June 28, 1938. F. C. B. PAGE 2,122,153

ADVERTISING DEVICE

Filed Sept. 24, 1936 2 Sheets-Sheet 1

Fig. 1.

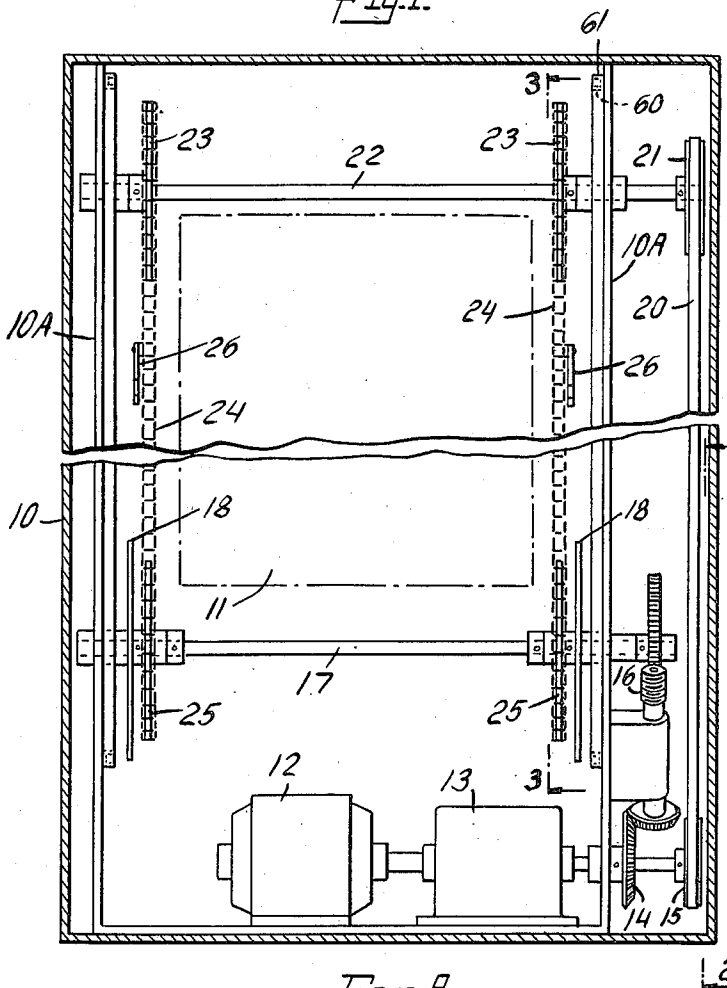


Fig. 13.

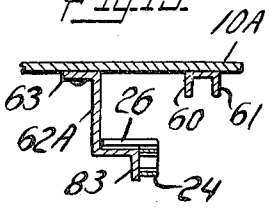


Fig. 2.

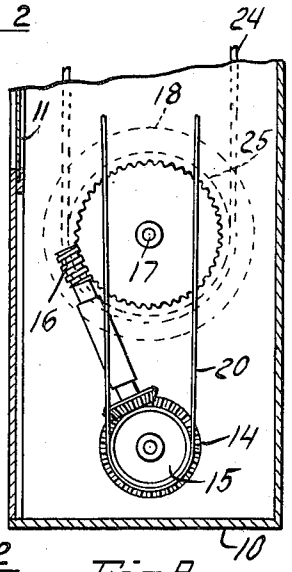


Fig. 8.

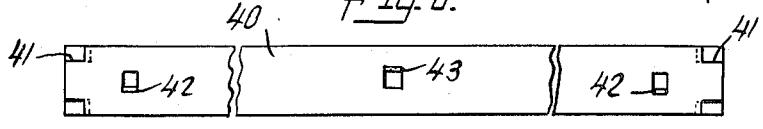


Fig. 9.

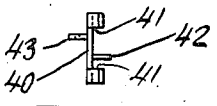


Fig. 12.

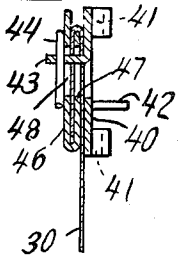


Fig. 11.

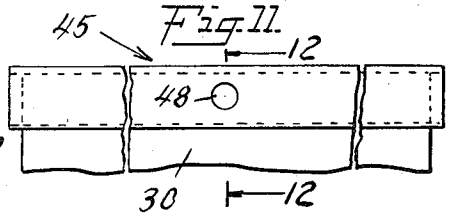
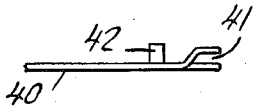


Fig. 10.



INVENTOR
Frank C. B. Page
BY
Marshall A. Hawley
ATTORNEYS

June 28, 1938. F. C. B. PAGE 2,122,153

ADVERTISING DEVICE

Filed Sept. 24, 1936 2 Sheets-Sheet 2

Fig. 3.

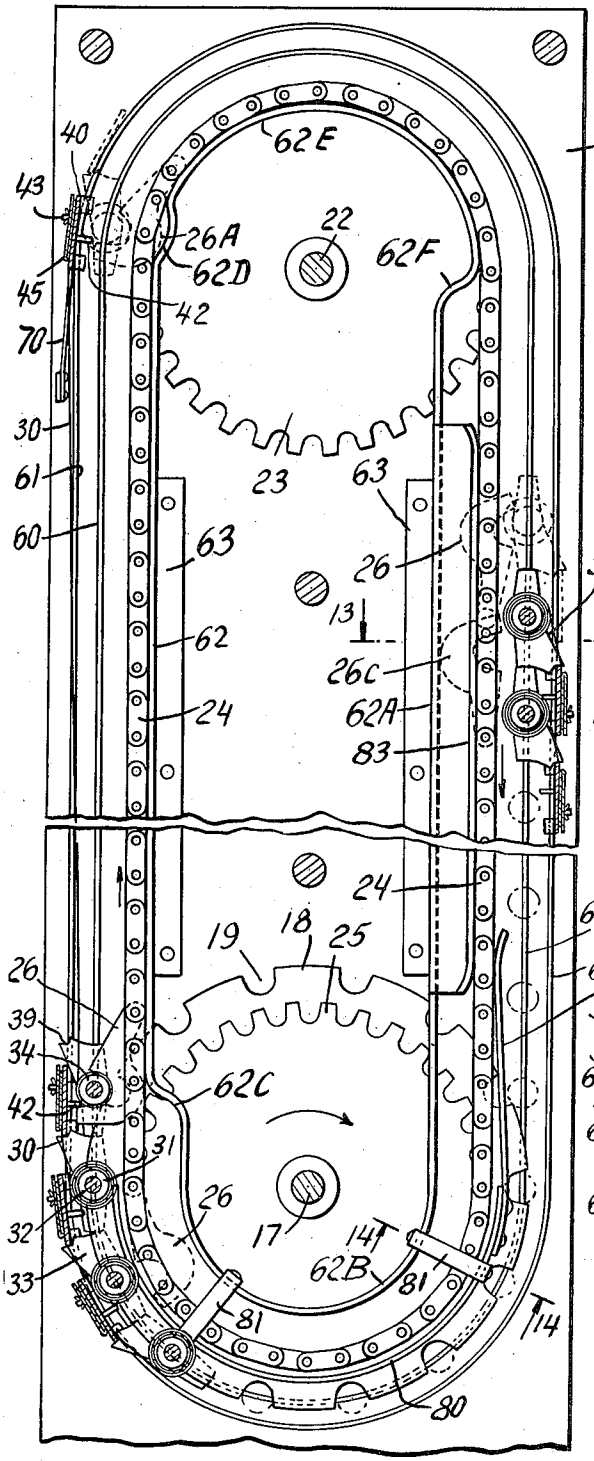


Fig. 5.

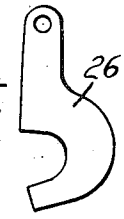


Fig. 6.

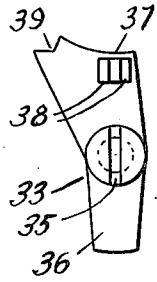


Fig. 7.

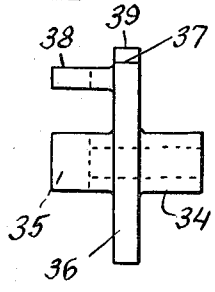


Fig. 4.

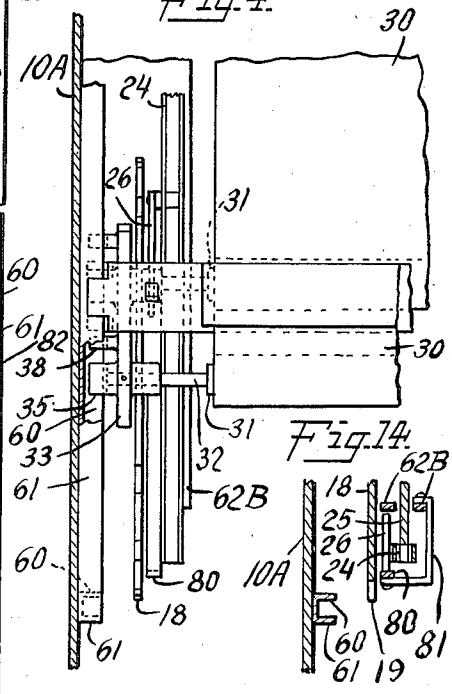


Fig. 14.

INVENTOR
Frank C. B. Page
BY
Marshall & Hawley
ATTORNEYS

Patented June 28, 1938 2,122,153

UNITED STATES PATENT OFFICE

2,122,153

ADVERTISING DEVICE

Frank C. B. Page, New York, N. Y., assignor to Page Displays, Inc., New York, N. Y., a corporation of New York

Application September 24, 1936, Serial No. 102,306

26 Claims. (Cl. 40—31)

This invention relates to improvements in advertising devices.

Its object is to provide a simple, inexpensive mechanism for holding and moving a plurality of flexible sheets independently supported on spring rollers in a cabinet and successively unrolling them across the front of the cabinet.

Another object is to provide two continuously traveling driving mechanisms moving at different but correlated speeds for accomplishing the desired result.

A still further object is to provide a novel device for holding the free ends of the sheets to compensate for irregularities in them and in order to prevent wrinkles in them when they are unrolled, to insure proper re-rolling and to prevent them from being subjected to undue strains.

These and other objects will appear in the following specification, in which I will describe an embodiment of the invention, the novel features of which will be set forth in claims.

Referring to the drawings,

Fig. 1 is a front elevation partly in section of a device which is made according to and embodies the invention, with the display sheets omitted;

Fig. 2 is a sectional elevation of the lower end of some of the parts shown in Fig. 1, the section being taken on the line 2—2 of the latter figure;

Fig. 3 is a sectional side elevation on a larger scale taken on the line 3—3 of Fig. 1;

Fig. 4 is a sectional front elevation of some of the parts shown in Fig. 3;

Fig. 5 is an elevation on a larger scale of an actuating hook;

Figs. 6 and 7 are side and front elevations, respectively, of one of the roller brackets drawn to a larger scale;

Figs. 8 and 9 are front and side elevations, respectively, of one of the cross bars which are successively moved upwardly across the front of the cabinet;

Fig. 10 is a plan view of an end portion of a cross bar;

Fig. 11 is a front elevation of a compensator bar, with a display sheet attached thereto;

Fig. 12 is a sectional side elevation on a larger scale of the parts shown in Fig. 11, the section thereof being taken on the line 12—12 of Fig. 11, and of a cross bar to which the compensator bar is attached; and

Figs. 13 and 14 are sectional views of details, the sections being taken on the lines 13—13 and 14—14, respectively, of Fig. 3.

Like characters of reference designate similar parts in all figures of the drawings.

10 designates a cabinet within which all parts of the device are enclosed. 10A designates the side plates which support parts of the mechanism within the cabinet. 11 is a window in the front wall of the cabinet, preferably covered by a panel of glass or other transparent material.

12 is a motor and 13 a reduction gearing, the shaft of which drives a bevel gear 14 and a pulley 15. The gear 14 is connected through reduction gears which include a worm 16 to drive a shaft 17. Fast on shaft 17 are index plates 18, 18 notched at spaced intervals, as shown at 19 (Fig. 3).

The pulley 15 is connected by a belt 20 with a pulley 21 affixed to a shaft 22. Fast on a shaft 22 are sprocket wheels 23, 23. These drive chains 24, 24 which run under sprocket wheels 25, 25 on shaft 17, but mounted to rotate thereon. Hooks 26, 26 are pivotally mounted on the chains 24, 24 horizontally opposite each other.

The display sheets 30 are mounted on spring rollers 31, the pintles 32 of which are affixed to brackets 33. One of the roller brackets 33 is shown in detail in Figs. 6 and 7. Each of these has a hub 34 with a concentric bore into which the roller pintles fit. The other end of the hub is slotted, as at 35. Intermediate the ends of the hub is a transverse body, the lower part of which, when the bracket is in the position shown in Figs. 6 and 7, forms a lug 36, the end of which is convexly curved on an arc concentric with the hub. The upper part of the body forms a flange, the upper end of which is concavely curved on the same radius as that of the end of lug 36 to form a saddle 37. Transverse lugs 38 project from one side of the flange to form between them a space of the width and in alinement with the slot 35. A notch 39 which is offset from the slot 35 and lugs 38 is formed in one of the upper corners of the flange.

40 is a cross bar which is shown in detail in Figs. 8, 9 and 10. It is a substantially flat strip of metal. Parts of each of its ends are bent, as shown, to form slots 41. Spaced inwardly from the slots 41 are lugs 42 which project beyond the slots. 43 is a lug projecting from the center of the other side of the bar. This is apertured to receive a cotter pin 44 for a purpose which will appear presently.

45 is a compensator bar which is shown clearly in Figs. 11 and 12. This is made of sheet metal bent along a longitudinal line to form two layers 46 and 47, centrally apertured at 48.

The free end of a display sheet 30 is folded over the upper edge of the layer 47 and extends down between the layers 47 and 46. The parts thus assembled are placed on a cross bar 40 with its lugs 43 passing through the aperture 48 therein, puncturing two layers of the display sheet. The cotter pin 44 is then put through the lug 43 to hold the parts together. The compensator bar 45 is bowed longitudinally to some extent so that it has to be pressed against the cross bar to clear the cotter pin hole in lug 43.

It will appear that the cross bar 40 is moved transversely, in a manner to be fully described. This motion will be transmitted to the display sheet by a pull exerted in the middle of the compensating bar. The latter is capable of rocking somewhat on the cross bar so as to compensate for irregularities in the display sheet and to distribute equally thereon all tensional strains. This causes the display sheet to be held in a flat condition as it is unrolled and prevents the formation of wrinkles therein. This also insures long life of the display sheet. Another advantage of this central pivotal support for the free edge of the display sheet is that it makes it re-roll properly.

60 and 61 are parallel tracks affixed to the side plates 10A within the cabinet. These are straight throughout the greater part of their length, but curved at the top and bottom of the cabinet. The slots 35 and lugs 38 of the roller brackets run on the track 60. The slots 41 of the cross bars run on the track 61. It is understood that similar guides are on the opposite side plate.

62 is a continuous rail back of the hook 26 supported on a flange 63 affixed to the side plate 10A. The parts of this rail designated by 62A and 62B are parallel with the chain 24, but spaced therefrom a sufficient distance to let the hooks 26 swing clear of the roller brackets 33. At 62C the rail is curved outwardly to a plane at the rear of the chain. When the hook reaches this curved portion 62C of the rail it is pushed outwardly thereby into the position in which it is shown in full lines in Fig. 3 to engage the hub 34 of a roller bracket as it leaves the slot 19 in index wheel 18 and to engage the lug 42 of the cross bar of the next succeeding unit. The rail 62 will maintain the hook in its engaging position as it moves upwardly across the window 11. This upward movement raises the roller bracket of one unit and allows its display sheet which has previously been unrolled to re-roll. At the same time it raises the cross bar 40 of the succeeding unit and thereby unrolls its display sheet 30, as at this time the roller bracket of this succeeding unit is held back by its engagement with a slot in the index wheel.

When the cross bar which has been thus raised reaches the upper end of the movement imparted to it by the hook 26, a spring 70 engages its lower edge and holds it against the action of its spring roller with its display sheet distended before the window 11. At the same time an offset 62D in the hook rail permits the hook to drop back to the position indicated at 26A, far enough to become disengaged from the lug 42 but not enough to become disengaged from the roller bracket which it has just raised. At that time the notch 39 of the roller bracket which is in the hook will engage the cross bar 40 of its own unit.

The part 62E of the rail is on an arc of sufficient radius to maintain the engagement of the hook with the roller bracket. At 62F the rail is bent inwardly to merge with its part 62A to permit this roller engagement to be released. Its engagement will be continued, however, until the roller bracket in the hook engages the one ahead of it, thus supporting the unit until it is seated on the one ahead of it. At that time its saddle 37 will engage the lug 36 of the bracket ahead of it. The hook will be forced back against the part 62A of its rail by the retarded movement of the roller bracket and will pass down clear of the column of units. At 62B the position of the hook as it is beginning to release is indicated. It is shown fully released at 26C.

The units will then move down by gravity until the hubs 34 of their roller brackets are engaged, one unit at a time, by the index wheel 18 which carries them around to the position at which they are engaged by the hooks 26. The weight of this column of units is applied to the periphery of the index wheel. The movement of the column of units is retarded but not stopped by the index wheel gearing.

The driving mechanism which I have described is so arranged that the index wheel 18 moves peripherally a distance equal to that between two of its slots 19 while the hook makes one complete cycle of its movement. Thus, the cross bars 40 are picked up and raised quickly the full height of window 11 while the rollers move upwardly slowly a distance equal to the space between the slots 19. The result is that the display sheets are consecutively distended over the window 11 and remain in that position during more than half of the movement of the hook.

In order to hold the hook out of bracket engagement as it passes around under shaft 17, a rail 80 is provided. This is supported on brackets 81 affixed to the rail portion 62B which is bifurcated where it passes the sprocket wheel 25, as shown in Fig. 14. 82 is a spring affixed to rail 80 and arranged to bear on chain 24 to keep it under proper tension.

The rail 62 at the front of the cabinet is widened to allow the chain 24, as well as the hook 26, to bear upon it between the sprockets 23 and 25. On the other side it is offset, as shown at 83 in Fig. 13, between the sprockets 23 and 25 to provide a bearing for the back of the chain on this side.

The display units are not interconnected. The number of them placed in the cabinet may therefore be varied at will and with ease. The display sheets may be paper posters, pieces of textile material, samples of wall paper, or any other desired flexible material. The entire area of the back of the display sheets is clear of obstruction, so that they may be illuminated from the rear if desired.

The mechanism shown and described is a simple embodiment of my invention. Structural modifications may be made within the spirit and scope of the invention and I intend no limitations other than those imposed by the appended claims.

What I claim is:

1. A plurality of units each comprising a spring roller, a cross bar and a display sheet with opposite ends attached to said roller and said bar, means for moving the rollers continuously through an endless path, at different rates of speed through different parts of said path and for engaging and moving the cross bar of one unit while it is moving the roller of another unit at a high rate of speed.

2. A plurality of unconnected units each comprising a spring roller, a cross bar and a display

sheet with opposite ends attached to said roller and said bar, means for moving the rollers continuously through an endless path, at different rates of speed through different parts of said path and for engaging and moving the cross bar of one unit while it is moving the roller of another unit at a high rate of speed.

3. A plurality of unconnected units each comprising a spring roller, a cross bar and a display sheet with opposite ends attached to said roller and said bar, two driving mechanisms geared together to move at different rates of speed, arranged to move the rollers continuously through an endless path, means for causing the high speed driving mechanism to engage the roller of one unit and the cross bar of another unit at one point in said path, means for releasing the engagement of the high speed driving mechanism from said cross bar at a point in said path spaced from the point of engagement, and means for releasing its engagement with the roller at a point farther along said path.

4. A plurality of unconnected units each comprising a spring roller, a cross bar and a display sheet with opposite ends attached to said roller and said bar, two driving mechanisms geared together to move at different rates of speed, arranged to move the rollers continuously through an endless path, means for causing the high speed driving mechanism to engage the roller of one unit and the cross bar of another unit at one point in said path, means for releasing the engagement of the high speed driving mechanism from said cross bar at a point in said path spaced from the point of engagement, means for holding the cross bar at said point of release, and means for releasing the engagement of the high speed driving mechanism with the roller at a point farther along said path.

5. A plurality of unconnected units each comprising a spring roller, a cross bar and a display sheet with opposite ends attached to said roller and said bar, two driving mechanisms geared together to move at different rates of speed, arranged to move the rollers continuously through an endless path, means for causing the high speed driving mechanism to engage the roller of one unit and the cross bar of another unit at one point in said path, means for releasing the engagement of the high speed driving mechanism from said cross bar at a point in said path spaced from the point of engagement, means for holding the cross bar at said point of release, means for causing the roller engaged by the high speed driving mechanism to pick up the cross bar of its unit near said point of release, and means for releasing the engagement of the high speed driving mechanism with the roller at a point farther along said path.

6. A plurality of unconnected units each comprising a spring roller, a cross bar and a display sheet with opposite ends attached to said roller and said bar, two driving mechanisms geared together to move at different rates of speed, arranged to move the rollers continuously through an endless path, means for causing the high speed driving mechanism to engage the roller of one unit and the cross bar of another unit at one point in said path, means for releasing the engagement of the high speed driving mechanism from said cross bar at a point in said path spaced from the point of engagement, means for holding the cross bar at said point of release, means for causing the roller engaged by the high speed driving mechanism to pick up the cross bar of its unit near said point of release, and means for releasing the engagement of the high speed driving mechanism with the roller when it meets a slow moving unit ahead of it in said path.

7. A plurality of units each comprising a spring roller, brackets in which said roller is pivotally supported, a cross bar, a display sheet with opposite ends attached to said roller and said bar, said brackets having parts arranged to engage the cross bar, endless guides for said brackets, endless guides for the cross bar spaced from the bracket guides, means for moving the roller continuously on its bracket guides, and means for moving the cross bar on its guides at a higher rate of speed than that of the roller through a part of its path of movement to unroll the display sheet.

8. A plurality of units each comprising a spring roller, brackets in which said roller is pivotally supported, a cross bar, a display sheet with opposite ends attached to said roller and said bar, endless guides for said brackets, endless guides for the cross bar spaced from the bracket guides, means for moving the roller continuously on its bracket guides, means for moving the cross bar on its guides at a higher rate of speed than that of the roller through a part of its path of movement to unroll the display sheet, means for holding the cross bar at the end of its high speed movement, and means on said brackets to engage the cross bar after the display sheet has been re-rolled.

9. A cross bar, means for driving said cross bar, a display sheet, a compensator bar fastened across an end of the display sheet, and means for centrally connecting the compensator bar to the cross bar, whereby relative lateral movement between the cross bar and the compensator bar is prevented.

10. A cross bar, means for driving said cross bar, arranged to engage the cross bar near its ends, a display sheet, a compensator bar fastened across an end of the display sheet, and means for centrally connecting the compensator bar to the cross bar whereby the movement of the cross bar is imparted to the display sheet by a central pull and whereby relative lateral movement between the cross bar and the compensator bar is prevented.

11. A flat cross bar, means for driving said cross bar, a display sheet, a resilient compensator bar bowed longitudinally, fastened across an end of the display sheet, and means for centrally connecting the compensator bar to the cross bar when the compensator bar is pressed toward the cross bar.

12. A cross bar, means for driving said cross bar, a display sheet, a compensator bar across an end of the display sheet bent along a longitudinal line to form two overlying layers, an end portion of said display sheet being bent over an edge of one of said layers and extending between the layers, and means for centrally connecting the compensator bar and the cross bar together.

13. A cross bar, means for driving said cross bar, arranged to engage the cross bar near its ends, a lateral projection from the center of the cross bar, a display sheet, a compensator bar across an end of the display sheet bent along a longitudinal line to form two overlying layers, an end portion of said display sheet being bent over an edge of one of said layers and extending between the layers, said layers of the compensator bar being centrally apertured to receive the projection from the cross bar.

14. A unit for display devices comprising a spring roller, a cross bar, a display sheet having one of its ends attached to the roller, a compensator bar attached across the other end of said sheet, and means for pivotally connecting the central parts of the compensator bar and the cross bar together.

15. A unit for display devices comprising a spring roller, a cross bar, a display sheet having one of its ends attached to the roller, a compensator bar attached across the other end of said sheet, means for pivotally connecting the central parts of the compensator bar and the cross bar together, and brackets at the ends of the roller arranged to engage the cross bar.

16. In a display device, a plurality of independent units each comprising a spring roller, a cross bar and a display sheet with opposite ends attached to said roller and said bar, index wheels having notched peripheries arranged to engage the rollers to impart a slow movement to the units, endless chains having a movement synchronized with that of the index wheels to make a complete cycle while the peripheries of the index wheels move a distance equal to that between the notches therein, oppositely disposed hooks on the chains, and means for moving said hooks into and out of engagement with the units.

17. In a display device, a plurality of independent units each comprising a spring roller, a cross bar and a display sheet with opposite ends attached to said roller and said bar, index wheels having notched peripheries arranged to engage the rollers to impart a slow movement to the units, endless chains having a movement synchronized with that of the index wheels to make a complete cycle while the peripheries of the index wheels move a distance equal to that between the notches therein, oppositely disposed hooks on the chains, and means for moving said hooks into engagement with a roller as it reaches a position to leave the notches in the index wheels.

18. In a display device, a plurality of independent units each comprising a spring roller, a cross bar and a display sheet with opposite ends attached to said roller and said bar, index wheels having notched peripheries arranged to engage the rollers to impart a slow movement to the units, endless chains having a movement synchronized with that of the index wheels to make a complete cycle while the peripheries of the index wheels move a distance equal to that between the notches therein, oppositely disposed hooks on the chains, and means for moving said hooks into engagement with a roller as it reaches a position to leave the notches in the index wheels and to simultaneously engage the cross bar of the next succeeding unit.

19. In a display device, a plurality of independent units each comprising a spring roller, a cross bar and a display sheet with opposite ends attached to said roller and said bar, index wheels having notched peripheries arranged to engage the rollers to impart a slow movement to the units, endless chains having a movement synchronized with that of the index wheels to make a complete cycle while the peripheries of the index wheels move a distance equal to that between the notches therein, oppositely disposed hooks on the chains, means for moving said hooks into engagement with a roller as it reaches a position to leave the notches in the index wheels and to simultaneously engage the cross bar of the next succeeding unit, and means to release the cross bar when its display sheet has been distended.

20. In a display device, a plurality of independent units each comprising a spring roller, a cross bar and a display sheet with opposite ends attached to said roller and said bar, index wheels having notched peripheries arranged to engage the rollers to impart a slow movement to the units, endless chains having a movement synchronized with that of the index wheels to make a complete cycle while the peripheries of the index wheels move a distance equal to that between the notches therein, oppositely disposed hooks on the chains, means for moving said hooks into engagement with a roller as it reaches a position to leave the notches in the index wheels and to simultaneously engage the cross bar of the next succeeding unit, means to release the cross bar when its display sheet has been distended, and means to release the engagement of the hooks from the roller when its unit reaches the unit ahead of it.

21. A plurality of units, each comprising a roller and a display sheet, means for moving said units continuously in one direction through an endless path, said means comprising two driving mechanisms moving at different rates of speed and each arranged to engage the units.

22. A plurality of units, each comprising a roller and a display sheet, means for moving said units continuously in one direction through an endless path, said means comprising two driving mechanisms geared together to move at different rates of speed and each arranged to engage the units.

23. In a display device, a plurality of units, each comprising a roller and a display sheet, index wheels having notched peripheries arranged to engage the rollers to impart a slow movement to the units, endless chains having a movement synchronized with that of the index wheels to make a complete cycle while the peripheries of the index wheels move a distance equal to that between the notches therein, oppositely disposed hooks on the chains, and means for moving said hooks into and out of engagement with the units.

24. In a display device, a plurality of independent units, each comprising a roller and a display sheet, index wheels having notched peripheries arranged to engage the rollers to impart a slow movement to the units, endless chains having a movement synchronized with that of the index wheels to make a complete cycle while the peripheries of the index wheels move a distance equal to that between the notches therein, oppositely disposed hooks on the chains, and means for moving said hooks into engagement with a roller as it reaches a position to leave the notches in the index wheels.

25. In a display device, a plurality of units, each comprising a roller and a display sheet, a pair of index wheels near one end of the device having notched peripheries arranged to engage the ends of the rollers to impart a slow movement to the units, a pair of curved guides near the other end of the device, endless chains having a movement synchronized with that of the index wheels to make a complete cycle while the peripheries of the index wheels move a distance equal to that between the notches therein, and means on said chains to move the rollers from the index wheels to said guides.

26. In a display device, a plurality of units, each comprising a roller and a display sheet, a pair of index wheels near one end of the device having notched peripheries arranged to engage

the ends of the rollers to impart a slow movement to the units, a pair of curved guides near the other end of the device, means for guiding the rollers in straight lines from the index wheels to the curved guides, endless chains having a movement synchronized with that of the index wheels to make a complete cycle while the peripheries of the index wheels move a distance equal to that between the notches therein, and means on said chains to move the rollers from the index wheels to and through said curved guides.

FRANK C. B. PAGE.