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TICKER TAPE DISPLAY APPARATUS

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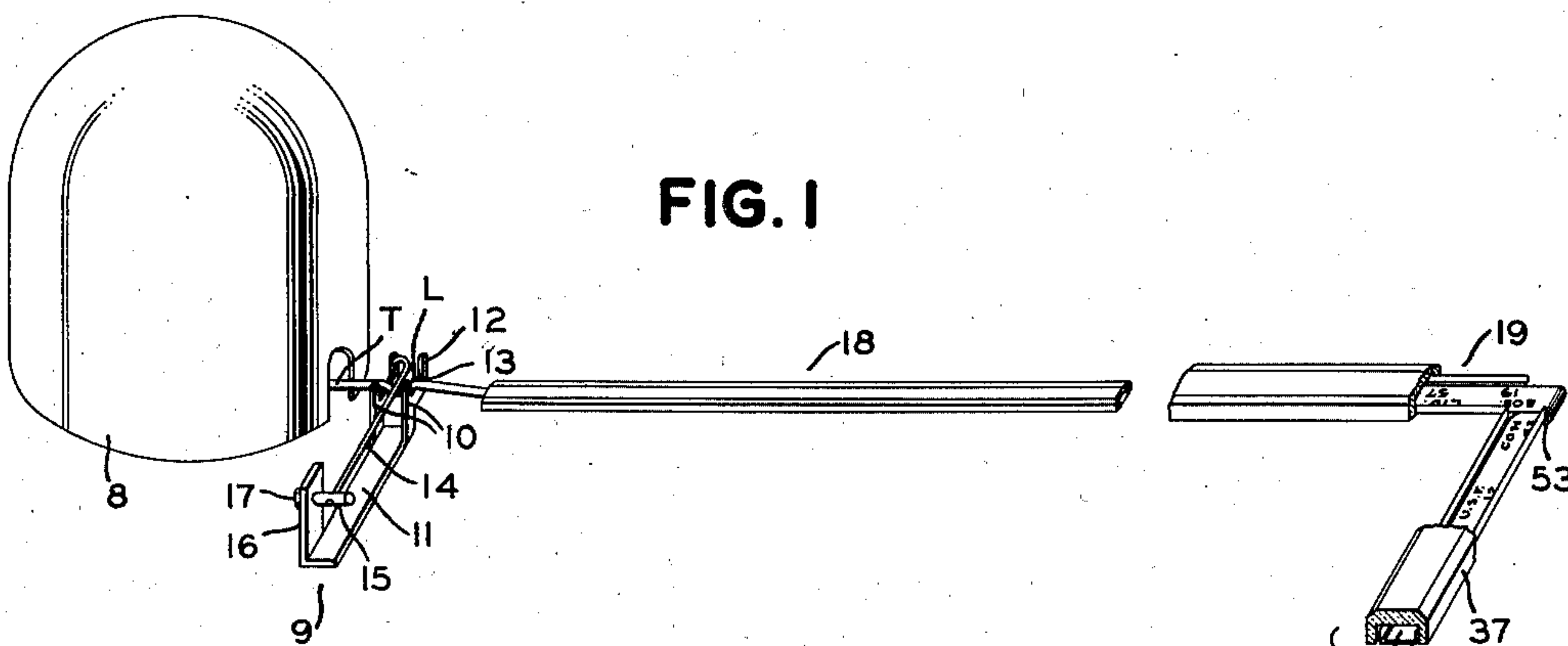


FIG. 1

FIG. 4

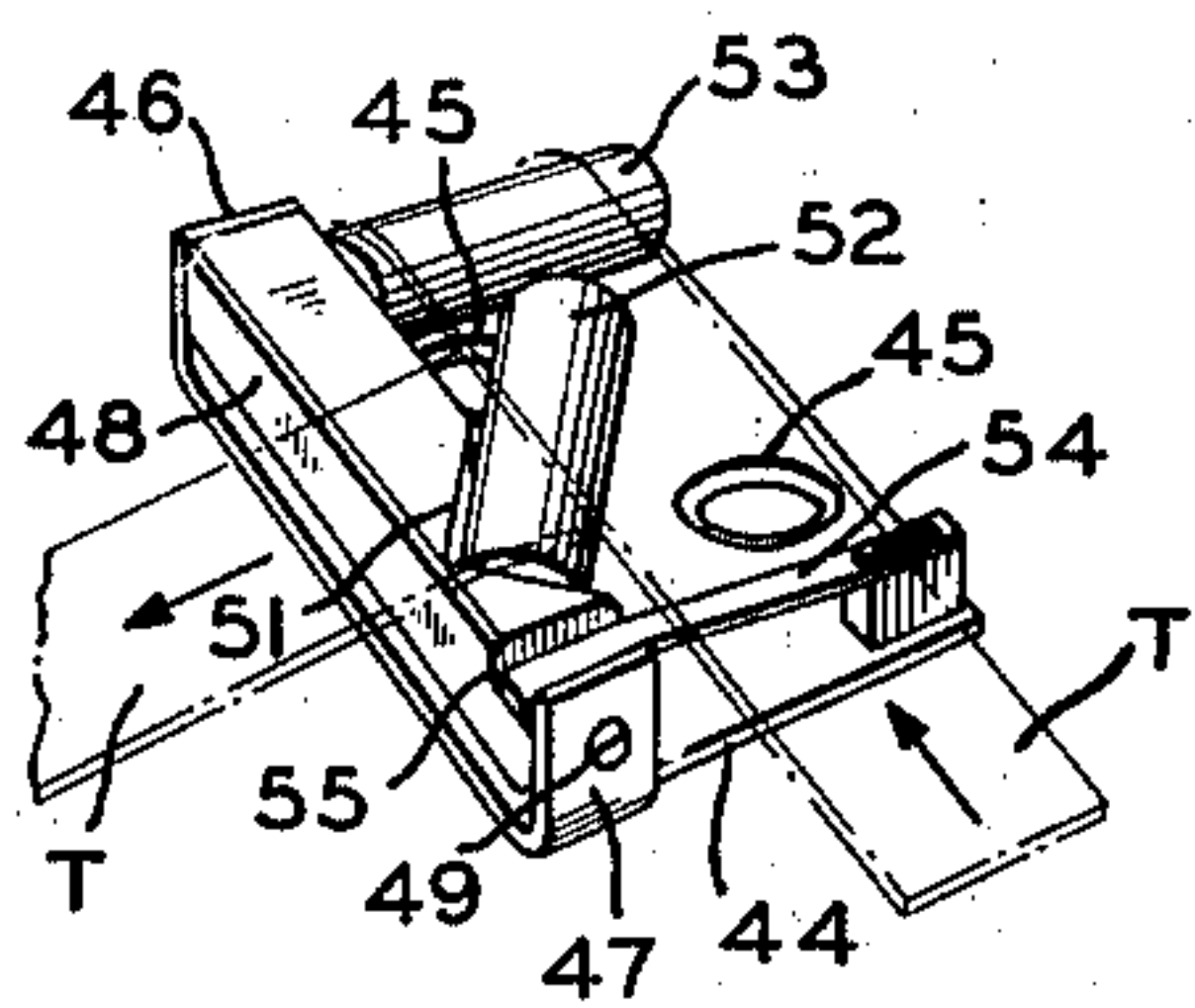


FIG. 5

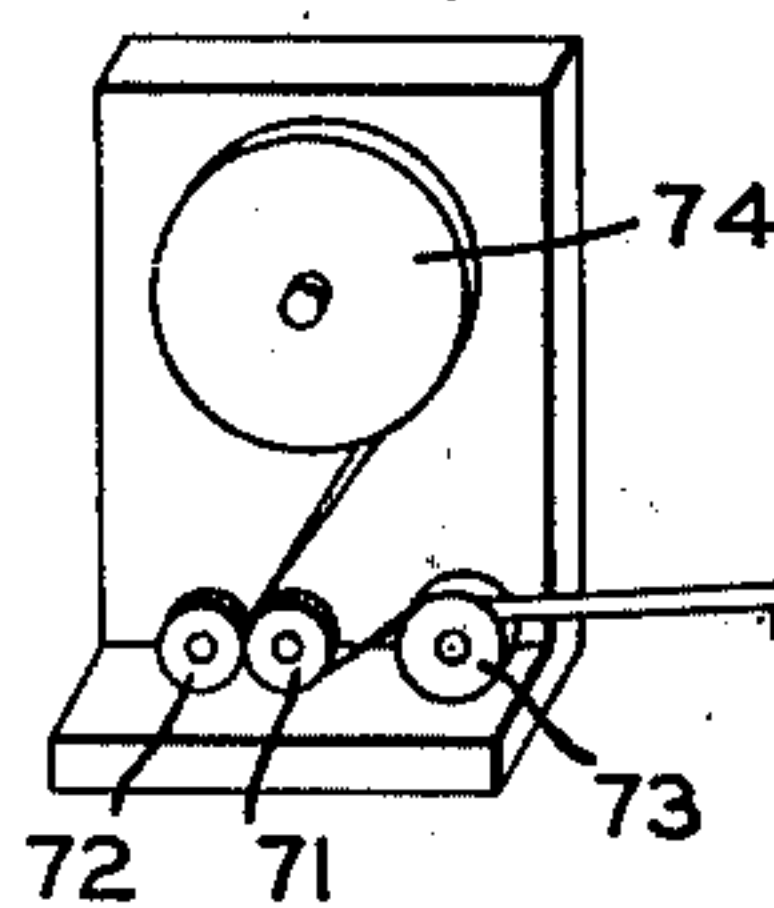
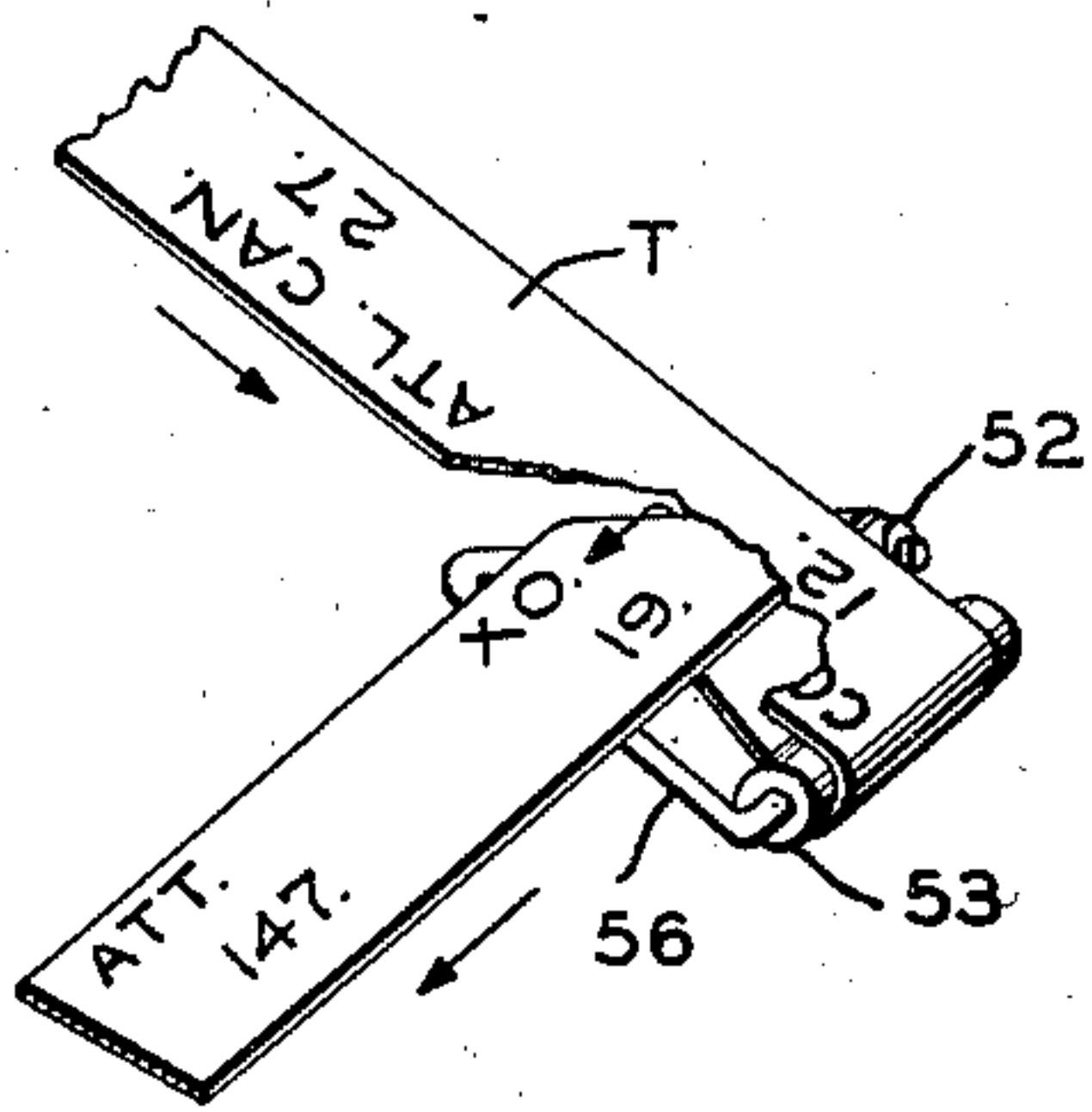


FIG. 3

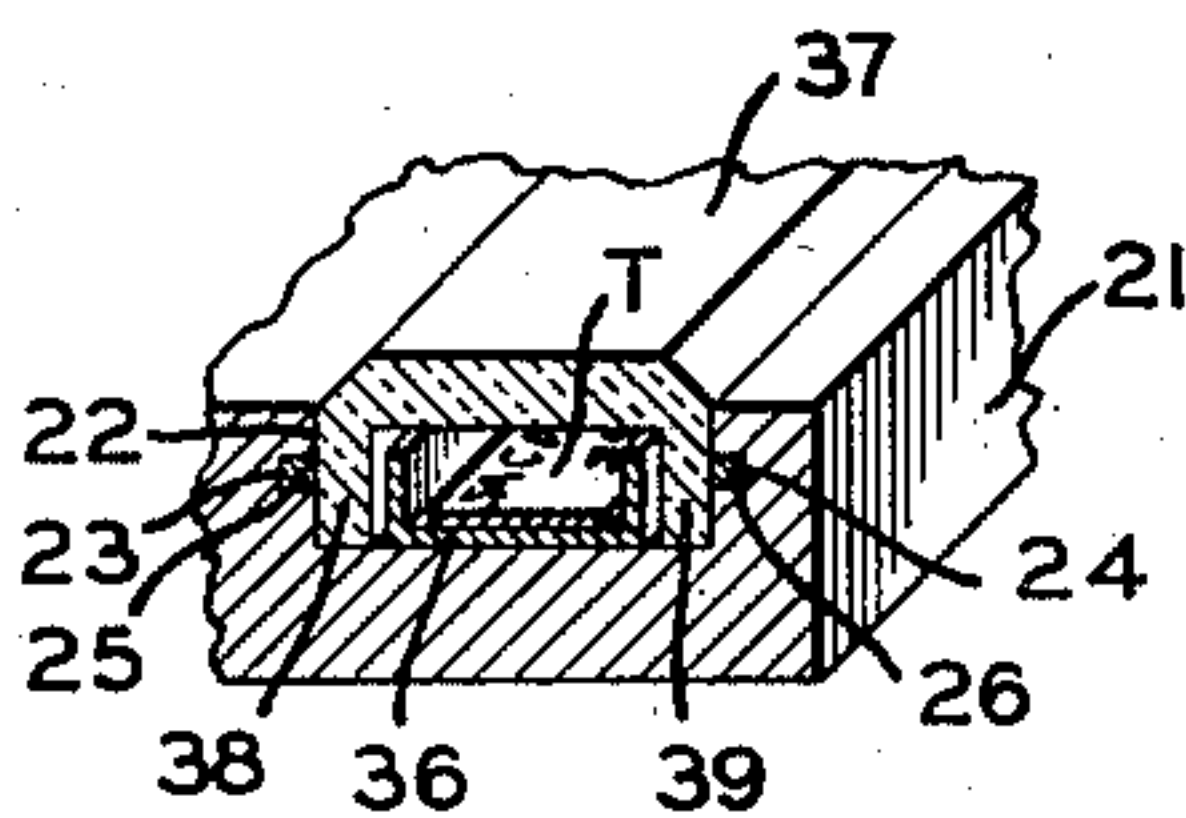


FIG. 2

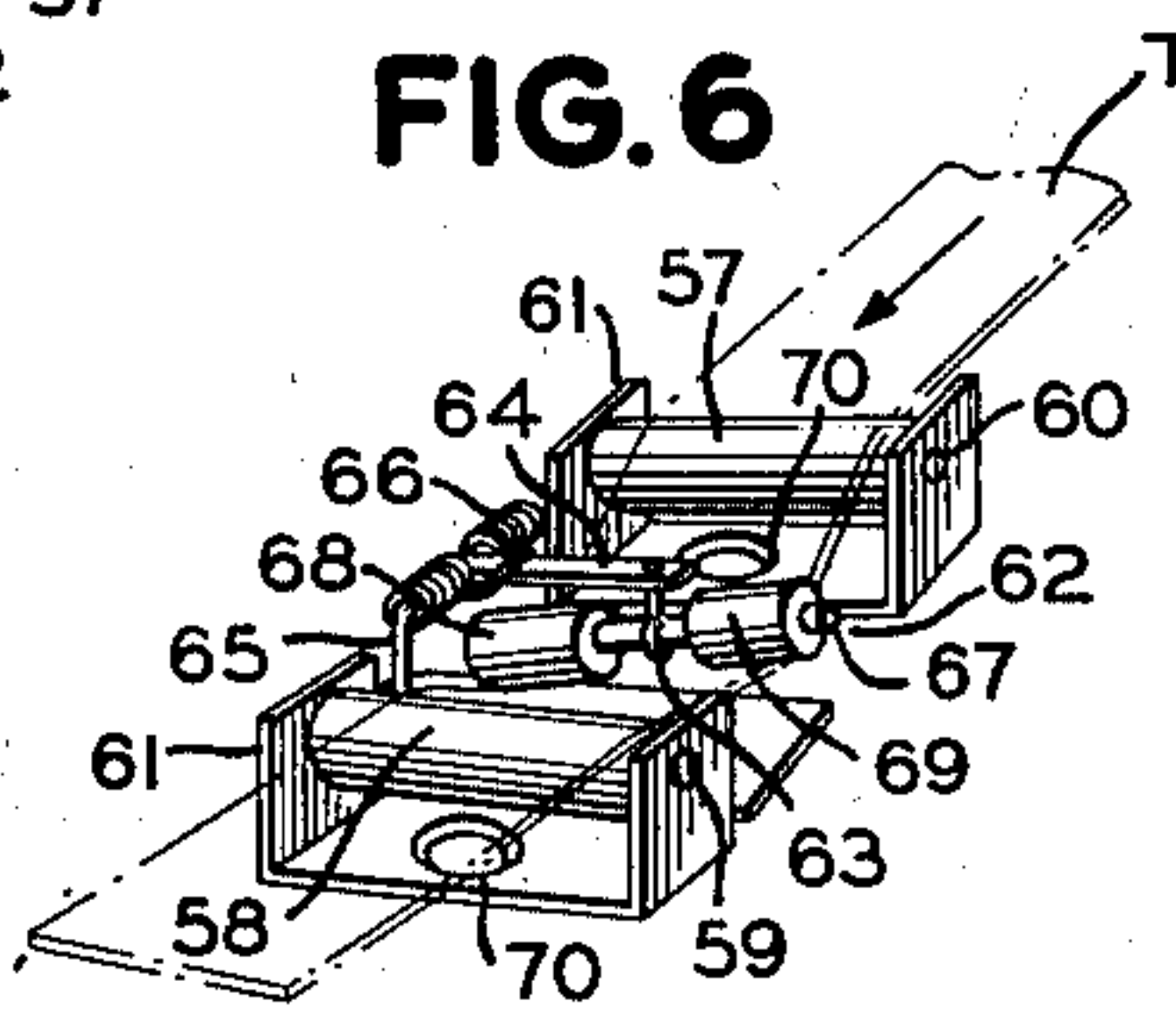
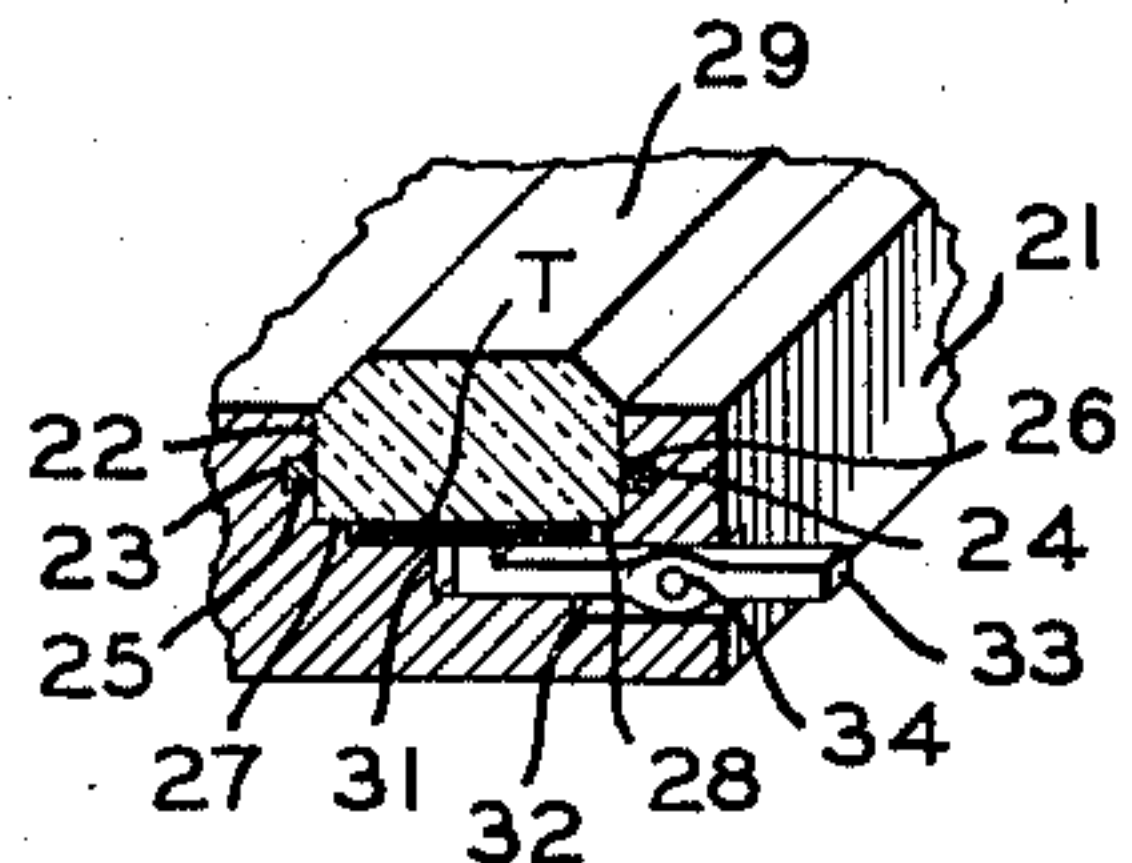


FIG. 6

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TICKER-TAPE DISPLAY APPARATUS

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18 Claims. (Cl. 40—28)

This invention relates in general to news or quotation tickers, or any form of printing telegraph instrument in which characters are printed on a ribbon tape, and has particular reference to improved mechanisms for directing the tape along a circuitous or non-linear path, deviating from a straight line in any manner or degree desired.

Stock, or news, recorders, with which the present invention is more particularly adapted to be used, consist of well known mechanisms for printing the quotations or other news on a paper strip or tape and delivering the same for observation. Such machines have been in use for a great many years, and it has commonly been the practice to allow the printed ticker tape to collect in a basket or other receptacle, at the base of the ticker stand. Thus, it has heretofore been impossible for a large group of persons to observe the news or stock quotations as they come off the recorder, without congregating in a compact group about the machine and passing the issued ticker tape from hand to hand.

Accordingly, one of the objects of the present invention is to provide a system whereby the printed tape will be conducted along a display channel of any desirable length or shape, and will be so positioned as to be viewable by a great many observers.

As an illustration of the utility of my invention, it is contemplated that such apparatus will be suitable for installation on tap room bars, counters, and the like, where the patrons may read the tape without stepping away from the counter or bar and thus decreasing the number of potential sales. It may also be used in banks, brokerage houses, or department stores.

Many of the present day bars or counters are semi-circular, arcuate, or octagonal in shape, thus arranging the patrons in an uneven line about the bar. Hence, a more specific object of my invention is to provide means for directing the tape along an arcuate path, or for angularly changing its direction of travel.

Another object is to provide a method for discharging the tape from the recorder in a substantially continuous manner, as the same is printed, so as to obviate the jar or jump transmitted to the tape due to the intermittent action of the tape feed mechanism.

A further object is to provide a continuous guide of predetermined length and configuration, having a transparent protecting cover through which the tape may be viewed.

Another object is to provide effective means

for sealing said guide in the bar or counter, in order to prevent water, beverage, or food from penetrating into the tape guide, thereby soiling the tape, or hindering its free movement.

In accordance with my invention a preferred arrangement of the apparatus is to have the recorder, of any type in general use, conveniently located at one end of the bar or counter, from which the tape is intermittently printed and issued. Immediately adjacent to the recorder is located the tape snubbing device, through which the tape must pass before crossing the bar or counter. The function of the snubber is to eliminate the jar or sudden pull on the tape, and to constantly maintain a tension on the tape in its guide. In providing means for pulling the tape through the guide, a constant tension is maintained on the tape. This tension is provided by a constantly rotating motor shaft to which is attached a slip clutch and a pulling roller. The snubbing device prevents jerky movement of the tape due to the intermittent ejection of the tape from the recorder. The tape is then fed from the snubbing device into the display channel or guide, running longitudinally along the surface of the bar or counter where it is viewable by the observers congregating along the length of the bar.

I have also provided means for sealing the tape channel or guide in the bar, so that any liquid or food that may be spilled thereon will not be able to penetrate into the channel to soil or destroy the tape. Said sealing means, while effectively sealing the channel against the admission of any foreign substance, is not of a permanent nature, and the channeling may be readily removed for cleaning purposes or for threading the tape therethrough.

The course of the guide and tape will follow the shape of the bar, and thus may have angular turns, or may be curvilinear. With this in mind, I have provided means for directing the tape along its curved path, or for turning it in its course at any desired angle. After the tape has traveled the length of the bar it emerges from the channel and may be wound upon a tape reel.

The novel features characteristic of my invention are set forth with particularity in the appended claims. The method of operation of my invention, together with additional objects and advantages thereof will be apparent from the following detailed description, taken in connection with the accompanying drawing forming a part of this application, in which:

Fig. 1 is a plane view showing the arrangement

of the news ticker, tape snubber, tape guide, and tape pulling apparatus;

Fig. 2 is a vertical section through the tape guide and transparent cover;

Fig. 3 is a modified form of tape channel and cover;

Fig. 4 is a view showing the roller arrangement for directing the tape at a right angle to its course;

Fig. 5 is a perspective view showing the position of the tape as it changes its course through a 90 degree angle, and

Fig. 6 is a perspective view showing the arrangement of the rollers for directing the tape along an arcuate path.

Referring first to Fig. 1, the ticker tape T is printed and fed from a news ticker or other printing telegraph apparatus, represented diagrammatically by the cover 8. On leaving the ticker, and before entering the tape channel, the tape is engaged by the tape snubbing device, generally indicated at 9. This device comprises a pair of spaced uprights 10 formed at one end of an oblong base plate 11 and having extending arms 12 at the upper end thereof. Each upright has a broad U-shaped slot 13 at the top, over which the tape passes. The sides of the slot serve to prevent the tape from sliding off. Passing between the uprights 10, and extending transversely across the top of the tape, is the free end of a flexible spring member 14 which exerts a downward force on the tape, forming a loop L. The other end of the spring member 14 is rigidly held by an adjustable post 15 projecting horizontally from an upright 16 formed at the other end of the base plate 11.

By having the post 15 adjustably mounted on the upright plate 16 by means of a nut 17, the angular position of the spring member 14 may be regulated so as to have any desired downward pressure exerted on the tape. If, at any time, the tape is fed forth from the printer faster than it is taken up by the tape winder, the excess will be immediately taken up by the spring member, thus forming a larger loop. This arrangement permits the tape to have a smooth, continuous passage through the guide channel.

The tape, upon leaving the snubber, immediately enters the display channel, which will be more fully described later. One of the many possible shapes the channeling may take is illustrated in Fig. 1. The channeling takes a straight path, shown at 18, then turns off at a right angle, 19. It then describes a wide arcuate path, 20, and finally runs straight again to its remote end. Portions of the channeling are broken away at 19 and 20 so as to show the position of the rollers employed in changing the direction of the tape. The channeling may be set in the surface of the bar or counter, or it may be set in the raised railing or edge of the bar, so as to be easily seen. The patrons seated or standing about the bar may read the tape as it passes along.

Referring now to Fig. 2, I have shown a vertical cross section of the tape channel. The edge of the bar is shown in part at 21, having a shallow channel 22 cut near the edge, and running longitudinally along the bar. The vertical sides of the channel 22 are recessed at 23 and 24, said recesses being set with sealing strips 25 and 26. These may be composed of rubber, felt or any other suitable compressible material for sealing the channel against the entrance of liquids and other foreign matter. The bottom

corners of the channel 22 are provided with shoulders 27 and 28 slightly higher than the thickness of the tape and spaced so as to permit the tape T to slide freely between them at the bottom of the channel.

Fitting into the channel above the tape, and resting upon the horizontal portion of the shoulders 27 and 28, is set the transparent strip 29, its outer edges fitting flush with the sides of the channel and pressing firmly against the strips 25 and 26, thus effectively sealing the channel. The transparent strip 29 is constructed in short lengths so as to be easily removable for cleaning, or for threading new tape in the channel or removing torn pieces of tape. The method of removing the same is as follows:

Spaced along the bar under one end of each glass section, a groove 31 is cut transversely across the bottom of the channel 22. A rectangular opening 32 is cut thru the solid portion of the bar joining the groove 31 with the outer edge of the bar. A lever 33 mounted on a pin 34 fitted into the sides of the opening 32 projects into the channel, its lower edge resting on the bottom of the groove 31. The outer end of the lever 33 projects beyond the edge of the bar where it is easily accessible.

By pressing the outer end of lever 33 downward, the inner end rises and lifts the tape and glass covering enough so that it may easily be grasped and removed by hand.

A modification of the channel and transparent cover is shown in Fig. 3. Briefly, this comprises a shallow U-shaped trough 35 secured to the bottom of the channel 22, said trough member being substantially narrower than the channel in which it rests, and being centrally positioned between the sides of said channel, and running longitudinally therewith. A transparent cover 37, having an inverted U-shape is placed over the trough 36, the sides 38 and 39 of the cover fitting into the space between the trough and the sides of the channel 22. The outer edges of the cover 37 fit firmly against the vertical walls of the channel 22. The tape T is dragged along the bottom of the trough 36 whose vertical sides keep the tape free of any liquid that may leak into the channel 22.

In angularly changing the direction of the path of the ticker tape, as shown at 18 in Fig. 1, a system of rollers is employed, more clearly shown in Fig. 4.

The roller assembly comprises a rectangular base plate 44, provided with screw holes 45 for fastening it to the bottom of the channel 22. The plate 44 is provided with turned up lugs 46 and 47, between which a horizontal bar 48 is pivoted by means of screws 49. The bar 48 has a 45° notch 51 in one side thereof normal to one side of which a roller 52 is mounted by means of an axially extending screw, not shown, so as to rotate loosely thereon. A second roller 53 is similarly mounted adjacent one end of the bar 48, the rollers 53 and 52 being disposed at a 45° angle to each other. The tape is shown in dotted lines passing over the top of the rollers 52 and 53 and thence around beneath the roller 53 and thence over the top of the roller 52 in the direction of the arrows. In order to thread the tape through in the manner described, the assembly, including the rod 48 and rollers 52 and 53, may be pivoted about the screws 49 into a vertical position. After passing the tape about the rollers they are returned to the position shown. A detent spring 54, engaging in

recesses 55 in the bar 48, retains the assembly either in the vertical or horizontal position, as desired.

In Fig. 5 a slightly modified arrangement is shown, in which the rollers 53 and 52 are mounted upon a triangular wire frame 56, which may be supported within the channel in any desired manner. It will be noted that the lower edge of the tape is upon the outside of the angle so that patrons disposed along the outside of the counter or bar may read the characters thereon in an upright position.

In Fig. 6, I have shown a detail of the device for guiding the tape over an arcuate course. This device comprises a pair of rollers 57 and 58, having their shafts 59 and 60 disposed on radial lines. The rollers 57 and 58 are supported between the vertical flanges of the supporting frames 61. Intermediate these rollers is a third roller assembly 62, having a reduced central portion extending loosely through an eye member 63, carried by a bracket 64 pivotally mounted upon an upright flange 65, and normally held in a horizontal position by means of a spring 66. The assembly 62 comprises the central shaft 67, upon which are loosely mounted two roller members 68 and 69. The tape, passing in the direction of the arrow, extends over the roller 57, under the roller assembly 62, and over the roller 58. Between the rollers 57 and 58, the tape is warped slightly by the roller assembly 62 so as to provide a smooth transition from the angle of entrance of the tape into the device, to the angle of exit thereof. A number of these devices may be disposed side by side around the arcuate portion of the path of travel of the tape, the spacing thereof being determined by the particular curvature of the guide channel. These devices are secured in the channel by means of screws, not shown, extending through the openings 70 provided in the base of the device. The frames 61, supporting rollers 57 and 58, may be adjusted about the screws in openings 70 to vary the degree of curvature.

At the end of the channel, remote from the ticker, I provide a tape pulling device, comprising a pulling roller 71 and associated pressure roller 72. The tape passes from the end of the guide, over the guide roller 73, thence between the rollers 71 and 72, from which point it may be rewound upon a reel 74, or passed into a suitable basket or receptacle. The pulling roller 71 may be driven from an electrical motor through a slip or friction clutch, not shown, the tension of which may be adjustable, in a well known manner, to vary the pull upon the tape.

In operation, the pulling motor is operated continuously so as to apply a uniform tension to the tape. The tape is drawn through the channel, around the corner 19 and through the various arcuate guiding devices in a smooth and continuous manner. The rate of movement is such as to be equal to the average rate of ejection of the tape from the ticker during continuous operation thereof. The irregular feeding of the tape from the ticker is absorbed by the spring 14 acting upon the loop L. Should the ticker stop for a sufficient length of time to permit the loop L to be eliminated, movement of the tape will stop due to the gripping action of the feed rollers of the ticker upon the tape, and to the slipping of the clutch in the tape pulling mechanism, the tension of this clutch being such as to prevent rupture of the paper at such times.

It should be noted that I have provided a novel

arrangement for displaying the tape over an elongated path, which may be of any desired curvature and may have various angularly disposed sections. The pulling mechanism is disposed at a point not in alignment with the ticker, the direction of force of the pulling mechanism being varied by the angle and curvature changing devices disposed at required points along the path of travel.

While I have disclosed a number of embodiments of the guide mechanism and direction changing devices, it is to be understood that various other forms may be employed, and I do not desire to be limited to the particular construction shown and described, but contemplate all such modifications and variations thereof as come within the scope of the appended claims.

What I claim is:

1. In combination, a source of tape including means adapted to intermittently eject tape therefrom, a tape guide arranged to direct the tape along a non-linear path, means for bending the tape in the plane of its face, means for pulling the tape along said tape guide, and yieldable means, forming a loop in said tape, for decreasing the intermittent motion of said tape.

2. In combination, a source of tape including means adapted to intermittently eject tape therefrom in a predetermined plane, a tape guide arranged to direct the tape along a non-linear path in said plane, means for bending the tape in the plane of its face, said means embodying a pivoted member rotatable for the purpose of threading the tape therethrough, means for holding said member in its tape receiving position, and means for pulling the tape along said tape guide.

3. In combination, a source of tape, a tape guide arranged to direct the tape along a non-linear path in a predetermined plane, means for pulling the tape along said tape guide and direction changing means for bending the tape in the plane of its face comprising a pivoted member rotatable to facilitate the threading of tape therethrough and a spring member engaging said pivoted member to hold the same in either its normal direction changing position or its threading position.

4. In combination, a source of tape, a tape guide arranged to direct the tape along a non-linear path, a tape puller, and means associated with said tape guide for bending the tape in a manner to conform with said non-linear path, said means embodying a pivoted member rotatable outwardly to facilitate the insertion of the tape, and means coacting with said pivoted member to hold the latter substantially rigid in its outward position.

5. In combination, a source of tape, a tape guide for directing the tape along an arcuate path in the plane of its face, guide means engaging the tape to direct the same in a manner to compensate for the shortening of the path along the inner side of the arc, means for drawing the tape along said tape guide, and tape controlling means for feeding the tape into the guide with a substantially continuous movement.

6. In combination, a source of tape, a tape guide for directing the tape along an arcuate path in the plane of its face, guide means engaging the tape to direct the same in a manner to compensate for the shortening of the path along the inner side of the arc, and means for drawing the tape along said tape guide.

7. A tape guide for a tape movable in a prede-

terminated plane, comprising a support having a channel groove to receive said tape, a transparent cover disposed between the outer edges of said channel, through which the tape may be viewed, means for sealing said cover in the channel, and means for removing said transparent cover comprising a pivoted lever having one end disposed beneath the cover.

8. A tape guide for a tape movable in a predetermined plane, comprising a support having a channel groove to receive said tape, a transparent cover disposed between the outer edges of said channel, through which the tape may be viewed, and means for removing said transparent cover comprising a pivoted lever having one end disposed beneath the cover.

9. A tape guide for a tape movable in a predetermined plane, comprising a support having a channel groove to receive said tape, a transparent cover disposed between the outer edges of said channel, through which the tape may be viewed, and means for removing said transparent cover comprising means engageable with the under side of said cover for raising the same.

10. A tape guide for a tape movable in a predetermined plane, comprising a support having a channel groove to receive said tape, a transparent cover disposed between the outer sides of said channel through which the tape may be viewed and means for sealing said cover in the channel.

11. In a tape guide, a source of tape, a longitudinally extending support having a trough therein to receive said tape, a transparent cover for said channel disposed above the tape, compressible members recessed into the sides of the channel and running longitudinally therewith for sealing the transparent cover in said channel, and means comprising a pivoted lever, one end of which is disposed beneath the transparent cover, for lifting the same out of the channel.

12. In a tape guide, a source of tape, a longitudinally extending support having a trough therein to receive said tape, a transparent cover for said channel disposed above the tape, compressible members disposed longitudinally along the channel for sealing the transparent cover therein, and means disposed beneath the transparent cover for lifting said cover from the channel.

13. In a tape guide, a source of tape, a longitudinally extending support having a trough therein to receive said tape, a transparent cover for said channel disposed above the tape, sealing means for the transparent cover, and means engaging the transparent cover adapted to lift said cover from the channel.

14. In a tape guide, a support having a longitudinal channel formed therein, a U-shaped metal trough substantially narrower than said channel and centrally located between the sides of said channel, a transparent cover having down-

wardly projecting sides fitting into the space intermediate said trough and the sides of the channel, and means for sealing said transparent cover in the channel, comprising longitudinally extending sealing members disposed in the sides of the channel with their inner edges engaging the outer sides of the transparent cover.

15. A tape guide comprising a roller having its axis in a predetermined plane, and a second roller having its axis substantially in the same plane and disposed at a predetermined angle to the axis of the first roller whereby a tape, bearing indicia, may be passed around said rollers in succession to change its angular direction while maintaining its indicia on the outer face thereof, and in the same relative position to the outer side of the angle formed thereby, said tape guide having supporting means for the rollers, comprising a pivoted member, whereby the plane of the rollers may be changed, and a detent spring engaging said supporting members for retaining the roller assembly in any of a plurality of positions.

16. A tape guide comprising a pair of rollers having their shafts on radial lines, supports for said shafts, a third roller intermediate said rollers, supporting means therefor permitting said intermediate roller to assume different angular positions, whereby tape passed over the radial rollers and under the intermediate roller will have its inner edge warped by the intermediate roller, so as to keep the inner and outer edges of the tape taut as the tape describes an arc about the roller assembly.

17. A tape guide comprising a pair of rollers having their shafts on radial lines, supports for said shafts, a third roller intermediate said rollers, supporting means therefor permitting said intermediate roller to assume different angular positions, whereby a tape passed over the radial rollers and under the intermediate roller will have its inner edge warped by the intermediate roller so as to keep the inner and outer edges of the tape taut as the tape describes an arc about the roller assembly, and means for changing the angle between said first rollers.

18. A tape guide comprising a pair of rollers having their shafts on radial lines, supports for said shafts, a third roller intermediate said rollers, supporting means therefor permitting said intermediate roller to assume different angular positions, whereby a tape passed over the radial rollers and under the intermediate roller will have its inner edge warped by the intermediate roller so as to keep the inner and outer edges of the tape taut as the tape describes an arc about the roller assembly, said support for the intermediate roller having a pivoted portion whereby the roller may be bodily removed from between said first rollers to facilitate threading the tape through the roller assembly.

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