July 4, 1950 M. MANN 2,513,419

HAND STAMP

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Fig. 1.

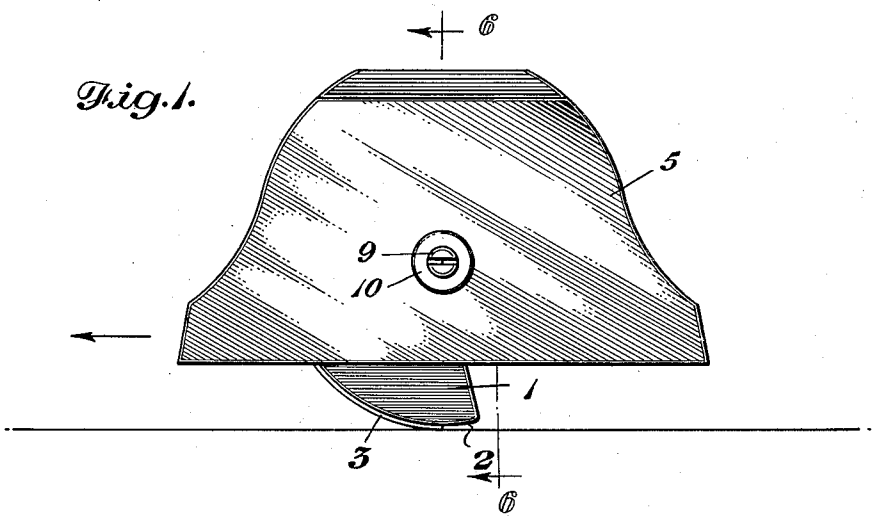


Fig. 2.

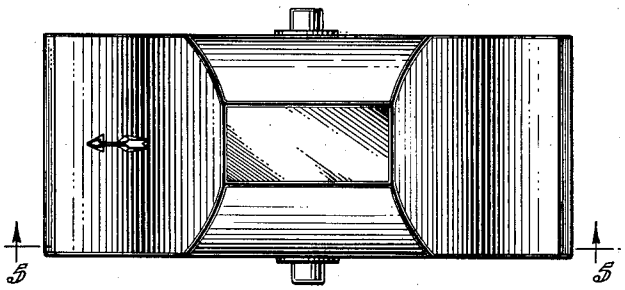
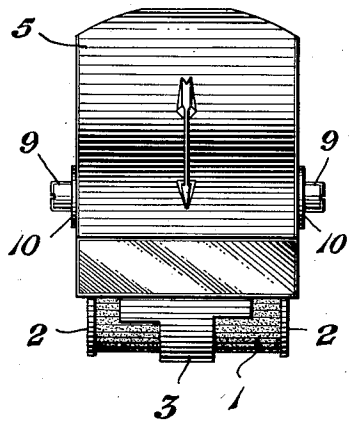


Fig. 3.



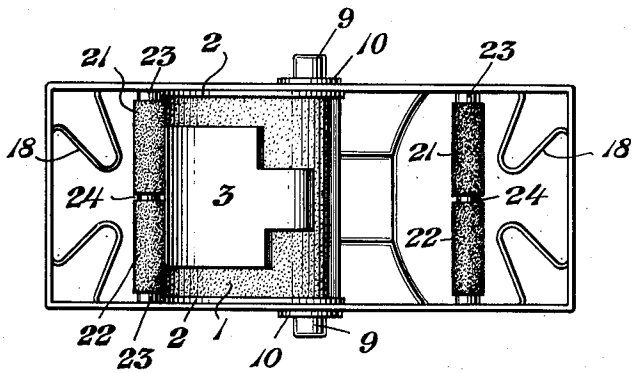


Fig. 4.

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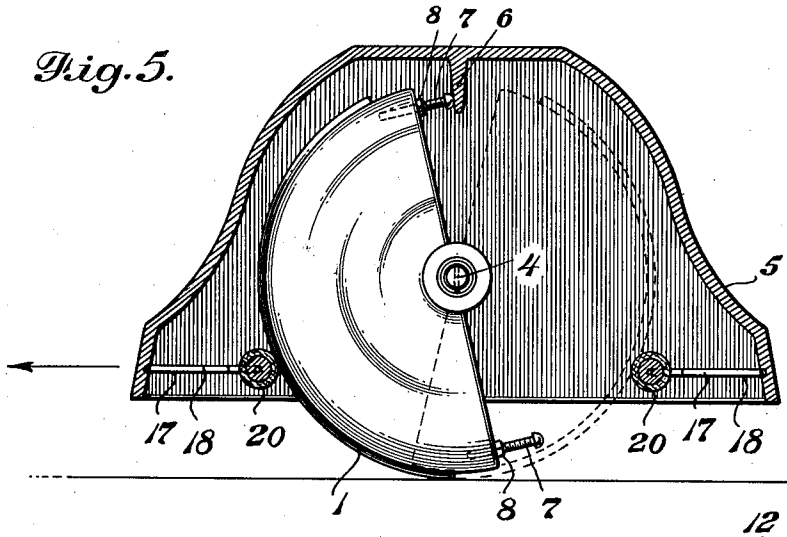
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HAND STAMP

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Fig. 5.



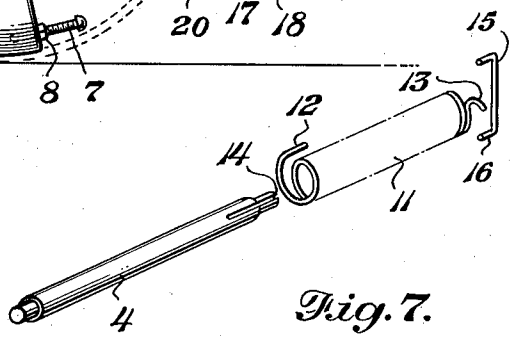


Fig. 7.

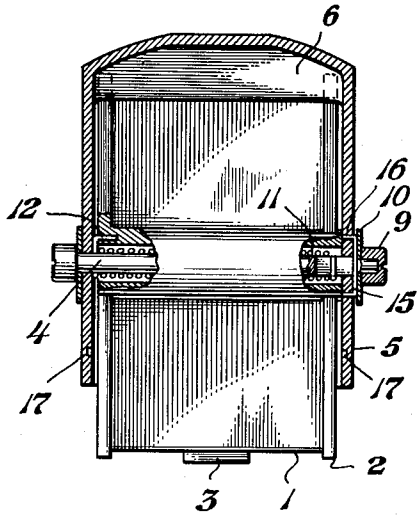


Fig. 6.

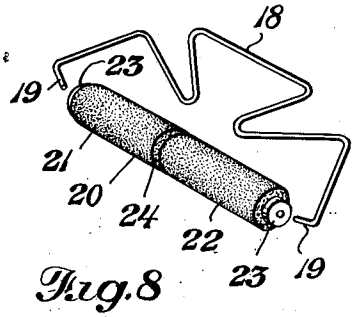


Fig. 8

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UNITED STATES PATENT OFFICE

2,513,419

HAND STAMP

Max Mann, New York, N. Y.

Application October 14, 1948, Serial No. 54,487

4 Claims. (Cl. 101—329)

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The present invention relates to an improved stamp generally applicable for hand printing and is a continuation in part of my copending application Serial No. 738,573, filed April 1, 1947. In particular, the stamp has several novel features enabling rapid and accurate printing with variable pressures on stationary or movable surfaces in a plurality of colors.

Outstanding among the improved features of construction of the stamp is an arcuate printing die element mounted in or comprising the arcuate surface of a segment of a cylinder, pivotally supported through the cylindrical axis in a housing of modified contour to be comfortably grasped by hand for easy printing by a rolling horizontal motion of the arcuate surface against the surface to be printed. The arcuate cylindrical segment is biased by a torsion spring about the rotary axis thereof and constrained between stops in the housing or as the housing wall is designed to act as stops for both ends of the arc of movement, whereby the printing die is automatically aligned for printing, the printing is quickly effected by the short horizontal movement through the length of the arc and the arcuate printing element is quickly reset for the next printing as governed by the stop positions at a rate controllable by tension of the spring.

As a further feature of the present invention, inking pads of the roller type are mounted in opposite ends of the housing tangentially to the arc of movement of the arcuate printing element and supported and biased by springs into rolling contact therewith whereby a portion of the arcuate printing element is inked by rolling contact with one of the inking pads during one portion of its arcuate movement during printing and another portion is inked by such contact with the oppositely mounted pad during the later portion of the arcuate position of the printing element. Thus, during the printing operation of arcuate swing of the printing element and return between stops, part of the inking is effected by one inking roller and part by the other, resulting in an oscillating double inking of forward and return movement of the printing element in contact with each of the rolling pads during different portions of the arc. This results in a very effective and rapid inking. Moreover, since each pad inks only a portion of the roller, by applying different colored inks to the pads, part of the arcuate printing element may be caused to print in one color and part in another corresponding to the color applied to the particular section thereof. As will be shown in detail hereinafter, a

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single roller pad may be constructed in independent inking sections with two or more pads with different colored inks mounted on a single roller whereby very small sections of the arcuate element may be independently and distinctively colored. By construction herein whereby the stops are made adjustable, the rolling distribution of contact surface of the arcuate printing element between the several colored inking pads in rolling contact therewith may be controlled to apply distinctive color accurately to any desired section of the stamp surface.

Further desirable features of the present construction are in the hair pin type springs on which the inking rollers are mounted and disposed in slots in opposite portions of the housing enabling ready removal of the pads for replacement or inking and easy adjustment of the spring tension for even pressure against the printing element and for accommodation of printing dies or lettering of large or small height extending for printing from the arcuate printing element surface.

Other desirable features are inherent in this construction and further description is made by reference to the drawing.

Fig. 1 shows the stamp in normal printing position by horizontal movement in the direction of the arrow and has one side wall removed with some parts in section to show construction.

Fig. 2 is a plan view of the stamp showing the housing.

Fig. 3 is an end view of the stamp.

Fig. 4 is a bottom view.

Fig. 5 is a side view of the stamp with parts in section to show assembled construction taken on the line 5—5 of Fig. 2.

Fig. 6 is a side elevation in section taken on the lines 6—6 of Fig. 1.

Fig. 7 is a detail of the axle, torsion spring and pin in position ready for assembly.

Fig. 8 is detail showing one of the roller inking pads and a hair pin spring in position ready for assembly.

As shown in the drawings, the printing element comprises a segment of a cylinder 1 having its arcuate portion bounded by raised, preferably roughened, serrated or knurled edges 2 forming firmly gripping runners defining a depressed area therebetween to which is permanently or removably fastened a printing element 3 comprising individually fastened printing dies, letters, characters, type or other ink transferring indicia or an arcuate plate bearing such integrally or removably.

The cylindrical segment 1 is pivotally mounted for oscillation on an axle 4 corresponding to the cylindrical axis thereof and supported thereby between depending vertical side walls of a shell housing 5 having flaring bell-shaped ends and blunt top adapted to be grasped in the palm of the hand for hand operation of the printing device. The axle 4 is journaled in and protrudes through the side walls of the shell 5 pivotally supporting the cylindrical segment 1 at a position below the top, such that the oscillating segment will strike a stop 6 in either direction of its arcuate movement.

Mounted in opposite ends of the cylindrical segment 1 as by boring and threading therein are several studs 7 fixed in any extended position of adjustment by nuts 8, the studs 7 being adapted by cooperation with stop 6 to fix and adjust the extent of the free arc through which the cylindrical segment 1 may oscillate. Thus the cylindrical segment may oscillate in an arc fixed by the stop 6 and adjustable studs 7. The axle 4 is threaded at both ends 8 to receive caps 9 and washers 10 bearing against the side walls of the housing 5. A torsion spring 11 is mounted about the axle 4 with one end 12 bearing against the cylindrical segment 1 under torsion and the other end 13 held in a slot 14 of the axle 4. A pin 15 also fits in the axle slot 14 with both ends 15 bent to fit in tiny holes in the side wall 5. The tension of spring 11 may be adjusted by winding about the axle 4 with a greater or lesser number of turns as desired and thereby increase or decrease the rate of recoil or return oscillation of the printing segment in operation, the tension thereof being held by pinning with pin 15 held in the assembly as described.

As shown, the lower end of the arcuate segment 1 protrudes from the housing 5 for contact of the object to be printed.

In each side wall of the housing 5 aligned slots 17 are cut to support two hair pin springs 18, one leg 19, of each serving as a rotary support of two inking pads 20 in each of the bell-shaped ends of the housing. The position of the rotary pads 20 as shown, is tangent to the arcuate path of the printing element 3. The springs 18 are bent with hair pin bends as shown, so as to be easily removable from the housing and by changing the angle of bend are adjustable in tension to exert a resilient supporting bias to the pad roll against the printing element enabling the pad to rotate firmly but resiliently therewith imparting ink thereto as the printing element passes by in its arcuate swing.

As shown, the inking pads are easily removable for cleaning, replacement and adjustment in tension and may also be recharged with ink when they are removed.

The pad 20 may be composed of several pads 21, 22 etc., mounted on a single supporting roller cone 23. Each of these pads 21 and 22 are shown somewhat exaggeratedly separated at 24 so that ink will not seep from one pad to the next, but this space 24 may be filled by washers or other spacing elements to prevent such ink passage. With this construction, the pads are adapted to independently carry different colored inks.

The printing element may be of rubber or other known stamp material. Similarly, the inking pads are of felt or other known inking pad materials.

In operation the stamp is grasped in the palm of the hand placed against the stationary or movable surface to be printed and moved horizontally in the direction of the arrow.

The roughened edges or runners 2 of the printing element grip the surface to be printed and limit the pressure applicable to the printing element and serve as a guide so that whatever pressure is exerted is modified thereby and the print is even. During movement of the arcuate printing element, the inking roll in contact rotates therewith in both directions of motion to impart to the printing element an even coating of ink. After passing through half of the printing arc, the forward end of the printing element contacts the second inking roll and the forward half of the printing element is inked in rolling contact therewith both on the printing and return arcuate motion.

In the forward sweep of the segment of the cylindrical printing element, the forward end thereof meets the top of the housing which acts as a stop to terminate the upward arcuate swing and upon release by lifting the stamp from the printed surface, the printing element is returned by the bias of spring 8 to the starting position, held firmly thereby against the top acting also as a stop to fix the starting position of the printing element. To cushion the shock and muffle the sound of the stopping motion at each end of the arc of the printing element, a lining of hard rubber may be fastened to the underside of the top of the shell, but other types of stopping elements may be mounted in the shell to define the arc terminal positions as desired, the essential feature being that the oscillating printing arc for both starting and stopping positions is fixed.

The studs 7 are accurately set to regulate not only the complete arc of swing for printing by the cylindrical segment, but also to regulate which portion of the printing element is to receive ink by the corresponding pad.

Thus by having the studs on one side of the cylindrical segment more or less extended than the opposite side a greater or lesser area of the printing surface will be inked by one or the other inking rollers. Thus the surface to be inked by any particular pad is regulated by the adjustment of studs 7. If one of the inking pad elements has a different colored ink than the others, then the arcuate surface, the printing element is controllably colored or a selected area as adjusted by these studs 7.

The straight side walls of the shell and the roughened runner elements act as guides for the oscillating printing element and thereby correct and stabilize the rotation thereof and aid in forming a true linear imprint in the direction of motion of the stamp.

Certain modifications within principles outlined herein will occur to those skilled in the art and it is intended that this specification be interpreted as broadly as defined in the claims.

I claim:

1. A hand stamp having a segment of a cylinder with printing elements on the arcuate surface thereof mounted to oscillate in a housing about a pivot in the cylindrical axis thereof by arcuate movement about said pivot across a surface to receive print, said housing supporting said pivot having an open side and shaped to partially enclose said segment of a cylinder with the outer arcuate portion protruding therefrom for printing, the opposite inner portion of said housing providing an abutment subtending the arc of oscillation of said segment against which each end of the segment bears at each limit of

its arc of oscillation, means for resiliently biasing one end of the segment of the cylinder against said abutment, a pair of inking rollers resiliently biased into frictionally rolling ink imparting contact with the arcuate printing surface, each inking roller being rotatably mounted in the lower portion of said housing and at opposite portions therein tangential to the arc of oscillation of said printing element in positions fixed with respect to said abutment limiting the arc of oscillation and sufficiently distant from each other such that one portion of said arcuate printing surface has ink imparted thereto substantially independently by one roller and another portion has ink substantially independently imparted thereto by the other roller, whereby substantially separate portions of said arcuate printing surface are inked by each roller.

2. A hand stamp having printing elements disposed on an arcuate supporting surface as a printing unit, said printing unit being mounted for oscillation on a pivot through the arcuate axis thereof to print by arcuate movement across a surface adapted to receive print, a stationary inverted shell housing adapted to be held manually supporting said pivoted arcuate printing element with the printing element extending therefrom, said housing having a closed inner portion shaped to intercept the arc of oscillation of said printing unit at each end providing a stop, means resiliently biasing said printing unit against the stop in one direction, means mounted in each end of said arcuate supporting surface adjusting the distance of arcuate movement thereof between stops, a pair of inking rollers resiliently biased into frictionally rolling ink imparting contact with the arcuate printing surface, each inking roller being rotatably mounted in the lower portion of said housing and at opposite portions therein tangential to the arc of oscillation of said printing element in positions fixed with respect to said stop limiting the arc of oscillation and sufficiently distant from each other such that one portion of said arcuate printing surface has ink imparted thereto substantially independently by one roller and another portion has ink substantially independently imparted thereto by the other roller, whereby substantially separate portions of said arcuate printing surface are inked by each roller.

3. A hand stamp having a bell shaped housing with the upper portion rounded to be manually grasped in the hand for operation, and having sides flaring outwardly with an open bottom, a printing element comprising an arcuate segment of a cylinder with printing indicia mounted on the arcuate surface thereof, a pivot supporting said arcuate printing element through the cylindrical axis thereof for oscillation with the arcuate printing surface extending from said housing for printing by arcuate movement across a surface for receiving print, a stop depending inwardly from the top of said housing subtending the arc of oscillation of said arcuate printing element about said pivot, means resiliently biasing said printing element against said stop in one

direction of arcuate movement thereof, a pair of inking rollers resiliently biased into frictional ink imparting contact with the arcuate printing surface, each inking roller being rotatably mounted in the lower flaring portion of the bell shaped housing and at opposite portions therein tangential to the arc of oscillation of said printing element in positions fixed with respect to said stop limiting the arc of oscillation and sufficiently distant from each other such that one portion of said arcuate printing surface has ink imparted thereto substantially independently by one roller and another portion has ink substantially independently imparted thereto by the other roller, whereby substantially separate portions of said arcuate printing surface are inked by each roller.

4. A hand stamp having printing elements disposed on an arcuate supporting surface as a printing unit, said printing unit being mounted for oscillation on a pivot through the arcuate axis thereof to print by arcuate movement across a surface adapted to receive print, a stationary inverted shell housing adapted to be held manually supporting said pivoted arcuate printing element with the printing element extending therefrom, said housing having a closed inner portion shaped to intercept the arc of oscillation of said printing unit at each end providing a stop, means resiliently biasing said printing unit against the stop in one direction, means mounted in each end of said arcuate supporting surface adjusting the distance of arcuate movement thereof between stops, a pair of inking rollers resiliently biased into frictionally rolling ink imparting contact with the arcuate printing surface, each inking roller being rotatably mounted in the lower portion of said housing and at opposite portions therein tangential to the arc of oscillation of said printing element in positions fixed with respect to said stop limiting the arc of oscillation and sufficiently distant from each other such that one portion of said arcuate printing surface has ink imparted thereto substantially independently by one roller and another portion has ink substantially independently imparted thereto by the other roller, whereby substantially separate portions of said arcuate printing surface are inked by each roller, at least one of said rollers being axially divided into sections for independent application of contrastingly colored inks.

MAX MANN.

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