

March 29, 1960

C. F. LOTSCH

2,930,465

MARKING DEVICE

Filed Sept. 9, 1958

FIG. 1.

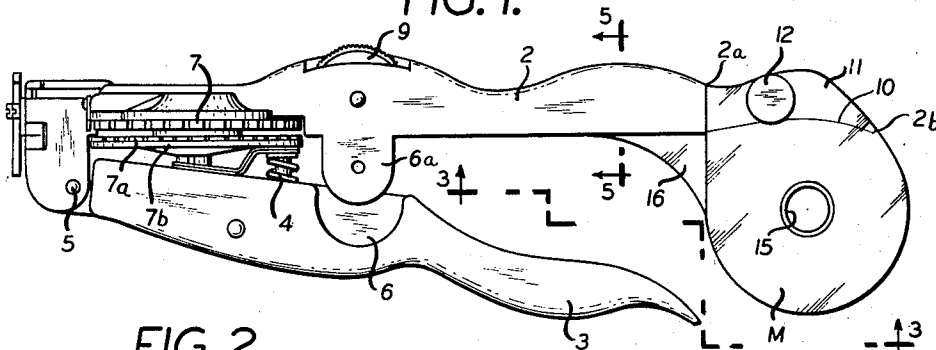


FIG. 2.

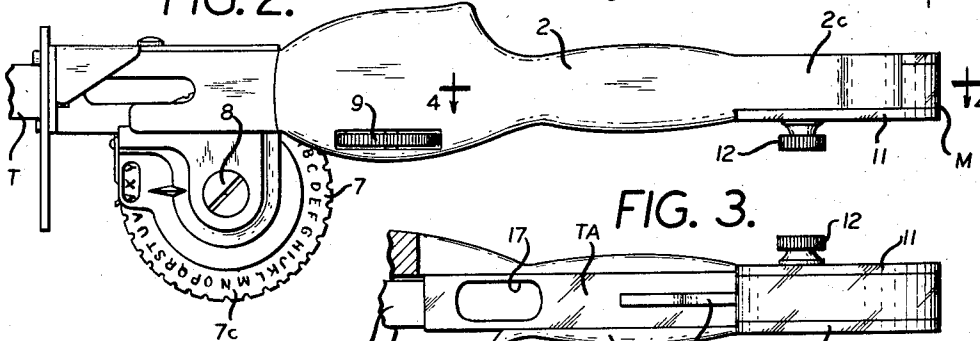


FIG. 3.

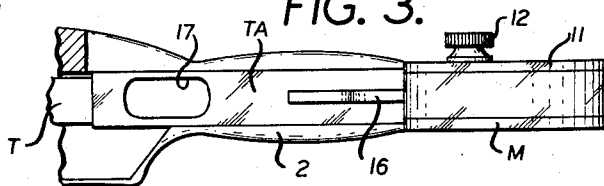


FIG. 4.

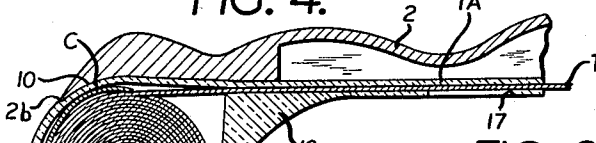


FIG. 5.

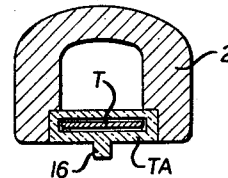


FIG. 8.

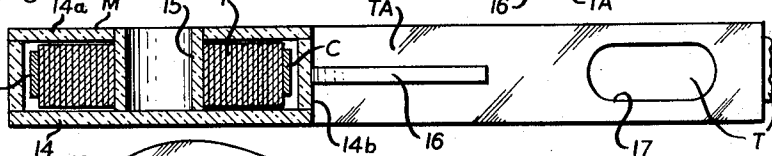


FIG. 7.

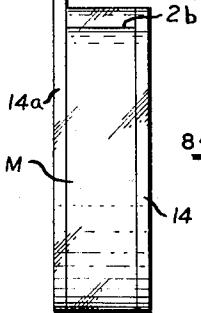
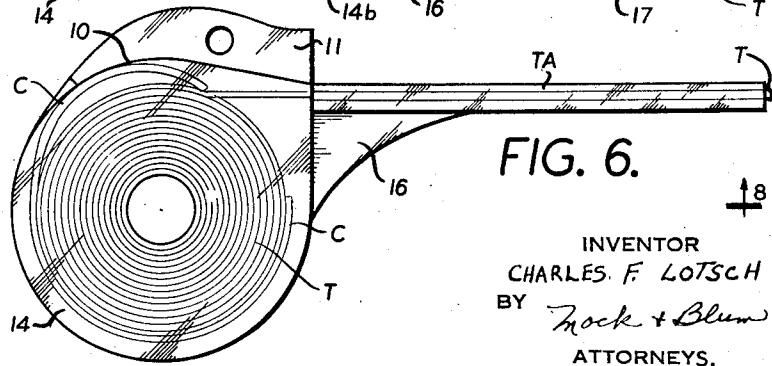


FIG. 6.



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2,930,465

MARKING DEVICE

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Application September 9, 1958, Serial No. 759,908

9 Claims. (Cl. 197—6.7)

This invention relates generally to improvements in marking devices, and is especially concerned with an improved magazine construction for marking devices of the general type shown in prior U.S. Patents Nos. 2,275,670 and 2,415,526.

In these prior patents are shown a manually operable, portable marking device which includes a permanent magazine for coiled strip material to be marked, wherein a new coil of the strip material must be inserted in the magazine and properly threaded through the device at the exhaustion of or completed use of a previously inserted strip coil. Of course, this procedure is tedious, and relatively time consuming.

It is therefore a general object of the present invention to provide in a marking device of the type referred to above a novel construction wherein the insertion or loading of a new supply of material to be marked is adapted to be more quickly and easily accomplished by persons of average skill with the minimum of instruction.

It is a more particular object of the present invention to provide a novel, pre-filled, quickly detachable and replaceable magazine for use in conjunction with marking devices of the type disclosed in the above mentioned prior patents.

It is a more particular object of the present invention to provide an improved magazine of the type described which is adapted to contain coiled strip material of widely differing characteristics, such as plastic, or resilient or relatively non-resilient metals, and wherein all such strip materials are caused to satisfactorily cooperate with feeding and marking mechanisms to insure accurate and high quality marking.

Other objects of the present invention will become apparent upon reading the following specification and referring to the accompanying drawings, which form a material part of this disclosure.

The invention accordingly consists in the features of construction, combinations of elements, and arrangements of parts, which will be exemplified in the construction hereinafter described, and of which the scope will be indicated by the appended claims.

In the drawings:

Fig. 1 is a side elevational view showing a marking device including a material supply unit of the present invention;

Fig. 2 is a top plan view of the assembly of Fig. 1;

Fig. 3 is a partial bottom plan view of the assembly of Fig. 1 taken substantially along the line 3—3 thereof;

Fig. 4 is a partial longitudinal sectional view taken substantially along the line 4—4 of Fig. 2;

Fig. 5 is a transverse sectional view taken substantially along the line 5—5 of Fig. 1;

Fig. 6 is a side elevational view showing in greater detail a pre-filled magazine or supply unit of the present invention;

Fig. 7 is a rear end view of the device of Fig. 6, taken from the left of the latter; and

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Fig. 8 is a sectional view taken substantially along the line 8—8 of Fig. 6.

Referring now more particularly to the drawings, the marking device illustrated therein includes an elongate body or arm 2 and an additional arm or lever 3, which arms extend in generally side by side relationship and are pivotally connected together at one pair of adjacent ends, as by a pivot pin 5, for relative swinging movement toward and away from each other. A helical or coil compression spring 4 is interposed between the arms 2 and 3 to resiliently urge the latter away from each other toward their inoperative condition of Fig. 1, and is compressible under manual gripping operation to permit relative pivotal movement of the arms toward each other. The arm 2 at a location spaced intermediate its ends is provided with a lug 6a extending toward the arm 3 and receivable in a recess 6 of the latter arm upon arm movement toward each other. The lug 6a carries a strip feeding mechanism which includes a knurled wheel 9 rotatably mounted in the arm 2. The strip feeding mechanism carried by the lug 6a is otherwise not shown in the drawings, but may be of the same general type disclosed in said prior patents, and is operatively connected to the arms 2 and 3 to be intermittently actuated upon repeated movements of the arm toward and away from each other.

A marking mechanism is carried by the arms 2 and 3 at a location between the feeding mechanism 6a, 9 and the pivotal connection 5 of the arms. The marking mechanism may also be of the general type disclosed in said prior patents operable upon movement of the arms 2 and 3 relative to each other and including an annular arrangement of male and female dies 7 and 7a. The annular mating dies 7 and 7a are concentrically arranged and pivotally carried by a pivot screw 8 passing through a lateral extension of the arm 2. That is, the dies 7 and 7a rotate together about the pivotal axis of screw 8; and, the lower annular arrangement of female dies 7a rests turnably on a cylindrical disc 7b which is fixed relative to the arm 2.

As is well known and disclosed in said prior patents, relative pivotal movement of the arms 2 and 3 serves to step strip material or tape through the feeding means 9, 6a to the marking means 7, 7a.

In accordance with the instant invention, a magazine M, containing a coil of strip material to be marked, is produced as a separate unit which can be applied to the marking device, and when empty or if it is desired to change to a different strip material before the magazine is empty, the magazine can be easily removed and replaced by another magazine having a fresh supply of strip material, or a supply of strip material with differing characteristics. The magazine M can be made of any suitable material, transparent or translucent plastic being preferred. As best seen in Figs. 2 and 4, the arm 2 has its distal end portions 2c extending longitudinally beyond the distal end portion of the arm 3; and, the magazine M is carried by the extending arm portion 2c.

The magazine M includes a hollow body of generally cylindrical configuration having a top wall 10 seated in conforming engagement with the underside of the arm end portion 2c, with the magazine body depending beneath the arm end portion. The arm end portion 2c may be considered as extending between the locations at 2a and 2b; and, the arm end portion is recessed between said locations on its front side. An upstanding side wall, extension or ear 11 of the magazine M, extending above the top wall 10 of the magazine, is received in and seated on the recessed front wall of the arm extension 2c. A fastener, such as a knurled-head screw 12 extends inward through the ear or flange 11 threadedly into the distal arm

portion 2c to firmly and removably secure the magazine M in position on the extension 2c.

The generally cylindrical body of magazine M at its opposite side walls substantially flush with opposite sides of the arm 2, and has its top wall 10 slightly recessed to receive the outer end edge 2b of the arm end portion 2c. More specifically, the cylindrical body of the magazine M includes a pair of generally flat, parallel spaced side walls 14 and 14a, the latter being provided with the extension, ear or lug 11, and a cylindrical or curvilinear wall 14b extending between and secured to the peripheral margins of the side walls. The side wall 14a is illustrated as being formed with a central aperture through which extends a central tube 15 inward to the other magazine body side wall 14. That is, the central tube or core 15 extends between and has opposite ends respectively adjacent to the magazine body side walls 14 and 14a.

An elongate, hollow tubular extension, of generally rectangular cross-sectional configuration, is provided generally tangentially of the magazine body extending from the upper wall 10 toward the feeding mechanism 9. The tangential conduit, guide or extension is designated TA, and is preferably formed integrally or rigidly with the body of the magazine M and snugly received on the inner or underside of the arm 2, as best seen in Fig. 5. Thus, the extension TA communicates generally tangentially from the interior of the body of magazine M to a location closely adjacent to the feeding mechanism 6a, 9. For additional reinforcement and strength, a bracket or brace 16 may be provided between and rigidly secured to the magazine body and the extension TA; and, the extension may be formed with a through opening, at 17, facing away from the arm 2 toward the arm 3.

Interiorly of the cylindrical chamber of the magazine M, rotatably circumposed about the central tube or core 15 is a spiral roll or core of strip material to be marked, designated T. As best seen in Figs. 4 and 6, the strip or tape material T extends generally tangentially from its coil through the guide tube or nozzle TA toward the feeding and marking mechanisms. In order to accommodate and properly feed strip materials of highly different structural characteristics in the same type of magazine, it is desirable to restrain the coil of material against its tendency to uncoil, especially when dealing with resilient materials having marked tendencies in this direction. That is, excessive uncoiling of the material T in the cylindrical chamber magazine M tends to aid advance of the strip by the feeding mechanism, so that feeding may not be uniform and accurate throughout use of an entire coil. Toward this end, a C-shaped clip C, fabricated of resilient or springy strip material, is located in the chamber of magazine M extending in frictional embracing engagement about the outer convolution of the material and restraining the latter to a diameter less than that of the interior of the magazine chamber. Thus, the coil of strip material T is restrained against its tendency to uncoil, and further, the restraining member or clip C frictionally engages the outer coil convolution to prevent feeding movement thereof through the guide TA in the absence of feeding action by the feeding mechanism 6a, 9. Of course, the action of the clip C on the coil of tape T does not prevent or in any way hamper feeding action of the tape by the feeding mechanism; and mere finger pressure on the tape T through the guide opening 17 is sufficient to pass the tape through the guide to the feeding mechanism. In the initial, full coil condition of tape T, the embracing clip C assumes a configuration approximating that illustrated in Figs. 4 and 6, wherein the lower portion of the clip may conformably engage with the internal surface of the lower portion of magazine wall 14b, with little or no friction, and the upper clip portion stands out from the tape coil in abutting engagement with the inner surface of the top wall 10 to exert a retaining force on the outer coil convolution and the

desired degree of frictional resistance to feeding of the tape.

Of course, upon advance of the tape by the hereinbefore discussed feeding mechanism, the coil of tape rotates about the core or tube 15. As the strip coil decreases in diameter during the use thereof, there is less tendency to uncoil, and the clip C exerts a decreasing frictionally retarding force on the outer coil convolution. If the magazine M, or at least one wall thereof is fabricated of transparent or translucent material, the imminent termination of the tape supply may be visually anticipated by the operator. Upon exhausting the tape supply, it is only necessary to remove the fastener 12, thereby detaching the magazine M from the arm 2. Thereupon, a new magazine M having a full supply of tape therein may be affixed to the arm in the same manner as described hereinbefore, and the tape manually passed to the feeding mechanism also as described hereinbefore. The marking operation may then proceed in the conventional manner.

From the foregoing, it is seen that the present invention provides a highly advantageous, detachable magazine construction for portable marking tools which fully accomplishes its intended objects and is well adapted to meet practical conditions of manufacture, distribution and use.

Although the present invention has been described in some detail by way of illustration and example for purposes of clarity of understanding, it is understood that certain changes and modifications may be made within the spirit of the invention and scope of the appended claims.

What is claimed is:

1. A magazine for dispensing strip material from a coil, said magazine comprising a generally cylindrical hollow body having a generally tangential outlet opening for receiving a coiled strip with its outer end passing outward through said opening, and a restraining member disposed freely within said body adapted to resiliently and frictionally embrace said coiled strip to maintain the outer coil convolution at a diameter less than the internal diameter of said body and to frictionally release said outer convolution for movement through said opening upon unwinding rotation of the coil.

2. A magazine according to claim 1, said restraining member comprising a generally C-shaped resilient coil engageable about a coil of material in said body to retain the coil against expansion to the internal diameter of said body.

3. A magazine according to claim 1, in combination with a generally tangential hollow extension projecting rigidly from said body communicating between the exterior of said body and through said opening with the interior of said body for receiving the outer coil convolution passing outward through said opening and through said extension beyond the distal end thereof.

4. A magazine according to claim 3, said extension being formed at a location intermediate the ends thereof with a through opening affording manual access to the strip material in said extension for advancing the same.

5. A supply unit for a tape marking device having a pair of side by side arms pivotally connected together at one pair of their adjacent ends, marking means operatively connected to said arms adjacent to the pivotal connection thereof, and feeding means operatively connected to said arms between said marking means and the distal ends of said arms remote from said pivotal connection, said unit comprising a generally cylindrical hollow body adapted to be secured to one of said arms adjacent to the distal end thereof, a generally tangential extension on said body adapted to extend along said one arm toward said feeding means, a coil of strip material in said body having its free outer end extending through said tangential extension toward said feeding means, and a resilient clip freely disposed within said body and engaged about the coil of said strip material in said body to retain the

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outer coil convolution at a diameter less than the internal diameter of said body.

6. A supply unit according to claim 5, in combination with a core affixed in said body generally axially thereof to constrain said coil to substantially rotational movement.

7. In a marking device including pivotally connected gripping arms, marking means carried by and in operative connection with said arms adjacent to the pivotal connection thereof to mark material upon relative pivotal movement of said arms, and feeding means carried by and in operative connection to said arms between said marking means and the arm ends remote from said pivotal connection for feeding material to said marking means; the combination comprising a generally cylindrical hollow body adjacent to the end of one of said arms remote from said pivotal connection, a generally tangential hollow extension on said body extending along said one arm toward said feeding means, said extension being integral with said body, and means detachably connecting said body to said one arm, whereby a coil of material to be marked is adapted to be carried in said hollow body extending outward through said tangential extension to said feeding means for feeding movement by the latter to said marking means and said body and extension are replaceable as a unit with respect to said one arm.

8. The combination according to claim 7, said detachable connecting means comprising an outstanding ear on said body closely overlying said one arm, and a fastener extending removably through said ear and into said one arm.

9. In a marking device including pivotally connected gripping arms, marking means carried by and in operative connection with said arms adjacent to the pivotal

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connection thereof to mark material upon relative pivotal movement of said arms, and feeding means carried by and in operative connection to said arms between said marking means and the arm ends remote from said pivotal connection for feeding material to said marking means; the combination comprising a generally cylindrical hollow body adjacent to the end of one of said arms remote from said pivotal connection, a generally tangential hollow extension on said body extending along said one arm toward said feeding means, whereby a coil of material to be marked is adapted to be carried interiorly of said hollow body extending outward through said tangential extension to said feeding means for movement by the latter to said marking means, and a generally C-shaped resilient restraining member freely disposed within said body and engageable about a coil of material in said body to retain the coil against excessive expansion in the body and frictionally release the outer convolution of the coil for movement through said extension, thereby eliminating the tendency of the coiled material to uncoil and affect accurate feeding by said feeding means.

References Cited in the file of this patent

UNITED STATES PATENTS

1,312,713	Walsh	Aug. 12, 1919
2,167,908	Richards	Aug. 1, 1939
2,275,670	Zipf	Mar. 10, 1942
2,415,526	Payne	Feb. 11, 1947

FOREIGN PATENTS

45,119	France	Mar. 18, 1935
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