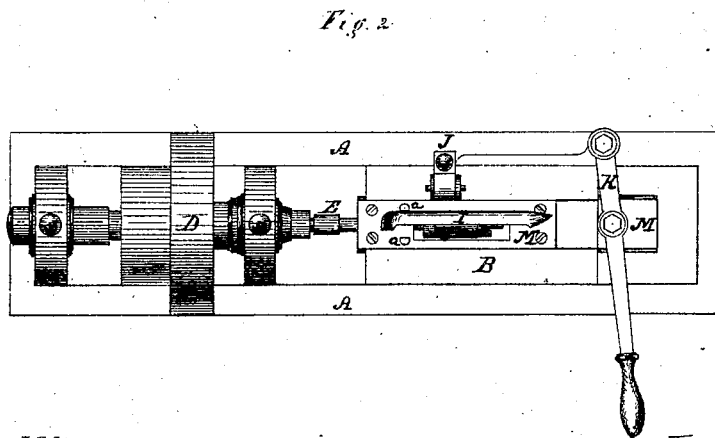
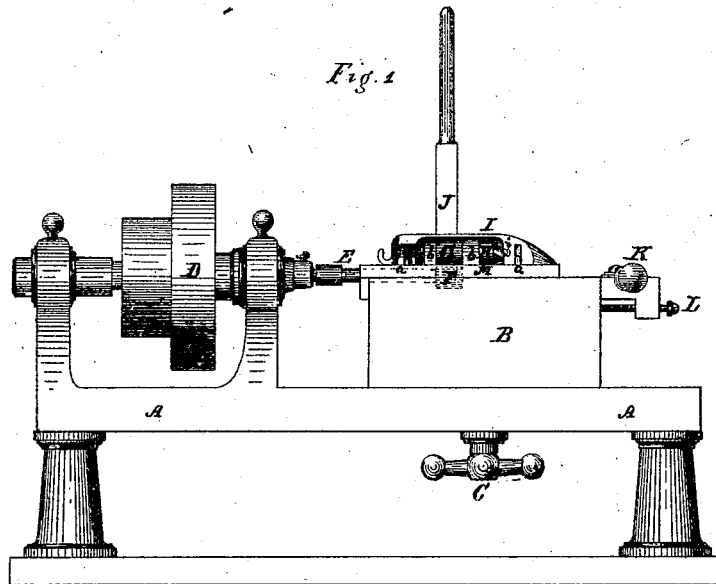


No. 110,822.

PATENTED JAN. 10, 1871.

C. E. BILLINGS.  
MACHINE FOR DRILLING SHUTTLES.



Witnesses.

*John D. Price*  
*Thos. G. Ellis*

Inventor

*Charles E. Billings*

# United States Patent Office.

CHARLES E. BILLINGS, OF HARTFORD, CONNECTICUT.

Letters Patent No. 110,822, dated January 10, 1871.

## IMPROVEMENT IN MACHINES FOR DRILLING SHUTTLES.

The Schedule referred to in these Letters Patent and making part of the same.

### *To all whom it may concern:*

Be it known that I, CHARLES E. BILLINGS, of Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Machines for Drilling Holes in Shuttles; and I do hereby declare that the following is a full, clear, and exact description thereof, whereby a person skilled in the art can make and use the same, reference being had to the accompanying drawing and to the letters of reference marked thereon.

Like letters in the figures indicate the same parts.

### *Nature and Object of the Invention.*

My invention has for its object a simple and expeditious way of drilling and tapping the hole for the bobbin-spring, and drilling the hole for the bobbin-spindle, from the inside of the recess in a sewing-machine shuttle.

My invention consists in constructing and arranging a drilling-machine in such a manner that the rotating motion of the main spindle is communicated to a short spindle above by means of geared wheels the right height above the sliding table, to carry a drill for boring a hole in the proper position.

### *Description of the Accompanying Drawing.*

Figure 1 is a front view of the machine with a shuttle upon it, shown in section, to illustrate the action of the drill.

Figure 2 is a top view of the same.

Figure 3 is a larger drill, drawn to double scale, for boring the hole in the other end of the shuttle for the bobbin-spring.

Figure 4 is a tap, drawn to same scale, for tapping the hole.

### *General Description.*

A is the frame of the machine.

B is a sliding block, which is held in any desired position upon A by means of the clamp C.

D is the driving-pulley for communicating motion to the drill.

E is the main spindle carrying the wheel F, which gears into and drives the wheel G above it.

The spindles of these two wheels are carried in

journals in the straps *b b*, firmly fixed to the block B.

The upper spindle H holds the drill for boring the hole *i* in the shuttle I.

M is a sliding table for carrying the shuttle, moved back and forth by means of the lever K.

L is a gauge for regulating the depth of hole drilled, by arresting the motion of the table M.

J is a lever for holding down the shuttle upon the table M while the hole *i* is being drilled.

The operation of my improved machine is as follows:

The shuttle is placed upon the table M in such a manner that the small projections *a a* fix it in its position.

The lever J is then drawn forward from its position in fig. 1, and pressed down upon the shuttle.

The table M is then moved to the left by means of the lever K, and the hole *i* is bored. The levers are then moved back to their first position and the shuttle is removed.

For drilling and tapping the hole for the bobbin-spring at the other end of the shuttle, the tools shown in figs. 3 and 4 may be successively placed in the machine, the stubs on the table M being so located as to admit of the reversal of the position of the shuttle, the position of the small pins or projections being made to hold it also in this position, or they can be changed to fit different positions or different shuttles.

The tools shown in figs. 3 and 4 may, however, be made to fit the other end of the upper spindle H, in which case the shuttle can be placed upon the table in the same position as at first.

### *Claim.*

What I claim as my invention is—

The arrangement, relative to one another, herein described, of the block B, supports *b*, gear-wheels F and G, drill-spindle H, sliding table M, and the main spindle E.

CHARLES E. BILLINGS.

Witnesses:

JOHN D. PRICE,  
THEO. G. ELLIS.