

Aungst et al.

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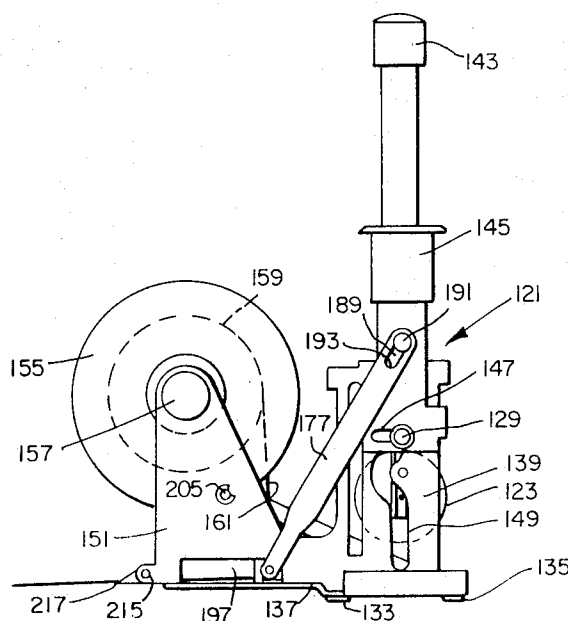
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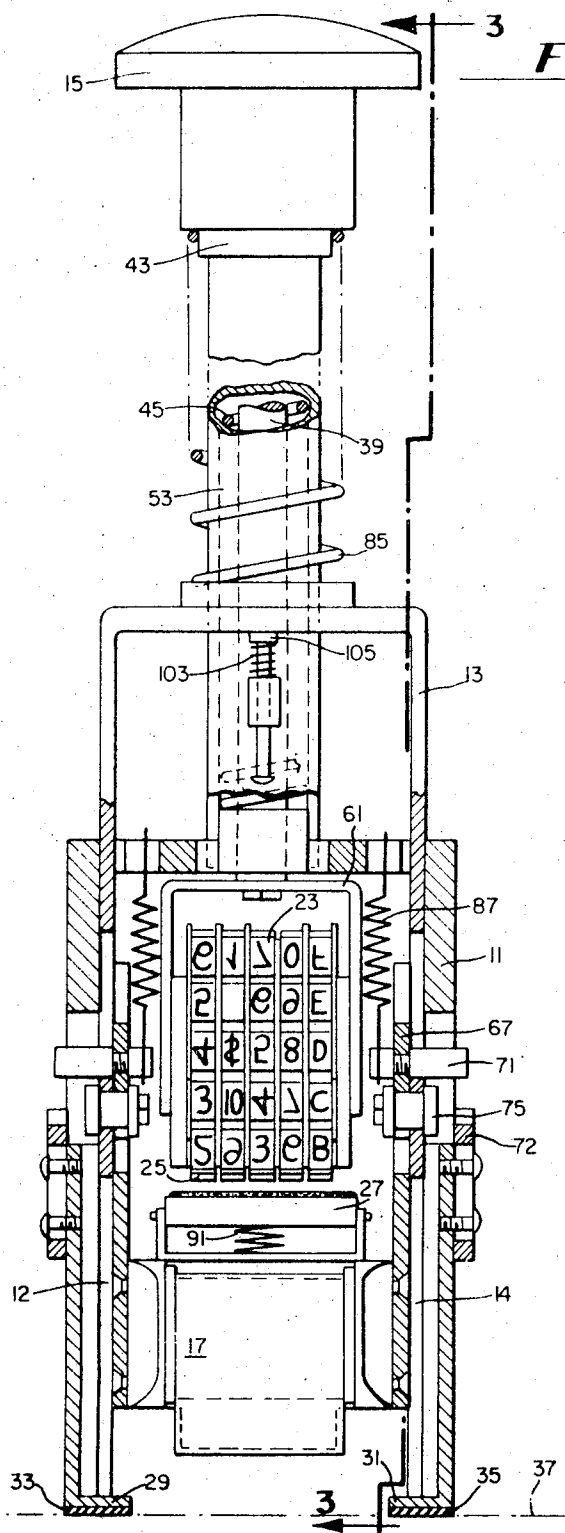
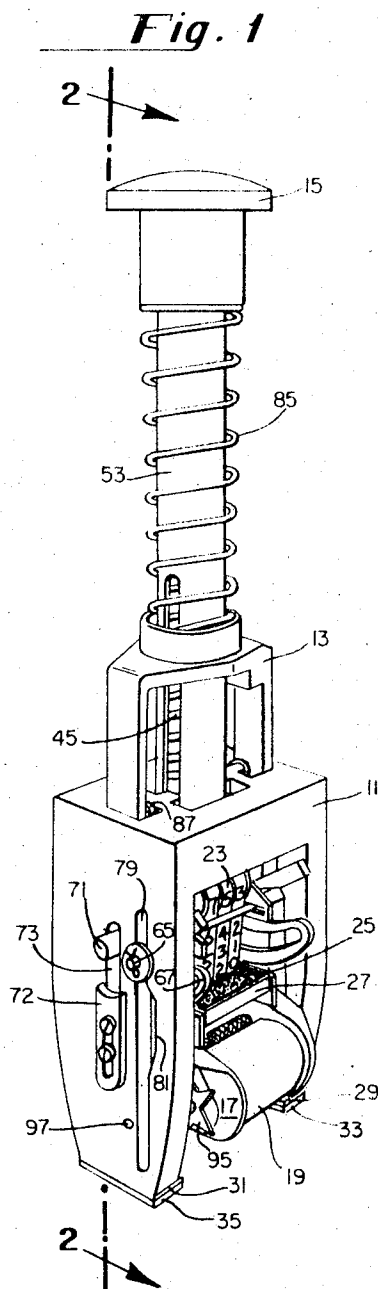
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Attorney—Woodcock, Washburn, Kurtz & Mackiewicz

A hand-held stamping machine for rapidly placing an opaque cover on an article followed by marking the covered portion, including a stamping assembly carrying the characters to be marked and driven against the article by downward motion of the operator's hand against a handle. before the stamping assembly marks characters on the article, another portion of the stamping machine is first actuated by the operator's motion against the handle to place an opaque covering on the article.

7 Claims, 11 Drawing Figures





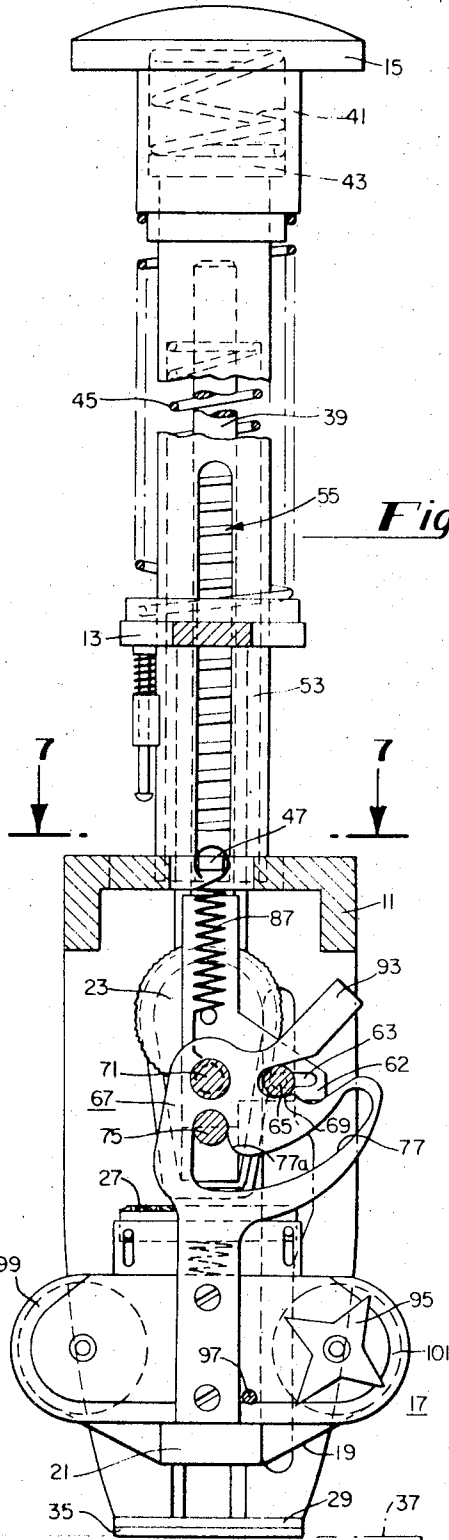


Fig. 3

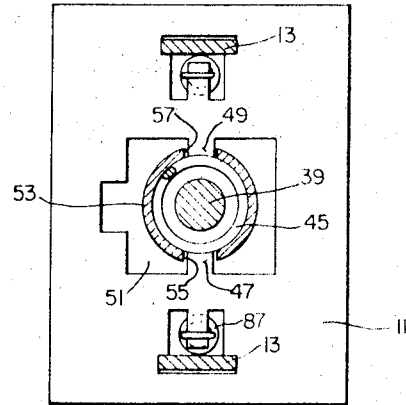
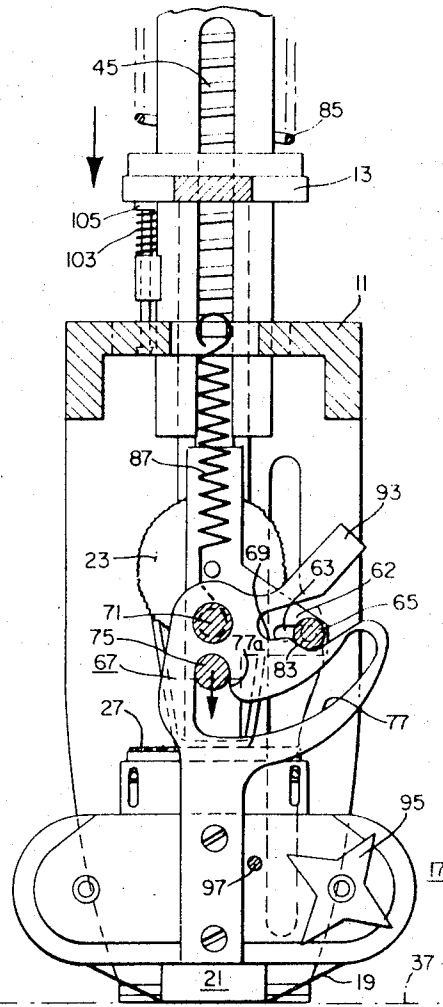


Fig. 7

Fig. 4



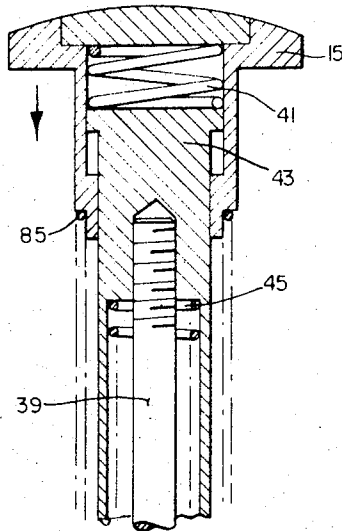


Fig. 5

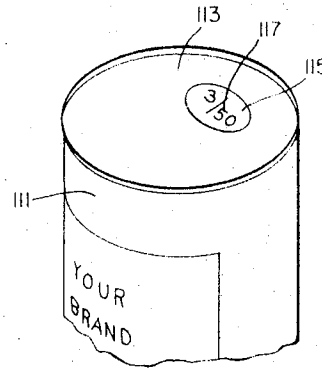
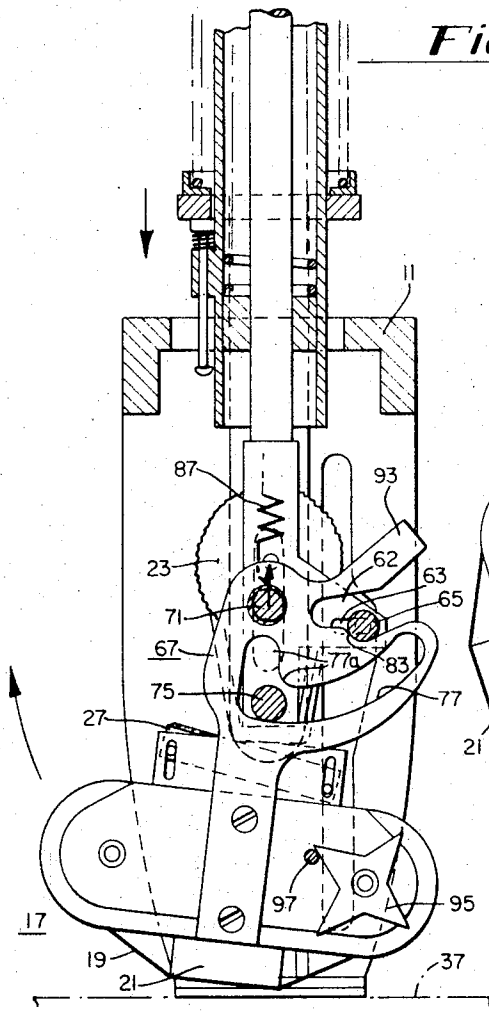
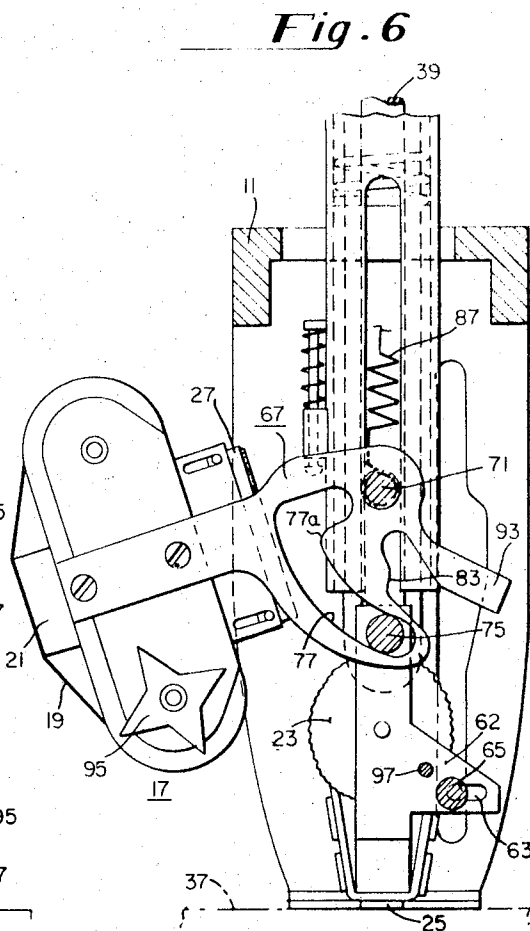
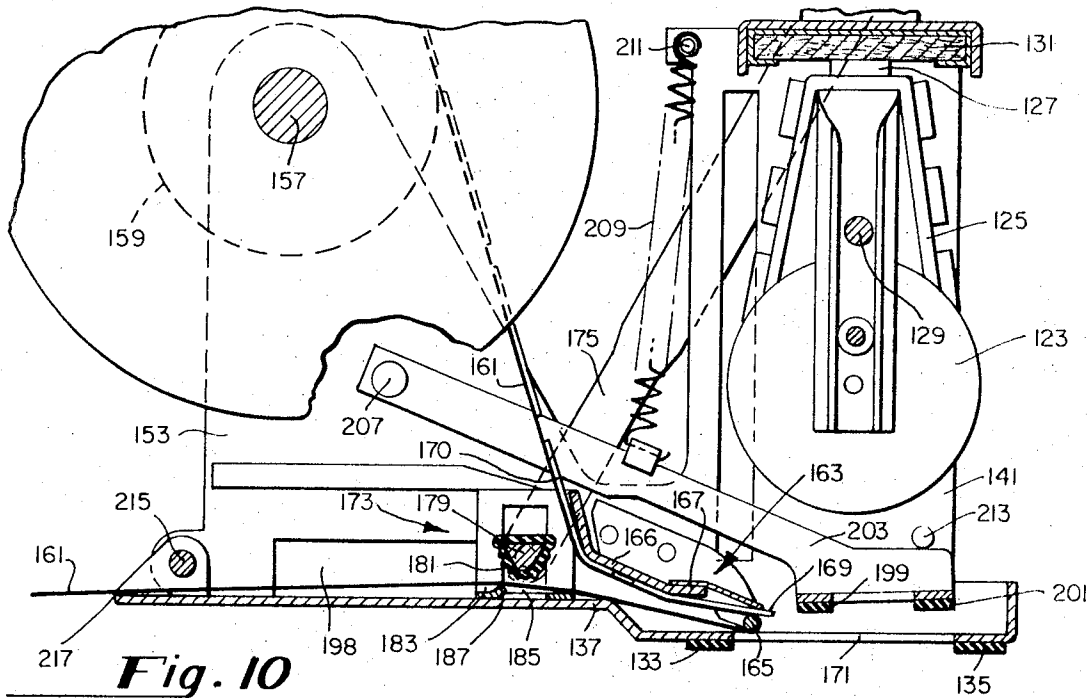
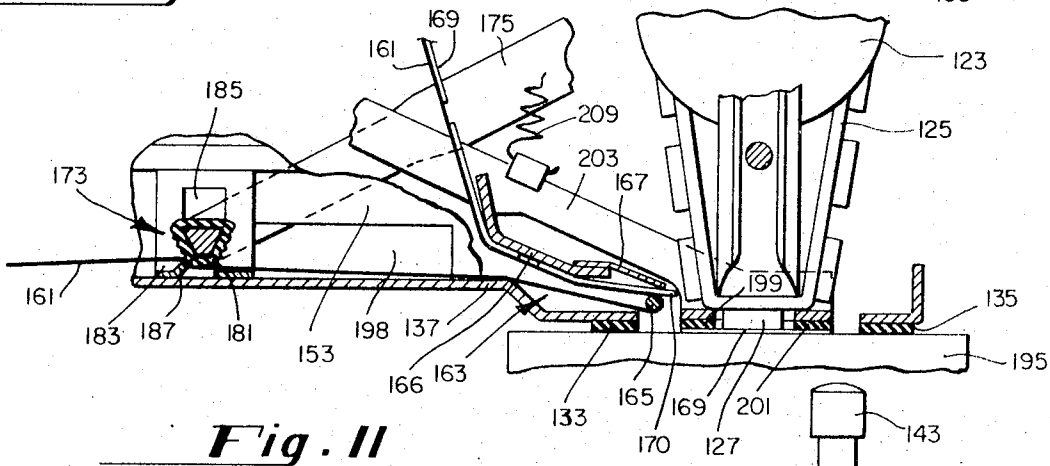
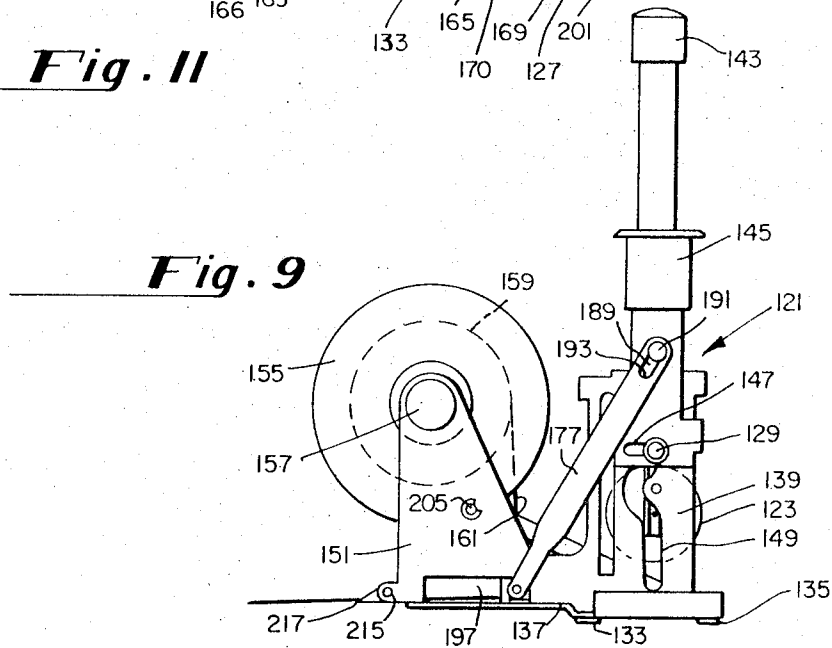


Fig. 6





APPARATUS FOR VISUALLY MARKING AN ARTICLE WITH CHARACTERS OVER AN OPAQUE BACKGROUND COVERING

CROSS-REFERENCE TO A RELATED APPLICATION

This application is a continuation-in-part of copending application Ser. No. 35,306, filed May 7, 1970 now abandoned.

BACKGROUND OF THE INVENTION

This invention relates generally to the art of marking a physical object and more specifically relates to apparatus for marking a physical object in a small area thereof by hand.

Hand marking of prices and other information on a consumer item by present techniques is a time consuming process with need of improvement. The most common aspect of such consumer marking is in a grocery supermarket where price marking of items consumes a significant portion of labor manhours required to operate the supermarket.

It is especially time-consuming to change the price marked on a large number of a given item. In the grocery business, for instance, prices fluctuate rapidly, often day to day, in response to strong competitive pressures, desires of the store to run specials for a short period of time, and so forth. Such price fluctuations require shelf stock items to have the price initially marked thereon changed. One method presently utilized is for the old price to be removed from the articles individually by application of a solvent. The surface of the article is then wiped clean and a new price is marked thereon. This method is ineffective in changing prices marked on a paper surface.

Another method presently used is to cover the old price with an adhesive sticker which has previously been marked with the new price. Each of these techniques requires two independent hand operations, one to remove or cover the old price and another to mark the new price on the article. Such a two-step process is very slow and costly, especially when a large number of individual items must have their prices changed.

Therefore, it is a principal object of this invention to provide apparatus for changing by hand the price marked on a consumer item with less time per item by reducing the number of hand operations required.

It is also an object of this invention to provide apparatus for marking a wide variety of physical articles with one or more characters with an improved appearance.

SUMMARY OF THE INVENTION

These and additional objects are accomplished by the techniques of the present invention wherein a small defined area of an article is first covered at least partially to form an opaque background that is subsequently marked with at least one character thereover. Both the covering and character marking steps are accomplished almost instantaneously and at most in less than 1 second.

According to one aspect of the present invention, a chemical coating is applied to a defined area of the article to form the opaque covering upon which at least one alpha-numeric character is immediately marked thereover. The covering material is chosen to have a contrasting color with the character marked thereover

and thus provide a good visual background for the character regardless of the color of the article. The article being marked may be a consumer item and the character a price of the item. The covering may be placed over a price previously marked on the item, thereby to change the marked price. The area upon which the covering is applied is controlled to have a pleasing shape consistent with the object. If desired, the covering may be controlled in shape to form additional symbols or designs on the article area. Such additional symbols or designs may serve to mark all articles with common information, such as the existence of a sale price, while the aforementioned characters of contrasting color are applied over a portion of the covering provided for that purpose.

A chemical composition covering is preferably carried by a carrier tape and is applied to an article by an impression head which drives the tape against the article. The chemical composition may be an opaque, quick drying ink that adheres to the article surface. Alternatively, the chemical composition carried by the tape may be a dry opaque material that adheres to the article surface upon application pressure thereagainst. The shape of the impression head will determine the area of the article that is covered by material carried on the tape. The impression head may be solid for uniform covering or may be relieved in certain areas to imprint a design onto the article area. The carrier tape is advanced over the impression head between each marking to assure an adequate supply of material for each impression.

According to another aspect of the present invention, a tape may be provided that carries a plurality of opaque adhesive labels. One of these labels is applied to an article just prior to a character being marked thereon. In a first machine embodiment of the present invention, labels are carried by the tape in a manner that when a label is pressed against the article by a sharp blow of an impression head striking the tape on its side opposite to that side carrying the label, the label will adhere to the article and the tape is disengaged therefrom after the impression head stroke. After each marking, the tape is advanced to position an adjacent label over the impression head to be driven against the next article. In a second machine embodiment of the present invention, labels are adhesively attached to a carrier tape and delivered to an article by drawing the tape about a thin edge. The same adhesive layer which attached the label to the tape is then used to attach the label to the article.

Both of the first and second machine embodiments of the present invention, employ a technique for applying both a covering to at least a portion of an article area and desired characters onto the article area immediately thereafter with a single stroke by a hand of an operator along a given path toward the article. In the initial portion of a single stroke, a covering means delivers a covering to at least a portion of a defined article surface area. In a further portion of the stroke, a stamping assembly is driven against the defined article surface area. Accomplishing both covering and character marking thereover in a single hand stroke by an operator against the object has a significant advantage in that both functions may be performed on retail consumer items in substantially less time than is necessary to perform these operations by present two step techniques.

In the first machine embodiment of the present invention, a hand apparatus is provided for accomplishing both covering and character marking operations in a single stroke by an operator who drives a handle assembly of the apparatus toward the article along a defined path. The handle is slideably mounted on a frame. The frame is provided at an end thereof opposite the handle to contact an article. A tape for carrying a covering is held by a tape carrier which draws the tape over an impression head. As the handle is depressed, the impression head drives the tape against the article to apply a covering thereto. Further depression of the handle causes the tape carrier to lift slightly from the article and pivot relative to the frame outward and away from the area just covered. Further depression of the handle then drives a stamping assembly against the article in its covered area. The stamping assembly is not rotated but obtains its ink from an ink pad attached to the upper surface of the tape carrier so that the stamping assembly is inked prior to the tape carrier swinging up and away from the covered area of the article. When the character is marked in the covered area, the operator releases the handle and a return spring moves the tape carrier and stamping assembly to their initial positions. During the swing outward from the frame of the tape carrier and during its return, the tape is advanced so that new covering material is positioned over the impression head to be ready for the next marking operation.

An important feature of such an apparatus is the mechanism whereby the tape carrier, after the covering has been applied to the article, is lifted up and pivoted in the frame away from the article without smearing the covering and in response to depressing the handle toward the article. The stamping assembly then passes through the area previously occupied by the tape carrier on its way to mark a character on the defined area of the article. A pair of cam elements are rigidly attached to the tape carrier. Cam lifting pins are rigidly attached to the cams at their ends remote from the tape carrier. These cam lifting pins are slideably mounted in the frame of the apparatus in elongated slots extending generally parallel with the operating path of the handle assembly. The cams, and thus the impression head, are driven downward against the article in response to depression of the handle, by a pair of cam drive pins which are operably connected to the handle assembly. The cam drive pins contact their respective cam elements in a manner also to rotate the cam elements about their cam lifting pins. A cam locking pin operates with a closed cam slot of each of the cams and normally prevents each cam from rotating about its cam lifting pin. After the impression head has made its mark, further depression of the handle displaces the cam locking pins so that the cam elements are pulled upward in response to the urging of springs between the cam lifting pins and the frame. Force from the handle is at the same time being transmitted to the cam drive pins which, in the absence of the cam locking pins in their normal positions, rotates the cams about their cam lifting pins.

In the second machine embodiment of the present invention, a hand apparatus is also provided for accomplishing both covering and character marking operations in a single stroke by an operator who depresses a handle toward the article being marked. A marking stamp of the type presently being utilized commercially

for retail price marking, especially in supermarkets, is equipped with means for holding a roll of labels adhesively attached to a carrying tape. Such a tape with labels is commercially available and presently being utilized to mark prices on retail items such as supermarket grocery items. By present techniques, a large number of these labels are first marked with a price and then the labels are individually peeled off of the tape by hand and attached to articles. The second machine embodiment of the present invention provides means for advancing the label carrying tape around a sharp bend to deliver a label to the article just prior to the ink characters contacting the article in the area to which the label is applied. The label carrying tape is advanced in response to depression of the handle of the stamping mechanism. Therefore, the article is covered by a label and marked thereover by a single depression on the handle of a price marking machine.

A tape is advanced around a sharp bend in the second machine embodiment of the present invention by pulling it thereover with the aid of a gripping mechanism which slides along the frame of the stamping machine in response to a depression of the handle. The gripping mechanism grips the tape when it travels in a direction to pull the tape around the sharp bend but releases the tape when the gripping mechanism travels in the opposite direction. The sharp bend that causes the label to leave its carrier tape is positioned at the bottom of the price marking machine which contacts an article to be marked. As the handle is depressed, a label is dispensed loosely unto the article and in the path of the descending character stamping assembly. The descending character stamping assembly engages a pair of pressure pads which, in combination with the characters themselves, applies pressure to the label to cause it to adhere to the article.

The various aspects of the present invention have only been summarized briefly. For more detailed information of the first and second preferred machine embodiments of the present invention, and for further objects and advantages of the various aspects of the present invention, reference should be had to the following description taken in conjunction with the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is an overall view in perspective of a first hand held machine for both covering and marking a symbol thereover in a single motion by an operator;

FIG. 2 is a front view of the machine illustrated in FIG. 1 taken along 2—2 thereof;

FIG. 3 is a side view of the machine elements in their rest position as illustrated in FIGS. 1 and 2 in a partial section taken along 3—3 of FIG. 2;

FIG. 4 is a side view of the machine similar to that of FIG. 3 showing its first operating position;

FIG. 5 is a side view of the machine similar to that of FIG. 3 showing its first operating position;

FIG. 6 is a side view of the machine similar to that of FIG. 3 showing the elements in their extreme operating position;

FIG. 7 is a top view of the device taken along 7—7 of FIG. 3;

FIG. 8 shows an article after marking with the machine illustrated in FIGS. 1—7;

FIG. 9 is a side view of a second machine for both covering and marking a symbol thereover in a single motion by an operator;

FIG. 10 is an internal view of the machine of FIG. 9; and

FIG. 11 is an internal view of the machine of FIG. 9 when in a different portion of its operating cycle than shown in FIG. 10.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

An article is covered with an opaque substance in some area thereof and immediately thereafter a character is marked over the covered area. A first machine embodiment of this technique is illustrated with respect to FIGS. 1-7. Primarily with reference to FIG. 1-3, the basic operating parts of a hand stamping machine are outlined. A frame 11 carries a yoke 13 slidably mounted in vertical slots 12 and 14 thereof. A knob 15 is shaped to fit a human hand pushing down thereon to drive it toward the frame 11. A tape carrier 17 contains an elongated tape 19 which is drawn over a solid impression head 21. The tape carrier 17 operates to cover an area of an object with an opaque covering over which characters are marked immediately thereafter. A stamping assembly 23 of the usual and known type has several flexible endless belts having characters thereon. The characters selected for marking on an area of the article covered immediately thereafter appear at the bottom 25 of the stamping assembly 23. An ink pad 27 carried by the tape carrier 17 provides ink for the characters appearing at the bottom 25 of the stamping assembly 23.

The frame 11 is generally of a U-shaped profile terminating in feet 29 and 31. A material such as hard rubber is attached to the feet at layers 33 and 35. The apparatus is designed to a free-stand on a horizontal plane of an object 37, such as a consumer item, to be marked. The apparatus shown in its static position in FIGS. 1-3 is designed so that an area of the article 37 between the feet 29 and 31 receives an opaque covering followed immediately thereafter with a marking of desired characters applied to this covering. The arrangement of the feet 29 and 31 allows an operator to easily position the machine to mark a predetermined area of the article by sighting between the feet. Both the covering and character marking operations are accomplished by a single downward stroke by an operator against the knob 15.

FIGS. 4-6 show a side view of the significant parts of the machine with the knob 15 in various positions of depression relative to the frame 11. When a force is exerted downward against the knob 15 by a hand of the operator, the first action that takes place is the driving of the impression head 21 and opaque material carrying tape 19 against the article 37, as shown in FIG. 4. With slightly more depression of the knob 15 the entire tape carrier 17, including its impression head 21 and the tape 19 is lifted up from the article 37 and rotated slightly away from the area thereof that has been covered, to a position shown in FIG. 5. Further depression of the knob 15 to its extreme position toward the frame 11 rotates the tape carrier 17 out of the way of the stamping assembly 23. The stamping assembly 23 is simultaneously driven against the article 37 over its area previously covered to mark characters thereon, in a position shown in FIG. 6.

The various parts of the machine that operate to bring about this sequence of events in response to a single downward stroke against the knob 15 are described in detail with respect to these Figures. It will be noted from FIG. 2 that many parts within the frame 11 are duplicated along either side of the frame. Therefore, in the description to follow, only one of each mirror image pair of operable parts is described with respect to the Figures.

The knob 15 is operably connected to a solid stem 39 through a knob compression spring 41. The stem 39 terminates at its upper end in a solid core 43 that is slidable within the knob 15 and against which the knob compression spring 41 is urged. Surrounding the stem 39 is a return spring 45 held in compression between the core 43 and projections 47 and 49 of the frame 11 into a frame opening 51. The spring 45, therefore, exerts a restoring force against the knob 15 away from the frame 11. The spring 45 is surrounded by a cylindrical shield 53 having slits 55 and 57 on opposite sides thereof along its length to accept the projections 47 and 49, respectively, of the frame 11. The shield 53 terminates at its upper end in the solid core 43 within the handle 15 and, thus, is also rigidly connected with the solid stem 39.

The stamping assembly 23 is rigidly connected to the stem 39 through a drive member 61. The drive member 61 is generally of a U-shape with each leg having an extended flange 62 with a substantially horizontal slot 63 therein. A cam drive pin 65 is carried by the flange 62 of the drive member 61 and is allowed to move back and forth in the slot 63. The cam drive pin 65 contacts a cam element 67 at a substantially horizontal cam surface 69. The cam element 67 is rigidly attached to the tape carrier 17. The cam has attached thereto at a second point a cam lifting pin 71 that is allowed to slide up and down in a vertical slot 73 of the machine's frame 11. The cam element 67 is controlled at a third point by a cam locking pin 75 that is rigidly connected to the yoke 13 and slideable in a slot 77 of the cam element 67 which guides the tape carrier 17 up and out of the way of the descending stamping assembly 23.

When an operator pushes down on the knob 15, many machine elements move from their rest position of FIGS. 1-3 to a first operating position shown in FIG. 4 wherein the impression head 21 drives the tape 19 against the surface of the article 37, thereby applying a covering thereto as a result of pressure against the tape 19. This is accomplished by a direct transmission of force from the knob 15 to the tape carrier 17 and its impression head 21. The knob compression spring 41 is stiff enough that it is not compressed by this action but rather transmits all of the force applied to the knob 15 directly to the stem 31 which in turn transmits a downward force to the drive member 61. The cam drive pin 65 is thereby forced down against the horizontal surface 69 of the cam element 67. The cam element 67, being rigidly attached to the tape carrier 17, drives the tape carrier and its impression head 21 downward until stopped by contact with a surface of the article 37 to be marked. In this position, the cam lifting pin 71 is forced against a stop 72 that is adjustably but rigidly held by the frame 11. As part of the movement to this position, the yoke 13 is pulled down by the cam element 67 by force applied through its slot 77 against the cam locking pin 75 that is fixed to the yoke. The cam drive pin 65 follows a substantially ver-

tical path during this movement under the control of a vertical slot 79 in the frame 11.

However, when the impression head has forced the tape 19 against the article 37 in the position shown in FIG. 4, the cam drive pin slides horizontally within the slot 63 of the drive member 61 under the guidance of a notch 81 in the slot 79 of the frame 11. As may be seen in FIG. 4, the cam drive pin is then resting on an inclined surface 83 of the cam 67. Further force on the knob 15 drives the cam drive pin 65 against this inclined portion 83 which tends to rotate the cam about its cam lifting pin 71 through a horizontal component of force transferred thereto. However, such rotation is prevented by the cam locking pin 75 within a vertical portion 77a of the cam's slot 77. With the cam locking pin 75 in the position shown in FIG. 4, the impression head 21 will remain forced against the article 37 even with application of additional force to the knob 15.

As a result, an application of further force to the knob 15 results in compressing the knob compression spring 41, as shown in FIG. 5. The knob 15 is thereby moved downward relative to the core 43 and stem 39 which each remain fixed relative to the frame 11. This movement of the knob compresses a yoke compression spring 85 to transmit force to the yoke 13 which is in contact with the spring 85 at its lower end. The yoke 13 is then moved downward slightly with respect to the frame 11 in the slots 12 and 14 thereof. Since the cam locking pin 75 is attached to the yoke 13, it also is driven downward to a position shown in FIG. 5 removed from the vertical portion 77a of the slot 77 within the cam element 67. As soon as the cam locking pin 75 descends out of the vertical portion 77a of the slot 77, the cam 67 is lifted slightly by action of a cam lifting spring 87 connected in tension between the frame 11 and the cam lifting pin 71. The cam lifting spring 87 is of a strength low enough not to pull up the cam element 67 and attached tape carrier 17 when the cam locking pin 75 frictionally engages a side of the vertical portion 77a of the slot 77. The upward motion resulting when the cam locking pin 75 descends in the slot 77 removes the tape 19 and its impression head 21 from the article 37 to later be rotated without smearing the covered area of the article. At the same time, the cam 67 is rotated slightly about the cam lifting pin 71 in response to a horizontal component of force against the inclined surface 83 of the cam 67 by the cam drive pin 65. The result is that the machine elements are in a second operating position shown in FIG. 5. It may also be noted that in this position, the characters 25 of the stamping assembly 23 are in contact with an ink pad 27 for picking up ink to make a subsequent mark on the covered area of the article. The ink pad 27 is partially floating on a spring 91 and is held by the tape carrier 17.

When the stamping device is in the position shown in FIG. 5, the stem 39 and thus the stamping assembly 23 attached thereto are no longer locked in place against the article 37 but will proceed downward in response to an additional downward force on the knob 15. The tape carrier 17 is rotated out of the way of the stamping assembly 23 to an extreme operating position as shown in FIG. 6 by a rotational force applied thereto through the stem 39 and the cam drive pin 65 against the cam element 67. The cam element 67 is rotated about its cam lifting pin 71. A generally horizontal portion of the slot 77 within the cam 67 allows rotation of the cam

without restraint by the cam locking pin 75. After the tape carrier assembly 17 is rotated out of the way of the stamping assembly 23 by rotational forces applied through the cam drive pin 65, further force on the knob 15 drives the characters 25 of the stamping assembly 23 against the article 37 over the area thereof that was just covered. The tape carrier assembly 17 is held in the position shown in FIG. 6, out of the way of the descending stamping assembly 23, by the cam lifting spring 87.

After marking the set characters 25 onto the covered area of the article 37, the operator releases his hand from the knob 15. Without any downward force applied to the knob 15, the return spring 45, which surrounds the stem 39, exerts a substantial force against the core 43 and the frame 11 since the spring 45 has been significantly compressed during the marking operations of the machine. These forces tend to drive the stem 39 upwards relative to the frame 11, thereby pulling with it all machine elements operatively connected to the stem. The stamping assembly 23 is thereby pulled upward. The cam drive pin 65 carried by the drive member 61 strikes a protruding portion 93 of the cam element 67 to rotate the cam element and the tape carrier 17 counterclockwise against the pull of the cam lifting spring 87, resulting in all of the elements of the machine returning to their initial rest position shown in FIGS. 1-3. The yoke 13 is helped to return to its rest position by a spring 103 which forces a pin 105 against the yoke 13 relative to the cylindrical shield 53. After this return operation, the machine is ready to perform another covering and character marking operation on a new article.

During a single marking operation of the machine, as described herein, the tape 19 is advanced on the tape carrier 17 after the article 37 is covered. As can be seen most clearly in FIG. 5, as the tape carrier 17 and the tape 19 is removed from contact with the article 37, a star wheel 95 rotatably attached to the tape carrier 17 engages a pin 97 fixed to the frame 11. As the tape carrier 17 is swung out to the position shown in FIG. 6, the star wheel 95 is rotated in a clockwise direction by contact with the pin 97 as it passes therebeneath. As the tape carrier 17 returns to its rest position of FIGS. 1-3 after the character has been marked as shown in FIG. 6, the star wheel 95 again engages the pin 97 as it passes thereabove, also rotating the star wheel 95 in a clockwise direction. These two contacts with the star wheel 95 during a single operating cycle of the machine cause an amount of tape 19 to be advanced over the impression head 21 from a storage reel 99 to a take-up reel 101 at least as long as the dimension of the impression head 21 along that dimension. Therefore, after the machine has been used to mark an article, a fresh portion of the tape 19 is in position over the impression head 21 ready for the next marking operation. It will be recognized that instead of two reels 99 and 101, the tape carrier 17 could, alternatively, employ a single roll to both discharge and take-up the tape 19.

The tape 19 and covering material carried thereby may be one of several types. The carrier tape 19 may be of a type with opaque ink impregnated therein. The ink is pressure transferrable, capable of adhering to an article surface, dries instantly after application and is compatible to receive an inked character of contrasting color. Alternatively, the carrier tape 19 may be a polymeric film which is covered with a dry opaque chemical coating. The dry coating is also transferrable by pres-

sure to a desired article surface, adheres permanently to the surface and is compatible to receive an inked character of contrasting color. Either of these covering materials has the advantage that an old article price may be covered and remarked without obviously appearing to be a remarked price.

Yet another alternative is to transport adhesive labels on the carrier 19 in an inverted position. In this case, the tape 19 is coated with an adhesive of less holding power than the adhesive on the base of the label, thereby permitting each label to be transferred by pressure to a desired article surface. The adhesive on the base of each label allows the label to bind to an article surface and be released from the tape. The carrier tape 19, in this case, is treated on both sides, one side is adhesive to hold the labels and the other side is a waxed type of surface which prevents the base of each label from adhering to the carrier tape when the tape with labels attached is rolled for storage.

A marking on an article resulting from use of a hand stamping machine as described herein according to a preferred embodiment of the present invention is shown in FIG. 8. A grocery item container has been marked on its top 113 with a price. An area 115 is covered opaquely from the pressure of the impression head 21 of the hand stamping machine operated as described hereinabove, particularly with respect to FIG. 4. Characters 117 in the nature of a price for the item is applied over the opaquely covered area 115 by forcing thereagainst the characters 25 of the hand stamping machine as described hereinabove, particularly with respect to FIG. 6. The characters 117 are always of an easily read contrasting color with the background 115 regardless of the color of the container 113. The background covering 115 and characters 117 may be the first marking applied to the can 111, thereby rendering the position of the covering 115 unimportant, or may be a second marking applied to the can 111 where the covered area 115 is applied over a location of the container 113 occupied by a first marking. Therefore, the machine may mark an initial price or may change a previously marked price of the item. It may be noted that it makes no difference with the techniques of the present invention whether a can, box or other item is being marked.

If the opaque covering 115 and the characters 117 are marked on the container by the machine illustrated herein, both the covering and subsequent character marking thereover is accomplished by a single straight line manual motion against the article without necessity for a compound motion such as additionally twisting the handle, rocking the machine over the article, etc. As a result, both the covering and the price marking operations may be accomplished by the hand held machine described herein in substantially the same time as that required to mark a price alone with the use of presently available price marking machines that do not first apply a background covering. Both covering and character marking operations may be accomplished by this machine in less than 1 second.

There are several useful modifications of the particular hand stamping machine described herein for particular circumstances and applications. One of these modifications is to provide an adjustment so that the machine will apply an opaque covering without a subsequent character marking thereover. One possible adjustment that may be made is to control the yoke com-

pression spring 85. When this spring is made inoperative, the hand stamping device will apply a covering without allowing the stamping assembly 23 to strike the article. The cam locking pin 75 will remain in the position illustrated in FIG. 4 and thereby not permit the tape carrier 17 to swing up from the article 37 and out of the path of the descending stamping assembly 23.

Similarly, the hand stamping machine described herein may be provided with an adjustment so that it may mark an article with the selected characters without applying a covering to the article. This requires that the impression head 21 be prevented from striking against the article 37 during each stroke of the handle, or that the tape 19 be removed from its position against the impression head 21. One adjustment that may be provided for preventing the impression head 21 from striking against the article 37 is to hold the yoke 13 downward with the yoke helping spring 103 fully compressed, thereby to position the cam locking pin out of the vertical portion 77a of the cam slot 77. The cam element 67 will then rotate the tape carrier 17 out of the path of the stamping assembly 23 without the impression head 21 striking the article 37. The characters 25 are inked by the pad 27 as the stamping assembly 23 descends.

There are several other modifications to the particular hand stamping machine described herein that may be useful for certain marking applications when the covering is applied to an article by use of a tape 19 that is impregnated with a quick drying ink or a tape 19 that carries a dry chemical coating. It may be noted that the size and shape of the opaque covering applied to an article under these circumstances is controlled by the shape of the impression head 21. The impression head 21 may be made removable from the tape carrier 17 for substitution of heads with various shapes. Instead of a smooth impression head surface that would generally be used, the impression head 21 may be provided with an uneven surface in the nature of serrations or a particular design. For instance, such an impression head design would be an "X" positioned to cross out an old price on an item adjacent to the spot where the characters 25 strike to mark a new price. This is useful to show that a price reduction has been made when that fact is desired to be known.

Furthermore, a stencil may be positioned between the tape 19 and the article 37 by attachment to the feet 29 and 31 of the hand stamping machine's frame 11. Such a stencil may be made removable for replacing with others, and may contain a notation such as "Special" or "Reduced," and so forth, as applied to pricing consumer items.

It is useful as part of the present invention to note that presently utilized price markers may be modified to apply an opaque covering to an article without marking thereover new characters to indicate a price. A standard marking stamp is illustrated in U.S. Pat. No. 3,115,825 — Mommson (1963). Such a device could be modified to substitute for the characters which are inked and impressed against an article, an impression head with a uniform surface over a wide area large enough to subsequently receive several ordinary type alpha-numeric characters. Operation of the machine against an article would then transfer ink rather evenly over the broad area of the article. A further modification of this prior art hand stamping machine is to incorporate a tape carrier of the type described herein with

respect to the drawings, for dispensing a covering carried by a tape. Although the use of such a machine as modified in either way would require a separate step with a separate hand motion to apply characters over the covered area of the article, the technique is still an improvement over presently used techniques.

A second machine embodiment of the techniques of the present invention is illustrated with respect to FIGS. 9-11. In this embodiment, the covering applied to the article is a standard price marking label. These labels are commercially available and are sold adhesively attached to an elongated carrier tape. With reference to FIGS. 9 and 10, the label dispensing and marking machine will generally be explained with all parts thereof in their rest position. A price or other character marking device 121 is quite similar in construction and operation to presently used commercially available marking units. A character stamping assembly 123 includes a plurality of marking bands 125 having characters thereon, including a character 127. The stamping assembly 123 is rotatable about a pin 129. When in the rest position shown in FIGS. 9 and 10, the character 127 is coated with ink from an ink pad 131. Thin rubber layers 133 and 135 are provided on the bottom of a base plate 137 for contacting an article to be marked. The base plate 137 extends along the bottom of frame sides 139 and 141.

Upon depression of a knob 143 by the hand, a handle assembly 145 is depressed which slides downward relative to the frame members 139 and 141. This motion causes the stamping assembly 123 to pivot about its axis 129 and descend to contact the character 127 against the article. This motion of the stamping assembly is guided by a horizontal slot 147 in the handle assembly 145 and a cam slot 149 provided in the frame side member 139. An appropriate resilient member (not shown) is provided for return of the handle assembly 145 to the rest position shown in FIGS. 9 and 10 when the knob 143 is released.

The modifications of this basic stamping device 121 according to this embodiment of the present invention include the extension of the machine frame sides 139 and 141 to form sides 151 and 153 between which a spool 155 is detachably held in a rotatable position about an axis 157. A roll 159 of tape and adhesively attached labels of the standard commercially available type is held by the spool 155. When the roll 159 is exhausted, which may not be until several hundred articles have been marked, a new roll is placed within the spool 155 for continued operation of the hand stamping machine according to the present invention.

A label carrying tape 161 from the roll 159 is guided for delivery of its adhesively attached labels to an article being marked by a guiding element 163. The guiding element 163 includes a plow bar 165, a retaining plate 166 and a projection plate 167. The label carrying tape 161 is threaded underneath the retaining plate 166 and the projection plate 167 but above the plow bar 165. As the tape 161 is drawn around the plow bar 165 with about a 180° bend, a label 169 is separated from the carrier tape 161. The label is projected into a position between the rubber feet 133 and 135 to be imprinted by the characters 127 of the descending stamping assembly 123. The guiding element 163 is preferably coated with Teflon to reduce any friction with the label carrying tape 161 to a minimum. The label carrying tape 161 is drawn about the plow bar 165 in re-

sponse to a depression of the knob 143 by a mechanism to be described hereinafter.

It will be noted that the use of the guiding plates 166 and 167 control the path of the label carrying tape 161 and assures that the label 169 is delivered at a uniform angle with respect to the article regardless of how big the roll 159 happens to be at any given time. The angle of at least a portion of the retaining plate 166 with respect to the frame of the machine unit is made to be less than the angle that the label carrying tape 161 will make with the frame when the roll 159 is at its smallest diameter. This will assure contact of the carrier tape 161 with the entire underside of at least one planar portion of the retaining plate 166. The physical relationship of the various parts of the guiding element 163 control the angle at which the label 169 (FIG. 10) is dispensed onto an article. The plow bar 165 is preferably positioned just inside an opening 171 of the base plate 137 through which the label 169 is dispensed, attached to an article and marked. The projection plate 167 is made thinner than the retaining plate 166 in order to provide some resilience in the plate 167. Accurate spacing between the plow bar 165 and the end of the projection plate 167 is maintained.

The label carrying tape 161 is advanced to dispense labels therefrom by pulling the tape through the guide element 163. The tape is so pulled by the action of a gripping mechanism 173. The gripping mechanism 173 is driven by a pair of levers 175 and 177. The levers 175 and 177 are rotatably attached to opposite ends of a rod 179 that extends through the gripping mechanism 173. Attached to the rod is a rubber pad 181 that contains serrations of its outside surface for effective gripping of the tape 161. The rod 179 is free to slide up and down in vertical slots at the opposite ends of a pressure feed bar slide 183, one of the slots being represented in FIGS. 10 and 11 at 185. The pressure feed bar 183 includes a blunt upturned portion 187. The tape is pinched between the serrations rubber pad 181 and the upturned portion 187 of the pressure feed bar slide 183 for advancing the tape. The pressure feed bar slide 183 is guided by and slides along an upper surface of the base plate 137. As a result, the pressure feed bar slide is preferably Teflon coated to reduce friction with the base plate 137.

The levers 175 and 177 are connected at their opposite ends to opposite sides of the handle assembly 145. Referring to FIG. 9, an elongated slot 189 is provided in the lever 177 and receives a pin 191 that is rigidly attached to the handle assembly 145. As the knob 143 is depressed to dispense and mark a label on an article, the pin 191 slides within the slot 189 until it engages an end 193 of the slot. At this position, in a specific form of the device, the stamping assembly 123 has been rotated about 90°. It is at this position that force is first applied through the levers 175 and 177 to the rod 179 of the gripping mechanism 173. This force pushes serrated rubber pad 181 against the upturned portion 187 of the pressure feed bar slide 183 and pinches the tape 161 therebetween. Continued depression of the handle assembly 145 through downward force on the knob 143 causes the gripping mechanism 173 to travel away from the guiding element 163. The tape 161 is thereby pulled around the plow bar 165 and a label 169 is dispensed within the opening 171 of the base plate 137.

The slot 185 along one end of the pressure feed bar 183 is generally of rectangular shape. The cross-

sectional shape of the rod 179 when passing through the slot 185, not shown, is preferably also of rectangular shape of complimentary dimensions so that the rod 179 and the rubber pad 181 do not rotate relative to the gripping mechanism 173 when the tape 161 is being advanced. Furthermore, the upturned gripping edge 187 is maintained by the broad, flat base of the pressure feed bar slide 183 at a constant angle relative to the base plate 137 as the pressure feed bar slide 183 moves away from the guiding element 163. These features assure positive contact with the tape 161.

The position of all the elements of the second machine embodiment of the present invention when the knob 143 is depressed a maximum distance downward against the article is shown in FIG. 11. From FIG. 11, it can be seen that the tape 161 has been advanced as much as possible in one machine operation from the position of the tape in FIG. 10. The label 169 has been removed from the carrier tape 161 and has been applied to an article 195. Also, the stamping assembly 123 is inverted from its rest position and the inked character 127 is pressing against the label 169 on the top surface of the article 195, thereby leaving an inked impression of the character 127. Another label 170 is positioned in the guiding mechanism 173 ready to be applied during a subsequent operation of the device.

After a label has been applied and is marked with the knob 143 fully depressed and the elements of the machine in the positions shown in FIG. 11, the knob is released and resiliently urged so that all machine elements return to their rest positions of FIGS. 9 and 10. As the handle assembly 145 is returning to its normal rest position, the levers 175 and 177 are also pulled upward by the pins attached to the handle assembly 145, such as the pin 191 of FIG. 9. When this occurs, serrated rubber pad 181 is removed from its pressure position against the tape 161. Therefore, the gripping mechanism 173 is allowed to return from its position shown in FIG. 11 to its rest position shown in FIG. 10 without moving the tape 161. In this regard, it should be noted from FIG. 9 that a horizontally extending slot 197 is provided in the side wall of frame 151. A counterpart slot 198 (FIGS. 10 and 11) is provided in the opposite side 153 of the frame. The height of the slots 197 and 198 must be sufficient to allow the bar 179 to be raised high enough so that the rubber pad 181 releases its grip on the tape 169 as the handle assembly 145 returns to its rest position.

A mechanism is preferably included in the second machine embodiment of the present invention for applying pressure to the label to cause it to adhere to the article in addition to the pressure applied thereto by the character 127. A pair of pressure pads 199 and 201 (FIG. 10) are positioned across the machine in a parallel relationship so that the characters 127 will fall between them on their way to stamping the labeled article. The pressure pads 199 and 201 are attached to a pivotable lever 203. The lever 203 is attached at pivot points 205 (FIG. 9) and 207 (FIG. 10) to the extended side walls 151 and 153, respectively, of the machine frame. A spring 209 is attached between the lever 203 and a pin 211 fixed to the frame side 141 (FIG. 10). A pin stop 213 is also fixed to the frame 141 to define the maximum distance that the lever 203 is allowed to travel upon the urging of the spring 209. The stop 213 is positioned so that the lever 203 will hold the pressure pads 199 and 201 far enough away from the article so

as not to interfere with a label being dispensed thereunder.

When the knob 143 is pushed down, the stamping assembly 123 rotates 180° and is urged downward. As the stamping assembly 123 approaches the article and its extreme position shown in FIG. 11, it also pushes down through the lever 203 on the pressure pads 199 and 201. These pressure pads contact opposite edges of the label 169 (in the position of FIG. 11) and apply pressure thereto and cause it to adhere to the article. The pressure pads 199 and 201 contact the label and cause it to adhere to the article slightly in advance of the character 127 contacting the label. Of course, the character 127 also plays a part in applying pressure to the label and causing it to adhere to the article 195. When the knob 143 is released, the lever 203 returns by action of the spring 209 to its rest position shown in FIG. 10.

For feeding a new roll of labels into the machine, the base plate 137 is preferable pivotably attached to the rest of the frame at a pivot 215 (FIG. 10). After an appropriate locking mechanism is released, the base plate is swung downward about this pivot to allow for easy replacement or adjustment of the label carrying tape 161.

Also preferably made a part of this machine is an edge 217 (FIGS. 9 and 10) which is sharp enough for tearing off portions of the carrier tape 161 which have been expelled from the machine. This edge 217 is preferably not made so sharp to constitute a danger to the user.

The longitudinal position of the tape 161 within the machine is simply adjusted by pulling on the tape 161 at its free end extending out of the machine. Such an adjustment is required when a new tape roll is installed, for instance, so that the first label 169 will be positioned relative to the plow bar 165 so that it will be properly positioned on the article to receive the character stamp when the machine is operated. For a tape having a given label size and spacing therealong, the machine is designed so that this adjustment need be made only this once. The gripping mechanism 173 is designed to advance the tape exactly the right distance to place another label in the proper position relative to the plow bar 165 for the next cycle of operation of the machine. Should adjustment of the tape 161 become necessary for some other reason, however, it is much easier to effect by the present machine than in previously used label dispensers.

It will be noted that this type of machine allows dispensing a particular number of labels with a given price or other information marked thereon. When the characters to be marked on the dispensed labels are desired to be changed, the stamping assembly 123 is so adjusted in an easy and quick manner. After such an adjustment, the operator can immediately begin marking additional articles without replacing the tape unless, of course, all of the labels on the roll of tape have been exhausted. If it is desired to dispense a label without a mark, the stamping assembly 123 need be adjusted so that the characters 127 are blanks rather than a number or letter combination.

It shall be understood that the invention is not limited to its preferred embodiments described herein and that changes and modifications may be made within the scope of the appended claims.

What is claimed is:

1. A hand operated machine for applying a label to an article and marking a character thereover in a single operation, comprising:

a frame having an end for contacting said article,
 a handle assembly mounted on said frame in a manner to be slideable along a fixed path toward and away from said article contacting frame end,
 means on said frame for holding a supply roll of carrier tape having labels adhesively attached thereto,
 means including an edge fixed to the frame at its article contacting end for guiding said tape along a given path as tape is drawn from the supply roll,
 means responsive to movement of said handle assembly toward said article contacting end of the frame for pulling said tape through said guiding means over said fixed edge generally in a direction opposite to that which the tape travels from the supply roll to said fixed edge, whereby movement of the tape by said pulling means causes an adhesive bond between a label and said tape to be broken and the label to be dispensed from the machine at said article contacting end of the frame to cover an area of the article,
 means responsive to movement of said handle assembly along said fixed path to an extreme position nearest the article contacting frame end for marking at least one alpha-numeric character over said label after it has been dispensed from said machine onto the article and
 means responsive to movement of said handle assembly for applying pressure to said label after it has been dispensed to cover an area of the article, said pressure means being separate from said marking means to aid in forming an adhesive bond between the label and the article.

2. The machine according to claim 1 wherein said means for applying pressure to a label against the article, other than said marking means, includes,

a pair of parallel pads positioned in the vicinity of said article contacting end of the frame where a label is dispensed,
 a resilient means for normally holding said parallel pads a distance away from said article contacting end sufficient to allow a label to be dispensed to an article thereunder, and
 means responsive to movement of said handle assembly to said extreme position nearest the article contacting end frame for urging said pressure pads against said article through a dispensed label.

3. The machine according to claim 2 wherein said means for urging said parallel pads against the dispensed label includes said means for marking at least one alpha-numeric character over said label, said pair of parallel pads being separated a distance sufficient to allow marking said at least one alpha-numeric character on said label between said pressure pads substantially simultaneously with said pressure pads being urged against the dispensed label.

4. A hand operated machine for applying a label to an article and marking a character thereover in a single operation, comprising:

a frame having a base plate for contacting said article, said base plate including an opening through which a label is dispensed onto said article and marked,

a handle assembly communicating with said frame in a manner to be moveable along a fixed path toward and away from said base plate,

means adjacent said frame for holding a roll of carrier tape having labels adhesively attached thereto, a plow bar extending across said frame adjacent a side of said base plate opening and positioned between said base plate opening and said means for holding the roll of carrier tape,

means responsive to movement of said handle assembly toward said base plate for advancing said tape from said roll in a direction toward said plow bar and thence in generally a direction that is away from said base plate opening, whereby movement of the tape by said advancing means causes an adhesive bond between a label and said tape to be broken and the label to be dispensed from the machine through said base plate opening and onto the article, wherein said means for advancing said tape includes,

a pressure feed slide with a base surface adapted to slide back and forth along a top surface of said base plate within said machine,

a member slideable on said feed slide and capable of applying pressure against said feed slide base surface, whereby said tape positioned between said member and said base is gripped and pulled away from said base plate opening,

means for applying force to said member and said feed slide during a downward stroke of said handle assembly to advance said member and said feed slide away from said base plate opening during a downward stroke of said handle assembly, and
 means responsive to further movement of said handle assembly along said fixed path to an extreme position nearest said base plate for extending through said base plate opening to mark at least one alpha-numeric character over said label after it has been dispensed from said machine onto said article.

5. The hand operated machine of claim 4 wherein the means for applying force to said member and said feed slide comprises at least one lever arm pivotally connected to said member and which is slideably engaged with said handle assembly.

6. A hand-operated machine for applying a label to an article and marking a character thereover in a single operation, comprising:

a frame having a base plate for contacting the article, said base plate including an opening near one end thereof through which a label is dispensed onto said article and marked;

means adjacent said frame for holding a roll of carrier tape having labels adhesively attached thereto;

a plow bar positioned between said base plate opening and the means for holding a roll of carrier tape;

means for advancing tape from said roll first toward and over said plow bar and thence in an opposite direction that is away from the opening of the base plate, whereby movement of the tape by said advancing means causes an adhesive bond between a label and said tape to be broken and the label to be dispensed from the machine through said base plate opening and onto the article; said advancing means including a feed slide adapted to slide back and forth along said base plate and a gripping member slidably with said feed slide and positioned so that said tape may be fed between said member and

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said feed slide thus allowing said tape to be gripped therebetween and advanced as said feed slide is operated;

means for marking said labels which is extendable through said base plate opening; and

actuation means including a handle assembly which is vertically movable toward and away from said base plate and further including means by which said vertical movement is translated to horizontal movement to actuate said label advancing means so as to simultaneously feed a label into said base plate opening and upon the completion of the downward stroke cause the means for marking to project through said opening thereby marking said label as desired.

7. A hand operated machine for applying a label to an article and marking a character thereover in a single operation, comprising,

a frame having a base plate for contacting said article, said base plate including an opening near one end thereof through which a label is dispensed onto said article and marked,

a handle assembly mounted on said frame in a manner to be moveable along a fixed path toward and away from said base plate,

a plow bar extending across said frame adjacent a side of said base plate opening,

means adjacent said frame for holding a roll of carrier tape having labels adhesively attached thereto, said means being positioned to hold said roll further from said one end of the base plate than said plow bar,

means responsive to movement of said handle assembly toward said base plate for advancing said tape from said roll in a direction toward said plow bar

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an thence in generally an opposite direction that is away from said one end of the base plate, whereby movement of the tape by said advancing means causes an adhesive bond between a label and said tape to be broken and the label to be dispensed from the machine through said base plate opening and onto the article, and wherein said means for advancing said tape includes,

a feed slide with a base surface adapted to slide back and forth along a top surface of said base plate within said machine,

a member slideable with said feed slide and capable of applying pressure against said feed slide base, whereby said tape positioned between said member and said base is gripped and pulled away from said opening,

means for applying force to said member against said base during a downward stroke of said handle assembly base without applying such force while said handle assembly is returning to its rest position, said means for applying force additionally functioning to advance said feed slide and said member away from said base plate end during a downward stroke of said handle assembly, said advance being along a length of said base plate that is removed even further from said one base plate end than is said plow bar, and

means responsive to further movement of said handle assembly along said fixed path to an extreme position nearest said base plate for extending through said base plate opening to mark at least one alphanumeric character over said label after it has been dispensed from said machine onto said article.

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