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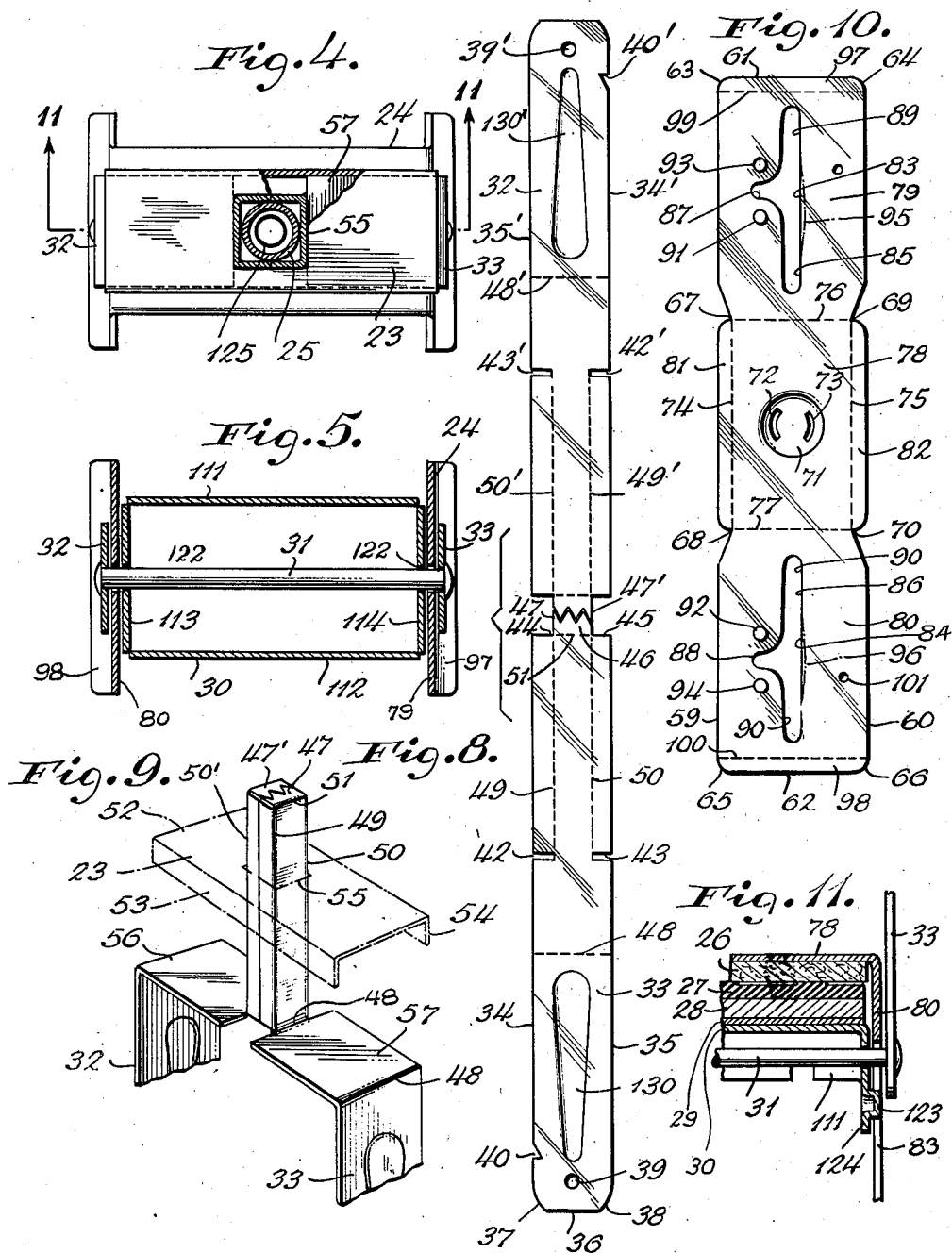
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STAMPING DEVICE

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STAMPING DEVICE

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This invention relates generally to stamping devices and more particularly to those of a class in which means are provided for automatically applying ink to the printing medium when the device is not in use or between successive stamping operations.

While devices having these general characteristics are well known in the art and have been in use, they have been open to the objection that by reason of the construction thereof they have been of relatively high price. Since in so many fields of trade and industry so called "rubber stamps" are used for innumerable purposes, the fact that the prior art stamping devices have been of such high cost has seriously limited their distribution and use.

In accordance with the present invention, an automatic or self-inking stamping device is provided which can be manufactured in large quantities at extremely low cost. The present device permits of such large scale, low cost production for many reasons, among which are the fact that practically all of the parts are stamped and formed from sheet metal and, by reason of the novel construction and mode of operation, the tolerances of dimensions of the stamped parts are not close, but may be merely commercial tolerances.

Among the objects of the present invention, lies the provision of self-inking stamping device structure which is light in weight, with a consequent saving in metal and shipping costs, yet in which the center of gravity is suitably disposed so that the device will stand upright in normal use.

Another object herein lies in the provision of structure of the class described wherein means are provided for the detachable engagement of the printing medium with relation to the stamping device so that the same device may be utilized successively for a plurality of different mediums.

Another object herein lies in the provision of an automatically self-inking stamping device which may be operated readily without failure in operation, that is, even when the device is operated at relatively high speed, the inking will occur between each printing operation.

Another object herein lies in the provision of a device of the class described wherein the parts are so organized that the device gives a pleasing appearance.

A feature of the present device lies in the fact that full vision by the operator is permitted of the surface on which the printed impression is to be made prior to the actual printing operation.

These objects and other incidental ends and advantages will more fully appear in the progress of this disclosure and be pointed out in the appended claims.

In the drawings constituting a material part hereof, similar reference characters designate corresponding parts throughout the several views in which:

Figure 1 is a front elevational view of the device, shown in its normal or extended position, in which parts are broken away for the purpose of clarity. This figure is the actual size of one of the successful models completed by the applicant.

Figure 2 is a fragmentary elevational view of Figure 1 as seen from the right side thereof.

Figure 3 is an enlarged vertical sectional view as seen from the plane 3—3 on Figure 1.

Figure 4 is a horizontal sectional view as might be seen from the plane 4—4 on Figure 3, and in which certain of the parts are broken away for the purpose of clarity.

Figure 5 is a horizontal sectional view as might be seen from the plane 5—5 on Figure 3, the axle being shown in elevation.

Figure 6—A is a view in perspective showing the printing medium carrier support.

Figure 6—B is a view taken similarly to Figure 6—A, but shows the printing medium and carrier.

Figure 7 is a fragmentary view in perspective showing the lower end of the spring guard tube, and the upper portion of the lower frame. In this view, the parts are in a position just prior to their attachment to each other.

Figure 8 is a plan view showing two upper frame blanks in planar condition prior to the forming thereof to create the upper frame.

Figure 9 is a fragmentary view in perspective showing the upper portions of two of the upper frame forming blanks after they have been formed and placed in proper position with relation to each other. In this figure the upper frame locking plate is shown in dot-dash lines.

Figure 10 is a plan view showing the blank which is subsequently formed into the lower frame.

Figure 11 is a fragmentary sectional view as seen from the plane 11—11 on Figure 4.

In accordance with the invention, the automatic self-inking stamping device is indicated generally by numeral 20, and comprises broadly a handle 21; an upper frame 22; an upper frame locking plate 23; a lower frame 24; a spring guard tube 25; an inking pad 26; a printing

medium 27; a printing medium cushion 28; a printing medium carrier 29; a printing medium carrier support 30; and an axle 31.

The upper frame 22 and the handle 21 are integrated with each other and move as a unit. The upper frame 22 is composed of two identical upper frame members 32 and 33. Since both are identical, a description of one will suffice for both, and where this description will be clarified thereby, singly primed reference characters appear in the drawings to designate the opposite part.

Turning now to the lower blank 33 in Figure 8, it may be seen that this blank is of such an external configuration that the same may be die-cut from sheet strip stock, preferably steel. The strip stock may be of a width equal to the distance between the side edge 34 and the side edge 35. The bottom edge 36 may be rounded as shown at 37 and 38. Adjacent the lower edge 36 and disposed along the central longitudinal axis of the member 33, said member is provided with an orifice 39, which subsequently serves as a journal for the axle 31. Adjacent the orifice 39, the edge 34 is provided with an indentation 40 which serves as a detent in cooperation with the latch 41 (best seen in Figure 2). The edges 34 and 35 are provided with notches 42 and 43 respectively. The upper end of the blank for the member 33 is provided with right-angled indentations 44 and 45 and the top tab 46 is provided with a plurality of serrations 47. The serrations 47 are asymmetrically arranged so that when the members 32 and 33 are brought together, only one of the members having been rotated through 180° in the same plane the serrations 47 and 47' nest as is shown in Figure 8.

In forming up the upper frame member 33, the material is given a series of right-angled bends along the bending lines 48, 49, 50, and 51. The member 33 will take on a shape best seen in Figure 9.

The configuration of the upper frame locking plate 23 is best seen in Figure 9. In view of the simple construction thereof, a figure showing the blank therefor is not shown in the drawings. The locking plate 23 may be fabricated from a cutting from a piece of strip stock and includes a top wall 52 and crimped flanges 53, and 54, as well as a rectangular orifice 55.

The fabrication of the upper frame 22 may thus be seen schematically illustrated in Figure 9 in which a pair of oppositely disposed upper frame members 32 and 33 are positioned as there shown, and the upper frame locking plate 23 is passed downwardly over the upper portions of said members which penetrate the rectangular orifice 55. When the lower surface of the wall 52 is in contact with the upper surfaces of the portions 56 and 57 of the members 32 and 33, the crimping flanges 53 and 54 are crimped downwardly about the side edges of the portions 56 and 57 thereby forming an integrated unit.

The handle 21 may be made of any desirable material such as "plastic" or of wood, and the same is provided with a bore 58. The bore 58 is disposed along the longitudinal central axis thereof and may be either polygonal or circular in cross section. That is to say, the bore 58 may have the same internal configuration as the external configuration formed by the material disposed between the bends 49, 50, 49' and 50'. When the internal configuration of the bore is circular, it is found that the bends 49, 50, 49' and 50' frictionally engage said bore in such a manner as to

integrate the handle 21 with the upper frame 22. Since in normal operation pressure upon the handle 21 is always downward, no other attaching means need normally be required, as constant use tends to force the handle 21 into its proper position.

The lower frame 24 is preferably fabricated from a die-cut blank taken from a strip of material preferably steel. As seen in Figure 10, such a blank may be cut from a strip of material of a width equal to the distance between the long edges 59 and 60. The narrow or bottom edges 61 and 62 may have the corners thereof rounded as indicated at 63, 64, 65, and 66. The edges 59 and 60 are provided with indentations 67, 68, 69, and 70. The bend lines 74, 75, 76, and 77 mark the blank so as to form a top wall 78, the legs 79 and 80, and the inking pad retaining portions 81 and 82. The blank for the lower frame 24 is provided at the center thereof in the top wall 78 as seen in Figure 10, with a disk-shaped indentation which manifests itself as a projection or platform 71, best seen in Figures 1, 3, and 7. This platform is provided with a pair of oppositely disposed arcuately shaped orifices 72 and 73. The legs 79 and 80 are each provided with guide slots 83 and 84 which are of irregular configuration, best seen in Figure 10, and include guide slot upper portions 85 and 86, inverting or reversing portions 87 and 88, and lower portions 89 and 90. Spaced substantially concentrically with relation to the curved edges of the slot portions 87 and 88 adjacent thereto, are upper projections 91 and 92 and lower projections 93 and 94. While the edges 35 of the guide slots 83 and 84 which are disposed oppositely to the reversing portions 87 and 88 are shown as substantially rectilinear in full lines in Figure 10, a slightly smoother operation may be obtained by relieving said edges as indicated by the dotted lines 95 and 96. A series of right-angled bends are made to fabricate the lower frame 24, and as viewed in Figure 10, the feet 97 and 98 are formed by bending rearwardly along the bend lines 99 and 100, while the legs 79 and 80 as well as the inking pad retaining portions 81 and 82 are formed by bending forwardly along the lines 74 to 77 inclusive. In thus forming the blank for the lower frame 24, projections 91 to 94 inclusive will face inwardly of said frame while the platform 71 will extend upwardly therefrom. The leg 80 is provided with an orifice 101 which serves to pivotally mount the latch 41 by means of a rivet 102.

The printing medium 27 may be of any desired construction well known in the art to which the present invention relates. The printing medium 27 may be a so called rubber plate in which the type face extends above the general level of the medium and is in reverse arrangement. The printing medium may, however, be made of such materials as metal or plastic castings, wood cuts, etc. The printing medium 27 is preferably mounted upon the printing medium cushion 28 which may be of any suitable resilient material, preferably sponge rubber, however. This cushion serves its usual purpose, which is to equalize the pressure on the printing medium 27 so that a uniform impression is obtained upon a surface being printed. The printing medium carrier 29 is preferably formed from sheet material and includes a top wall 103, rear wall 104, and a front edge 105. The rear wall is provided with a pair of inwardly extending hook-shape tabs 106 and 107, and the front edge 105 is provided with a handle tab 108, which is

provided on the inner surface thereof with a domed-shape projection 109.

The printing medium carrier support 30 is preferably formed from sheet material and includes a top wall 110, a rear wall 111, a front wall 112, and side walls 113 and 114. The rear wall 111 is provided with a pair of indentations 115 and 116. The printing medium carrier 29 is detachably engageable with the carrier support 30.

The front wall 112 is provided with a pair of indentations 117 and 118 which are symmetrical and oppositely disposed with relation to the indentations 115 and 116. The rear wall 111 and the front wall 112 are provided with indentations 119 and 120.

The printing medium carrier 29 is detachably engageable with the carrier support 30 by means of hooking tabs 106 and 107 into either of the pairs of indentations 115—116 or 117—118, and then placing the under surface of the top wall 103 in contact with the upper surface of the top wall 110. This is followed by pulling the handle tab 108 downwardly so that the dome-shaped projection 109 snaps into and engages one of the indentations 119 or 120. In the embodiment here illustrated, the printing medium carrier 29 may be placed upon the printing medium carrier support in either of two positions, the parts being reversible with relation to each other. It will of course be obvious that where such reversibility is not desired, one of the pairs of slots 115—116, or 117—118, as well as one of the indentations 119 or 120 may be eliminated.

The top wall 110 is provided with an elongated orifice 121 through which may be read certain indicia placed upon the under surface of the top wall 103 so that a user of the device may see what the printing medium 27 will print by merely inverting the device 20 and looking through the orifice 121.

The side walls 113 and 114 are each provided with aligned and oppositely disposed orifices 122 and bosses 123. The bosses 123 are located on tab-like extensions extending downwardly from the side walls 113 and 114.

The device 20 may be assembled as follows:

The printing medium 27 is preferably adhesively secured to the upper surface of the cushion 28; while the lower surface of the cushion 28 is preferably adhesively secured to the upper surface of the top wall 103.

The tabs 124 on the lower end of the spring guard tube 25 are inserted within the orifices 72 and 73 and are swaged over thereby integrating the tube 25 with the lower frame 24. The inking pad 26 is preferably adhesively secured to the under surface of the top wall 78.

The upper frame members 32 and 33 having been integrated by means of the upper frame locking plate 23, the handle 21 is put in place as has been previously described. The expansive coil spring 125 is placed within the spring guard tube 25 and said spring and tube are then inserted within the upper portions of the frame members 32 and 33. The printing medium carrier support 30 is placed between the inner opposed surfaces of the legs 79 and 80, which in turn have been nested between the inner opposed surfaces of the lower portions of the upper frame members 32 and 33. The orifices 122 are aligned with the guide slots 83 and 84 and the orifices 39 and 39'. The axle 31 is then inserted through the said aligned orifices and slots and the ends thereof are headed over. The parts will then ap-

pear as shown in Figure 5. The expansion of the spring 125 will move the various parts so that the device 20 will appear in its extended position as seen in Figures 1 and 3.

Operation

When the device 20 is in its extended position, (see Figure 3) the printing medium 27 is maintained in contact with the inking pad 26 by the action of the expansive spring 125, the upper portions 85 and 86 of the guide slots being of such length with relation to the combined thickness of the inking pad 26, the printing medium 27, and the cushion 28, that when the printing medium 27 fully and properly contacts the under surface of the inking pad 26, there is a certain amount of space existing between the axle 31 and the upper ends of the upper slot portions 85 and 86.

The device 20 is placed over a surface to be printed with the feet 97 and 98 resting upon such surface. Downward manual pressure is applied to the handle 21 which causes the upper frame 22 to be moved downwardly against the expansive pressure of the spring 125. The outer ends of the axle 31, being trunnioned in the orifices 39 and 39' in the lower portion of the upper frame 22, will move downwardly therewith, and since the printing medium carrier support 30 is rotatably carried upon the axle 31, said support 30 will likewise be carried downwardly.

As the support 30 travels downwardly, the lower edges of the side walls 113 and 114 of said support will strike the upper projections 91 and 92.

Since the projections 91 and 92 are laterally displaced with relation to the axle 31, the upper projections 91 and 92 will cause the support 30 to rotate about the axle 31 through 90°. This rotation will cause the bosses 123 to enter the reversing portions 87 and 88 of the guide slots 83 and 84. This position of the support 30 is indicated by the dash double-dot lines in Figure 3.

Further downward movement of the axle 35 will then cause the support to rotate about a horizontal axis through the bosses 123 which are at this time pocketed in the reversing portions 87 and 88.

After the axle 31 has entered the lower slot portions 89 and 90, it then pulls the support 30 downwardly with the bosses 123 following. The bosses 123 are thus disposed upwardly of the axle 31 at this stage. The axle 31 in traveling downward thus pulls the bosses 123 into the lower portions 89 and 90 of the guide slots and since said lower portions 89 and 90 are of a length at least equal to the distance between the axle 31 and the bosses 123, the axle and bosses must line up in the lower slot portions and therefore must line up the support 30 so that the printing medium 27 is at right angles to the principal direction of the guide slots and parallel to the surface upon which the printing is to be placed and upon which the feet 97 and 98 are resting. Here again sufficient clearance must be allowed in the ends of the lower portions 89 and 90 of the guide slots 83 and 84 so that the full manual pressure applied to the handle 21 may be communicated to the printing medium 27.

After the printing is completed, the manual pressure upon the handle 21 is released. The expansive pressure of the spring 125 raises the handle and the upper frame 22 which thereby pulls the axle 31 upwardly.

In its upward travel the axle 31 pulls the then

upper edges of the side walls 113 and 114 into contact with the lower projections 93 and 94. These projections tilt the support 30 so that the bosses 123 again enter the reversing portions 87 and 88 of the guide slots, thereby rotating the support through 90°. Further movement of the axle 31 in an upward direction pulls the bosses 123 out of the reversing portions of the guide slots thereby completing the rotation of the support through another 90° and returning it to its original position as indicated by the full lines on Figure 3.

When it is desired to either change the printing medium or to re-ink the pad 26, it becomes only necessary to manually move the handle 21 downward until the latch 41 is opposite the notch 40 or 40', as the case may be. Manual movement of one of the pointed ends of the latch 41 into said notch will maintain the support 30 in a position indicated by the dot-dash lines on Figure 3, even after the manual pressure upon the handle 21 is released. Ready access is then available for the purpose of re-inking the pad 26 and the printing medium carrier 29 may be readily detached for the purpose of substituting therefor another such carrier having a printing medium with different characters thereon. Release of the latch 41 will permit the parts to assume their normal extended position ready for the next printing operation.

Where desired, certain of the parts may receive decorative treatment, as for example, a streamlined beading 130 which is applied to the outer portions of the upper frame 22, as indicated in Figures 1 and 2.

Where desired to reduce the cost of the device, or where the ability to substitute different printing mediums is not needed, the orifice 121 in the top wall 110 of the support 30 may be omitted as well as the carrier 29, and the lower surface of the cushion 28 may then be directly adhesively secured to the upper surface of the top wall 110.

It may thus be seen that I have disclosed the construction of a novel and useful stamping device which presents a good appearance, is light in weight, and is low in manufacturing cost. This device automatically re-inks the printing medium between printing operations and is extremely convenient, rapid, and fool-proof in use. The latch 41 may be also utilized for the purpose of reducing the total over-all size of the device during shipment. Means are provided whereby a plurality of printing mediums may be readily switched about so that the same device may be used for printing a considerable number of printing characters.

I wish it to be understood that I do not desire to be limited to the exact details of construction shown and described for obvious modifications will occur to a person skilled in the art.

I claim:

1. A stamping device of the class described, comprising: a lower frame having a leg with a slot therein including a reversing portion; an upper frame movable with relation to the lower frame and having a leg; a printing medium

carrier support having a boss; means penetrating the slot in the lower frame leg and pivotally connecting the carrier support to the leg of the upper frame; said boss being slidably disposed in said slot.

2. A stamping device of the class described, comprising: a lower frame of substantially inverted U shape having a pair of opposite, spaced and parallel legs; said legs each having a slot therein including a reversing portion; an upper frame of substantially inverted U shape having a pair of opposite, spaced and parallel legs disposed outwardly of the lower frame legs, the upper frame being movable with relation to the lower frame; a printing medium carrier support having a pair of oppositely disposed bosses slidably disposed in said slots; means penetrating the said slots and rotatably connecting the carrier support to the legs of the upper frame.

3. A stamping device of the class described, comprising: a lower frame having a leg with a slot therein, including a reversing portion; a projection on said lower frame leg adjacent the said reversing portion of the slot; an upper frame movable with relation to the lower frame and having a leg; a printing medium carrier support having a boss slidably disposed in said slot; means penetrating the slot in the lower frame leg and pivotally connecting the carrier support to the leg of the upper frame; said projection on the lower frame leg co-acting with the carrier support causing the carrier support to move therearound, bringing the boss into the said reversing portion of the slot.

4. A device as claimed in claim 3 having a pair of projections on the lower frame leg; said projections being oppositely disposed across the reversing portion of the slot.

5. A stamping device for use with an impression receiving surface comprising: an upper frame; a lower frame having a pair of spaced parallel legs each having a slot and an upper and lower projection; a printing medium carrier support having a printing medium thereon and a pair of bosses; an axle penetrating said slots and pivotally connecting the printing medium carrier support at a point between the bosses and the printing medium, to the upper frame; said slots each being substantially rectilinear and having a reversing portion extending laterally at right angles thereto; said bosses riding in said slots and being forced into the reversing portion of said slots by the action of the upper or lower projections on the lower frame legs striking the printing medium carrier support eccentrically when the upper frame is reciprocated.

6. In a stamping device of the class described: an upper frame of substantially U shape including a pair of upper frame members, each having a leg portion and a handle supporting portion; an upper frame locking plate securing said upper frame members together at the upper portion thereof.

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