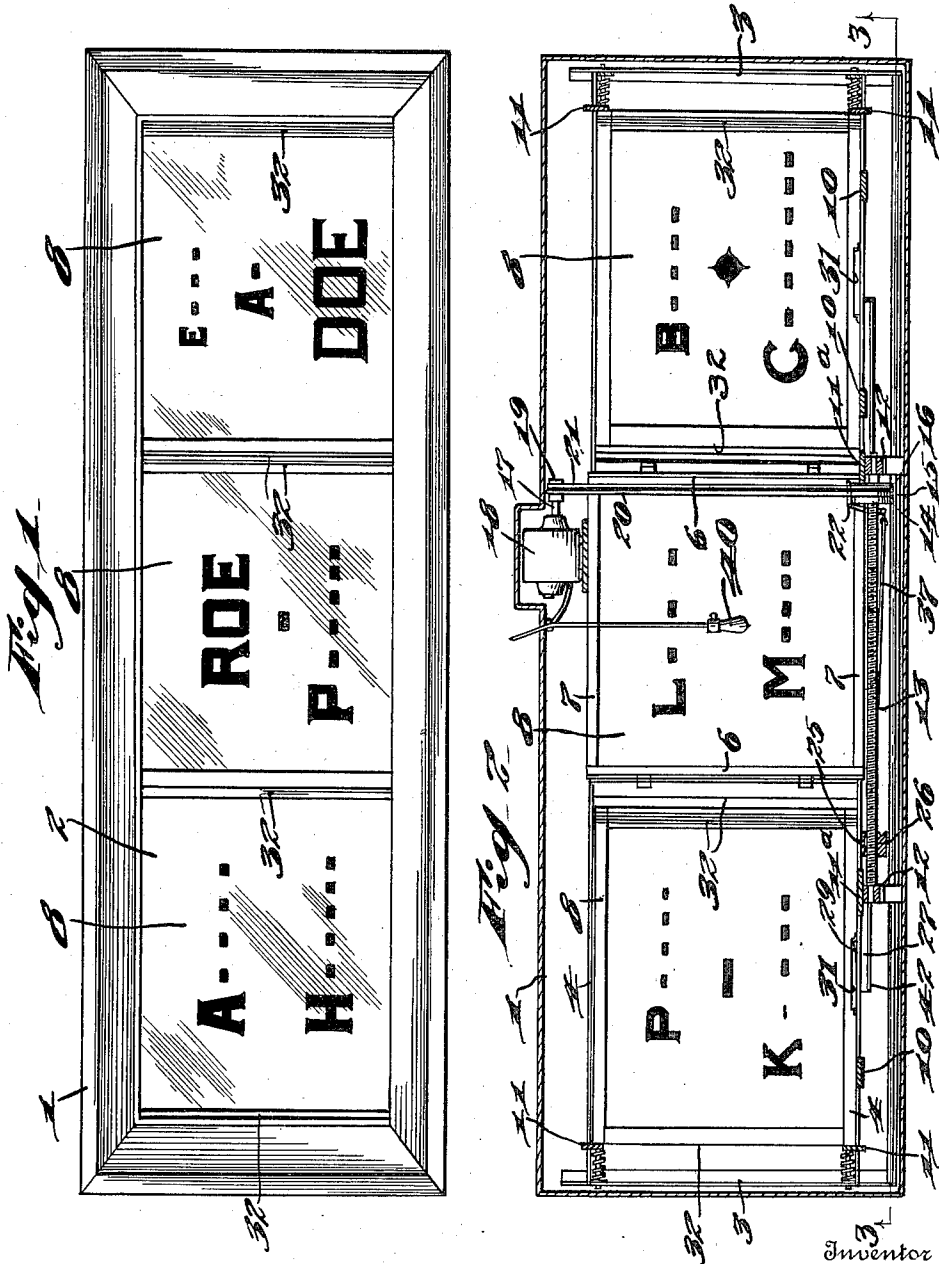


1,024,177.

Patented Apr. 23, 1912.

4 SHEETS—SHEET 1.



Witnesses  
*Thos. Treumann*  
*R. H. Krentel*

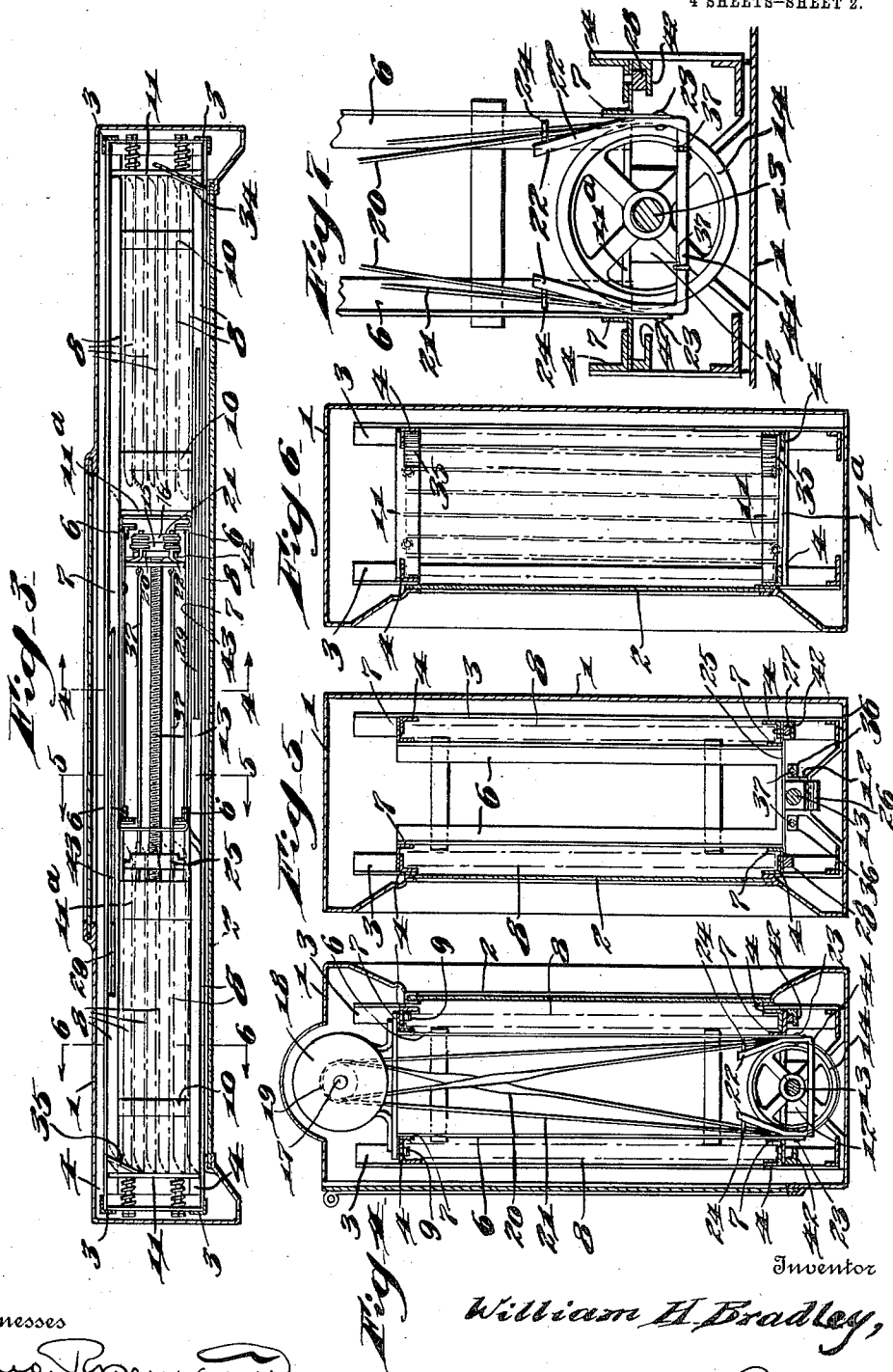
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1,024,177.

W. H. BRADLEY.  
ADVERTISING APPARATUS.  
APPLICATION FILED JAN. 12, 1911.

Patented Apr. 23, 1912.

4 SHEETS-SHEET 2.



Witnesses  
Thos. Foreman.  
R. S. Krenkel.

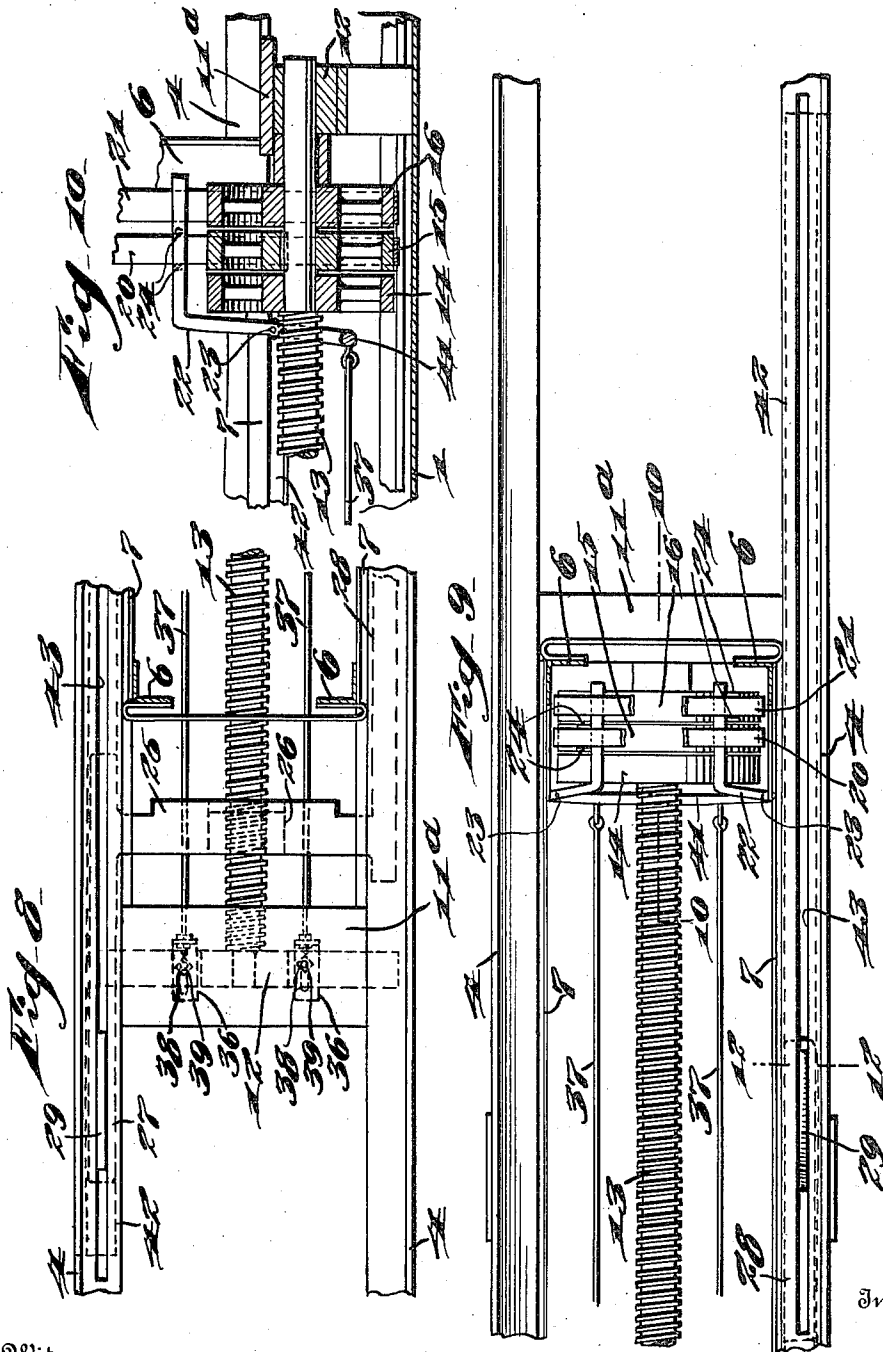
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1,024,177.

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4 SHEETS-SHEET 3.



Witnesses  
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APPLICATION FILED JAN. 12, 1911.

1,024,177.

Patented Apr. 23, 1912.

4 SHEETS-SHEET 4.

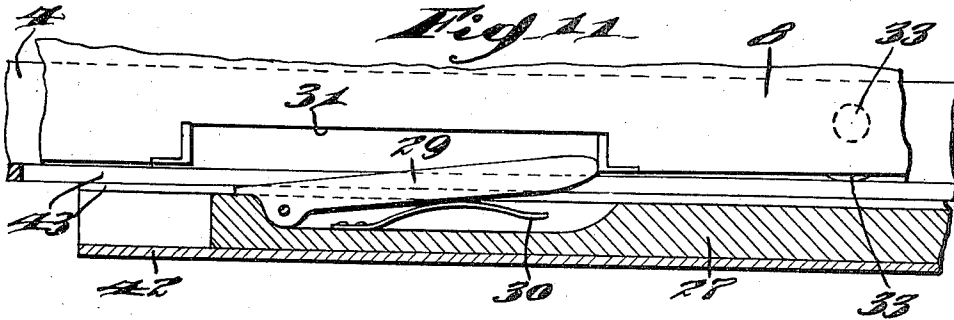


Fig. 12

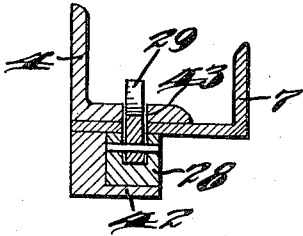


Fig. 13

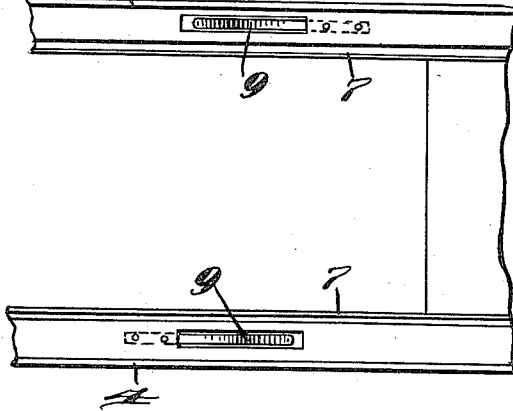
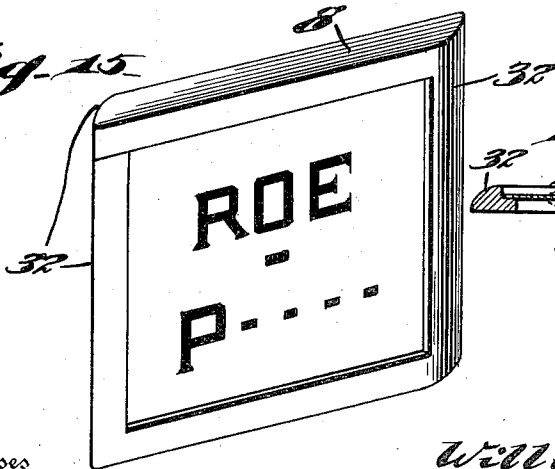


Fig. 14



Fig. 15



Witnesses

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# UNITED STATES PATENT OFFICE.

WILLIAM H. BRADLEY, OF PHILADELPHIA, PENNSYLVANIA.

## ADVERTISING APPARATUS.

1,024,177.

Specification of Letters Patent.

Patented Apr. 23, 1912.

Application filed January 12, 1911. Serial No. 602,246.

*To all whom it may concern:*

Be it known that I, WILLIAM H. BRADLEY, a citizen of the United States, residing at Philadelphia, county of Philadelphia, and State of Pennsylvania, have invented certain new and useful Improvements in Advertising Apparatus, of which the following is a specification.

My invention relates to improvements in advertising apparatus, and more particularly to automatically changing signs, the object of the invention being to provide improved mechanism for shifting signs at regular intervals so that all of the signs are brought into position for display in regular order.

A further object is to provide a casing having a plurality of signs in both ends, and means for moving a sign from one end to the other and from the last-mentioned end back to the first-mentioned end, all of which movement is automatically controlled by a screw or worm, and improved means for regulating the direction of turning said screw or worm, such control being entirely automatic.

A further object is to provide improvements of this character which will enable signs to be readily removed and replaced by others without interfering in the slightest with the operation of the apparatus, and which signs may be changed during the running of the apparatus if desired.

A further object is to provide an apparatus of this character which is designed for night display as well as during day light, as it may be readily illuminated and transparent signs employed.

With these and other objects in view, the invention consists in certain novel features of construction and combinations and arrangements of parts, as will be more fully hereinafter described and pointed out in the claims.

In the accompanying drawings: Figure 1, is a view in front elevation illustrating my improvements. Fig. 2, is a view in vertical longitudinal section. Fig. 3, is a view in section on the line 3—3 of Fig. 2. Figs. 4, 5, and 6, are views in section on the lines 4—4, 5—5, and 6—6 respectively of Fig. 3,

such views being on an enlarged scale. Fig. 7, is a fragmentary sectional elevation illustrating the driving pulleys and the belt shifting mechanism. Fig. 8, is a fragmentary plan view illustrating the structure at one end of the operating screw. Fig. 9, is a similar view of the structure at the other end of the operating screw. Fig. 10, is a view in longitudinal section on the line 10—10 of Fig. 9. Fig. 11, is a fragmentary sectional elevation on an enlarged scale showing the manner of connection between the operating carriage and one of the slides. Fig. 12, is a section on an enlarged scale on the line 12—12 of Fig. 9. Fig. 13, is an inverted fragmentary plan view of the top rails showing the sign engaging springs. Fig. 14, is a longitudinal section through one of these springs. Fig. 15, is a perspective view of one of the signs, and Fig. 16, is a view in longitudinal section through a sign.

1, represents an elongated rectangular casing preferably of metal having a front plate 2 of glass or other transparent material. The said casing inclosing the signs, their supports and their operating mechanism, and the transparent front 2 permitting a clear view of the signs in the front part of the casing.

Inside of the casing, a structural frame is provided and is composed of vertical and horizontal angle irons 3 and 4 respectively, said vertical angle irons being adjacent the respective ends of the casing, and the horizontal angle irons extending substantially throughout the length of the casing, but removed from top and bottom thereof.

At a point centrally of the casing and occupying the space approximating one-third of the length of the casing, is a second frame which comprises uprights 6 and horizontal angle irons 7, said angle irons 7 overlying and underlying the upper and lower angle irons 4 respectively and forming, in effect, U-shape or channel tracks for the passage of the signs 8 throughout the intermediate portion of the casing. At these portions of the casing, bow springs 9 project through the angle irons of the frame and engage the signs with such friction as to hold them

against accidental movement against rattling and against possibility of being moved in the wrong direction by my improved carriage hereinafter described.

5 At the end portions of the casing, the horizontal angle irons 4 are connected by transverse bars 10 which serve as supports for a plurality of signs 8 at both ends of the casing, and the longitudinal movement of  
10 these signs is cushioned by spring-pressed plates 11 as shown in Fig. 3. Cross bars 11<sup>a</sup> are located at the intermediate portion of the casing adjacent the bottom thereof, and in blocks 12 depending from said bars a longitudinal positioned screw or worm 13 is  
15 beveled. In other words, this screw, which I shall hereinafter term it, is permitted a free rotary motion in the blocks 12 which constitute bearings therefor, and on one end of this screw 3, pulleys 14, 15, and 16 are  
20 mounted, the central pulley 15 being keyed to the screw, while the pulleys 14 and 16 at opposite sides thereof are loose on a smooth portion of said screw, so as to turn freely  
25 thereon.

In the upper part of the casing, a drive shaft 17 is located and is driven by a motor 18. On this drive shaft an elongated pulley 19 is secured, and on which two endless  
30 belts 20 and 21 are mounted, the belt 20 being crossed as shown particularly in Figs. 2 and 4. These belts 20 and 21 are adapted to engage the pulleys 14, 15 and 16, and are moved by a belt shifting frame 22 as shown  
35 in Fig. 7. This frame is pivotally secured as shown at 23, and is provided with pins 24 to engage at opposite sides of the belts, and move either of said belts onto the pulley 15, the crossed belt 20 serving to turn the  
40 screw in one direction, and the straight belt in the opposite direction, one of these belts serving to idly turn either the pulley 14 or 16 as the case may be.

The belts are shifted automatically by  
45 means of my improved carriage 25, the transverse bar of which is made with a screw-threaded bearing 26 to receive the screw 13, and compel said carriage to move longitudinally as the screw turns. This carriage is  
50 provided with bars 27 and 28 which project in opposite directions, and are positioned below the horizontal angle irons 4, and are each provided with pivoted catches 29 which are pressed upward by springs 30, and are  
55 adapted to engage in recesses 31 in the signs 8, so as to move said signs or to ride under the signs, the catches 29 of the respective bars projecting in opposite directions, as will more fully hereinafter appear.

60 The signs 8 above referred to comprise rectangular frames, the ends 32 of which are beveled in opposite directions, so that the signs will force themselves into position and displace other signs as they are moved by

the carriage to facilitate the movement of 65 the signs. They are preferably provided on their edges and inner sides with domes 33 to reduce friction to a minimum.

Referring particularly to Fig. 3, it will be noted that an inclined plate 34 is located 70 at the right hand end of the casing adjacent the forward portion, so that as the signs 8 are moved from rear to front, the forward sign will be moved longitudinally toward the left in position to be engaged by the 75 catch 29 of the carriage 25 as it begins its movement to the left. At the left hand end of the casing, and adjacent the rear thereof, is an inclined plate 35 constituting a cam which, when the signs are moved from front 80 to rear, compels the rearmost sign to move longitudinally to the right in position to be engaged by the catch 29 of carriage 25, when the latter begins to move to the right. This movement to right and left is automatically 85 controlled by the carriage itself, engaging at one end pivoted arms 41 which shift the frame 22, and at the other extreme movement of said carriage it engages angle plates 36 which are connected to the arms 41 by wires 90 37 so as to move the belt shifting frame 22 in the opposite direction. These angle plates 36 are connected to a transverse bar of the frame by means of bolts 38 which are positioned in slots 39 in the plates, so 95 as to limit the longitudinal movement thereof. If desired, an incandescent or other light 40 may be located intermediate of the ends of the casing, and the signs may be transparencies, so that the inter- 100 mediate signs may be displayed in the dark.

In operation, the carriage 25 is moved longitudinally from right to left, and left to right by means of the screw 13. When it moves to the left, the catch 29 on the bar 28 105 adjacent the front of the casing engages in a recess 31 in the forward sign at the right hand end of the casing, and moves said sign along the front of the casing to an intermediate position, the said sign serving to 110 force the intermediate sign in advance thereof longitudinally. This sign which was formerly in an intermediate position by reason of the cam or bevel shape of its end engaging the beveled end of the forward sign at the 115 extreme left, will cause the series of signs at the left to be pushed to the rear to make room for the said sign which has been pushed from the intermediate position. At the same time, the carriage reaches the end of 120 its movement to the left, engages the angle brackets 36, and by means of the wires 37 shifts the belt shifting frame 22 and screw 13 begins to turn in the opposite direction, moving the carriage from left to right. 125 This movement causes the catch 29 on the rear bar 27 to engage the rear sign at the left, and move it along the back track, and

when it reaches the right, by reason of the cam shape of the ends of the signs, this rear sign being moved, will force forwardly the series of signs at the right, until the carriage engages the arms 41 to move the belt shifting frame 22 and turn the screw in the opposite direction to move the carriage from right to left as before. The cam plates 34 and 35 at the respective ends of the casing serve to move the signs at the ends of the series sufficiently to be caught by the catches 29. In other words, these cam plates give the signs their initial movement and insure their positioning for the reception of the catches. When the carriage is moving from left to right, and carrying the sign along the rear track, the signs at the front are stationary, so that they may be readily understood. The signs are loose and may be removed and replaced whenever desired. As a support for the bars 27 and 28 of the carriage, angle iron rails 42 are secured to the bottom of rails 4 and 7, and for the accommodation of the catches 29, the rails 4 and 7 are longitudinally slotted, so that these catches project readily into the recesses of the signs, and said catches are so formed and pivoted in their recesses that their upward movement is limited as readily seen in Fig. 11. While I refer to the part 41 as arms, it is as a matter of fact a single member which operated the belt shifting mechanism, but its function is that of pivoted arms, and in the employment of this term, I use it broadly to cover any mechanism of this character for shifting the belts.

It is simply necessary to keep the device full of signs, that is, enough signs at the right hand end to fill the space in the frame, enough in the left hand side to fill the frame, and a sign intermediate of the series and located between the same, so that the carriage will move the rearmost sign from the left hand end of the casing to the right to make room for the front signs as they are moved to the left, and the signs shift from front to rear solely by reason of the cam action of their beveled ends and their longitudinal movement is cushioned by the spring plates 11 above described.

Various slight changes might be made in the general form and arrangement of parts described without departing from my invention, and hence I do not limit myself to the precise details set forth, but consider myself at liberty to make such changes and alterations as fairly fall within the spirit and scope of the appended claims.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:

1. In an apparatus of the character described, the combination with a casing, tracks in the casing, and a longitudinally

positioned screw, of means for turning said screw in one direction, other means for turning said screw in the opposite direction, signs in said casing movable from end to end, a carriage in said casing adapted to be moved by said screw and constructed to engage the signs, and said carriage adapted to automatically throw into and out of operation said operating means, substantially as described.

2. In an apparatus of the character described, the combination with a casing, a plurality of signs in the casing adapted to be moved from end to end thereof, and a longitudinally positioned screw having rotary mounting in said casing, of a driving shaft, fast and loose pulleys on said screw, a straight belt and a cross belt connecting said driving shaft with said pulleys, a belt shifting frame, a sign carrier adapted to be moved by said screw, and means at the respective ends of said screw adapted to be engaged by said carriage whereby the belt shifting frame is moved to reverse the direction of turning of said screw, substantially as described.

3. In an apparatus of the character described, the combination with a casing, a plurality of signs in the casing adapted to be moved from end to end thereof, and a longitudinally positioned screw having rotary mounting in said casing, of a driving shaft, fast and loose pulleys on said screw, a straight belt and a cross belt connecting said driving shaft with said pulleys, a belt shifting frame, a sign carrier adapted to be moved by said screw, means at the respective ends of said screw adapted to be engaged by said carriage whereby the belt shifting frame is moved to reverse the direction of turning of said screw, and spring cushioned plates located in the ends of said casing and adapted to be engaged by said signs, substantially as described.

4. In an apparatus of the character described, the combination with a casing, a plurality of signs in the ends of the casing, tracks connecting the ends of the casing at front and rear, signs at front and rear of the casing interposed between the signs at the ends of the casing, cam plates at the ends of the casing, and means for moving said signs longitudinally on said tracks, and spring cushioned plates located in the ends of said casing and adapted to be engaged by said signs, substantially as described.

5. In an apparatus of the character described, the combination with a casing, tracks in the casing, and a longitudinally positioned screw, of means for turning said screw in one direction, other means for turning said screw in the opposite direction, signs in said casing movable from end to end, a carriage in said casing adapted to be

moved by said screw and constructed to engage the signs, said carriage adapted to automatically throw into and out of operation said operating means, spring cushioned  
5 plates located in the ends of said casing and adapted to be engaged by said signs, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILLIAM H. BRADLEY.

Witnesses:

CHAS. E. POTTS,  
R. H. KRENKEL.

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."

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