

W. RIBERKOF.
 DISPLAY HOLDER.
 APPLICATION FILED MAY 20, 1912.

1,060,495.

Patented Apr. 29, 1913.

2 SHEETS—SHEET 1.

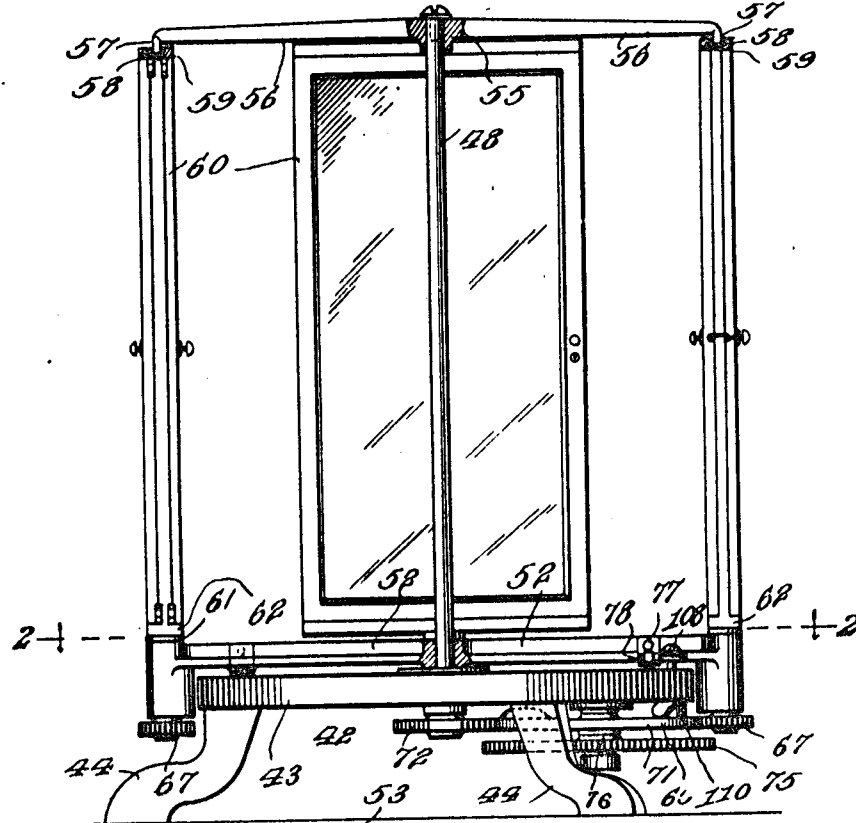


Fig. 1.

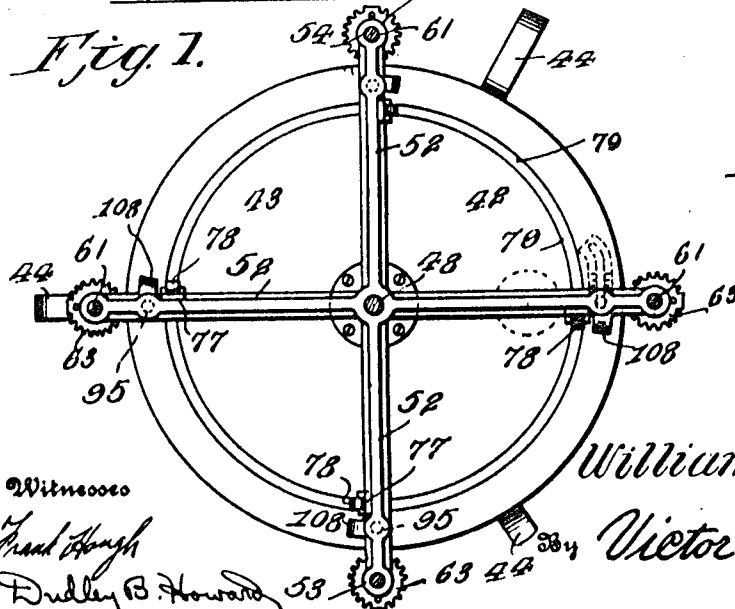


Fig. 2.

Witnesses

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2 SHEETS—SHEET 2.

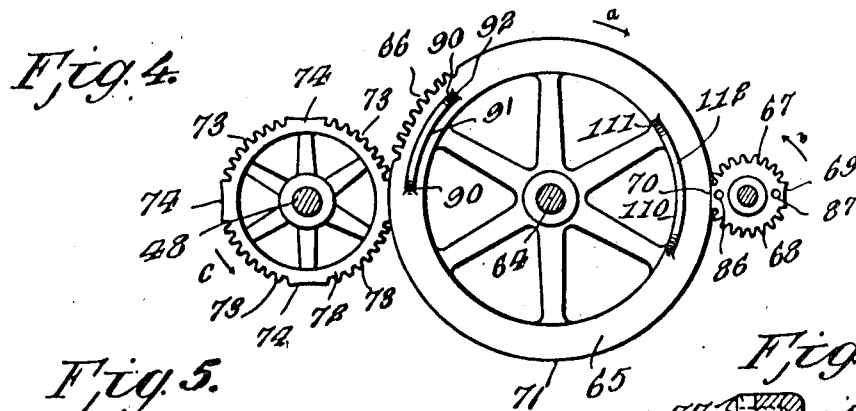
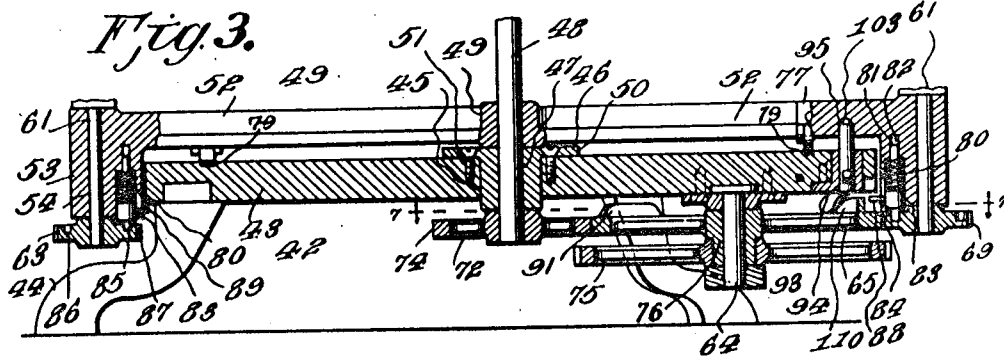


Fig. 5.

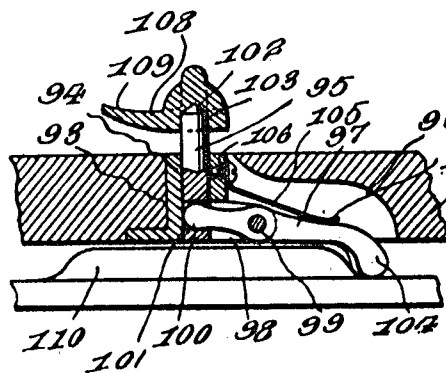
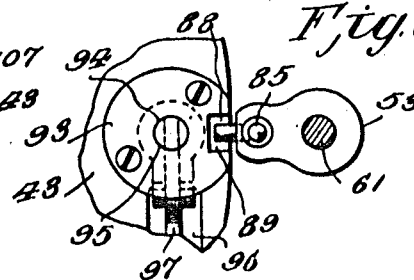


Fig. 7.



Fig. 6.



Witnesses

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UNITED STATES PATENT OFFICE.

WILLIAM RIBERKOF, OF BALTIMORE, MARYLAND.

DISPLAY-HOLDER.

1,060,495.

Specification of Letters Patent.

Patented Apr. 29, 1913.

Application filed May 20, 1912. Serial No. 698,570.

To all whom it may concern:

Be it known that I, WILLIAM RIBERKOF, a citizen of the United States, residing at Baltimore, in the State of Maryland, have invented new and useful Improvements in Display-Holders, of which the following is a specification.

My invention relates to a display device, the main object of the invention being to provide a device of this character in which a plurality of horizontally rotatable frames are secured to a rotatable support so as to be intermittently moved through their orbit or travel so as to be successively presented to view on the front side of the apparatus.

A further object of the invention is the provision of means for imparting to each frame rotation sufficient to reverse its position when in the front or view point of its orbit.

A still further object is the provision of means for automatically locking the rotary support for a certain period of time when any one of the display frames is in its front position.

A further object of the invention is to provide means for holding each of the display frames normally locked against rotation, and further means for releasing the locking means of each frame at a certain time during the interval in which it is in its front position to permit a semi-revolution of the frame caused by means provided therefor.

The invention consists of the features of construction, combination and arrangement of parts, hereinafter fully described and claimed, reference being had to the accompanying drawings, in which:—

Figure 1 is a vertical sectional view of a modified form of the device which is power-operated. Fig. 2 is a horizontal sectional view taken on the line 2—2 of Fig. 1. Fig. 3 is a transverse sectional view through a portion of the device, showing the locking means. Fig. 4 is a fragmentary bottom plan view showing the intermittent gears. Fig. 5 is a fragmentary vertical section showing the releasing means. Fig. 6 is a fragmentary horizontal section of the same. Fig. 7 is a fragmentary cross section of one of the supporting arms showing the bearing roller.

In the drawing I have represented a display device which is to be operated by power

and has provided for the purpose means for controlling the intermittent operation of both the rotary support and the display frames, and also means for locking both at the proper intervals in their movements.

Referring to the drawings by numerals, 42 designates the supporting base of the device which comprises a circular base plate 43 mounted on the legs 44. The plate 43 is centrally provided with a vertical opening 45 for the reception of the bearing plate 46 having a central vertical opening 47 adapted to rotatably receive the lower end of the vertical shaft 48. A spider 49 is fixedly secured to the shaft 48 against the upper surface of the bearing plate 46, whose upper portion is enlarged to form a flange 50 which may be readily secured to the base plate 43 by means of suitable screws 51. Supporting arms 52 radiating from the spider 49 are T-shaped in cross section so as to lend the desired rigidity thereto, and have provided on their outer ends the depending enlargements 53 having vertical openings 54. The upper spider 55 which is secured to the shaft 48 adjacent its upper end is provided with the resilient radiating arms 56. The outer ends of the arms 56 are provided with down-turned pintles 57 adapted to be received by the central recess 58 in the upper rails 59 of the display frames 60. The vertically depending shafts 61 carried by the lower rails 62 of the display frames 60 are rotatably received within the openings 54 of the enlarged bearing heads 53 on the outer ends of the supporting arms 52. An intermittent gear wheel 63 is secured to the protruding lower end of the shaft 61 for rotation in a horizontal plane. A depending stub shaft 64 is attached to the under surface of the base plate 43 at a point between the central bearing plate 46 and the front edge of the base plate and is adapted to have rotatably mounted thereon a large gear 65 having gear teeth 66 provided in a predetermined length of its periphery. The gear wheel 63 is provided in opposite portions with teeth 67 and 68 adapted to intermittently intermesh with the teeth 66 of the gear 65, and the portion of the gear intervening between the toothed portions 67 and 68 are concaved as at 69 and 70, for frictional engagement with the smooth periphery 71 of the wheel 65 so as to lock the gear 63 in either one of two posi-

tions during the intervals of time in which the teeth 66 of the wheel 65 are in that portion of their travel distant from the gear 63. A gear wheel 72 is fixedly secured to the protruding lower end of the vertical shaft 48. This gear wheel 72 is provided at spaced intervals on its periphery with toothed portions 73. These toothed portions are equal in number to the radiating arms of the rotatable support, and the space intervening between the toothed portions is concaved, as at 74, for frictional engagement with the smooth periphery 71 of the gear wheel 65. The toothed portions 73 of the gear 72 are adapted successively to intermesh with the toothed portions 66 of the wheel 65 when in the innermost point of its travel. A power gear 75 is mounted on a depending sleeve 76 formed on the hub of the gear wheel 65. This gear 75 is adapted to be operatively connected to some suitable source of power.

Upon reference to Fig. 4 it will be seen that upon rotation of the gear wheel 65 in the direction of the arrow *a*, the toothed portion 66 thereof will pass around until it comes into engagement with the toothed portion 67 of the gear 63, whereupon rotary motion of the gear will be given in the direction of the arrow *b*. This motion of the gear 63 represents a half revolution of the corresponding display frame thus reversing its faces. As soon as the toothed portion 66 of the large gear is passed out of engagement with the toothed portion 67, it will travel back toward the central gear 72, the gear 63 being effectively held against rotation by the frictional engagement of the concaved face 70 with the smooth face 71 of the gear 65. When the toothed portion 66 has reached the innermost point of its travel, it will engage one of the toothed portions 73 of the gear 72 and will thus impart, in this particular instance, a quarter revolution to the vertical shaft 48, in the direction of the arrow *c*, thus causing one of the display frames to be brought into the display position and replace the one simultaneously moved away.

To insure the stability of the supporting arms 52, I have provided roller brackets 77 on the supporting arms 52 adjacent their outer ends, and whose rollers 78 are adapted to bear against the annular track 79 provided in the upper surface of the base plate 43 concentric with the shaft 48, so as to effectively sustain the supporting arms throughout their travel.

Thus far means for operating the rotary support and the display frames has been provided, and also means for locking both of these at the proper intervals. I have also provided additional and even more effective locking means, which are designed to cooperate with the previously described

means to replace the same in case the concaved faces of the gears 63 and 73 should become worn so as to be inefficient in operation. In each bearing head 53 of the supporting arms 52 I have provided adjacent the inner portion thereto a vertically extending recess 80 communicating with its under surface. The upper portion of each recess 80 is reduced, as at 81, for the reception of the reduced upper portion 82 of a vertically movable plunger 83 whose body portion 84 is received by the enlarged portion of the recess. This plunger is provided at its lower end with a depending locking pin 85 adapted to engage in either one of the recesses 86 and 87 provided in the upper face of the gear 63 on each of the said supporting arms 52. These recesses 86 and 87 are respectively located adjacent the concaved faces 70 and 69 of the gear. The plunger 82 is adapted to be maintained normally in its lowermost position with the pin 85 in locking engagement with one of the recesses 86 or 87 in the gear 63. The plunger 83 has an inwardly extending tripping lug 88 formed on its enlarged portion and slidably movable within a vertical slot 89 formed in the inner face of the head 53 of the supporting arm in communication with the recess 80. This lug 88 is adapted to be engaged by one of the inclined ends 90 of an arcuate tripping ridge 91 formed on the gear wheel 65 adjacent the toothed portion 66. As the wheel 65 rotates the lug 88 will ride up onto the upper surface 92 of the ridge and will thus be held out of locking engagement with the gear 63, thus permitting a semi-rotation of the same.

A flanged member 93 extends upwardly through the plate 43 adjacent its front edge and is provided with a central, vertically extending opening 94 in which is slidably mounted a locking pin 95. The plate 43 is provided in its under surface at one side of the member 93 with a cut-away portion forming a recess 96 for the reception of a tripping lever 97 pivoted within a lateral slot 98 in the said member by means of a suitable pivot pin 99. The inner end of the lever 97 is provided with a rounded head 100 which is received within a socket 101 provided in the pin 95 adjacent its lower end. The upper end of the pin 95 is provided with a beveled point 102 adapted to engage within a recess 103 formed in the lower face of each supporting arm 52 near its enlarged extremity when the said arm is in its front or display position. The opposite end of the tripping lever 97 is curved downwardly and enlarged, as at 104, this extremity being normally maintained in frictional engagement with the upper surface of the gear wheel 65 by means of the spring 105, whose fixed end is removably secured to the flanged member 93, as at 106.

and whose free end 107 is adapted to bear against the upper surface of the outer arm of the lever 97. Each of the supporting arms 52 is provided at the forward side of its recess 103, with respect to the motion of the arm, with a laterally extending, upwardly curved guiding lug 108, whose under surface 109 is adapted to engage with the beveled end of the pin 95, as the said arm comes into its forward position, so as to depress the pin against the action of the spring 105 and permit its upper end to come into engagement with the recess 103. After one of the arms has been locked in this manner, further motion of the gear wheel 65 will bring an arcuate tripping ridge 110, which is located nearer the center of the wheel than the ridge 91, into its forward position so that one of its beveled ends 11 will engage the outer end 104 of the tripping lever 97 and will cause the same to ride up onto its horizontal face 112, thus depressing the pin 95 until the arm 52 is free to be moved out of its forward position because of the immediately following engagement of the toothed portion 66 with one of the toothed portions 73 of the gear 72.

In the operation of the device, power is applied to the gear wheel 75, which in turn rotates the gear wheel 65. As the latter rotates, the gear wheel 72 will be intermittently rotated to bring the supporting arms 52 successively into their front or display position, the arms each being temporarily locked in display position because of engagement between the pin 95 and the recess 103, and then the arms are being released in time for further movement because of the tripping lever 97 being operated by the tripping ridge 110 to throw the pin 95 into its lowermost released position. During the interval of time in which each of the arms 52 is locked in display position, the toothed portion 66 of the wheel 65 will intermesh with one of the toothed portions of the gear 63 carried by the arm so as to impart a half revolution to the display frame carried thereby, while the locking pin 85 of the arm is held out of engagement with one of the recesses in the gear 63, due to engagement of the lateral lug 88 with the outermost tripping ridge 91. Thus it will be seen that I have provided means for bringing the display frames successively into display position, and also means for reversing each frame when in this position so that it may be used from both sides.

What is claimed is:

1. A device of the class described comprising a circular base plate, supporting legs for said plate, a vertical supporting shaft journaled in said base plate centrally thereof, a spider fixedly secured to said shaft adjacent the upper surface of said plate, a plurality of supporting arms radi-

ating from said spider and extending past the edge of the base plate, an upper spider fixedly secured to said shaft at its upper end, a plurality of arms radiating from said upper spider in superimposed relation to the arms of the lower spider, a display frame rotatably mounted between the corresponding arms of both spiders, a gear wheel secured to the protruding lower end of the supporting shaft, a stub shaft depending from said base plate, and an operating gear wheel rotatably mounted on said stub shaft and adapted to intermittently operate the supporting shaft through the medium of its attached gear wheel to bring each display frame successively into display position.

2. A device of the class described comprising a base plate, supporting legs for said plate, a vertical supporting shaft journaled in said plate centrally thereof, a spider fixedly secured to said shaft adjacent the upper surface of said plate, a plurality of supporting arms radiating from said spider, an upper spider secured to said shaft at its upper end, a plurality of arms radiating from said upper spider in superimposed relation to the said supporting arms, a display frame adapted to be positioned between the corresponding arms of both spiders, a gear wheel fixedly secured to the protruding lower end of said supporting shaft, a stub shaft depending from said base plate, an operating gear wheel rotatably mounted on said stub shaft and adapted to intermittently operate said supporting shaft through the medium of its attached gear wheel to bring each display frame successively into display position, means for locking each supporting arm when in the display position, a tripping member operatively connected with said locking means, and means carried by said operating gear wheel for actuating the tripping member to release said arm.

3. A device of the class described comprising a base plate, supporting legs for said plate, a vertical supporting shaft journaled centrally in said plate, a spider fixedly secured to said shaft adjacent the upper surface of said plate, a plurality of supporting arms radiating from said spider extending past the outer edge of the base plate, a depending head formed on the outer end of each arm and having a vertical opening therein, a spider secured to the upper end of said supporting shaft, a plurality of arms radiating from said spider in superimposed relation to the supporting arms of the lower spider, a display frame adapted to be rotatably positioned between the corresponding arms of both spiders and having a depending central shaft journaled in the corresponding head opening, means for rotatably securing the upper end of the

frame to the superimposed arm of the upper spider, a gear wheel secured to the protruding lower end of each frame shaft, a gear wheel secured to the protruding lower end of the supporting shaft, a stub shaft depending from the said base plate, an operating intermittent gear wheel journaled on said stub shaft, said operating gear wheel being operatively associated with the gear wheel on the supporting shaft and adapted to intermittently operate the same to bring the display frames successively into front display position, said operating gear adapted to impart a one-half revolution to each display frame when in display position through the medium of its shaft and gear wheel, means carried by said base plate for locking each supporting arm when in display position, a tripping member on said base plate and adapted to release said locking means, and means carried by the operating gear wheel for actuating said tripping member to release the locked supporting arm.

4. A device of the class described comprising a supporting base plate, a vertical supporting shaft journaled centrally in said plate, a spider fixedly secured to said shaft adjacent the upper surface of said plate, a plurality of supporting arms radiating from said spider and extending past the outer edge of the base plate, a depending head formed on the outer end of each arm and having a vertical opening therein, a spider secured to the upper end of said supporting shaft, a plurality of arms radiating from said spider, in superimposed relation to the supporting arms of the lower spider, a display frame adapted to be rotatably positioned between the corresponding arms of both spiders and having a depending central shaft journaled in the head opening of the lower arm, a gear wheel secured to the protruding lower end of each frame shaft, an intermittent operating gear wheel pivoted to said base plate, a gear wheel secured to the protruding lower end of the supporting shaft and engageable with the said operating gear wheel, said operating gear wheel adapted to intermittently operate the supporting shaft through the medium of its attaching gear wheel to bring the display frame successively into display position, said operating gear adapted to impart a one-half revolution to each display

frame when in display position through the medium of its shaft and gear wheel, means for locking each supporting arm when in display position, means carried by the depending head of each supporting arm for locking the frame gear wheel in two positions, and means carried by the operating gear wheel for releasing the said locking means immediately previous to reversal of the display frame.

5. A device of the class described comprising a supporting base, a vertical supporting shaft journaled in said base, a spider secured to said shaft adjacent the said base and having a plurality of radial arms extending past the edge of said base, a second spider attached to said shaft in spaced relation to the first spider and having a plurality of radial arms in superposed relation to the arms of the lower spider, a display frame rotatably mounted between the ends of corresponding spider arms, a depending shaft provided on each display frame and journaled in the corresponding arm of the lower spider, a gear wheel attached to the depending lower end of said shaft and having a pair of arcuate toothed sections, the periphery intervening between said toothed sections being concaved, an operating gear wheel rotatably mounted on said support and having an arcuate toothed section adapted for engagement with the toothed sections of the gear wheel carried by each display frame to impart a semi-revolution thereto, the remaining periphery of the said operating gear wheel being convex for locking engagement with the concaved portions of the periphery of said frame carried gear wheel, a gear wheel attached to the protruding lower end of said supporting shaft, and means carried by said gear wheel so that upon operation thereof the display frames will be brought successively into display position, means carried by the base for locking the corresponding radial arms of the lower spider when each display frame is in display position, and means for releasing said locking means.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM RIBERKOF.

Witnesses:

DAVID SIMON,
MARY M. MAGRAW.