

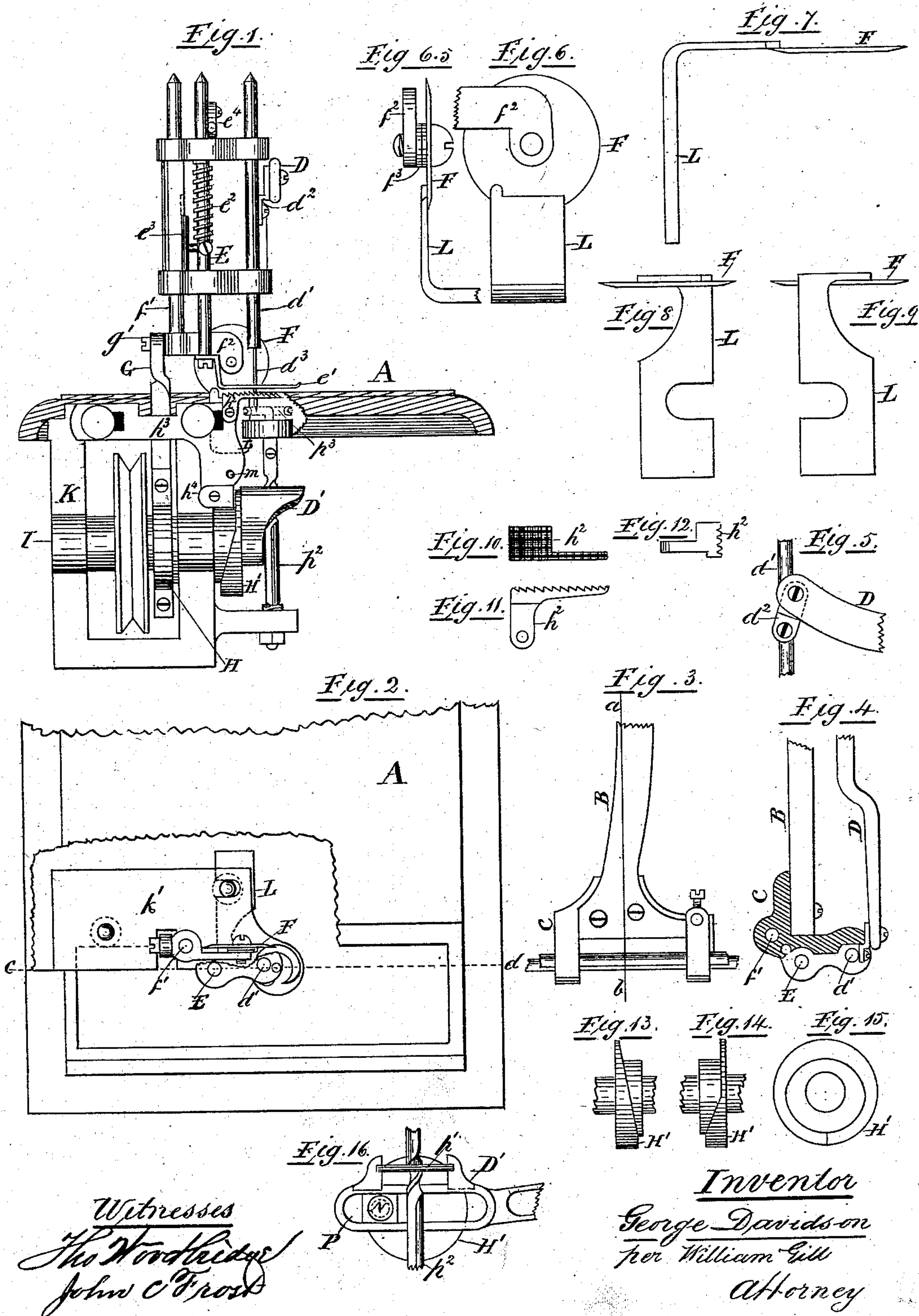
(No Model.)

G. DAVIDSON.

TRIMMING ATTACHMENT FOR SEWING MACHINES.

No. 284,394.

Patented Sept. 4, 1883.



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TRIMMING ATTACHMENT FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 284,394, dated September 4, 1883.

Application filed January 15, 1883. (No model.)

To all whom it may concern:

Be it known that I, GEORGE DAVIDSON, of the town of Paris, in the county of Brant, in the Province of Ontario, Canada, have invented certain new and useful Improvements in Trimmers for Sewing-Machines; and I do hereby declare that the following is a full, clear, and exact description of the same, whereby others skilled in the art may make and use the same, reference being had to the accompanying drawings, and to this specification.

My improvements relate to that class of trimmer attachments in which a knife or blade is reciprocated vertically through a slot in the work-plate, near to the needle-hole, and parallel to the line of feed, for the purpose of trimming the seam.

In the accompanying drawings, Figure 1 is a view of the front part of a sewing-machine with a portion of the frame removed to show the principal operating parts of the machine. Fig. 2 is a plan view of the same, in which the transverse line *c d* is the center line of the shaft. Fig. 3 is a side view of the extreme end of the stationary arm of the machine, with the machine-head, in which the presser-rod, guide-rod for upper cutter, and the needle-bar reciprocate independently of each other in sockets prepared therefor. Fig. 4 is a plan view, through the line *a b* in Fig. 3, of stationary arm with machine-head attached thereto, and also of the needle-arm, which is attached to the needle-bar. Fig. 5 is a side view of the extreme end of needle-arm, showing the mode of connection of the same to the needle-bar. Fig. 6 is a face view of a circular cutter, as also an end view of the under cutter, on which the circular cutter operates when the machine is in action. Fig. 6.5 is an edge view of both cutters. Fig. 7 is an edge view of upper cutter and side view of under cutter. Fig. 8 is a plan of the under cutter placed in relation to the upper cutter as they are shown in the machine. Fig. 9 is a view of the same parts turned over. Fig. 10 is a plan view of toothed feed-head. Fig. 11 is a side-view, and Fig. 12 an end view, of the same. Fig. 13 is an edge view of compound cam for operating the feed, giving it both an upwardly and reciprocating horizontal movement. Fig. 14 is also an edge view turned

over to show the opposite edge. Fig. 15 is a face view of the cam. Fig. 16 is a side view of the outer end of the under arm forming the counter part of the needle-arm, and receives a vibratory movement from a stud in the outer face of the cam aforesaid, operating in a slot in the end of the said arm. There is also a vertical spindle, with circular needle on the top of the same, operated by this under arm by means of a horizontal slot formed in the arm and actuating a worm formed on the vertical spindle, so that the horizontally-acting circular needle is timed to correspond with the vertically-reciprocating needle on the end of the upper arm in forming the stitch.

Similar letters of reference indicate the same parts in all the views and in this specification.

A is the frame; B, the stationary arm of the frame, (the extreme end only is shown,) and to which the machine-head C is attached; D, the needle-arm, the end of which only is shown, and is shown attached to the needle-bar *d'* by means of a link, *d''*. *d'''* is the needle. In the machine-head C is also shown the presser-bar E, on the lower end of which is attached the presser-foot *e'*. A spiral spring, *e''*, is placed on the upper part of this bar, to keep the presser-foot securely in position. An auxiliary sliding bar, *e'''*, is also used for this purpose. A cam, *e''''*, with handle near to the top of the presser-bar E, is shown, which is used for raising and lowering the presser-foot when required.

F is a circular cutter, attached to the sliding guide-rod *f'* by the arm *f''*, with adjusting-collars *f'''*.

G is a connecting-rod, attached to the arm *f''* by a screwed stud, *g'*, and is moved vertically by the eccentric H on the shaft I.

K is a frame with journal-boxes for the shaft I. A plate, *k'*, on the top, and forming a part of said frame, is secured to the under side of the work-plate of the frame. To the under side of this plate a stationary cutter, L, is attached, on which the circular cutter F operates. Referring to Fig. 6 of the drawings, it will be seen that this stationary cutter L is provided with a projection or heel on its upper inner edge, which is for the purpose of preventing the cutting-edge of the circular cutter catching on the cutting-edge of the lower knife, and also

for allowing the circular cutter rising high enough to admit of the fabric passing under the same in feeding.

H' is a compound cam for actuating the feed-head h^2 by means of the sliding plate h^3 ; m , the end of a wire spring for pressing the guide-piece h^4 against the flange of the cam H'.

It will be observed that the cam H' performs the functions of a crank, when, with the stud N placed near to its periphery and moving in the slot P, it gives the end of the under arm, D', a vibratory up-and-down motion, and, with the slot formed in the steel plates p' actuating the worm on the spindle p^2 , rotates backward and forward the circular needle p^3 .

Referring to Fig. 1, it will be observed that all the parts of the machine necessary to illustrate my invention are shown in that figure. The other figures show the several parts of the machine in detail for the better explanation of the operation of the same.

The class of sewing-machines to which this machine belongs is that known as the "Grover & Baker" machine, having two spools and two needles—first, the ordinary vertically-reciprocating needle above the work-plate, and the second a circular horizontally-rotating needle below the work-plate—operating in combination, and so timed that the movement of the one corresponds with the movement of the other in forming the stitch.

The operation of the several parts is as follows: The pulley M is the first-motion pulley, which gives motion to the shaft I and rotates the eccentric H, which gives a reciprocating

and vertical motion to the rod f' and the circular cutter F. The shaft I, also with cam H', operates the feed-arm h^3 , and, by means of the stud N in its outer face, operates the upper needle-arm, D, and the lower arm, D', the former giving motion to the vertical needle d^3 and the latter to the circular needle p^3 , which conjointly form the stitch. When the machine is in full operation, at the same time the needles are making the stitch, the circular cutter is descending with the same regularity and precision upon the lower knife, the cutting-edge of the one acting upon the cutting-edge of the other, performing the functions of a pair of shears in cutting and trimming the seam.

Having thus described my invention, I claim—

1. The lower knife, L, in a trimmer attachment for a sewing-machine, constructed as described, with a heel on the inner part of the cutting-edge to prevent the circular cutter, when in operation, from catching on the cutting-edge of the lower knife, the aforesaid heel also allowing the circular cutter to rise high enough for the fabric to pass under the same when feeding.

2. In combination with the lower knife, L, the circular cutter F, eccentric H, shaft I, connecting-rod G, and the guide-rod f' , the whole operating substantially as and for the purposes set forth.

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