

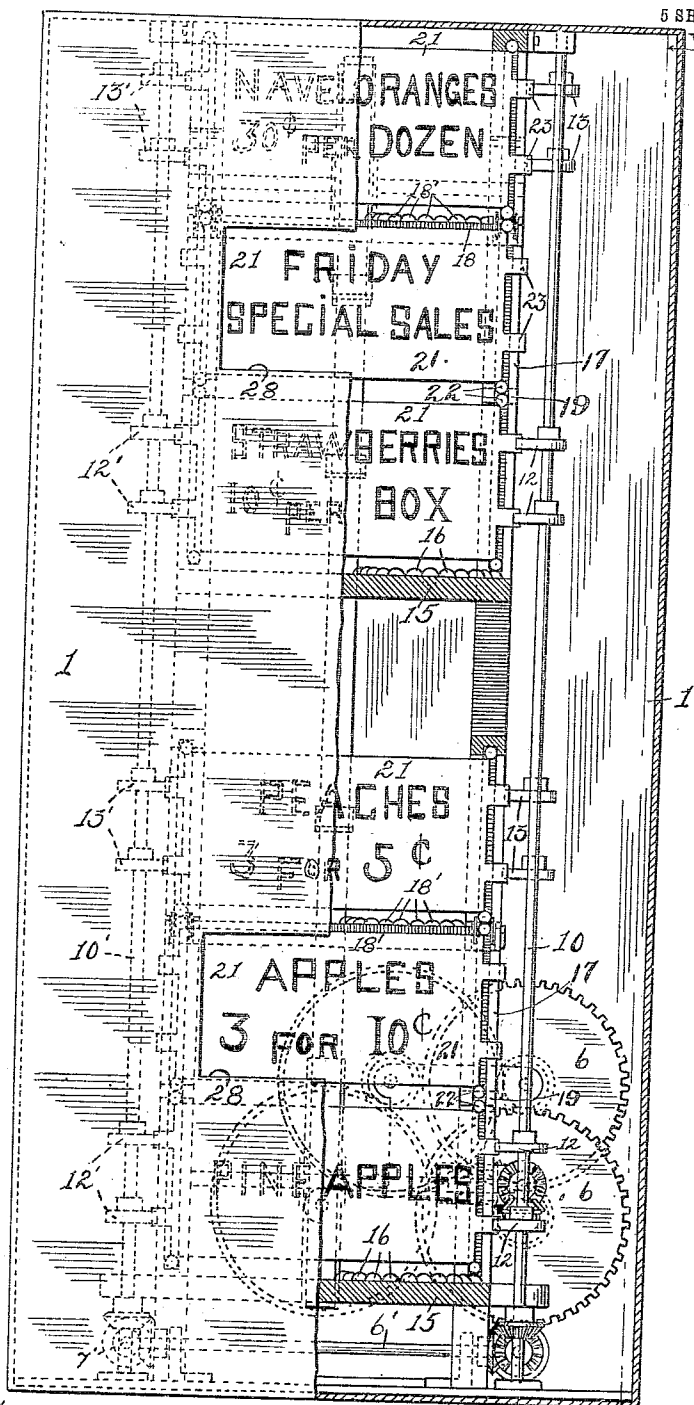
953,796.

C. ORGAARD.
DISPLAY APPARATUS.
APPLICATION FILED AUG. 16, 1909.

Patented Apr. 5, 1910.

5 SHEETS—SHEET 1.

Fig. 1.



Witnesses:
E. E. Wessels.
B. G. Richards

Inventor:
Carl Orgaard
By *Joshua A. Stone*
his Attorney.

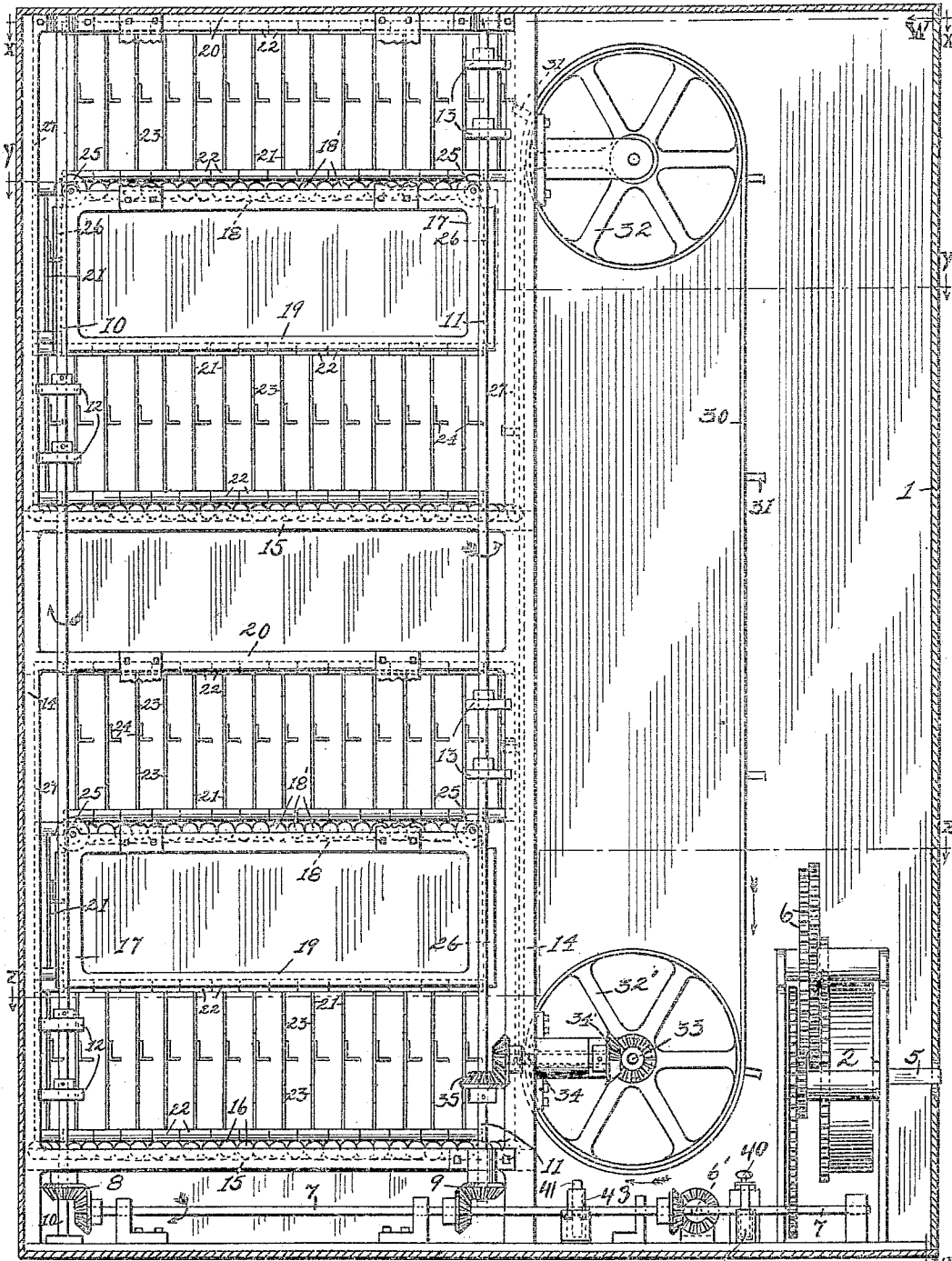
C. ORGAARD.
DISPLAY APPARATUS.

APPLICATION FILED AUG. 16, 1909.

953,796.

Patented Apr. 5, 1910.

5 SHEETS—SHEET 2.



Witnesses:
C. E. Wessels
B. G. Richards

Fig. 2.

39 Inventor:
Carl Orgaard
By Joshua H. Toms
his Attorney.

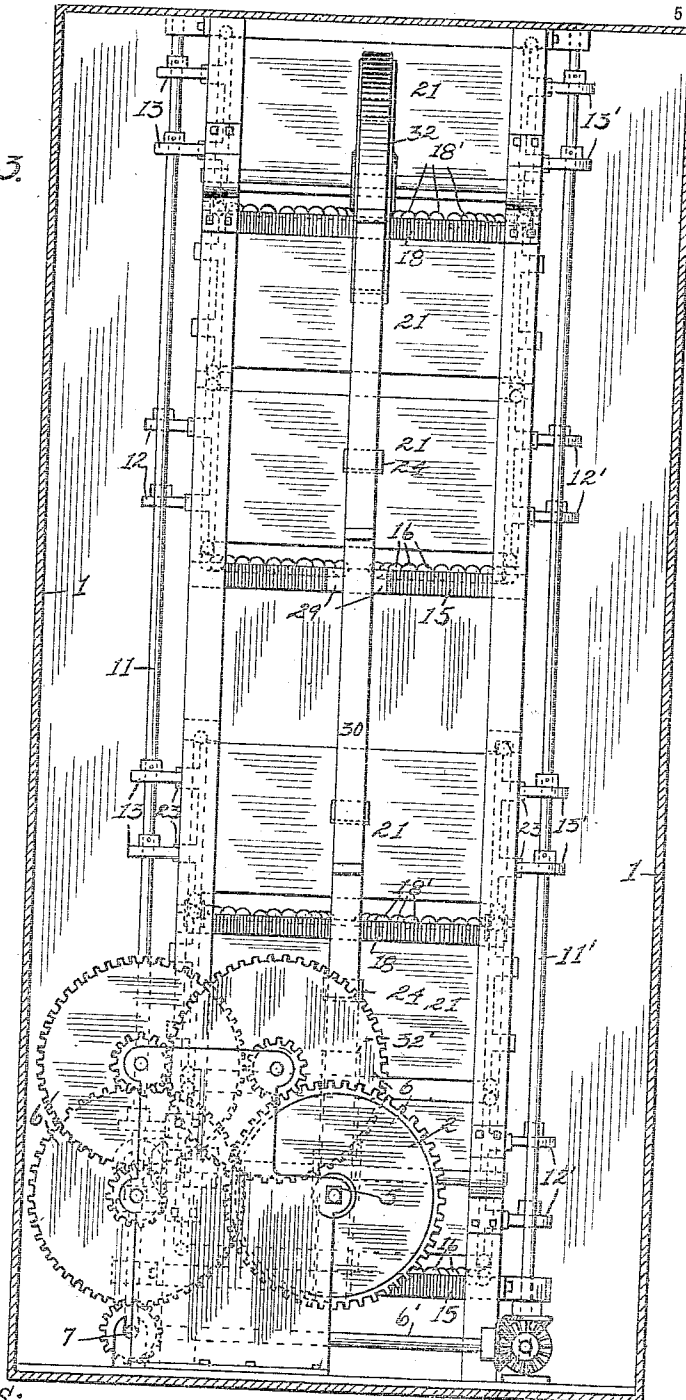
953,796.

C. ORGAARD.
DISPLAY APPARATUS.
APPLICATION FILED AUG. 16, 1909.

Patented Apr. 5, 1910.

5 SHEETS—SHEET 3.

Fig. 3.



Witnesses:
C. E. Vessels.
B. G. Richards

Inventor:
Carl Orgaard
By *Joshua H. Hens*
his Attorney

C. ORGAARD.
DISPLAY APPARATUS.

APPLICATION FILED AUG. 16, 1909.

953,796.

Patented Apr. 5, 1910.

5 SHEETS—SHEET 4.

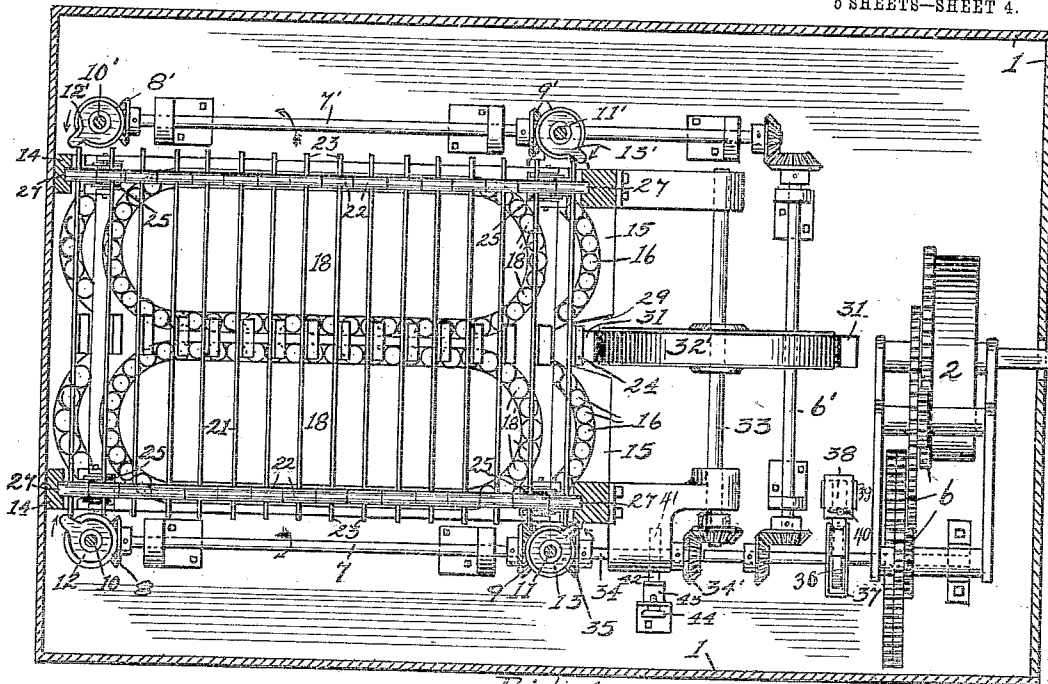


Fig. 4.

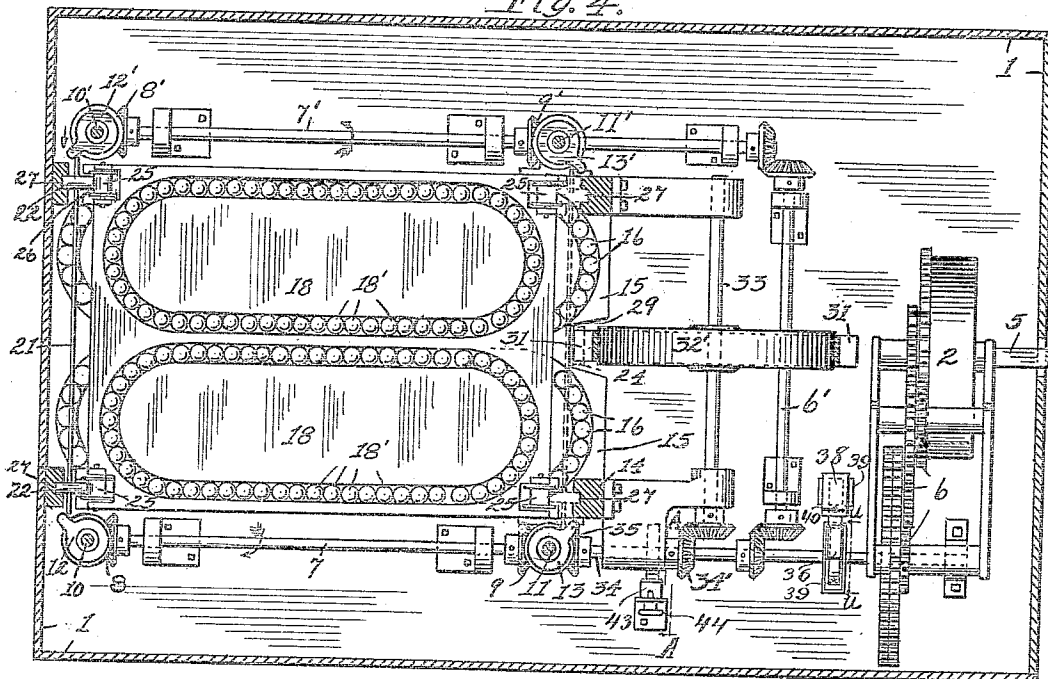


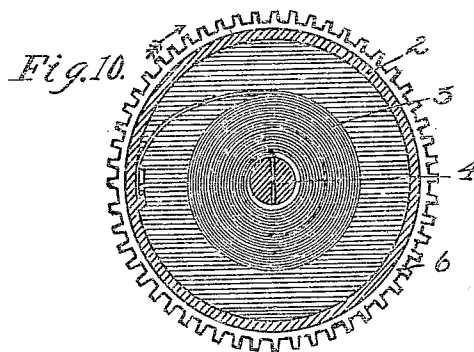
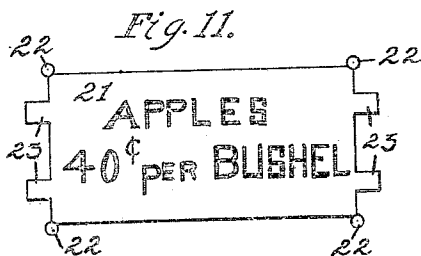
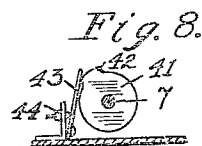
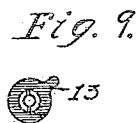
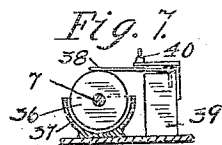
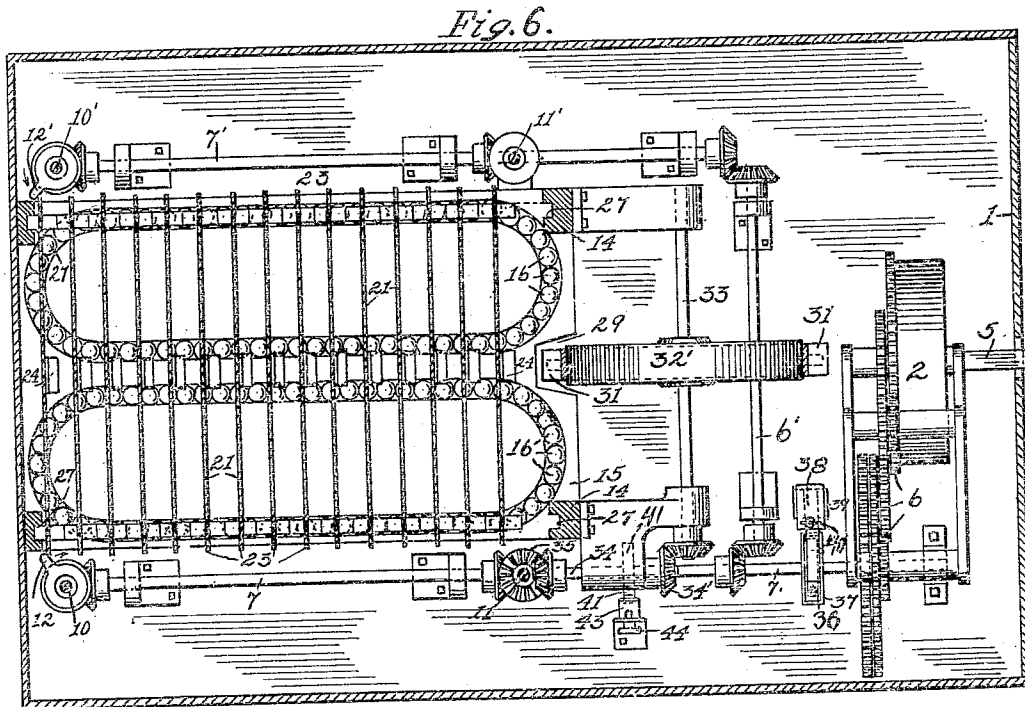
Fig. 5.

Witnesses:

C. C. Wessels.
B. Y. Richards

Inventor:

Carl Orgaard
By *Bychuan H. H. H.*
his Attorney.



Witnesses:
C. E. Wessels.
B. J. Richards

Inventor:
Carl Orgaard.
By *Johann A. Torne*
his Attorney.

UNITED STATES PATENT OFFICE.

CARL ORGAARD, OF WHEELOCK, NORTH DAKOTA, ASSIGNOR OF ONE-HALF TO JOHN O. HALVORSON, OF WILLISTON, NORTH DAKOTA.

DISPLAY APPARATUS.

953,796.

Specification of Letters Patent.

Patented Apr. 5, 1910.

Application filed August 16, 1909. Serial No. 513,051.

To all whom it may concern:

Be it known that I, CARL ORGAARD, a citizen of the United States, residing at Wheelock, county of Williams, and State of North Dakota, have invented certain new and useful Improvements in Display Apparatus, of which the following is a specification.

My invention relates to improvements in display apparatus for displaying sets of advertising or other cards and has for its object the production of such apparatus which shall be simple of construction and efficient in operation.

My invention consists in the combination and arrangement of parts hereinafter described and claimed.

In the drawings, Figure 1 is a front view of apparatus embodying my invention with a portion of the casing broken away; Fig. 2 is a section on line V—V of Fig. 1; Fig. 3, a section on line W—W of Fig. 2; Fig. 4, a section on line X—X of Fig. 2; Fig. 5, a section on line Y—Y of Fig. 2; Fig. 6, a section on line Z—Z of Fig. 2; Fig. 7, a section on line U—U of Fig. 5; Fig. 8, a section on line A—A of Fig. 5; Fig. 9, a plan view of one of the feeding arms for feeding the cards; Fig. 10, a section showing the spring for operating clock mechanism which drives the apparatus, and Fig. 11, a front elevation of one of the advertising cards.

In a suitable casing 1 is mounted a shell 2 containing the spiral spring 3 which is mounted upon the shaft 4 and secured thereto and to the shell 2. Shaft 4 is provided with a square extension 5 projecting through an opening in casing 1 and adapted to be utilized for winding up the spring 3. The casing 2 is connected by means of the train of gears 6 which are utilized for transmitting the motion of said casing induced by its spring to the shaft 7. Shaft 7 is connected through a shaft 6' and beveled gears with the shaft 7' on the opposite side of the apparatus. Shafts 7 and 7' are connected by means of the beveled gears 8 and 9 and 8' and 9' with the vertical shafts 10 and 11 and 10' and 11'. Shafts 10 and 10' carry feed arms 12 and 12' and shafts 11 and 11' carry feed arms 13 and 13' all driven in the direction indicated by the arrows in Fig. 4.

In casing 1 is mounted a frame 14 for supporting the various parts of the ap-

paratus. The frame 14 is provided with horizontal tables 15 each having two adjoining endless ball races 16 with parallel sides. From frame 14 are suspended two frames 17 which support horizontal tables 18 carrying two adjoining endless ball races 18' with parallel sides. The lower rails 19 of frames 17 are provided with semi-cylindrical guiding grooves located over the outside portions of ball races 16 and guide rails 20 are provided also with semi-cylindrical guiding grooves over ball races 18'.

The display cards 21 are provided with any suitable advertising matter or other information or design which it is desired to exhibit. At each corner they carry cylindrical supporting tubes 22 and at each end projections 23. On their backs the cards 21 are provided with lifting projections or lugs 24.

Tables 18 are shorter than tables 15 so as to leave space at the ends for communication between said tables and grooved rollers 25 are mounted in tables 18 to serve as continuations of the outsides of the ball races 18'. Guide grooves 26 and 27 are provided in the end rails of frames 17 and the opposing rail of the frame 14. The cards 21 are placed with their lower supporting cylinders 22 resting upon the outside portions of ball races 16 and 18' and their upper supporting cylinders in the grooves in the bars 19 and 20.

By this construction it will be seen that as shaft 7 is rotated by the clock mechanism shafts 10 and 10' will be rotated to cause the feed arms 12 and 12' to intermittently engage the projections 23 on opposite sides of the cards 21 in the set upon the tables 15 and cause a corresponding feed of all of the cards thereon. At the same time shafts 11 and 11' operate to cause arms 13 and 13' to engage the projections on the cards upon tables 18 and cause feed thereof in the opposite direction. At each operation of the feed arms a card 21 is pushed off the tables 18 and falls with its corner tubes 22 traveling in guides 26 and 27 until it rests upon the first card in the set upon tables 15. A suitable opening 28 is provided in the front wall of casing 1 to permit a view of the cards thus resting upon the first card of the set on tables 15. The opening 28 may be covered with glass or other transparent material if desired.

At the rear tables 15 are provided with a notch 29 through which passes a belt 30 carrying projections 31 adapted to engage the projections 24 on the backs of the last cards in the sets on tables 15. The belt 30 runs over pulleys 32 and 32', the latter being mounted upon a shaft 33 driven through shaft 34 from gear 35 on shaft 11. The beveled gear 34' which is on shaft 34 and drives shaft 33 is mutilated or deprived of half of its teeth so that intermittent motion is transmitted from shaft 7 to the belt 30. The arrangement of the parts is such that after the feed of the cards over the tables the belt travels to cause a projection 31 to engage the projection 24 on the back of the last card in the sets on tables 15 and elevate said card through guides 26 and 27 to position to feed onto tables 18. In this position feed arms 13 and 13' at their next operation engage projections 23 forcing that card on to their tables over rollers 25 and forcing the card to be exhibited to fall from the other end of the tables to assume exhibiting position behind openings 28 as explained above. Upon the next feed of the cards on tables 15 the exhibited cards drop to feed position thereon new exhibited cards being supplied as explained above. Thus it will be seen that at each operation of the feed arms new cards will be placed on exhibition behind the openings 28.

By regulating the clock mechanism for driving shaft 7 the time of change of exhibition of the cards may be varied as desired. To effect such regulation I provide a friction drum 36 on shaft 7 and an oil well 37 for supplying oil to the drum. On the top of the drum I apply a friction spring 38 supported upon a post 39. To regulate the friction on drum 36 I provide a set screw 40. By varying the friction on drum 36 the speed of shaft 7 and consequently the time of change in the card exhibited may be controlled. In Fig. 8 I have illustrated other means for controlling the speed of shaft 7 which consists of a cam 41 secured to shaft 7 and provided with a cam projection 42 adapted to contact with a spring 43 adjustably held thereagainst by means of the set screw 44.

While I have illustrated and described the preferred construction for carrying my invention into effect this may be varied without departing from the spirit of the invention. I, therefore, do not wish to be limited to the exact construction set forth but wish to avail myself of such variations and modifications as come within the scope of the appended claims.

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

1. In a display apparatus, the combination with a suitable casing provided with

suitable display opening of lower and upper tables spaced apart the height of a card to be exhibited and each having two adjoining endless ball races having parallel sides; lower and upper sets of display cards having cylindrical guide and supporting members at the four corners; a guide located over the outside of each ball race and provided with semi-cylindrical guide channels adapted to receive the upper guide and supporting members on each card; projections on the outsides of each of the cards; four vertical shafts carrying feed arms adapted to intermittently engage said card projections on the last card in each set and feed the cards over said balls; means for rotating said shafts to cause feed of the cards in opposite directions over the ball races, there being a passage and guides in said casing for permitting the fall of the last card in the upper set to rest upon the first card of the lower set; and means for periodically elevating the last card in the lower set to the upper set, substantially as described.

2. In a display apparatus, the combination with a suitable casing provided with a suitable display opening, of lower and upper tables spaced apart the height of a card to be exhibited and each having two adjoining endless ball races having parallel sides; lower and upper sets of display cards having cylindrical guide and supporting members at the four corners; a guide located over the outside of each ball race and provided with semicylindrical guide channels adapted to receive the upper guide and supporting members on each card; projections on the outsides of each of the cards; four vertical shafts carrying feed arms adapted to intermittently engage the said card projections on the last card in each set and feed the cards over said balls; means for rotating said shafts to cause feed of the cards in opposite directions over the ball races, there being a passage and guides in said casing for permitting the fall of the last card in the upper set to rest upon the first card of the lower set; projections on the backs of each of the cards; a traveling belt having projections adapted to engage the back projections on the last card in the lower set and elevate said card to the upper set and means for periodically operating said belt, substantially as described.

3. In a display apparatus, the combination with a suitable casing and spaced apart the height of a card to be exhibited, of lower and upper tables arranged in the casing; two adjoining endless ball races arranged on each of the tables and having parallel sides; lower and upper sets of display cards having cylindrical guide and supporting members at the four corners; a guide located over the outside of each ball race and provided with semicylindrical guide channels adapted to

receive the upper guide and supporting members on each card; projections on the outsides of each of the cards; four vertical shafts carrying feed arms adapted to inter-
5 mittedly engage said card projections on the last card in each set and feed the cards over said balls; clock mechanism for rotating said shafts to cause feed of the cards in opposite directions over the ball races,
10 there being a passage and guides in said casing for permitting the fall of the last card in the upper set to rest upon the first card of the lower set, and a display opening in said casing adapted to exhibit the card
15 supported by the first card of the lower set; projections on the backs of each of the cards; a traveling belt having projections adapted to engage the back projection on the

last card in the lower set and elevate said card to the upper set; a shaft; a connection 20 between the clock mechanism and said shaft; a pair of pulleys; a belt running over said pulleys and provided with projections adapted to engage the projections on the backs of the cards to elevate them; a mutilated gear 25 connection between one of said pulleys and the clock operated shaft; and means for regulating the action of the clock mechanism, substantially as described.

In testimony whereof I have signed my 30 name to this specification in the presence of two subscribing witnesses.

CARL ORGAARD.

Witnesses:

A. E. MALONEY,

MARY E. MALONEY.