E. BERNING.

BUTTON FASTENING TOOL OR DEVICE.

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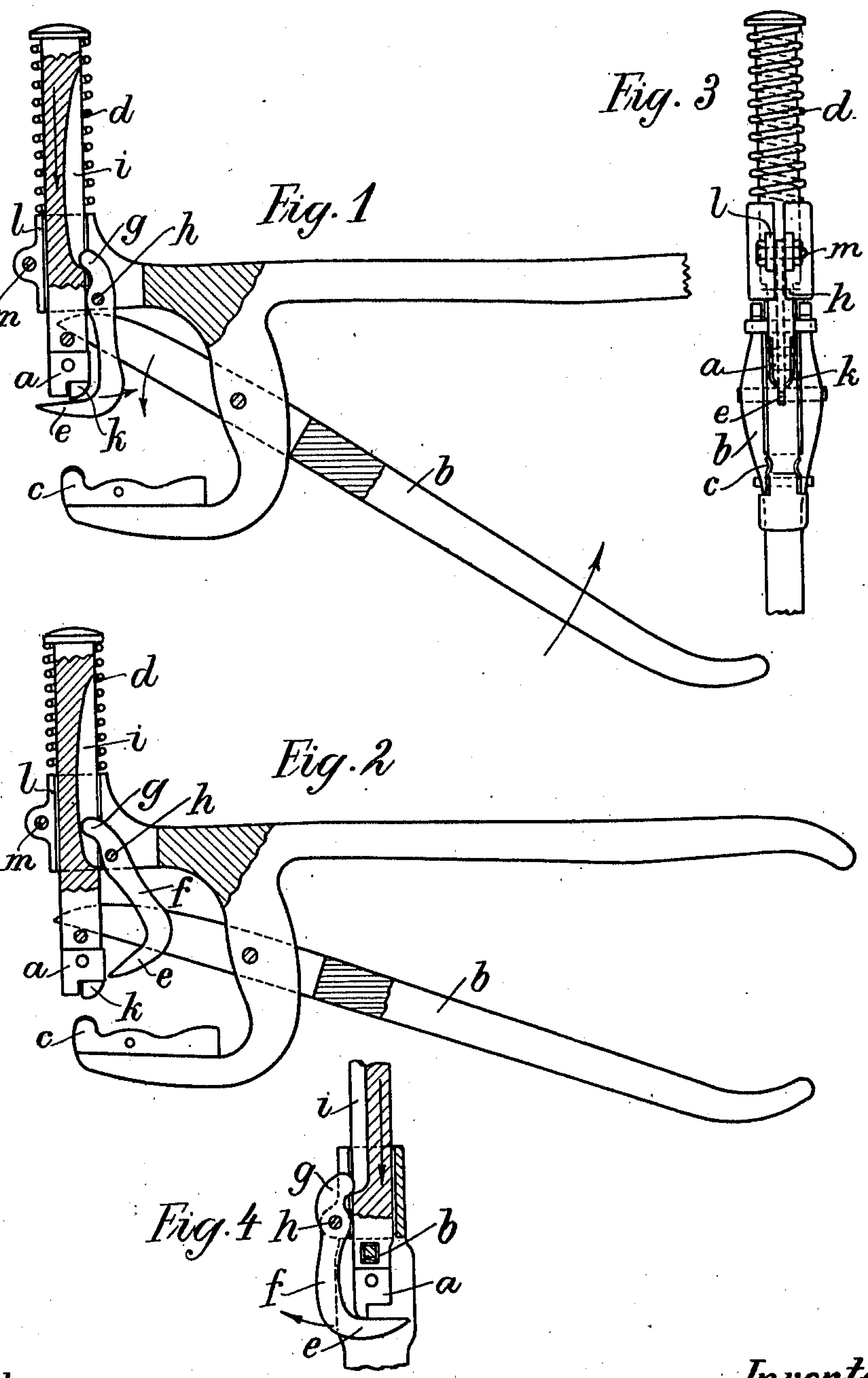
989,109. Patented Apr. 11, 1911.



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ERNST BERNING, OF SCHWELM, GERMANY.

BUTTON-FASTENING TOOL OR DEVICE.

989,109. Specification of Letters Patent. **Patented Apr. 11, 1911.**

Application filed June 25, 1910. Serial No. 568,864.

To all whom it may concern:

Be it known that I, ERNST BERNING, partner in the firm of Gustav Rafflenbeul, a subject of the German Emperor, residing at Schwelm, Westphalia, Germany, have invented new and useful Improvements in or Relating to Button-Fastening Tools or Devices, of which the following is a specification.

The known machines or tools for fastening loop-buttons to different materials such as cloth, leather, and the like are, as a rule, provided with special mechanism which, after the button or the like is fastened automatically ejects or releases the latter from the fastening device.

The present invention has for its object to so arrange a wiper and to positively operate the latter that only when the die has almost reached its initial position the wiper is rapidly moved beneath the die in order to eject or remove the button or the like, after which, as soon as the die begins to descend, it is again rapidly retracted from the latter and remains stationary. In order to positively effect this rapid or sudden movement lasting only a very short time, the wiper has the form of an angular finger arranged close to the side of the die and embracing the latter from below as well as from the side when at rest. The finger body which is parallel with the die has the shape of a double-armed lever, the shorter arm of which is guided in a longitudinal groove arranged in the die. As soon as the latter reaches its highest position, the upper end of the lever arm is forced out of the notch or groove, the lower finger end is thereby quickly moved or slid beneath the die thus ejecting the button. As soon, however, as the die again begins its downward movement, the upper end of the lever arm again enters the notch and the finger lying beneath the die is rapidly retracted so as not to impede the descent of the die. These positively effected quick movements of the wiper present an important advantage over the mechanism previously used, wherein the wiper is caused to move gradually beneath the die and during the descent of the latter to remain partly beneath and to project into the path of the die.

The invention is illustrated in the accompanying drawings in which—

Figure 1 is a front view, partly in section, of the invention; Fig. 2 is a like view showing the die in a lower position; Fig. 3 is a front view; Fig. 4 shows a modification.

In Figs. 1 to 3 of the accompanying drawing, the improved mechanism or wiper, according to this invention is shown by way of example arranged on a pincers type of tool, with the aid of which the button can be attached to cloth, leather or like material. In tools of this kind which are mostly used by bootmakers, the loop or eye is placed or secured beneath the die *a* which is moved downwardly by the lever arm *b*, while the wire or pin which is to penetrate the leather, cloth or the like, and to grip the hook portion of the button, is inserted in the bearing portion or abutment *c*. When after the fastening of the button, the tool is again opened and the die *a* is caused to move upward under influence of the spring *d*, the button still attached to the die is to be automatically ejected or removed therefrom by a special wiper. In the construction of the tool according to this invention, this is effected in the following manner. Pivoted in close proximity to the die and lateral thereof, is an angular or curved wiper *e*, *f*, *g* of which the lower finger shaped end *e*, when the die is at its highest position projects closely beneath the latter, whereas its upwardly directed arm *f*, *g* lies adjacent to the die body approximately parallel to the latter and being pivoted at *h*, forms a double armed lever as shown. The upper shorter arm *g* of this lever engages with a guide groove *i* provided in the die body *a*. As soon as during the closing of the tool, the die commences to descend, the lower rounded off edge *k* of the die glides along the inclined surface of the finger *e*, thereby forcing the finger to move back, during which movement the upper bent end *g* of the lever enters the notch of the groove *i* as seen in Fig. 2. The arrangement is such that immediately after the commencement of the descent of the die, the comparatively long finger has been completely retracted so that the die can freely move downwardly in order to fasten the button. On the die now being moved up again, and on its reaching its highest position, the upper end *g* of the lever is forced out of the end of the groove *i* whereby the lower end *e* of the finger is caused, owing to the unequal leverage of the wiper, to move rapidly forward beneath the die into the position shown in Fig. 1, thereby ejecting the button. In this manner the comparatively long ejecting

finger is positively and suddenly moved forward or backward when the die approaches its highest position, while during the remaining time, that is to say during the upward or downward movement of the die, the wiper or ejector remains stationary alongside the die body, leaving the space between the die *a* and the abutment or anvil *c* entirely free during the greatest part of the die movement. The manipulation of the tool is thereby greatly facilitated. The same ejecting device or wiper could of course also be used in machines which are employed for a similar purpose.

Over arrangements hitherto used, the device according to this invention offers the particular advantage that the insertion of each button or hook into the tool is very much facilitated, whereas in former tools the ejector has, as a rule, been constituted by a broad hoop-shaped member embracing the tool shank *b;* the ejector *e*, *f*, *g*, according to the present invention, is as will be seen from the drawing, comparatively narrow and thus does not in any way hinder or impede the introduction of the button into the tool, thereby facilitating the handling of the same.

The sleeve *l* for guiding the die, is by preference provided with a forwardly located longitudinal slot and an eye adapted to receive a screw *m* by the tightening or setting of which the fit of the die within the guide may be suitably adjusted.

A modified constructional form of the device is shown in Fig. 4 which represents similarly to Fig. 3 the pincers viewed from the front. The angular ejecting finger *e*, *f*, *g*, is in this case located at one side, viz. so that if the tool is held in the right hand, the ejector lies to the right hand side of the die, whereby the button is ejected to the left instead of to the front. This considerably facilitates the manipulation of the tool, because the insertion of the button in the tool being effected from the front is not hindered or retarded by the ejection of the button already attached. Moreover this constructional form has the advantage that the laterally arranged ejecting finger in no way interferes with or hinders the movement of the tool shanks in the operation of the die so that the various parts need not be moved one through the other, thus rendering the construction very simple.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

A button fastener comprising a handle, a die longitudinally movable therein, said die having a groove in its upper portion, an ejecting arm pivoted near its upper end to the handle close to the die and having its short upper end bent and engaging in the groove, and its extreme lower end bent at right angles and lying under the die when the same is in raised position, the body portion of the arm lying parallel and close to the die so that as the die moves downward the bent end of the ejector is engaged by the lower edge of the die and the bent end of said ejector is forced from under the die, and on the die rising the groove acting on the short arm causes the bent end to pass quickly under the die.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ERNST BERNING.

Witnesses:

GERT. BONA,

ROBERT HENRY DUNLAP.