Jan. 22, 1946. N. HANSEN 2,393,320

EJECTOR

Filed Sept. 15, 1942

Fig. 6.

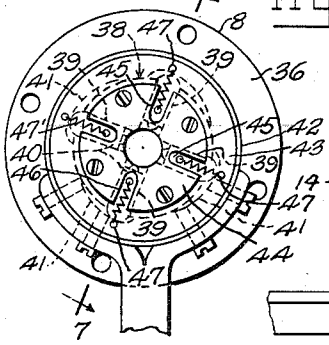


Fig. 1.

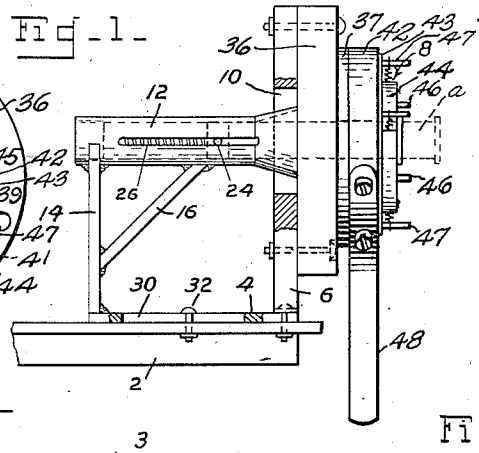


Fig. 7.

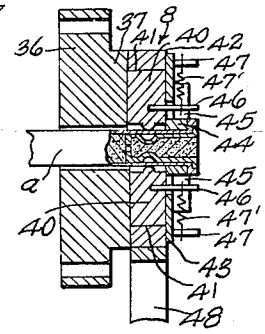


Fig. 2.

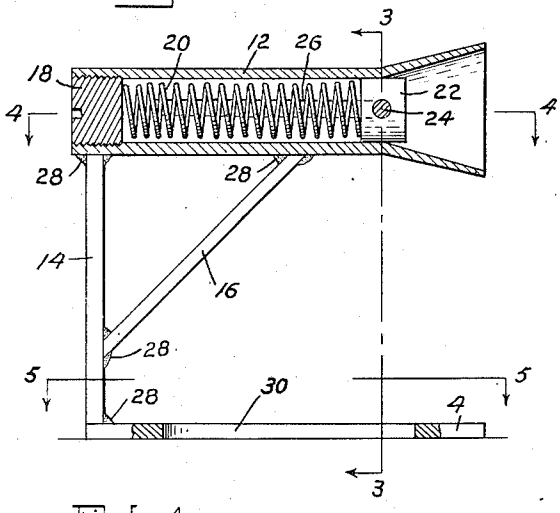


Fig. 3.

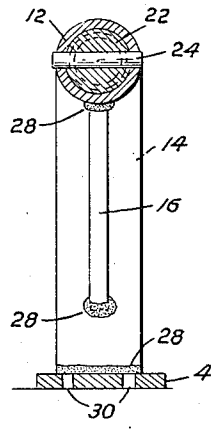


Fig. 4.

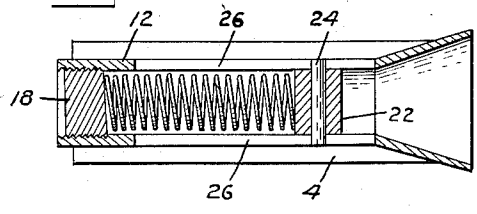
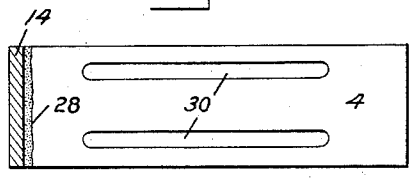


Fig. 5.



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EJECTOR

Norman Hansen, Kenvil, N. J.

Application September 15, 1942, Serial No. 458,476

1 Claim. (Cl. 86—39)

(Granted under the act of March 3, 1883, as amended April 30, 1928; 370 O. G. 757)

The invention described herein may be manufactured and used by or for the Government for governmental purposes, without the payment to me of any royalty thereon.

This invention relates to an ejector such as may be used in conjunction with a crimping device, to facilitate withdrawal of the work piece, such as a primer, after the crimping has been completed.

In the manufacture of primers, the igniter may conveniently be staked or crimped in place in the end of the primer. However, since the primer is pushed into the crimping device clear up to the end at which the staking or crimping is done, there is very little of the tube left protruding for a hand hold or finger hold to effect its withdrawal.

It is an object of this invention to provide an ejector for use with a crimping or staking device, which permits easy removal of the work piece after completion of the staking or crimping operation. This is accomplished by the use of a tubular receiving member adapted to be positioned behind the crimping device. A spring-biased cross head is mounted to reciprocate in the receiver, and yieldingly engages the end of the work-piece as it is thrust through the crimping device.

The specific nature of the invention as well as other objects and advantages thereof will clearly appear from a description of a preferred embodiment as shown in the accompanying drawing in which:

Fig. 1 of the drawing is a view in elevation of apparatus employing the invention, with parts broken away and in section.

Fig. 2 is a detail view of the ejector itself, with parts broken away and in section.

Fig. 3 is a view in section substantially on line 3—3 of Fig. 2.

Fig. 4 is a view in section on line 4—4 of Fig. 2.

Fig. 5 is a view in section on line 5—5 of Fig. 2.

Figure 6 is an inside face view of a crimping device with which the ejector is used.

Figure 7 is a section taken on line 7—7 of Figure 6.

Referring to the drawing in detail, a mounting table 2 is shown to which is secured a support 4 for the ejector. An upright member 6 is bolted to the table adjacent support 4. Member 6 carries a crimping device indicated generally at 8. Member 6 is provided with an opening 10 into which protrudes a tubular receiving member 12 mounted on an upright member 14. A brace 16 serves to aid in the support of receiver 12. The portion of the receiver extending into opening 10 is substantially bell mouthed to serve to guide the end of a primer or other workpiece in against the ejector mechanism.

As can be seen in Fig. 2, receiver 12 is an open ended tube having a closure plug 18 in one end. Plug 18 serves as the bearing member for a spring 20 which biases a cross head 22 toward the bell shaped end. Cross head 22 carries a guide pin 24 operating in one or more guide slots 26 in tubular receiver 12.

The parts 4, 14, 16, and 12 may be held together in the position shown by welds as indicated by 28 at the various junction points.

Support 4 of the ejector is secured to table 2 in such a manner as to provide for adjustability of the distance between the ejector and the crimping device. The expedient devised to provide this feature of adjustability is the slots 30 in the base or support 4. A bolt 32 in each slot engages table 2 to hold support 4 in place at any desired predetermined distance from the crimping device. In this manner, provision is made for adjusting the position according to the length of the primers being crimped.

Following is a detailed description of the crimping device which, per se, forms no part of the invention.

Referring particularly to Figures 6 and 7, the numeral 36 designates a disk provided near its periphery with holes for the passage of bolts by which the disk is secured to the upright member 6. The disk is provided centrally with a bore for the passage of the work *a*, in this case a primer. Disk 36 is provided with a circular boss 37 having integral therewith a central circular extension 38 provided with four radial recesses 39 opening at their inner ends into the bore through the disk. These recesses slidably receive the crimping members 40 whose outer ends engage cam surfaces 41 in the inner perimeter of a ring 42 which fits over the extension 38 and confines the crimping members. Beyond the ring 42 there is a thin disk 43 which has an extension 44 which has recesses 45 corresponding in shape and registering the recesses 39 in the extension 38. Pins 46 extend through the disk 43 and its extension 44 into the crimping members 40. In radial line with the pins 46 there are similar pins 47 between which and said pins 46 there are springs 47' holding the inner ends of the crimping members normally out of engagement with the work, but holding their outer ends in engagement with the cam surfaces in the ring 42. Attached to the ring 42 is an operating handle 48 by which the

ring is oscillated with respect to the crimping members to bring the low part of the cam surfaces simultaneously against the crimpers to cause them to engage and grip the work. Upon reverse movement of the handle the ring will be restored to normal position and the crimpers likewise moved by the springs, releasing the work and permitting the ejector spring to eject the work.

Operation.—The ejector is preferably so positioned relative to the crimping device that when the work piece is in position for crimping the spring **20** has been compressed solid serving as a positive stop. A work piece is then inserted, as shown by the primer *a* indicated in dotted lines in Fig. 1. The end of the work piece engages cross head **22**, compressing the spring. When the spring "goes solid" the work piece is held in place, while handle **48** of the crimping device is actuated, crimping, staking, or otherwise deforming the material sufficiently to insure that the parts will be held together. Handle **48** is then restored to its starting position, and work piece *a* is released, whereupon it pops out under the influence of the spring, presenting a length of the work piece sufficient to give the operator an adequate hand hold for withdrawal.

I claim:

In combination, a support, a crimping tool mounted on the support adapted to grip the work piece during the crimping operation, a tubular receiver adjacent the tool for receiving the workpiece, an ejector in the receiver comprising a spring backed piston for engagement with the workpiece to automatically eject it after the crimping operation and after its release by the crimping tool.

NORMAN HANSEN.