Dec. 3, 1963 C. E. PITTMAN ETAL 3,112,697

AUTOMATIC MARKING MACHINE

Filed March 2, 1959

FIG. 1

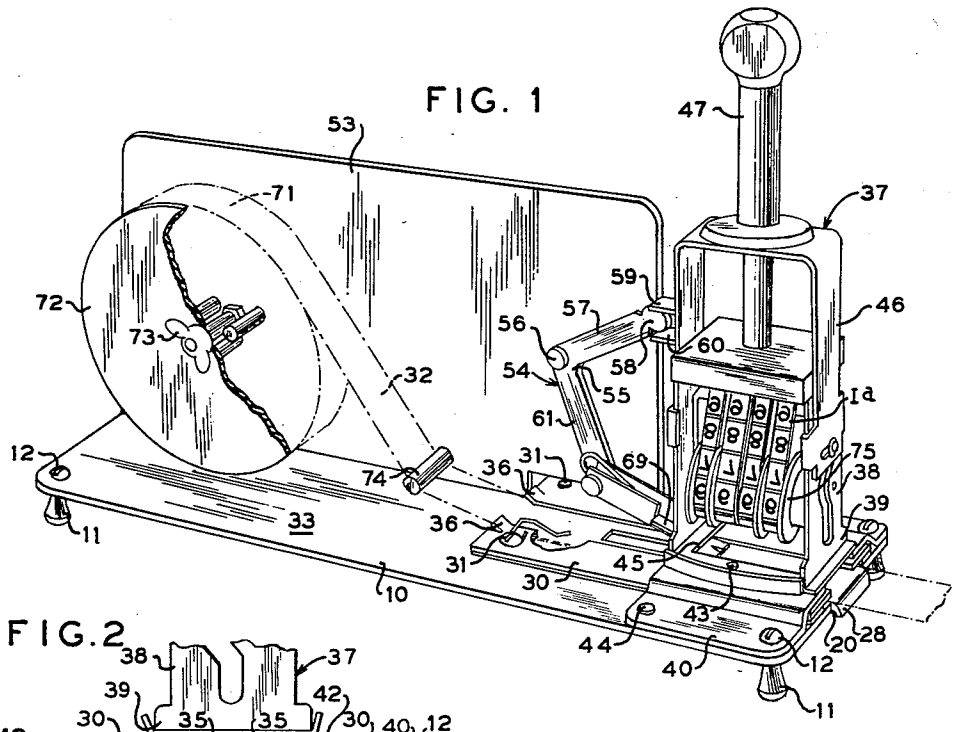


FIG. 2

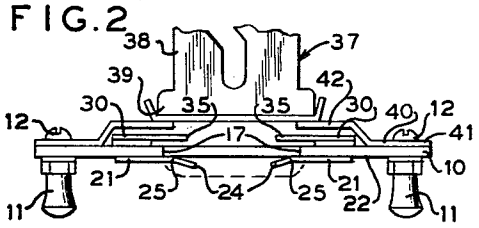


FIG. 3

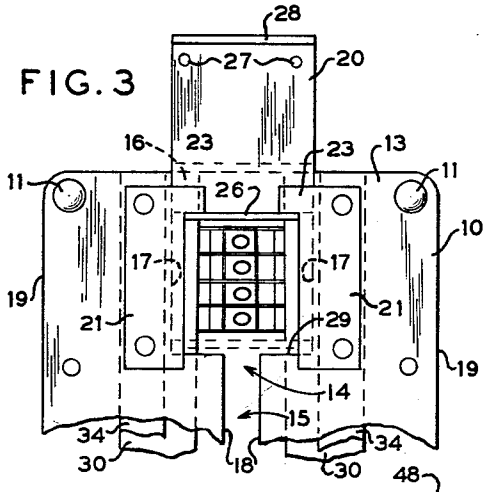
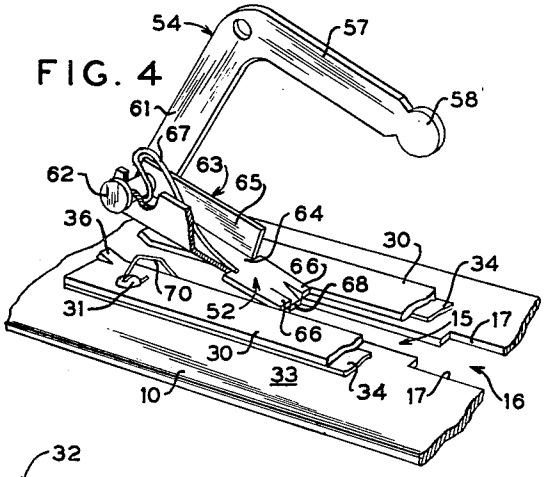


FIG. 4



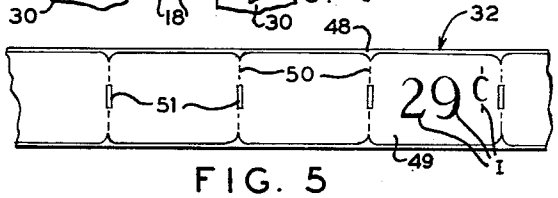


FIG. 5

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AUTOMATIC MARKING MACHINE

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This invention relates to automatic marking machines and more particularly to apparatus and devices for advancing strip material under a stamper to imprint indicia on the material in successive sections for use as labels.

This application is a continuation in part of our copending application Serial No. 709,107, filed January 15, 1958.

One object of the invention is to provide an improved device or apparatus of this kind which may incorporate a conventional self inking stamper such as used to mark the price of articles and which may deliver marked label sections for application to articles not lending themselves to being stamped directly or to cover previously marked articles.

Another object of the invention is to provide an improved device of this kind wherein feeding means for the strip may be used to hold the stamper in a position such as will enable a ready observation of the indicia type as they are moved to the selected position.

Another object of the invention is to effect simplicity and efficiency in such apparatus and to provide an extremely simple device or apparatus of this kind which is economical, durable and reliable in operation, and economical to manufacture and load.

Other and further objects and advantages of the invention will become apparent as the description proceeds; and while details of the invention are described in the specification and some of the claims, the invention as described in the broader claims is not limited to these, and many and various changes may be made without departing from the scope of the invention as claimed in the broader claims.

The inventive features for the accomplishment of these and other objects are shown herein in connection with an automatic stamping machine which, briefly stated, includes a base member and a vertically reciprocatory acting stamper thereon and feeding means actuated by movement of the stamper for advancing strip or ribbon material intermittently under the stamper by constant amounts. The feeding means includes a ratchet member with a depth gauge for engaging preformed irregularities in the surface of the material.

In the accompanying drawings showing, by way of example, one of many possible embodiments of the invention:

FIG. 1 is a perspective view of a stamping machine constructed in accordance with our invention.

FIG. 2 is a fragmental end view of the machine shown in FIG. 1.

FIG. 3 is a fragmental bottom view of the machine shown in FIG. 1.

FIG. 4 is an enlarged fragmental perspective view showing parts of the feeding means in detail.

FIG. 5 is a plan of the strip or ribbon material, suitable for use in the machine of the present invention.

The marking machine as shown comprises a substantially rectangular elongated base plate or platform **10**, of suitable material such as metal, plastic or the like, supported by corner legs or knobs **11** secured to the platform as by screws **12**. One end portion **13** of the platform, hereinafter called the forward end portion, is provided with an open ended slot therethrough, generally designated by the numeral **14**, being narrow at the rear or inner zone as at **15** and wider at the outer zone as at **16** where the function of the slot is somewhat that of a window for a purpose to be described later. The side edges **17** of the base plate at the wider zone as well as the edges **18** at the narrow zone are all parallel with each other and extend generally in the direction of the length of the base plate. The narrow slot **15** opens into the mid-zone of the wider slot **16**, the slots preferably being about midway between the lateral edges **19** of the base plate.

A platen or platen plate **20** substantially coplanar with the base plate is disposed in the wide zone **16** of the slot to slide longitudinally between the edges **17** thereof as guides, the platen being supported by a pair of spaced strips **21** mounted on the lower face **22** of its base plate on opposite sides of the slot, each strip extending slightly inwardly of the edges **17** and substantially the length thereof. The spaced strips **21** are provided at their outer ends with projections **23** extending toward each other and having the end portions **24** thereof slightly bent downwardly as at **25**. The projections **23** engage against a rear downturned flange **26** on the platen plate **20** to prevent complete withdrawal of the platen plate from the slot. Downwardly projecting detent nodes **27**, provided on the lower face of the platen, engage the extensions **23** to hold the platen retracted in the slot at normal working position. A finger piece **28** in the form of a downwardly turned flange at the outer end of the platen **20** is provided to facilitate partial withdrawal of the platen **20**.

The dimensions of the platen **20** are such that when the platen **20** is in the retracted position the rear flange **26** abuts against the base plate **10** at the transverse edge **29** of the wide slot **16**, and the finger piece **28** is substantially flush with the forward edge of the base plate. The platen **20** is prevented from being moved upwardly and lifted out of the slot **16** by a pair of hold-down strips **30** suitably secured to the base plate, as by rivets **31**, at the respective opposite sides of the slot **16**. These hold-down strips **30** not only aid in retaining the platen **20** in the slot **16** but serve as guides for a strip or ribbon **32** of label material to be carried forwardly over part of the base plate **10** and then over the platen **20** to the delivery end thereof. The hold-down strips **30** are disposed longitudinally of the base plate **10**, parallel with the edges of slot **16**, from the outer end of the base plate **10** rearwardly past the narrow zone **15** of the slot, being spaced from the upper face **33** of the base plate **10** by parallel spacer strips **34** so that the ribbon may freely pass over the base plate **10** and platen **20** but may be held substantially flat thereon by overlying inner margins **35** of the hold-down strips **30**.

In practice it is preferable that the platen **20** be of about the same thickness as that of the base plate so that their coplanar relationship, as mentioned, will not require complicated construction of the platen support strips **21**. The thickness of the spacer strips **34** will depend to some extent at least on the thickness of the label material as will their lateral distance apart depend on the width of the material. However, as will be appreciated later, it is greatly advantageous for the hold-down strip **30** to be spaced a greater distance apart than the width of the narrow zone **15** of the slot **16** and for the hold-down strips **30** not to overlie the zone **15**. The inner rear corner portions of the hold-down strips **30** are preferably turned upwardly as at **36** to facilitate entry of the ribbon under the hold-down strips **30**.

A manually operated conventional self inking stamper **37** is permanently mounted on the base plate **10** and over the platen **20** for imprinting indicia I on the ribbon as the latter is passed over the platen **20**. The stamper **37** comprises a frame portion **38** including a windowed base **39** secured fast to the base plate **10** through the means of off-sets or step pieces **40**, each having a lower flange **41** secured to the base plate **10** and an upper flange **42** overhanging part of a hold-down strip **30**, but not secured

thereto. The base 39 is secured in any suitable manner, as by rivet 43, to the upper flange and the lower flange is secured to the base plate 10, as by the screw 12 or a rivet 44, so as to have the window 45 of the stamper register with the wide zone 16 of the slot in which the platen 20 is normally disposed.

The stamper includes also a vertically, reciprocatory yoke 46 mounted to slide over the frame portion 38 and provided with a handle 47 and the usual bands carrying rubber indicia type I*a* for selective use in a well known manner. Each stamping or printing cycle substantially requires that the handle 47 and yoke 46 be moved downwardly to their lower limit for printing and then that handle 47 and yoke 46 be allowed to return under bias to their upper limit position for inking. Hence, each full printing operation requires full movement of the yoke 46 between two limits. This feature of the stamper is well known.

The vertical reciprocatory motion of the stamper yoke 46 is employed to feed the ribbon of label material 32 intermittently under the hold-down strips 30 and over the platen 20. The ribbon 32 is made up of a backing strip 48 on which are somewhat lightly secured, by pressure sensitive adhesive, separable, label sections 49 divided by weakening lines 50. Also transverse slits or holes 51 are provided in the composite ribbon, i.e. through the label layer and through the backing strip, in the zone of the weakening lines. In the invention, oscillatory movement of ratchet-like acting feed means engageable with the ribbon at the holes 51 therein, is used to feed the ribbon step-by-step, the feed means being generally designated by the numeral 52.

A vertical wall member 53, longitudinal of the base plate 10 and fast thereon carries the feed means, best seen in FIG. 4, which includes a bell crank 54 oscillatory in a vertical plane near and alongside an edge 18 of the narrow zone 15 of the slot 16. The bell crank 54 is mounted on the wall member 53 in a pivot portion 55 by means of a pivot pin 56, with one arm 57 normally extending upwardly and forwardly and provided with a nearly circular end 58 disposed between upper and lower bearing brackets 59 and 60 fast on the stamper yoke 46.

The other crank arm 61 extends downwardly and forwardly and has pivotally mounted thereon, by a pin 62, a ratchet member 63 to engage the label ribbon. The ratchet member is in the general form of a channel piece having a relatively narrow web 64 and side flanges 65 through which, in the rear portions thereof, the pin 62 passes. Forward of the side flanges 65, the web 64 is wider and is about as wide as the distance between the hold-down strips 30 and includes a pair of spaced depth gauges 66 adapted to slide along the surface of slot 16. A spring 67 urges the ratchet member clockwise about the pin 62 and presses the depth gauges 66 against the base plate 10 at the margins of narrow zone 15 of the slot. Between the depth gauges 66 the web 64 is provided with a forwardly depressed medial toe or tine 68 receivable in the zone 15 to engage in the holes 51 of the ribbon. In normal position, the depth gauges 66 project downwardly and under the stamper base 39, terminating about at the transverse edge 29 of the slot 16, the side flanges 65 being stopped by the base 39. One of the side flanges, preferably the one more remote from the wall member 53, is provided with an outwardly projecting portion 69 for a handle to lift the forward end of the channel piece when the latter is retracted. The pin 62 is below the stamper yoke 46 and so the depth gauges 66 may abut against the frame 38 and the yoke 46, thereby affording a stable raised position for the ratchet member 63 when the label ribbon 32 is being threaded into the stamping machine. It is quite advantageous to be able to use the fingers to press on the ribbon 32 at the rear of the stamper and slide the ribbon 32 forwardly until a hole 51 reaches the rear limit of movement of the tine 68. The position of the pivot pin 56, length of crank arms 57 and 61, yoke movement, and length of ratchet member 63 are so related that the throw of the tine 68 is normally greater than the distance between holes 51 in the ribbon 32. A braking spring 70 bearing against the ribbon prevents rearward movement of the ribbon 32 when the tine 68 is drawn backwardly thereover.

It will be understood by those skilled in the art that certain pressure sensitive label ribbons have holes, such as hole 51, adjacent one edge of the ribbon. In such cases, of course, only one depth gauge such as gauge 66 is required and the tine 68 will be located adjacent one edge of the ratchet member 63.

Ribbon 32 may be supplied in any known manner. However, it is preferable that it be taken from a roll 71 mounted on the wall member 53 and having an end disk 72 urged against the roll, as by a winged nut 73, as restraining means to prevent undesired unrolling. Preferably a guide pin 74 is mounted on the wall member to keep the ribbon feeding at a suitably small angle with respect to the hold-down strips 30.

The operation of the machine has been partially described in connection with its various elements. Sequentially, the operation begins with moving the handle 47 downwardly to retract the depth gauges 66 and tine 68 of the ratchet member 63 from under the stamper base 39, then the forward end of the ratchet member 63 is lifted up so that upon release of the handle 47 the depth gauges 66 engage against the frame 38 and yoke 46 in a stable condition. Then, with the finger tip on the ribbon and between the hold-down strips 30, the ribbon 32 is made to slide under the strips 30 until a hole 51 passes the rearmost position of the tine 68. The machine is now threaded. Then the ratchet member 63 and stamper 37 are returned to their normal position which action may advance the ribbon one label's distance, assuming that the tine 68 engaged a hole 51 during the return of the stamper 37. Downward movement of the stamper 37 retracts the ratchet member 63 at which time the indicia I are printed on a label section 49. Return of the stamper 37 to normal position causes ratchet member 63 to engage in a hole 51 and advance the ribbon 32. The type I*a* are also re-inked to begin another cycle.

The slidable platen plate 20 is a convenience for observation of the indicia type I*a* as they are being positioned selectively.

The bellcrank 54 and ratchet member 63 lengths are so related that it is also possible to have the ratchet member 63 abut against the frame 38 substantially perpendicular thereto and resting on the base 39 so as to hold the stamper 37 midway between inking and stamping position. With this condition, the type I*a* to be chosen for printing can be readily observed during the selecting operation although the bank spools 75 are not quite as easily accessible. However, it is thus possible to eliminate the need for a sliding platen 20 altogether and the base plate 10 may be solid from the line 29 to the outer end of the base and the zone 15 closed at that time.

The invention claimed is:

1. In a marking machine, a normally horizontal base plate provided with an open-ended slot therethrough, the slot having a narrow inner zone and a wider outer zone, the outer zone being bounded by parallel inner edges of the base plate, a platen plate disposed in the outer zone and mounted for movement in the direction of said edges for permitting inspection through said slot when said platen plate is moved in one direction and for closing said slot when said platen plate is moved in the other direction, a reciprocatory member constrained to move over the upper face of the base plate at the marginal portions of the narrow zone of the slot and in the general direction thereof, a frame rigidly mounted on said base, a yoke carried by said frame for vertical movement toward and away from said platen, a vertically movable handle connected to said yoke for actuating the same, means connecting said yoke and said reciprocatory mem-

ber whereby said reciprocatory member is actuated by said yoke, and printing means movable within said frame and carried by said yoke for engagement with said platen when said platen is closing said slot and said handle is actuated.

2. A marking machine comprising a flat rectangular base plate; a manually operated vertically reciprocatory printer mounted on one end of the base plate; said printer being characterized by a frame portion having a windowed base, a yoke on said frame portion, a handle connected to said yoke, and printing means actuated by said yoke to register with the window of said base, parallel guide strips mounted on the base plate for guiding a supply of strip material under the window of said printer and over the plate, said plate being provided with a slot therethrough between the guide strips and at least in one zone of the slot, the slot being narrower than the distance between the guide strips to leave marginal portions of the plate adjacent the zone exposed; a reciprocatory horizontally movable feeder having a normally downwardly inclined ratchet member about as wide as the distance between the guide strips and disposed therebetween for riding between said guide strips, said ratchet member being provided with a depressed toe to enter said slot and for engagement with the strip material, and means for converting the vertical movement of the printer to horizontal movement of the feeder, said last mentioned means being connected to said yoke.

3. A machine as claimed in claim 2, said means being a bell crank having one arm pivotally cooperating with the printer and the other arm pivotally carrying the feeder.

4. A machine as claimed in claim 3, said bell crank positioning said feed approximately normal to said printer, said feeder being so positioned and sufficiently long that said ratchet member normally protruding under the printer and so that when the ratchet member is moved from protruding thereunder the printer is urged toward a position intermediate the limits of reciprocatory movement of the printer and when said ratchet member is lifted it engages the printer to prevent said printer from being returned to a position at one of the limits of reciprocation.

5. In combination, a base, a printer having a frame mounted on the base and a yoke vertically slidably mounted over the frame; a ratchet member horizontally reciprocatory to slide over the base to feed material over the plate and under the printer; a bell crank having the

respective arms thereof pivotally connected to the ratchet member and yoke, said ratchet member extending about normal to said frame from said yoke and being long enough to engage the yoke at an acute angle when the latter is in upper position to hold the member up from the base plate to facilitate initial manual positioning of the material on the base plate.

6. In a combination, as claimed in claim 5, said member being long enough to engage the yoke and frame simultaneously.

7. A marking machine comprising a base, a wall member mounted on said base, a reel on said wall member from which ribbon material with spaced holes is fed to said base, a printer having a frame mounted on said base and a yoke vertically slidable mounted over said frame, a ratchet member horizontally reciprocatable to slide over said base and to engage said ribbon material, a tine on said ratchet member for projecting into successive holes in said ribbon material to feed the same intermittently across said base upon reciprocation of said ratchet member, depth gauge means adjacent said tine to limit the distance which said tine projects into said holes, guide means on said base and cooperating with said depth gauge means for aligning said tine with the holes in said ribbon material, and means for converting the vertical movement of said yoke into horizontal movement of said ratchet member.

8. The structure defined in claim 7 including holddown means for holding said ribbon adjacent said base when said ratchet member engages said ribbon material, said ratchet member being normally urged toward said base, said ribbon material being normally disposed between said ratchet member and said base.

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