Oct. 9, 1923. 1,470,217

C. CLAUS

DISPLAY DEVICE

Filed Feb. 2, 1922

Fig. 1.

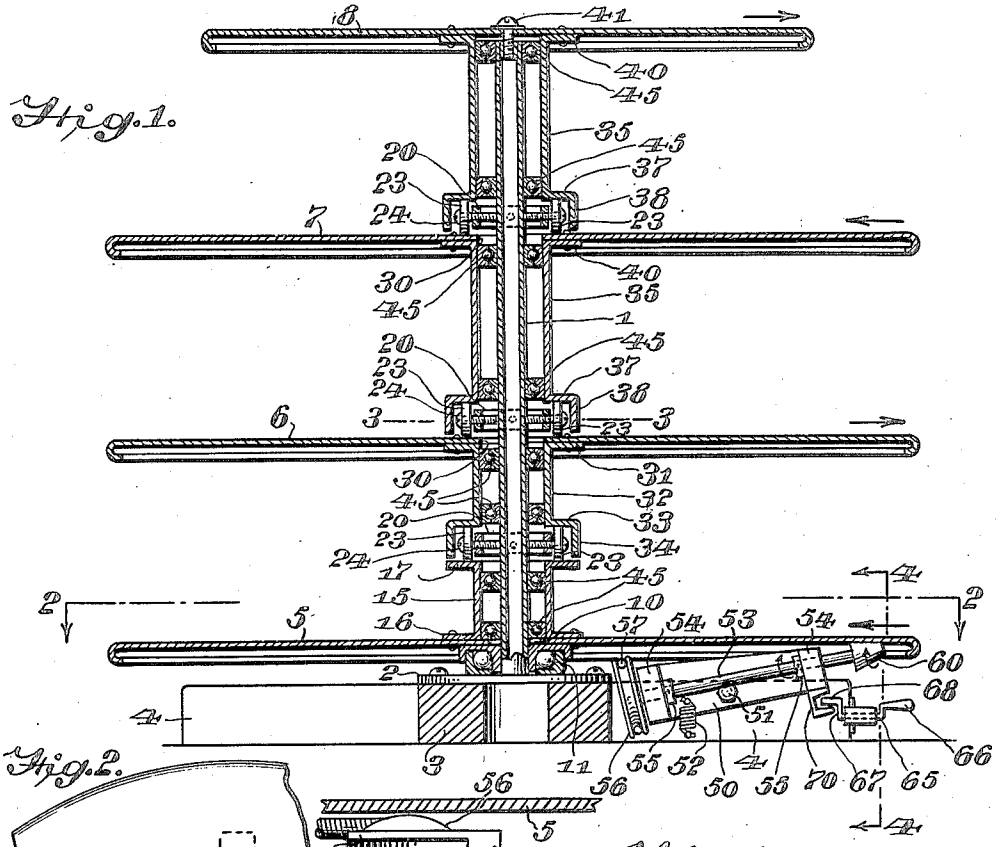


Fig. 2.

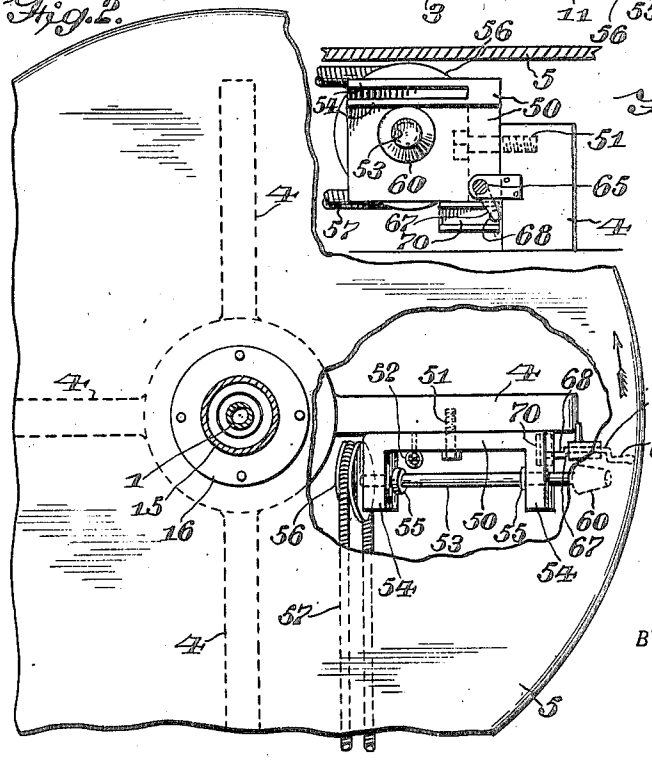
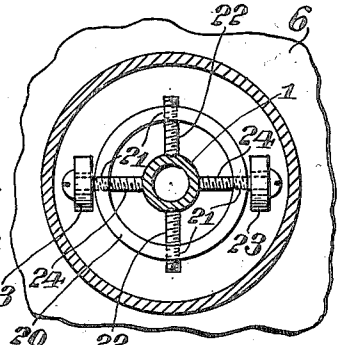


Fig. 4.

Fig. 3.



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UNITED STATES PATENT OFFICE.

JARL CLAUS, OF PHILADELPHIA, PENNSYLVANIA.

DISPLAY DEVICE.

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To all whom it may concern:

Be it known that I, CARL CLAUS, a citizen of the United States, and a resident of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented an Improvement in Display Devices, of which the following is a specification.

My invention relates to display stands and it has for its object to provide an improvement in the means for supporting a plurality of tables or brackets one above the other.

A further object of the invention is to provide means whereby the said supporting tables or brackets may be rotated simultaneously in the same direction or in opposite directions and also to provide means whereby the said tables or brackets may be rotated independently of each other.

A still further object of the invention is to provide improved mechanical means for actuating the said tables.

To these and other ends, my invention comprehends the construction as hereinafter described and as illustrated in the drawing in which by way of example, I have illustrated one form of embodiment thereof. It will be understood, however, that changes in the details of construction may be made within the scope of the claims without departing from the invention.

In the drawing:

Fig. 1 is a central vertical sectional view of a display stand embodying my invention, the mechanical means which may be employed for actuating the tables or other equivalent supports being shown in elevation;

Fig. 2 is a transverse sectional view taken on the line 2—2 of Fig. 1;

Fig. 3 is a transverse sectional view taken on the line 3—3 of Fig. 1; and

Fig. 4 is a sectional view taken on the line 4—4 of Fig. 1, certain of the parts being in different positions from those in which they are shown in Fig. 1.

Referring to the drawings, 1 designates a central stationary column support secured at its lower end to a plate 2 which is secured to a base 3 comprising the radially extending arms 4.

The base 3 is adapted to rest upon a floor, platform or other suitable support. The bottom one of the tables 5, 6, 7 and 8 is provided with an opening 10 at its center through which the column 1 extends.

The inner edge portions of the said table 5 surrounding the said opening are secured to the top member of a ball bearing structure 11 which rests upon the plate 2 and through the center of which the column 1 extends, as is clearly shown in Fig. 1 of the drawing. However, it will be understood that any other suitable and equivalent means for supporting the bottom table 5 may be substituted for the ball bearing structure illustrated.

The remaining tables or equivalent article supporting devices are adapted to be supported one above the other, as illustrated, upon and by the table 5, or they may be attached to and supported independently of each other upon the column 1.

15 designates a tubular sleeve-like member terminating at its lower end in a horizontal flange 16 which is secured to the table 5. The upper end of the said tubular member 15 terminates at a point intermediate the tables 5 and 6 in an annular flange 17.

For the purpose of providing means whereby the respective upper tables may be supported by or independently of the table 5, I have provided a device which is adapted to be connected with and disconnected from the center supporting column 1. There are three of these devices employed in the construction, as illustrated, but it will be understood that the number required will depend upon the number of tables or other equivalent supports which may be employed. The said devices respectively comprise a ring 20 having screw threaded openings as indicated at 21 extending horizontally therethrough. Through two of these openings binding screws 22 extend. The inner ends of these screws are adapted to engage diametrically opposed points upon the column support 1, as is clearly indicated in the drawing. By adjusting these screws vertically upon the column support 1, the positions of the said devices upon said column are adjusted so that the wheels or rollers 23 upon the screw bolts 24 may contact with the flange 17 or with a table 6 or 7, as the case may be, or may be supported out of contact with the said flange or with the said tables.

The outer end portions of the bolts 24 of each device are smooth so as to provide suitable journals for the wheels 23, while the inner end portions thereof are screw threaded so that they may adjustably en-

gage a couple of the diametrically disposed screw threaded openings in the ring 20. The inner ends of these screw threaded bolts 24 are adapted to contact with diametrically opposed points upon the central column support 1 in order to cooperate with the binding screws 22 in centering the ring 20 with respect to the central column support 1.

The intermediate tables 6 and 7 are provided with openings 30 at their centers through which the central column support 1 extends. The inner edge portion of the table 6 surrounding the opening 30, is secured to a horizontally extending flange 31 at the upper end of the tubular or sleeve-like member 32 the lower end of which terminates in a horizontally extending annular flange 33 from the outer edge of which an annular flange 34 depends, said flange constituting an apron or shield which surrounds and conceals the supporting device comprising the ring 20 upon the wheels 23 of which the flange 33 rests so that the tubular or sleeve-like member 32 and the table 6 secured to the upper end thereof are supported upon the said device. The latter may be supported directly upon the central column support 1 or upon the flange 17 at the upper end of the tubular or sleeve-like member 15.

Interposed between the tables 6 and 7, and 7 and 8, are similar tubular intermediate supports 35, which respectively terminate at their lower ends in horizontally extending flanges 37 having depending annular flanges 38 at their outer edges which surround, conceal and shield the supporting devices comprising the ring 20, and supporting wheels 23.

The tubular members 35 are each provided with horizontally extending flanges 40 at their upper ends to which the tables 7 and 8 are secured.

Although not essential, it is preferable that the topmost table 8 be retained in position upon the column support 1 by means of a retaining headed screw 41, which extends through an opening at the center of the said table and which engages the upper end of the said column as indicated in Fig. 1 of the drawings.

For the purpose of retaining the tubular members 15, 32 and 35 in proper concentric relation with respect to the column support 1 and to prevent tilting thereof and of the tables connected therewith, I have provided annular ball bearing devices 45 which are situated within the said tubular members between the interior surfaces thereof and the exterior surfaces of the column support 1. These ball bearing devices loosely engage the said column support 1, and are supported in position by frictional engagement with the inner surfaces of the said tubular members.

In the construction, as illustrated, the binding screws 22 of the supporting devices, are clamped firmly against the column support 1 so that the said devices are supported thereby and the lower sides of the supporting wheels or rollers 23 contact with the flange 17 and with the tables 6 and 7. When said devices are so adjusted, it will be understood that upon rotation of the table 5, rotation of the upper tables alternately in opposite directions will be effected. That is to say, if the table 5 is rotated in an anti-clockwise direction, the table 6 will be rotated in a clockwise direction, the table 7 in an anti-clockwise direction and the table 8 in a clockwise direction.

In case, however, it shall be desired that all of the tables rotate in the same direction, the clamping screws 22 and the screw bolts 24 may be adjusted to positions out of contact with the column support 1, in which case the upper tables will be supported through the tubular members 15, 32 and 35, and through the intermediate devices, comprising the wheels or rollers 23, upon the table 5. The said uppermost tables being thus supported upon each other and upon the table 5, it follows that upon rotation of the latter, the former or upper tables 6, 7 and 8, will, through friction be caused to rotate in the same direction.

If it be desired to so adjust and support the tables upon the column support 1 that they may be rotated and adjusted independently of each other, the clamping screws 22 may be so adjusted as to support the tables without the wheels or rollers 23 contacting with the upper side of the next adjacent lower table or table structure. When the supporting devices comprising the parts 20, 23, etc. are so supported, it will be understood that any table may be rotated without causing rotation of any other table.

Rotation of the tables may be effected manually, or if preferred, a device may be employed for the application of power to one of the tables, preferably the lower one, to effect rotation and manipulation of the tables. The device employed by me for this purpose, comprises a yoke shaped member 50 pivotally supported upon a bolt 51 in screw threaded engagement with one of the radially extending arms 4. The screw threaded bolt 51 extends through a hole at the center of the base of the yoke shaped member 50. A coiled spring 52 having one end attached to the yoke shaped member 50 to the left of the supporting bolt 51, as shown in the drawing, and its opposite end connected to the radial arm 4 upon which the said yoke is supported, normally holds the said yoke in an inclined position as shown in Fig. 1 of the drawing.

A shaft 53 is supported in holes which extend through the legs or arms 54 of the

said yoke shaped member. The said shaft is held against longitudinal movement or displacement by means of collars 55 thereon. At its inner end the said shaft is provided with a grooved wheel 56 with which a driving cord 57 engages to drive the shaft 53. The opposite outer end of the shaft 53 is provided with a tapered friction drive member 60, of suitable material, which is adapted to contact with the under side of the table 5, near the outer edge thereof.

The spring 52 normally holds the yoke shaped member 50 and the shaft 53 carried thereby in inclined position as indicated in Fig. 1 of the drawing.

It may become desirable, however, to hold the said parts in such position that the friction drive member 60 is out of contact with the table 5. For this purpose, I have provided a crank shaft 65 having a handle 66 at its outer end and a crank arm 67 at its inner end having an outwardly extending projection 68 which enters between the flanges of a channel member 70 secured to the outer arm 54 of the yoke shaped member 50.

The channel member 70 is secured to the outer arm 54 in such position that the inner end thereof is quite near or in contact with the adjacent side of the radial arm 4, upon which the yoke shaped member 50 is pivotally supported. The relative position of the crank shaft 65 with respect to the said arm 4 is such that when the said crank shaft 65 is turned forwardly; that is, in a direction away from the face of the drawing, through a distance of slightly more than 180 degrees (assuming that the crank arm 67 normally occupies an upwardly extending vertical position), it contacts with the adjacent side of the said arm 4. The said crank arm having been moved though a distance slightly greater than 180 degrees, it follows that it has passed beyond the dead center so that the upward pressure of the lower flange of the channel 70 against the projection 68, due to the spring 52, tends to cause continued movement of the said crank shaft in the same direction, but such movement is prevented by reason of the contact of the projection 68 with the adjacent side of said arm.

In order to release the said yoke shaped member and permit it to return to its normal inclined position, under the influence of the spring 52, the crank shaft 65 is turned in reverse direction so as to return the same to the position shown in Fig. 1 of the drawing.

Having thus described my invention, what I claim and desire to secure by Letters Patent, is:

1. In a display device, the combination of a stationary column support, a plurality of tables supported concentrically with respect to said support and being adapted to rotate around said support, means for supporting said tables in spaced relation to each other, and means for attaching and detaching said supporting means to and from said column support whereby said tables are adapted to be supported upon or independently of the said column support.

2. In a display device, the combination of a stationary column support, a base for supporting said column support, a table supported upon the said base concentrically with the said column support, a plurality of tables situated above the first named table, means for supporting said tables in spaced relation to each other and to the bottom table, and means for attaching and detaching said supporting means to and from said column support whereby said tables are adapted to be supported upon or independently of the said column support.

3. In a display device, the combination of a column support, a plurality of tables adapted to be supported directly upon said support in spaced relation to each other, and devices adapted to be secured to said column support for supporting said tables, the said devices comprising means whereby upon the rotation of one of said tables all of the remaining tables are rotated.

4. In a display device, the combination of a stationary column support, a plurality of tables adapted to be supported upon said support in spaced relation to each other, and means whereby the said tables may be supported so that each may be rotated independently of the other or so that rotation of one of the said tables may cause rotation of all of the others.

5. In a display device, the combination of a stationary column support, a table rotatably supported adjacent and concentrically of the lower end portion of said column support, a plurality of tables situated above the bottom table, each of which is secured to and supported upon the upper end of a tubular member the lower end of which is provided with a horizontally and outwardly extending flange, a supporting device associated with each of said tubular members, each of said devices being adapted to be adjustably secured to the said column support, and each of them having parts adapted to contact with the flanges at the lower ends of the said tubular members for supporting the same together with the tables connected to the upper ends thereof.

6. In a display device, the combination of a stationary column support, a plurality of tables axially arranged with respect to said column support and being in spaced relation with respect to each other, a plurality of tubular members axially arranged with respect to the said column support and respectively connected at their upper ends to tables and having flanges at their lower

ends, supporting devices adapted to be adjustably secured to the said column support, said devices respectively having rotatable bearings upon which the flanges at the lower ends of said tubular members rest for supporting the tables connected to the upper ends of said tubular members.

7. In a display device, the combination of a stationary column support a base for said column support, a friction reducing device supported upon said base and being axially related to said column support, a table axially related to said column support and having connection with and being supported upon said device, a plurality of tables adapted to be supported in spaced relation to each other upon the said column support, a plurality of tubular members respectively connected at their upper ends to said tables and provided at their lower ends with horizontally and outwardly extending flanges, and devices adapted to be adjustably secured to the said column support for supporting the said last mentioned tables, the said devices respectively having friction reducing members in engagement with the lower sides of the flanges of the respective tubular members and being adapted to support said tubular members and the respective tables carried thereby.

8. In a display device, the combination of a column support and a base therefor, a friction reducing supporting member upon said base and axially related to the said column support, a bottom table axially related to the said column support and connected with and supported by the said friction reducing device, an upper table axially related to the said column support and supported in spaced relation to the bottom table, a tubular member for supporting the said table, said member being provided at its lower end with a horizontally and outwardly extending flange and a supporting device adapted to be adjustably secured to the said column support, said device being provided with rollers upon which the flange of the said tubular member is adapted to rest.

9. In a display device, the combination of a column support and a base therefor, a friction reducing bearing axially related to said column support and resting upon said base, a bottom table secured to and supported upon said bearing, a plurality of tables situated above the said bottom table and supported in spaced relation to each other, a plurality of tubular members situated intermediate the said tables and each being connected at its upper end to one of the said upper tables and provided at its lower end with a horizontally and outwardly extending flange, a supporting device for each of said upper tables, said devices being adapted to be adjustably secured to the said column support and each of the said devices being provided with rollers upon which the said flanges are adapted to rest whereby the said tables are adapted to be supported upon the said devices, and the said devices being adapted to be adjusted so that the said wheels may be supported out of or in contact with the next adjacent lower table.

10. In a display device, the combination of a plurality of tables supported in spaced relation one above the other, power actuated means for rotating one of said tables, and means intermediate said rotary table and the other tables and actuated by the former whereby the said other tables may be caused to rotate either in the same direction or alternately in opposite directions.

11. In a display device, the combination of a rotatable display table, a shaft having a friction drive member thereon which is adapted to contact with said table for driving the same, means for driving said shaft, a pivoted support for supporting said shaft, means for yieldingly holding said friction drive member against said table, and means for holding the said pivoted support in position to remove said friction drive member out of contact with said table.

12. In a display device, the combination of a column support, a plurality of tubular members situated concentrically of the said support, tables having connection with said tubular members, and means intermediate the adjacent opposing ends of said tubular members, which means is adapted to be attached and detached to and from the said column support and the said means having wheels with which the opposing ends of the said tubular members are adapted to contact.

In testimony that I claim the foregoing as my invention, I have hereunto signed my name this 21st day of January, A. D., 1922.

CARL CLAUS.