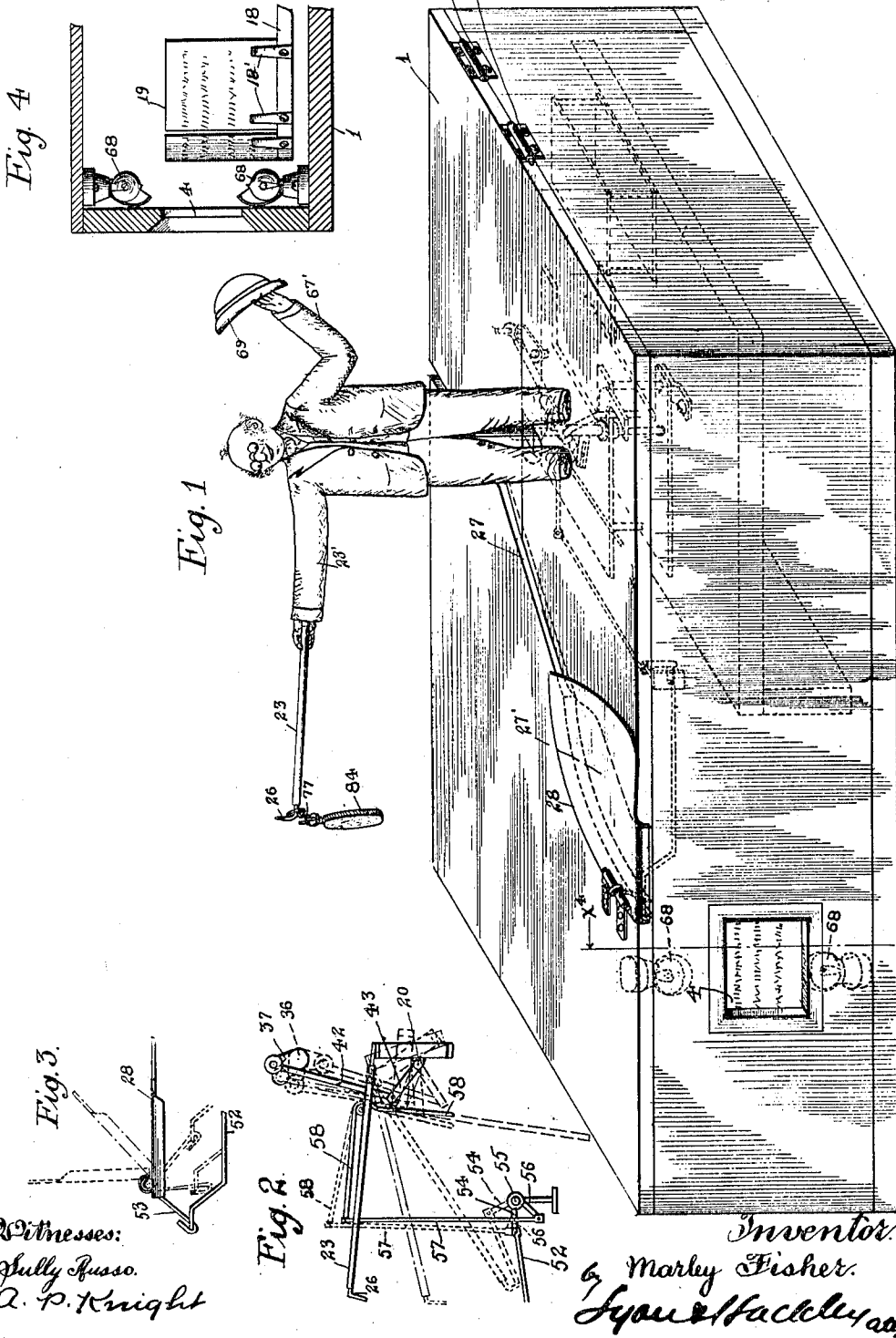


M. FISHER.
 DISPLAY APPARATUS.
 APPLICATION FILED OCT. 26, 1911.

1,020,896.

Patented Mar. 19, 1912.

2 SHEETS—SHEET 1.



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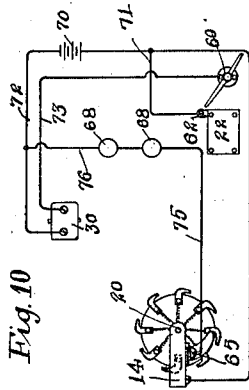


Fig. 10

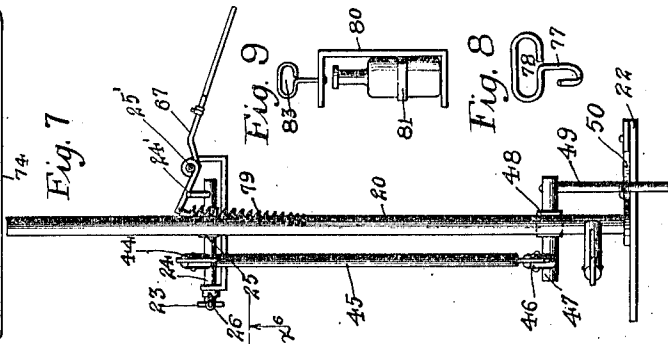


Fig. 7

Fig. 9

Fig. 8

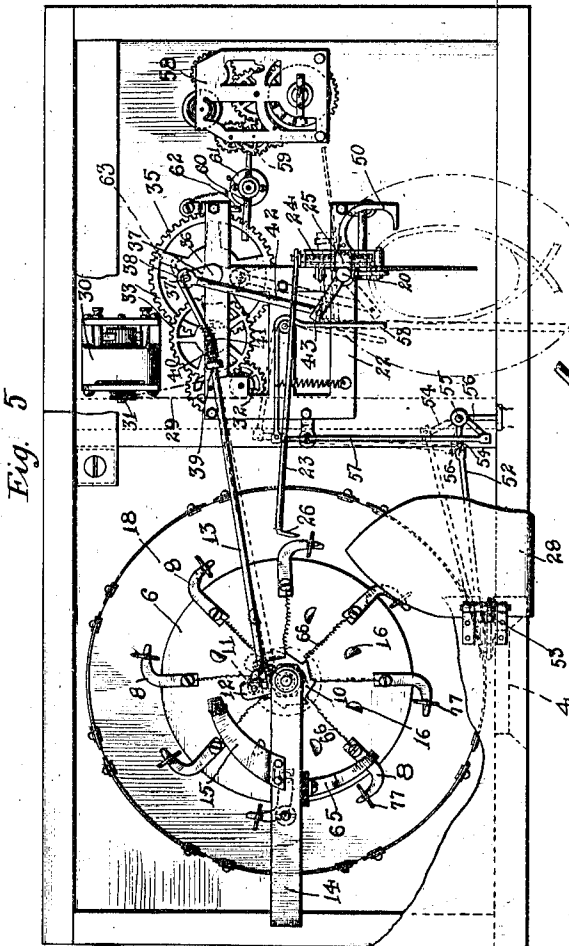


Fig. 5

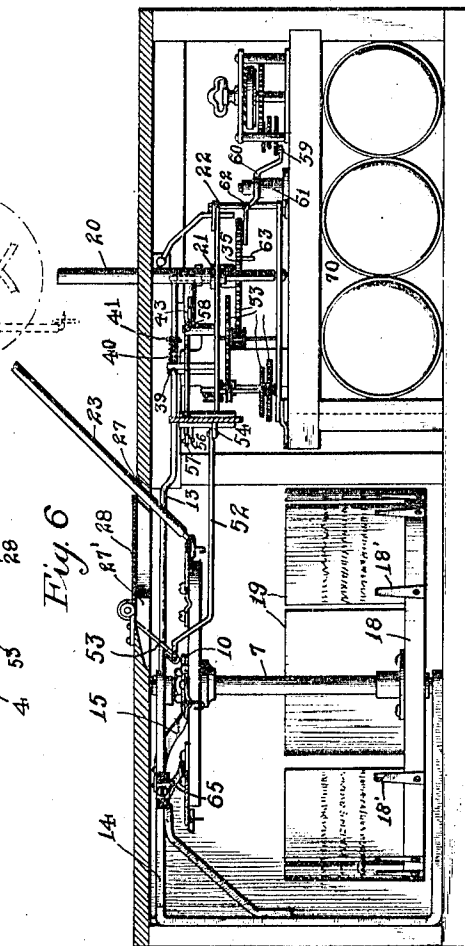


Fig. 6

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UNITED STATES PATENT OFFICE.

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DISPLAY APPARATUS.

1,020,896.

Specification of Letters Patent.

Patented Mar. 19, 1912.

Application filed October 26, 1911. Serial No. 657,008.

To all whom it may concern:

Be it known that I, MARLEY FISHER, a citizen of the United States, residing at Lindsay, in the county of Tulare and State of California, have invented a new and useful Display Apparatus, of which the following is a specification.

This invention relates to means for displaying articles of merchandise, such as watches, jewelry, etc., and the main object of the invention is to display the articles successively in such manner as to attract attention to each article as it is being displayed.

A further object of the invention is to provide for concealing the articles before and after the display thereof.

Another object of the invention is to provide for exhibiting an information card simultaneously with the display of an article.

Another object of the invention is to provide for periodic operation of the display means.

Other objects of the invention will appear hereinafter.

The accompanying drawings illustrate an embodiment of the invention, and referring thereto:

Figure 1 is a perspective of the apparatus. Fig. 2 is a plan of the mechanism for operating the displaying and door opening devices. Fig. 3 is a side elevation of the mechanism for temporarily raising a closure in the top of the case, during the display operation. Fig. 4 is a section on line x^4-x^4 in Fig. 1. Fig. 5 is a plan of the apparatus partly broken away. Fig. 6 is a vertical section on line x^6-x^6 in Fig. 5. Fig. 7 is a side elevation of the display device. Figs. 8 and 9 are elevations of devices for attaching the articles to the carriers and to the displaying device. Fig. 10 is a diagram of the controlling circuits for the means for illuminating the information cards.

The apparatus is inclosed in a case 1 which may be provided with hinged covers 2 and 3 for enabling access to the interior thereof. The front of the case may be provided with an aperture 4 through which information cards are exhibited, simultaneously with the display of the articles.

A carrier is provided for the articles to be displayed, said carrier consisting of a disk or wheel 6 mounted on a vertical shaft 7 and provided with a plurality of hooks 8,

which are curved to extend concentrically with the disk, and are adapted to carry or support the articles to be displayed, said articles being attached thereto as hereinafter set forth. Means are provided for intermittently operating said carrier, consisting, for example, of a ratchet wheel 10 on the shaft 7 and a spring pawl 11 engaging said ratchet wheel and carried by an arm 12 mounted to swing around the shaft 7 and pivotally connected to an operating bar 13. Shaft 7 is journaled in bearings on a frame 14 at its upper and lower ends and a spring 15 secured to said frame engages with depressions 16 in the carrier disk 6 so as to frictionally hold said disk in position to support one of the articles in position in which it may be caught up by the display device. Shaft 7 also preferably carries a disk or wheel 18 provided with clips 18' for holding information cards 19 adapted for exhibition through the aperture 4 in the front of the case.

The display device proper consists of a post or member 20 mounted in bearings 21 on a frame 22 to turn on a vertical axis and an arm 23 secured to a shaft 24 journaled in bearings on a bracket 25 on said post 20 to turn on an axis transverse to the post, said arm 23 being adapted to work into and through a slot 27 in the top of the case, and being provided with a hook 26 at its outer end for engagement with the article suspending means to catch up the article and move it to display position. An opening 27' is provided in the top of the case to permit the article to pass out of and into the case, said opening being normally closed by a door or closure 28.

A motor which may be of any suitable type, for example, an electric motor, as shown, is connected to operate the display device and the carrier, so as to bring the articles on the carrier successively into position to be caught up by the display device and to cause the display device to take the articles so brought into position from the carrier and lift them through the opening 27' in the top of the case, means also being provided by said motor for raising the closure 28 for said opening during this operation. The motor 30 is connected by pulleys 31 and 32 and belt 29 to a train of gears 33 mounted in the frame 22, the last gear of the train being mounted on a shaft 36. Said shaft 36 carries an arm 37 provided

with a pin 37' adapted to engage a hook or shoulder 38 on the bar 13 aforesaid, said bar 13 sliding through a fixed guide 39 and a spring 40 being provided, engaging between
 5 said guide and a collar 41 on said bar to normally hold said bar in normal position. Said pin 37' on arm or crank 37 forms a pivotal connection for a link or connecting
 10 rod 42 pivotally connected at its other end to an arm 43 on the post 20 aforesaid, whereby rotation of the shaft 36 by the motor causes an angular or oscillatory movement
 15 of said post 20 and of the displaying arm 23 carried thereby. The transverse shaft 24 carrying said arm 23 is provided with an arm 44 pivotally connected to a rod 45 which
 20 at its other end is pivoted to an arm 46 on a transverse shaft 47 journaled in a bearing 48 on the lower portion of the post 20. Said shaft 47 carries an arm 49 adapted to
 25 engage with a guide or cam surface 50 on the fixed frame 22 so that in the rotary movement of the post 20 and of the arm 23 carried thereby, the said arm is given an
 30 angular movement on a horizontal axis by reason of the engagement of the arm 49 with the guide 50, said guide being so formed as to effect the required lifting operation of the said arm in its horizontal
 swinging movement.

The mechanism for lifting the closure 28 in the top of the case may consist of a link 52 pivotally connected to an arm 53 on said
 35 closure and to arm 54 on a rock shaft 55 having an arm 56 connected by rod 57 to an arm of a bell crank lever 58 whose other arm is adapted to be engaged by the aforesaid arm 43 on the post 20 to be operated in
 40 the swinging movement of said post.

It is preferred to operate the display mechanism periodically and for this purpose a controlling time mechanism indicated
 45 at 58 is provided, one member of the train of said time mechanism carrying a pin 59 adapted to engage a switch lever 60 pivotally mounted on a post 61 and cooperating with a fixed contact 62 to close the circuit
 50 for the motor 30 aforesaid. The wheel 35 of the train of gearing driven by said motor carries a pin 63 adapted to engage said switch lever 60 to move the same to open position when the display device has effected
 one complete operation.

I prefer to inclose the post or member 20 in a figure or body 64, simulating the appearance of a person, the arm 23 being
 55 wholly or partly inclosed as at 23' to resemble one arm of the figure. The other arm 67' of the figure is formed to inclose a lever 67 pivotally mounted at 25' on the bracket 25 and engaged by a pin 24' on shaft 24 to tip the arm or lever 67 and a hat 69 carried thereby, as hereinafter set forth. A
 60 spring 79 is provided to tip the lever 67 to restore the hat to normal position.

Means are preferably provided for illuminating the information card 19 which is for the time being exhibited through the aperture 4 in the front of the case. For this purpose
 70 a contact spring 65 supported on and insulated on the frame 14 aforesaid, is adapted to contact with the respective hooks 8 successively, said hooks being in metallic connection by wires 66 with the post 20, and
 75 said contact spring 65 being in metallic connection with lamps 68 as hereinafter set forth.

The circuit connection may be as indicated in Fig. 10, where 70 designates the battery or source of current connected by wire
 80 71 to frame 22 carrying the fixed contact 62 aforesaid, the other side of said battery being connected by wire 72 to one side of the motor 30. The other side of said motor is connected by wire 73 to the switch lever 60.
 85 Another wire 74 leads from one side of the battery to the frame 14 which is in metallic connection with the post 20 and a wire 75 leads from the contact spring 65 to the lamps 68, connection being made from said
 90 lamps by wire 76 to the opposite side of the battery. The battery 70 may be contained in the lower part of the case as shown.

The operation is as follows: The articles to be displayed, for example, watches, jewelry, etc., are suspended on the hooks 8 by any suitable means, for example, by means
 95 of hooks as shown at 77 in Fig. 8, said hooks having a crank portion formed with an eye 78 adapted to hook over the hooks 8 aforesaid, said eye being sufficiently wide to enable the hook of the lifting arm 23 to engage therein, or in case the article is of such nature that it can not be suspended on a hook, a special hanger may be provided therefor,
 100 for example, a plate as shown at 80 in Fig. 9, provided with a clamp or means 81 for securing the article thereto, and provided with an eye 83 for suspension on the hook 8 and for engagement with the lifting hook
 105 26. The carrier having been loaded or charged with articles as described and the appropriate cards 19 having been put on the clips 18' in the wheel 18, the operation of the mechanism proceeds as follows: At definite
 110 intervals the time mechanism 58 operates the switch 60 to close contact at 62, current then flowing from the battery through wire 71 to said switch, and thence through wire 73 to the motor from which the current
 115 returns by wire 72 to the other side of the battery. The motor being thus set in operation, rotates the train of gearing 33 and the consequent rotation of the arm or crank 37 carries the pin 37' around in the direction
 120 of the arrow in Fig. 5. The rotation of the arm or crank 37 by operation of the link 42 is to cause the post 20 to be rotated so as to carry the lower end of the arm 23 forwardly. In its normal position the hook 26 at the
 130

lower end of said arm is directly at the rear of one of the hooks 8 on the carrier 6, so that in this forward movement of the arm 23 the said hook 26 thereon is carried forwardly into the eye on which the article indicated at 84 is suspended, and in the continued forward movement of said arm 23, the hook 26 pulls the suspension hook 77 off of the carrier hook 8 and carries the article forwardly from the carrier. This forward movement of the arm 23 is accompanied by an upward swinging movement due to action of the guide 50 on the arm 49 raising the rod 45 and turning the shaft 24 so as to swing the arm 23 upwardly. As the article in this manner is brought up to the opening 27' in the top of the case, the closure 28 for said opening is lifted by operation of the link 52 through the action of arm 43 of the post 20 on the lever 58 so that when the article reaches the opening, the way will be clear for it to be raised through the opening and then in the continued forward and upward motion of the arm 23 the article is lifted and brought forward so as to be displayed. This movement of the arm 23 simulates the movement of the arm of a person, the effect being heightened by the inclosure of the display device within the form or figure 64. During this operation the pin 24' on the transverse shaft 24 acting on the lever 67, causes the hat 69 to be removed from the figure simultaneously with the presentation of the article. In the further rotative movement of the crank 37 the aforesaid operation is reversed, said crank passing the dead center and then causing the arm 23 to be drawn downwardly and rearwardly, again lifting the closure 28 by engagement of arm 43 with lever 58 carrying the article through the opening 27' into the case and rearwardly and downwardly so that the eye 78 comes into engagement with the same hook 8 from which it was removed and the article is deposited on said hook. Finally at the last part of this rotative movement of the crank, the pin 37' thereon comes into engagement with the shoulder 38 and draws the bar 13 so as to cause the pawl 11 to turn the carrier disk sufficiently to bring the article on the next hook 8 into position to be taken up on the next operation. While any given article is being displayed in this manner, the information card 19 corresponding thereto is exhibited through the aperture 4 in front of the case. By means of the electric connections 74, 75 and 76 and the contact spring 65, the current is applied at this time to the lamps 68 so as to illuminate the card, this current being cut off while the cards are being shifted in the partial rotation of the carrier. As the wheel 35 completes its rotation the pin 63 thereon returns the switch 60 to open position and the device is then left in normal position, ready for another

operation which will take place when the time mechanism again operates the switch.

What I claim is:

1. A display apparatus comprising a carrier provided with means for removably supporting articles to be displayed, a movable member provided with means for picking up the articles from the carrier and means for moving said member to carry the articles away from the carrier, and returning the articles to the carrier.

2. A display apparatus comprising a carrier provided with means for removably supporting a plurality of articles, means for moving said carrier to bring the article succeeding to a given position, a member provided with means for picking up the articles when in said given position, and means for removing the article from the same and returning said articles to the carrier.

3. A display apparatus comprising a casing having an opening, means for removably supporting articles within the casing, a member movably mounted in the casing to pass through said opening and provided with means for picking up said articles from, and depositing them on, the said supporting means, and means for operating said member.

4. A display apparatus comprising a casing having an opening, means for removably supporting articles within the casing, a member movably mounted in the casing to pass through said opening and provided with means for picking up said articles from, and depositing them on, the said supporting means, and means for operating said member, a closure for said opening and means for opening said closure as said movable member passes therethrough.

5. A display apparatus comprising a rotatable carrier provided with hooks for removably supporting articles, a member mounted to swing on a vertical axis, an arm pivotally mounted in said member to turn on a horizontal axis, said arm having a hook and a motor connected to operate said member to swing the same, means operated by said motor to rotate the carrier, and means operated by the swinging movement of said member to raise and lower said arm.

6. A display apparatus comprising a casing having an opening, means for removably supporting articles within the casing, a member movably mounted in the casing to pass through said opening and provided with means for picking up said articles from, and depositing them on, the said supporting means, and means for operating said member comprising a motor and means for controlling the operation of said motor to cause periodic operation thereof.

7. A display apparatus comprising a cas-

ing having an opening, a rotatable carrier for removably supporting articles within the casing, a member movably mounted in the casing to pass through said opening 5 and provided with means for picking up said articles from, and depositing them on, the said supporting means, and means for operating said member, and a card display means connected to rotate with the afore- 10 said carrier, said carrier being an apparatus for display of the cards in said card display means.

8. A display apparatus comprising a casing having an opening, a rotatable carrier 15 for removably supporting articles within the casing, a member movably mounted in the casing to pass through said opening and provided with means for picking up said articles from, and depositing them on, 20 the said supporting means, and means for operating said member, and a card display means connected to rotate with the afore-said carrier, said carrier being an apparatus for display of the cards in said card 25 display means, illuminating means for said card display means, and electric connections for said illuminating means controlled by the movement of the said carrier.

9. In a display apparatus the combination with article supporting means of a 30 movable member, provided with an arm pivotally mounted thereon, means for operating said movable member and said arm to carry the arm in longitudinal and vertical directions, said arm being provided 35 with means for engaging the said articles and carrying them away from said supporting means, a form simulating the appearance of a human figure carried by said movable member, the said arm forming one 40 arm of said figure, and said member being provided with another arm forming the other arm of said figure, said other arm being pivotally mounted on said member to move on a horizontal axis and means op- 45 erated by the movement of said movable member to swing the second named arm for the purpose set forth.

In testimony whereof, I have hereunto set my hand at Lindsay, California this 50 19th day of October, 1911.

MARLEY FISHER.

In presence of—

FRANK CHILDS,
GEO. W. TRAUGER.