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R. VANCURA  
STAPLING DEVICES  
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Serial No.  
238,144  
3 Sheets—Sheet 1

Fig. 1

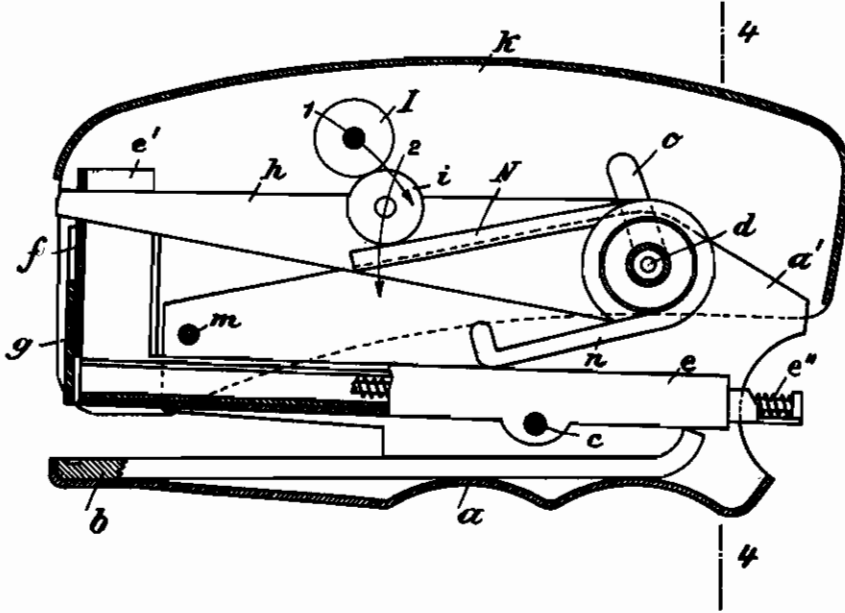
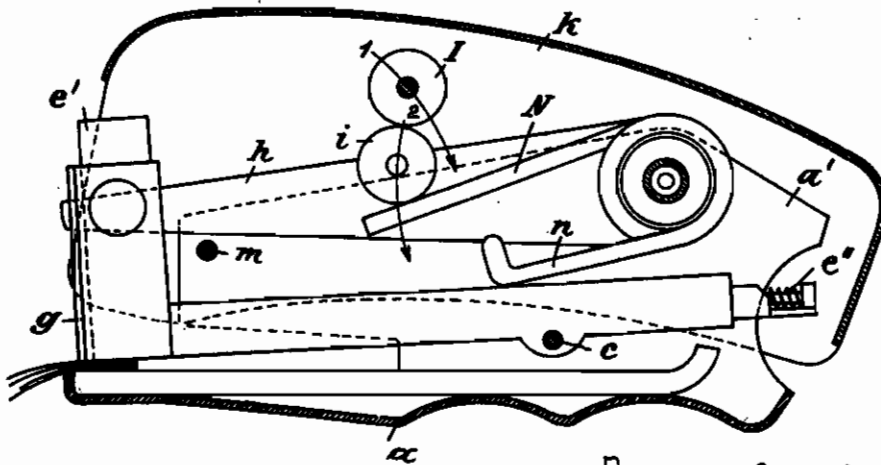


Fig. 2



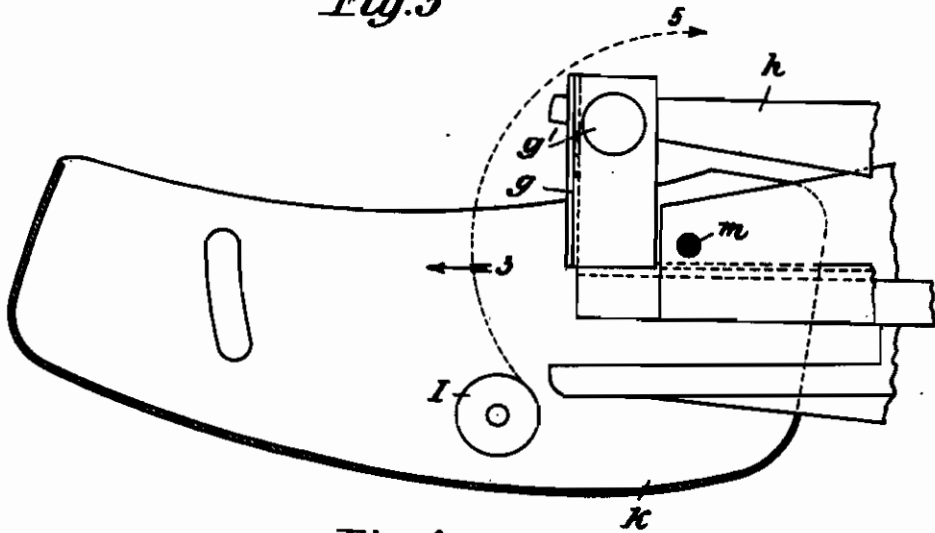
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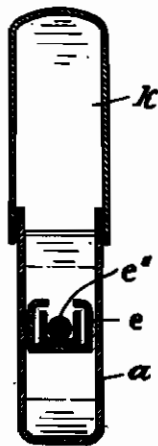
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*Fig. 3*



*Fig 4*

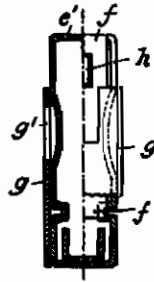


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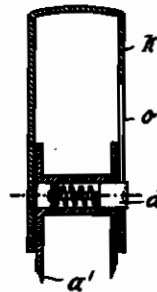
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*Fig. 5*



*Fig. 6*



*Fig. 7*

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# ALIEN PROPERTY CUSTODIAN

## STAPLING DEVICES

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Application filed November 1, 1938

This invention relates to stapling devices, more particularly of the jaw type. Stapling devices of this description have become known in which there is articulately connected to the lower portion of the device a cap by means of which the upper portion, which is pivotally mounted on the lower portion, is pressed against the lower portion and against the matter to be stapled, and by means of which the driver (for detaching the individual staples and carrying out the stapling operation) is forced down. The invention resides in the fact that the cap is so shaped, at its front or rear portion, that it is possible to move the cap about its axis of rotation (through about 180°) into a position in front of the front (jaw side) or back of the device. The advantages obtained in this manner will be set forth in due course.

A form of construction of a jaw type stapling device embodying the present invention is shown, by way of example, in the accompanying drawings in which the device is shown on a magnified scale, and in which

Figs. 1, 2, and 3 show the device in elevation, and partly in section, in three different phases of its operative movement, while

Fig. 4 is a section taken on the line 4—4 of Fig. 1.

Referring to the drawings, the stapling device according to the invention, which is in the form of a flat pocket stapling appliance of the jaw type, consists in a known manner of a lower portion *a* with the upsetting swage plate *b* at the outer end and an upper portion pivoted to the lower portion at *c*. This upper portion comprises essentially the guideway *e* for the coherent strip of staples, this guideway being bent vertically upwards at the outer end to form the portion *e'*. Between this portion *e'* of the staple guideway and the covering end plate *g* there travels the plunger or driver *f*; with its lower portion the covering plate *g* covers up the outer end of the horizontal staple channel (*e*). In the lower portion *a* of the device, or rather in the two upwardly extending side walls *a'* thereof there is further pivotally mounted at *d* the actuating lever *h* which is coupled with the driver *f*. Against the lever *h* or an extension (roller) *i* on the same there bears from above a cap *k* articulated to the lower part of the device at *m*, preferably with the interposition of a roller *l*. The cap embraces with its side walls from above the lower portion of the stapling device (Fig. 4) or rather its side walls *a'* together with the other constituent parts; inversely, however, the side walls of the lower

part *a* might embrace the side walls of the cap *k*. The cap is slightly rocked in a known manner by pressure exerted by the hand in which the stapling device is gripped, with the result that the actuating lever *h* is also moved.

In order that the lever *h* shall be automatically returned into its position of rest after actuation the lug *i* thereon bears from above against the one straight end *N* of a helical spring wrapped around the pivot pin *d*, while the other straight end *n* bears from above against the staple guideway *e*; at the same time the force or torque of the portion *N* of the spring is greater than that of the portion *n* of the spring. The two arms *N* and *n* correspond to the known driver spring in the upright or pedestal stapling devices and to the lifting up spring pertaining to the upper part of the device (or to the staple guide).

By the swinging down of the lever *h* the action of the stronger spring *N* is first cancelled, so that the spring *n*, with the result that the spring *n* swings the staple guide *e* down until it bears against the matter to be stapled (Fig. 2); on the further swinging down of the lever *h* the driver *f* is forced down and the stapling operation thereby effected. On cessation of the pressure exerted upon the cap *k*, owing to the action of the spring *N*, the lever *h* and all the other elements of the device are returned into their initial positions (Fig. 1).

According to the invention the cap *k* at the front (jaw end) or at the rear end of the stapling device is so shaped that it becomes possible to swing the cap *k* round, about its axis *m*—through about 180°—into a position in front of the forward or rear end of the device. For this purpose the cap *k* may be so curved (Fig. 1) from the corner up to the vertical plane passing through its axis of rotation *m*, that it is capable of being swung round with the corner of the upper part as the axis of rotation. Instead of this a suitable aperture may be left in the front or in the back wall of the cap.

When the cap *k* has been swung round the otherwise covered upper part of the device, together with the various elements thereof, are exposed for cleaning, and lubricating the rotary parts, and the like.

Instead of making the cap revoluble about the axis into a position in front of the front and rear side of the device, respectively, it is also possible to make a portion of the same movable in this manner.

In the event of the cap *k* being made revoluble just around the front side of the device it not only

gives access to the constituent parts of the device but also serves as a protecting cap. For if in the known devices the mistake be made of forgetting to remove the constantly spring-loaded staple pushing up member before the covering plate is pushed up the portion or any portion of the strip of staples left in the feed channel will jump out at the front end of the channel and is liable to injure the user of the device; in the present case, on the other hand, any staples that may be suddenly protuded by such action (in the direction indicated by the arrow 3 in Fig. 3) are caught by the hinged down cap.

The covering plate *g* is preferably slidably mounted on the vertical portion *e'* (for the purpose of removing any staples that may happen to become stuck or jammed), and the means provided (e. g. depressions *g'*) for engagement by the fingers in effecting upward displacement are provided on its side or rear wings, so that the engaging means are only rendered accessible when the cap has been swung into position in front of the front side of the device (Fig. 3) when it is capable of serving as a protecting cap for ejected staples. The covering plate can then be lifted from its normal position (Fig. 1) into its raised position (Fig. 3).

The covering plate *g* is preferably only of such height that when it is in the raised position (Fig. 3) it does not extend beyond the upper edge of the vertical portion *e'* and thus does not obstruct the swinging back (swinging up, as indicated by arrow 5) of the hinged down cap *k*. When the cap *k* is in the swung back position, since the covering plate *g* is still in the elevated position, the horizontal staple channel *e* is exposed for examination and cleaning. Finally, by pressure exerted upon the swung back cap, by means of the lever *h*, the elevated covering plate *g* (Fig. 3) is lowered into its normal position (Fig. 1).

In its normal position the cap *k* is arrested on the lower portion (*a*) of the device by means of a spring member. As such member there may be used the pivot *d* of the actuating lever or a pin

disposed in the hollow pivot axle, which with its other end extends into an arcuate slot *o* in the cap and is axially displaceable against the action of a spring. In order that, on being swung back, the cap *k* may be able to be moved down from above over the projecting end of this pin, without this latter having to be first forced back with the finger, the cap *k* is chamfered off to a sharp edge or provided with a groove at the lower edge opposite the axis *d*.

The transmission of the movement of the cap *k* to the actuating lever *h* may be effected by means of a separate contrivance which takes account of the fact that the swinging movement of the cap by the hand gripping the stapling device, owing to the interengagement of the cap and the under portion of the device, can not be as great as in the case of the known jaw type stapling devices having two projecting handle limbs. In accordance with the invention the transmission means are so devised that the path and velocity of the swung down lever is greatest at the start and smallest at the end of its movement. Consequently the swinging down of the upper part of the device towards the matter to be stapled takes place rapidly, while the succeeding driving down of the driver is effected more slowly but with proportionately greater force. In the form of construction of this type of device shown in the drawings the two rollers *I* and *i* are so disposed relatively to each other that their paths of movement fulfil the said condition. When the cap *k* is swung the roller *I* describes an arc *1* about *m* as the centre and the roller *i* an arc *2* about *d* as the centre. The path of movement of the roller *I*, which is initially at right angles to the periphery of the roller *i*, (see Fig. 1), becomes finally (see Fig. 2) more or less tangential to the periphery of the roller *i*. At the end of its path of movement therefore the roller *i* is moved only through a short distance but with correspondingly greater force, as mentioned above.

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