(No Model.)

J. D. ULMER. & J. S. COLLINS.

BUTTON HOLE CUTTING ATTACHMENT.

No. 312,932. Patented Feb. 24, 1885.

Fig. 1.

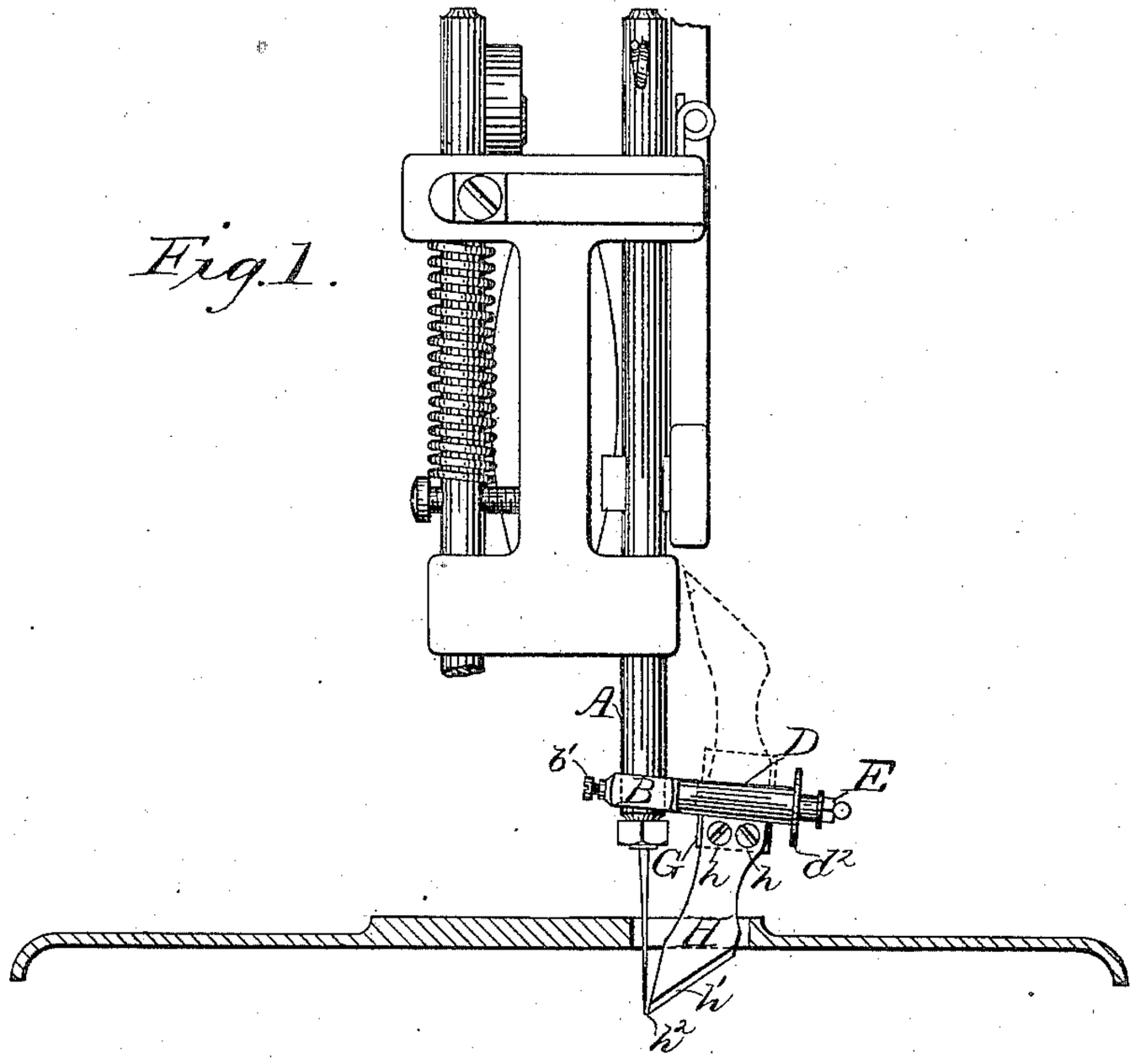


Fig. 2.

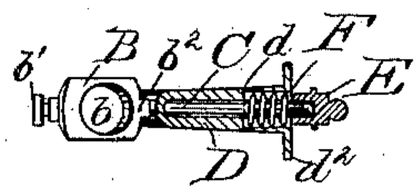
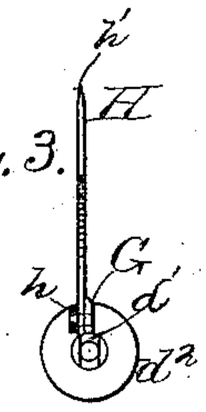


Fig. 3.



Witnesses.
Wilbur E. Powell.
H. C. Huntemann

Inventors,
John David Ulmer
Joseph S. Collins,
By Connolly Bros.,
Attorneys

UNITED STATES PATENT OFFICE.

JOHN DAVID ULMER AND JOSEPH S. COLLINS, OF PHILADELPHIA, PA.

BUTTON-HOLE-CUTTING ATTACHMENT.

SPECIFICATION forming part of Letters Patent No. 312,932, dated February 24, 1885.

Application filed July 12, 1884. (No model.)

To all whom it may concern:

Be it known that we, JOHN DAVID ULMER and JOSEPH S. COLLINS, citizens of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Button-Hole-Cutting Attachments; and we do hereby declare the following to be a full, clear, and exact description of the invention, reference being had to the accompanying drawings, which form part of this specification, in which—

Figure 1 is a front elevation of head of sewing-machine with button-hole-cutting attachment applied to needle-bar, the cloth-plate of the machine being shown in vertical section. Fig. 2 is a plan, partly in horizontal section, of cutting attachment. Fig. 3 is an end view of sleeve and knife.

Our invention has relation to that class of devices known as "cutters" for button-hole sewing-machines or attachments; and our improvements have for their object to simplify the construction and improve the efficiency of these devices, and also to lessen their weight, so as to reduce to a minimum all strain upon the needle-bars of the machines to which they are attached.

Our improvements consist in the peculiar construction and combinations of parts, hereinafter fully described, and specifically claimed, and particularly in the combination, with a stock having an opening for the needle-bar, and a laterally-projecting arm, of a tube swiveled on said arm, and having a wing, to which is secured the cutter, said tube and stock having a clutch-joint and a spring for holding the same locked, substantially as hereinafter set forth.

Referring to the accompanying drawings, A designates the needle-bar of a sewing-machine to which our improved button-hole cutter is applied.

B is a stock or bar of metal, having an opening, *b*, for the passage of the needle-bar A, and provided with a set-screw, *b'*, by means of which it is made fast on said needle-bar. Said stock B has a laterally-projecting arm, C, which may be either integral with the stock or made separate and secured thereto. On said arm C there is a loose sleeve or tube, D, of such length that it may be slid longitudinally on the arm between the stock B and a nut or head, E, on the outer end of said arm. The bore of the tube D is countersunk or enlarged, as shown, to receive a spiral spring, F, which encircles the arm C, and bears endwise against a shoulder, *d*, of said tube and against the nut E. The tendency of said spring is to press the sleeve or tube D against the stock B. There is a clutch-joint formed between the sleeve D and stock B, said stock having a projection or angular boss, b^2, which enters a groove, *d'*, in the end of the sleeve. When the boss b^2 is in the groove *d'*, the sleeve cannot be turned; but if said sleeve be drawn backwardly against the spring F, so as to compress the latter against the nut or head E, and take the sleeve clear of the boss b^2, said sleeve may be freely turned or caused to swivel on the arm C, the latter forming its axis of rotation. To facilitate moving the sleeve D manually, it is formed with a head or flange, d^2.

G is a wing or projection extending laterally from the sleeve D, being made, by preference, integral therewith, though it may be fastened thereto, if desired. To this wing there is secured, by screws *h h*, or in any equivalent manner, a cutting-blade, H, which latter is preferably formed with a beveled or inclined cutting-edge, *h'*. This cutter cuts downwardly through an opening in the cloth-plate of the machine.

It is desirable that the point h^2 of the cutter should come as close as possible to the needle when said cutter is turned down for operation, and it is also necessary that when the cutter is turned up, so as not to operate when the needle-bar moves, it shall clear the head of the sewing-machine. To effect this we construct the device so that, while the needle-bar of the machine is vertical, the axis of rotation of the sleeve carrying the cutter shall be slightly inclined from the horizontal. This we accomplish by drilling the hole *b* for the needle-bar at an angle slightly greater than a right angle with reference to the arm C. The effect is that, when the stock B is fitted on the needle-bar, its arm C inclines downwardly to a slight extent from the horizontal and forms on its upper side

an obtuse angle with said needle-bar. Accordingly, when the sleeve is turned to bring the cutter down and the latter is in position for cutting, its point h^2 is very close to and almost touching the needle, and when said sleeve is turned and the cutter brought up out of position for cutting, the point h^2 stands at a considerable distance out or away from the needle-bar and clears the head of the machine when said needle-bar reciprocates.

The cutter may be used to cut a button-hole either before or after the stitching. To operate it, the sleeve D is turned on the arm C to bring the cutter down into the position shown in Fig. 1. The needle-bar of the machine is now caused to descend, thus effecting the required cut. The needle-bar is now raised and the sleeve D is then turned again a half-revolution, bringing the cutter upward into the position shown in dotted lines in Fig. 1, in which position it is inoperative and does not interfere with the stitching.

In both of its positions—that is, turned up and turned down—the cutter is very firmly and securely held against the stock, so as to avoid looseness or lost motion and vibration. Being extremely light, it imposes little or no appreciable strain on the needle-bar, and as it is very simple in construction its mode of operation is easily understood and practiced, and it is not liable to get readily out of order.

What we claim as our invention is as follows:

1. The button-hole-cutting device consisting of stock B, having opening *b* for the needle-bar, arm C, tube or sleeve D, having wing G, nut or head E, spring F, and cutter H, substantially as shown and described.

2. In a button-hole-cutting device designed and adapted for attachment to the needle-bar of a sewing-machine, the combination, with a stock, B, having an opening for the reception of said needle-bar and a laterally-projecting arm, C, of a sleeve or tube, D, swiveled on said arm and carrying a cutter, and a spring which encircles said arm and presses the sleeve toward the stock, said sleeve and stock having a clutch-joint, substantially as shown and described.

3. The combination, with the needle-bar A, of stock B, having a laterally-projecting arm, C, on which is a swiveled sleeve or tube, D, carrying a cutter, said arm and sleeve forming an obtuse angle with said needle-bar on their upper side, whereby when said cutter is turned down its point is brought close to the needle, and when it is turned up said point is thrown out from the needle-bar clear of the head of the machine, substantially as shown and described.

4. In a button-hole-cutting attachment comprising a stock, a projecting arm, and a swiveled sleeve carrying a cutter, a hole in said stock for the passage of the needle-bar of the machine at an angle different from a right angle with said arm and sleeve, substantially as set forth.

5. A button-hole-cutting attachment for sewing-machines comprising a stock and sleeve or tube carrying a cutter, said sleeve being swiveled on an arm projecting from said stock, and said stock and sleeve having a clutch-joint, whereby the cutter is held in position, substantially as shown and described.

6. The combination, in a button-hole-cutting attachment for sewing-machines, of a stock having a laterally-projecting arm terminating in a nut or head, and a sleeve swiveled on said arm and capable of endwise movement thereon, with a spiral spring encircling said arm and fitting inside said sleeve, the latter and the stock having a clutch-joint between them, substantially as shown and described.

In testimony that we claim the foregoing we have hereunto set our hands this 7th day of July, 1884.

JOHN DAVID ULMER.
JOSEPH S. COLLINS.

Witnesses:
LISLE STOKES,
M. D. CONNOLLY.