July 4, 1944. E. L. LIPP 2,352,722

CLAMP APPLYING TOOL

Filed Oct. 19, 1942

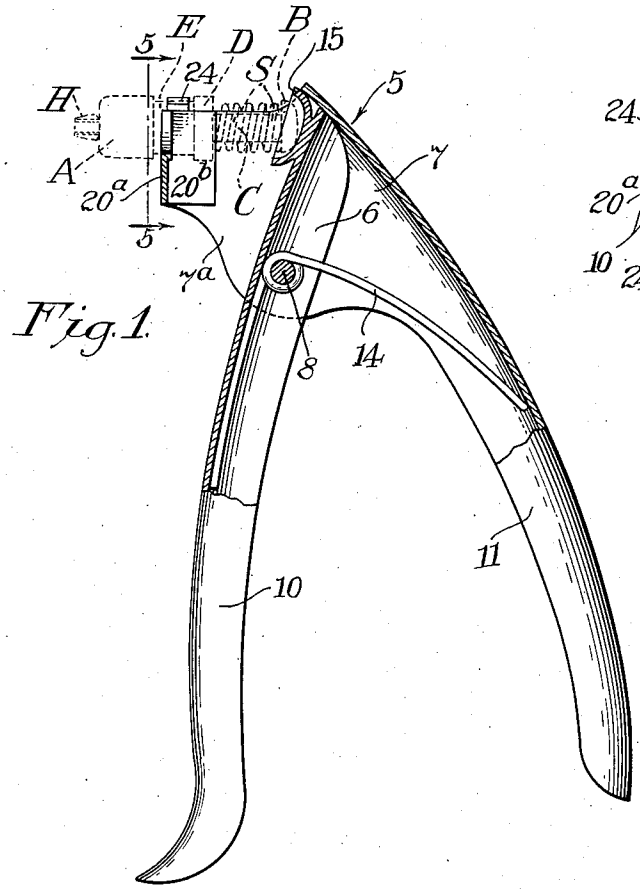


Fig. 1.

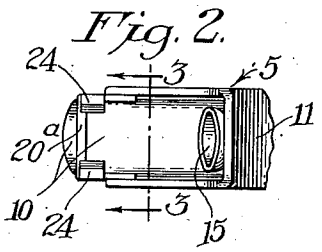


Fig. 2.

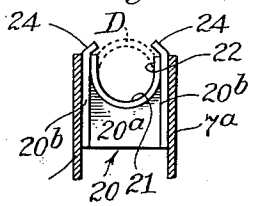


Fig. 3.

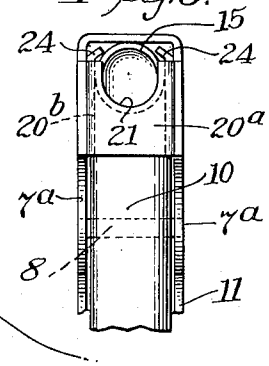


Fig. 5.

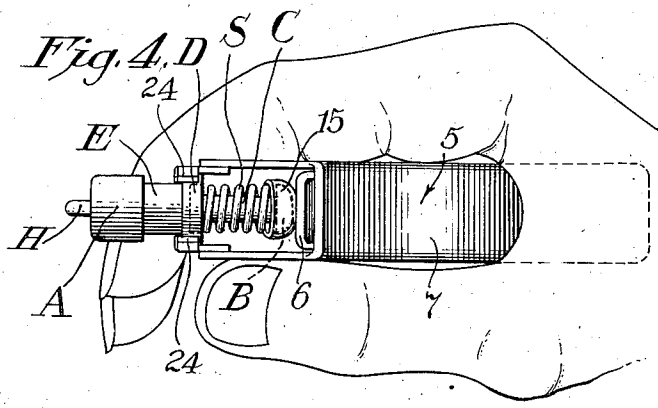


Fig. 4.

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CLAMP APPLYING TOOL

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Application October 19, 1942, Serial No. 462,542

1 Claim. (Cl. 29—84)

This invention has to do with clamp applying tools and while it is not limited to use in the application of any particular clamp, it is particularly well adapted for use in applying spring pressed skin clamps of the type shown and described in United States Letters Patent No. 2,266,929, dated December 23, 1941.

Such clamps generally consist of a cylindric housing in which a plunger-like retaining member is reciprocally mounted, the retaining member projecting from each end of the housing, one end of the retaining member presenting a lateral sheet engaging projection to engage and clamp the work against the adjacent end of the housing, and the other end of the retaining member is headed for engagement by a clamp operating and applying tool to compress the coil spring which normally urges the retaining member into clamping position. The coil spring so employed in such clamps is necessarily very strong and unless the clamp is precisely centered and disposed in the cradle of the clamp applying tool, when pressure is applied on the tool to compress the spring it happens not infrequently that the entire clamp will fly out of the tool and injure nearby workmen.

Thus, to have the desired safety in operation, it is highly desirable to provide means for adequately locking the clamp in the cradle of the applying tool; and since such tools must be capable of rapid and simple operation—that is, they must be so designed and constructed that the clamps may be placed therein and removed therefrom with maximum speed and facility—it is essential that the locking means employed be one answering to those requirements.

It is therefore among the principal objects of my present invention to provide a clamp operating and applying tool embodying simple and efficient means for locking a clamp in position in the tool in such manner that it may be readily and rapidly inserted and removed.

It is a further object to provide in such a tool a clamp locking means which does not require that the clamp itself be specially constructed for use in the tool.

Still further advantages are derived from my invention and how those as well as the objects hereinabove specifically enumerated are achieved will be made clear by the following detailed description of a presently preferred form of tool in which my invention may be carried out, for the purposes of which description I shall refer to the accompanying drawing, in which:

Fig. 1 is a vertical section, partly in elevation, a clamp being shown mounted therein, the clamp being denoted in dotted lines;

Fig. 2 is a top plan view;

Fig. 3 is a section on line 3—3 of Fig. 2;

Fig. 4 is a plan view showing a clamp mounted in the device; and

Fig. 5 is an end view as denoted by line 5—5 of Fig. 1.

Referring now to the drawing, I show at 5 a pincers-like tool having jaws 6, 7 pivoted together by pin 8 for movement relative to each other, the respective jaws having channeled handle portions 10, 11. The handle portions are normally resiliently urged apart by spring 14.

Jaw 6 has secured to its front face, adjacent its top end, a dished clamp engaging member 15 for receiving the headed end B of the plunger C of a clamp device A, such clamp device being shown in dotted lines in Fig. 1 and in plan in Fig. 4. The clamp A has a reduced diameter portion providing an annular flange D for engagement by a portion of the jaw 7 in the manner to be hereinafter described. Member 15 is secured to jaw 6 by spot welding or in any other suitable manner.

Jaw 7 has side walls 7*a* projecting forwardly, jaw 6 being pivoted between said walls. The front end of the walls 7*a*—that is, the space between the outer ends of the walls—is closed by an end member 20 having a front wall 20*a* and opposite side walls 20*b*, the latter being secured as by spot welding or in any other suitable manner to the inner faces of the walls 7*a*. The front wall 20*a* is cut away to provide a laterally opening U-shaped clamp receiving recess 21 whose bottom portion is curved about a radius conforming to the radius of the reduced diameter portion E of the clamp housing which it is to receive, and whose upper sides 22 are relatively parallel. Each of the walls 20*b* has a laterally projecting ear 24, which ears project inwardly for the purpose to be described.

To mount a clamp A in the tool, the headed end B of the clamp plunger is placed in the dished member 15 and the reduced diameter portion E of the clamp housing is placed in the cradle 21, the diameter of clamp portion E being small enough to pass downwardly between the adjacent ends of ears 24. Then as the handles 10, 11 are compressed together, member 15 pushes the clamp towards the end member 20 causing the clamp flange D to enter under the ears 24. The outer ends of the respective ears 24 are spaced apart a distance less than the diameter of the clamp flange D so that in that position the clamp

cannot escape laterally from the cradle inasmuch as the ears 24 overhang the flange D. Further compression of the handles 10, 11 forces the plunger C inwardly of the clamp housing against the pressure of spring S to project the opposite end H of the bifurcated retaining member from the housing and with respect to the spreader element M. After the clamp is thus operated, the end H of the retaining member is placed through registering perforations in sheets, not shown, which are to be held together by the clamp, and the pressure on the handles 10, 11 is released, allowing the parts to return to the position of Fig. 1, in which position the tool may be removed from the clamp by pushing the tool forwardly on the clamp sufficiently to project the housing flange D from beneath the ears 24. Member 15 is relatively deeply dished to insure proper centering of the clamp in the tool.

While the foregoing description and the annexed drawing serve to explain one operative adaptation of my invention, the broader aspects of my invention, as defined by the appended claim, contemplate that the invention may be embodied in other and varying specific structures.

I claim:

A tool adapted for holding and compressing a resilient clamp, comprising a clamp retaining jaw presenting side walls defining the sides of a clamp receiving cradle, an end wall extending between the side walls, a laterally opening U-shaped recess in the end wall providing an abutment for limiting longitudinal movement of the clamp with respect to the cradle, a laterally projecting ear carried by one side wall in position partially overhanging the cradle adjacent the end wall whereby to prevent lateral escape of the clamp from the cradle, and a second jaw pivotally carried by the first-mentioned jaw for engaging and compressing a clamp carried in the cradle.

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