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3,006,451

HAND OPERATED EMBOSsing TOOL

Filed April 27, 1959

Fig. 1.

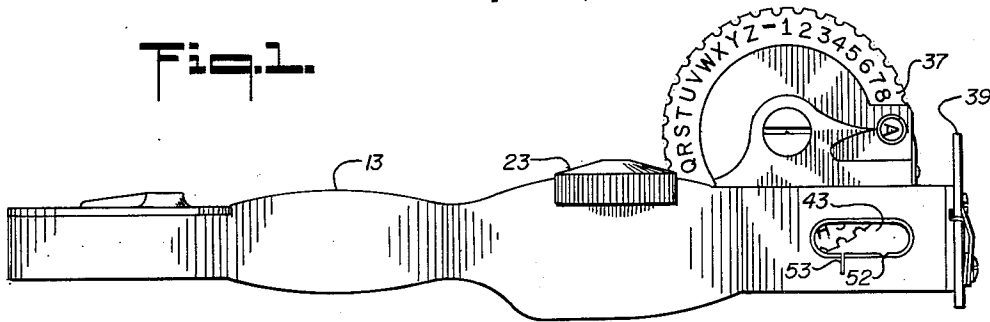


Fig. 2.

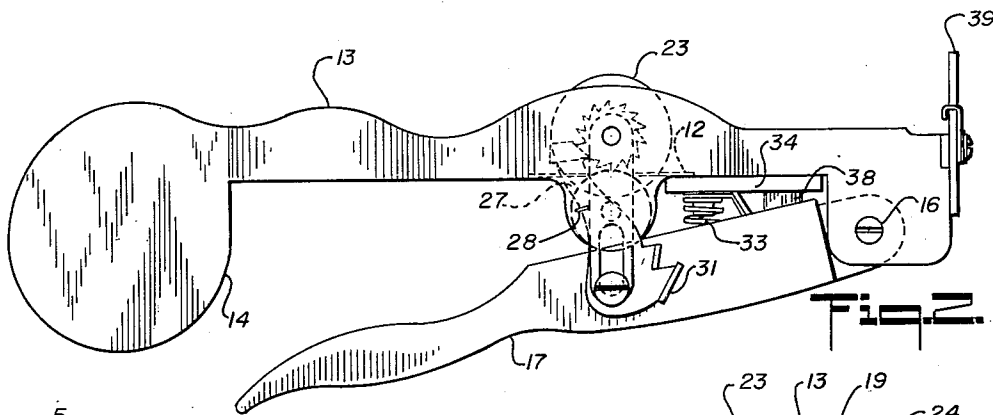


Fig. 4.

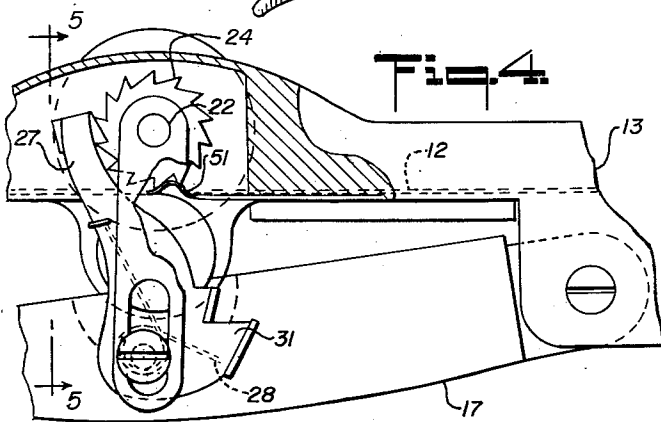


Fig. 5.

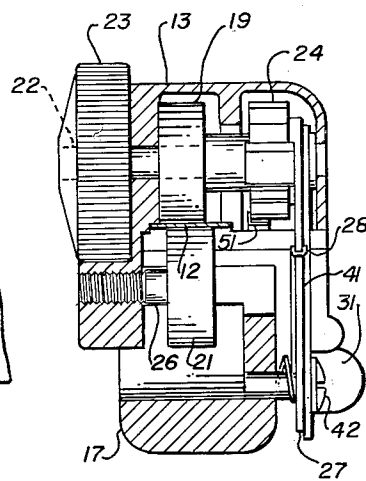
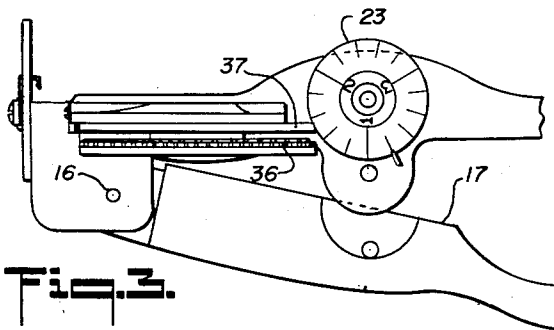


Fig. 3.



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3,006,451

HAND OPERATED EMBOSsing TOOL

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4 Claims. (Cl. 197—6.7)

This invention generally relates to tools for embossing various letters, numbers or other indicia on a strip of material, and is more particularly directed towards an improvement in the type of tool disclosed in Patents Nos. 2,275,670 and 2,415,526.

In the above cited patents, there is generally provided a hand operated tool in which a strip of material to be embossed is fed past a pair of dies, actuation of a handle effecting movement of the dies to emboss the strip and release of such handle serving to advance the strip and place the same in position for receiving the next embossment. While such a tool possesses certain features of advantage, it will be readily appreciated from a study of these patents that the portion of the strip being embossed is located at a substantial distance from the end of the tool where the strip emerges as well as from a window or cut-out portion through which the embossed portion of the strip is visible. As a result, the operator has no way of ascertaining what particular indicia has been embossed until the strip reaches the window. Consequently, if the operator wants to visually check his last embossment, it is necessary for him to advance the strip until the last embossment registers with the window, and then move the strip rearwardly, and attempt to longitudinally orient the strip so that the next embossment would be properly positioned. This latter operation is, for all practical purposes, impossible of accomplishment. Likewise, after a length of strip has been embossed and cut from the end of the tool, the user can either waste the portion of the strip extending between the dies and the cutter, or can once again effect a rearward movement of the strip in the difficult task of trying to blindly position the free end of the strip closely adjacent the embossing dies.

It is therefore an object of the present invention to provide an embossing tool of the character described in which the strip of material may be readily advanced past the embossing members for visual examination or the like, and in which such strip may be likewise retracted to its exact starting position.

Another object of this invention is to provide a tool as above described in which a conventional strip advance and retraction mechanism may be utilized, but which is modified in an extremely simple manner to permit positive longitudinal indexing of the strip during movement of the latter.

A further object of the invention is to provide a device of the character referred to in which either the end of the strip or a previously embossed portion thereof may be properly oriented relative to the embossing dies for subsequent operations.

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.

Referring to said drawing:

FIGURE 1 is a plan view of the embossing tool.

FIGURE 2 is a side elevational view.

FIGURE 3 is another side elevational view, but look-

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ing at the other side of the tool than that shown in FIGURE 2.

FIGURE 4 is a side elevational view, on an enlarged scale, showing a portion of the structure shown in FIGURE 2, parts being broken away to disclose features of internal construction.

FIGURE 5 is a transverse cross-sectional view taken substantially in the plane indicated by line 5—5 of FIGURE 4.

As hereinabove explained, the present invention constitutes an improvement in the strip advancing and retracting mechanism disclosed in the previously cited patents whereby the longitudinal position of the strip may be simply and positively oriented relative to either the strip end or to prior embossments marked thereon. Before describing the particular means by which this is accomplished, reference should first be made to the drawing, wherein a conventional tool is disclosed for the purpose of embossing selective indicia on a strip 12 of metal, plastic or the like. As herein shown, and as described in said patents, the tool includes a longitudinally extending body 13 provided with a magazine 14 at the rear end thereof, in which a roll of said strip material may be contained. The forward end of the body is provided with a transverse pin 16 to which an operating handle 17 is connected for pivotal movement from and towards the body. The body and handle each have generally opposed channel-like cross-sectional forms for assisting in guiding the strip 12 as it passes from the magazine to the front end of the tool.

To feed the strip 13 through the tool, a pair of friction rolls 19 and 21 are utilized. The upper roll 19 is fixedly mounted on a shaft 22 extending transversely of and journaled in a medial portion of the body. Also mounted on the shaft is a manually operable drive wheel 23, positioned in a cut-out portion adjacent an edge of the body, and a ratchet wheel 24. It will thus be clear that upon manual rotation of the wheel 23, shaft 22 and the roll 19 and ratchet wheel 24 will likewise be rotated. The lower strip advancing roll 21 is journaled on a shaft 26 and positioned adjacent the roll 19 so as to be driven thereby.

Ratchet wheel 24 is normally engaged by a pawl 27 pivotally mounted on the handle and resiliently urged into engagement with the ratchet wheel by a torsion spring 28. The arrangement is such that when handle 17 is moved towards the body, the pawl will freely ride over the teeth in the ratchet wheel 24. However, upon release of the handle, the pawl will engage the teeth and rotate the ratchet wheel in a counter clockwise direction (as viewed in FIGURE 4), thereby rotating shaft 22 and its associated drive rolls for advancing the strip.

The pawl has an angular extension 31 adjacent its pivotal connection to the handle, whereby it may be manually released from engagement with the ratchet wheel to permit rearward movement of the strip.

The handle is normally held in the open position shown in the drawing by a coil spring 33 extending between the handle and a plate 34 carried by the body, such plate serving as a support for a pair of manually rotatable co-operating embossing dies 36 and 37 bearing the desired indicia, such as letters and numbers. Die 37 is provided with flexible teeth bearing the indicia, with each of such teeth being engageable by a plunger slidable in a sleeve 38, as clearly set forth in said patents. The front end of the tool is provided with a strip cutting device 39, also as fully described in said patents.

To complete the description of the conventional tool, it will also be noted that a link 41 extending between shaft 22 and the pivot 42 for the pawl is provided, and is slotted adjacent the latter to permit free movement of the handle from and towards the body.

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From the foregoing description, it will be understood that after the strip is fed between the rolls 19 and 21, and the dies set to a desired position, actuation of the handle will result in an embossment being made on the strip and release of the handle will result in the pawl rotating ratchet wheel 24 the distance of one tooth and positioning the strip for the next embossment. If the user desires to check on his last embossment by rotating the knurled drive wheel in a counterclockwise direction in order to view the strip through the window 43, cut from the body, he can retract the strip by pressing on the extension 31 to release the pawl from ratchet wheel engagement and rotating the drive wheel in a clockwise direction. However, with the structure just described, it is impossible for the user to accurately return the strip to the position for receiving the next embossment.

Accordingly, as the principal feature of this invention, means are provided permitting accurate strip control so that irrespective of the amount of strip advance or retraction, the user can accurately relocate the strip relative to the last embossment. As herein illustrated, this is preferably accomplished by means of a detent 51 mounted on the body and frictionally engageable with the teeth of the ratchet wheel 24. The detent has a flat spring body and an integral arcuate portion engageable with the teeth. In this manner, the strip can only be advanced or retracted with audible clicks, and the operator can also feel the respective engagements of the detent with teeth. Consequently, if the user wants to determine his last embossment, he may merely advance the strip a counted number of clicks until the embossment appears in the window 43, and then may readily reverse the movement of drive wheel 23, thereby properly positioning the strip for the next embossment. As a further assistance to the operator, a line or mark 52 is provided on the body adjacent the window, such mark being positioned a predetermined distance from the embossing area, e.g. the distance corresponding to a rotation of five teeth on the ratchet wheel. Therefore, the operator, in making his check, may advance the strip until his last embossment is aligned with the mark 52. Then, he need only retract the strip for five clicks by the detent 51 on the teeth.

As a further feature of this invention, a second mark 53 is positioned adjacent the window, rearwardly of mark 52, which visually advises the operator where to place the end of the strip in commencing his operations.

From the foregoing description, it should be appreciated how a simple, inexpensive modification can add new utility and function to a conventional tool.

What is claimed is:

1. In a tool for embossing a continuous strip of material, having a body, a handle pivoted to said body, complementary die members on said body between which said strip is adapted to pass and actuated by movement of said handle towards said body, a strip feed roller disposed rearwardly of said die members, a ratchet wheel and a manually rotatable drive wheel transversely journaled on said body for simultaneous rotation, a spring loaded pawl engageable with said ratchet wheel and normally limiting rotation of said wheels and roller in a single direction, means for releasing said pawl, and means interconnecting said handle and pawl for rotating said ratchet wheel in said single direction upon handle actuation, said body having an opening forwardly of said die members through

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which said strip is visible, the combination with said tool of a detent resiliently urged into contact with said ratchet wheel during each direction of rotation of the latter to indicate the degree of rotation of said ratchet wheel and said feed roller and consequently the length of strip advanced or retracted, and said body having a mark adjacent said opening longitudinally spaced from said embossing die members a distance equal to a predetermined degree of rotation of said ratchet wheel.

2. A tool as set forth in claim 1 further characterized by a second mark on said body adjacent said opening and spaced from said embossing members a different distance than said first mentioned mark.

3. In a tool for embossing a continuous strip of material having a body, a handle pivoted to said body, die means on said body actuated by movement of said handle towards said body for embossing said strip, a ratchet wheel, a strip feed roller disposed rearwardly of said die means and operatively connected for rotation with said ratchet wheel, and a pawl operatively connected to said handle releasably engaging said ratchet wheel for unidirectional rotation thereof for advancing said strip past said die means upon movement of said handle away from said body, said body having strip viewing means positioned forwardly of said die means through which embossed indicia on said strip are visible; the combination therewith of a detent independent of said pawl engageable with said ratchet wheel during each direction of rotation thereof whereby said strip may be advanced in order to expose the last embossment through said viewing means and then retracted an equal amount to properly position the strip for the next succeeding embossment.

4. In a tool for embossing a continuous strip of material, having a body, a handle pivoted to said body, complementary die members on said body between which said strip is adapted to pass and actuated by movement of said handle towards said body, a strip feed roller disposed rearwardly of said die members, a ratchet wheel and a manually rotatable drive wheel transversely journaled on said body for simultaneous rotation, a spring loaded pawl engageable with said ratchet wheel and normally limiting rotation of said wheels and roller in a single direction, means for releasing said pawl, and means interconnecting said handle and pawl for rotating said ratchet wheel in said single direction upon handle actuation, said body having an opening forwardly of said die members through which said strip is visible, the combination with said tool of a detent resiliently urged into contact with said ratchet wheel during each direction of rotation of the latter to indicate the degree of rotation of said ratchet wheel and said feed roller and consequently the length of strip advanced or retracted whereby said strip may be advanced to position the last embossment in said opening and then retracted to position the strip for the succeeding embossment.

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