June 13, 1939. C. A. McKUNE 2,162,102

HAND STAMP

Filed June 2, 1937

Fig. 1.

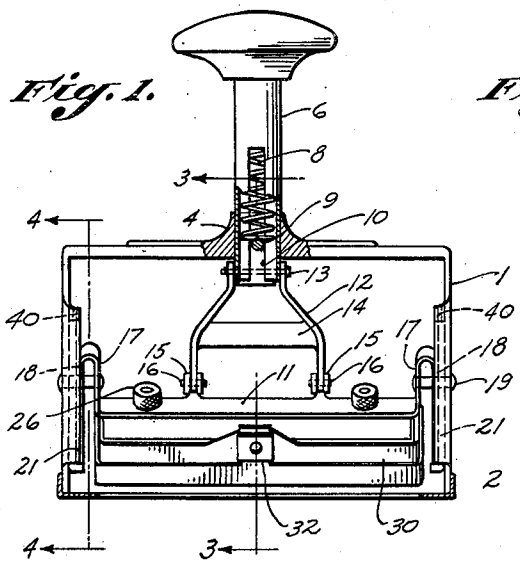


Fig. 2.

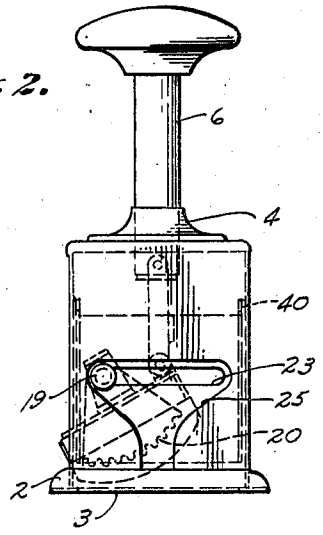


Fig. 3.

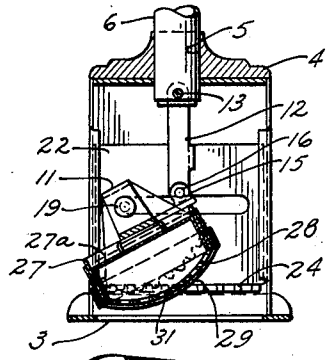


Fig. 4.

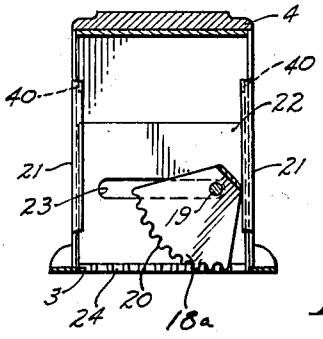
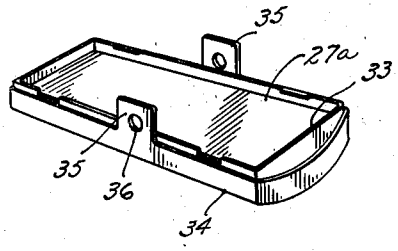


Fig. 6.



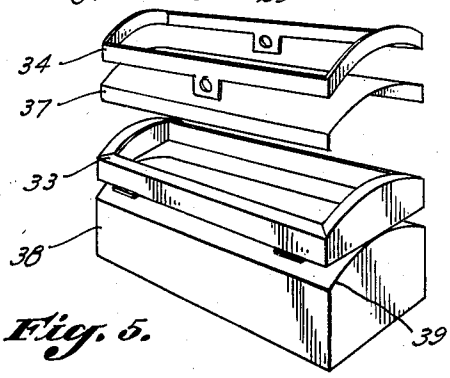


Fig. 5.

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2,162,102

HAND STAMP

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Application June 2, 1937, Serial No. 146,014

6 Claims. (Cl. 101—125)

My invention relates to hand stamping devices for placing a mark, signature, address, or other distinctive characters upon a suitable surface, such as paper or any material which will take a clear impression. The invention relates particularly to a device employing a paper stencil such as may be readily made on suitable paper by a typewriter.

The general object of the invention is to provide a device of suitable construction which will make a clear impression on a surface suited to receive it. Other objects include novel and convenient means for securing the stencil, for inking the same, for oscillating or rolling the stencil to get a clear impression, and for lifting the stencil vertically away from the printed impression at the conclusion of the printing action, to prevent smearing the latter.

In the appended drawing:

Fig. 1 is a side elevation of the device.

Fig. 2 is an end elevation of the same.

Fig. 3 is a vertical cross-section of the line 3—3 of Fig. 1 showing the stencil in its upper or normal position.

Fig. 4 is a vertical section on the line 4—4 of Fig. 1, but showing the stencil in stamping position with the plunger 6 fully depressed.

Fig. 5 is a perspective diagram showing a form-block and the method of assembling the stencil within its holders.

Fig. 6 is perspective view of the two stencil-retaining members assembled.

The device comprises a frame 1, preferably formed of sheet metal in the shape of an inverted U. The material used for the frame 1 may be steel, brass, aluminum, Monel metal, or other suitable material, and the frame 1 may be formed as a die casting, stamping, or in other convenient manner. To the frame 1 there is secured a rectangular base member 2 as by soldering or welding. In the base member 2, and extending for the major part of its length, there is formed a window or opening 3 through which the stencil passes to reach the surface to receive the impression. On top of the frame 1 there is formed in any desired manner, a guide member 4, provided with a hole 5, through which passes a stem or plunger 6.

The plunger 6 is hollow and may be conveniently formed of metal tubing and provided at its upper end with a hand knob 7 secured in any desired manner. Within the plunger 6 there is preferably a helical spring 8, one end of which engages the underside of the knob 7, and the other end of which engages a bar or pin 9 secured to the guide member 4. Slots 10 are formed in the plunger 6 to clear the pin 9 as the plunger moves. The co-relation of the pin 9 and the slots 10 also prevents the plunger 6 from turning, and registers it with its connected operating parts.

The lower end of the plunger 6 is connected by a pin 13 to a vertically disposed yoke or link 12 which may have a brace 14 formed integrally therewith to give it additional rigidity. A pair of lugs 15 formed on, or secured to a horizontally disposed crossbar 11 are connected by short pins 16 with the link 12 to actuate the crossbar 11 from the plunger 6.

At each of its ends the crossbar 11 is preferably bent upwardly to a right angle as shown at 17 and then by a U-shaped bend is bent downwardly as shown at 18. The portions 17 and 18 are spaced apart so as to provide rigid members to carry a pair of guide screws 19 as shown. The lower portions of each of the outer bends indicated by the numeral 18a are flared to meet an arc on which are formed small gear teeth 20.

The vertical edges on each end of the frame 1 may be bent over as shown at 21 to form flanges or guides for a pair of vertically slidable end members 22, there being a lug 4 at the upper end to define the upper limit of the movement of members 22. Each of these members 22 is preferably formed as a flat plate having a substantially horizontal slot 23 near its midsection, which may be straight or curved depending upon the proportions of its related parts, and a row of spaced teeth or projections 24 at its lower edge which are bent out at a right angle to the plane of the plate 22 to form the mechanical equivalent of a toothed rack. Each of the screws 19 is rigidly supported by the U-shaped portions 17, 18, and has its outer end engaging one of the slots 23. Each set of teeth of plate 18a engages the set of teeth 24 on its corresponding end member 22, against which it is adapted to slide.

When pressure is applied to the knob 7, the plunger 6 will be depressed against the resistance of the spring 8, thus depressing the crossbar 11, and also depressing the end plates 22 by reason of the screws 19 extending through the slots 23. As soon as the ink box 27 to be hereinafter described strikes the surface to be stamped, the downward motion of the members 22 ceases, and they then remain stationary, while the crossbar 11 and its attached parts are given a rocking motion under the combined influence of the screws 19 moving in the slots 23, and the teeth 20 tracking in the stationary teeth 24, as the flared

portion 18a of plate 18 rolls from the position shown in Fig. 3 to that shown in Fig. 4. Openings 25 of suitable shape may be formed in the ends of the frame 1 to clear the movement of the end or head of the screws 19.

Below the crossbar 11 and attached thereto as by small screws 26, is a rectangular ink reservoir which may be in the form of a box 27 with an arc-shaped bottom 28 as shown in Fig. 3. The bottom 28 has small perforations 29 through which ink may pass, and its radius of curvature is substantially equal to or slightly larger than that of the toothed arc on the lower end portions of plates 18.

Outside of the box 27 there is placed a retainer 30 similar in form to an ordinary box lid, but with most of its bottom cut away to expose an inking member 31 which may be made of thin felt or cotton cloth or other suitable absorbent material stretched over the bottom 28. The retainer 30 is then placed over the absorbent cloth in such a manner as to confine it in place.

The retainer 30 may be a frictional fit on the ink reservoir 27 and thus need no other fastening, or small screws may be provided to secure these parts to each other. The top of the ink box is preferably closed as shown at 27a to insure against any ink spilling therefrom. The retainer 30 may have a pair of pockets or slots 32 formed on each of its outer sides in order to hold the stencil container in position. It will be understood of course that the ink box assembly just described is only one suitable form or arrangement of ink pad, and that other types of pad may be adapted for use with the other features of my invention.

The stencil container comprises an outer member 34 and an inner member 33 as shown best in Fig. 6. The outer member 34 preferably has a pair of lugs 35 which enter the pockets 32 of the ink pad retainer 30, and holes 36 may be provided for connecting screws if desired.

Both the inner member 33 and the outer member 34 of the stencil container are curved in parallelism to the bottom 28 of the reservoir member 27, and both have bottom openings large enough to accommodate the stamping part of a stencil 37, so that ink may flow from the reservoir 27, through the inking member or pad 31, to the stencil 37, and through the stencil 37, and the bottom openings in the members 33 and 34, to the surface to be stamped.

In order to use a fragile stencil such as one made of waxed paper, it is necessary that the same should be well protected and well backed up against the pressure of application. The latter condition is achieved in the device herein described, by the bottom 28 of the ink reservoir 27 which is metallic and of ample strength. The former purpose is achieved by the general design of the device in which the delicate stencil itself is protected by the surrounding metal parts.

In order to facilitate the assembly of the stencils 37, as successively used, in the container members 33 and 34, I provide an assembly block 38 as shown in Fig. 5. This block may be made of wood, hollow sheet metal, or of other suitable material and has a curved top 39, as shown, which is parallel to the curve of the bottom 28 of the ink reservoir 27.

The dimensions of the block 38 are such that the inner stencil holding member 33 may be easily slipped over it; then the stencil 37 is laid in place with its two long edges overhanging the long edges of the block 38, and the outer retainer 34 is slipped over the stencil, thus clamping the same securely between the members 33 and 34, in such a manner that the proper curve is given to the stencil 37, so that the pressure applied to it later will be uniform. The assembly just described is then slipped over the retainer 30, and the device is ready to print.

The curved form of the stencil when in use provides against wrinkling and also due to the rolling action of the stencil during the printing or stamping operation, only a small portion of the stencil is making an impression at any given time, thus requiring less effort on the part of the user.

An inspection of Figs. 1, 2, and 3 will show that in its upper position, the plunger 6 is supported by the spring 8 and further that the crossbar 11, ink box 27, and the stencil 37 are hung on the links 12, which are in turn supported by the plunger 6. It will be noted also that the end plates 22 are freely movable vertically and that they hang on the pins 19 which are secured to the crossbar 11 supported by the plunger 6. The teeth 20 of the flared member 18 are at all times in engagement with the rack teeth 24 of the end plates 22.

As shown in Fig. 3 there is a space between the bottom of the ink pad 31 and the base plane of the device defined by the base member 2, the stencil being removed in this figure. When the stencil assembly as shown in Fig. 6 is applied to the stamp, this space will usually be reduced to an amount of from $\frac{1}{16}$'' to $\frac{1}{8}$'' approximately.

Now as shown in Fig. 3 the ink box 27 and attached parts including the end plates 22 will move downwardly as a unit when the plunger is depressed until the stencil 37 contacts the surface to be impressed. As soon as this contact is esablished, or at the end of the free vertical movement, the stencil is pressed against the surface operated on, the left side of the stencil as shown in Fig. 3 being the first to make contact. When this occurs, a rolling action toward the right is given to the ink box 27 and the attached stencil by the action of the link 12 and lugs 15, and this rolling action continues until the complete impression is made and the pins 19 have moved laterally in the slots 23 over to the position shown in Fig. 4.

The pins 19 preferably fit snugly in the slots 23 and since the end plates 22 are suspended thereon and freely movable vertically, a lessening of the pressure on plunger 6 will cause the entire assembly to move vertically away from the surface which has been stamped, until the end plates 22 strike lug 40, which prevents further upward movement thereof. Continued upward movement of the plunger causes the link 12 to rock the ink box and stencil back to its initial or normal position as shown in Figs. 1–3.

By reason of this action, the stencil is raised vertically away from the impression and is prevented from rolling back across the impression which might smear or blot it.

While I have illustrated and described the crossbar 11 and ink box 27 as separate members secured together by screws 26, it will be understood of course that they could be built as a single unit so that the crossbar in effect has no identity and actually forms a part of the ink box. Consequently, the word crossbar appearing in the appended claims is used in its broad significance to include all equivalent means for securing the eccentric linkage action illustrated herein.

It will also be understood that the proportions

of the various parts may be varied in accordance with particular demands so long as the rocking motion is given to the stencil in an equivalent manner to that described herein.

It will be understood, of course, that various detail changes may be made in the construction and arrangement of the parts and in the size of my improved stencil stamp without departing from the scope of the following claims.

I claim as my invention:

1. In a hand stamp, a frame having a base adapted to contact a flat surface, a stamping or printing member supported in the said frame and having a lower surface in the form of a cylindrical segment, a vertically movable plunger guided by said frame, a link connecting said stamping member and said plunger, and means responsive to a depression of said plunger for first causing a vertical movement of said stamping member to meet the surface to be stamped, and then a rolling movement of said stamping member on the said surface.

2. In a hand stamp, a frame, a vertically movable plunger guided thereby, a vertically movable sliding member adjacent to each end of said frame and guided thereby, a crossbar supporting said sliding members and which may be oscillated with respect thereto, a stamping device attached to said crossbar, a link connecting said crossbar with said plunger, and means for oscillating said crossbar when said plunger is depressed to give said stamping member a rolling action.

3. In a hand stamp, a frame, a vertically movable plunger guided thereby, a vertically movable sliding member adjacent to each end of said frame, and guided thereby, said members each having a substantially horizontal slot therein, a crossbar supporting said sliding members and which may be oscillated with respect thereto, segmental gear teeth formed on each end of the said crossbar, rack teeth formed on each of the said sliding members and meshing with the said gear teeth, a projection extending from each end of the said crossbar and engaging one of said slots, a stamping device attached to said crossbar, and a link connecting said crossbar with said plunger.

4. In a hand stamp, a frame, a plunger guided thereby for vertical movement, a spring for said plunger to return the same, a pair of sliding members each adjacent to one end of the frame and guided thereby, a crossbar, a link connecting said crossbar with the said plunger, a horizontally disposed slot in each of said sliding members, a projection of each end of the said crossbar engaging one of said slots, segmental gear teeth on each end of said crossbar located below one of the said slots, rack teeth on each of the said sliding members, engaged by one of the sets of gear teeth on said crossbar, a rigid hollow ink box secured to the said crossbar and having a segmental cylindrical perforated bottom, a resilient ink pad in contact with the said bottom, a retaining hand therefor, a two piece form, a flexible stencil contained therein, the same being in contact with said ink pad and means for securing the said two piece form and stencil to said rigid hollow ink box.

5. In a hand stamp, a frame, a vertically movable plunger guided thereby, a vertically movable sliding member adjacent to each end of said frame and guided thereby, a stamping member, means for supporting said stamping member and said sliding members, a link connecting said means with said plunger, whereby a depression of said plunger first depresses said stamping member and said sliding members and then causes an oscillation of said stamping member when said sliding members come to rest.

6. In a hand stamp, a frame, a vertically movable plunger guided thereby, a vertically movable sliding member adjacent to each end of said frame and guided thereby, a crossbar supporting said sliding members which may be oscillated with respect thereto, segmental gear teeth formed on each end of said crossbar, rack teeth formed on the lower edge of each of said sliding members and meshing with said gear teeth, a stamping member attached to said crossbar, and a link connecting said crossbar with said plunger.

CLIFFORD A. McKUNE.