(No Model.) 4 Sheets—Sheet 1.

A. F. CHAMPLIN.

TRIMMING ATTACHMENT FOR MACHINES FOR SEWING LOOPED FABRICS.

No. 421,550. Patented Feb. 18, 1890.

Fig. 1.

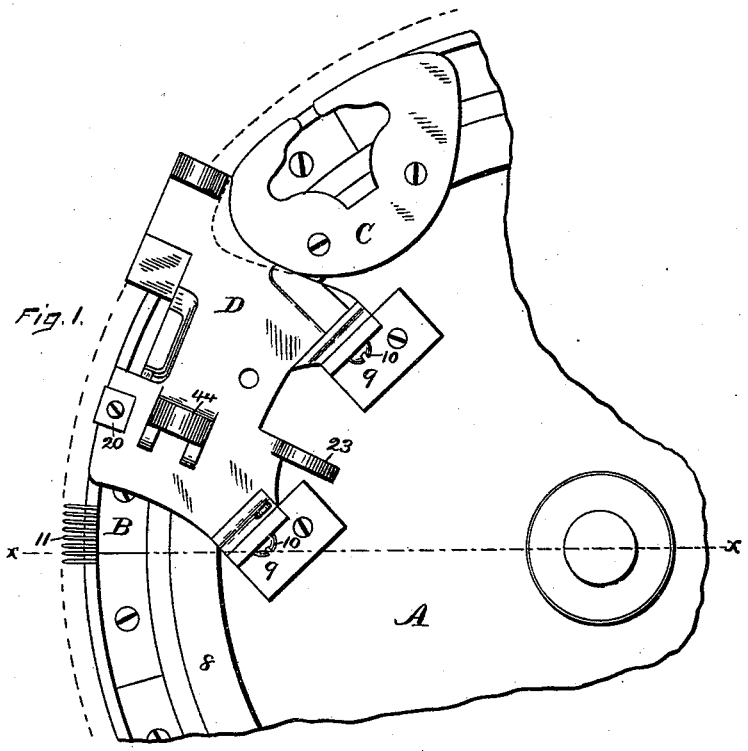

Fig. 2.

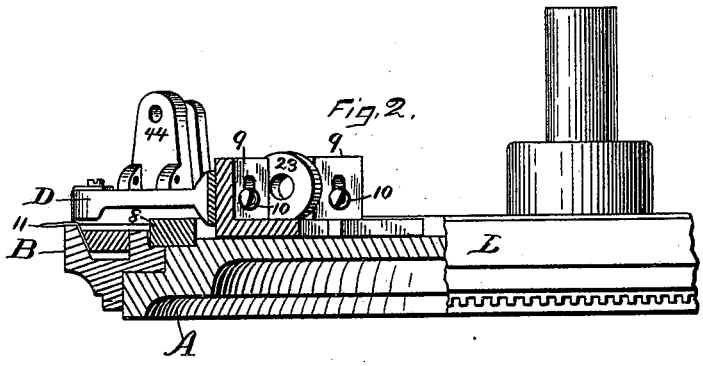

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Fig. 3.

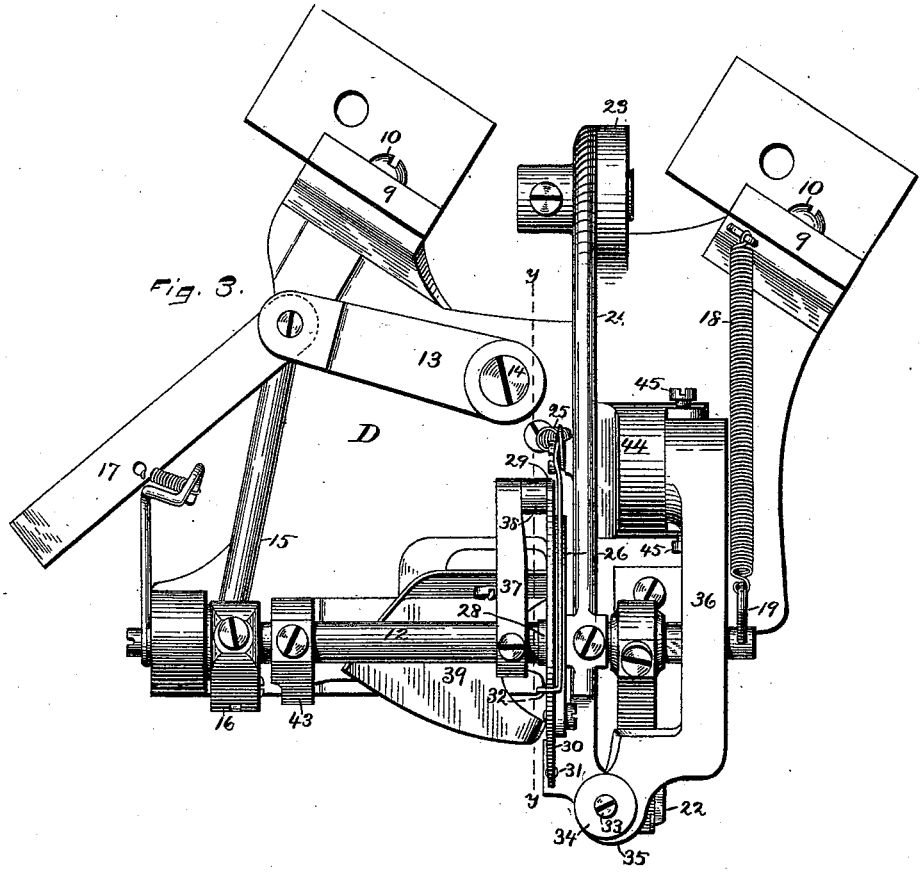

Fig 4.

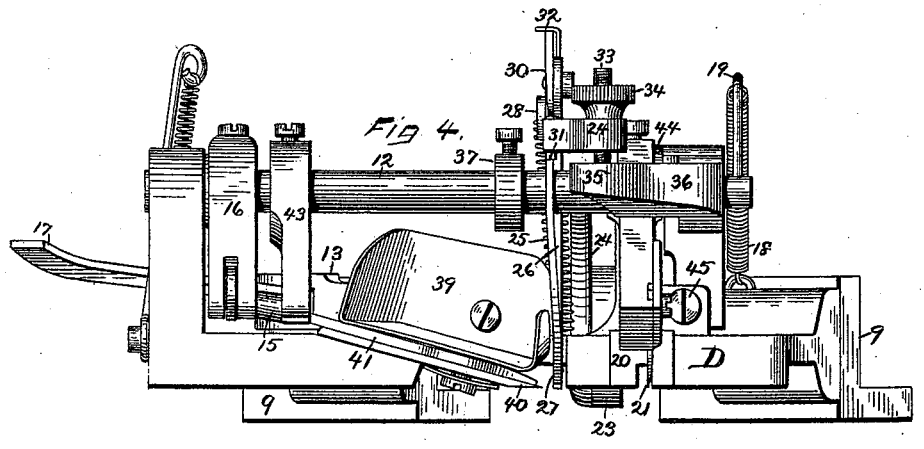

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Fig. 5.

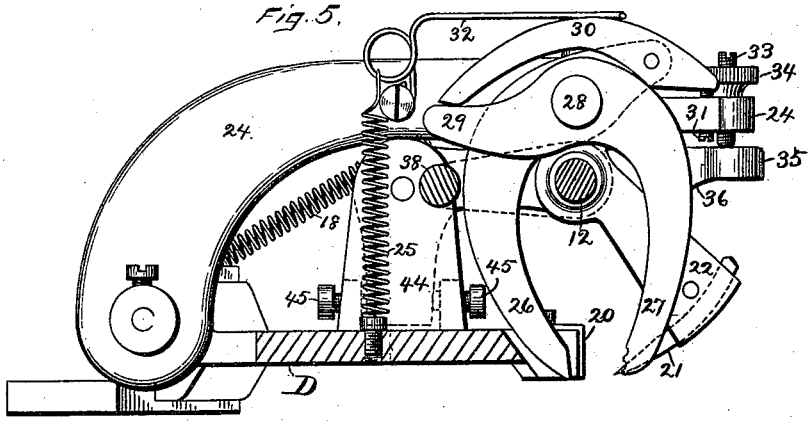

Fig. 6.

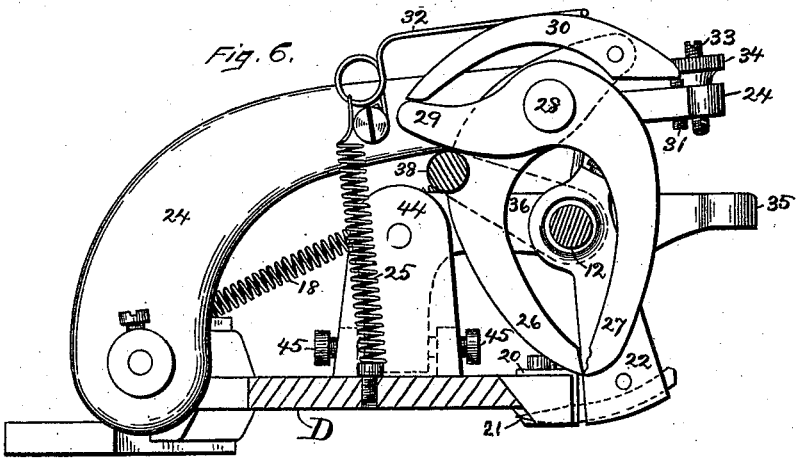

Fig. 8.

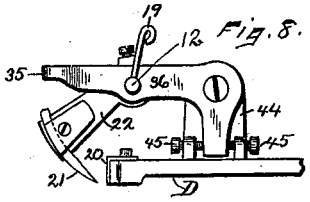

Fig. 7.

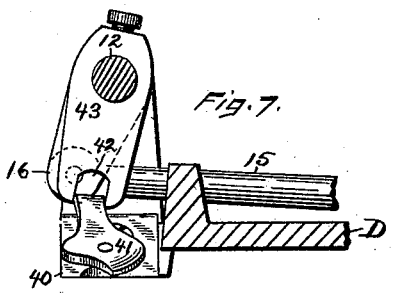

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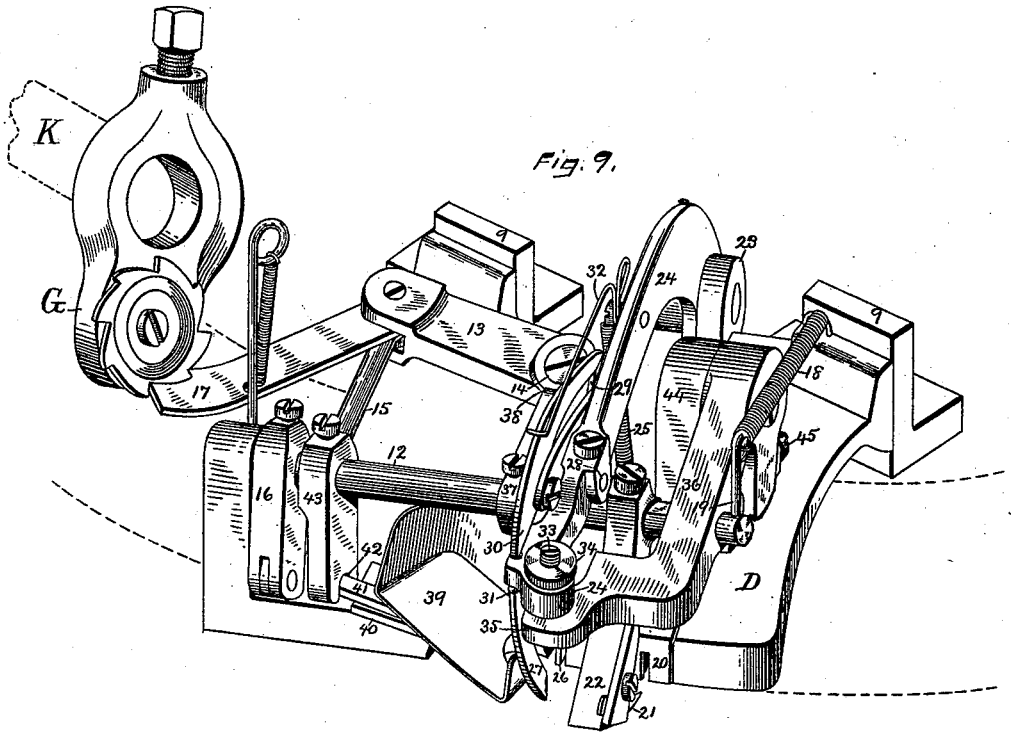
Fig. 9.



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UNITED STATES PATENT OFFICE.

AMOS F. CHAMPLIN, OF GRANBY, CONNECTICUT.

TRIMMING ATTACHMENT FOR MACHINES FOR SEWING LOOPED FABRICS.

SPECIFICATION forming part of Letters Patent No. 421,550, dated February 18, 1890.

Application filed April 8, 1889. Serial No. 306,294. (No model.)

To all whom it may concern:

Be it known that I, AMOS F. CHAMPLIN, a citizen of the United States, residing at Granby, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Trimming Attachments for Looping-Machines, of which the following is a specification.

My invention relates to improvements in trimming attachments for looping-machines; and the objects of my invention are simplicity of construction and general efficiency and utility.

In the accompanying drawings, Figure 1 is a plan view of the frame of my trimming attachment, together with a portion of the looping-machine to which it is attached. Fig. 2 is a vertical section of the same, (partly in elevation,) the plane of section being indicated by the line *x x* of Fig. 1. Fig. 3 is a plan view of my said attachment as detached from the machine. This and all the following figures, except Fig. 8, are on an enlarged scale. Fig. 4 is a front elevation of said attachment. Fig. 5 is a transverse section thereof on the line *y y* of Fig. 3, looking to the right, the rocking arm in front of said section being indicated by broken lines. Fig. 6 is a like view of the same with the parts in a different position. Fig. 7 is a detached view, partly in vertical section, showing the supplemental shear-blades and their operating mechanism, looking toward the left. Fig. 8 is a detached side elevation, looking in the same direction, and showing the knife-arm and adjustable bearing-arm at the right-hand end of the rock-shaft; and Fig. 9 is a perspective view of my trimming attachment and its driver.

A designates a stationary circular head, upon the edge of which the annular rim (which is usually termed the "pin-wheel") B is mounted to revolve, said pin-wheel being held down upon the head A by means of the ring 8 and revolved intermittently in the ordinary manner. Said head A is also provided with the ordinary needle-plate C, at which point the sewing is done.

The sewing mechanism is not shown.

D designates the frame of my trimming attachment, which is adjustably mounted upon brackets 9 9, that are secured to the head A, as shown in Figs. 1 and 2. These brackets are designed to set inside of the ring 8, and the frame is adjustable up and down on said brackets by means of screws 10, that pass through slots in said brackets, whereby the frame of the trimming attachment may be secured to previously-constructed machines and brought down into proper position immediately over the pins 11 of the pin-wheel B, as most clearly shown in Fig. 2.

12 designates a rock-shaft through which my trimming attachment is operated. In the present instance I have shown a rocking arm 13, pivoted to the frame B at 14 and connected with the shaft 12 by means of a pitman 15 and rocking arm 16, and I have also provided the swinging end of the rocking arm 13 with a push-pawl bar 17, which may be acted upon to push the rocking arm 13 intermittently by any known mechanism. An example of a proper mechanism for this purpose is shown and described in a prior application, filed by me December 24, 1888, and designated as Serial No. 294,534; but other mechanism for actuating the rocking arm 12 may be substituted therefor without in any way modifying my present invention, which relates to the trimming-attachment frame and the parts which are operated through the rocking shaft 12. In Fig. 9 I have, however, shown the driver G in proper position, the same to be mounted upon an oscillating shaft, as indicated by broken lines at K. The rocking shaft 12 is returned to its position, after being actuated through the rocking arm 16, by means of the spring 18, one end of which is attached to the frame and the other to the rocking arm 19 at the right-hand end of the shaft 12. The front of the frame at its lower portion and front edge is preferably provided with a throat-plate 20, within the throat of which the knife 21 on the rocking arm 22 works as said arm vibrates with the motion of the rocking shaft 12. This knife is sharpened at its upper edge and enters the loops of the fabric, which it cuts over every alternate pin of the pin-wheel, as in my aforesaid application. My present improvement relates mainly to the picking mechanism. The frame D is provided with an ear 23, to which the picker-arm 24 is pivoted and preferably provided with a spring 25 for pulling it downwardly. On the front end of said picker-arm I arrange

the picking-fingers 26 27, both pivoted on a common axis at 28. The picking-finger 27 has a rearwardly-extending shank 29, and the picking-finger 26 has a forwardly-extending shank at its upper end, to which the lever 30 is pivoted, as shown most clearly in Figs. 5 and 6. The front end of this lever 30 bears upon an adjusting-screw 31 in the picker-arm 24, while the opposite end of said lever bears on the upper edge of the rearwardly-projecting shank 29 of the picking-finger 27, as shown in Figs. 5 and 6. A light spring 32 bears upon the upper edge of the lever 30 to insure its proper working. The picker-arm 24 is also provided with an adjustable stop 33, the same passing through a threaded hole in said picker-arm and preferably provided with a set-nut 34 for holding the stop in its adjusted position. The lower end of this stop rests upon a forwardly-projecting lug 35, formed on the adjustable bearing-arm 36 for the shaft 12 at the right-hand end of said shaft. Said adjustable bearing 36 is made in the form of an angle-arm and pivoted to the lug 44 upon the frame D, with its downwardly-projecting member between the ends of the two adjusting-screws 45 45, by means of which that end of the rock-shaft may be adjusted so as to raise or lower the cutter, as may be desired.

Upon the rock-shaft 12, I arrange a rocking arm 37, which is indicated by broken lines in Figs. 5 and 6, which arm bears upon its rear end the projection 38, for contacting with the lower edge of the shank 29 of the picking-finger 27, whereby a rocking upward motion of said projection 38 first closes the picking-fingers and then carries them bodily upward, raising the front end of the picker-lever with them.

39 designates a guard or waste-pan of an ordinary construction for catching the parts trimmed off and guiding them in a direction to fall from the machine. Underneath said pan I attach a supplementary cutter consisting of fixed and movable shear-blades 40 and 41, with their-cutting edges located just above the horizontal plane of the pins that carry the work and with the line of cut as they shut together in the same vertical plane as the work on said pins, the movable blade 41 being actuated by means of its upper end resting within a slot 42 of the rocking arm 43 on the rock-shaft 12, as most clearly shown in Fig. 7.

As in other machines of this class, the work to be trimmed and sewed is arranged upon the pins of the pin-wheel, and the pin-wheel driven with an intermittent motion. As the knife and knife-arm are forced inwardly from the operator under the operating mechanism, the point of the knife enters the loops immediately above those upon that pin of the pin-wheel that is underneath the knife, and thereby cuts the threads composing said loops. As the next succeeding loops are presented the knife is idle, but at the second pin it acts again to cut the loops, and so on, repeatedly leaving a section of uncut loops between each cut of the knife. At the same time that the knife makes its inward movement the projection 38 on the rocking arm 37 bears upon the under edge of the shank 29 and brings the picking-fingers 26 and 27 together with the uncut loops between them. If the picker-fingers are not at the proper height to grasp said loops, they may be adjusted by the stop 33. If they do not meet each other at a point coincident with the loops upon the pin-wheel, the adjusting-screw 31 may be turned so as to cause the fingers to meet each other at a point farther to the front or rear, and thereby bring them in proper relation to the loops. After the fingers come together the projection 38 on rocking arm 37 continues its upward movement, and as said fingers cannot yield said rocking arm carries the closed fingers and front end of the picker-arm 24 upwardly into the position shown in Fig. 6. In Fig. 5 they are shown in their lowermost position and open. The rocking arm 37 returns and permits the fingers to descend and open again, thereby dropping the loops pulled out by them, so that said fingers are ready to repeat the operation of picking out the successive cut sections after they have been cut by the knife-arm and presented to said fingers by the pin-wheel. If for any reason—as, for instance, improperly placing the work upon the pin-wheel—any of the threads or portions of them remain uncut after passing the knife 21, the supplemental cutters 40 and 41 will cut off such remaining portions, inasmuch as they are so located that any uncut fabric or portion thereof that projects above the loops on the pins of the pin-wheel will by the movement of said wheel be brought between said cutters; but when there are no such uncut projecting portions there will be nothing for the supplemental cutters to cut.

I claim as my invention—

1. In a trimming attachment for looping-machines, the combination of a principal cutter—as, for instance, the knife 21—the supplemental cutters consisting of shear-blades 40 41, and operating mechanism, substantially as described, and for the purpose specified.

2. In a trimming attachment for looping machines, the combination of the rocking knife-arm 22, knife 21 mounted thereon, the picker-arm 24, pivoted on the frame with its length extending in a direction parallel to the stroke of said knife-arm, a pair of picking-fingers pivoted to said picker-arm, and operating mechanism, substantially as described, and for the purpose specified.

3. The combination of the picker-arm 24, pivoted to the frame D, the picking-fingers 26 and 27, pivoted on a common center at the swinging end of said arm, and operating mechanism, substantially as described, and for the purpose specified.

4. The combination of the picking-fingers

26 and 27, pivoted together on a moving support—as, for instance, the arm 24—and each provided with shanks extending from their pivot, the lever 30, pivoted to one shank of said fingers with one end bearing upon the shank of the other finger, the adjusting-screw 31 in said support, the opposite end of said lever 30 resting upon said screw, and operating mechanism acting upon one of said finger-shanks, substantially as described, and for the purpose specified.

5. The combination of the moving picker-arm 24, the picking-fingers 26 and 27 pivoted thereon, the lever 30, pivoted to the shank of one finger and resting at one end upon the shank of the other finger and at the other end on the said arm, the rocking-arm 37, having the projection 38, and operating mechanism whereby the fingers are first brought together and then moved upwardly, substantially as specified.

6. The combination of a frame, the picker-arm 24, picking-fingers 26 and 27 mounted thereon, the adjustable stop 33, a support on the frame for said stop to engage, and operating mechanism, substantially as described, and for the purpose specified.

7. The combination of a frame, the picker-arm 24, picking-fingers 26 and 27 mounted thereon, the lever 30, pivoted to the shank of one picking-finger and bearing at one end upon the shank of the other finger, the adjusting-screw 31 in said arm 24, upon which screw one end of the lever 30 rests, the adjustable stop 33, a support on the frame for said stop to engage, and operating mechanism, substantially as described, and for the purpose specified.

8. In a trimming attachment, the combination of a frame, the rock-shaft 12, knife-arm 22, mounted on said shaft, the bearing-arm 36 for one end of said shaft, adjustably mounted on said frame, and operating mechanism, substantially as described, and for the purpose specified.

9. The combination of a frame, the rock-shaft 12, knife-arm 22, mounted on said shaft, the adjustable bearing-arm 36, mounted on said frame, the picker-arm 24, picking-fingers 26 and 27, the adjustable stop for regulating the fall of said fingers, adjusting devices to regulate the closing of said fingers, and operating mechanism, substantially as described, and for the purpose specified.

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