(No Model.)

B. F. CROW.

STOP MECHANISM FOR MORTISING MACHINES.

No. 421,859 Patented Feb. 18, 1890.

Fig. 2

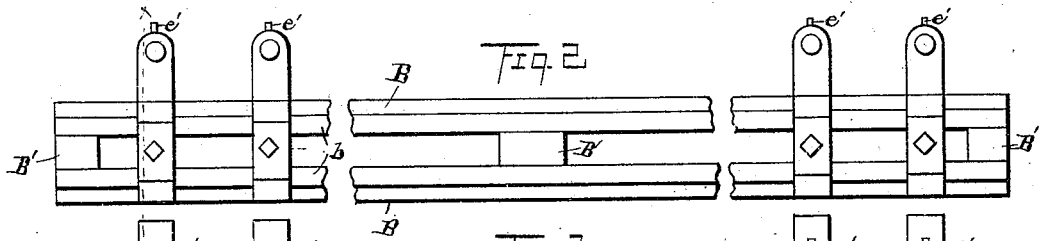

Fig. 3

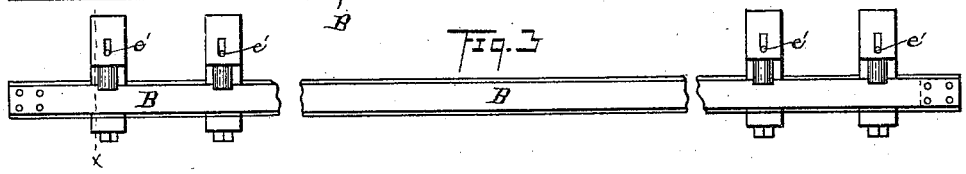

Fig. 1

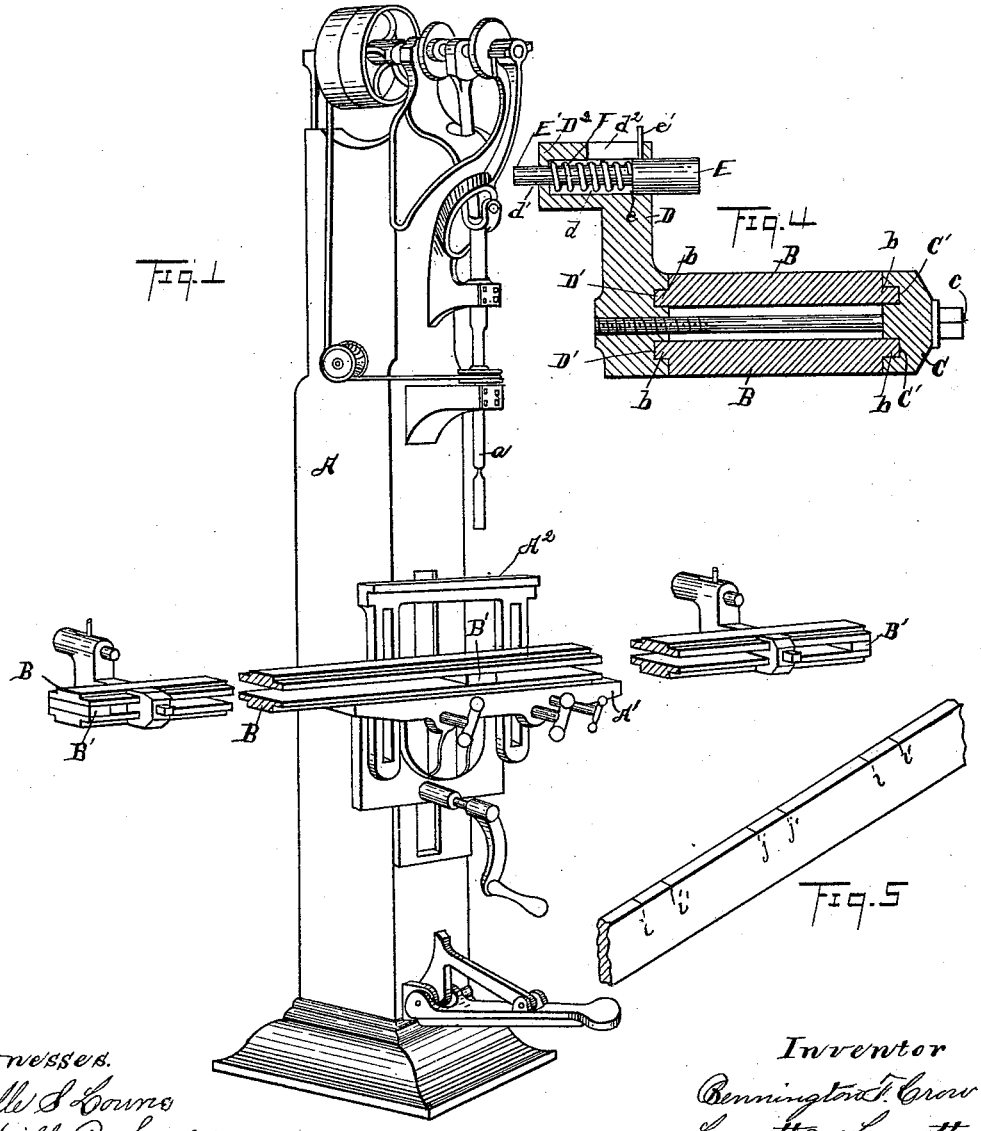

Fig. 4

Fig. 5

Witnesses.
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UNITED STATES PATENT OFFICE.

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STOP MECHANISM FOR MORTISING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 421,859, dated February 18, 1890.

Application filed December 2, 1889. Serial No. 332,284. (No model.)

To all whom it may concern:

Be it known that I, BENNINGTON F. CROW, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Stop Mechanisms for Mortising-Machines; and I do 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.

My invention relates to improvements in stop mechanisms for mortising-machines; and it consists in certain features of construction, and in combination of parts hereinafter described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a view in perspective of a machine embodying my invention. Figs. 2 and 3 are corresponding front and plan views of the upper table. Fig. 4 is an enlarged elevation in section, for instance, on line *x x*, Figs. 2 and 3. Fig. 5 is a view in perspective of a stile laid out for mortising.

A represents a common variety of mortising-machine, the same having a movable table A′, a gage A^2 connected with the table, and a reversible mortising-chisel *a*. Almost any variety of upright mortising-machine will answer the purpose so far as applying my improvement, and as such machines are well known no further description of the one shown is considered necessary.

On top of table A′ is secured a long narrow supplemental table, on which the work is placed for mortising, this upper or supplemental table being something more than twice the length of the stiles or pieces that are to be mortised thereon. This upper table has a series of adjustable stops attached for engaging, respectively, the ends of the stiles, such stops serving to gage the length of the mortises. The construction of the upper table and the connected stops is preferably as follows: The upper table consists of two metal bars B B, laid flatwise, the one above the other, and separated a short distance—say half an inch, more or less—by means of blocks B′. These blocks are usually three in number, located, as shown, respectively at the extreme ends and longitudinal center of bars B, the central block being directly under the mortising-chisel *a*. Bars B and blocks B′ are usually riveted through and through. The upper table is secured to table A′ usually by means of screws, (not shown,) these screws extending up through holes in table A′ and engaging screw-threaded holes in the lower bar B. The edges of bars B are rabbeted, so as to leave tongues *b*. These tongues on the front side engage corresponding grooves C′ of caps C. The tongues *b* on the rearward side engage grooves D′ of standards D. A screw-bolt *c* extends through a central hole in cap C, and the screw-threaded end thereof engages a screw-threaded hole in standard D. By tightening this bolt the cap and opposing standard are clamped to the edges of bars B B, by means of which the latter are rigidly held in place relative to each other. By loosening the bolt the cap and standard may be adjusted endwise of bars B B, or by unscrewing the bolt the standard and cap may be removed from the table. The upper end of standard D terminates in a head D^2, projecting rearward. This head has a cylindrical bore *d*, extending from the front face thereof nearly through the head, and in line and connecting with bore *d* is a smaller bore *d′*, extending through the rear wall of head D^2. This head has also a slot d^2.

E is a bolt, the larger member of which fits easily in bore *d*, the reduced end or stem E′ of this bolt fitting easily in bore *d′*.

F is a spiral spring coiled around stem E′, this spring bearing against the rear wall of the head and bearing against shoulder *e* of the bolt, the spring acting in the direction to force the bolt forward. A slight pin *e′* is screwed or driven into a hole in the bolt, the free end of the pin operating in slot d^2 aforesaid. This pin by engaging the forward end wall of slot d^2 serves as a stop to limit the forward movement of the bolt. Spring F is light and is easily compressed in pushing back the bolt to a position approximately flush with the face of the standard.

Bolt E in its normal or forward position serves as a stop for engaging the one end of the stile or other work that is being mortised, and thereby gages the one end of the mortise. There are therefore as many stops connected with the upper table and on either

side of the central block B′ as there are mortises to be cut in the stile; hence if there were to be four mortises there would be eight stops evenly divided on either side of the central block B′.

Heretofore it has been the practice to lay out the work, each piece being marked to indicate the ends of the different mortises. Sash and doors are usually made in large quantities, five hundred doors or sash of one kind in a large factory being considered a small "batch," and frequently the batch consists of several thousand doors or sash. As each door or sash has at least two stiles to be mortised, it will be readily understood that it requires much time and labor to lay out the work, even for a small batch of five hundred; also, the operator in approaching the mark that indicates the end of the mortise has to move the work slowly and exercise extreme caution, otherwise he would mortise past or fall short of the mark, and with the utmost care the mortising is not always as uniform as is desirable. This carefulness and slow movement greatly increase the time required in doing the work.

In operating my improved stop mechanism, the pattern is laid out, for instance, as shown in pattern I. (See Fig. 5.) Lines *i i′* indicate one mortise. Lines *j j′* indicate a second mortise, and lines *l l′* indicate a third mortise. The pattern is set edgewise on the upper table, and the pattern is adjusted endwise thereon until line *i* is directly under chisel *a*, the flat side of the chisel having been turned to the left hand. With the pattern in this position a stop is adjusted to bear against the right-hand end of the pattern. Next, the chisel is reversed, so that the flat side thereof presents toward the right hand. The pattern is then moved endwise toward the left hand to bring line *i′* directly under the edge of the chisel, and with the pattern in this position the stop is adjusted to bear against the left-hand end of the pattern. Each stop as it is adjusted to the position required is of course fastened by tightening its clamping-bolt *c*. With stops thus arranged to gage the two ends of the mortise it is evident that the operator with his eyes shut could cut the mortise accurately. Stops in like manner are adjusted for the other mortises, after which, in case the work is of some standard size, the pattern is likely laid aside for future use. The pieces to be mortised are of course cut to the same length as the pattern, and the operator places a stile on the upper table, and we will suppose that he chooses to commence with the left-hand mortise, in which case he lays the stile on the right-hand end of the table, bringing the left-hand end of the stile near to the first stop at the left hand of the center of the table. In pushing back the stile against gage A^2 all the stops that are behind the stile are pushed back out of the way. After one mortise is completed, the operator tilts or moves the stile forward out of the way of the stops, and then moves the stile endwise toward the left hand to near the second stop, pressing the stile again back against the gage, and so on.

It is customary to commence mortising at or near the center of the mortise, working each way to the ends thereof. Suppose the mortises being cut were four inches long, in which case, if the operator placed the one end of a stile anywhere from one to three inches of an exposed stop, there would always be another exposed stop at the opposite end of the stile, and these two stops, by engaging the respective ends of the stile, would gage the length of the mortise.

The advantages of my improved stops will be readily understood when I state that I follow, as a rule, that when there are ten pieces to be mortised it will save time to adjust the stops rather than to lay out the work and do the mortising without the stops.

What I claim is—

1. The combination, with a mortising-machine, of a table having attached a series of stops, the latter being adjustable lengthwise of the table, each stop comprising a spring-actuated bolt presenting forward or crosswise of the table, substantially as set forth.

2. The combination, with a mortising-machine, of a table connected therewith and consisting of two bars blocked apart and having tongues along the edges thereof, standards and opposing caps having, respectively, grooves for engaging such tongues, bolts operating between the bars of the table for respectively clamping a standard and cap to the edges of the table, such standards bearing spring-actuated bolts presenting crosswise the table, such bolts serving as stops to engage the ends of the work and thereby gage the mortises being cut, substantially as set forth.

In testimony whereof I sign this specification, in the presence of two witnesses, this 27th day of September, 1889.

BENNINGTON F. CROW.

Witnesses:
C. H. DORER,
ALBERT E. LYNCH.