W. L. BARRON AND A. F. FIFIELD.

WORK HOLDER FOR SEWING MACHINES.

APPLICATION FILED JULY 23, 1919.

1,387,034.

Patented Aug. 9, 1921.

2 SHEETS—SHEET 1.

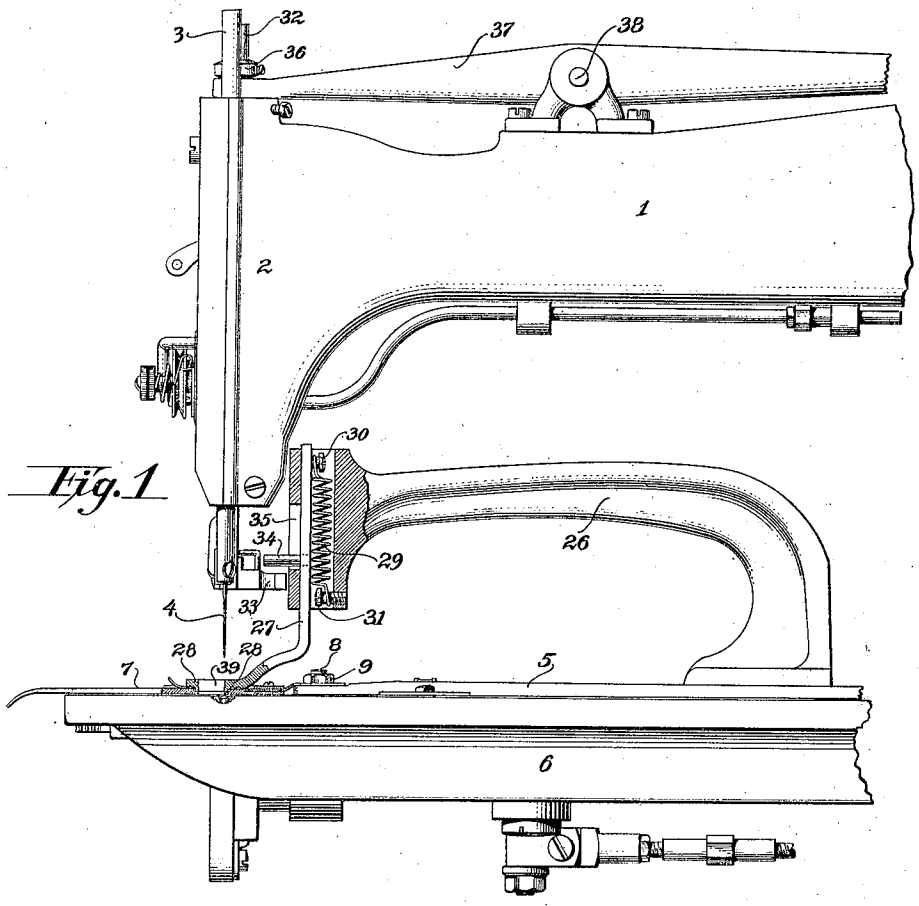


Fig. 1

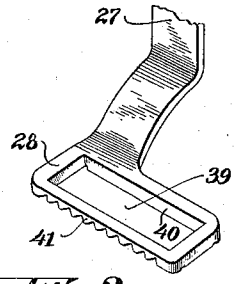


Fig. 2

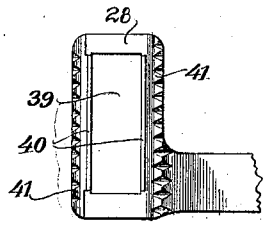


Fig. 3

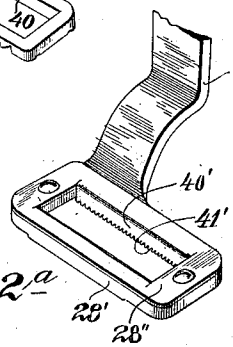


Fig. 2a

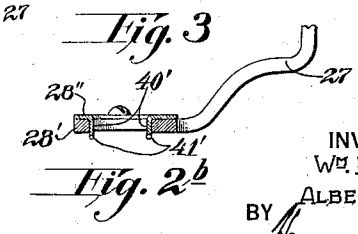


Fig. 2b

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Fig. 4

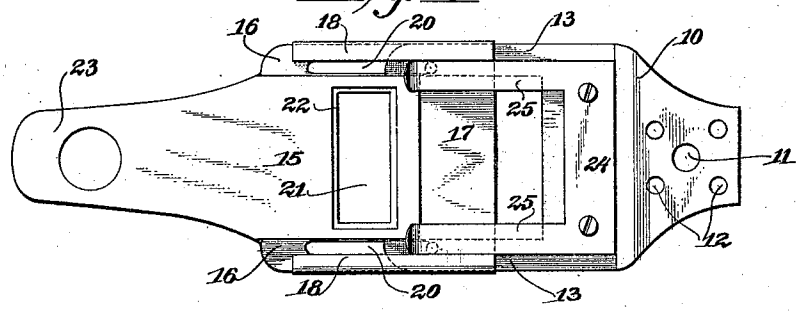
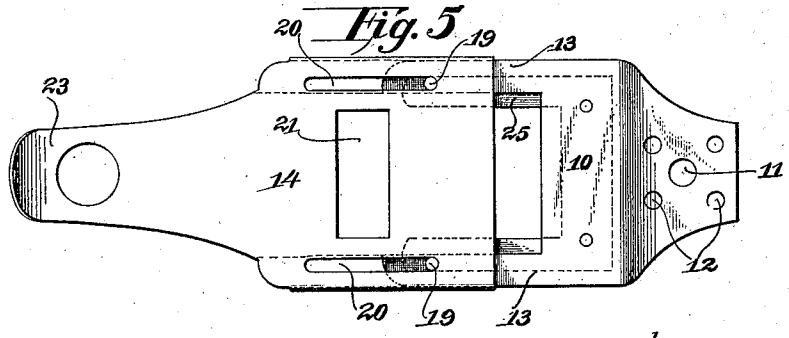


Fig. 5



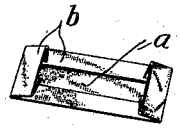


Fig. 8

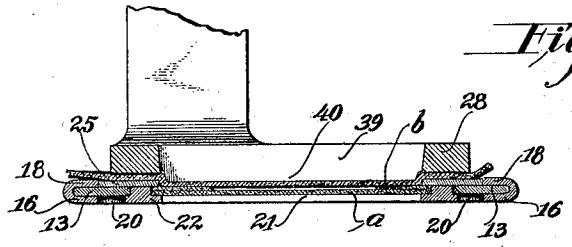
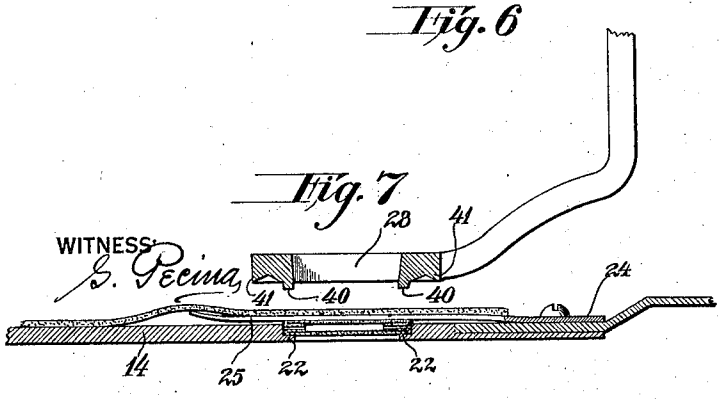


Fig. 6

Fig. 7



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UNITED STATES PATENT OFFICE.

WILLIAM L. BARRON AND ALBERT F. FIFIELD, OF NEWARK, NEW JERSEY, ASSIGNORS TO THE SINGER MANUFACTURING COMPANY, A CORPORATION OF NEW JERSEY.

WORK-HOLDER FOR SEWING-MACHINES.

1,387,034. Specification of Letters Patent. Patented Aug. 9, 1921.

Application filed July 23, 1919. Serial No. 312,803.

To all whom it may concern:

Be it known that we, WILLIAM L. BARRON and ALBERT F. FIFIELD, citizens of the United States, residing at Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Iprovements in Work-Holders for Sewing-Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to a work-clamp for sewing machines, and more particularly to a clamp for positioning a reinforcing strip, patch or label and holding the same against a piece of material to which it is to be sewed. Patches suitable for the purpose may be formed from rectangular pieces of fabric by folding over the raw edges thereof to fit them to the holder in which they are presented to the stitch-forming mechanism. These patches or labels may be obtained on the market already prepared as described.

In work-holding attachments for performing this class of work it has heretofore been customary to provide a patch-holding member above the support for the body-fabric, which necessitated the introduction of the work bottom-side-up in order that the patch should be secured upon the inner face or bottom of the fabric. With such work-holders it has been common to employ sewing machines having thread-cutting means of the type represented in the U. S. patent to Gatchell No. 798,130, of Aug. 29, 1905, having provision for cutting the thread below the work. Consequently the stitching of the patch to the body fabric face down resulted in the leaving of several loose thread ends upon the outer face of the fabric so as to mar its appearance.

According to the present invention means are provided for properly positioning and holding the patch beneath the body fabric which is firmly clamped thereon, with the result that the upper face of the body-fabric is exposed and the beginning and final stitching-thread ends are concealed with the attached patch on the reverse side.

In its preferred form the device comprises two superposed clamping members which are urged together to hold in engagement the work and the patch to be sewed thereto. The lower of the clamping members slidably rests on the work-plate of the machine and is preferably formed in two slidably connected parts, one of which may be withdrawn to expose an aperture therein in which a patch may be placed. A narrow depressed ledge extends around the aperture which marginally supports the patch. Spring-fingers carried by the other part of the lower clamping member serve as guards to prevent the opening out of the marginal folds of the patch and also serve to yieldingly support the body-fabric above the patch while the superposed plies of material are being positioned to receive the fastening stitches. The upper clamping member is spring-pressed and has an aperture corresponding to the aperture in the patch-holder and its lower face may be roughened or corrugated. Adjacent its aperture it is provided with downwardly extending projections which are adapted to press down the work directly above the path-holding ledge of the lower clamping member. Means are provided for lifting the upper member when desired. The stitch-forming mechanism operates through the aperture in the clamping members and the latter are shifted as a whole by any suitable mechanism to dispose the stitches as desired.

In the drawings Figure 1 is an elevation of a part of a sewing machine of the well known Singer No. 68 type embodying the present improvement and showing the work-clamp partly in longitudinal section. Fig. 2 is a perspective of the upper clamping member. Figs. 2^a and 2^b are perspective and cross-sectional views, respectively, of a modified form of upper clamping member. Fig. 3 is a bottom plan view of the upper clamping member shown in Fig. 2. Fig. 4 is a top plan view of the lower clamping member with its patch-holding portion drawn out. Fig. 5 is a bottom plan view of the same. Fig. 6 is a transverse section through the work-clamp showing the work and a patch in position to be secured thereto. Fig. 7 is a longitudinal section through the work-clamp showing the work and patch in place before the upper clamping member is lowered, and Fig. 8 is a perspective view of a patch or label such as may be used for work of the character contemplated.

Referring to the drawings, 1 indicates the overhanging arm of a sewing machine and 2 the head thereof. A needle-bar 3 reciprocates in the head and carries a needle 4.

Any suitable lower stitch-forming mechanism and actuating means therefor may be employed.

A bar 5 is slidably mounted on the bed-plate 6 and carries at its forward end a lower clamping member designated as a whole by numeral 7, the clamping member being secured to the plate by a bolt 8 and nut 9. The clamping member 7 is formed in two parts (Figs. 4 and 5) of which one is a plate 10 having a hole 11 therein adjacent one end for the bolt 8 and a series of smaller holes 12 for the reception of steady pins carried by the bar 5. The opposite end of the plate 10 is provided with arms or forks 13 which form guides for the relatively slidable or patch-holding part 14 of the clamping member. The part 14 has a raised or thickened portion 15 (Fig. 4) surrounded on three sides by the thinner portions 16 and 17. The portions 16 at each side are bent over at 18 to form channels slidingly embracing the arms 13, and pins 19 in the arms 13 work in slots 20 in the portions 16 to limit the sliding movement of the part 14. A patch-receiving aperture 21, in the present instance rectangular in shape, is formed in the thickened portion 15, this aperture being countersunk to form a ledge or flange 22 on which the peripheral portion or margin of a patch may rest.

The countersunk portion of the aperture 21 is relatively shallow so that the patch may be supported with its upper surface substantially flush with the upper surface of the patch holding part 14, between which and the foot 28 a body fabric may be readily inserted and clamped down upon the patch without substantial deformation. The outer end of the slidable or patch-holding part 14 is provided with a finger-hold 23 by which it may be manipulated. A flat U-shaped spring 24 is attached to the plate 10, its spring arms or fingers 25 extending outwardly slightly above the arms 13 and the upper surface of the patch-holder 14 and overhanging the side portions of the patch-supporting flange 22 when the patch-holder 14 is in its inner or operative position. By this means, the countersunk aperture 21 is normally unobstructed for reception of the patch which may be readily slipped over the holding part 14 and beneath the spring-fingers for introduction into the holder. Owing to the resilience of the fingers 25, the depression of the upper clamping member upon the superposed body-fabric permits the latter to be firmly gripped around the entire margin of the patch.

An overhanging arm 26 (Fig. 1) extends forwardly from the rear end of slide-bar 5 and in its forward end is a vertical guideway in which slides the shank 27 of the upper clamping member or foot 28. A tension-spring 29 secured to the shank and to the overhanging arm 26 by stud-screws 30 and 31, respectively, urges the upper clamping member against the lower one. The usual presser-bar 32 is mounted in the machine head and secured to its lower end is the angular lug or projection 33 whose end extends beneath a pin 34 projecting from the shank 27, which pin moves in a slot 35.

A collar 36 is secured to the upper end of the presser-bar and beneath said collar the presser-bar is engaged by the forked end of a lifting lever 37 pivoted at 38 on the overhanging arm of the machine. Any suitable operating means such as a chain and treadle is or may be connected to the opposite end of the lifting lever in order to raise the clamping member 28, when desired. The clamping member is provided with a rectangular aperture 39 with which the aperture 21 of the lower clamping member registers when the latter is in sewing position, and the stitch-forming mechanism operates through said apertures.

Adjacent the transverse walls of the aperture 39 the clamping member 28 is provided with a pair of downwardly extending projections 40 (Figs. 1, 3 and 7) which register with the transverse portions of the ledge or flange 22 when the latter is in operative position. The lower face of the clamping member 28 is shown provided also with work-gripping teeth or projections 41.

In use, the lever 37 is operated to lift the upper clamping member or foot and the patch-holding part 14 of the lower member is withdrawn by the finger-piece 23. A patch *a* of the proper size is then inserted in the aperture 21 with its edges resting on the flange 22. The patch is inserted with the turned over marginal folds *b* facing upwardly so that they may be secured against the bottom side of the work. The slidable patch carrying part 14 is then pushed all the way in to sewing position, the edges of the spring-fingers 25 insuring against unfolding of the marginal folds of the patch during this operation. The work is then properly placed over the lower clamping member and the upper clamping member released. The projections 40 and flange 22 coact to press the work firmly against the patch along the transverse side of the patch, and the side portions of the clamping member 28 press down the spring-fingers 25 to hold the work and patch firmly in engagement along the ends of the patch, while the teeth or projections 41 aid in holding the work in position. The machine is then started, and the work-holder traverses its required path of travel to cause the stitch-forming mechanism to sew around the patch adajcent its edges. A suitable mechanism for giving the desired movement to the work-holder is that shown in patent to Adams, No. 1,151,846, August 31, 1915, but

it is evident that any means for causing a desired relative feeding movement of the stitch-forming mechanism and work-holder may be used. It is also evident that a patch without raw edges may be used, and a patch of any desired shape may be sewed by using a work-holder with a correspondingly shaped opening and proper actuating means. The holder is also applicable for sewing on labels, tabs or similar articles.

In some cases it may be desirable to use an upper clamping foot such as shown in Figs. 2^a and 2^b. In this form of foot, the apertured rectangular presser-frame 28′ has detachably fitted to its upper surface a supplemental apertured frame 28″ having downwardly bent lips 40′ which fit against the interior longitudinally extending walls of the frame 28′ and project below the lower surface of said frame. The lips 40′ are preferably serrated, as at 41′, and are intended to register with the ledge 22 of the patch-holder to firmly grip the patch and work in sewing position.

Having thus set forth the nature of the invention, what we claim herein is—

1. In a work-clamp, apertured clamping members having coacting projecting and depressed portions adapted to hold a work piece and a fabric article in engagement around the edge of the latter, one of said members including a part adapted to be laterally withdrawn for insertion therein of a fabric article, and means whereby said part may be withdrawn for insertion of the fabric article.

2. In a work-clamp, a lower clamping member including a slidable part with an article-positioning aperture therein, flat guard-springs marginally overhanging said aperture, and an apertured upper clamping member having projections adapted to press a work-piece against the article along the edge of the latter.

3. In a work-clamp, coacting clamping members having apertures therein, means whereby said apertures may be brought into and out of alinement, an article retaining ledge around one of said apertures, and a projection on the other clamping member in register with a part of said ledge when the apertures are in alinement.

4. In a work-clamp, upper and lower relatively movable work-clamping members, one of said members having a countersunk aperture adapted to retain an article to be attached to the work, and the other member comprising means complementary to the countersink for holding the work against the article.

5. In a work-clamp, relatively movable work-clamping members, one of which comprises two relatively slidable parts, one of said parts having an article holding recess, means whereby said latter part may be withdrawn to receive the article in its recess, means for shielding the article while the work is adjusted in position above the same, and a projection carried by the other clamping member for closely engaging the work and article while being stitched.

6. In a work-clamp, relatively movable work-clamping members, one of which comprises two laterally and relatively slidable parts, coacting means carried by one of said parts and the other clamping member for clamping an article to the work adjacent the edge of the former, and means whereby said parts may be relatively moved for positioning said article.

7. In a work-clamp, a clamping member having spaced arms, an element slidable between said arms and having a countersunk article-holding aperture therein, spring guard-fingers disposed over part of the margin of said aperture, and a second clamping member having projections disposed over another part of the margin of said aperture.

8. In a work-clamp for sewing machines, a clamping member having a part thereof movable laterally from sewing position for insertion therein of an article to be attached to the work, means overhanging a portion of the margin of said article for shielding it from disarrangement by a superposed body-fabric when in sewing position, and a coacting clamping member for closely gripping the body-fabric and the margin of said article.

9. In a work-clamp, a lower clamping member comprising a plate having forked arms, a second plate mounted to slide on said arms and having an aperture containing a marginal ledge, means whereby said second plate may be withdrawn to position a fabric article in said aperture and on said ledge, springs carried by said first plate and adapted to overhang the margin of said article in the aperture when the second plate is returned, and an apertured upper clamping member having projections adapted to hold the work piece and said article in contact along the margin of the latter.

10. In a sewing machine, a pair of apertured clamping members, stitch-forming mechanism adapted to operate through the apertures in said members, coacting means upon said members for laterally positioning an article to be fastened and for clamping the same upon and in marginal contact with a work-piece in stitching position, and means whereby relative feeding movements between the stitch-forming mechanism and clamping members may be produced to form a line of stitches in the work and article adjacent the walls of said aperture.

11. In a work-clamp, a clamping member comprising two parts, one of which is slidable relatively to the other, a finger-piece

for operating said slidable part, means for limiting the sliding movement in either direction, and said slidable part being provided with a patch positioning aperture, a second clamping member having an aperture in alinement with the first aperture, and coacting means carried by the clamping members for holding the margin of the patch firmly against a work-piece while being sewed thereto.

12. In a work-clamp, a patch-carrying part, means whereby said part may be slid from operative position for reception of a patch, and means coacting with the patch-carrying part for firmly holding the periphery of the patch in engagement with a superposed work-piece.

13. A work-holder comprising apertured upper and lower clamping elements coöperating to hold the work between them, said lower element including means for positioning a marginally folded label and means for insuring against disarrangement of the marginal folds of said label before the upper clamping element is lowered into gripping relation with the work.

14. A work-clamp comprising a lower member having a countersunk aperture for receiving and marginally supporting a label substantially flush with the upper surface of said member, and an upper apertured member for clamping a body-fabric against the label supported by said lower member.

In testimony whereof, we have signed our names to this specification.

WILLIAM L. BARRON.
ALBERT F. FIFIELD.