Nov. 18, 1958 W. E. SIEVERS 2,860,575

TAG AND TICKET PRINTING MACHINE

Filed March 28, 1956 2 Sheets-Sheet 1

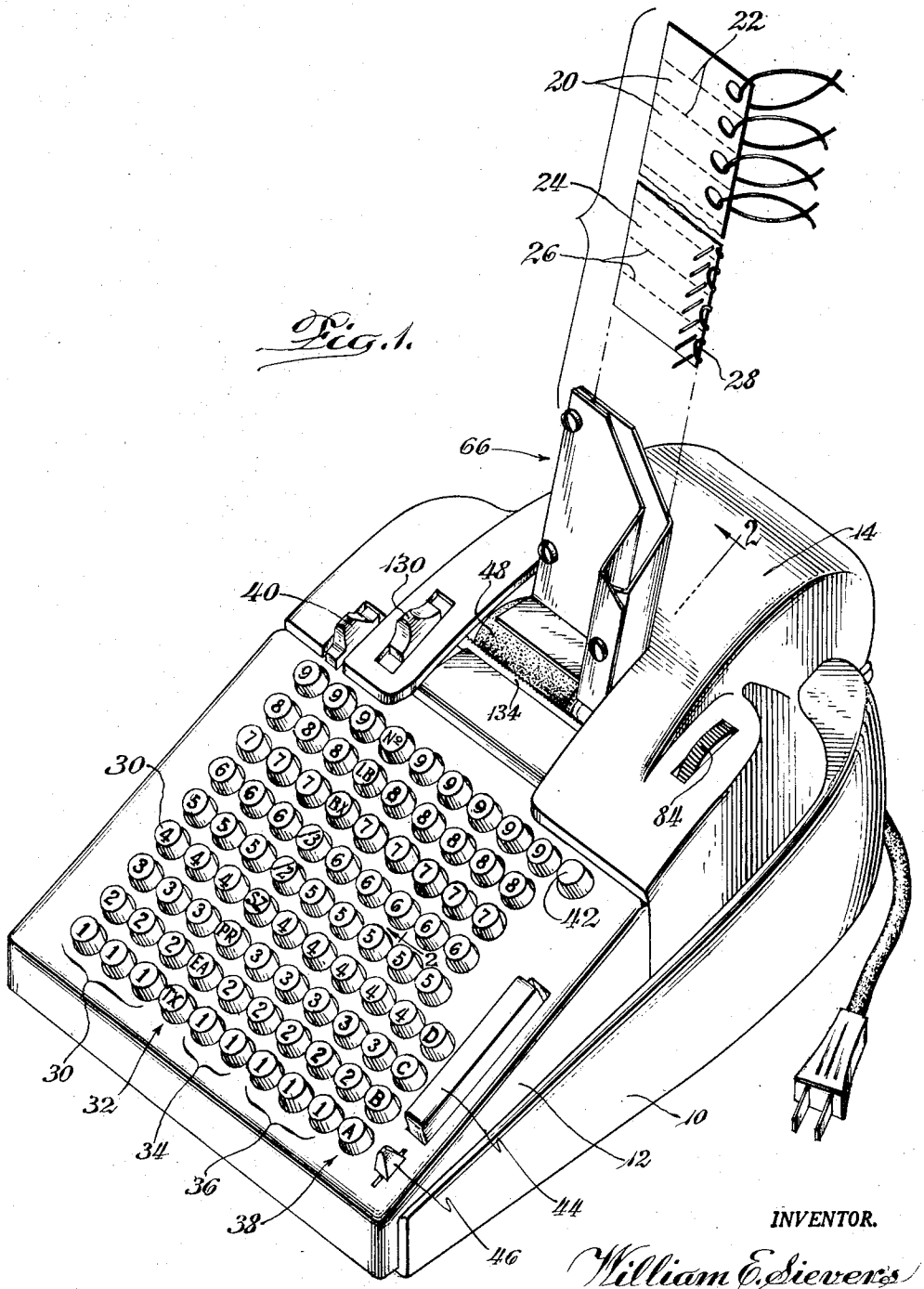


Fig. 1.

INVENTOR.

William E. Sievers

By Ashberg, Kupper & Gradolph

Attorneys.

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Fig. 3.

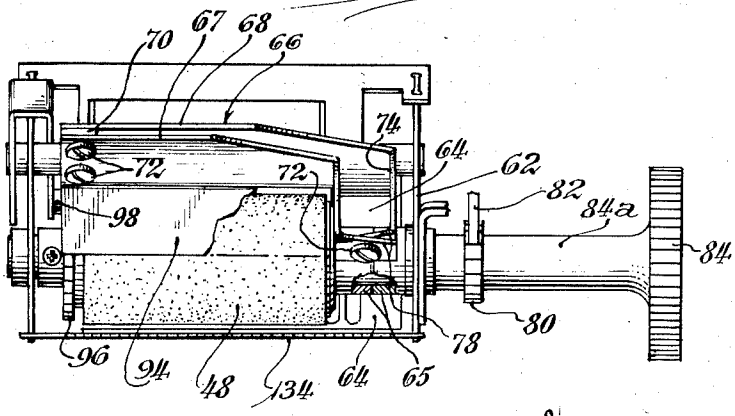


Fig. 4.

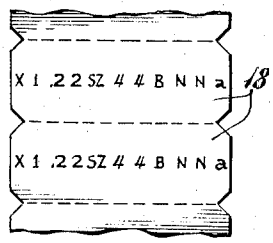
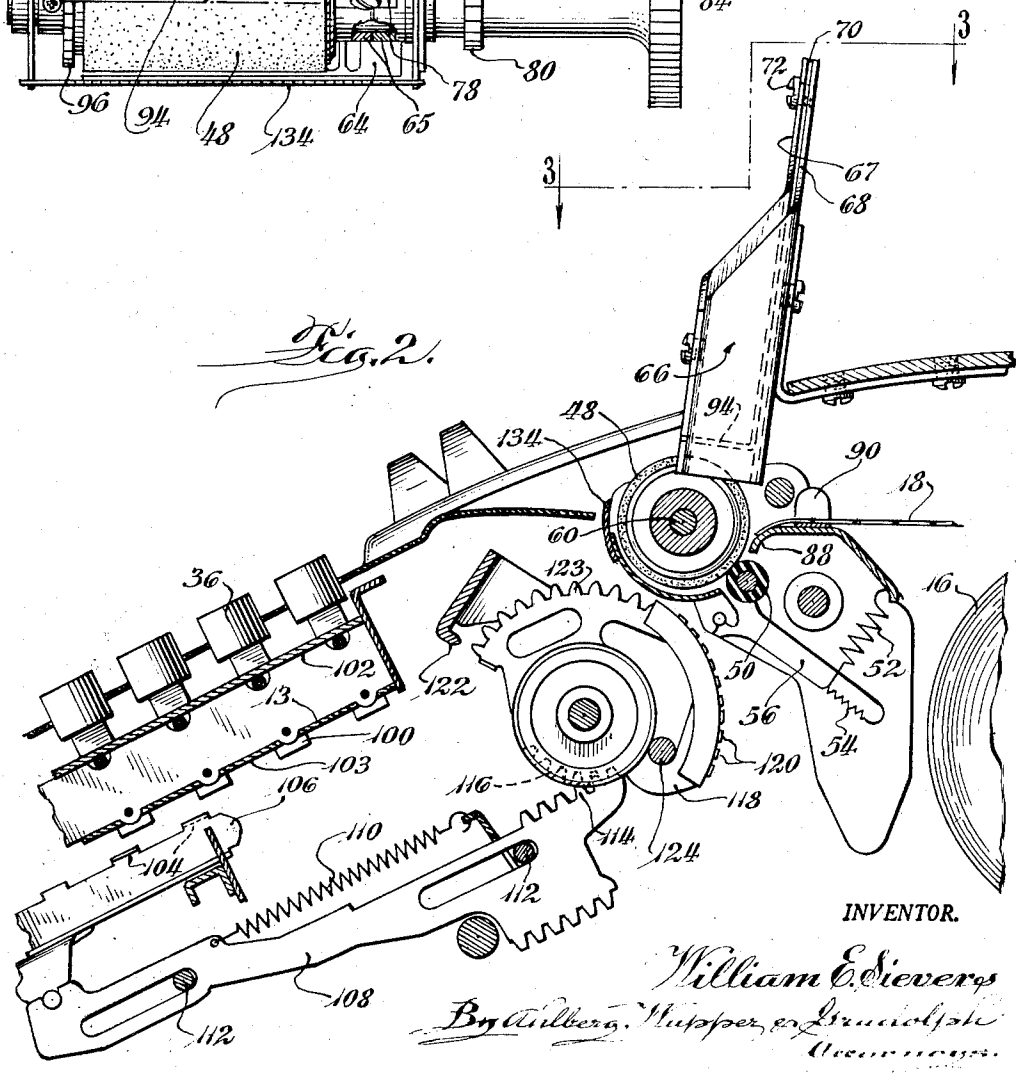


Fig. 2.



INVENTOR.

William E. Sievers

By Kilberg, Klupfer & Grundfest

Attorneys.

United States Patent Office

2,860,575

Patented Nov. 18, 1958

2,860,575

TAG AND TICKET PRINTING MACHINE

William E. Sievers, Morton Grove, Ill., assignor to Victor Adding Machine Co., Chicago, Ill., a corporation of Illinois

Application March 28, 1956, Serial No. 574,509

4 Claims. (Cl. 101—93)

The invention relates generally to a machine for printing price tags and labels, particularly for use by retail merchandisers.

In the handling of retail merchandise it is customary to print a tag, label, or ticket with the price of the article or package of articles. To facilitate taking an inventory of the stock of the retail outlet, it is desirable also to mark on the tag or label the cost (usually in a code) of the article and also to provide an indication of the approximate date of the receipt of the shipment. Such tags or tickets are customarily in the form of pressure sensitive adhesive coated labels, tags having pins projecting therefrom which can be projected through an article, such as one of fabric, and folded over, or in the form of tags having string loops attached thereto for easily attaching the tag to the article.

In the past it has been the common procedure to use a ticket or label printing machine having type which may be changed to provide for the printing of different prices. Such price tag printing machines are not entirely satisfactory in that considerable time is necessarily consumed in changing the type, and further, in that the type frequently becomes lost. The disadvantage of this kind of price ticket or label printing machine is particularly evident when a relatively large variety of articles having different costs and selling prices are to have printed price tags or labels attached thereto. For example, if a number of cartons of different articles, each containing a dozen articles, is unpacked and are to have tags or labels attached thereto, it will be apparent that the type set up will have to be changed after printing the tags for each carton of articles, thus greatly increasing the time consumed in preparing the tags or labels.

The machine of the present invention makes it possible to imprint upon the price ticket in code, automatically, the cost of the article, to print symbols indicative of the approximate time the article was purchased or received, as well as to print other data, all under the control of an adding machine type keyboard.

It is thus the primary object of the invention to provide a key controlled machine capable of imprinting upon labels, pin tags, or string tags, indicia showing the selling price, cost, and other desired data relative to the particular article to which the label or ticket is to be attached.

A further object is to provide an improved means for feeding string tags and pin tags through a printing machine employing a rotary platen, and in which the indicia imprinted on the tags or labels may easily be changed at will, as tags for different articles are to be prepared.

A further object is to provide a pin tag, string tag, and gummed label imprinting machine which, broadly speaking, operates on the principles of a conventional adding machine, but in which improved means are provided for guiding the strips of pin tags or strips of string tags through the machine for successively printing price and similar information on the tags.

Other objects will become apparent from the following

description, reference being had to the accompanying drawings, in which

Fig. 1 is a perspective view of the tag printing machine, together with portions of strips of pin tags and string tags, which may be fed through the machine to have the price and similar indicia imprinted thereupon;

Fig. 2 is a fragmentary vertical cross sectional view, taken on the line 2—2 of Fig. 1;

Fig. 3 is a fragmentary plan view, in part broken away, showing particularly the chute or guide for feeding strips of pin tags or string tags through the machine, and taken approximately on the line 3—3 of Fig. 2; and

Fig. 4 shows a fragment of the strip of labels imprinted by the machine.

In general, the machine is similar to the printing mechanism of an adding machine such as shown in the patent to Thomas O. Mehan No. 2,550,581, and reference may be had to this patent for a more detailed description of parts which are generally described herein.

The machine comprises a casing including a base portion **10**, keyboard portion **12**, and a paper roll covering portion **14** which is suitably hinged at its rearward part so as to permit insertion of a roll of paper labels **16** to be threaded through the machine, this roll **16** being partially illustrated in Fig. 2 and comprising an adhesively coated strip of paper perforated, or otherwise weakened, transversely at suitable intervals, to provide readily separable individual labels **18** as shown in Fig. 4. The backs of the label strip are preferably provided with a pressure sensitive adhesive, the adhesive strip having its adhesive material covered by a strip of suitably treated paper-like material which does not adhere tightly to the label strip and may readily be stripped from the label strip after the latter has been imprinted.

In addition to being capable of imprinting adhesive coated labels, as shown in Fig. 4, the machine is capable of printing price and associated indicia upon string tags **20** of the type shown in Fig. 1, which are usually made in strips of about twelve or more tags readily separable from one another by virtue of transverse perforations **22**, or other means for weakening the connection between the separate tags. Similarly, the machine is capable of imprinting price and similar data upon pin tags **24**, which are usually provided in strips of twelve or more tags separated by perforations **26**, or otherwise weakened transverse portions. Each of the tags **24**, as is customary, is provided with a two-prong staple-like wire **28** by which the tag may readily be attached to articles or fabric or the like.

The machine comprises a plurality of banks of numeral keys **30** for setting the machine to indicate the price of the article, and a bank of keys **32** for setting the machine for imprinting after the price the symbols "No" (number), "LB" (pound), "BX" (box), "/3" (for three), "/2" (for two), "SZ" (size), "PR" (pair), "EA" (each), "TX" (tax). These designations of these keys, and the corresponding type controlled by the operation thereof, are merely exemplary, and the symbols and the type bars controlled thereby may be altered to accommodate the machine for the particular mercantile field in which the machine is to be used. The next two banks of numeral keys **34** may be used, for example, for item identification, by a number code, while the three banks of numeral keys **36** will, in most instances, be used for imprinting symbols upon the ticket or label, usually in code, indicating the cost of the article, as is customary practice in the mercantile field.

The four keys **38** may be utilized to imprint upon the tag or label indicia indicating, for example, the calendar quarter in which the merchandise was received or marked. Further identification of the date on which the articles were received may be indicated on the tag by using

inking ribbons of different colors for successive years, so that the merchant may readily ascertain the length of time the particular article has been "on the shelf." If the keys **38** are to be used to control a printing impression indicative of the calendar quarter, the setting thereof will not be changed during the calendar quarter, and to avoid accidental operation of these keys a removable hood or shield may be provided to cover these keys.

The keys **30**, **32**, **34**, and **36**, which have been depressed, are normally latched in depressed position, although the keyboard is of the "flexible" type in which depression of one key in a bank will result in the release of any other depressed key in that bank. In order to release all of the depressed keys **30**, **32**, **34**, and **36**, a lever **40** is swung rearwardly which, through the usual key release mechanism of adding machines, unlatches all depressed keys except keys **38**. Because the setting of the keys **38** is very infrequently changed, the release of these keys is not effected by operation of the release key **40**, but instead, a special release key **42** is provided so that any depressed and latched key **38** may readily be released.

If, as would be rather unusual, but a single tag or label is to be imprinted, a motor bar **44** is depressed and the machine will, under the control of this motor bar, operate through a single cycle in the manner of a customary adding machine. However, in nearly all uses of the machine a large number of labels or tags will be imprinted with the same indicia, and for this purpose a repeat mechanism, such as is customary in adding machines, is operated under the control of a button **46**. The machine will therefore continue to recycle without further attention on the part of the operator, and upon completing the imprinting of a desired number of tags or labels, the button **46** may be pushed rearwardly, whereupon the machine will stop upon completion of the cycle during which the button **46** was operated, to discontinue the printing operation.

The means for feeding the labels **18** in front of a platen **48** is the same as that used in conventional adding machines for feeding the record tape, and includes a roller **50** resiliently held against the platen **48** by a spring **52** suitably anchored at one end and having the other end movable into any one of a plurality of serrations **54** formed in a feed roller arm **56**. However, the feeding of pin tags and string tags presented a problem because of the possibility that the strings attached to the tags would become snarled and lie in front of the tag itself, or between the tag and platen, so as to result in an incomplete printing impression.

Likewise, the feeding of the pin tags presented difficulties. The projecting pins might become bent out of shape in passing through the machine. For this purpose the platen **48**, which is secured to a suitable shaft **60** and which is mounted for rotation in the paper frame carriage **62**, is made shorter than the width of the tags and labels to provide a channel **64** through which the pins and strings may pass as the strips of pin tags or string tags are fed around the platen. Further to facilitate free movement of the wires of the wire tags and of the strings around the shaft **60** through the channel **64**, two rollers **65** are mounted for free rotation on the shaft **60**.

The string and pin tags are inserted in a chute **66** comprising a pair of sheets **67** and **68** which are spaced by a separator **70** and held together by screws **72**. At their right-hand ends the sheets **67** and **68** extend forwardly to provide a trough **74** through which the pins and strings may readily pass, this trough at its lower end terminating above the channel **64**. Major portions of the upper edges of the sheets **67** and **68** slope downwardly to the right and similarly, the forwardly projecting portions of these sheets slope downwardly so that particularly strings will be guided into the trough **74**. The upper edges of the overlapping portions of the sheets **67** and **68** have oppositely downwardly sloping surfaces **78** so as to tend to center the strings of the tags in the trough **74** as a strip of string tags is inserted and as the strip is fed through the machine. The chute **66** is thus so conformed at its upper end, without parts around which the looped strings could snag, that the strings are guided to pass into the trough **74**.

The shaft **60** has a ratchet wheel **80** secured thereto which is engaged by a reciprocating pawl **82** and driven through a predetermined angle on each cycle of the machine operation. The position of the platen may, if desired, be set by a knob **84** which has a hub **84***a* secured to the shaft **60** to adjust for the strip of tags or labels into printing position prior to making the first impression. Both the tags and labels are guided into cooperation with the platen **48** and feed roller **50** by a guide plate **88** which may be provided with a pair of upwardly extending fingers **90** to guide the strips of labels and tags against lateral movement.

The lower portion of the sheet **67** projects forwardly to provide a shelf-like guard **94** to prevent the strings of the tags from interfering with the line spacing of the printing operation. In order to assure proper spacing of the printing impressions upon the tags or labels the shaft **60** has a detent wheel **96** secured thereto and this wheel is engaged by a spring pressed roller detent **98**, in the manner conventional in typewriters, calculating machines, and television band selection.

As previously indicated, the printing mechanism is similar to that of a conventional adding or calculating machine of the key set type, in which the platen is swung forwardly against the type to make a printed impression, using a conventional inking ribbon and ribbon feed. The keys have stems **100** guided in suitable spaced plates **102** and **103** and are adapted to project into the planes of alternately oppositely bent lugs **104** on suitably guided slides **106**. These stop lugs **104** cooperate with the key stems **100** in the so called vernier manner so that the slide need be moved but a short distance as compared with the total length of a bank of keys. The slides **106** are respectively mechanically coupled to actuators **108** which are urged to move rearwardly by springs **110**, being guided on cross rods **112**. The upper ends of these actuators at the rear have racks **114** which mesh with segmental gears **116** secured to rotatable type carriers **118** bearing numeral and symbol type **120**.

An aligner or justifier **122** is engageable between teeth **123** formed on the type carriers **118** and is suitably operated to align the type prior to making the printing impression. The type carriers **118**, as well as the actuators **108** and slides **106**, are restored by a swingable bail rod **124** by the usual mechanism, and this bail arm is swung counterclockwise at the commencement of the operating cycle of the machine to permit the springs **110** to move the type carriers to proper printing position.

The machine is provided with a shiftable control button **130** which, when operated, controls the operation of a single symbol type which will print the desired symbol to the left of the numerals controlled by the keys **30**, as in the exemplary strip shown in Fig. 4. The letter "X" in this particular application of the invention is designed to indicate to the salesman that the article to which the price tag or label is applied is not subject to state sales tax, or provide some other similar information. For example, instead of the letter "X," the lever **130** may control the printing of the numeral "1" at the left of the numerals controlled by keys **30**, so that the price marked on the tags and labels may be increased from a maximum 9.99 to 19.99. Of course, the number of banks of keys **30** could be increased to any desired number so that any desired maximum price could be imprinted on the tags and labels. However, in ordinary mercantile trade such tags and labels are applied to articles in a price range of less than $10.00.

It will be noted that the symbols or letters on the type which are controlled by the keys **36**, and which represent the cost of the article, do not correspond with the numeri-

cal marking on the keys **36**, but instead may imprint letters or symbols in accordance with a predetermined code. Thus, the operator need not transpose the cost figure into the code figure, this being done without thought on the part of the operator by virtue of the relationship of the letter symbols on the type carriers for these three banks of keys to the numeral figures on the keys **36**.

The machine is operated when labels are to be inserted, by inserting the strip **18** of labels between the platen **48** and feed roller **50** in the usual manner of inserting a record tape in an adding machine, there being a manual control whereby the arms **56** which carry the feed roller, or rollers, **50** may be swung clockwise temporarily to provide ample clearance between the platen and the feed rollers **50**.

Due to the fact that the tags and labels are made of thicker stock than the ordinary adding machine tally roll paper, the clearance between the platen **48** and the serrated tearoff strip **134** is made greater than in an adding machine, and this is preferably done by slightly decreasing the diameter of the platen **48**.

If desired, the knob **84** and platen driving mechanism may be provided with a push button, or other control, and mechanism for permitting variable platen movement without upsetting the relations between the ratchet wheel **80** and its driving pawl **82**, or between the detent wheel **96** and its follower roller **98**, as is conventional in typewriter construction. However, in the particular machine herein disclosed, the driving pawl **82** has a sufficiently long stroke that on each operation the pawl passes over a plurality (such as three or four) of teeth of the ratchet wheel **80**, so that by direct adjustment, by means of the knob **84**, the strip of tags or labels may be positioned so that the impressions will be made substantially centrally on successive tags or labels.

Similarly, the detent wheel **96** has teeth, in number corresponding to those of the ratchet wheel **80**, so that it is capable of holding the platen **84** in any one of a plurality of positions (such as three or four) during a feed cycle, as may be controlled by the knob **84**.

It is customary to provide the machine with a cycle counter so that the number of tags printed may be determined easily.

From the foregoing it will appear that I have provided a novel form of ticket and label printing machine which includes a highly effective chute mechanism for feeding string and pin tags into and through the machine and producing successive printing impressions on individual tags without the particular attention of the operator, and in which the numerals and signals to be imprinted may easily be changed to produce any desired impression.

It should not be overlooked that in the operation of this machine the operator need not necessarily know the code by which the cost symbols are impressed. He need merely copy from the invoice the cost amounts, and press the corresponding numeral keys **36**, with the result that the code letters or other indicia will be impressed upon the tag or label. In a sense, the machine is of cryptographic character in that it transposes cost prices into a preselected code.

While I have shown and described a preferred embodiment of my invention, it will be apparent that numerous variations and modifications thereof may be made without departing from the underlying principles of the invention. I therefore desire, by the following claims, to include within the scope of the invention all such variations and modifications by which substantially the results of my invention may be obtained through the use of substantially the same or equivalent means.

I claim:

1. In a machine for imprinting legends upon string tags and pin tags, the combination of means for imprinting indicia on tags having attaching means secured to the ends thereof, comprising a platen, manually controlled printing impression members for cooperation with the platen to cause a printing impression upon the tags, said platen being of reduced length to provide for the passage of the attaching means of the tags, a chute leading to the platen tangentially thereof and providing a passageway for the tags and their attaching means, said chute including means for deflecting the attaching means of the tags to a position beyond the end of said platen where there is provided passage for the attaching means of the tags, and means providing an arcuate trough adjacent one end of the platen and aligned with said deflecting means of said chute for the passage of the attaching means of tags transmitted through the chute.

2. In a machine for the imprinting of indicia upon string and pin tags in which means are provided for selecting the indicia to be imprinted, and in which a rotary platen and tag feeding means are utilized in combination with type segments to cause the printing impression, the combination of a chute extending upwardly from the platen in a plane substantially tangential thereto for guiding tags toward the platen to printing impression position, said chute having means for deflecting the strings of string tags and the pins of pin tags and to guide them to a position aside from the impression position, and the platen being of reduced length to provide a tag string and pin passage at one end thereof aligned with said deflecting means of said chute, whereby the strings and pins will not interfere with the desired printing impression.

3. In a machine for imprinting indicia upon tags and labels, particularly tags having attaching means such as strings and pins secured thereto, the combination with a keyboard comprising, a plurality of settable keys and means for latching depressed keys in depressed position, a plurality of type carrying means, means controlled by the depressed keys to determine which of the type carriers shall be positioned in printing position, a rotatable platen and tag or label feeding means cooperable therewith to advance the tags or labels to a position for receiving a printing impression from the type, means for guiding tags having attaching means secured thereto toward the platen and feeding means comprising a chute having a first portion extending upwardly from the platen in a plane substantially tangential thereto for guiding the tags into cooperative engagement with the platen and feeding means, and a second portion to receive the attaching means of the tags and to guide them away from the platen beyond one end thereof, and means adjacent said one end of the platen comprising a generally semi-circular trough for the passage of the attaching means of the tags.

4. The combination set forth in claim 3, in which the chute has a passageway of generally L-shaped cross section wherein said first and second portions comprise, respectively, a narrow portion for guiding the tags and a wider portion for guiding the attaching means, and in which the upper end of the chute is provided with sloping edges for guiding the attaching means of the tags into the wider portion of the chute.

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