March 1, 1932. W. J. CORRIGAN 1,847,069

CHANGEABLE SIGN

Filed May 18, 1931 5 Sheets-Sheet 1

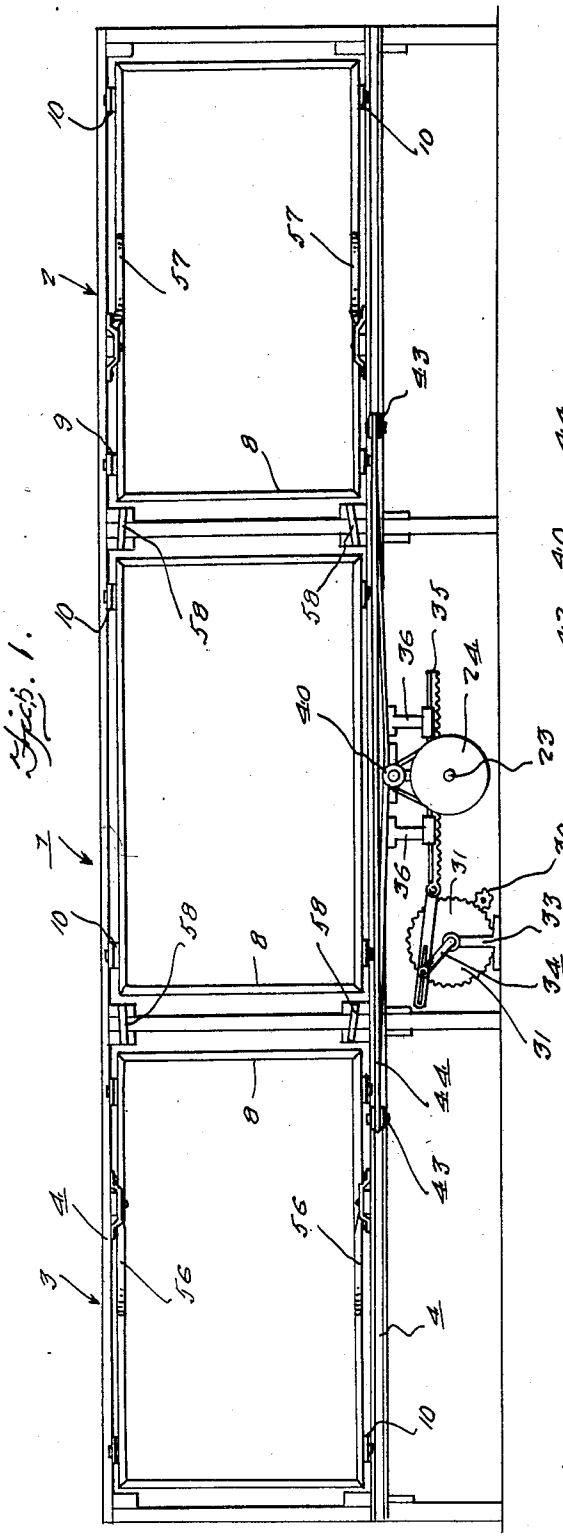


Fig. 1.

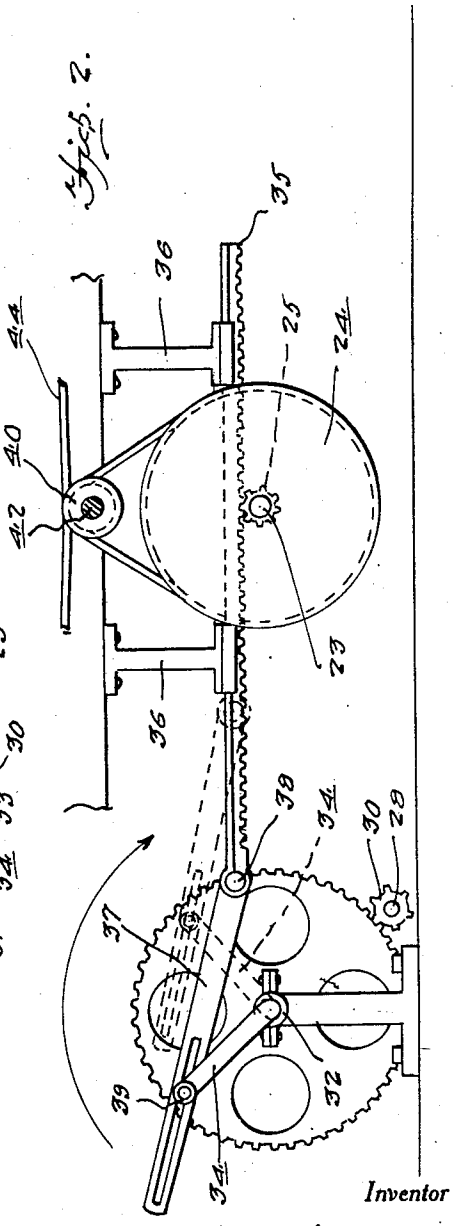


Fig. 2.

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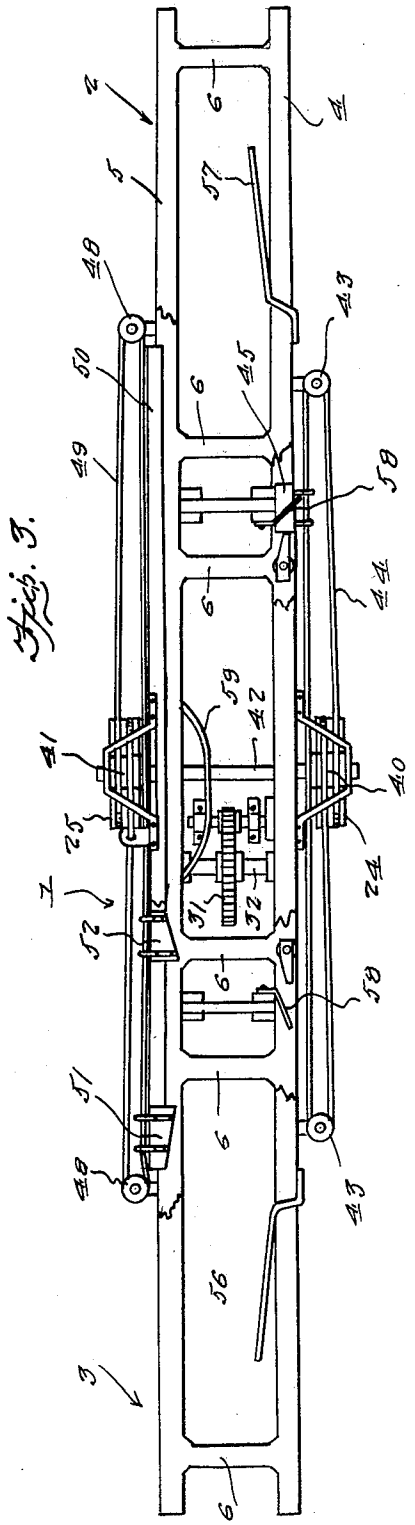


Fig. 3.

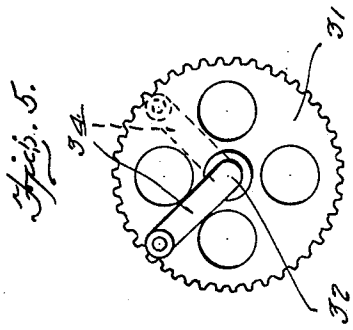


Fig. 5.

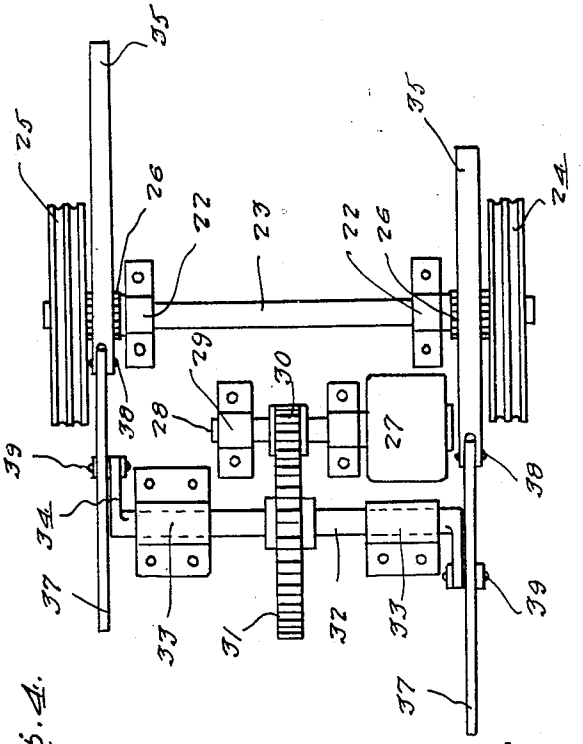


Fig. 4.

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Fig. 6.

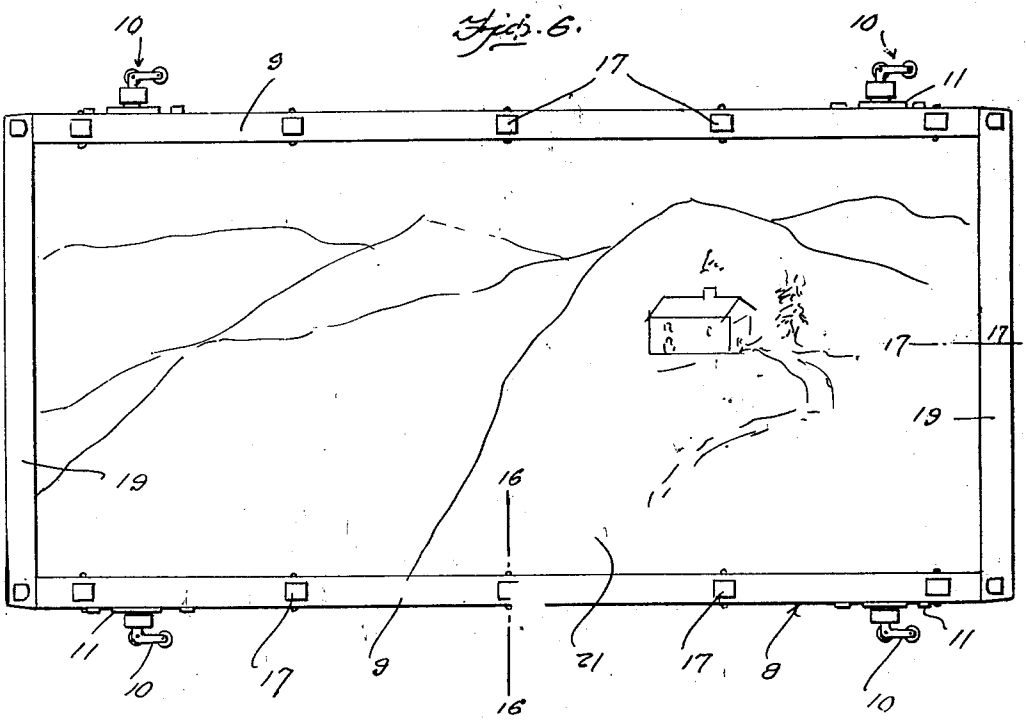


Fig. 7.

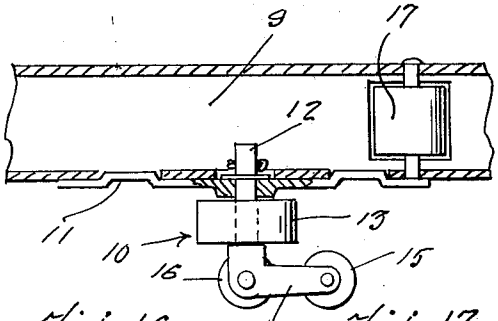


Fig. 16.

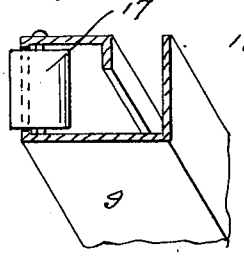


Fig. 17.

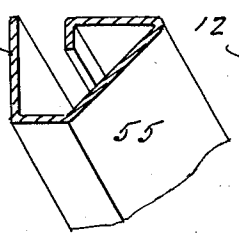
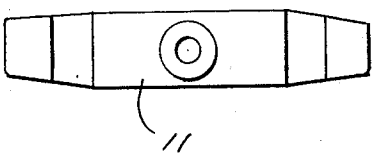


Fig. 8.



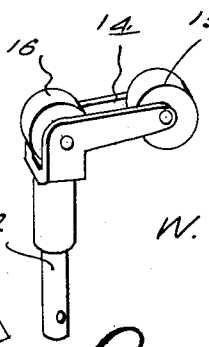


Fig. 9.

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CHANGEABLE SIGN

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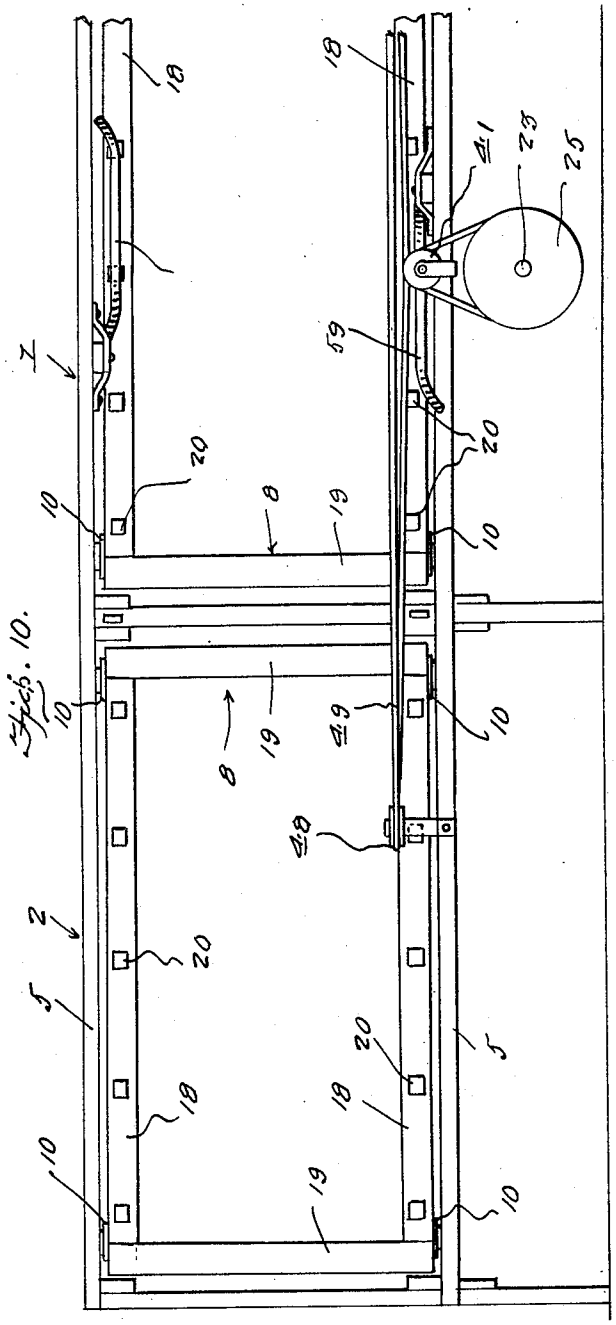


Fig. 10.

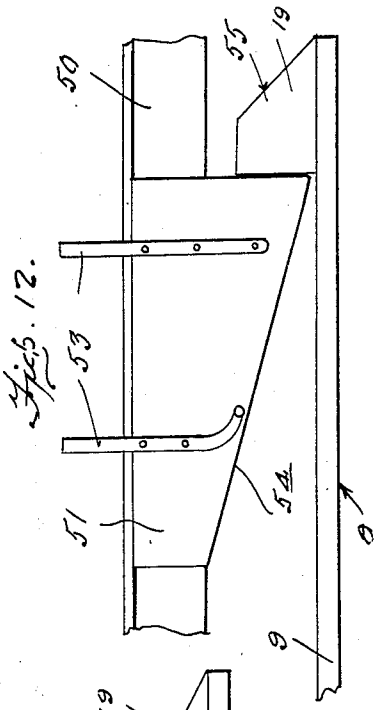


Fig. 12.

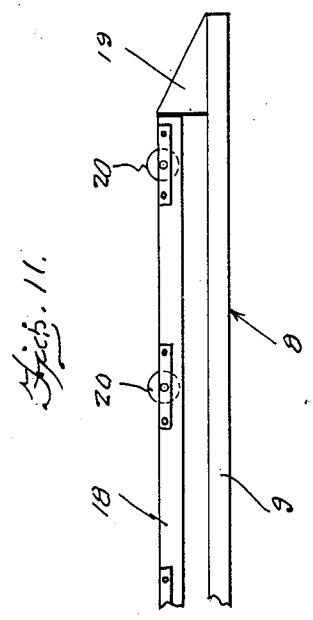


Fig. 11.

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Fig. 13.

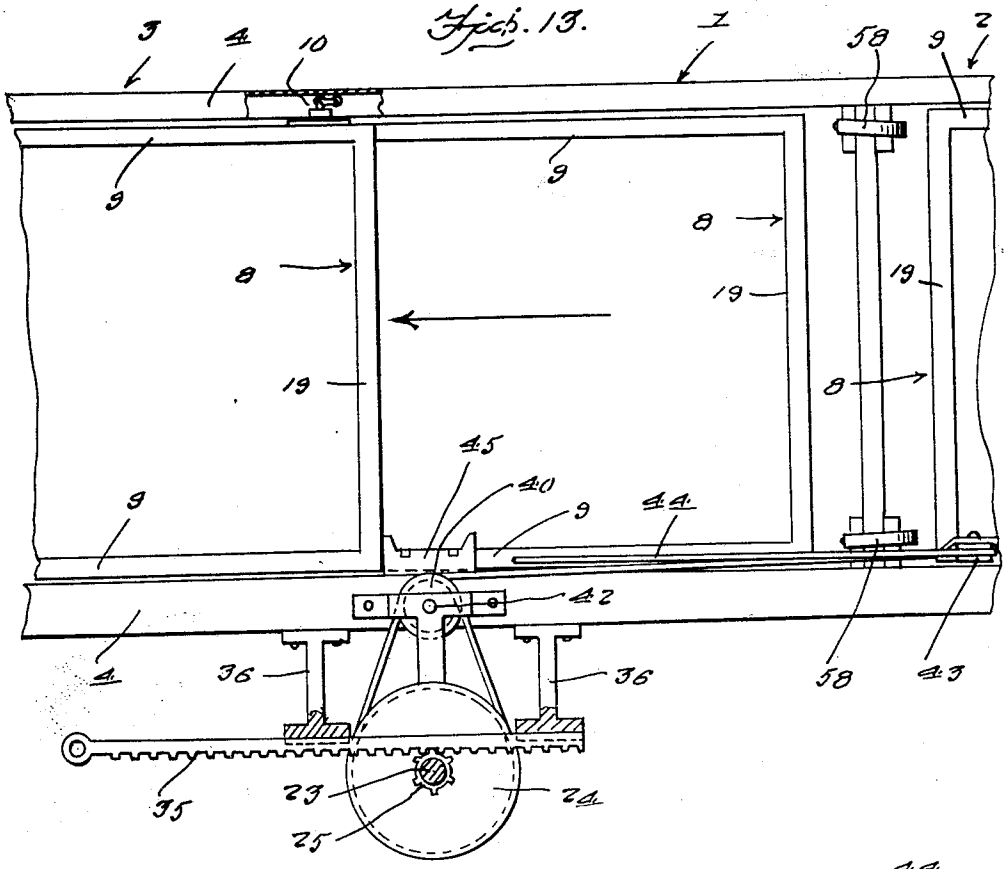
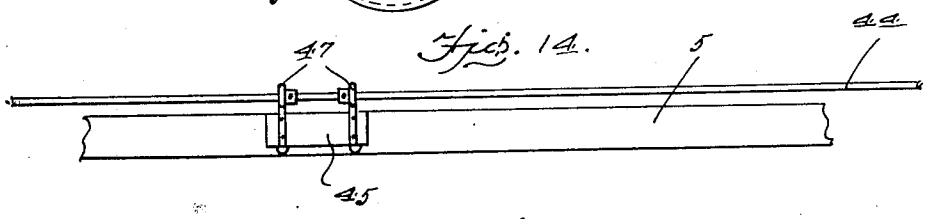


Fig. 14.



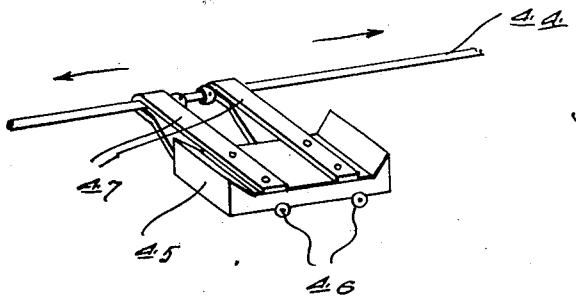


Fig. 15.

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1,847,069

UNITED STATES PATENT OFFICE

WILLIAM J. CORRIGAN, OF EAST SYRACUSE, NEW YORK

CHANGEABLE SIGN

Application filed May 18, 1931. Serial No. 538,337.

This invention relates generally to new and useful improvements in signs and more particularly to changeable signs and has for one of its important objects to provide, in a manner as hereinafter set forth, a changeable sign embodying the novel construction and arrangement of parts whereby a series of signs will be successively displayed, a plurality of signs of the series being on display simultaneously.

Another important object of the invention is to provide a changeable sign of the character described embodying novel means for shifting the movable elements which carry the advertising matter or other indicia.

Other objects of the invention are to provide a changeable sign of the character set forth which will be simple in construction, strong, durable, efficient and reliable in use and which may be manufactured at low cost.

All of the foregoing and still further objects and advantages of the invention will become apparent from a study of the following specification, taken in connection with the accompanying drawings wherein like characters of reference designate corresponding parts throughout the several views, and wherein:—

Figure 1 is a view in front elevation of a sign in accordance with this invention.

Figure 2 is a view in side elevation of the driving mechanism.

Figure 3 is a view in top plan of the sign with the shiftable frames removed therefrom.

Figure 4 is a view in top plan of the actuating mechanism.

Figure 5 is a detail view in side elevation of one of the drive gears and the crank shaft upon which the same is mounted.

Figure 6 is a detail view in elevation of one of the shiftable frames showing the sign mounted therein.

Figure 7 is a fragmentary detail view in vertical longitudinal section through a portion of the lower rail of one of the frames.

Figure 8 is a detail view in plan of one of the plates through the medium of which the casters are mounted on the movable frames.

Figure 9 is a detail view in perspective of one of the casters.

Figure 10 is a fragmentary view in rear elevation of the sign.

Figure 11 is a fragmentary view in top plan showing an end portion of one of the frames.

Figure 12 is a detail view in top plan showing one of the rear frame actuating lugs or blocks in engagement with one of the shiftable frames, an end portion only of which is shown.

Figure 13 is a fragmentary view partially in front elevation and partially in vertical section through an intermediate portion of the sign.

Figure 14 is a fragmentary view in top plan showing the mounting on the front frame actuating lug or block.

Figure 15 is a detail view in perspective of the forward or front frame actuating lug or block.

Figure 16 is a vertical sectional view taken substantially on the line 16—16 of Figure 6.

Figure 17 is a horizontal sectional view taken substantially on the line 17—17 of Figure 6.

Referring now to the drawings in detail, it will be seen that the sign comprises a supporting structure which is formed to provide an intermediate display portion 1 and the outer or end display portions 2 and 3. The supporting structure further includes the front upper and lower tracks 4 and the rear upper and lower tracks 5 which are disposed in spaced parallelism with the front tracks 4. The upper and lower front and rear tracks 4 and 5 are connected with each other by the pairs of transverse tracks 6, one pair of the transverse tracks being provided in each of the portions 1, 2 and 3 of the supporting structure. All of the tracks thus referred to, are in the form of channels, the upper tracks, of course, being inverted. It will thus be seen that the transverse tracks 6 establish communication between the upper tracks 4 and 5 and between the lower tracks 4 and 5.

Disposed for travel in the tracks are a plurality of sign frames 8 having casters

mounted on the upper and lower rails 9 thereof, said casters being designated generally by the reference numeral 10 and illustrated to advantage in Figures 6, 7 and 9 of the drawings. Plates 11 are mounted on the upper and lower sides of the upper and lower rails respectively of the frames 8 and journaled in said plates and extending through openings provided therefor in the rails 9 are the spindles 12 of the casters having journaled thereon the horizontally disposed rollers 13 for rolling contact with the side walls of the tracks. Formed integrally with the shanks 12 of the casters 10 is an angular yoke 14 having journaled in its free end portion a roller 15 which is constantly in rolling contact with the top and bottom walls of the upper and lower tracks, respectively. Rollers 16 are also journaled in the angles of the yokes 14 and are disposed above the rollers 15 in order to contact with the track only when irregularities are encountered therein. Vertically disposed rollers 17 are journaled in the front signs of the upper and lower rails 9 of the signs 8 for rolling contact with the forward walls of the tracks.

Referring now to Figure 11 of the drawings, it will be seen that upper and lower bars 18 extend between the upper and lower end portions of the end rails 19 of the frames 8. Mounted on the bars 18 are the vertically disposed rollers 20 for rolling contact with the rear sides of the tracks 4 and 5 when the frames are traveling therein. A removable sign 21 is mounted in any suitable manner in each of the frames 8. The signs 21 may be provided on both sides to be observed by persons standing either in front or in the rear of the invention. In this manner six signs will be on display simultaneously, three of which may be viewed from each side of the device.

Mounted beneath the central portion of the supporting structure and suspended therefrom on the brackets 22 is a stationary, transversely extending, horizontal shaft 23 having journaled on its end portions the compound or double pulleys 24 and 25, each having fixed on its hub or central portion and extending inwardly therefrom a gear 26. The reference numeral 27 designates an electric motor which drives a shaft 28 which is journaled in the bearings 29 and which has fixed on an intermediate portion a comparatively small gear 30 which is in mesh with a comparatively large gear 31 which, in turn, is fixed on an intermediate portion of a crank shaft 32 which is journaled in the bearings 33, as illustrated to advantage in Figure 4 of the drawings. At its ends the crank shaft 32 is provided with the crank arms 34 which, as illustrated to advantage in Figures 4 and 5 of the drawings are disposed at an angle of 90 degrees with respect to each other. The reference numeral 35 designates a pair of rack bars which are mounted for horizontal, longitudinal sliding movement in the hangers 36 which depend upon the supporting structure, the rack bars 35 extending above the gears 26 and being in mesh therewith. Pitmen 37 are pivotally connected, as at 38, with one end of the rack bars 35 and have their outer ends connected to the crank arms 34 by pin and slot connections 39 for operatively connecting the rack bars to the crank shaft 32 for actuation thereby.

Compound or double pulleys 40 and 41 are journaled on the end portions of a stationary shaft 42 which is disposed above the shaft 23 in spaced parallelism therewith. The pulley 40 is aligned with the pulley 24 and the pulley 41 is aligned with the pulley 25. Horizontally disposed pulleys 43 are mounted on the lower portion of the supporting structure and on the forward side of said supporting structure in spaced relation to each other and between the pulley 40 and the ends of the supporting structure. An endless belt or cable 44 is trained around the pulleys 24, 40 and 43 and has a portion thereof extending in parallelism with an intermediate portion of the lower front track 4. The frame actuating lug or block 45 (see Figures 13, 14, and 15) is disposed for travel in said intermediate portion of the lower front track 4 and to this end is provided with rollers 46. Spaced, parallel arms 47 connect the lug or block 45 to the portion of the cable 44 which parallels the lower front track 4 for movement with said cable.

Horizontally disposed pulleys 48 are mounted on the rear side of the lower portion of the supporting structure in spaced relation to each other and between the pulley 41 and the ends of the supporting structure. An endless belt or cable 49 is trained around the pulleys 25, 41 and 48 and has a portion thereof extending in parallelism with an intermediate portion of the lower rear track 5. As best seen in Figures 3 and 12 of the drawings a longitudinally extending, horizontally disposed track 50 is provided adjacent an intermediate portion of the rear lower track 5 and is disposed in parallelism therewith. Spaced rear lugs 51 and 52 are disposed for travel on the track 50 and are connected to the cable 49 at spaced points for actuation thereby through the medium of the arms 53. The forward or front sides of the rear lugs 51 and 52 are inclined, as at 54. It may also be well to here point out that the outer sides of the rails 19 of the frames 8 are beveled, as at 55.

Mounted on the upper and lower front rails 4 for operative engagement with the frames 8 and at intermediate points on the outer portions 2 and 3 of the supporting structure are the oppositely extending springs 56 and 57. Also mounted on the supporting structure at the ends of the intermediate por-

tion 1 are the forwardly and outwardly directed springs 58. Mounted on the upper and lower rear rails 5 on the intermediate portion 1 of the supporting structure are the oppositely disposed springs 59. It will be noted that all of the springs have one end free and their other ends anchored to the supports upon which said springs are mounted. The free end portions of the springs 59 are curved rearwardly.

Any desired number of the frames 8 may be provided, for example 23, in setting forth the operation of the device it may be well to first state that the movable or shifting frames travel in a path which may be said to substantially define a numeral 8. The cables 44 and 49 are actuated alternately in opposite directions by the reciprocating rack bars 35, as will be understood. The pin and slot connections 39 permit the cables 44 and 49 to remain stationary for a period of time at the end of each movement. The frames 8 are mounted for travel in the longitudinal tracks 4 and 5, and the transverse tracks 6. The springs 59 yieldingly urge the panels in the intermediate portions 1 of the supporting structure forwardly while the springs 56 and 57 yieldingly urge the frames 8 which are in the portions 2 and 3 rearwardly. The frames travel from the front tracks 4 to the rear tracks 5 while in the portions 2 and 3 on the outermost pairs of transverse tracks 6 while the frames travel from the rear tracks 5 to the front 4 in the intermediate portion 1 over the intermediate pair of tracks 6.

When the cable 44 is actuated in a direction to move the front lug 45 from right to left, said lug 45 will engage the right hand end of the forward-most frame 8 which is disposed in the intermediate portion 1 and shifts said frame to the left on the front upper and lower tracks 4 to the end portion 3. The left hand springs 58 engage the frame as said frame passes and yieldingly urge said frame forwardly in the upper and lower front tracks. The frame is engaged by the springs 56 after being disposed in the portion 3 and is urged rearwardly toward the rear tracks 5 on the transverse tracks 6 of said portion 3. As soon as a frame has been removed from the intermediate portion 1 the frames in said intermediate portion are moved forwardly by the springs 59 and upon movement of the cable 44 in the opposite direction, the lug 45 engages the left hand end of the next frame 8 in the intermediate portion 1 and said next frame is shifted toward the right into the portion 2.

When the cable 49 is moved in one direction, as from the left to the right when viewed in top plan, as in Figure 3 of the drawings, the lug 51 engages the inner side of the right hand end rail 19 of the frame 8 which is disposed rearmost in the portion 3 and said rearmost frame is carried toward the right into the intermediate portion 1 and is urged forwardly in said intermediate portion on the tracks 6 of said intermediate portion by the springs 59. It will thus be understood, of course, that the frames when moving into the different portions 1, 2 and 3 will ride past the springs 56, 57 and 59.

When the cable 49 moves in the opposite direction, the lug 52 will engage the inner side of the left hand end bar 19 of the rearmost frame 8 in the portion 2 and moves said frame from right to left into the intermediate portion 1 and it will thus be seen that the frames travel in a circuit. It will further be seen that the frames remain stationary at each shift thereof for a time which is sufficient to permit the signs to be observed. This constitutes an important and most desirable feature of the invention, as will be understood. Of course, any suitable covering may be provided on the front and rear of the supporting structure for concealing the mechanism and the frames and having suitable openings or windows therein through which the signs 21 in the frames may be observed. The covers may, of course, be attractively ornamented. The inclined sides 54 of the rear lugs 51 and 52 are adapted to ride over the end rails 19 of the frames 8 when said lugs 51 and 52 are moving toward the ends of the supporting structure. The cable 49 will flex sufficiently to permit this.

It is believed that the many advantages of a changeable sign constructed in accordance with this invention will be readily understood, and although the preferred embodiment of the invention is as illustrated and described, it is to be understood that changes in the details of construction and in the combination and arrangement of parts may be resorted to which will fall within the scope of the invention as claimed.

What is claimed is:—

1. A changeable sign comprising a supporting structure including spaced, parallel tracks and further including pairs of transverse tracks extending between an intermediate portion of the first named tracks and between the end portions of said first named tracks, sign supporting frames movable longitudinally on the first named tracks and transversely on the second named tracks between said first named tracks, means for moving the frames from an intermediate portion of one of the first named tracks to an intermediate portion of the other first named track on the intermediate pair of transverse tracks, means for moving the frames from the intermediate portion of said other first named track alternately to the end portions of said other first named track, means for moving the frames from the end portions of said other first named track to the end portions of said one first named track on the outer pairs of transverse tracks, and means

for moving the frames from the end portions of said one first named track to the intermediate portion of said one first named track.

2. A changeable sign comprising a supporting structure including spaced, parallel tracks and further including pairs of transverse tracks extending between the intermediate and end portions of the first named tracks, sign supporting frames movable on the tracks and means for moving the frames on the tracks over a substantially 8-shaped circuit.

In testimony whereof I affix my signature.

WILLIAM J. CORRIGAN.