K. KOIKE.

DISPLAY APPARATUS.

APPLICATION FILED DEC. 24, 1910. RENEWED FEB. 5, 1912.

1,038,899. Patented Sept. 17, 1912.

Fig. 2.

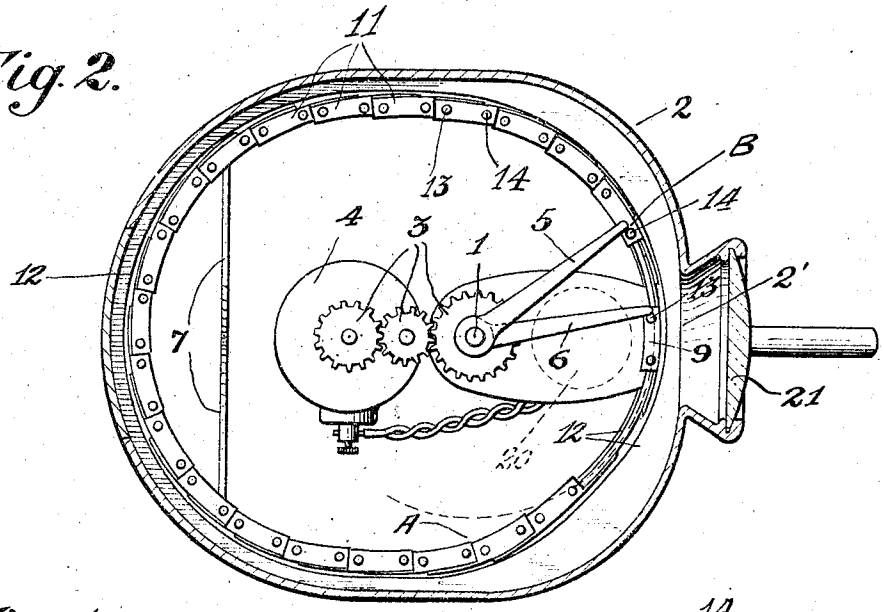
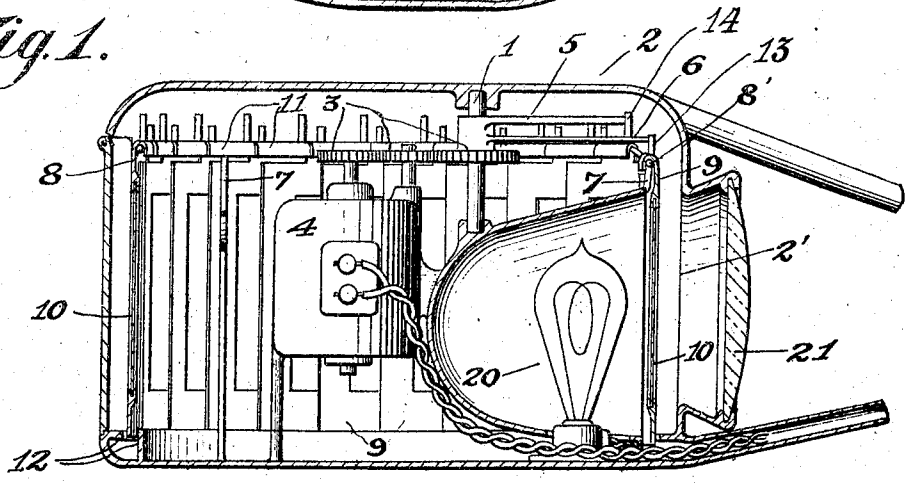


Fig. 1.



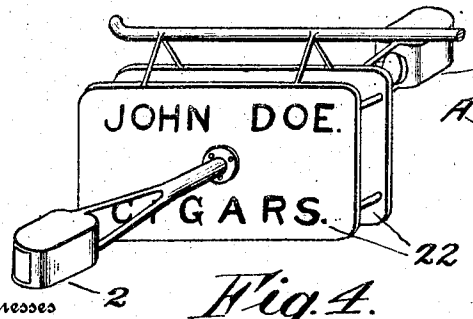
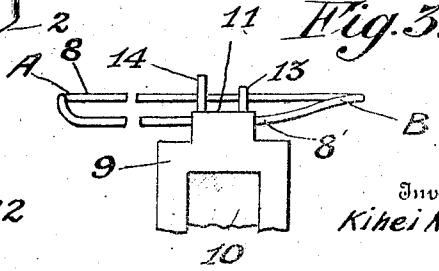


Fig. 4.

Fig. 3.



Witnesses

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UNITED STATES PATENT OFFICE.

KIHEI KOIKE, OF SEATTLE, WASHINGTON, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, TO KANISCHI TAKAHASHI, OF SEATTLE, WASHINGTON.

DISPLAY APPARATUS.

1,038,899. Specification of Letters Patent. Patented Sept. 17, 1912.

Application filed December 24, 1910, Serial No. 599,216. Renewed February 5, 1912. Serial No. 675,645.

To all whom it may concern:

Be it known that I, KIHEI KOIKE, a subject of the Emperor of Japan, and a resident of the city of Seattle, in the county of King and State of Washington, have invented certain new and useful Improvements in Display Apparatus, of which the following is a specification.

My invention relates to display apparatus and has for its primary object the provision of novel mechanism through the medium of which a series of transparent or semi-transparent slides are successively moved for the display of their contents at a predetermined point.

My invention in its present embodiment has particular reference to apparatus for projecting upon a suitable receiving surface a light beam in such manner as to effectually attract the attention of passers-by, and consists essentially in the provision of a durable, simple and comparatively inexpensive construction for supporting a series of slides or objects which permits of a comparatively large number of such slides or objects being employed, further, in actuator means associated therewith by which the said slides are advanced, and further, in novel means whereby connection between said actuator and slides is effected, and a release subsequently effected.

The invention further consists in the parts, arrangements and combinations of parts, hereinafter described and succinctly defined in my annexed claims.

Referring to the accompanying drawing, wherein like numerals of reference indicate like parts throughout: Figure 1 is a vertical longitudinal section of my improved apparatus. Fig. 2 is a horizontal section thereof. Fig. 3 is a detail fragmentary perspective of the track and illustrating a slide engaged thereon, and Fig. 4 is a perspective illustrating a sign board equipped with my invention.

Reference numeral 1 indicates a drive shaft, suitably journaled in casing 2, and connected by a train of gears 3 with a motor 4, of any suitable type, by which latter the shaft 1 is driven continuously.

Reference numerals 5 and 6 indicate arms fixed to shaft 1 and projecting horizontally therefrom, the latter of these arms being relatively shorter than the former and disposed below and in advance thereof, for a purpose hereinafter made manifest.

Reference numeral 8 indicates a track, supported in casing 2 by suitable bracket arms 7 and extending eccentrically about shaft 1 with a section 8′ thereof depressed below the level of the remainder. Track section 8′ extends across a display opening 2′ of casing 2 and for a suitable distance to one side thereof in the direction of travel by which construction display slide carriers 9, supported for travel on said track, will be caused to lower and through such movement effect their disengagement from the positioning arm 5, as hereinafter set forth. Carriers 9 which can be of any suitable construction, carry the slides 10, for example of glass, and are provided on their upper end portions with track engaging parts 11, conveniently in the form of hook shaped extensions. The lower end portions of carriers 9 are freely received between guides 12 of the casing, these guides serving to steady the said carriers while permitting of relative vertical movement thereof during their travel on said track section 8′, as will be readily understood.

Reference numerals 13 and 14 indicate engaging parts on carriers 9, these consisting of pins arranged side by side in the direction of travel of the slides, and projecting upwardly from the track engaging parts 11 thereof. Pin 14, which is the longer of the two, is arranged forwardly of pin 13 and is adapted to be engaged by arm 5 to effect the positioning of a carrier for the display of the subject matter of its slide through the display opening 2′, while arm 6 is adapted for engagement with the pin 13 for removing a carrier from the displaying position, as will now be described.

Assuming that the parts are arranged as shown in the drawing, arm 6 in its movement engages the pin 13 of carrier 9, arranged in front of opening 2′, and simultaneously arm 5 engages pin 14 of the succeeding carrier 9 and upon continued rotation of shaft 1 these carriers are simultaneously shifted to effect the removal of the former and the positioning for display of the latter. The last named carrier in being thus positioned descends on track section 8′ and thereby effects the disengagement of its pin 14 from the actuating arm 5. Arm 6

continues to move its carrier, following this release of such actuator arm, and during this last named portion of the movement, the carrier being removed comes in contact with a series of carriers mounted on the eccentrically disposed portion A of track 8 and moves them as a unit, to thereby effect the positioning of the carrier at the opposite end of said series into the path of the long arm 5, at the point B. As now considered, carriers 9 are arranged with their side portions overlapping one another, and those carriers of track portion A are crowded together with their track engaging parts 11 contacting one another, thereby making it possible to maintain a multiplicity of slides, constituting a main supply, on a comparatively short length of track.

Reference numeral 20 indicates a source of light, conveniently consisting of an electric lamp, outwardly of which I arrange a projecting lens 21, the latter being arranged over casing opening 2', as shown.

In Fig. 4 I have shown my invention mounted to throw a beam of light onto a sign board 22, and when so applied I desire that slides 10 be of different colors, to thereby obtain the illumination of said sign board in colors which are changed upon each shifting operation of the carriers 9.

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

1. A display apparatus comprising a track having a depressed section, an eccentrically disposed actuator supported for movement over the depressed section of said track, a slide carrier mounted on said track, and means on said carrier for connecting the latter with said actuator, said last means being arranged to be withdrawn from the path of said actuator by movement of said carrier down said depressed section of said track.

2. A display apparatus comprising a track having a depressed section, a slide carrier on said track, an actuator, means supporting said actuator for movement into and out of the path of said carrier, engaging means for said actuator provided on said carrier so as to be withdrawn from engagement with said actuator by and during movement of said carrier on said depressed section of said track, and means for operating said actuator.

3. A display apparatus comprising a track having a depressed section, a series of slide carriers on said track, an actuator comprising spaced operating members movable over said depressed section of said track and arranged to simultaneously engage respective adjacent carriers, means for operating said actuator, and engaging parts on said carriers for engagement by said operating members, said engaging parts being arranged to be withdrawn from the path of said operating members by movement of said carriers down said depressed section of said track.

4. A display apparatus comprising a continuous track having a depressed section, an illuminating means arranged to project a beam of light across said track, a series of slide carriers on said track, an actuating means for simultaneously moving one carrier to a position of display and another from such position, and connecting means on said carriers for engagement with said actuating means arranged to be disengaged from the latter by and during movement of the carriers down said depressed section of said track.

5. A display apparatus comprising a continuous track having a depressed section, an illuminating means arranged to project a beam of light across said track, a series of slide carriers on said track, an actuating means comprising a pair of arms arranged one in advance of the other for engagement with respective slide carriers, and connecting means on said carriers for engagement with said actuating means arranged to effect the release of said carriers by and during movement of the latter on said depressed section of said track.

6. A display apparatus comprising a continuous track, a series of slide carriers on said track, exhibiting means, two rotatable actuators mounted for movement to travel in respective paths and for a portion of their travel in the path of the said carriers, one of said actuators being arranged in advance of the other, and means for operating the other of said actuators to position a carrier in the path of said first named actuator in front of said exhibiting means and operate said first actuator to remove a carrier from displaying position and subsequently adjust the remaining carriers of the series to position one thereof in the path of said last named actuator.

7. A display apparatus comprising a continuous track having a depressed section, a series of slide carriers on said track, exhibiting means arranged adjacent the depressed section of said track, two rotatable actuators mounted for movement to travel in respective paths and for a portion of their travel in the path of said carriers over said depressed section of said track, one of said actuators being arranged in advance of the other, means for operating the other of said actuators to position a carrier in the path of said first named actuator in front of said exhibiting means and to operate said first actuator to remove a carrier from displaying position and subsequently adjust the remaining carriers of the series to position one thereof in the path of said last

named actuator, and engaging parts on said carriers withdrawn from the paths of said actuators by and during movement of the carriers on said depressed section of said track.

8. A display apparatus comprising an actuator supported for movement, a continuous track extending around said actuator and having an eccentric portion disposed outside of the path thereof, a plurality of carriers mounted on the eccentrically disposed portion of said track, and means for operating said actuator to move one carrier to its displaying position and remove another from such position into engagement with the carriers on said eccentric portion of said track to thereby move one of said last named carriers into the path of said actuator.

Signed at Seattle, Washington, this 4th day of March 1911.

KIHEI KOIKE.

Witnesses:
STEPHEN A. BROOKS,
CLARA HARM.

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