodiment of my invention within the scope of the claims, and I do not desire, therefore, to be understood as limiting myself in the broader aspects of my invention to the specific constructions shown and described.

Having thus described my invention, what I regard as new, and desire to secure by Letters Patent of the United States, is:

1. The combination, with a book-binding machine, of a plurality of electrically driven drills suitably connected to a source of electric power, carriages on which said drills are mounted, a guide upon which said carriages are laterally slidable, an electrical switch in the line, means connected to said switch and said carriages whereby the lateral movement of the carriages in one direction operates to close said electrical switch and in the other direction to open it and move the said drills out of the path of the drilled holes.

2. The combination, with a book-binding machine, of a plurality of electrically driven drills suitably connected to a source of electric power, carriages on which said drills are mounted, a guide upon which said carriages are laterally slidable, an electrical contact in the line, a lever pivotally connected to said carriages, a link connected to the end of said lever, a crank connected to said contact, said link being connected to the arm of the crank, whereby the movement of said lever in one direction makes the contact and in the other breaks it and moves the said drills out of the path of the drilled holes.

3. The combination, with a book-binding machine, of laterally movable electrically driven drills, suitably connected to a source of electric power, a make-and-break switch in the line, means to shift said drills laterally, and means to cause the movement of said shifting means to make and break said contact, one position closing the circuit and causing said drills to rotate, the reverse position opening the circuit and moving said drills out of the line of the drilled holes.

4. The combination, with a book-binding machine, of a plurality of electrically driven drills suitably connected to a source of electric power, carriages on which said drills are mounted, a guide upon which said carriages are laterally slidable, an electrical contact in the line, a lever, a bar suitably connected to said lever, there being a plurality of spaced notches in said bar, pins on said carriages which engage said notches, a link connected to the end of said lever, a crank connected to said contact, said link being connected to the arm of the crank, whereby the movement of said lever in one direction makes the contact and in the other breaks it and moves the said drills out of the path of the drilled holes.

NELSON S. WELK.