

May 28, 1963

R. W. SANDERS ETAL

3,091,319

TAPE MARKING TOOL AND CUT-OFF MECHANISM

Filed Jan. 23, 1962

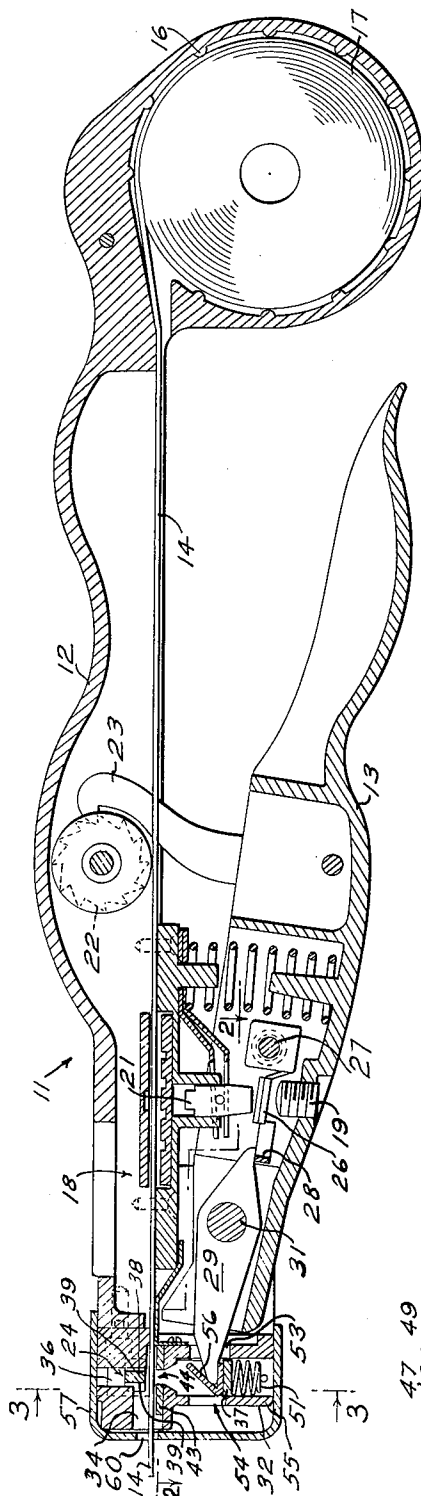
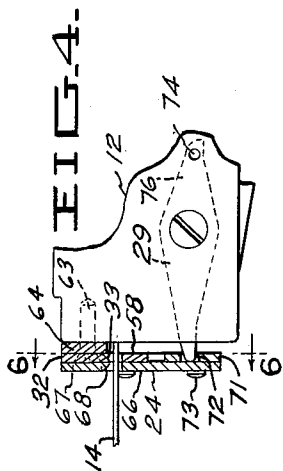


FIG. 1-

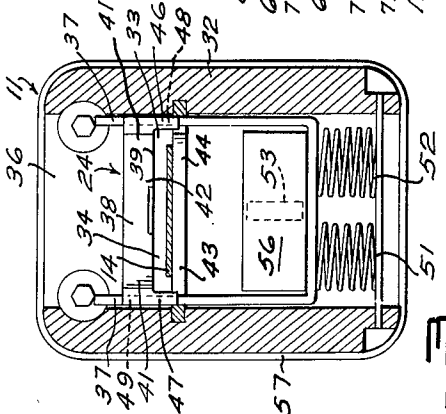


FIG. 3-

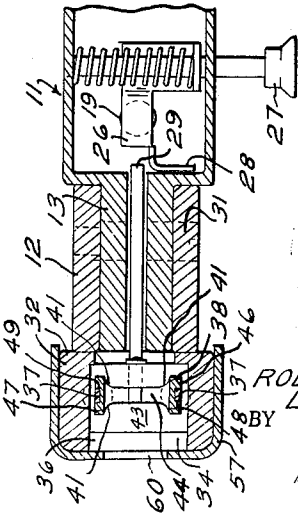


FIG. 2-

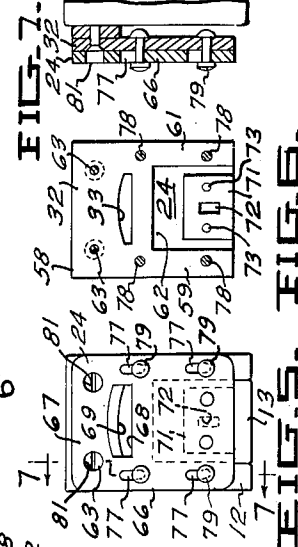


FIG. 5-

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3,091,319 TAPE MARKING TOOL AND CUT-OFF MECHANISM

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Filed Jan 23, 1962, Ser. No. 163,034
15 Claims. (Cl. 197—6.7)

This invention relates generally to marking tools for embossing symbols on a strip material, and more particularly relates to a hand operated tool of the type described in U.S. Patent 2,275,670.

A primary object of the invention is to provide an embossing tool of the character described having an improved mechanism for severing an embossed portion of the strip of material from the tool.

A further object of the invention is to provide improved means for severing the strip of material whereby the severing operation is accomplished by substantially the same hand movement as is used to emboss upon the strip.

Still another object of the invention is to provide improved means for severing the strip of material so that the severed edge is rounded at its corners.

The invention possesses other objects and features of advantage, some of which, with the foregoing, will be set forth in the following description of the preferred form of the invention which is illustrated in the drawing accompanying and forming part of the specification. It is to be understood, however, that variations in the showing made by the said drawing and description may be adopted within the scope of the invention as set forth in the claims.

FIGURE 1 is a cross-sectional side view of a marking tool utilizing a preferred embodiment of the invention.

FIGURE 2 is a cross-sectional plan view taken along the plane 2—2 in FIGURE 1.

FIGURE 3 is an enlarged cross-sectional end view taken along the plane 3—3 in FIGURE 1.

FIGURE 4 is a cross-sectional side view of an alternative embodiment of the invention.

FIGURE 5 is an end view of the embodiment illustrated in FIGURE 4.

FIGURE 6 is a rear view of the alternative embodiment taken along the plane 6—6 in FIGURE 4.

FIGURE 7 is a cross-sectional side view taken along the plane 7—7 in FIGURE 5.

Referring now to the drawing, there is shown a marking tool 11 having a pair of pivotally connected hand-operable members 12 and 13. The member 12 is seen to be generally elongated and adapted to carry a strip of material 14 for longitudinal movement thereon. A magazine 16 is secured to the member 12 for housing a supply of strip material in the form of a roll 17, there being further provided a set of dies 18 carried by the member 12 in close disposition to the strip 14. As is more fully described in the aforementioned prior patent, the tool 11 is generally adapted to emboss a symbol upon the strip 14 as determined by a selected pair of dies 18 when the members 12 and 13 are pivoted towards one another. In particular, a stud 19 on the member 13 transmits force to a slidable die punching member 21 when the members 12 and 13 are squeezed together thus causing the selected pair of dies to suitably contact and emboss the strip 14. Provision is also made for advancing the strip 14 along the member 12 with each embossing operation, as evidenced by the provision of a ratchet wheel 22 and a pawl 23. The foregoing is generally descriptive of conventional marking tools of the type described, and further reference to the details of embossing upon the strip or its movement along the member 12 is

unnecessary as being within the province of those skilled in the art.

The prime concern of this invention is the provision of improved means for severing the strip 14 as it emerges from the end of the tool 11. To this end there is generally provided a cutting blade or blade member 24 carried on the end of the member 12 and adapted for movement transversely towards the strip 14. A spring loaded control member 26 is carried by the member 13 and adapted to be moved laterally by a push button 27. In its normal position, the control member 26 is disposed between the stud 19 and the punching member 21 whereby force is transmitted to the dies 18 upon pivoting of the members 12 and 13. When the button 27 is depressed, however, the member 26 is displaced from between the stud 19 and punch 21 whereby the dies 18 are not actuated upon pivoting of the members 12 and 13. Instead, the control member 26 includes an extended portion 28 which is moved into engagement with a pivoted lever 29 when the button is depressed. The lever 29, which is preferably enclosed within the member 12 and pivoted about the same axis as the members 12 and 13 by a pivot pin 31, comprises means for actuating the blade member 24 when the members 12 and 13 are squeezed together with the button 27 depressed. When the button 27 is not depressed, the control member 26 is disengaged from the lever 29 whereby operation of the tool 11 does not actuate the blade member 24.

As more particularly regards the blade member 24, there is provided a blade-carrying member 32 secured to the member 12 and having an opening 33 through which the strip 14 may pass. The first preferred embodiment of the invention is illustrated in FIGURES 1-3 and is seen to include a carrying member 32 having a longitudinal passage 34 comprising the opening 33. A transverse passage 36 then intersects the passage 34 and is adapted to slidably retain the blade member 24, the member 24 thus being movable towards the strip 14 to effectuate severance thereof.

In more detail now, the blade member 24 includes a generally U-shaped member 37 slidably disposed in passage 36, as is best seen in FIGURE 3. A cutting blade portion 38 is secured between the upper spaced ends of the member 37 to form a substantially unitary member 24 movable in the passage 36. The portion 38 includes a pair of spaced cutting edges 39 which are normally disposed over the strip 14 whereby the strip is allowed to pass through an opening thus provided in the member 24. As best seen in FIGURE 2, the cutting edges 39 each have spaced arcuate portions 41 respectively joined by straight central portions 42. In this manner the strip is severed with its edges having rounded corners, thus improving the appearance of the embossed strip as well as reducing the tendency for the corners to be accidentally pried up after the strip is mounted on a flat surface.

It is further noted that a cutting plate 43 is secured transversely in the passage 36 immediately subjacent the strip 14, the plate 43 having an opening 44 therein substantially conforming to the transverse cross-section of the blade portion 38. As is best seen in FIGURES 2 and 3, the blade portion 38 has two spaced side portions 46 and 47 extending downwardly through the plate opening 44. In this manner the blade portion 38 is firmly guided in its cutting stroke, and moreover the close fit between the portion 38 and the plate opening 44 provides for a clean sharp severance of the strip 14. To facilitate securing the blade portion 38 between the ends of the U-shaped member 37, it is seen in FIGURE 2 that a pair of vertical grooves 48 and 49 in the side portions 46 and 47 receive the member 37 flush with the sides of the portion 38.

Resilient means, such as a pair of springs 51 and 52 are

disposed in the passage 36 beneath the member 37 to urge the blade member 24 into its normal position unobstructing the strip 14. An opening 53 is then provided in the member 32 intersecting the passage 36 whereby the lever 39 is disposed in engagement with the member 37.

Because the embodiment illustrated in FIGURES 1-3 forms a waste piece of strip material, having substantially the shape of a transverse cross section of blade portion 38, it is necessary to provide for accumulation and disposal of these waste pieces. Accordingly, an opening 54 is provided in the front wall 55 of the carrying member 32 to thus intersect the passage 36. As the blade portion 38 comes down through the passage 36, the severed waste piece of material 14 drops down against a clip 56 and is deflected out through the opening 54. The clip 56 serves an additional purpose, as is described hereinafter, with regard to properly positioning the lever 29. A removable closure member 57 preferably encloses the member 32 to contain all the waste pieces until they are to be disposed, the closure being provided with a slit 60 for passage of the strip 14.

In operating the tool 11 illustrated in FIGURES 1-3, the members 12 and 13 may, for example, be gripped in the user's right hand, the left hand thus being free to depress the button 27. With the portion 28 thus engaging the lever arm 29, the lever arm moves the blade downwardly upon squeezing the tool together, thereby severing the strip 11. When the grip on the tool is released, the springs 51 and 52 urge the blade member back into its normal position, the blade member also forcing the returning of the lever 29 to its former position. It is now noted that the clip 56 serves to retain the lever from pivoting while disengaged from the control member portion 28. Consequently, it is assured that when the button 27 is depressed the portion 28 is able to slide under and engage the lever 29. Otherwise the lever might be jarred so as to prevent lateral movement of the control member 26 thus preventing its engagement with the lever. The waste pieces of material 14 are emptied from the tool simply by removing the closure member 57.

An alternative embodiment of the invention is illustrated in FIGURES 4-7, the device shown therein being more suitable for severing the strip with a straight edge not having any rounded corners. In detail now, the carrying member 32 comprises a plate 58 having an opening 33 as described in broad terms above. The plate is further provided with two downwardly extending portions 59 and 61 defining a space 62 therebetween. The plate is preferably secured to the member 12 by a pair of countersunk screws 63, which fit flush with the face of the plate. For reasons described hereinafter, the plate 58 is preferably spaced from the member 12 by a spacer 64. Next there is provided the blade member 24, which preferably comprises a planar blade member 66, slidably carried on the face of the plate 58. The blade 66 includes an upper portion 67 defining an opening 68 through which the strip 14 passes. The portion 67 further includes a cutting edge 69 normally disposed above the strip 14 and partly defining the opening 68. Thus it is seen that a downward movement of the blade 66 severs the strip 14.

In order to actuate the blade 66 means are provided for having the lever 29 engage the blade. Preferably a member 71 having a slot 72 is secured on the rear face of the blade 66 within the space 62 of the plate 58. The member 71 is secured to the blade 66 in a suitable manner, as for example by fasteners 73. In order that the blade 66 be returned to its normal position after the downward severing stroke, a hole 74 is provided in the end 76 of the lever 29. The control member portion 28 is then adapted to have a suitable portion thereof move laterally into the hole 74 whereby release of the members 12 and 13 transmits force to the lever urging it in a return direction. Thus in this alternative embodiment there is no need for resilient means such as the springs 51 and 52 de-

scribed with regard to the first embodiment. It will be appreciated that this arrangement is readily adaptable for use with the first embodiment.

As regards the mounting of the blade 66 on the plate 58, the blade is provided with a plurality of slots 77. Stationary rivets 78 or the like are stationarily secured to the plate 58 and extend through the slots 77 thereby guiding the blade in its reciprocating movement. Rounded ends 79 are formed on the rivets 78 to securely retain the blade 66. It is now seen that the spacer 64 serves to space the member 71 from the members 12 and 13, thus assuring its unobstructed motion. Furthermore, the blade 66 is provided with a pair of holes 81 through which the screws 63 are disposed when assembling the instant device. Once the device is assembled, the blade 66 passes over the countersunk heads of the screws 63.

It is readily appreciated that the above described alternative embodiment of the invention is operated in substantially the same manner as the first embodiment, the difference in result being in the shape of the severed edge of the strip 14.

What is claimed is:

1. In a marking tool of the character described, the combination comprising a pair of pivotally connected hand-operable members, dies and strip advancing means carried by one of said members, means for actuating a pair of said dies when said members are pivoted towards each other, means for actuating said strip advancing means when said members are pivoted away from each other, a cutting blade carried by said first member, means for actuating said cutting blade when said members are pivoted towards each other, and control means carried by the other of said members for selectively engaging said blade-actuating means or said die-actuating means to allow operation of only one of said latter two means when said members are pivoted towards each other.

2. In a marking tool of the character described, the combination comprising, a first elongated hand-operable member adapted to carry a strip of material for longitudinal movement thereon, a second hand-operable member pivotally connected to said first member, dies carried by said first member and adapted to selectively contact the strip, means for actuating a pair of said dies when said members are pivoted, a cutting blade carried by said first member extending substantially transversely over the width of the strip and movable towards the strip for severance thereof, a lever pivotally connected to one of said members and having one end coupled to said cutting blade for operation thereof, and control means carried by said second member for selectively transmitting force therefrom to said die-actuating means and the other end of said lever when said members are pivoted, said control means being adapted to normally allow operation of only said die-actuating means and to disengage said die-actuating means when force is being transmitted to said lever.

3. In a marking tool of the character described, the combination comprising a first elongated hand operable member adapted to carry a strip of material for longitudinal movement thereon, a second hand-operable member pivotally connected to said first member, dies carried by said first member and adapted to selectively contact the strip, means for actuating a pair of said dies when said members are pivoted, a blade-carrying member secured to said first member and having an opening therethrough for passage of the strip, a cutting blade slidably mounted on said carrying member and adapted for reciprocating movement across said opening, said blade being normally displaced from said opening to allow passage therethrough of the strip, means for actuating said cutting blade to move across said opening to sever the strip when said members are pivoted, and control means carried by said second member for selectively engaging said blade-actuating means or said die-actuating means to allow operation

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of only one of said latter two means when said hand-operable members are pivoted.

4. A marking tool as described in claim 3 further characterized by said cutting blade having two spaced arcuate cutting edges joined by a central straight cutting edge.

5. In a marking tool of the character described, the combination comprising a first elongated hand-operable member adapted to carry a strip of material for longitudinal movement thereon, a second hand-operable member pivotally connected to said first member, dies carried by said first member and adapted to selectively contact the strip, means for actuating a pair of said dies when said members are pivoted, a blade-carrying member secured to said first member and having an opening for passage therethrough of the strip, a cutting blade slidably mounted on said blade-carrying member and adapted for reciprocating movement across said opening, said blade being normally displaced from said opening to allow passage therethrough of the strip, said blade-carrying member having a second opening therethrough adjacent said cutting blade, a lever pivotally connected to one of said hand-operable members and having one end extending through said second opening to engage said cutting blade for operation thereof, and control means carried by said second hand-operable member for selectively transmitting force therefrom to said die-actuating means and the other end of said lever when said members are pivoted, said control means being adapted to normally allow operation of only said die-actuating means and to disengage said die-actuating means when force is being transmitted to said lever.

6. In a marking tool of the character described, the combination comprising a first elongated hand-operable member adapted to carry a strip of material for longitudinal movement thereon, a second hand-operable member pivotally connected to said first member, dies carried by said first member and adapted to selectively contact the strip, means for actuating a pair of said dies when said members are pivoted, a blade-carrying member secured to said first member and having an opening for passage therethrough of the strip, a blade member slidably mounted on said carrying member and adapted for reciprocating movement transversely adjacent said opening, said blade member having an upper portion defining a second opening substantially registering with said first opening and through which the strip may pass, said upper portion including a cutting edge adapted to move across said first opening to sever the strip, said carrying member having a third opening therethrough adjacent said blade member, a lever pivotally connected to one of said hand-operable members and having one end extending through said third opening to engage said blade member for operation thereof, and control means carried by said second hand-operable member for selectively transmitting force therefrom to said die-actuating means and the other end of said lever when said members are pivoted, said control means being adapted to normally allow operation of only said die-actuating means and to disengage said die-actuating means when force is being transmitted to said lever.

7. In a marking tool of the character described, the combination comprising a first elongated hand-operable member adapted to carry a strip of material for longitudinal movement thereon, a second hand-operable member pivotally connected to said first member, dies carried by said first member and adapted to selectively contact the strip, means for actuating a pair of said dies when said members are pivoted, a blade-carrying member secured to said first member and having a first longitudinal passage for receiving the strip therethrough, said carrying member having a second transverse passage intersecting said first passage, a blade member slidably disposed in said second passage and including a portion defining a

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cutting edge adjacent said first passage, means for reciprocating said blade member when said hand-operable members are pivoted, and control means carried by said second hand-operable member for selectively engaging said blade-actuating means or said die-actuating means to allow operation of only one of said latter two means when said hand-operable members are pivoted.

8. A marking tool as described in claim 7 further characterized by said cutting edge having two spaced arcuate portions joined by a straight central portion.

9. A marking tool as described in claim 7 further characterized by said blade member portion defining two spaced cutting edges, each of said cutting edges including two spaced arcuate portions joined by a straight central portion.

10. In a marking tool of the character described, the combination comprising a first elongated hand-operable member adapted to carry a strip of material for longitudinal movement thereon, a second hand-operable member pivotally connected to said first member, dies carried by said first member and adapted to selectively contact the strip, means for actuating a pair of said dies when said members are pivoted, a blade-carrying member secured to said first member and having a first longitudinal passage for receiving the strip therethrough, said carrying member having a second transverse passage intersecting said first passage, a blade member slidably disposed in said second passage and including a portion defining an opening normally registering with said first passage, said portion including a cutting edge defining a part of said opening and adapted to move transversely across said first passage when said blade member is moved in said second passage, resilient means urging said blade member into its normal position with said cutting edge substantially unobstructing said first passage, means for reciprocating said blade member when said hand-operable members are pivoted, and control means carried by said second hand-operable member for selectively engaging said blade-actuating means for said die-actuating means to allow operation of only one of said latter two means when said hand-operable members are pivoted.

11. A marking tool as described in claim 10 further defined by said blade member portion defining two spaced cutting edges, each of said cutting edges including two spaced arcuate portions joined by a straight central portion, said carrying member having an outlet opening therein, and means for deflecting severed pieces of waste strip material out of said second passage through said opening.

12. In a marking tool of the character described the combination comprising a first elongated hand-operable member adapted to carry a strip of material for longitudinal movement thereon, a second hand-operable member pivotally connected to said first member, dies carried by said first member and adapted to selectively contact the strip, means for actuating a pair of said dies when said members are pivoted, a blade-carrying plate secured to said first member and having an opening for receiving the strip therethrough, a blade member slidably carried on the face of said plate and having a cutting edge adjacent said opening, said blade member adapted to have said cutting edge pass across said opening to sever the strip disposed therethrough, means for moving said blade across said opening when said hand-operable members are pivoted, and control means carried by said second hand-operable member for selectively engaging said blade-actuating means or said die-actuating means to allow operation of only one of said latter two means when said hand-operable members are pivoted.

13. A marking tool as described in claim 12 further characterized by said blade member having a substantially planar configuration and being disposed parallel and adjacent said carrying plate, and said blade member having

a portion defining an opening which normally registers with said opening in said carrying member.

14. A marking tool as described in claim 1 further characterized by said control means being normally positioned to only permit operation of said die actuating means upon pivotal movement of said members towards each other and manually movable to a second position to operate said blade actuating means.

15. In a marking tool of the character described, the combination comprising a first elongated member adapted to carry a strip of material for longitudinal movement therein, a second elongated member pivotally connected to said first member adjacent the forward ends thereof, dies carried by said first member and adapted to selectively contact the strip, means for actuating a pair of said dies when said members are pivoted towards each

other, a strip shear element operatively carried by said first member, means for actuating said element when said members are pivoted towards each other, and control means operatively carried by said second member for selectively engaging said shear actuating means on said die actuating means to allow operation of only one of said latter two means when said members are pivoted towards each other.

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