Feb. 9, 1937. E. F. BROWN 2,070,542

ADVERTISING APPARATUS

Filed Feb. 17, 1936 3 Sheets-Sheet 1

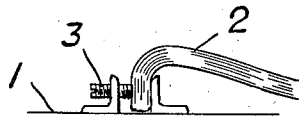


FIG. 1A.

FIG. 1.

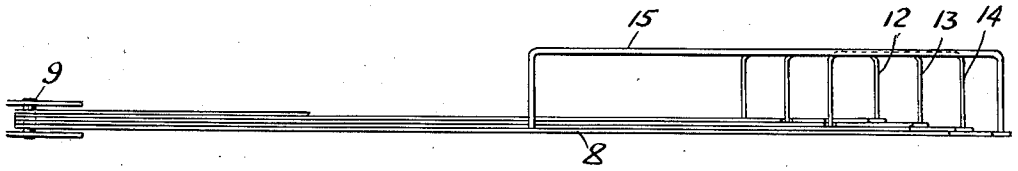


FIG. 2.

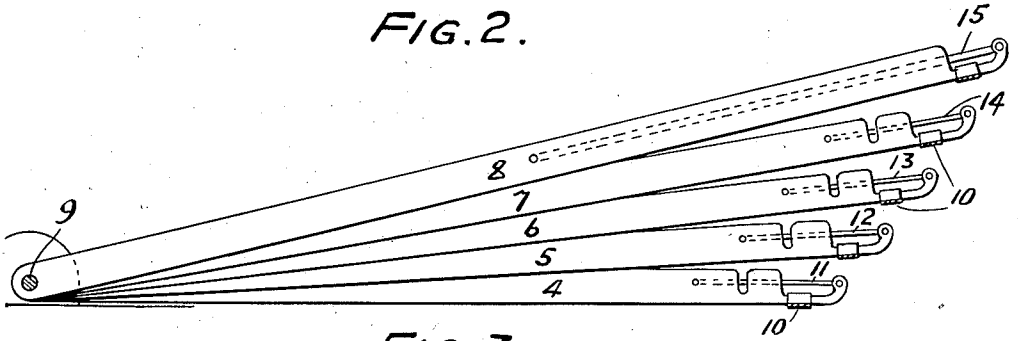


FIG. 3.

WITNESS:

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Feb. 9, 1937. E. F. BROWN 2,070,542

ADVERTISING APPARATUS

Filed Feb. 17, 1936 3 Sheets-Sheet 2

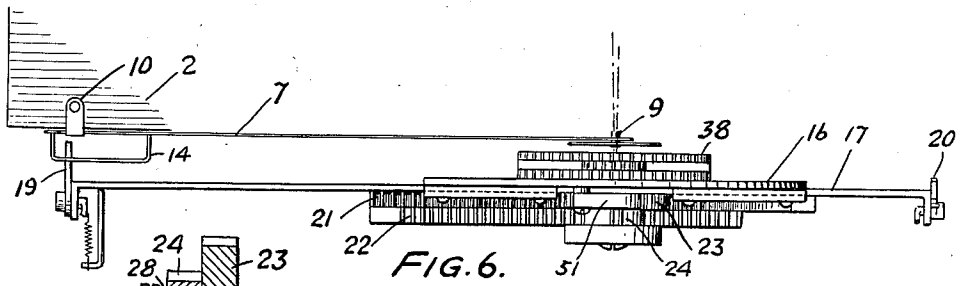


FIG. 6.

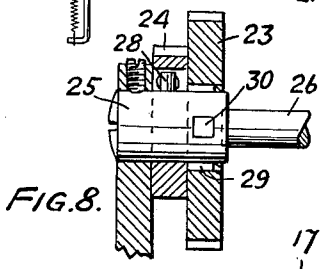


FIG. 8.

FIG. 5.

FIG. 5A.

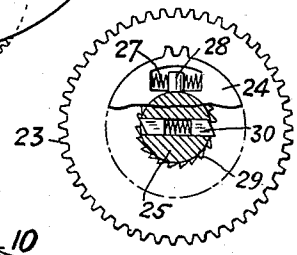


FIG. 7.

FIG. 4.

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Feb. 9, 1937. E. F. BROWN 2,070,542

ADVERTISING APPARATUS

Filed Feb. 17, 1936 3 Sheets-Sheet 3

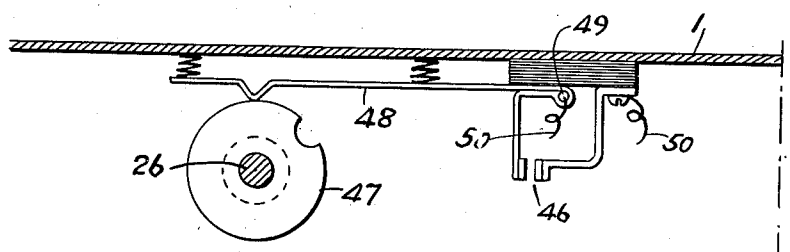
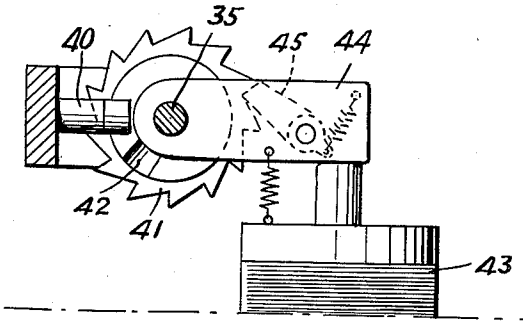


FIG. 10.



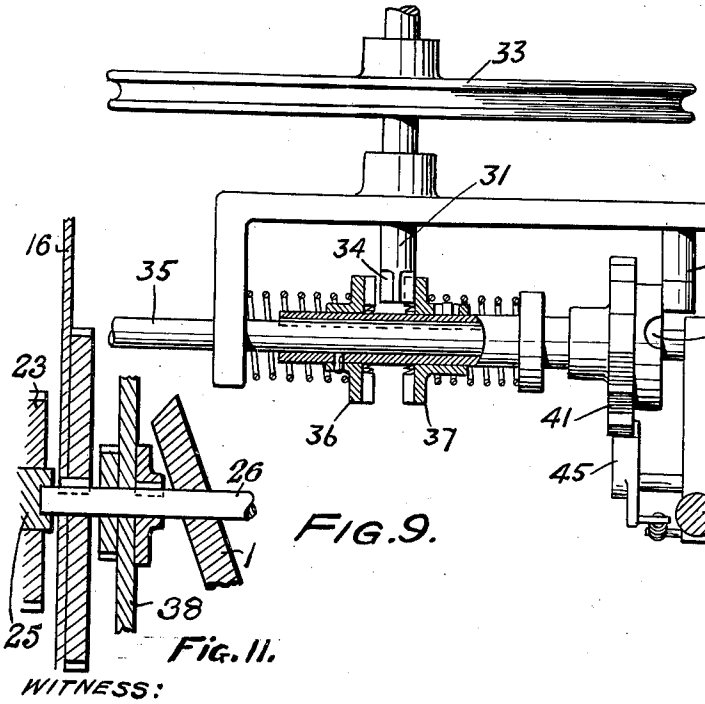


FIG. 9.

FIG. 11.

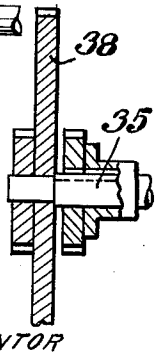


FIG. 12.

WITNESS:

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Patented Feb. 9, 1937 2,070,542

UNITED STATES PATENT OFFICE

2,070,542

ADVERTISING APPARATUS

Egbert F. Brown, Haddonfield, N. J., assignor to Curtis Publishing Company, Philadelphia, Pa., a corporation of Pennsylvania

Application February 17, 1936, Serial No. 64,251

5 Claims. (Cl. 40—104)

The principal object of the present invention is to display to the public selected portions of a serial book or magazine in order to make known the contents of the book, and this is done by putting the book in show windows or other public places and by mechanically turning selected pages into open position, then closing the magazine or book and afterward again turning the pages and repeating the display.

Other objects of the invention will appear from the following description at the end of which the invention will be claimed.

Generally stated, the invention comprises a housing or fitting provided with means for holding a book at its back in proper position for presenting it to view in a show window or other public place; a series of arms concentrically pivoted in line with the axis of the book hinge and disposed at the top thereof, the arms being adapted for connection with selected pages of the book and having lateral extensions disposed in overlapping and step arrangement and of which one is longest; a carrier arranged for rotation in two directions and disposed at the pivot of the arms; a bar slidably mounted on the carrier and provided at one end with a spring finger for progressively engaging the extensions at successive rotations of the carrier in one direction and provided at the other end with a detent for engaging the longest extension and closing the book when the carrier is rotated in the other direction; two sets of rack and pinion mechanisms of which one retracts the bar with a step by step motion, and of which the other returns the bar to its initial position; a driving shaft and reversing clutch for turning the carrier in either direction; a solenoid mechanism for shifting the clutch, and a circuit controller for the solenoid.

The invention also comprises the improvements to be presently described and finally claimed.

In the following description reference will be made to the accompanying drawings forming part hereof and in which,

Figure 1 is a perspective view of advertising apparatus embodying features of the invention and showing a group of pages as they are being turned.

Figure 1A is a detail view illustrating a support for the back of the book or magazine.

Figure 2 is a top or plan view of the pivotal page turning arms having lateral extensions in step formation and of which one is the longest.

Figure 3 is an elevational view of the arms showing them separated for the sake of illustration.

Figure 4 is a transverse sectional view illustrating the mechanism by which the arms are operated in series in one direction to open the book, and as a unit in the other direction to close the book.

Figure 5 is a view looking from left to right in Figure 4 or from the top of the sheet downward in Figure 1, and it shows the mechanism for shifting endwise the bar that operates the arms shown in Figure 3.

Figure 5A is a partial end view of Figure 5.

Figure 6 is a top or plan view of Figure 5.

Figure 7 is a detailed sectional view looking from left to right in Figure 8 and in Figure 4.

Figure 8 is a sectional view of Figure 7.

Figure 9 is a sectional view drawn to an enlarged scale and taken on the line 9—9 of Figure 4.

Figure 10 is a view taken on the line 10—10 of Figure 4.

Figure 11 is a sectional view taken on Figure 4 along the axis of the stud 25 and shaft 26, showing the bearing of the shaft and showing the fixed and the rotatable gears thereon; and

Figure 12 is a sectional view taken on Figure 4 along the axis of the shaft 35, showing the fixed and the rotatable gears thereon.

Referring to the drawings, 1 is a desk or cabinet and it may be variously constructed. As shown the top is somewhat inclined and provided at its margins with spaces in which may be inserted matter descriptive of the portions of the book or magazine 2 selected for display. The book 2 is supported at its back by suitable clamps 3 as shown in Figure 1A, and its pages are guided by guides 3a. There is a series of arms 4, 5, 6, 7 and 8 of progressively diminishing lengths, and they are concentrically pivoted at 9 in line with the axis of the hinge of the book 2, and they are disposed at the top of the book. These arms are equipped with clamps 10 which are connected to preferably a group of pages of the book with the page on top that carries the subject matter to be displayed. The arms are fitted with lateral extensions 11, 12, 13, 14 and 15 disposed in overlapping and step arrangement from the center 9. The extension 15 is the longest. The number of arms may be increased or diminished and five are shown, but ten may be employed and in that case there are ten displays which correspond with the spaces or rulings on the stand at each side of the book. 16 is a carrier disposed at the top end of the hinge portion of the book and arranged for rotation in two directions on an axis which is slightly inclined in respect to the

axis of the arms for a purpose that will be presently described. 17 is an operating bar mounted for endwise movement on the carrier 16. As shown it is mounted in ways 18. The bar is provided at one end with a spring finger 19 capable of turning in either direction and normally held at right angles to the bar. The spring finger 19 engages the extensions 15 to 11 on the bars in succession when the carrier 16 is rotated clockwise in Figure 5. The bar 17 is provided at the other end with a spring pawl 20 effective when the carrier is turned counter-clockwise in Figure 5 to close the book by engaging the longest extension 15. On the bar 17 are two toothed racks 21 and 22. The rack 21 engages with a pinion 23 having teeth all the way around its periphery and the rack 22 engages with a pinion 24 having two teeth, or in other words with a segmental toothed pinion. These pinions are turnable in respect to a stud 25 fastened to the housing, and the shaft 26 to which the carrier 16 is fastened turns in this stud as a bearing. The pinion 24 is permitted to oscillate back and forth on the stud 25 by reason of the centering springs 27 and radial pinion 28, Fig. 7. The pinion 23 is free to turn in one direction but not in the other direction. As shown it is internally provided with ratchet teeth 29 which cooperate with spring pressed ratchet bars 30 mounted in the stud 25. When the carrier 16 is rotated in clockwise direction, (Fig. 5) the two teeth of the pinion 24 push the rack 22 toward the left in Figure 1 for each revolution of the carrier 16 and bar 17 and rack 22 so that the finger is retracted with a step by step motion. The rack 21 and the pinion 23 have no relative motion because the pinion is free to turn on the stud by reason of the tooth and ratchet elements 29 and 30. When the carrier 16 is turned counter-clockwise the pinion 23 may not turn in that direction so that the bar 17 is returned to its original position with a comparatively rapid motion. 31 is a power shaft and it is driven from the motor 32 by a belt and pulley 33. The power shaft at its end is provided with a star wheel which drives the shaft 35 in one direction or the other according to the position of the clutch elements 36 and 37 which are toothed for engagement with the star wheel 34. The shaft 35 through speed reducing gears 38 drives the carrier 16. 26 is a countershaft which is driven from the gearing above referred to. The clutch elements 36 and 37 are spring pressed toward the right in Figure 9 and restrained by a post 40 and a revolvable wheel 41 notched at 42 for the reception of the post. The clutch elements 36 and 37 are splined to the shaft 35 so that they drive the shaft and may move endwise on it. The core of the solenoid 43 operates upon a spring retracted swinging frame 44 provided with a spring retracted pawl 45 that drives the toothed wheel 41. The solenoid 43 is energized and deenergized by the make and break contact 46 actuated by a cam 47 on the shaft 26. The cam follower 48 is pivoted at 49 and makes and breaks contact at 46. Only one of the leads of the winding of the solenoid is indicated at 50. The spring detent 51 insures that the turning motion of the carrier 16 is imparted to the pinion 23 in the proper direction for turning the pinion 23 to shift the rack 21 and bar 17.

The mode of operation may be described as follows: Assuming that the book is in closed position to the right in Figure 1, the cycle of operations in opening further portions of the book from right to left may be explained as follows: The carrier is turned counter-clockwise in Figure 1, or clockwise in Figure 5 and the end of the bar 17 which is fitted with the spring finger 19 is in extended position. During the first revolution of the carrier the finger engages the extension 15, Figure 3, and turns the pages, for example from 1 to 20, in a group from right to left. When these pages have been fully turned the spring finger by yielding passes the extension 15 and in doing so assures that the pages are in fully open position. At the next revolution of the carrier 16 and bar 17 the latter is retracted so that the spring finger engages the extension 14 (as in Figure 6) and turns the group of pages connected to the bar 7 from right to left. The described operation is repeated with each of the succeeding bars and groups of pages until finally the book is fully open. The direction of rotation of the carrier 16 and bar 17 is reversed so that it is counter-clockwise in Figure 5, and clockwise in Figure 1. The pawl 20 engages the extension 15 and so closes the book to its original position. The angular disposition of the axis of the carrier 16 in respect to the axis of the series of bars causes the end of the pawl 20 to slide off the extension 15 during the revolution and after the book has been at least started into closed position. When the book is being opened the pawl 20 slides idly by the extensions on the bars. The reversal in the direction of rotation of the carrier 16 and bar 17 is effected by the cam 47 and contact 46 which causes the impulses from the core of the solenoid 43 to turn the toothed wheel 41 to bring the notch 42 into and out of line with the post 40, thereby shifting the spring pressed clutch members 36 and 37 to engage either one or the other of them with the star wheel 34 on the drive shaft. The lost motion device shown at 39 (Figure 4) between the wheel 47 and the shaft 26, permits the follower 48, Figure 10, to freely enter the notch in the element 47, and thus provide quick action at 46.

It will be obvious to those skilled in the art that modifications may be made in details of construction and in matters of mere form without departing from the spirit of the invention which is not limited to such matters or otherwise than as the prior art and the appended claims may require.

1. Advertising apparatus for displaying selected portions of the contents of a magazine or serial, comprising in combination a housing having means for clamping the magazine at the back thereof, a series of arms adapted for connection with selected pages of the magazine and concentrically pivoted in line with the hinge of the magazine, lateral projections on said arms in superposed relation and in steplike disposition in respect to the axis of the arms, an endwise movable bar having a spring finger adapted to engage said extensions in succession to open the book and having a spring pawl for engaging one of the extensions to close the book, a carrier rotatable in two directions and on which the bar is mounted for endwise movement, two sets of rack and pinion mechanism for shifting the bar endwise, a fixed stud upon which the pinions of said mechanism are mounted, one for rotation in one direction and the other for oscillation, the oscillating pinion being segmental, and mechanism for rotating the carrier and bar about the axis of the stud in two directions substantially as described.

2. Advertising apparatus for repeatedly opening a magazine and successively displaying the contents of selected pages and then closing the magazine which comprises, in combination, clamp-

ing means for holding the back of the magazine, a series of arms having means for respectively attaching one of their ends to one or more pages and concentrically pivoted at their other ends for revolution about the axis of the book hinge, lateral projections on said arms superposed in a plane at right angles to said axis and progressively spaced at different distances from said axis, a bar revolvably mounted at said axis for endwise movement and provided at one end with a spring finger which when the bar is turned in one direction and progressively retracted engages and turns the arms in succession, said bar provided at the other end with a one way acting pawl which when the bar is turned in the other direction and fully extended operates to engage one of the extensions in the series and close the magazine, the axes of the arms and of the bar being inclined to permit the pawl to clear the extension upon closing movement of the book, means for rotating the bar in two directions, and mechanism for retracting the bar with a step by step motion when rotated in one direction and for projecting the bar when rotated in the other direction.

3. Advertising apparatus for repeatedly opening a magazine and successively displaying the contents of selected pages and then closing the magazine which comprises, in combination, clamping means for holding the back of the magazine, a series of arms having means for respectively attaching one of their ends to one or more pages and concentrically pivoted at their other ends for revolution about the axis of the book hinge, lateral projections on said arms superposed in a plane at right angles to said axis and progressively spaced at different distances from said axis, a bar revolvably mounted at said axis for endwise movement and provided at one end with a spring finger which when the bar is turned in one direction and progressively retracted engages and turns the arms in succession, said bar provided at the other end with a one way acting pawl which when the bar is turned in the other direction and fully extended operates to engage one of the extensions in the series and close the magazine, the axes of the arms and of the bar being inclined to permit the pawl to clear the extension upon closing movement of the book, reversible clutch drive mechanism for rotating the bar in two directions, pawl and ratchet means for actuating the reversible clutch drive mechanism, a solenoid for actuating the pawl and ratchet means, and a step by step circuit controller for the circuit of the solenoid.

4. Advertising apparatus for repeatedly opening a magazine and successively displaying the contents of selected pages and then closing the magazine which comprises, in combination, clamping means for holding the back of the magazine, a series of arms having means for respectively attaching one of their ends to one or more pages and concentrically pivoted at their other ends for revolution about the axis of the book hinge, lateral projections on said arms superposed in a plane at right angles to said axis and progressively spaced at different distances from said axis, a bar revolvably mounted at said axis for endwise movement and provided at one end with a spring finger which when the bar is turned in one direction and progressively retracted engages and turns the arms in succession, said bar provided at the other end with a one way acting pawl which when the bar is turned in the other direction and fully extended operates to engage one of the extensions in the series and close the magazine, the axes of the arms and of the bar being inclined to permit the pawl to clear the extension upon closing movement of the book, means for rotating the bar in two directions, two pinions mounted at the center of revolution of the bar and of which one is freely turnable in one direction and of which the other is segmental and is afforded spring centered oscillation, and two racks on said bar respectively engaging said pinions.

5. Advertising apparatus for repeatedly opening a magazine and successively displaying the contents of selected pages and then closing the magazine which comprises, in combination, means for supporting a book at its back, a series of arms of progressively diminishing length concentrically pivoted in line with the hinge of the book and disposed at the top thereof, said arms adapted to be connected to pages of the book, lateral extensions applied to the arms and disposed in overlapping and step arrangement and of which one is the longest, a carrier disposed at the end of the book hinge and arranged for rotation in two directions, an axis about which the carrier turns and which is slightly inclined in respect to the axis of the arms, an operating bar for endwise motion on the carrier and provided at one end with a two way acting spring finger for engaging the lateral extensions one at a time in one direction and with a one way acting spring pawl for engaging and clearing the longest lateral extension in the other direction, two racks on said bar of which one drives the bar in one direction with a step by step motion and of which the other drives the bar in the other direction, a pinion having a pair of teeth for driving the first mentioned rack, a fixed stud concentric with the carrier and on which the first mentioned pinion is mounted, centering means for allowing the pinion slight motion of oscillation, a second toothed pinion mounted for rotation on said stud in one direction and meshing with the second rack, a one way detent between the second pinion and the stud, means for turning the carrier in opposite directions to cause said rack and pinion mechanism to project the bar in one direction to close the book and in the other direction with a step by step motion to turn pages in succession, a power shaft and a driving shaft, a reversing clutch drive interposed between the two, a toothed wheel having a clutch shifter notch, an electro-magnet for operating the toothed wheel, and a circuit maker and breaker actuated with the carrier and controlling the impulses of the electro-magnet.

EGBERT F. BROWN.