T. A. MEITZ.

BUTTON DETACHING TOOL.

APPLICATION FILED MAR. 30, 1914.

1,125,366. Patented Jan. 19, 1915.

FIG. 1.

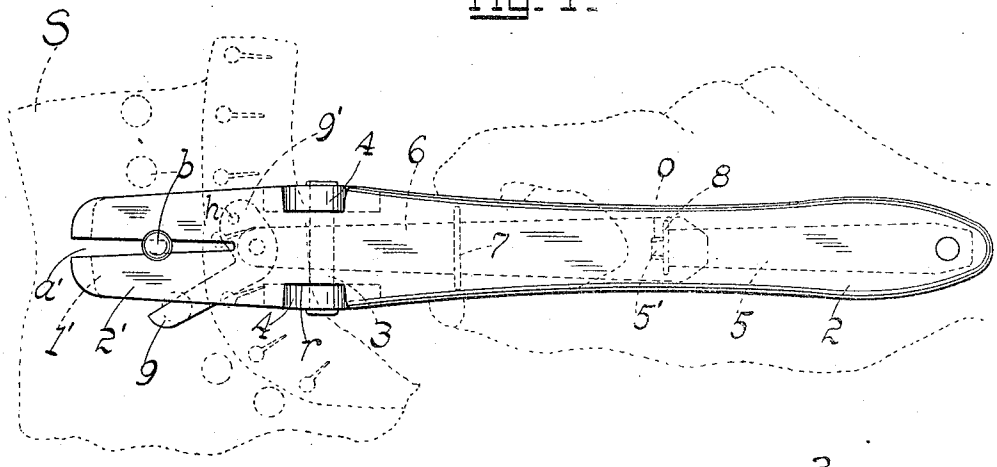
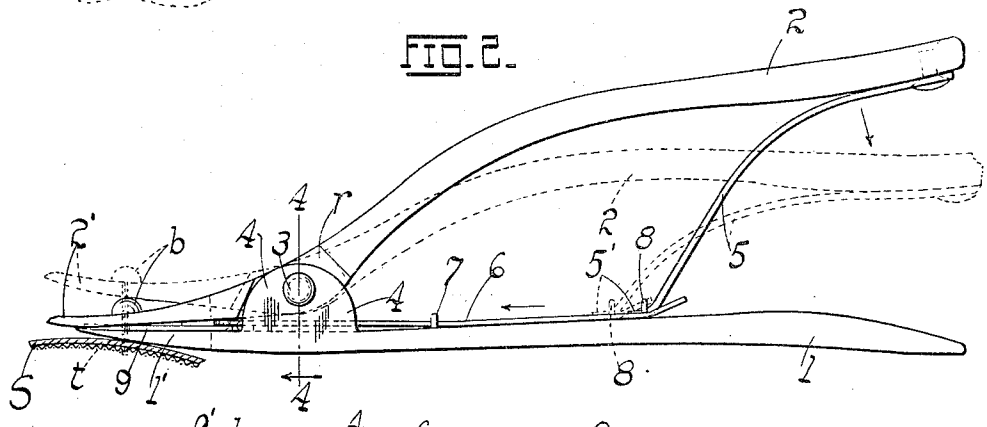


FIG. 2.



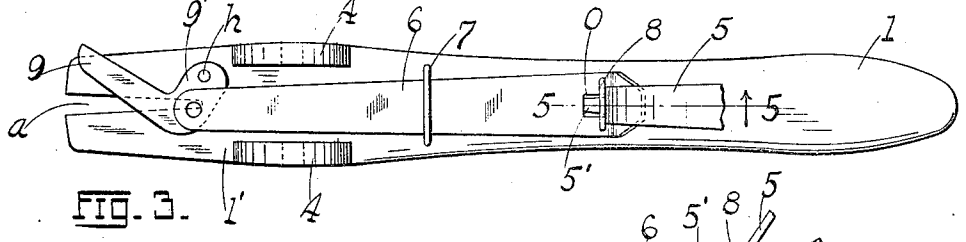


FIG. 3.

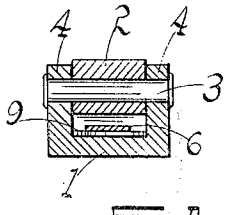


FIG. 4.

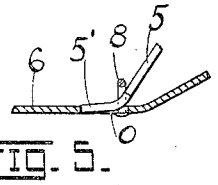


FIG. 5.

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BUTTON-DETACHING TOOL.

1,125,366. Specification of Letters Patent. Patented Jan. 19, 1915.

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To all whom it may concern:

Be it known that I, THEODORE A. MEITZ, citizen of the United States, residing at St. Louis, State of Missouri, have invented certain new and useful Improvements in Button-Detaching Tools, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention has relation to improvements in button detaching tools; and it consists in the novel features of construction more fully set forth in the specification and pointed out in the claims.

In the drawings, Figure 1 is a top plan of the tool as applied to a shoe-upper fastened by means of buttons; Fig. 2 is a side elevation thereof showing its application to the button of a shoe-upper, the latter being shown in section; Fig. 3 is a top plan illustrating the position assumed by the blade and parts controlling the same, for a partly closed position of the handle-levers, or that shown by the dotted position of the upper lever in Fig. 2, a part of the controlling spring for the handle-levers being broken away; Fig. 4 is a cross-sectional detail on the line 4—4 of Fig. 2; and Fig. 5 is a longitudinal sectional detail on the line 5—5 of Fig. 3.

The present improvement is directed to tools specially intended to sever buttons from shoe-uppers when occasions arise to remove the buttons from the shoe either for purpose of repair, or where it is intended to cut off the buttons permanently for use in connection with a new shoe. The tool however is not restricted in its application to the specific purpose designated, but may be used for cutting off buttons from garments such as coats, vests, trousers, shirt waists, and the like, or wherever buttons or equivalent devices are sewed on to a fabric for any purpose whatsoever.

The object of the invention is to construct a tool which will not only sever the securing thread by which the button is held to the fabric, but which will simultaneously pull the button away from the fabric during the severing of the thread.

A further object is to provide a tool which is simple, effective, cheap, durable, and one possessing further and other advantages better apparent from a detailed description of the invention, which is as follows:

Referring to the drawings, 1, 2, represent two lever-handles, the member 2 being hinged to the member 1 about a pivotal pin 3 passed through the lugs or ears 4, 4, formed on the member 1 and through an opening in the member 2 registering with the openings of the ears which receive the pin. To bring the outer faces of the ears flush with the corresponding side faces of the lever 2, the latter has formed suitable recesses *r* on the sides of a depth to receive the ears, as shown. The lever 1 is provided beyond the ears 4, 4, with an extension or short lever-arm in the shape of a jaw 1′, said jaw having a central recess or open slit *a* whose sides converge inwardly or toward the base of the slit. The lever 2 is provided with a coöperating jaw 2′ terminating at its free end beyond the free end of the jaw 1′, and being likewise provided with a corresponding open slit or recess *a*′. It is obvious that a closing movement of the levers 1, 2, is attended with a corresponding opening movement or separation of the jaws, the levers being normally held in an open, and the jaws in a closed, position by a flexed spring 5 whose fixed end is secured to the lever 2, the free end of the spring slidably bearing against the opposite inner face of the lever 1, a construction very common in pliers, tongs, and the like.

The pivotal pin 3 is spaced a suitable distance from the inner face of the lever 1, there being free to play through said space, a reciprocating link 6 which is guided in its movements by a strap or staple 7 secured to the lever 1 and spanning the link at an intermediate point, the rear end of the link being pivotally coupled in any suitable manner to the adjacent end of the spring 5, the specific connection here employed being a strap 8 secured to the link and spanning the reduced terminal or toe 5′ at the free end of the spring, said toe being received by an opening *o* in the link, beneath the staple 8. Any other equivalent pivotal connection will however answer the purpose. The link 6 extends forward or outward to a point beyond the axis of the pivot 3, the outer end of the link being pivotally coupled to an oscillating blade or cutter 9, the latter being itself pivotally secured to the lever 1 at the base of the jaw 1′, to one side of the slit *a*, and forward of one of the ears 4. The pivotal pin *h* of the blade passes through the basal lobe 9′ with which the blade is provided, the blade 9 proper and its lobe 9′ constituting in effect a bent or

angle-lever at the convergence of whose legs the link 6 may be said to be pivoted. In other words, the link 6 is pivotally coupled to the blade at a point which is eccentric to the axis of oscillation of the blade. In its oscillations, the blade sweeps across the jaw 1′ and across the slit *a* of said jaw, the side of the slit which the blade approaches in its sweep toward and across the slit serving as a shearing edge with which the edge of the blade coöperates in the manner of a pair of scissors or blades of a pair of shears. Normally, the blade 9 projects outwardly from between the sides of the jaws, the jaw 2′ clearing the blade but contacting with the jaw 1′ beyond the blade, the free end of the jaw 1′ being feathered or tapered so as to merge more or less with the adjacent face of the overlapping jaw 2′, it being understood that when the jaws are closed, the slits *a*, *a*′, form virtually a single slit (both slits being disposed in the common plane of oscillation of the longitudinal centers of the levers and their jaws).

In its practical application, the tool is herein shown in connection with a button shoe-upper. The upper is represented by S and the buttons by *b*, the thread by which the button is secured to the shoe being indicated by the reference letter *t*. Should it be desired to remove or cut off a button, the operator passes the closed jaws between the button *b* and the shoe-upper S, the connecting thread *t* being received by the registering slits *a*, *a*′. By then closing the levers 1, 2, the link 6 will be pushed outwardly and being pivoted eccentrically to the blade 9, it will oscillate the latter across the slits *a*, *a*′, (in the plane of the inner face of the jaw 1′), thereby severing the threads *t*. At the same time the jaws 1′ 2′, will diverge or spread apart, in which movement the button *b* will be pulled away from the shoe S by the jaw 2′. It follows therefore that at the same time the blade cuts the thread (this being possible by reason of the opening movement of the jaws 1′ 2′) a tension or pull is exerted on the button by the jaw 2′. The blade 9 oscillates in a plane transverse to the plane of oscillation of the blades 1, 2, and their jaws 1′, 2′, making it possible for the blade to swing across the slit *a*, *a*′, while the jaws are parting, the parting movement of the jaws in turn pulling on the button and hence assisting the knife in severing the thread. The overlapping end of the jaw 2′ is first passed under the button, after which both jaws 1′, 2′, are readily insertible between the button and the fabric to which it is sewed, the feathered edge of the jaw 1′ making the insertion easy. After one button is severed, the levers are released, whereupon the spring 5 expands or opens the levers 1, 2, to normal position (bringing the jaws 1′, 2′, together) at the same time drawing the link 6 inwardly, the latter swinging the blade 9 outwardly, thus restoring the parts to their original position. The tool is now ready to operate on another button or buttons. By means of the present tool therefore, the button or other device or formation may be cut off, the blade severing the thread, and the jaws pulling the button so as to assist the blade in its operation. The draft on the button of course exerts a pull on the thread, making it easier for the blade to cut the same.

The tool may of course be altered in many details without departing from the nature or spirit of my invention.

Having described my invention, what I claim is:

1. A tool comprising a pair of lever-handles and jaws disposed respectively on opposite sides of a fixed axis of oscillation, a blade movable across one of the jaws, and means for actuating said blade by an oscillation of the handles in a given direction.

2. A tool comprising a pair of lever-handles and jaws disposed respectively on opposite sides of a common axis of oscillation, a blade mounted to oscillate between the jaws and in a direction across the jaws, and means interposed between said blade and handles for actuating said blade with an oscillation of the handles in a given direction.

3. A tool comprising a pair of lever-handles and jaws disposed respectively on opposite sides of a common axis of oscillation, a blade mounted between the jaws and oscillatable in a plane transverse to the general plane of oscillation of the handles and jaws aforesaid, the jaws being provided with registering recesses, and connections between the blade and handles for actuating the former by an oscillation of the latter.

4. A tool comprising a pair of lever-handles and jaws disposed respectively on opposite sides of a common axis of oscillation, a blade mounted between the jaws and oscillatable across the jaws in a plane transverse to the plane of oscillation of the handles, a link having one end pivotally secured to the blade at a point eccentric to the axis of oscillation of the blade, and means connecting the opposite end of the link to one of the handles, as set forth.

5. A tool comprising a pair of lever-handles and jaws disposed respectively on opposite sides of a common axis of oscillation, the handles being spaced apart opposite said axis, the jaws being provided with open registering slits, a blade pivoted to one of the jaws and between the jaws and oscillatable across the slits in a plane transverse to the general plane of oscillation of the handles, a reciprocating link mounted on the handle carrying the blade and pivotally secured to the blade at a point removed from

the axis of oscillation of the latter, the link being free to pass through the space between the handles opposite the axis of oscillation of the latter, and a flexed spring having one end fixed to the opposite handle, the opposite end of the spring being flexibly secured to the adjacent end of the link, as set forth.

6. A button detacher comprising a pair of lever-handles terminating in jaws provided with registering open slits, a pair of lugs or ears one one of the handles at the base of the jaw thereof, the opposite handle being mounted between the ears and spaced from the first handle, a pivotal pin for securing the handles, a suitable blade pivotally mounted between the jaws and secured to the handle carrying the ears at a point adjacent to one of the ears, the blade normally projecting laterally from between the jaws for the closed position of the jaws, a reciprocating link mounted on the handle carrying the ears and passing between the ears and through the space between the jaws opposite the pivotal pin aforesaid, and having its outer end coupled pivotally to the blade at a point removed from the axis of the blade, the latter oscillating in a plane transverse to the plane of oscillation of the handles, and a flexed spring having one end fixed to the handle opposite the one carrying the link, the opposite end of the spring being flexibly secured to the adjacent end of the link, the parts operating substantially as, and for the purpose set forth.

7. A tool comprising a pair of lever-handles and jaws disposed respectively on opposite sides of a common axis of oscillation, a blade mounted to oscillate between the jaws in a direction across the jaws and transverse to the general plane of oscillation of the handles and jaws, and means for actuating said blade from the handles.

In testimony whereof I affix my signature, in presence of two witnesses.

THEODORE A. MEITZ.

Witnesses:

EMIL STAREK,

JOS. A. MICHEL.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."