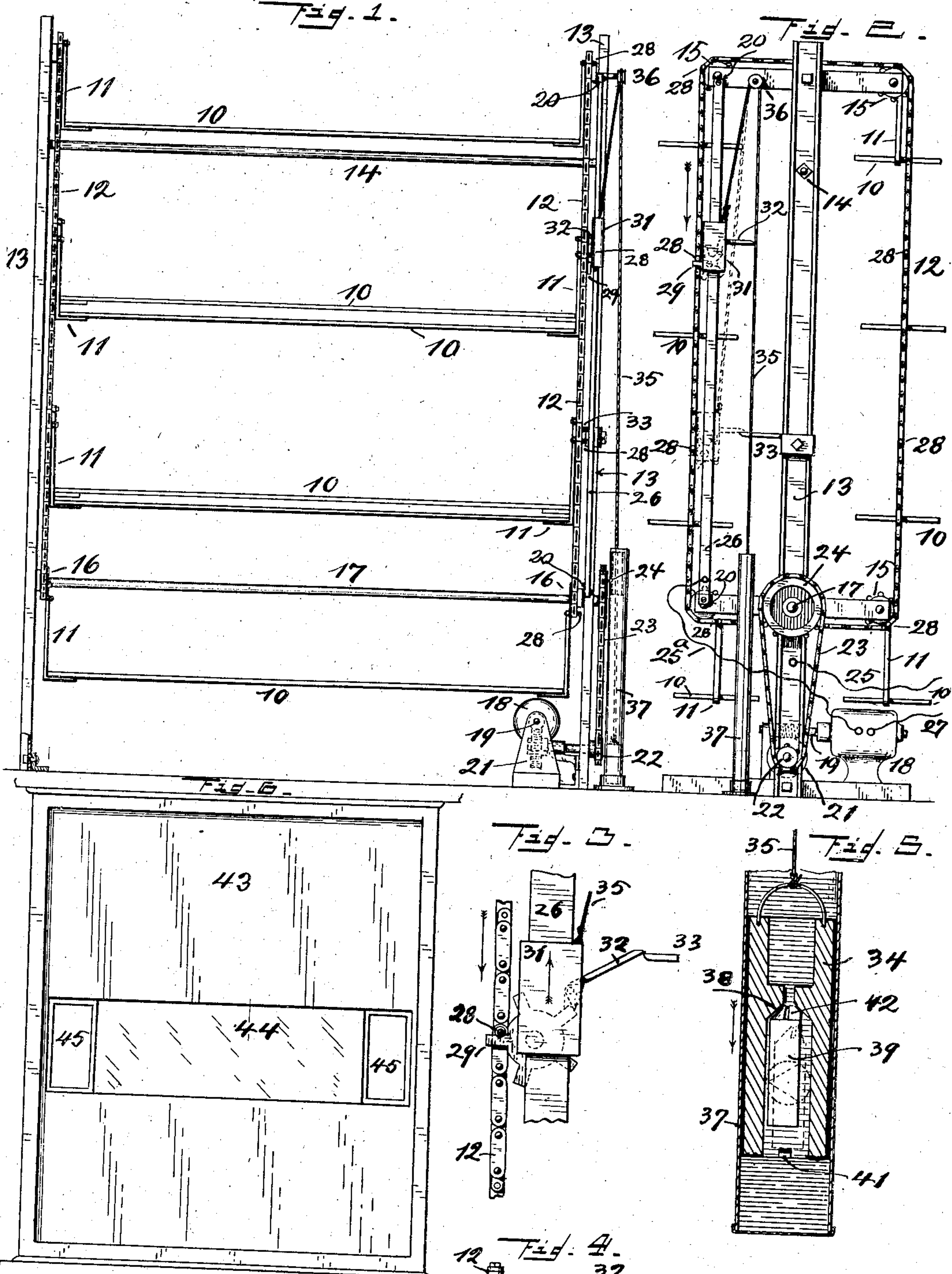


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S. NEWMAN & H. R. BOTHWELL.  
DISPLAY DEVICE.

APPLICATION FILED APR. 27, 1904.



Witnesses

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# UNITED STATES PATENT OFFICE.

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## DISPLAY DEVICE.

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*To all whom it may concern:*

Be it known that we, SAMUEL NEWMAN, a citizen of the United States, and HENRY R. BOTHWELL, a citizen of Canada, both residing in the city of Cincinnati, in the county of Hamilton and State of Ohio, have invented a certain new and useful Display Device; and we do declare the following to be a clear, full, and exact description thereof, attention being called to the accompanying drawings, with the reference characters marked thereon, which form also a part of this specification.

This invention relates to devices intended to serve for displaying merchandise, goods offered for sale, advertisements, and for similar purposes where it is desirable to attract public attention to the matter exposed.

In general the device of this invention consists of a series of suitable supports, like shelves, upon which the matter to be displayed rests and which supports are intermittently moved into view of the observer, where they remain for a certain time, after which they move away to make room for another shelf.

The invention consists of the construction and arrangement of the device as the same, together with its parts and operation, is hereinafter described and claimed, and as illustrated in the drawings, in which—

Figure 1 is a front view of the device. Fig. 2 is a side view thereof. Fig. 3 is a detail view, it being an enlarged portion of Fig. 2. Fig. 4 is a top view of the parts shown in the preceding figure. Fig. 5, in an enlarged sectional detail view, shows one of the parts used in connection with this device, it being a weight constructed in a certain manner and serving to return one of the parts of the device automatically to normal position. Fig. 6, at smaller scale, shows the device in front view and inclosed in a suitable case.

10 represents a number of shelves supported at each of their ends by bracket-arms 11, the upper ends of which latter are attached opposite each other at even height and in a manner free to swing to the inner opposite sides of two endless carrier-chains 12. These chains are supported opposite each other on a suitable frame consisting of standards 13 at each

side held to each other properly spaced apart by a suitable tie-rod 14. Suitable guide-pulleys 15 are provided on this frame to hold the chain in proper position. There may be two such pulleys to guide the chain around each turning-point. Where the distance between the two vertical branches of a chain is not too wide, one guide-pulley sufficiently large to fill this space would be sufficient. The chains may be moved in any suitable manner, their motion being, of course, a simultaneous one and proceeding from the same source and at the same speed. They being sprocket-chains, I use a sprocket-wheel 16 for each chain to move it, the two wheels being mounted upon a shaft 17, supported in bearings in the frame. Rotation of this shaft causes simultaneous and even movement of the two chains. This rotation is derived from an electrical motor 18 by suitable intermediate machine elements. As shown, a worm on motor-shaft 19 drives a worm-wheel 21, the shaft of which mounts a sprocket-wheel 22, which by means of a chain 23 drives another sprocket-wheel 24 on shaft 17.

In order to render the movement of the chains and the shelves supported by them intermittent, means are provided to stop the operation of the motor at certain intervals, the interruption being maintained a certain length of time more or less, as may be arranged. By preference these stoppages, with succeeding pauses in motion, are of equal length of time. Stoppage of the motor is brought about by controlling the current supplied to it and necessary for its operation. The arrangement and means for such purpose are as follows: The current passes through a wire 25 into the entire device, including the chains, but excepting a rod 26, insulated therefrom at both its ends, where it attaches to the frame of the device, as shown at 20. From one of the chains the current passes through movable contact devices into this rod 26, and through it into a continuation of wire 25, (indicated at 25<sup>a</sup>), and thence into the motor. 27 is the other wire necessary for the operation of the motor. The contact devices mentioned consist of pins 28, projecting from one



of the chains, there being a pin for each shelf, and of a toothed wheel 29, mounted rotatably on a slide 31, fitted to rod 26, so as to be free to move in either direction thereon. Pins 28 and wheel 29 are so arranged as to location that the teeth on this latter project into the path of the pins as they move past this wheel, so that this latter being prevented from rotating the entire slide is taken along and moves with the chain. While the two thus move together and in contact with each other the current passes from the chain over into rod 26, and the circuit is complete which operates the motor and keeps the entire device going. This contact is maintained as long as wheel 29 is held rigid by means of a pivotally-attached trip-lever 32, also carried by slide 31. When, however, this trip-lever encounters a fixedly-attached stop 33, it is caused to release wheel 29, whereupon pin 28 in its progressive motion with the chain merely turns this wheel, the resistance of the trip-lever having been removed, leaving slide 31 at a standstill. Thus the slide, with wheel 29, being unable to follow the progressing chain which carries pin 28 with it, it is clear that the electric contact which maintains the circuit is broken. In consequence the motor ceases to operate and the shelves moved thereby are at once set at rest. The released slide is now caused to move up on rod 26 by reason of a weight 34, attached to it by means of a rope 35, which passes over a guide-pulley 36. This return movement in opposite direction takes also the trip-lever away from stop 33, allowing its notched inner end to again lock wheel 29, which it does at once. In due time as this wheel rises with the slide one of its teeth comes in contact with the next contact-pin 28 above, after which, current being immediately established, the motor and device commence at once to resume operations. In Fig. 2 this upper position of the slide and beginning of operation is shown in full lines. A lower position of the slide is shown in dotted lines in the same figure, it being the moment when on its downward travel it encounters stop 33. This is not the lowest position, however, it traveling still a little farther, and, as shown in Fig. 3, this additional travel being necessary to lift the trip-lever so that it may release wheel 29. This has just occurred, as shown in said figure, and in the further progress of pin 28 wheel 29 will not share any more, but merely turning it remains behind. This separation of the two breaks the electric circuit, as before described. It is clear that this interruption in operation continues until weight 34 has raised the slide up to its highest position, when electrical contact is again reestablished. Ordinarily this would not be very long, and therefore where it is desirable that the stoppage continue for a longer period this time interval may be lengthened by retarding the upward movement of the slide. This is best

done by checking the drop of the weight, and we accomplish such by causing this latter to move against a suitable liquid, which it must displace in its progress. This liquid, which may be water or an oil, is contained in a tubular vessel 37, into which this weight fairly fits. It has a vertical bore contracted between the ends so as to form a seat 38 for a check 39, loosely fitted into this bore below this seat. This check is confined within the weight by a cross-bar 41 across the lower end of the bore. When the weight descends, this check, preferably of light material, like wood, is driven against seat 38 and nearly closes the contracted opening therethrough. It leaves it open, however, to the extent of what may pass through a small grooved channel 42 in the upper beveled end of the check. It is clear now that the weight in order to descend must first displace the liquid below it, and this displacing is retarded by the small opening provided for its passage from the space below the weight into the space above it. When moving in the other direction—that is, when raised by the slide while this latter is propelled by the moving chain—this resistance is lessened by reason of check 39 dropping away from its seat and resting against bar 41, whereby a larger passage is opened for the liquid. For purpose of providing this larger passage check 39 is preferably triangular, so that when occupying the lower part of the cylindrical bore in the weight considerable free space is provided at the three sides. (Observe dotted lines in Fig. 5, indicating profile.)

Chance for regulating the duration of movement and point of stoppage of the shelves is had by changing the position of stop 33, which is adjustably attached to the frame. The entire device may be set behind an opening restricted so as to show only the space between two shelves, or it may be inclosed by a case 43, as shown in Fig. 6, and in front of which an opening 44 is provided as long as the space between the two chains and as high as the space between two shelves. This opening may be subdivided by frames 45, the resulting openings to be utilized in different ways—as, for instance, for displaying advertising matter.

Rods on which articles might be suspended would of course constitute the equivalent of shelves. Either might be used exclusively or both simultaneously, shelves alternating with rods.

Having described our invention, we claim as new—

1. In a display device, the combination of a series of shelves, two endless carrier-chains, guide-rollers on which they are supported, supports whereby these shelves are suspended on these carrier-chains, a driving-pulley which engages each chain, a shaft on which they are mounted, an electrical motor with intermediate machine elements whereby this shaft is



rotated and means actuated by a moving part of the device whereby the electrical operation of the motor is controlled.

2. In a display device, the combination of a series of shelves, two endless carrier-chains, guide-rollers on which they are supported, supports whereby these shelves are suspended on these carrier-chains, a driving-pulley which engages each chain, a shaft on which they are mounted, an electrical motor with intermediate machine elements whereby this shaft is rotated, conductors to supply current to the motor and of which conductors the chain forms a part, an insulated rod forming also part of these conductors, a slide mounted on this rod, a contact-piece on the slide, a contact-piece, one for each shelf, on the chain, both so arranged that one may engage the other, after which, while traveling together, an electrical circuit which operates the motor is completed, mechanism to break this engagement and a weight to return this slide to a position for succeeding engagements by the next contact-piece on the chain.

3. In a display device, the combination of a series of shelves, two endless carrier-chains, guide-rollers on which they are supported, supports whereby these shelves are suspended on these carrier-chains, a driving-pulley which engages each chain, a shaft on which they are mounted, an electrical motor with intermediate machine elements whereby this shaft is rotated, conductors to supply current to the motor and of which conductors the chain forms a part, an insulated rod forming also a part of these conductors, a slide mounted on this rod, a contact-piece on the slide, a contact-piece, one for each shelf, on the chain, both so arranged that one may engage the other, after which, while traveling together, an electrical circuit which operates the motor is completed, means to separate the contact-pieces, a weight to return this slide to a position for engagement by the next contact-piece and means to retard the drop of this weight.

4. In a display device, the combination of a series of shelves, two endless carrier-chains, guide-rollers on which they are supported, supports whereby these shelves are suspended on these carrier-chains, a driving-pulley which engages each chain, a shaft on which they are mounted, an electrical motor with intermediate machine elements whereby this shaft is rotated, conductors to supply current to the motor and of which conductors the chain forms a part, an insulated rod forming also part of these conductors, a slide fitted to this rod, a toothed wheel carried on this slide, contact-pins, one for each shelf, projecting from one of the chains and so arranged as to be carried thereby against the toothed wheel, locking means to temporarily prevent rotation of this wheel so that while both travel together and in contact an electrical circuit which operates the motor is completed, a stop

projecting in the path of the traveling slide adapted to act upon the locking means in a manner to release the toothed wheel thereby disengaging the slide and permitting the chain to proceed without it and a weight to return the slide to a position for succeeding engagement by the next pin on the chain.

5. In a display device, the combination of a series of shelves, two endless carrier-chains, guide-rollers on which they are supported, supports whereby these shelves are suspended on these carrier-chains, a driving-pulley which engages each chain, a shaft on which they are mounted, an electrical motor with intermediate machine elements whereby this shaft is rotated, conductors to supply current to the motor and of which conductors the chain forms a part, an insulated rod forming also a part of these conductors, a slide mounted on this rod, a contact-piece on the slide, a contact-piece, one for each shelf, on the chain, both so arranged that one may engage the other after which, while traveling together and in contact, an electrical circuit which operates the motor is completed, means to separate the contact-pieces, a weight to return this slide to a position for engagement by the next contact-piece, a tubular vessel within which this weight moves, a passage provided through this weight permitting a liquid contained in this vessel to pass from one side of the weight to the other and a check contained in this passage and adapted to retard the flow of the liquid for the purpose as shown and described.

6. In a display device, the combination of a series of supporting devices, mechanism to move them, means by which a temporary engagement is caused with parts of this mechanism for the purpose of moving the supporting devices and a weight to return these means at the termination of each temporary engagement.

7. A device to return a reciprocating machine element to a normal position for operation, the same consisting of a weight connected to the said machine element in a manner to be moved thereby in one direction and a vessel into which this weight is fitted and within which it moves, there being a liquid contained in this vessel which resists the movement of the weight and an opening formed through this weight which permits the liquid contained in this vessel to pass alternately from one side of the weight to the other, thus retarding its movement in proportion to the displaced liquid passing through such opening of a certain size.

In testimony whereof we hereunto set our signatures in the presence of two witnesses.

SAMUEL NEWMAN.

HENRY R. BOTHWELL.

Witnesses:

WILLIAM KOHL,  
ARTHUR KLINE.