Sept. 22, 1936. C. W. HESS ET AL 2,054,879

ADVERTISING MACHINE

Filed Aug. 28, 1933 4 Sheets-Sheet 1

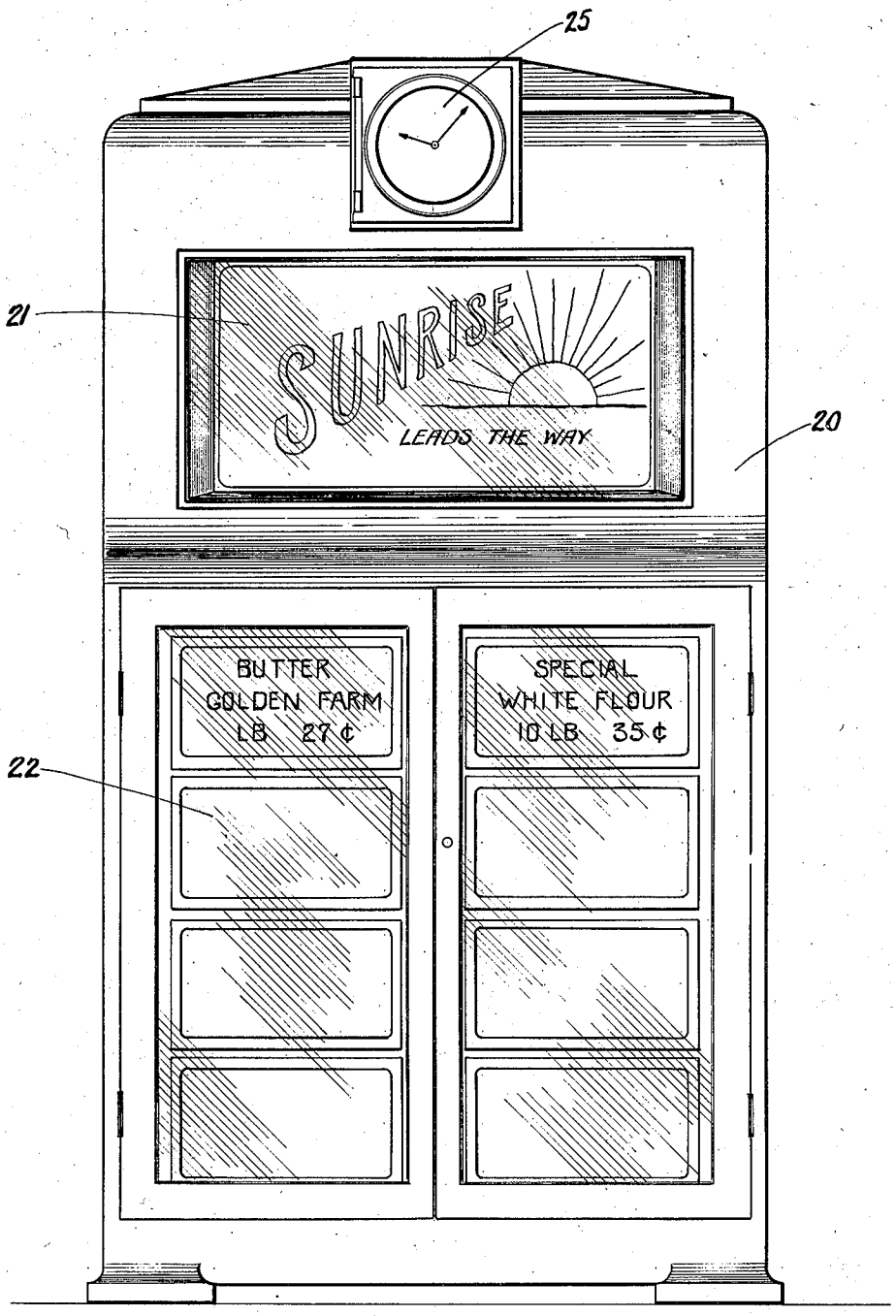


FIG. 1

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ADVERTISING MACHINE

Filed Aug. 28, 1933 4 Sheets-Sheet 2

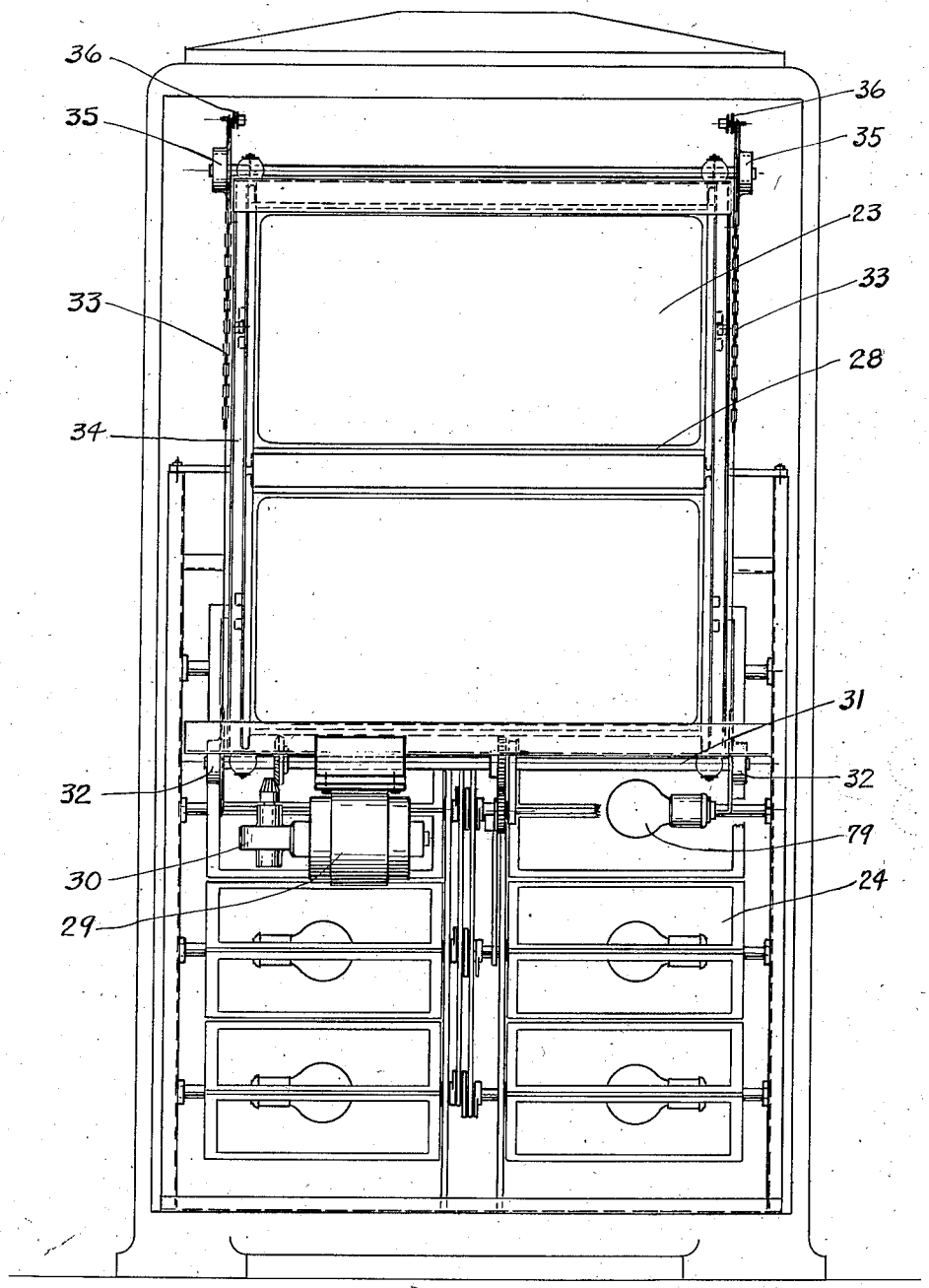


FIG. 2

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ADVERTISING MACHINE

Filed Aug. 28, 1933 4 Sheets-Sheet 3

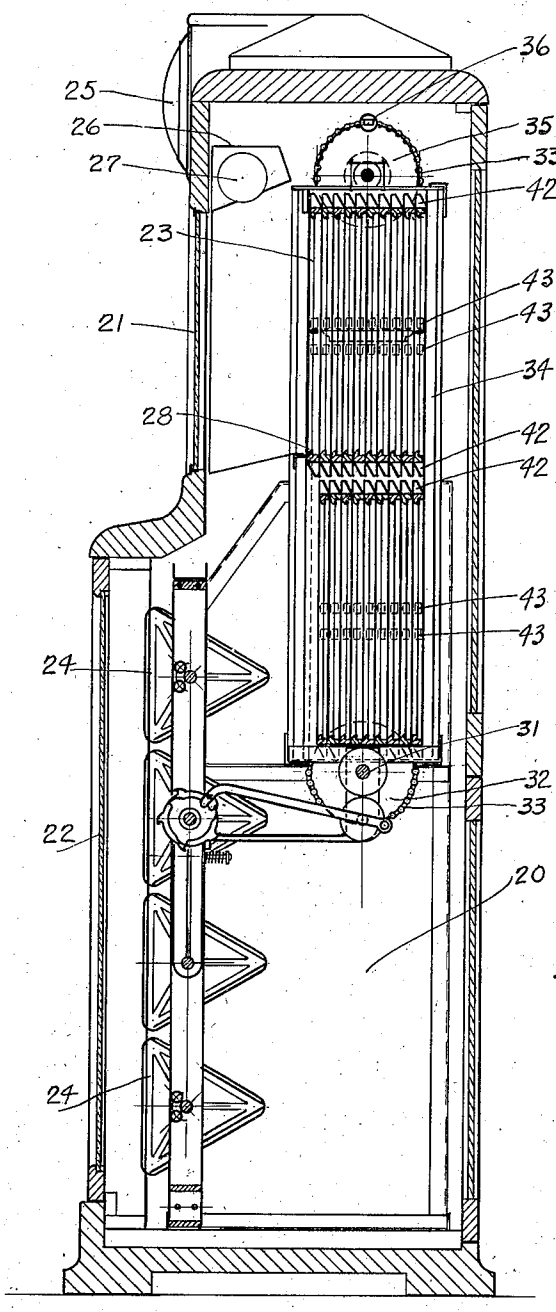


FIG. 3

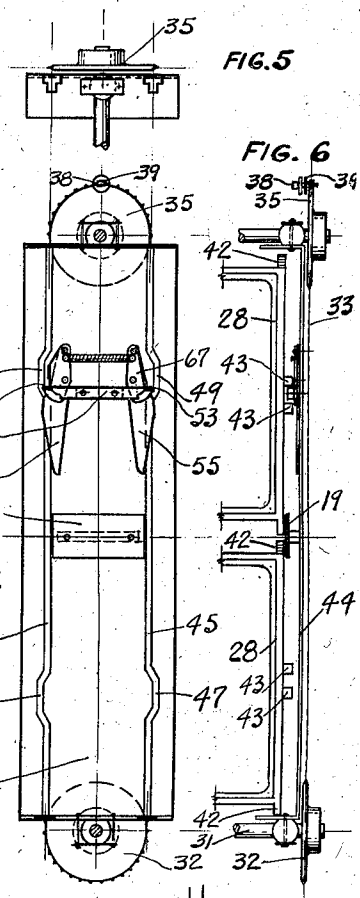


FIG. 5

FIG. 6

FIG. 4

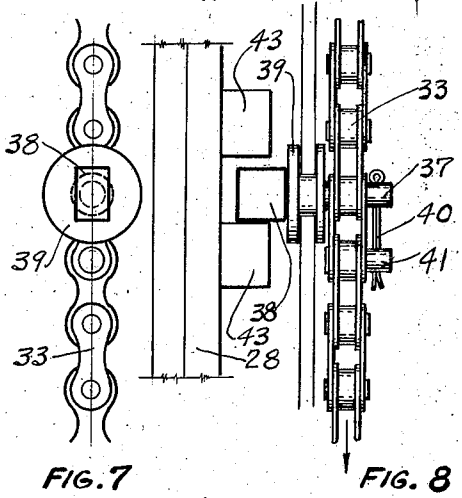


FIG. 7

FIG. 8

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ADVERTISING MACHINE

Filed Aug. 28, 1933 4 Sheets-Sheet 4

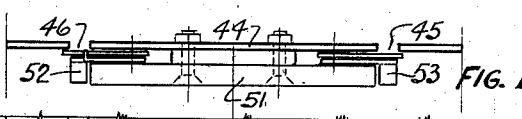


FIG. 10

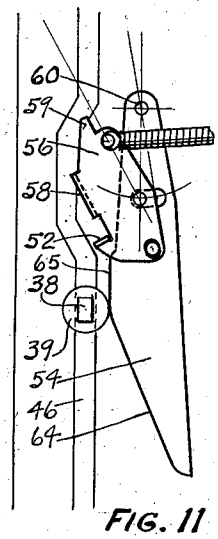


FIG. 11

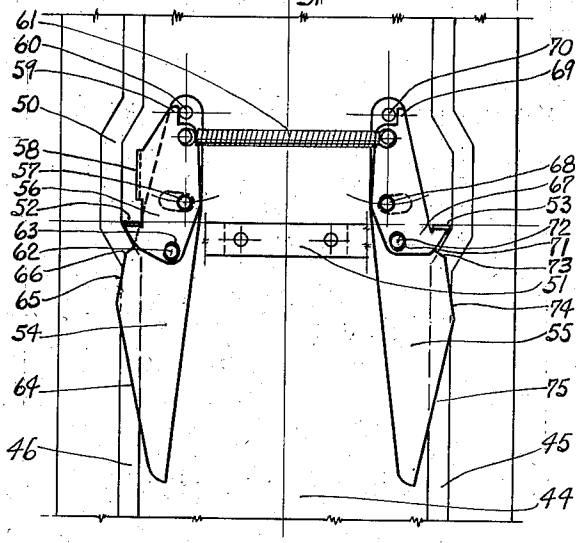


FIG. 9

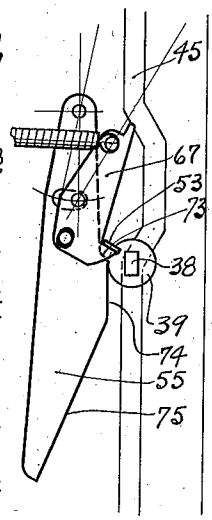


FIG. 12

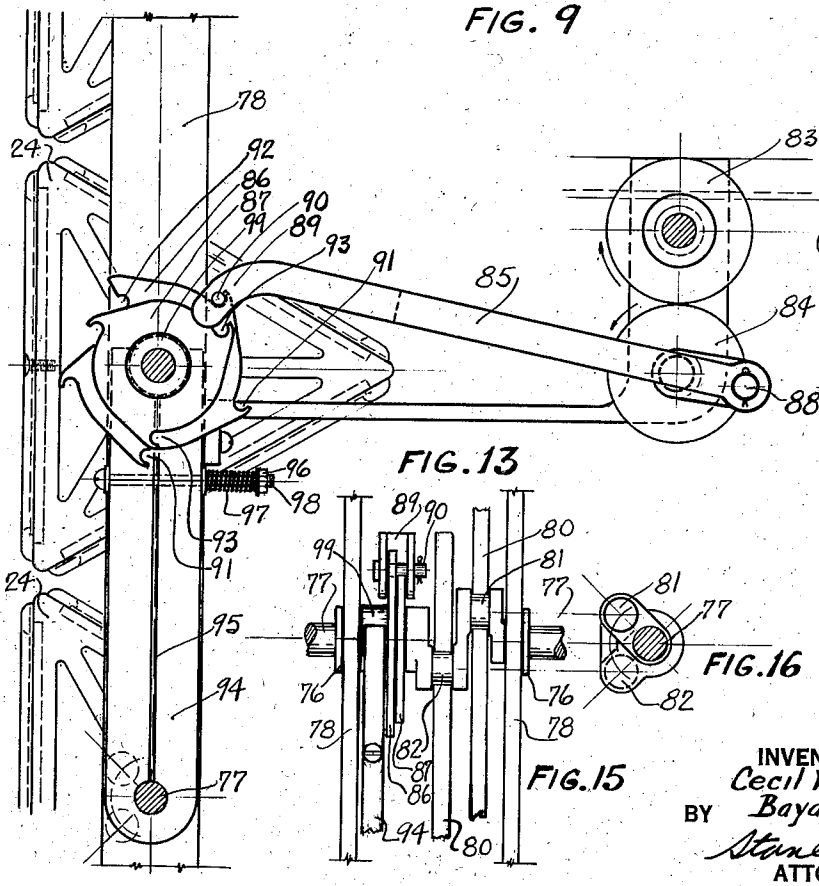


FIG. 13

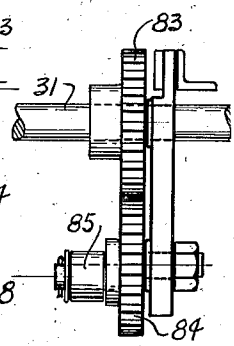


FIG. 14

FIG. 15

FIG. 16

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Patented Sept. 22, 1936 2,054,879

UNITED STATES PATENT OFFICE

2,054,879

ADVERTISING MACHINE

Cecil Wilbur Hess and Bayard Sharp, Alameda, Calif.

Application August 28, 1933, Serial No. 687,052

7 Claims. (Cl. 40—36)

The invention relates to a machine for displaying advertising matter and particularly to a device by which a plurality of show-cards or plates may be successively displayed to the public.

It is particularly adapted to the use of stores in that one portion of the machine may be utilized for showing current store advertising of temporary nature whereas another portion of the machine may be devoted to more or less permanent advertising such as may be the subject of contract or other arrangement under which standard advertising matter may be shown over substantial periods of time.

In its simplest form the invention comprises a cabinet provided with windows or glazed openings through which the show-cards or plates may be seen. Suitable mechanism is included so that at given intervals the exposed show-cards or plates are replaced by others so that new matter may be successively displayed to any extent consistent with the size and capacity of the machine.

It is an object of the present invention to devise a machine by which show-cards or plates mounted in suitable frames may be successively brought to view, exposed for a given interval and then removed for later showing.

Another object is to provide in a single apparatus means for showing two types of advertising matter, successively and synchronously changed.

Another object is to develop apparatus for changing advertising matter in a display cabinet so that the eye is attracted and attention drawn to the display.

Another object is to develop apparatus which is compact in form and attractive in appearance, by which a large number of different plates or cards may be successively displayed.

Another object is to devise apparatus for displaying advertising matter which is entirely automatic in operation and capable of running for extended periods without attention.

Another object is to produce apparatus for successively displaying advertising matter in the form of cards or plates by which a single card or plate may be readily replaced without disturbing the remainder, or the entire set of cards or plates may be changed with a minimum of effort.

Other objects, novel features and advantages of the invention will be apparent from the following description of a typical embodiment taken in conjunction with the accompanying drawings which are a part of this specification.

In its preferred embodiment the machine is enclosed in a cabinet provided with windows or glazed openings through which the advertising matter is exposed, the remainder of the cabinet being of wood, metal or other opaque material serving to shield the operating mechanism from view.

Through one window which may be of standard car-card size, separate cards or plates of like size may be displayed, and another window preferably of larger size serves to show a plurality of smaller cards of plates mounted on the flat faces of revolving drums or prisms which are successively exposed in synchronism with the changes of the first named cards or plates.

The card changing mechanism and the drum or prism revolving means may be operated by a suitable electric motor which in turn may be controlled by a well known clock device whereby the machine may be automatically set in motion for predetermined time periods and shut off when desired.

In the drawings wherein like characters are used to designate like parts—

Fig. 1 is a front elevation of the cabinet showing the windows through which the respective cards or plates and the revolving card or plate carrying drums or prisms are exposed.

Fig. 2 is a rear elevation of the cabinet with the back removed to show the mechanism.

Fig. 3 is a side sectional view showing the relationship between the card or plate holding magazine and the revolving drums or prisms.

Fig. 4 is an inside view of one side plate of the card or plate holding magazine showing the supporting means for the several card carrying frames.

Fig. 5 is a top view of one side plate of the card or plate holding magazine.

Fig. 6 is a side view of one side plate of the card or plate holding magazine.

Fig. 7 is a front view of a spool assembly carried by an endless chain whereby the separate card or plate carrying frames may be successively brought into view and returned to unexposed position.

Fig. 8 is a side view of the spool assembly.

Fig. 9 is a detail of a latch assembly whereby the separate card or plate carrying frames are successively supported in exposed position in the upper portion of the magazine, passed through the said magazine and released for subsequent showing.

Fig. 10 is a top view of the latch assembly.

Fig. 11 is a detail of one portion of the latch assembly in position to permit a card carrying frame to enter into supported condition in said magazine.

Fig. 12 is a detail of another portion of the latch assembly in position to release a card carrying frame from supported condition in the magazine.

Fig. 13 is a side view of the connecting mechanism between the card or plate changing part and the drum or prism revolving part whereby the faces of the drums or prisms are successively exposed in synchronism with the card or plate changes.

Fig. 14 is a front view of the driving gears to operate the prism revolving mechanism.

Fig. 15 is a front view of the crank shaft assembly between two horizontally adjacent drums or prisms.

Fig. 16 is a front view of a crank device which is a part of the mechanism whereby the several drums or prisms are made to revolve in unison and to like degree.

In the drawings, **20** represents the enclosing cabinet for the machine and is provided with windows or glazed openings **21** and **22**, through the former of which the separate plates or cards **23** are exposed and through the latter the flat faces of the drums or prisms **24** are displayed. A clock **25** may be included and it may be of the customary type used to operate an electric switch at predetermined intervals.

Within cabinet **20** and above window **21** is a reflecting hood **26** provided with electric lamp **27** so that light is directed onto the outermost card **23** in its card carrying frame **28**, as exposed to view through the said window.

An electric motor designated by **29** is placed in any convenient location within the cabinet **20** and is connected by suitable reduction gears **30** to the drive shaft **31**. Mounted on the drive shaft at both ends are sprocket wheels **32** carrying endless chains **33** which pass on either side of magazine **34** which is of proper size and shape to contain a number of cards or plates **23** in suitable frames **28** in its lower portion and an equal number in its upper portion.

At the top of magazine **34** are sprocket wheels **35** aligned with sprocket wheels **32** and carrying chains **33**. Mounted in each chain **33** is a spool assembly **36** which is shown in detail in Fig. 7 and Fig. 8. Referring particularly to Fig. 7 and Fig. 8, **37** represents a pin replacing one of the conventional pins of the chain **33** and having an elongated portion extending beyond the chain **33** and provided with a rectangular enlarged head **38**.

On the elongated portion of pin **37** between the chain **33** and the enlarged head **38** is disposed a spool **39** which is free to revolve on the pin **37**. Pin **37** is held against revolution by means of cotter pin **40** which passes through suitable holes in the end of pin **37** and in the end of the special pin **41** of chain **33** next adjacent.

The card or plate carrying frames **28** in the magazine **34** are preferably of light-weight metal and are rectangular in shape and designed for ready insertion of plates or cards **23** therein. The number of frames used depends on the depth of the magazine **34** and in this case there are nineteen frames, of which ten are disposed in the upper section of the magazine and nine in the lower section during the particular interval of the cycle indicated in Fig. 3.

Each frame is provided with wedge-shaped projections **42** sloping toward the rear of the magazine **34** at the bottom and sloping toward the front at the top, and at the center of the sides of each frame are pairs of projecting lugs **43** spaced apart and presenting flat horizontal faces to each other.

On each side of the magazine **34** is a plate **44** provided with a guide **19** which holds the frames **28** in horizontal relationship between the chains **33**. Plate **44** is provided with vertical slots **45** and **46** on line with the chain travel, the thickness of the plate **44** being slightly less than the distance between the flanges of the spool **39** and the width of the slots **45** and **46** being slightly greater than the diameter of the spool itself.

Slots **45** and **46** have lower offset portions **47** and **48**, the slots being deflected outwardly for a short distance at and below the line of the lugs **43** of the lower frames **28** in the magazine **34**, and slots **45** and **46** have similar upper offset portions **49** and **50** at and above the line of the lugs **43** of the upper bank of frames **28**.

The lower bank of frames **28** rests on the bottom of the magazine **34** on the bottom wedge shaped projections **42** of the frames, said projections being flattened on their bottoms to provide a sliding bearing on the bottom of the magazine **34**.

The upper bank of frames is supported by means of the shelves **51** projecting inwardly from each side of the magazine between the lugs **43** of the upper frames and providing a sliding bearing with the flat surfaces of the upper lugs.

At the extremities of shelves **51** are movable supports **52** and **53** which act as extensions of shelves **51** during certain portions of the cycle and are capable of being withdrawn from their supporting relationship at other times as hereinafter described.

Supports **52** and **53** are controlled respectively by latches **54** and **55** which are in operative relationship thereto.

The construction and operation of latches **54** and **55** may be undertood by reference to Figs. 9, 10, 11 and 12 in which the plate **44**, the slots **45** and **46**, the shelf **51** and a flange of the spool **39** are shown. The support **52** is a part of member **56** which is pivoted at **57** and the support **52** is normally on the same horizontal line as shelf **51** and when in such position acts as a continuation of the shelf.

Member **56** is provided with a vertical face **58** which is normally out of the path of the spool **39**, and a stop **59** which engages the pin **60** when in this position. A tension spring **61** tends to hold supporting member in the normal position shown.

Latch member **54** is pivoted on pin **60** and is provided with a pin **62** by which its movement may be transmitted by means of a suitable slot **63** in member **56** surrounding said pin **62**. Latch member **54** has an elongated inclined section **64** normally extending into the path of the spool **39** and across the slot **46**, and terminating in a substantially vertical face **65** and a shoulder **66**.

Support **53** is a part of member **67** which is pivoted at **68** and is provided with stop **69** engaging the pin **70** and is normally on the same horizontal line as shelf **51** similar to that of support **52**. Member **67** is held in normal position by the spring **61** and is provided with a slot **71** to engage the pin **72** in the latch member **55**.

The latch member **55** is pivoted on the pin **70** and is provided with a shoulder **73** and a substantially vertical extension **74** both in the path of the spool **39** in the slot **45**. Leading from the extension **74** is an inclined portion **75** which ter-

minates at a point outside the path of spool 39 in the slot 45.

The operation of the latches 54 and 55 may be undertood by reference to Fig. 11 and Fig. 12 respectively, which indicate the limits of movement of the respective parts. Thus when the spool 39 is moving in the slot 46 upward past the latch member 54 and the supporting member 56 it engages the elongated inclined section 64 which causes latch member 54 to move on its pivot pin 60 which in turn moves the member 56 on its pivot 57 by means of pin 62 and slot 63 causing support 52 to drop from its horizontal position so it is out of the path of the rectangular head 38 carried by spool 39.

As the spool 39 continues its upward movement past the section 65 and the shoulder 66 the support 52 is maintained in its dropped position as shown in Fig. 11 until the spool 39 strikes the face 58 of support member 56 causing the member to return to its normal position with the face 58 out of the path of spool 39 and the stop 59 in engagement with the pin 60.

When the spool 39 is moving downward in the slot 45 past the support member 67 and the latch member 55 it strikes the shoulder 73 of the latch member 55 and the vertical extension 74 causing the support member 67 to move on the pivot 68 and dropping the support 53 out of the path of the rectangular head 38 carried by spool 39. The support member 67 is held in this position until the spool 39 engages the inclined portion 75 of the latch member 55 which is then released to return the same and the support member 67 to normal position by the tension of the spring 61.

Prisms 24 are preferably of metal and are supported at their ends by bearings 76 and rods 77 carried by vertical supports 78. The faces of the prisms may be covered with translucent, light diffusing glass plates against which cards having cut out or otherwise contrasting letters or figures or colored designs may be inserted so that any desired wording or display may be shown in illuminated form by means of transmitted light from electric lamps 79 supported within the respective prisms.

The respective prisms are interconnected by means of crank connecting rods 80 so that all revolve simultaneously and to the same degree. The connecting rods 80 are pivoted on cranks 81 and 82 spaced 90 degrees apart in the customary manner to avoid dead centering. The motion of the prisms is derived from the driving shaft 31 through gears 83 and 84, the latter being provided with an eccentrically mounted reciprocating member 85 which cooperates with ratchet wheels 86 and 87.

The construction and operation of the prism revolving mechanism is shown in detail on Fig. 13. Referring to this figure, reciprocating member 85 is pivoted at 88 on gear 84. The reciprocating member is provided with a bifurcated end 89 which spans the ratchet wheels 86 and 87 and engages these wheels by means of the pin 90 which is inserted through suitable holes drilled in the bifurcated end of member 85.

Ratchet wheel 86 is free to revolve on rod 77 and is provided with a hub 99 and with five ratchets, four of which 91 are of shallow depth, the fifth 92 being of substantially greater depth. Ratchet wheel 87 is keyed to one prism 24 and is adjacent to and concentric with ratchet wheel 86. It is provided with three ratchets 93 corresponding to the number of faces on the prism. The outside diameter of ratchet wheel 87 is less than that or ratchet wheel 86 and the ratchets 93 do not reach to the base of the shallow depth ratchets 91 of ratchet wheel 86 but extend beyond the base of the deeper ratchet 92.

Thus when the member 85 is reciprocated by means of its eccentric mounting on gear 84 it engages the shallow ratchets 91 of ratchet wheel 86 by means of the pin 90 successively until with every fifth movement the pin 90 passes into the deeper ratchet 92 and drops into engagement with a ratchet 93 of ratchet wheel 87, moving the same a distance corresponding to the throw of member 85 and turning the prism 24 to which it is keyed so as to expose another face of the prism to view through window 22. By means of the before mentioned 90-degree crank connecting rods between the various prisms, all of the prisms 24 are likewise and simultaneously turned. To prevent ratchet wheel 86 from revolving in a reverse direction on the return stroke of reciprocating member 85 a brake 94 for the outer circumference of the hub 99 may be provided. In this instance the brake consists of a strip of wood held by rod 77 at one end and frictionally surrounding hub 99 at the other. The strip is cut out or sawn as at 95 and the desired braking effect is accomplished by the nut 96, the spring 97 and the screw 98 whereby the frictional bearing of the brake 94 may be yieldably adjusted.

The operation of the apparatus may be understood from the following description of a complete cycle, assuming the relative position of the various parts to be as shown in Fig. 3 and Fig. 4.

Motor 29 is started by a manual switch or by the clock 25 through mechanism that need not be shown or described. Sprocket wheels 32 are caused to revolve in a clock-wise direction and the chains 33 start their travel between sprocket wheels 32 and 35. Inasmuch as the card changing mechanism is the same on both sides of the magazine 34 the operation will be described in the singular, it being understood that there are two sets of sprockets, chains, spools, etc.

The spool 39 is carried downward by the chain 33 until it enters the slot 45, the enlarged rectangular head 38 of the spool pin being adjacent and on a line with the rearmost card carrying frame 28. As the spool moves down the slot it enters the upper offset portion 49 which draws the rectangular head 38 out of the line of the card carrying frame 28 and clearing the uppermost of the pair of lugs 43 thereon. As the spool leaves the upper offset portion 49 it draws the head 38 between the lugs 43 and at the same time it releases the latch 55 and drops the support 53 of the support member 67 out of engagement with the lugs 43.

The rearmost frame 28 is now carried from the upper to the lower portion of the magazine by the engagement of the head 38 with the lugs 43. The wedge-shaped projections 42 on the bottom of the frame slide against the corresponding projections on the top of the frame below causing the latter frame to move forward as it is displaced by the descending frame.

When the spool 39 reaches the lower offset 47 of the slot 45 it draws the head 38 out of engagement with the lugs 43 of the frame which now rests on the bottom of the magazine at the rear of the bank of frames therein, the entire bank having been moved forward by the wedging action described.

The spool 39 now passes out of the slot 45, under sprocket wheel 32 and upwardly in the

opposite slot 46 until it reaches the lower offset 48 which is located below the line of lugs 43 on the lower bank of card carrying frames. The rectangular head 38 of the spool pin 37 is drawn around the lower lug of the pair of lugs 43 of the foremost card carrying frame and enters the space between the said pair of lugs as the spool 39 leaves the offset portion 48 of the slot, the flat face of the rectangular head engaging the flat lower face of the upper of the lugs 43 of the card carrying frame.

It will be noted that the upper and lower bearing surfaces of the rectangular head 38 are maintained generally parallel with the flat bearing surfaces of the lugs 43, by being normally held at right angles to the line of the chain 33 by means of the cotter pin 40 connecting the pin 37 to the adjacent pin of the chain 33 on the leading or tension side.

The spool 39 in its further upward travel in the slot 46 carries with it the card carrying frame by the engagement of the rectangular head 38 with the lugs 43 as described, and the card carrying frame displaces the card carrying frame next above by the wedging action of the respective wedge-shaped sections 42 on the top and bottom of the respective card carrying frames, the upper bank of card carrying frames being forced backward on the supporting shelf 51 and the extensions or supports 52 and 53.

When the spool 39 enters the upper offset portion 50 of the slot 46 it moves the support 52 out of the path of the upper lug 43 of the card carrying frame and during its passage through the offset portion 50 brings the support 52 into engagement with the lower flat face of the upper lug 43 and releases the rectangular head 38 of the spool pin 37 from lifting engagement with the said flat face so that the card carrying frame is left on the support 52 as the spool 39 continues in its upward travel in the slot 46.

The cycle is then repeated and so on until the power is shut off by means of the switch operated manually or by the clock 25 which may be set to render the whole assembly operative or inoperative for predetermined time periods as desired.

It is thus seen that in one cycle of operation the rearmost card carrying frame 28 of the upper section of the magazine is carried to the lower section displacing the bank of frames forwardly, so that the foremost of the lower bank of frames is placed in a position to be carried upwardly, displacing the foremost of the upper bank of card carrying frames and the other frames of the upper bank rearwardly.

During each cycle which contemplates a single change of card carrying frames in the exposed or display position the sprocket wheels 32 and 35 make approximately five revolutions and the gears controlling the revolution of the prisms 24 are proportioned to provide 5 strokes of the member 85 for each cycle. The member 85 makes five reciprocations on the ratchet wheels 86 and 87 as previously described, each fifth stroke being with the pin 90 in operative engagement with a ratchet on ratchet wheel 87. During such fifth stroke the ratchet wheel 87 and the prism 24 to which it is connected is revolved through 120 degrees or one-third of a complete revolution, thereby exposing a new face of the said prism. The various prisms 24 are interconnected by gears or suitable cranks 81 and 82 and rods 80 so that when one prism is turned the others are simultaneously turned to a like degree.

It will be borne in mind that the mechanism for changing the card carrying frames and revolving the prisms is hidden from view and the only movements seen through the windows 21 and 22 are the periodic displacement of the exposed card carrying frame and the synchronous turning of the prisms 24 at like intervals. Thus for a small proportion of a complete cycle both the upper and lower displays are in process of change and for the remaining larger portion they are stationary insofar as public view is concerned. It is obvious that the interval of display can be lengthened or shortened by adjusting the relationship between the speed of the motor 29 and the reduction gear 30.

While a particular form of apparatus has been illustrated and described, it is understood that the invention is not to be limited thereby, and it is obvious that many modifications may be made in details of parts and methods of operation without departing from the spirit of the invention or circumscribing the scope of the invention as embraced by the following appended claims.

We claim:

1. In an advertising machine, a magazine, a plurality of card carrying frames therein having projecting lugs at their sides, said card carrying frames being disposed in said magazine in two banks in vertical alignment with each other, means in said magazine for supporting the upper of said banks by engagement with said projecting lugs, means for engaging the said projecting lugs to successively and separately transfer the said card carrying frames between the said banks to and from said supporting means and wedge-shaped projections at the tops and bottoms of said frames whereby the said frames being transferred displace the said banks horizontally.

2. In an advertising machine, a magazine, card carrying frames therein having pairs of projecting lugs on opposite sides, shelves having movable extensions within said magazine supporting a plurality of said card carrying frames, by engagement with said lugs, a second plurality of said card carrying frames in vertical alignment with the first named, supported on the bottom of said magazine, an endless chain adjacent the said magazine, a member carried by said chain, a guide for said member whereby the member is brought into operative engagement with the said projecting lugs to successively move the said card carrying frames between their respective supports and release the member from engagement thereafter, means associated with said member to move the shelf extensions out of supporting engagement when the said card carrying frames are being moved to and from the said shelf, and means to return the said shelf extensions to supporting position after the said card carrying frames are so moved.

3. In an advertising machine, a magazine, banks of vertical card carrying frames therein, pairs of projecting lugs on opposite sides of said frames and wedge members on their tops and bottoms, shelves within said magazine, movable end extensions for said shelves, one of said banks of frames being supported by said lugs on said shelves and another of said banks of frames being supported on the bottom of said magazine, plates on the sides of said magazine, vertical slots in said plates in line with the outermost frames of the said banks, said slots having outwardly deflected portions adjacent the said projecting lugs of the respective frames when in supported position, an endless chain in line with said slots,

a pin carried by said chain, a spool on said pin adapted to travel in said slots, a head on said pin cooperating with said lugs and means cooperating with the movable end extensions of said shelves whereby the said extensions are moved out of supporting relationship with said frames when the frames are successively moved to and from the said shelves by said pin, and means to return the said extensions to supporting relationship thereafter.

4. An advertising machine comprising a cabinet, windows therein, a magazine in said cabinet, supporting means in said magazine adjacent one of said windows, a plurality of plates having means thereon cooperating with said supporting means whereby the outermost plate is exposed through said window, a plurality of similar plates in said magazine in vertical alignment with the first named plurality, a horizontal rotatable drum having flat faces, one of which is exposed through another of said windows, means engaging said cooperating means successively and separately to transfer the said plates between the said pluralities to and from the said supporting means, and means cooperating with the plate transferring means for rotating the said drum successively to expose the flat faces thereof whereby the displays through the said windows are periodically changed.

5. An advertising machine comprising a cabinet, windows therein, a magazine in said cabinet, supporting means in said magazine adjacent one of said windows, a bank of plates having lugs thereon engaging said supporting means whereby the outermost plate is exposed through said window, a bank of similar plates disposed in said magazine in vertical alignment with the first named bank, rotatable drums having flat faces exposed through another of said windows, means engaging the said lugs successively to transfer the said plates between the said banks to and from the said supporting means, and means cooperating with the plate transferring means for rotating the drums successively to expose the flat faces thereof whereby the displays through the said windows are periodically changed.

6. In an advertising machine, a magazine, a plurality of card carrying frames disposed therein in separate banks in vertical alignment, means in said magazine for supporting one of said banks, engaging means on said card carrying frames cooperating with said supporting means, means cooperating with said engaging means to succesSsively and separately transfer the said card carrying frames between the said banks to and from said supporting means and means distinct from said supporting means for displacing the said banks horizontally.

7. In an advertising machine, a magazine, a plurality of card carrying frames therein having lugs at their sides, said card carrying frames being disposed in said magazine in separate banks in vertical alignment, means in said magazine for supporting one of said banks by engagement with said lugs, means for engaging the said lugs to successively and separately transfer the said card carrying frames between the said banks to and from said supporting means and separate means associated with the said card carrying frames whereby the frames being transferred displace the said banks horizontally.

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