

Feb. 11, 1969

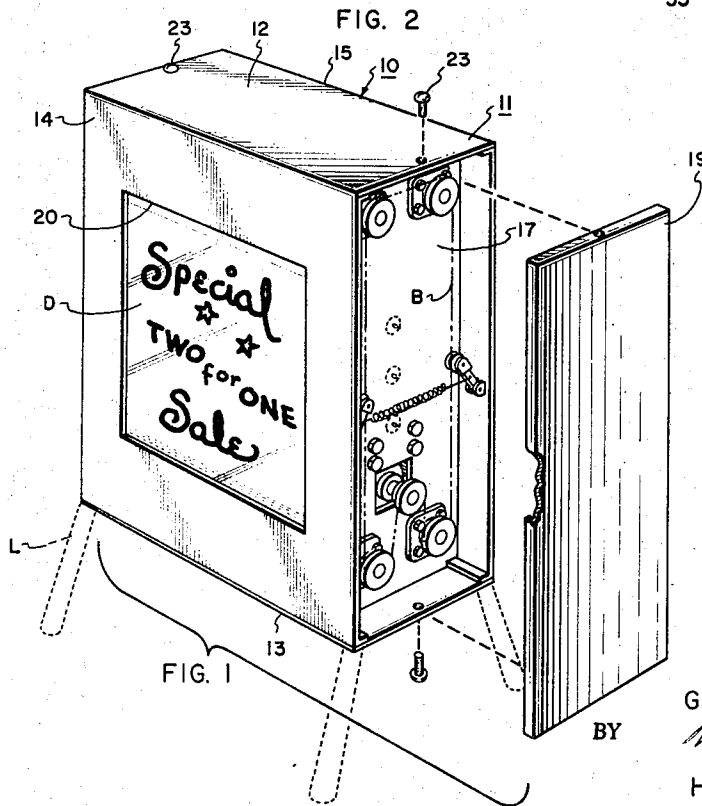
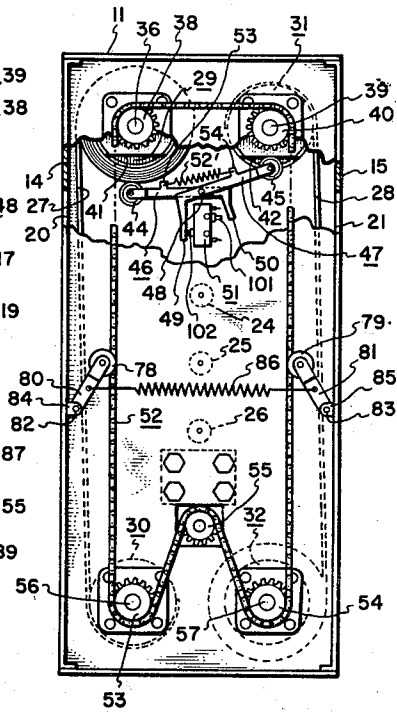
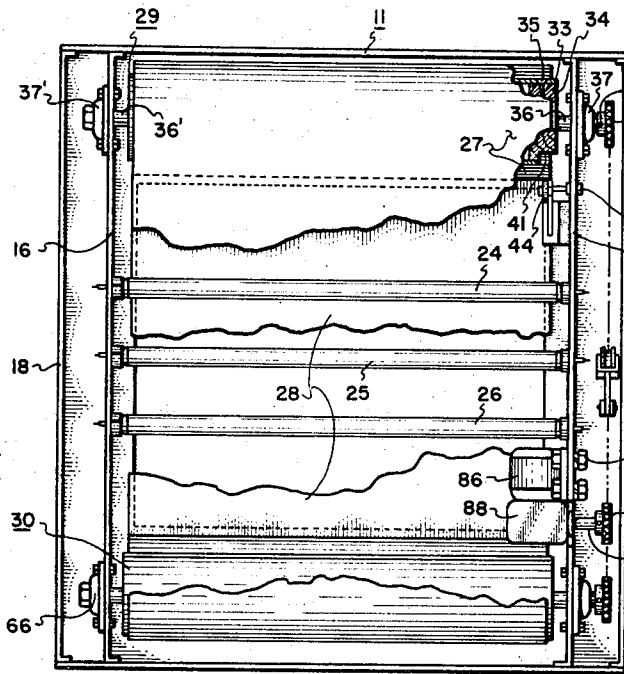
G. E. MILLER

3,426,461

MOVEABLE ADVERTISING DISPLAYS

Filed Sept. 28, 1966

Sheet 1 of 3



INVENTOR
GLEN E. MILLER
BY *M. Ralph Shaffer*
HIS ATTORNEY

Feb. 11, 1969

G. E. MILLER

3,426,461

MOVEABLE ADVERTISING DISPLAYS

Filed Sept. 28, 1966

Sheet 2 of 3

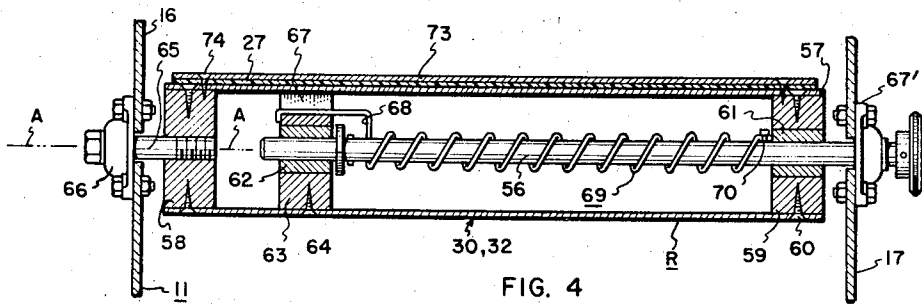


FIG. 4

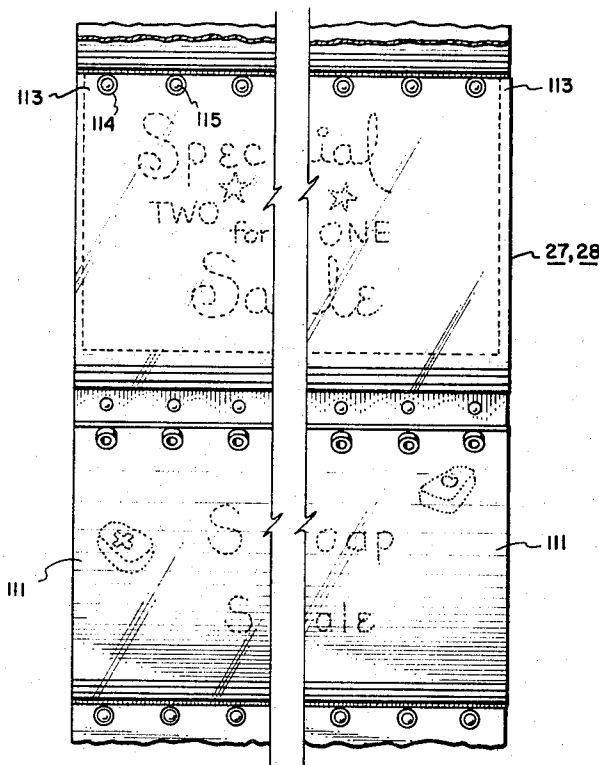


FIG. 6

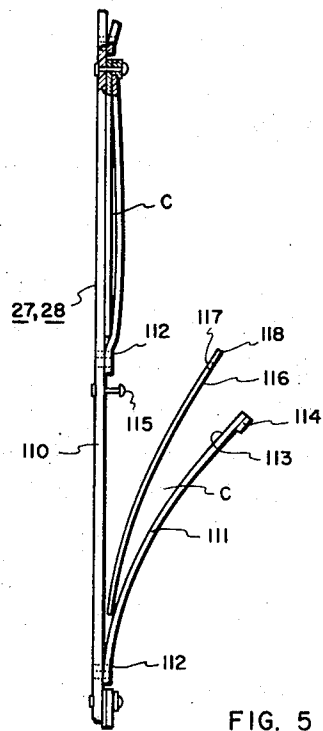


FIG. 5

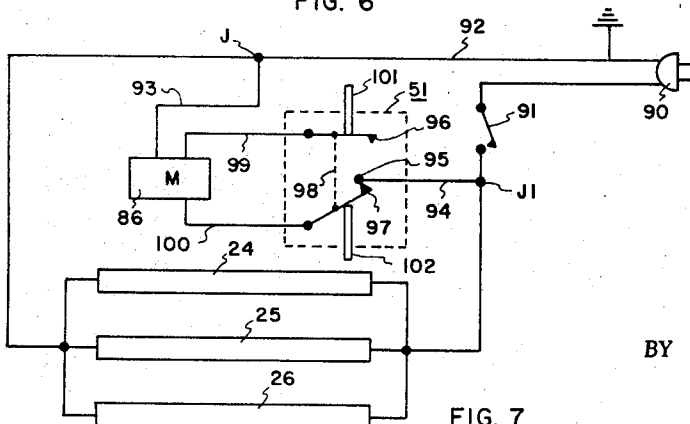


FIG. 7

INVENTOR
GLEN E. MILLER
BY *M. Ralph Schaffer*
HIS ATTORNEY

Feb. 11, 1969

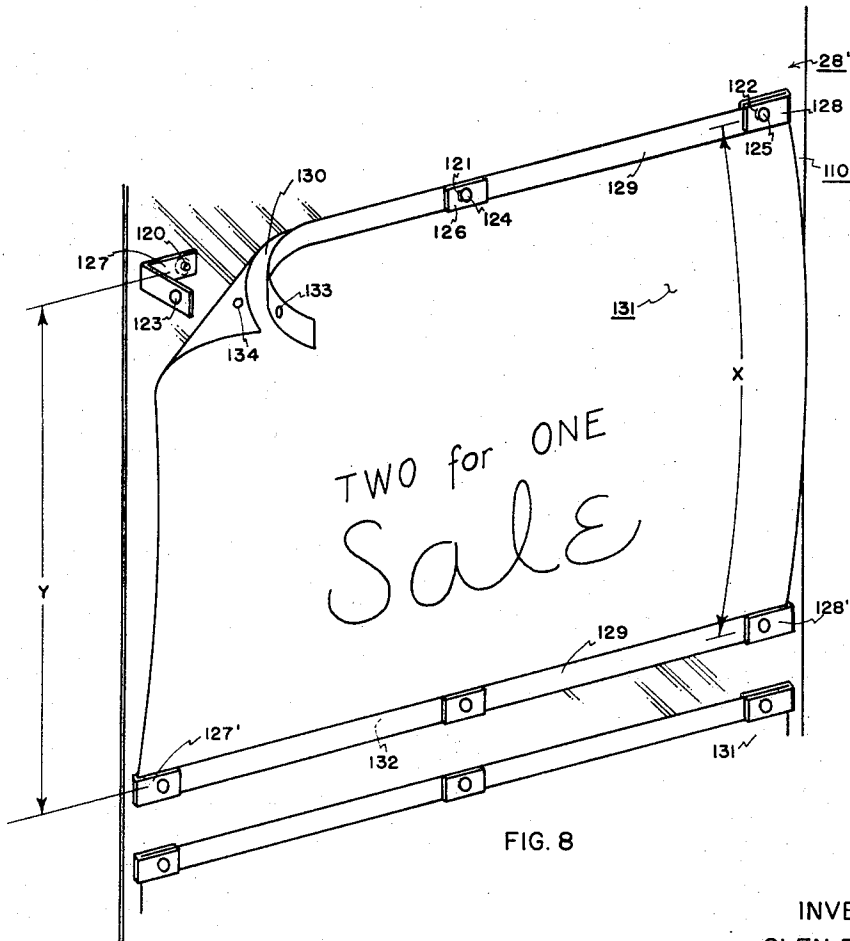
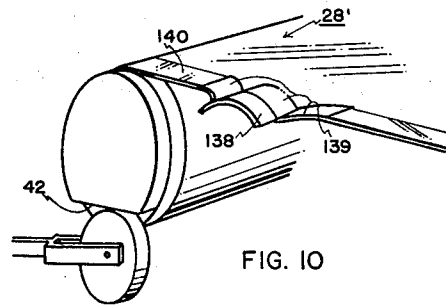
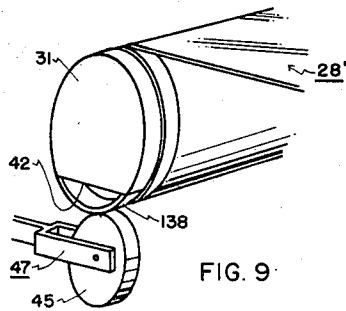
G. E. MILLER

3,426,461

MOVEABLE ADVERTISING DISPLAYS

Filed Sept. 28, 1966

Sheet 3 of 3



INVENTOR
GLEN E. MILLER
BY *M. Ralph Haffer*
HIS ATTORNEY

1

3,426,461

MOVEABLE ADVERTISING DISPLAYS

Glen E. Miller, 544 West 2900 South,
Bountiful, Utah 84010

Filed Sept. 28, 1966, Ser. No. 594,955

U.S. Cl. 40—31

Int. Cl. G09f 11/28, 11/16

4 Claims

ABSTRACT OF THE DISCLOSURE

The present invention provides a movable advertising display incorporating a movable display belt provision is made for automatic reversing the direction of the movement of the belt, and detent means are employed with other suitable structures for accomplishing the reversing function.

The present invention relates to advertising displays and, more particularly, to a new and improved advertising display suitable for use in motels, hotels, stores, and other places where passers-by, potential customers of those wishing to display advertising banners or sheets in the apparatus, may likely view the same.

Accordingly, it is a specific object of the present invention to provide a new and improved type of advertising display.

A further object is to provide improved display belting designed to receive at spaced intervals successive advertising banners, such banners being easily replaced in a convenient manner.

A further object of the invention is to provide plural belting and roller means and, in combination therewith, unique switching means for simultaneously reversing the direction of revolving of the rollers associated with the belting, this in suitably desired advertising apparatus.

A further object is to provide open-faced display belting wherein banners employed with the belting of the equipment may be easily attached and retained in place in open-face condition against the base belt member of the display belt structure, and this in a manner such that the upper and lower margins of banners attached to the belting are releasably retained in place in optimum operating condition.

A further object is to provide an open-face display belting wherein provision is made to accommodate rolling of the display belting alternately at both ends thereof.

An additional object is to provide a detent cover member, designed for releasable securement to display belt, wherein the detent cover member is employed to cover over and, alternately, expose detent means which are operative to reverse the direction of the belt travel.

The features of the present invention which are believed to be novel are set forth with particularity in the appended claims. The present invention, both as to its organization and manner of operation, together with further objects and advantages thereof, may best be understood by reference to the following description, taken in connection with the accompanying drawings in which:

FIGURE 1 is a perspective view, partially exploded for convenience of illustration, of certain advertising apparatus for incorporation in the principles of the present invention.

FIGURE 2 is a front elevation, partially broken away and with the front panel or face removed for convenience of illustration, illustrating the principal interpart of the apparatus.

FIGURE 3 is an end elevation of the right end of the structure shown in FIGURE 2, this with the corresponding side cover removed and the side flange of the hous-

2

ing partially cut away, to reveal the components used in the structure.

FIGURE 4 is an enlarged fragmentary, sectioned view of a representative roller employed in the invention.

FIGURE 5 is an end view of certain novel advertising belting which may be used in practicing the present invention.

FIGURE 6 is a front elevation of the belting shown in FIGURE 5.

FIGURE 7 is a schematic diagram, principally in block form, of a representative electrical circuit which may be used in the invention to practice the same.

FIGURE 8 is a perspective view of a rollable display belt accommodating "open-face" displays of advertising or other material,

FIGURE 9 is a fragmentary, perspective view of a display belt incorporating detent cover means designed to prevent detent-actuated switching of the directional movement of the display belt shown until a desired time.

FIGURE 10 is a fragmentary perspective view of the structure of view 9 wherein the detent cover has been immediately previously removed in order to expose the detent of a respective roller for switch means actuation.

In FIGURES 1 through 3 display apparatus 10 includes housing 11 having top 12, bottom 13, front and rear faces 14 and 15 which are related in the manner shown in FIGURE 1. Side flanges or partitions 16 and 17 are also provided, see FIGURES 1 and 2, over which there will be disposed respective side covers 18 and 19, respectively.

Faces 14 and 15 are each provided with viewing apertures 20 and 21, see FIGURE 3, in order that patrons or passers-by may visualize the respective displays D, see FIGURE 1, appearing therethrough. Side covers 18 and 19 are secured in place by metal screws 23 in a conventional manner.

Mounted to and between side flanges 16 and 17 are neon tubes 24-26 which are used for lighting the display. As shown in FIGURE 3 the neon tubes are disposed medially between display belts 27 and 28 each of which are respectively wound upon their respective roller pairs 29, 30, and 31, 32. Rollers 29 and 31 each comprise respective cylindrical shells 33 having end plugs 34 of cylindrical construction secured therewithin and their tube by set screws 35. The end plugs 34, which will be disposed on both sides of the top roller construction of rollers 29 and 31, will have an outwardly extending stub 36, 36' journaled in respective bearing 37, 37' for movement. Sprocket 38 is pinned at 39 to the axle 36, and the bearings 37 and 37' will be mounted in a conventional manner to their respective side flanges 17 and 16, respectively, as shown. While sprockets and chain drive have been shown specifically, as in FIGURE 2, a belt drive and pulleys might easily be used, as indicated in FIGURE 1. Further, but one roller of each set of rollers need be driven if the remaining roller is return-spring operated, for example.

It will be understood that the construction of the rollers 29 and 31, with their component parts and accoutrements may be identical in construction, as shown and now described.

Axle shaft 39, corresponding to axle shaft 36 of roller 29, is provided with a sprocket 40. (Again, both of the shafts 29 will be journaled in an identical manner to the side flanges 16 and 17 of housing 11.)

Of importance is the fact that each of the rollers 29 and 31 will include a recessed shoulder or detent depression 41, 42 for receiving and engaging the rollers 44, 45 of certain motor reversing switching levers 46, 47, when the unrolling of the somewhat transversely stiff display belt uncovers depressions 41, 42. (Rollers 44, 45 normally ride on the belt wound upon the rollers.) These

3

are illustrated in FIGURE 3 and are shown to be pivoted together by pin 48 such that toes 49 and 50 may actuate motor reversing switch 51, such as a Microswitch MICRO BZ-RSX3, in a manner hereinafter described. A tension spring 52' is interposed between and connected to tabs 53 and 54 of the two switching levers 46 and 47. Endless chain 52 in FIGURE 3 is shown to intercouple sprockets 38 and 40 and also sprockets 53 and 54 and also gear reduction drive sprocket 55. As to sprockets 53 and 54, these are mounted upon respective shafts 56 and 57 both of which are identical and one of which is illustrated in FIGURE 4. Likewise, rollers 30 and 32 will be understood to be identical as to their components, accoutrements, and mounting to the side flanges 16 and 17.

As shown in FIGURE 4, each of the rollers 30, 32 will include a cylindrical tube 57 and end plugs 58 and 59 secured thereto by set screws 60, as shown, and comprising roller members R. End plug 59 is provided with a bushing 61 to journal shaft 56 in the manner indicated. Medial plug 63 is secured in place by set screw 64.

Coaxially aligned with revolvment axis A, over the roller and shaft 56, is a stub shaft 65, taking the form of a threaded stud threaded into end plug 58 and journaled in bearing 66, the latter being mounted to side flange 16 in a conventional manner. In a corresponding way, bearing 67' is bolted or otherwise secured to a corresponding side flange 17 of housing 11.

In a preferred form of the invention the medial plug 63 includes a radial slot 67 designed to receive the hooked retainer end 68 of spring 69. This firmly anchors or keys one end of the spring to the medial cylindrical plug 63 and likewise to the cylindrical tube 57. The remaining extremity of torsion spring 69 is affixed as by a pin or set screw 70 directly to the shaft 56 proper.

Securement of the end margins of belts 27 and 28 for all four of the rollers is indicated in FIGURE 4 wherein, merely by way of example, a securement bar 73 is secured to the cylindrical tube 57 by means of plural metal screws or other means 74, this against each of the respective two belts, belt 27 being indicated by way of example.

Special note is to be taken of the structure in FIGURE 4, for the torsion spring structure of the interior of each of the rollers 30 and 32 permits flexibility in the belt drive movement so as to compensate for varying diameters of the exteriors of the individual rollers 29-32, with the belt wound thereupon, so as to compensate for various positions of the belt. In FIGURE 3 it will be seen that the lower roller 32 must "slow down" as to its angular speed of revolvment relative to the turning of sprocket 40 associated with roller 31. This is accommodated for by torsion spring 69 in allowing the roller 32 to adjust in accordance with the over-all diameter of the roller plus belt in this particular position. All of the rollers work in a corresponding manner. Hence, it is seen that by the provision of the torsion springs in rollers 30 and 32, compensating means is provided in order that, for smooth operation, the varying diameters of the rollers with the belts wound upon them may be taken into consideration. In order to keep the drive chain 52 in a tightened condition, idler rollers 78 and 79, journaled in arms 80 and 81, are provided. The lever arms 80, 81 are pivoted by pivot means 82 and 83 to upstanding tabs 84 and 85, and a tension spring 86 securing the two lever arms 80 and 81 together such that rollers or spools 78 and 79 bear upon the drive chain 52.

As a driving means, motor 86 is provided and is secured by suitable attachment means 87 to side flange 17. Motor 86 is provided with a gear box 88 comprising a gear reduction means the output shaft 89 of which is secured to drive sprocket 55 as shown in FIGURE 3.

Before referring to the operation of the structure as thus far disclosed, FIGURE 7 should be consulted. In this figure the electrical schematic of an electrical representative electrical hookup part is seen. Input plug 90, adapted for coupling to an alternating current source, is

4

directly coupled across neon or other lighting means 24-26 in a manner such that, preferably, the neon tubes 24-26 are connected together in parallel. Suitable ballast means may be used in conjunction with the neon tube if advised. A conventional, on-off switch 91 will be provided in the circuit to light the lighting means 24-26 and, in addition, to start the motor circuit which is in parallel with the lighting means. In particular, leads 92 and 93 are joined together at juncture J and connected to the ground side of motor M (i.e. element 86). Juncture J1 is connected by lead 94 to switch 51 and, in particular, the contact 95. Contact 95 is stationary. Movable contacts 96 and 97 are physically ganged together through appropriate means 98 and are individually electrically connected by leads 99 and 100 to reversible motor 86, as indicated. When lead 99 is energized then the motor 86 will revolve in one direction; correspondingly, when lead 100 is energized and lead 99 dormant, then the motor will revolve in the opposite direction. Switch 51 includes movable buttons 101 and 102 which are used to urge movable contacts 96, 97 inwardly, selectively. In referring to FIGURE 3 it will be seen that the switch 51 includes the outwardly protruding elements 101 and 102 which are selectively engageable by the toe portions 49 and 50 of switch levers 46 and 47, respectively.

In operation of the equipment, then, it is seen that as belt 27 unwinds from roller 29 and winds upon roller 30, then belt 28 will unwind from roller 32 and wind upon roller 31. The spring take-up means in FIGURE 4 has heretofore been described as also has been the manner in which the bottom rollers 30 and 32 adjust themselves in accordance with varying diameters of belts upon the respective rollers shown in FIGURE 3. During intermediate periods of travel of the two independent belts 27 and 28, the rollers or wheels 44 and 45 will ride upon these belts as they are wound upon rollers 29 and 31. When, however, the belt 28, for example, unwinds from roller 31 such that no belting material exists between wheel 45 and shoulder 42, then wheel 45 will be urged by spring 52' upwardly in a direction against shoulder 42, thereby actuating movable pin 102 of switch 51 so as to actuate the switch 51 and thereby reverse motor 86, see FIGURE 7. This movement of the switch button 102 simultaneously moves the button 101 outwardly so that the same may be prepared for inward movement when the corresponding roller or wheel 44 of switch reversing lever 46 comes in engagement with the exposed shoulder 41 upon the unwinding of roller 29. Hence, the direction of movement of the display belts 27 and 28 is automatically reversed upon the respective rollers reaching their extremities of travel as to the upward rollers 29 and 31. The direction of the two belts will be simultaneously reversed when such extremities are reached so for a re-showing of the displays D on opposite sides of the housing 11.

We shall now turn our attention to a consideration of one type of appropriate belting structure for the two belts or belting 27 and 28. Reference is made to FIGURE 6 wherein the two belts 27 and 28 are shown to include a base belt member 110 which will be secured to its respective rollers (i.e. 29, 30, or 31, 32). Plural flaps 111 are provided the bottom margins 112 of which will be heat-seamed or otherwise secured to base belt member 110 in mutually spaced relationship as indicated. The upper margins 113 of the individual flaps 111 are releasably secured to base belt member 110 and, hence, may be provided with snap button receptacles 114 which selectively cooperate with snap buttons 115 secured to base belt member 110. Preferably, the individual display banners 116 are likewise provided with apertures 117 at their respective upper margins 118 in order that these apertures 117, in alignment with snap buttons 115, may be disposed over and held in place by the buttons 115 when the flap 111 is secured to the snap buttons 115 by receptacles 114. This securely holds the individual, adver-

5

tising, display banners 118 in belting pockets C in place. Likewise, the flaps 111 provide for easy access to the composite belting and easy removal and replacement of the individual display banners from their individual compartments C. The display belting for each of the belts 27, 28 may be so constructed that the over-all thickness of the belting is small and conveniently accommodated by the rollers used; 1/8" polyethylene sheet stock may be used for both base member (110) and flap (111).

Preferably, the belting will be translucent, and preferably transparent both as to base member 110 and flaps 111. The base member 110 will be that portion of the belting secured to the individual rollers at the extremities of the belt indicated. Where the display banners are translucent, as is the case with most papers and plastics used, then the neon tube or other lighting provided by elements 24-26 will light (through) the display on both sides thereof. Hence, there is an automatic display form by the present invention which is visible from both sides of the apparatus, and this wherein two advertising displays or belts may be used simultaneously and automatically.

Various modifications may be made of course without departing from the invention. Thus, the motor and gearbox 86, 88 may be otherwise disposed and its positioning upon the housing otherwise modified. All other types of switching means may conceivably be used, but that disclosed is eminently preferable in reversing the motor 88 as to direction of revolvment of shaft 89 associated therewith. Additionally, the switching mechanism and shoulder might be provided the lower rollers rather than the upper ones, see FIGURE 3. Further, while other types of spring compensation may be used, that disclosed in FIGURE 4 is deemed particularly suitable for present purposes. The housings may be provided with legs L, see the dotted line shown in FIGURE 1, if desired. A belt drive as at B in FIGURE 1 may likewise be used instead of the chain although the former is being much preferred.

In FIGURES 8 and 9 a display belt 28' is shown and corresponds to display belt 28 in FIGURES 2 and 3, yet is of somewhat reduced width with respect thereto so that the display belt exposes recessed shoulder or detent depression 42 in FIGURE 2. See also FIGURE 3. The purpose for this will be described hereinafter.

With respect to FIGURE 8, a display belt 28' is shown to include a base belt member 110' provided with snap fastener bases 120, 121 and 122 and snap fastener covers 123, 124 and 125. Snap cover 124 is preferably secured to an overlay tab 126, and snap fastener covers 123 and 125 are respectively secured to the outermost extremities of doubled-back tabs 127 and 128. The latter two elements may be identical as to construction. Snap fastener bases 120 and 122 are respectively secured to the doubled-back retainer tabs 127 and 128 and to base belt member 110'. Retainer band 129 is secured across the upper margin 130 of banner 131. The retainer band can desirably have some resiliency and may be made of a thin rubber-band material or a suitable plastic such as polyethylene.

A corresponding retainer band 129 with its attachments may also be used to secure the bottom margin 132 of banner 131 to the base belt member 110. Corresponding retainer tabs 127', 128', with their attachments and the corresponding attachments associated with the display belt 28', may secure the bottom margin 132 thereof to the base belt member 110' in a manner either substantially or exactly identical with the securement of the upper margin 130 of banner 131. For convenience of illustration only the upper snap fastener attachments, band, and so forth have been detailed. Of course, there will be provided in the retainer band 129 and the respective marginal banner 131 aperture pluralities 133 and 134 to accommodate the snap fastener attachments used. The dimension Y, that is, the dimension between the snap fastener attachment means for attaching the banner 131 to base belt member 110' should be of slightly less dimension than the dimension X, the latter being the straight line dimen-

6

sion or height of banner 131. This is for the provision of accommodating the rolling of base belt member 110' upon its respective roller as, for example, rollers 31 and 32. Such a slack condition in the banner 131 is deemed important in order that the banner not be torn nor rolling impaired through the banner attachment to the base belt member 110'.

The appropriateness of the banner mounting illustrated in FIGURE 8 through the structure shown in connection with base belt member 110' and display belt 28' is so that the upper and lower margins of the banner 131 used will be held tightly against base belt member 110'; yet, the banner may be removed and a new one inserted as needed. This structure has a marked advantage over pocket-type structures as shown in FIGURES 5 and 6 since chalk, poster paint and other materials used on banners may tend to rub off onto the cover flap as at 111 in FIGURE 5. In the present embodiment of the present invention the banner face is entirely exposed; yet, the the upper and lower margins thereof are tightly secured against the base belt member 110'. Of course, the band means such as retainer band 129 may be disposed completely across the margin of the banner and snapped to snap fasteners, as desired.

Accordingly, the above construction as pertains to the securement of banner 131 and base belt member 110' of the display belt 28' constitutes what is believed to be an ideal structure for a roll or display belt, providing "open-face" exhibition of a plurality of display banners 131.

These banners may be secured and spaced end-to-end relationship in accordance with that indicated in FIGURE 8.

FIGURES 9 and 10 indicate structure which includes a detent cover member 138, preferably of arcuate configuration corresponding to roller surface configuration, which is secured by a releasable securement member 139 to margin 140 of display belt 28'. The releasable securement member may, in fact, comprise simply a piece of pressure sensitive, plastic, adhesive tape, for example. It is to be noted that the detent cover member may be secured at any desired point along the margin of display belt 28'.

In operation the detent cover member is secured to margin 140 of display belt 28' so that when the portion of the display belt is rolled upon a roller 31, for example, the detent cover member covers the recessed shoulder or detent depression 42 to prevent roller 45 of switch member 47, for example, from springing upwardly into the detent region. When, however, the display belt 28' unwinds from its respective roller 31 so that 138 leaves its engagement with 31, then the detent is exposed to allow roller 45 to spring upwardly, under the pressure of compression spring 52', to engage the detent and reverse the motor drive as before explained.

The unusual and particular advantage of the inclusion of detent cover member 138 is that it prevents wear of the operating margin of display belt 28' by the engagement thereof by roller 45; furthermore, the detent cover member 138 can be placed anywhere along the margin 140 of display belt 28', this so that only a desired length of display belt may be operatively removed from its respective roll in the course of belt travel for display purposes. Frequently, there will arise the case in stores wherein the entire belt will not be needed for display purposes. Furthermore, when the displays are grouped together either at the center of either extremity of the display belt, it would be inappropriate to display the remainder of the belt which is blank. Thus, the detent cover member may be placed appropriately along the belt at appropriate points so that blank spaces of the display belt will never be unwound from their respective rollers. This is an important display point.

The structure above described will, of course, apply to

both belts and detent rollers used as is seen in FIGURE 3.

While particular embodiments of the present invention have been shown and described, it will be obvious to those skilled in the art that changes and modifications may be made without departing from this invention in its broader aspects, and, therefore, the aim in the appended claims is to cover all such changes and modifications as fall within the true spirit and scope of this invention.

I claim:

1. In an advertising apparatus including, in combination, a housing provided with a viewing aperture; plural, mutually parallel, spaced roller means journaled within said housing; a movable display belt affixed to and between and windable upon said roller means and viewable through said viewing aperture; means for rotationally driving said roller means; and means coupled to said driving means for automatically reversing the direction of rotation of roller means drive at opposite extremities of display belt travel: an improvement comprising a detent cover means releasably secured to said display belt and protruding transversely outwardly therefrom, at least one of said roller means including detent means in registry with said detent cover means, said reversing means including spring-loaded actuating means constructed to engage said detent means when said display belt has traveled

sufficiently to displace said detent cover means to expose said detent means.

2. The structure of claim 1 wherein said detent cover means includes a rigid detent cover and tape means securing said detent cover to said display belt.

3. The structure of claim 1 wherein said detent cover means is arcuately configured in correspondence with the configuration of said roller with which it is operatively associated.

4. The structure of claim 2 wherein said detent cover is arcuately contoured in correspondence with the periphery of said roller means with which it is operatively associated.

References Cited

UNITED STATES PATENTS

1,114,223	10/1914	Brown	-----	40—31
1,306,975	6/1919	Scott	-----	40—31
2,886,256	5/1959	Walsh	-----	40—31 X

EUGENE R. CAPOZIO, *Primary Examiner*.

WILLIAM H. GRIEB, *Assistant Examiner*.

U.S. Cl. X.R.

40—53