Jan. 1, 1924 1,479,618

F. P. MANSBENDEL

DISPLAY TURNTABLE

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Fig. 1.

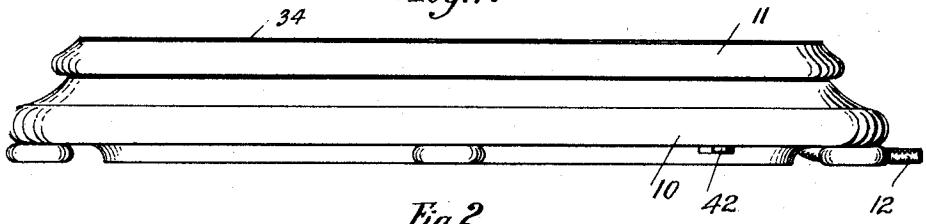
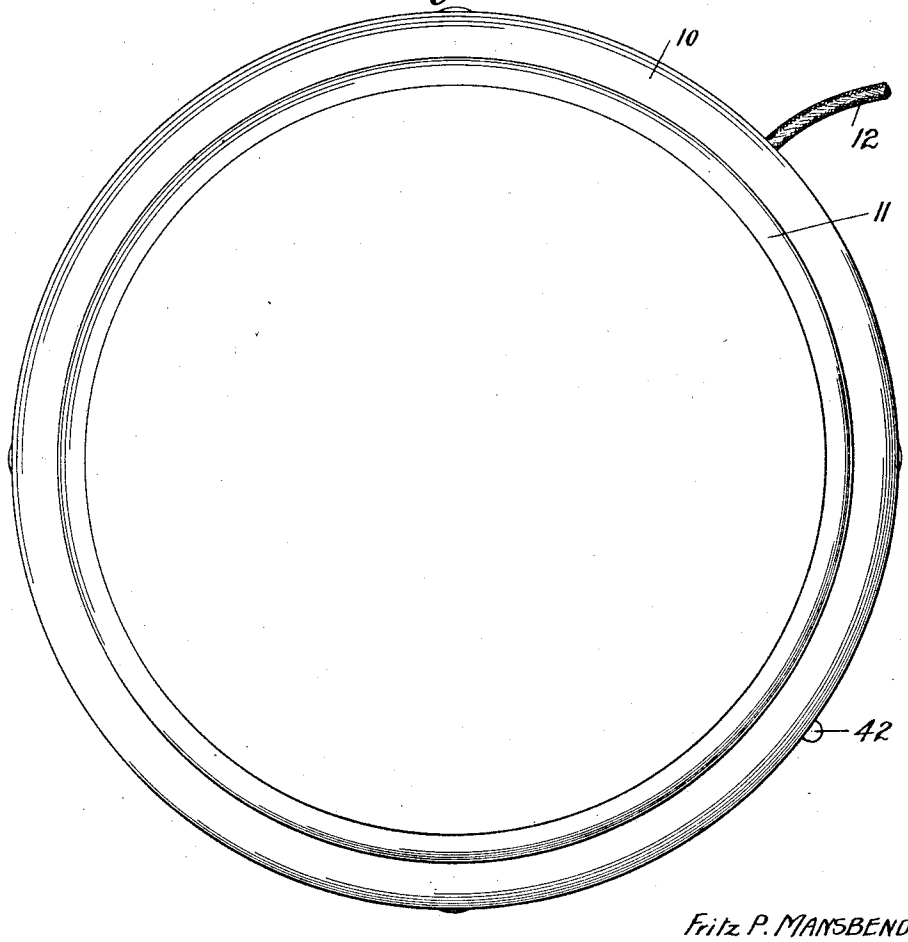


Fig. 2.



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Fig. 4.

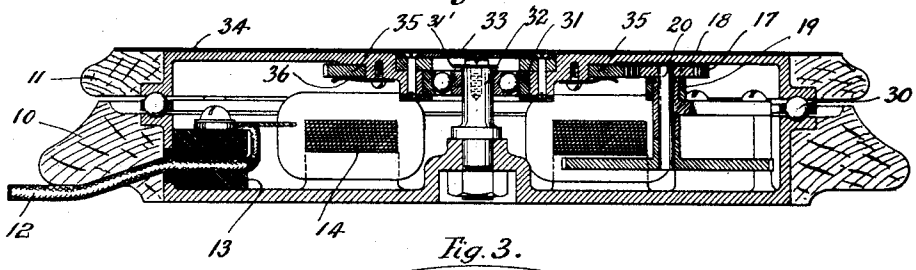
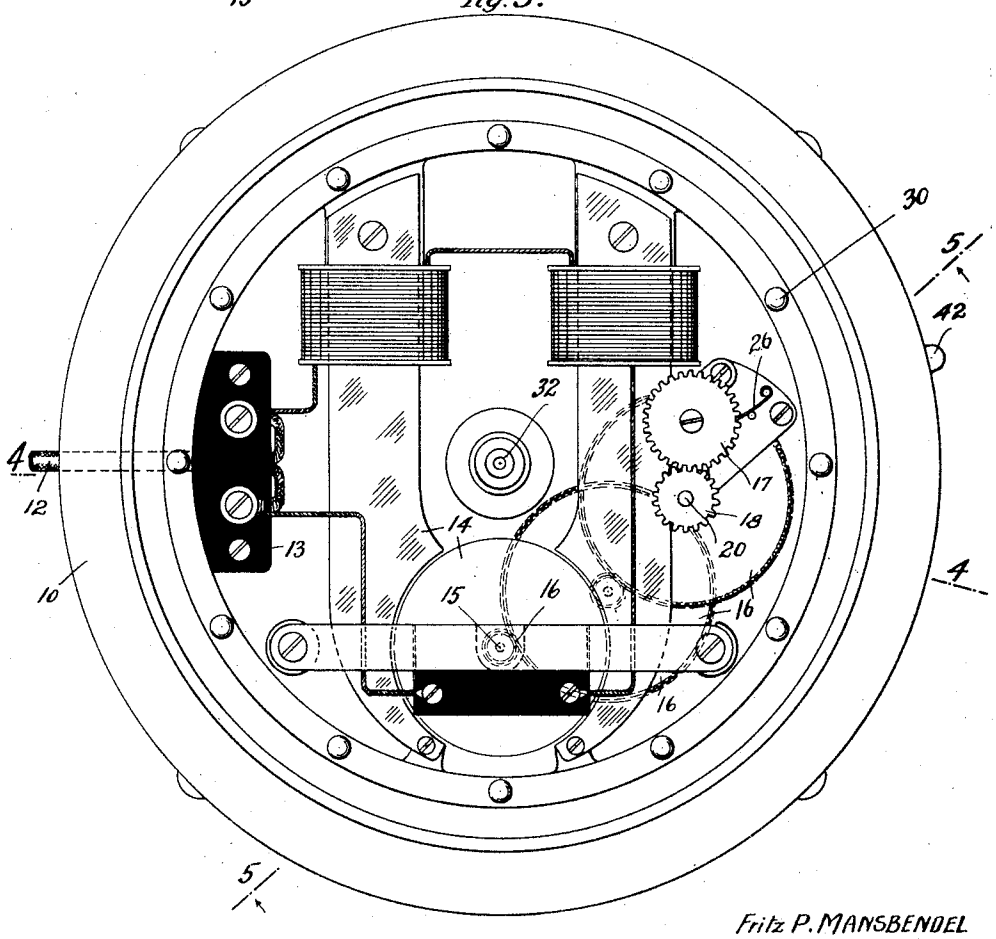


Fig. 3.



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Fig. 5.

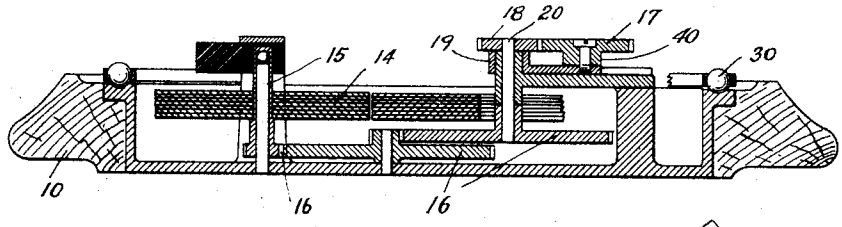


Fig. 6.

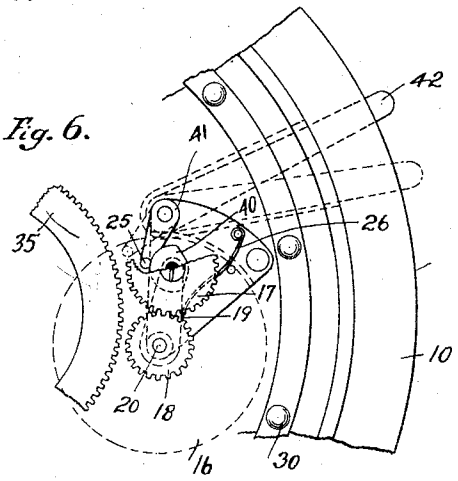


Fig. 7.

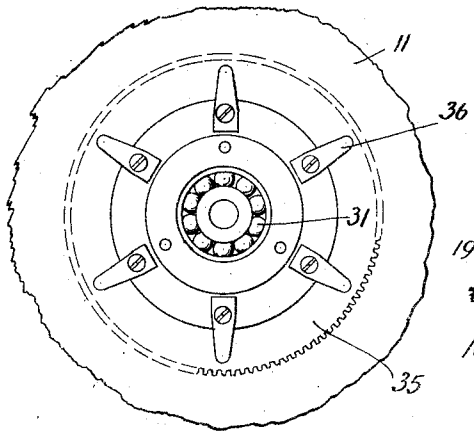
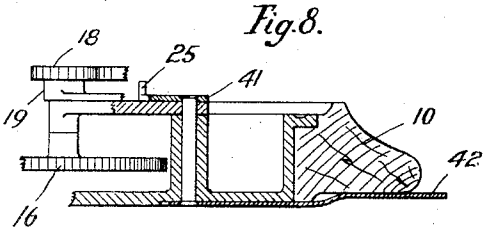


Fig. 8.



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Patented Jan. 1, 1924. 1,479,618

UNITED STATES PATENT OFFICE.

FRITZ P. MANSBENDEL, OF BROOKLYN, NEW YORK.

DISPLAY TURNTABLE.

Application filed March 31, 1921. Serial No. 457,441.

To all whom it may concern:

Be it known that I, FRITZ P. MANSBENDEL, a citizen of France, and a resident of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Display Turntables, of which the following is a specification.

The invention relates to a rotatable turn table or support, for example as may be employed for displaying merchandise and for other advertising purposes. It will be appreciated that in the display of merchandise and the like, it is especially desirable to so present the object that it may be viewed from different sides or angles. It is also desirable to allow a certain length of time for a more detailed examination of the object in the various positions; and to this end, an intermittent rotation is at times required in addition to a normal continuous rotation, the arrangemnt being such that either one may be effected at will.

It is the object of the present invention to provide an apparatus which will be suitable for both continuous or intermittent rotation, and in which the change from one to the other may be readily effected. A further object of the invention consists in a rotatable display support in which the actuating mechanism shall be entirely concealed; also, wherein the top or surface for receiving the object to be displayed shall be smooth and without obstructions. A still further object of the invention consists in the provision of a construction wherein slight slip between the turn table and its driving apparatus is possible to permit of a smooth starting under load. The construction insures, furthermore, that the load will be properly carried and a minimum power required for the operation of the apparatus.

The nature of the invention will, however, best be understood when described in connection with the accompanying drawings, in which—

Fig. 1 is a front elevation of the improved display support.

Fig. 2 is a plan thereof.

Fig. 3 is a plan of the interior, the rotatable top having been removed.

Fig. 4 is a vertical section taken on the line 4—4, Fig. 3; and Fig. 5 is a vertical section taken on the line 5—5, Fig. 3 showing the train of gears in development.

Figs. 6, 7 and 8 are fragmentary views illustrating details of the mechanism.

Similar characters of reference designate corresponding parts thruout the several views.

Referring to the drawings, 10 designates a stationary base designed to retain the mechanism hereinafter described for rotating a top 11 removably attached to the said base. This mechanism is designed to be electrically operated, the current therefor being introduced thru a suitable conductor or cable 12 to a contact block 13 within the base 10; and from which current is led in well-known manner to an electric motor 14 which is also mounted within the base. This motor may be of any suitable design; but I prefer, in order to reduce the height of the display apparatus to a minimum, to construct same of a flat type, for example as more particularly set forth in my co-pending application Serial No. 457,443 for electric motor, filed of even date herewith. From the motor shaft 15, there is actuated a train of gears 16 to drive at properly reduced speed, a swinging or displaceable idler gear 17. This latter gear is constantly in mesh with the final gear 18 of the gear train, and is carried by an arm 19 which may swing about the shaft 20 of the said gear 18 as an axis. The motion of the arm 19, however, is limited in one direction by a stop pin 25, Fig. 6. and in the other direction by a suitable spring 26 which bears against said arm and urges it toward said pin. In order to admit of the intermittent movement, the pin 25 may be movably mounted, as hereinafter set forth.

Between the stationary base 10 and the underface of the rotatable top 11 is arranged near their outer edges a suitable thrust ball bearing 30, Fig. 4, to insure a smooth and free rotation of the former relatively to the base. The said top, furthermore, is rotatably piloted about the center by means of a radial, preferably self-alining, ball bearing 31, held by said top and floating on a stud 32 centrally disposed in the base 10. A washer 31′ at the end of the stud 32 confines the radial ball bearing 31 on said stud and thereby attaches the top 11 to the base 10. It will be understood that all the weight supported on said top 11 is transmitted thru the ball bearing 30 to base

10 and that the floating self-alining central bearing will accommodate any unevenness in the race of the outer thrust bearing or permit of taking up of wear of same; and that any slight tilting of the top 11, due to unevenly distributed load, with reference to a central axis will not place any stress on said floating central bearing or central stud 32, thereby reducing the wear on these parts and hence the driving power to a minimum. Over the central ball bearing mounting is secured a plate 33, counter sunk in the upper surface of the rotatable top and thereby affording a smooth surface which may be covered by a suitable finishing material 34, as for example of felt.

The under surface of the top 11, moreover, carries a gear wheel 35 which is centrally disposed with reference to the display support and the stud 32 of the base thereof. The said gear wheel 35, however, is not fixedly attached to the underface of top 11 but is frictionally held thereto by means of a series of radially disposed spring arms 36, Figs. 4 and 7, one end of the said arms being secured, for example, to the top and the other bearing upon the said gear wheel. Gear wheel 35, moreover, is designed to mesh with the idler wheel 17, either continuously to afford continuous rotation of the top; or, is adapted to be thrown into intermittent engagement therewith for affording intermittent rotation of the said top. To this end, there is provided to rotate with the idler gear 17 a cam 40, Figs. 5 and 6, coacting with the pin 25 against which it is urged by the spring 26. So long as the pin dwells on the high surface of the cam, the idler wheel 17 will be held out of engagement with the gear wheel 35 of the rotatable top, as shown more clearly in Fig. 6 of the drawings. When the cut-away portion of the cam 40 arrives at the pin 25, the movable gear wheel 17 will be free to move toward the gear wheel 35, and will be brought into engagement therewith under the action of the spring 26. This will effect the rotation of the top 11 so long as the two wheels are in mesh, as will be well understood, and until the high portion of the cam again contacts with the pin 25, whereupon the two wheels 35 and 17 will be separated and the rotation of the top interrupted. It will be appreciated, also, that in the starting, a gradual application of the force will be effected in that any sudden reaction will result in a slipping of the gear wheel 35 relatively to the top.

Should it be desired to impart continuous rotation to the top, the pin 25 is arranged to be moved away from the cam sufficiently to permit of continuous engagement between gear wheels 17 and 35. This may be effected by moving an arm 41, Figs. 6 and 8, on which the pin 25 is carried, as thru a lever 42, to the position indicated in dotted lines, Fig. 6, the said lever extending beyond the base 10 or at some conveniently accessible point thereof.

I claim:—

1. A rotatable display support, including a stationary base, a rotatable top, an electric motor device contained between the base and top for rotating the latter, and a train of gears between said motor device and the top, the latter carrying a gear wheel and the said train including a swinging gear for engagement with the gear of said top.

2. A rotatable display support, including a stationary base, a rotatable top, carrying a gear wheel, an electric motor device contained between the base and top for rotating the latter, a train of gears between said motor device and the top and including a continuously rotatable and displaceable gear member, and means to move same into and out of engagement with the gear of said top.

3. A rotatable display support, including a stationary base, a rotatable top, an electric motor device contained between the base and top for rotating the latter, a train of gears between said motor device and the top, the latter carrying a gear wheel, and said train including a continuously rotatable and displaceable gear member, and means to periodically move same into and out of engagement with the gear of said top.

4. A rotatable display support, including a stationary base, a rotatable top, an electric motor device contained between the base and top for rotating the latter, a train of gears between said motor device and the top, the latter carrying a gear wheel and said train including a continuously rotatable and displaceable gear member, a cam rotatable with said displaceable gear, means to engage the cam, and resilient means urging said displaceable gear wheel and cam toward said cam engaging means.

5. A rotatable display support, including a stationary base, a rotatable top, an electric motor device contained between the base and top for rotating the latter, a train of gears between said motor device and the top, the latter carrying a gear wheel and said train including a continuously rotatable and displaceable gear member, a cam rotatable with said displaceable gear, means to engage the cam, resilient means urging said displaceable gear wheel and cam toward said cam engaging means, and means to move said cam engaging means.

6. A rotatable display support, including a stationary base, a rotatable top, an electric motor device contained between the base and top for rotating the latter, a train of gears between said motor device and the top, the latter carrying a gear wheel and said train including a continuously rotatable and displaceable gear member, a cam rotatable with said displaceable gear, a pin engaging said

cam, and a movable lever upon which said pin is mounted.

7. A rotatable display support, including a stationary base, a rotatable top, an electric motor device contained between the base and top for rotating the latter, a train of gears between said motor device and the top, the latter carrying a gear wheel and said train including a continuously rotatable and displaceable gear member, a cam rotatable with said displaceable gear, a pin engaging said cam, resilient means urging said displaceable gear and cam toward said pin, and a movable lever upon which said pin is mounted.

8. A rotatable display support, including a stationary base, a rotatable top, a gear wheel and intermediate friction means securing said gear wheel to the top, driving mechanism within said base, and a train of gears actuated thereby including a swinging gear for engagement with the gear wheel of the top.

9. A rotatable display support, including a stationary base, a top rotatable thereon, driving mechanism within said base, gearing intermediate said mechanism and top, a circumferential intermediate and thrust ball bearing, and a central and radial ball bearing floating guide.

Signed at New York, in the county of New York and State of New York, this 30th day of March, A. D., 1921.

FRITZ P. MANSBENDEL.