June 6, 1933. M. A. G. LUEDTKE ET AL 1,912,905

MARKING, PRINTING, AND EMBOSSING MACHINE

Filed July 3, 1929 3 Sheets-Sheet 1

Fig. 4.

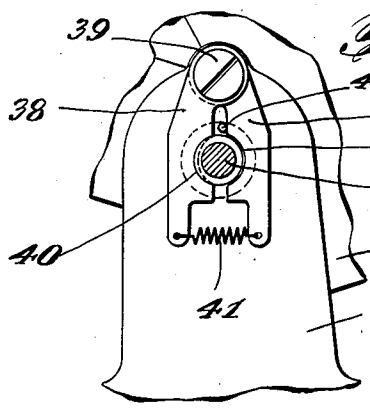
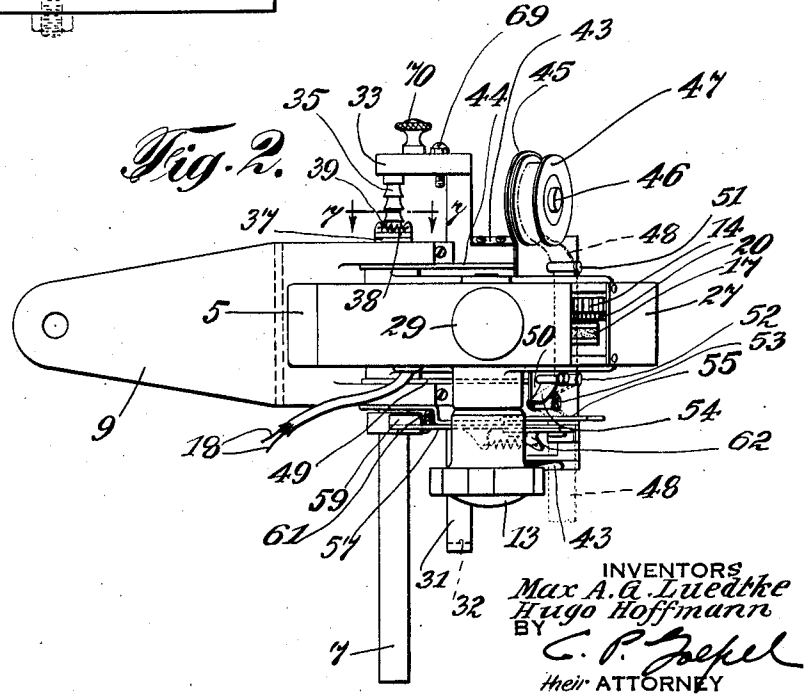


Fig. 1.

Fig. 2.



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MARKING, PRINTING, AND EMBOSSING MACHINE

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Fig. 4.

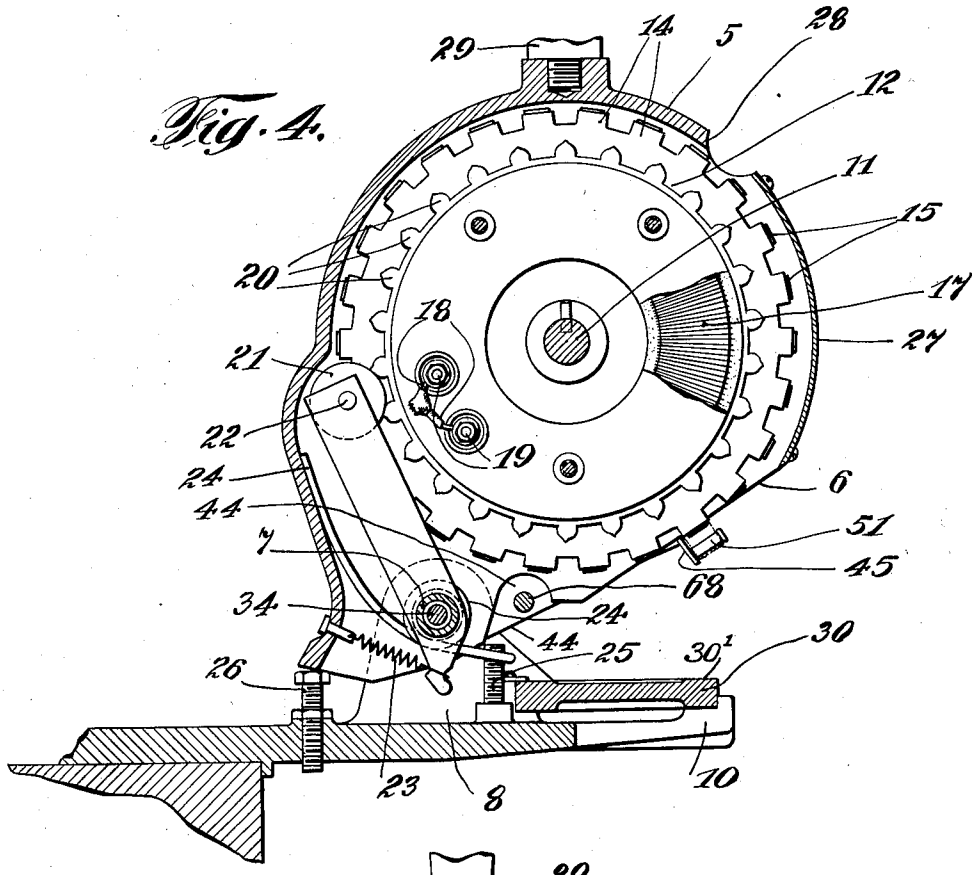
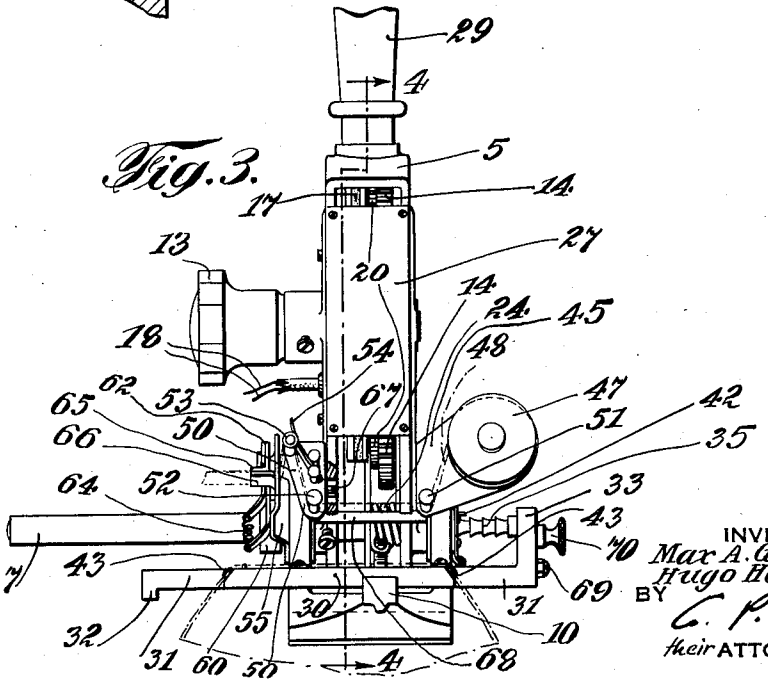


Fig. 3.



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Filed July 3, 1929 3 Sheets-Sheet 3

Fig. 5.

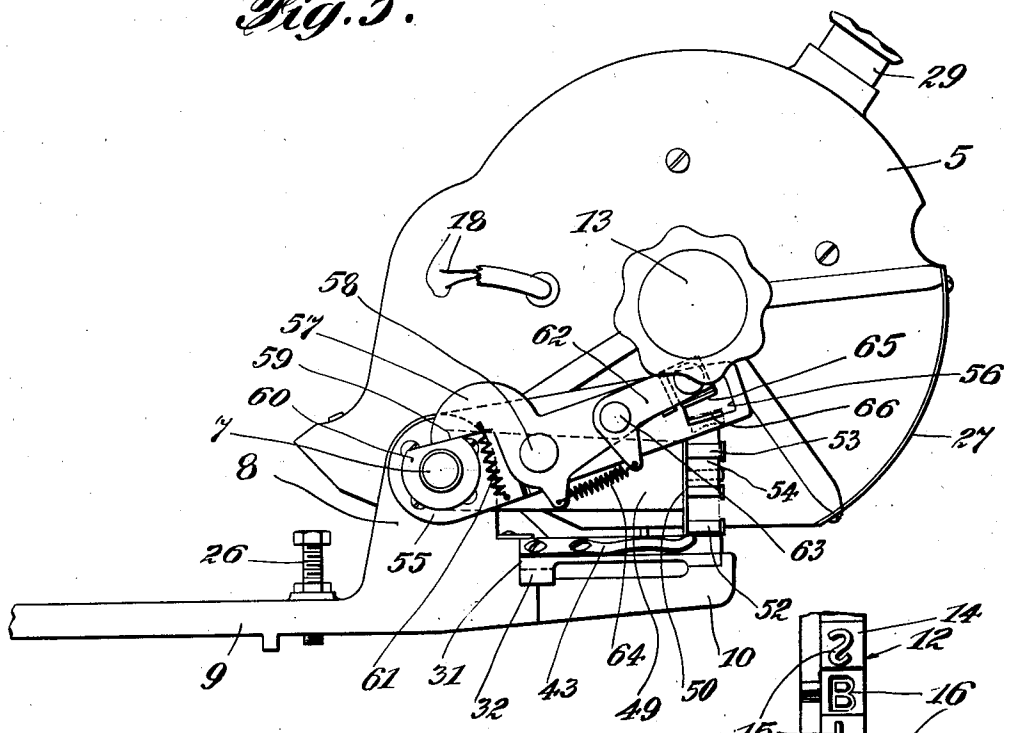
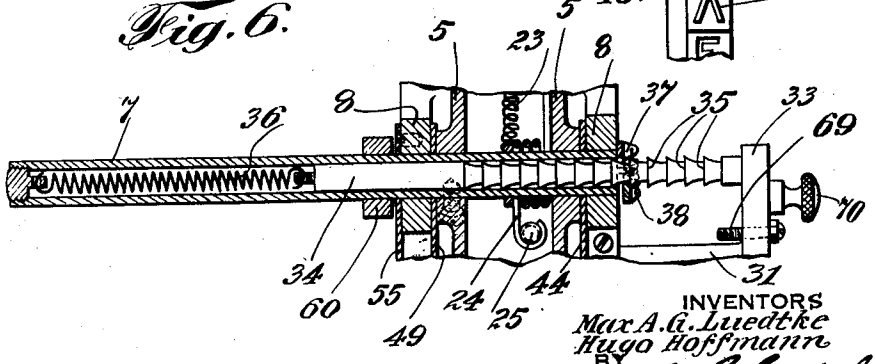


Fig. 8.



Fig. 6.



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Patented June 6, 1933 1,912,905

UNITED STATES PATENT OFFICE

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MARKING, PRINTING, AND EMBOSSING MACHINE

Application filed July 3, 1929. Serial No. 375,613.

This invention relates to marking, printing and embossing machines, and more particularly to a machine of the kind shown and described in an application filed by Max A. G. Luedtke, on May 3, 1927, Serial No. 188,477, which is designed especially for the purpose of stamping, printing or embossing letters upon the leather sweat band of hats to form the initials or name of the owner.

It is the principal object and purpose of the present invention to provide certain improvements in a machine of the above type so that by means of a single letter or type wheel, any reasonable number of letters forming a complete name may be rapidly printed or stamped on the leather band of the hat with a uniform and accurate spacing of the letters from each other.

In a preferred embodiment of our invention, we provide in conjunction with the bodily oscillatable letter wheel a rectilinearly movable platen or base upon which the leather band of the hat is positioned and means automatically operating in the oscillatory movements of the wheel to impart a step by step movement to said platen and to feed a strip or tape of gold paper between the platen and the letter wheel.

Our invention also has for other important objects thereof, to provide a novel form and construction of the platen operating mechanism, together with a very simple construction and compact arrangement of the automatic feed means for the gold carrying paper tape.

With the above and other objects in view, the invention consists in the improved marking, printing and embossing machine and in the form, construction and relative arrangement of its several parts as will be hereinafter more fully described, illustrated in the accompanying drawings, and subsequently incorporated in the subjoined claims.

In the drawings, wherein we have illustrated one simple and practical embodiment of our present improvements, and in which similar reference characters designate corresponding parts throughout the several views,—

Figure 1 is a side elevation of a machine with the parts thereof shown in normal position;

Fig. 2 is a top plan view;

Fig. 3 is a front elevation;

Fig. 4 is an enlarged vertical sectional view through the casing of the letter wheel;

Fig. 5 is an enlarged elevation showing the letter wheel casing moved to printing position and illustrating the operation of the paper feed mechanism;

Fig. 6 is an enlarged horizontal sectional view taken on the line 6—6 of Fig. 1;

Fig. 7 is a detail sectional view taken on the line 7—7 of Fig. 2, and

Fig. 8 is an enlarged detail fragmentary edge view of the letter wheel.

Referring in detail to the drawings, the casing 5 for the letter wheel consists of a light metal casting open at its lower portion as at 6 and obliquely inclined from front to rear. The lower rear portion of this casing is fixed to a hollow tubular shaft or axis 7 which is journalled to oscillate freely in the upstanding supporting ears 8 which are formed upon a suitable base 9. This base at one of its ends, is adapted to be rigidly secured upon the edge of a table or other fixed support as indicated in Fig. 1 of the drawings, while the other end of said base projects forwardly from the edge of such support. This latter end of the base 9 is provided with a suitably formed guiding bed 10 for a movable platen or article supporting base to be later referred to.

Upon a shaft 11 journalled to rotate freely in the opposite side walls of the casing 5, the letter wheel 12 is rigidly fixed within said case, one end of the shaft exteriorly of the casing being provided with a suitable knob or handhold 13. The periphery of the wheel 12 is provided with equi-distantly spaced radial projections indicated at 14, which, in the illustrated embodiment are twenty-six in number, said projections at their end faces being formed with the type letters of the alphabet as shown at 15, said letters being embossed or raised above the surfaces of the projections. The peripheral surface portions of the wheel 12 between the projections 14 also have the letters of the al-

phabet preferably in intaglio as indicated at 16, the purpose of which will presently appear. To one side of the metal letter wheel 12, a suitable form of electrical resistance unit shown at 17 is fixed, current supply wires indicated at 18 being connected with the terminals 19 of said resistance as seen in Fig. 4. Thus, it will be understood that in the operation of the machine, the letter carrying wheel 12 is highly heated.

There is also integrally formed upon one side face of the wheel 12 and spaced inwardly from the projections 14, a concentric series of spaced lugs or teeth shown at 20 and with adjacent teeth a roller or disc 21 loosely journalled upon the upper end of a supporting arm 22 is adapted to engage. The lower end of this arm is loosely mounted upon the shaft or axis 7 and below said axis, a spring 23 is connected to the arm and yieldingly holds the roller 21 in contacting engagement with the teeth or lugs 20. Thus, the letter-carrying wheel 12 will be yieldingly held in its adjusted position against casual rotation relative to the casing.

A coiled wire spring 24 is arranged within the lower end of the casing around the shaft 7, one end of said spring being connected with the upper end of the screw 25 threaded in the base 9 while the other end of said spring extends upwardly and exerts a rearward bearing pressure against the inner side of the rear wall of the casing 5 to yieldingly hold said casing and the letter wheel in a normal position, with the lower end of said casing in contact upon the upper end of an adjustable stop screw 26 threaded in the base 9.

The front side of the casing 5 above the lower opening 6 thereof is closed by a removable cover plate 27 and at the upper end of said plate, the front wall of the casing is provided with the sight opening 28 through which the letters on the periphery of the wheel 12 may be easily observed. To the top of the casing 5, a suitable operating handle 29 is attached.

Upon the guide bed 10 of the base 9, the rectilinearly movable platen or supporting base 30 for the article to be lettered or printed is mounted. This platen moves in a plane parallel with the plane of the base 9 and is positioned forwardly of the axis 7 and beneath the lower opening 6 of the casing 5. At its rear side, said platen is formed with a rectangular lateral bar or extension 31 at each end thereof, said lateral extension at one end of the bar terminating in a downwardly projecting stop lug 32 adapted to contact with one side edge of the base 9 and limit the horizontal movement of said platen in one direction. The other lateral extension 31 of the platen is provided at its end with an upwardly and rearwardly inclined arm 33 to which one end of a rod 34 is rigidly fixed. This rod is slidable within the hollow shaft or axis 7 upon which the oscillatable casing 5 is fixed, and said rod is provided for a portion of its length with a succession of tapering sections having their larger ends facing toward one side of the casing 5 and presenting spaced stop shoulders 35. To the end of the rod 34 within the shaft 7, one end of a contractile coil spring 36 it attached, the other end of said spring being suitably fixed within the end of the hollow shaft. Thus, as indicated in Fig. 6 of the drawings, it will be understood that the spring 36 acts to move the rod 34, and accordingly the platen 30 with which said rod is connected, from right to left.

Such movement of the platen, is governed or controlled by the device illustrated in Figs. 6 and 7 of the drawings, and which includes the two arms designated 37 and 38 respectively, disposed closely adjacent and in parallel planes and supported at their upper ends upon a common pivot 39 fixed in one of the supporting ears 8 on the base 9. These arms extend downwardly at opposite sides of the rod 34, and they are provided in their opposed edges contiguous to said rod with the substantially semi-circular notches or recesses 40. The lower ends of said arms are connected with each other by means of the contractile spring 41 and which acts to position the curved recessed edges 40 of the said arms inwardly of the perimeter of one of the shoulders 35 on the rod 34, thus preventing axial movement of said rod and accordingly shifting movement of the platen 30 under the action of the spring 36. As clearly seen in Fig. 7 of the drawings, the end of the hollow shaft 7 is provided with a pin or stud 42 projecting between the two arms 37 and 38 above the rod 34, and as indicated, in the normal position of the casing 5, this pin is in bearing contact against the plate 37 while the other plate 38 is positioned between one of the shoulders 35 on the rod 34 and the supporting ear 8 of the base 9. Upon the downward oscillating movement of the casing 5 to move the wheel 12 to printing position, the pin 42 is brought into bearing contact with the inner edge of the other arm 38, and moves the same outwardly beyond the shoulder 35. However, the arm 37 has been released and positioned in the path of said shoulder, so that the axial shifting movement of the rod 34 is very small. The platen is thus retained in the proper position during the printing operation. In the upward movement of the casing 5 to its normal position, the reverse action takes place, and upon disengagement of plate 37 from the shoulder 35, a relatively longer rectilinear shifting movement of the platen occurs which is limited by the next shoulder 35 on the rod 34 contacting with the plate 38. In this manner, it will there-

fore, be understood that a step by step movement is imparted to the platen 30 which will insure an accurate spacing of the letters. The mechanism just described, therefore, operates as a ratchet means, automatically actuated in the relatively short oscillating motion of the casing 5 to secure a step by step movement of the platen with the several movements thereof exactly of the same length.

The opposite end edges of the platen 30 are preferably beveled and to the same the spring clips 43 are secured. The leather sweat band is adapted to be inserted under these clips as indicated in dotted lines in Fig. 3 of the drawings, so as to hold a section of the band flat and smooth upon the upper surface of the platen.

At one side of the casing 5, a forwardly extending arm 44 is loosely engaged upon the shaft or axis 7 and on the forward end of this arm, a laterally extending bracket plate 45 is secured, said bracket plate carrying a stud 46 to receive a rotatable spool or bobbin 47 upon which the gold carrying paper tape indicated at 48 is wound.

At the opposite side of the casing 5 a forwardly extending arm 49 is also loosely engaged upon the shaft 7 and at its forward end is provided with the bracket plate 50. The bracket plates 45 and 50 carry the headed guide pins or studs 51 and 52 respectively, which are in horizontal alignment with each other, the tape from the spool 47 extending under these pins and being guided thereby across the lower opening 6 of the casing 5. The bracket plate 50 at its upper end has a guide roller 53 mounted thereon and the tape 48 extends upwardly from the guide pin 52 and over this roller. A leaf spring indicated at 54 is suitably mounted on the bracket plate 50 and bears at its free end against the paper tape as it passes around the roller 53.

At the same side of the casing 5 as the bracket plate 50, and in parallel relation with the arm 49, a second arm 55 is arranged and rigidly fixed at its rear end to one of the ears 8 of the base 9. This arm at its forward end is provided with the opening shown at 56 through which the paper tape is drawn by the feed mechanism.

This feed mechanism which will be clearly understood from reference to Figs. 1 and 5 of the drawings, includes a lever 57 of general L-shaped form fulcrumed upon one side of the arm 55 on the stud or rivet 58, said lever at its rear end projecting upwardly and rearwardly from the pivot stud 58 and having a flanged lower edge 59 which overlies a cam 60 fixed on the shaft 7. The lever is yieldingly held in engagement upon said cam by means of the spring 61. On the forward end of said lever, a bell crank 62 is fulcrumed as at 63, one arm thereof projecting downwardly and being connected by a spring 64 with lever 57 at the rear pivoted end of the latter. The other arm of the bell crank 62 projects beyond the forward end of lever 57 and carries a flange or presser foot 65 adapted to cooperate with a flange 66 projecting laterally from the lower edge of the opening 56 in the arm 55. The gold paper tape 48 extends between said flange 66 and the presser foot 65 and is normally clamped between the same.

Having now described the several cooperating parts of the new machine, its operation will be understood as follows. Assuming that the leather sweat band of the hat or other article to be marked, printed or embossed, has been clamped in position upon the upper surface of the platen 30, the operator first turns the wheel 12 by means of the knob or handle 13 until the desired letter 16 on one of the depressed peripheral surfaces of the wheel 12 appears in the sight opening 28. When the letter is so observed, the same letter in relief on one of the projections 14 of the wheel 12 will be directly opposed to the paper tape 48 extending across the wheel below the opening 6 of the casing 5. Current having been supplied to the resistance unit 17, after the wheel 12 attains a comparatively high temperature, the operator then grasps the handle 29 and swings the casing 5 together with wheel 12 forwardly and downwardly. The arms 49 and 44, together with spool 47 also move as a unit with the casing 5 until the part of the paper tape 48 which extends between the guide pins 51 and 52 comes into contact with the surface of the leather hat band or other material. Upon continued downward pressure on the handle 29, the casing and letter wheel are moved downwardly relative to the paper tape supporting arms, such movement being limited by the stud or pin 67 (Fig. 3) which projects from the arm 49 into a relatively large opening in one side wall of the casing 5. Preferably, adjacent their rear ends the two arms 44 and 49 are connected by a horizontal rod 68 so that said arms will swing upon the shaft 7 as a single unit. The relief letter 15 on wheel 12 is thus brought into bearing engagement upon the tape 48 and the gold thereon is transferred by the action of heat and pressure to the leather in the form of the selected letter. When pressure on the handle 29 is released, the casing and the letter wheel 12 are returned to normal position by the action of spring 24, and the rectilinear step movement of the platen on the supporting bed 10 then takes place by the operation of the ratchet means above described.

When the casing 5 and the letter wheel were moved downwardly to print the selected letter, the shaft 7 was of course, rocked in its supporting bearings and in

such rocking movement of the shaft, pressure of the cam 60 on the rear end of lever 57 was gradually released, the contraction of the spring 61 as the flat side of the cam 60 approaches a position in parallel relation to the edge 59 of the lever as shown in Fig. 5, moving the forward end of said lever upwardly, thus also carrying the bell crank 62 upwardly and releasing pressure of the flange or foot 65 on the paper tape. Therefore, as the guide roller 53 moves below the opening 56 in the fixed arm 55, the paper tape will move laterally through said opening and between the presser foot 65 and flange 66. In the upward movement of the casing and letter wheel, the cam 60 reverses the rocking movement of lever 57 and brings the presser foot 65 into contact with the paper tape before such movement has been completed. Therefore, in the latter part of this return movement and in the continued downward movement of the forward end of lever 57 after the paper has been clinched between the presser foot 65 and the flange 66, a relative rocking movement of the bell crank 62 on lever 57 takes place, thus slightly expanding the spring 64. The paper strip is thus gripped and held as the guide roller 53 moves above the arm 49, and the paper strip is thus drawn around this roller and the guide pins 51 and 52 from the reel 47. Accordingly, in the next operation to print another letter, the type 15 will engage upon a different part of the gold paper tape, thereby insuring a perfect printed impression in gold upon the leather of the selected letter.

In the manner above described, either the initial letters of the owner's name, or a full name may be rapidly gold stamped or printed on the sweat band of a hat, or other leather article. It will be understood that at the time of making the printed impression, the impression is applied upon that portion of the leather sheet which is disposed upon the forward longitudinally extending upper surface portion of the platen 30 indicated at 30′ in Fig. 4 of the drawings. The step by step movement of the platen 30 to the left as the letters are successively printed, is limited by the adjustable stop screw 69 carried by the arm 33 on the right hand end of the platen. After reaching the limit of its movement, a suitable knob or finger piece 70 on the arm 33 is grasped and the platen is pulled towards the right until the lug 32 engages the base 9. In this movement, the ratchet plates 37 and 38 readily yield to pressure of the tapering surfaces on the rod 34, said plates being of course, yieldingly pressed upon said surfaces by the connecting spring 41.

In the foregoing description and the accompanying drawings, we have described and illustrated a simple embodiment of our invention which has been found to be entirely practical, and has given highly satisfactory service. It will be seen that the essential feature thereof resides in the provision of the means automatically controlled and actuated in the oscillating motion of the printing wheel and its casing whereby the intermittent or step by step rectilinear movement of the article supporting platen is produced so that the letter impressions which are made upon the article are accurately and precisely spaced from each other. However, this feature of our improvements might be exemplified in various other forms of mechanism than that to which we have herein particularly referred. Likewise, the automatic feed mechanism for the paper strip might also be produced in various modified structural forms. Accordingly, it is to be understood that we reserve the privilege of resorting to all such legitimate changes in the form, construction and relative arrangement of the several parts as may be fairly considered within the spirit and scope of the invention as claimed.

We claim:

1. In a machine of the character described, a casing, a wheel having spaced peripheral type characters rotatably mounted in said casing, means for oscillatably supporting the casing and the wheel including a suitable base, and a hollow axis journalled on said base in spaced relation from the axis of rotation of the wheel, a platen to support the impression receiving material mounted upon said base below the wheel for horizontal rectilinear movement, a rod having a fixed connection to one end of said platen and movable within said hollow axis, a spring connected with said rod to move the same and the platen in one direction, ratchet means at one end of said hollow axis coacting with means on said rod to control the action of the spring and interrupt the rectilinear movement of the platen, and means on said hollow axis actuating said ratchet means in the oscillating movements of said casing and the wheel to thereby impart a step by step movement to the platen and space the type impressions from each other.

2. In a machine of the character described, a casing, a wheel having spaced peripheral type characters rotatably mounted in said casing, means for oscillatably mounting said casing and the wheel including a base and an axis having a fixed relation to the casing journalled on said base, means yieldingly supporting the casing and the wheel against oscillating movement in a normal position, a platen mounted on the base for horizontal rectilinear movement below said wheel, means at one side of the casing for supporting a pigmented paper tape supply spool, said casing at its lower

side being open, means for guiding the paper tape across said open side of the casing, a feeding device for the paper tape at the opposite side of the casing, means for moving said platen with the impression receiving material in one direction, and spaced means on said axis for controlling the operation of said last named means and the tape feeding means respectively in the oscillating movements of said casing and the wheel whereby a new section of the paper tape is opposed to the wheel after each impression, and a step by step movement is imparted to the platen to properly space the adjacent type impressions from each other.

3. In a machine of the character described, a rotatable wheel having spaced peripheral type characters, a base, a supporting axis for said wheel journalled upon the base, means yieldably sustaining said wheel in a normal position for oscillating movement relative to the base, a rectilinearly movable platen mounted on the base beneath said wheel, and means automatically actuated and controlled in the oscillating movements of said wheel to impart a step by step rectilinear movement to the platen and space the adjacent type impressions from each other, said means including a member coaxially positioned relative to said axis and connected to one end of said platen.

4. In a machine of the character described, a rotatable wheel having spaced peripheral type characters, a base, a supporting axis for said wheel journalled upon the base, means yieldably sustaining said wheel in a normal position for oscillating movement relative to the base, a rectilinearly movable platen mounted on the base beneath said wheel, and means automatically actuated and controlled in the oscillating movements of said wheel to impart a step by step rectilinear movement to the platen and space the adjacent type impressions from each other, said means including a member fixed to one end of the platen and movable in coaxial relation with said axis, and relatively movable parts cooperating with spaced means on said member to limit the intermittent movement of the platen.

5. In a machine of the character described, a rotatably mounted wheel having spaced peripheral type characters thereon, a base, means supporting the wheel for bodily oscillating movement relative to the base comprising a hollow axis journalled on the base, a platen to support the impression receiving material mounted upon the base below the wheel for horizontal rectilinear movement, a member coaxially related with said hollow axis and connected at one of its ends to said platen, spring means tending to continuously move the platen in one direction on the base, ratchet means coacting with means on said member to control the action of said spring means and interrupt such movement of the platen, and means on said axis actuating said ratchet means in the oscillating movements of the wheel to thereby impart a step by step movement to the platen and space the type impressions from each other.

6. In a machine of the character described, a rotatably mounted wheel having spaced peripheral type characters thereon, a base, means supporting said wheel for bodily oscillating movement relative to the base comprising an axis journalled on the base, means yieldably supporting the wheel against oscillating movement in a normal position, a platen mounted on the base for horizontal rectilinear movement below said wheel, means at one side of the wheel for supporting a pigmented tape supply spool, means for guiding the tape across the lower side of said wheel, a feeding device for the tape at the opposite side of the wheel, means for moving said platen with the impression receiving material thereon in one direction, and separate means spaced longitudinally of the wheel supporting axis automatically operable in the oscillating movements of the wheel for respectively controlling the operations of said last named means and the tape feeding means whereby a new section of the tape is opposed to the wheel after each impression and a step by step movement is imparted to the platen to properly space the adjacent type impressions from each other.

7. In an embossing machine, a work support, a vertically oscillatable wheel having peripheral type characters, means for mounting the wheel above the work support including a hollow supporting shaft for said wheel spaced from the wheel axis, and work feeding means automatically controlled and actuated in the oscillating movements of said wheel including a member axially movable within said hollow supporting shaft.

8. In an embossing machine, a work support, a vertically oscillatable wheel having peripheral type characters, means for mounting the wheel above the work support including a hollow supporting shaft for said wheel spaced from the wheel axis, work feeding means including a rod axially movable in said hollow supporting shaft, spring means within said shaft axially moving said rod in one direction, and means cooperating with said rod automatically controlled and actuated in the oscillating movements of the wheel to impart a step by step movement to the work feeding means.

In testimony that we claim the foregoing as our invention, we have signed our names hereto.

MAX A. G. LUEDTKE.
HUGO HOFFMANN.