April 21, 1964 R. E. NORVELLE 3,129,813

TAPE STORAGE AND DISPENSING MAGAZINE

Filed Sept. 11, 1961

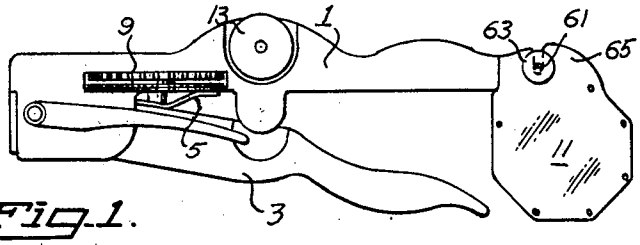


Fig. 1.

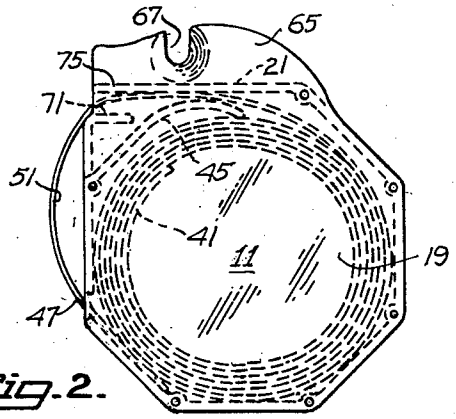


Fig. 2.

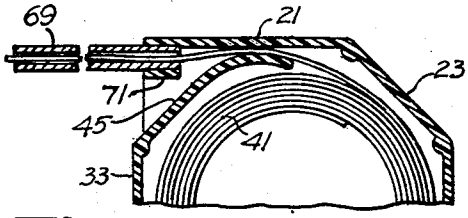


Fig. 3.

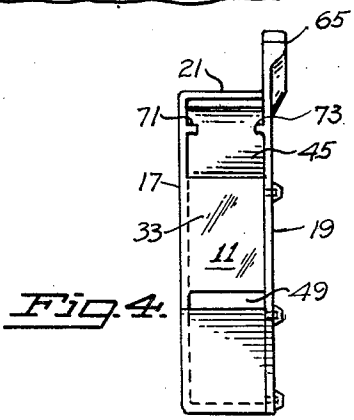


Fig. 4.

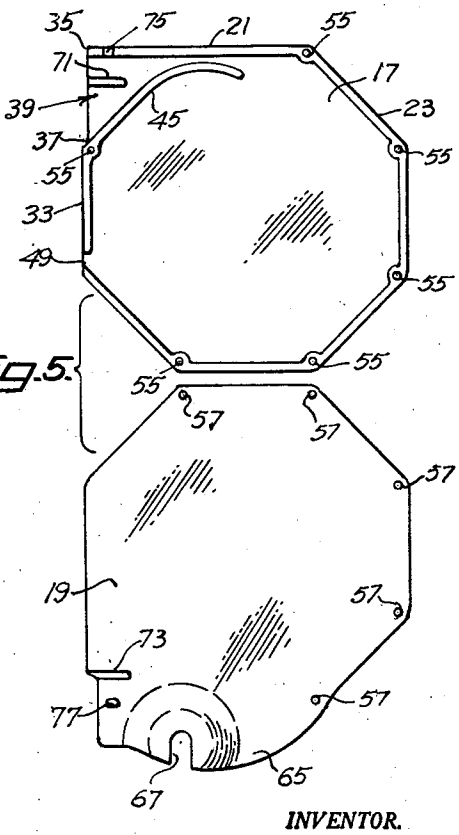


Fig. 5.

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TAPE STORAGE AND DISPENSING MAGAZINE

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5 Claims. (Cl. 206—52)

My invention relates to storage and dispensing magazines and more particularly to a storage and dispensing magazine for the handling of tape such as plastic or metal tape for use in tape embossing machines.

Among the objects of my invention are:

(1) To provide a novel and improved tape storage and dispensing magazine;

(2) To provide a novel and improved tape storage and dispensing magazine in which resistance to withdrawl of tape is minimized;

(3) To provide a novel and improved tape storage and dispensing magazine to preclude jamming of a roll of tape during dispensing thereof from the magazine;

(4) To provide a novel and improved tape storage and dispensing magazine which provides means for removably anchoring the externally exposed end of an enclosed roll of tape during shipment and storage;

(5) To provide a novel and improved tape storage and dispensing magazine which may be readily fabricated of plastic or like material;

(6) To provide a novel and improved tape storage and dispensing magazine in which a roll of tape may be sealed with one end exposed and removably anchored until put into use;

(7) To provide a novel and improved tape storage and dispensing magazine which occupies a minimum of space and has features to facilitate efficient packaging and shipment of the same;

(8) To provide a novel and improved loaded tape storage and dispensing magazine; and

(9) To provide a novel and improved method of fabricating a tape storage and dispensing magazine.

Additional objects of my invention will be brought out in the following description of a preferred embodiment of the same, taken in conjunction with the accompanying drawings, wherein—

FIGURE 1 is a generalized view of a manual operated embossing machine and depicting the relationship of the magazine of the present invention thereto;

FIGURE 2 is a view in side elevation of the magazine, loaded and ready for shipment or use;

FIGURE 3 is a fragmentary view in section through the dispensing portion of the loaded magazine, and depicting the provisions for attachment thereto of a feeding guide, which might be desirable, although not essential with certain embossing machines;

FIGURE 4 is an edge view in elevation of the magazine of FIGURE 2 without the tape, to bring out certain structural details of the magazine structure; and

FIGURE 5 is a view depicting component parts of the magazine and their relationship to each other in the fabrication thereof.

Referring to the drawings for details of my invention in its preferred form, the same is for use primarily with manually operated embossing machines of the type depicated in FIGURE 1 as involving an elongated body **1** and a hand lever **3** pivotally secured adjacent an end

of the body for relative swinging movement toward and away from the elongated body. A coil spring **5** interposed between the body and the lever, serves to resiliently bias the lever to its normal position away from the body of the machine.

In offset relationship to the plane of the body and lever are rotatably mounted complementary die rings **7**, **9** containing the letters of the alphabet and any other desired symbols, the radius of the die rings being such as to cause such letters to intersect the plane of the body and lever in response to rotational movement of such die rings.

At the remote or tail end of the body is a tape magazine **11** from which tape may be dispensed to the machine and fed between the die rings by finger manipulated feeder means **13** located in the body between the tape magazine and the die rings. By squeezing the lever toward the body of the machine, that portion of the tape between the die rings will be embossed with that letter which at that moment lies in the plane of the body and lever. By manually adjusting the die rings, any desired letters may be brought into embossing position to emboss whatever information one may desire upon the tape.

Such, in general, is the type of machine to which the present invention specifically relates, although the invention has broader applications and is not limited in its use to such machine.

The magazine **11** comprises a pair of substantially planar side walls, **17**, **19** maintained in spaced substantially parallel relationship by edge wall connecting means in the form of a series of joining walls **21**, **23** . . . **33**, each angularly related to proximate walls of the series and forming an incompletely closed polygon, leaving edges **35**, **37** of the end walls of the series exposed to define an opening **39** through which tape may be dispensed from within the magazine.

A roll of tape **41**, whether it be of plastic or metal, if allowed full freedom, will act in the nature of a coiled spring and tend to expand radially. If such a roll of tape be freely disposed within the magazine, it will accordingly expand into contact with the series of joining walls, and in this state, it will be noted, that due to the polygonal contour of the magazine, the contacts between the roll of tape and the joining walls will be essentially line contacts. Such limited contacts reduce the frictional resistance to the withdrawal of tape from the magazine to a minimal, and thereby facilitate the feeding of such tape through a machine when applied thereto.

As the quantity of tape in the magazine is gradually reduced through use of the machine, and the resistance of the roll to distortion likewise is decreased, continued consumption of tape from the roll is apt to cause the roll to be lifted toward the dispensing opening in the magazine and jam between converging walls, and thereby considerably resist further withdrawal of tape. This may be avoided in the magazine of the present invention by providing a tongue **45** extending inwardly into the magazine from the free edge **37** of the end wall **33** of the series of joining walls, and directed toward the other end wall **21** of the series. Such tongue is preferably arched, terminating with an intermediate point of the arch in close proximity to the end wall **21**, to provide the additional function of a guide for the tape being dispensed from the magazine.

In preparing a loaded magazine for shipment and for use, I prefer to package the same with the lead end **47**

of the roll withdrawn from the magazine and removably anchored, so as to be readily accessible without the necessity of first gaining access to the interior of the magazine.

For this purpose, I provide a slot **49** in the series of joining walls, and of sufficient width to receive the free end of the tape which is threaded through the slot to the interior of the magazine, where it will be frictionally gripped between the roll of tape and the interior surface of the joining walls. Preferably, the slot should be at the junction of two of the joining walls, as this will facilitate the threading of the tape therethrough due to the spacing of such junction from the roll of tape within.

The tape when thus anchored, forms an external arc **51** which facilitates the grasping of the exposed end of the roll when it is desired to utilize the tape in an embossing machine.

Further, such arcuate section of tape acts as a resilient buffer, in the packaging of a number of magazines in a container or carton for shipping purposes, thereby offering protection against damage, which might otherwise occur to such magazines from the time they are packaged to the time they are removed for use.

The magazine is preferably molded of plastic, in two component parts, one of which involves the one side wall **17**, the series of joining walls **21** . . . **33**, and the tongue **45** as an integral unit, with integrally formed plastic pins **55** extending from the free edge of the series of joining walls, at spaced points therealong, preferably at the junctions of such walls. The reentry slot **49**, when provided for, may be formed by omitting one of the junctions between adjacent walls of the series.

The remaining side wall **19** which performs the function of a cover wall, is separately molded with pin openings **57** correspondingly distributed thereabouts, to match up with the plastic pins when the cover wall is assembled against the free edge of the series of joining walls, thus permitting the plastic pins to protrude through these pin holes, following which the application of a heat and pressure plate to the protruding pins will reduce the same and cause them to spread out and lock the cover wall to the joining walls in a permanent assembly.

This last step of applying the cover wall follows the free disposal of a roll of tape **41** into the first component, with the free end **47** of the roll withdrawn therefrom between the tongue **45** and the adjacent joining wall **21**. The end of the tape thus withdrawn, may then be inserted through the slot **49** or await the final application of the cover wall to complete the magazine.

When the magazine is to be utilized with an embossing machine of the type illustrated in FIGURE 1, the magazine will be removably secured to the end of the body **1** of the machine by a bolt **61** and clamping nut **63**, and for this purpose, a side wall extension or ear **65** will be molded as an integral part of the cover wall **19** and formed with a reinforced bolt notch **67**.

With some of the embossing machines of the type depicted in FIGURE 1, threading of the tape to the feeding mechanism may be facilitated were the magazine provided with a snout **69** adapted to fit within the portion of the body of the machine leading to the feed mechanism **13**. To accommodate the magazine of the present invention to the use of such a snout, the end wall **21** of the series of joining walls, is preferably made somewhat longer than the other joining walls, and inwardly directed from each side wall **17** and **19**, adjacent the mouth of the exit opening **39** of the magazine, is a short rib **71**, **73** respectively, located in parallel spaced relationshipto such end wall, and in conjunction with such end wall, providing means for receiving one end of such snout **69** and supporting the same in alignment with tape emerging from the magazine.

To stabilize the extended end wall **21** of the series for use in supporting such a snout **69**, such end wall is provided with a heat-pressure fusable plastic pin **75** or equivalent along the edge thereof adjacent the free end

of the wall, while the cover wall **19** is formed with a corresponding pin opening **77**, such latter pin **75** being fused in the same manner as the others, in the application of the cover wall to complete the magazine.

While I have disclosed the cover wall as being irremovably sealed to the joining walls, this is my preferred arrangement, in that it precludes tampering with the contents of the magazine, once the contents have been freely disposed therein and sealed in the magazine. However, it will be apparent that the cover wall may be removably secured to the main portion of the magazine in any suitable manner as by a hinge and clasp arrangement or the like.

The plastic from which the magazine is fabricated may be clear plastic to visually present prevailing conditions within the magazine. However, oqaque plastic or other suitable materials may be utilized, in which case, the exposed anchored end of the tape will serve to indicate the color of the tape within.

From the foregoing description of my invention in its preferred form, it will be apparent that the same has fulfilled all the objects attributed to my invention, and while I have illustrated and described the same in considerable detail, I do not desire to be limited in my protection to the specific details illustrated and described, except as may be necessitated by the appended claims.

I claim:

1. In combination, a tape storage and dispensing magazine comprising a pair of spaced side walls having corresponding peripheral edges for at least a substantial portion of the periphery of the side walls; edge wall means connecting said peripheral edges and forming with said side walls a magazine chamber for a roll of tape; a coiled tape roll freely disposed within said magazine chamber and having contact with the edge wall means; said edge wall means having an opening for dispensing tape from said chamber, and having a slot means spaced from said opening, the free end of said coiled tape roll passing through said opening and over a portion of said edge wall means, and passing through said slot means and between internal surfaces of the edge wall means and the remainder of the tape roll for frictionally positioning and holding of the tape end by pressure of said tape roll against said free end and internal surfaces.

2. In combination, a tape magazine comprising side walls and edge wall means defining a single tape holding chamber; a tape roll freely displaceable in said chamber and having a free tape end; said edge wall means including a plurality of wall portions arranged in polygonal form of more than four sides, two adjacent wall portions being spaced apart to define a tape withdrawal opening, said tape roll being displaceable within the chamber into tape sliding contact with mainly one wall portion disposed in the direction of tape withdrawal at said opening whereby resistance to tape uncoiling is minimal, said edge wall means being provided with a re-entry slot into said chamber for the tape free end for frictionally retaining said free end within the chamber between said tape roll and a wall portion.

3. The combination of a tape magazine and tape roll as stated in claim 2 wherein one of said two adjacent wall portions include a tongue extending therefrom with an inwardly turned edge section interposed between the free tape end and the next turn of the tape roll.

4. In combination, a tape storage and dispensing magazine comprising side walls and peripheral edge walls defining a magazine chamber for a roll of tape; a coiled tape roll freely disposed in said chamber and having contact with said edge wall; said peripheral edge wall having a tape withdrawal opening and a slot spaced from said opening, the free end of said coiled tape roll passing through said tape withdrawal opening, over a portion of said edge wall between said opening and slot, and through said slot for frictional retention of the free tape end between the remainder of the tape roll and an in-

ternal surface portion of said edge wall; said edge wall defining said chamber having a radially inwardly displaced edge wall portion providing said tape withdrawal opening radially inwardly of the prolongation of the external surface of said peripheral edge wall.

5. In a magazine as stated in claim 4, including means between said tape withdrawal opening and said slot for directing said tape along a path away from said magazine when the free end of the tape is out of the chamber.

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