July 26, 1932. J. A. ASHLEY 1,869,003

DISPLAY APPARATUS

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Fig. 1.

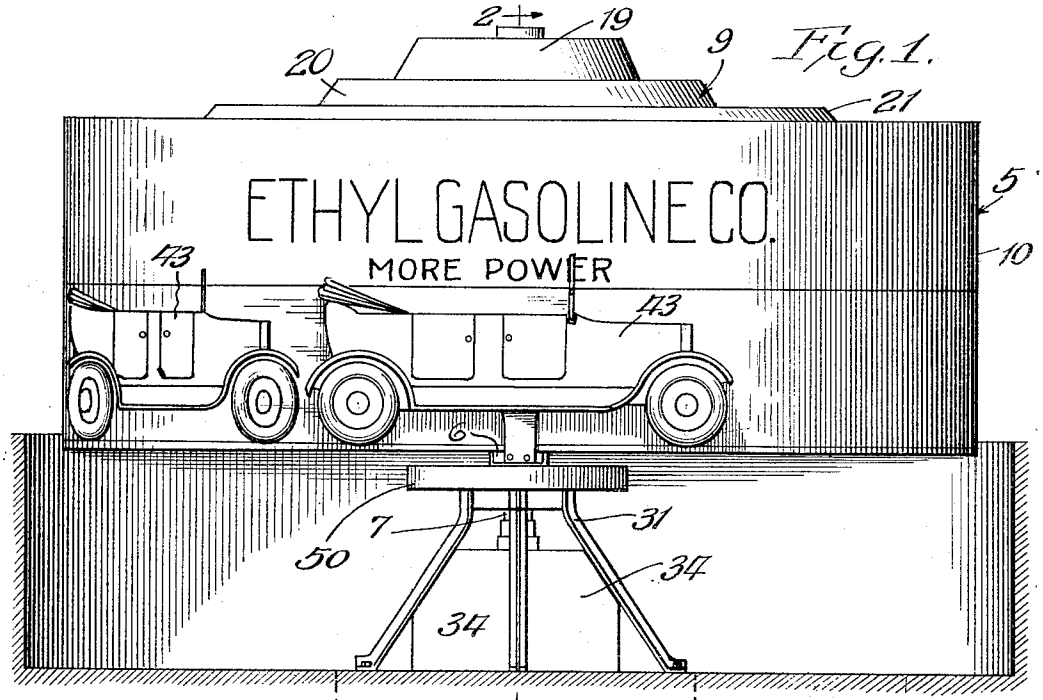
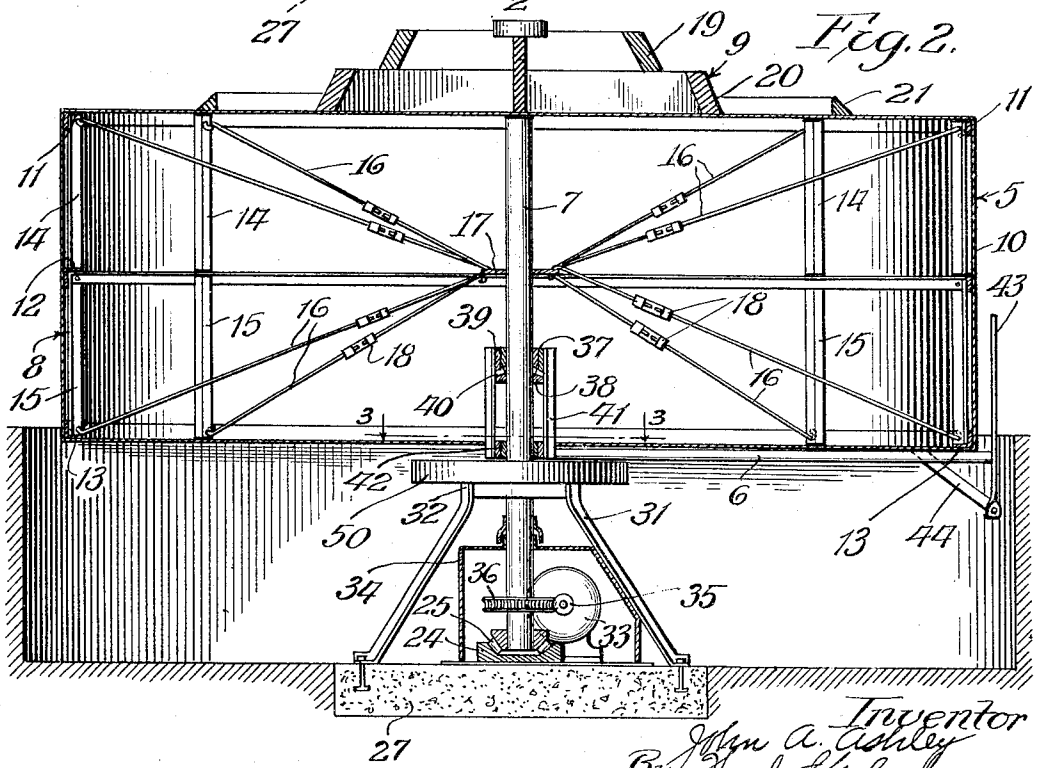


Fig. 2.



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Fig. 3

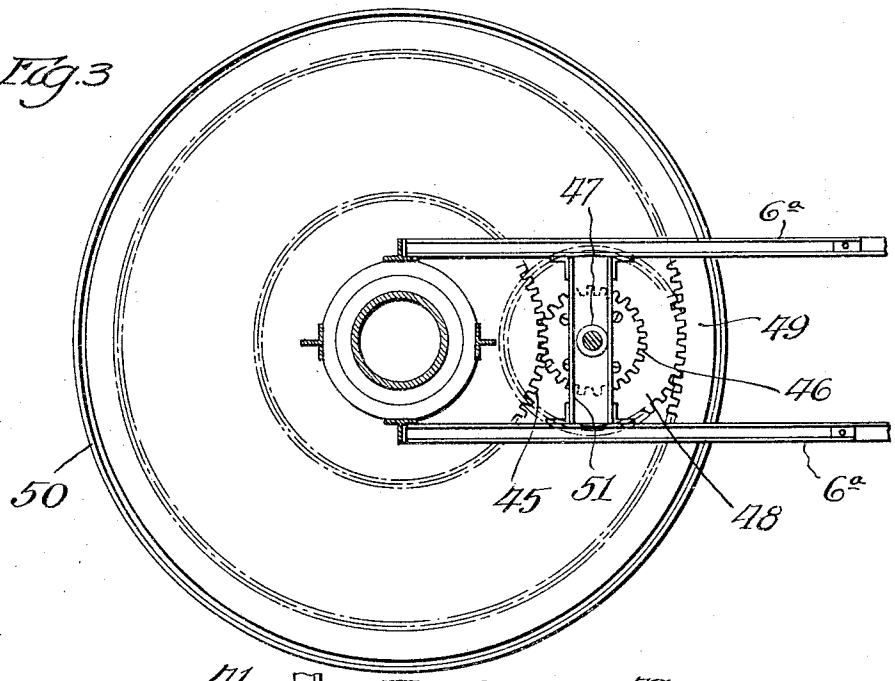
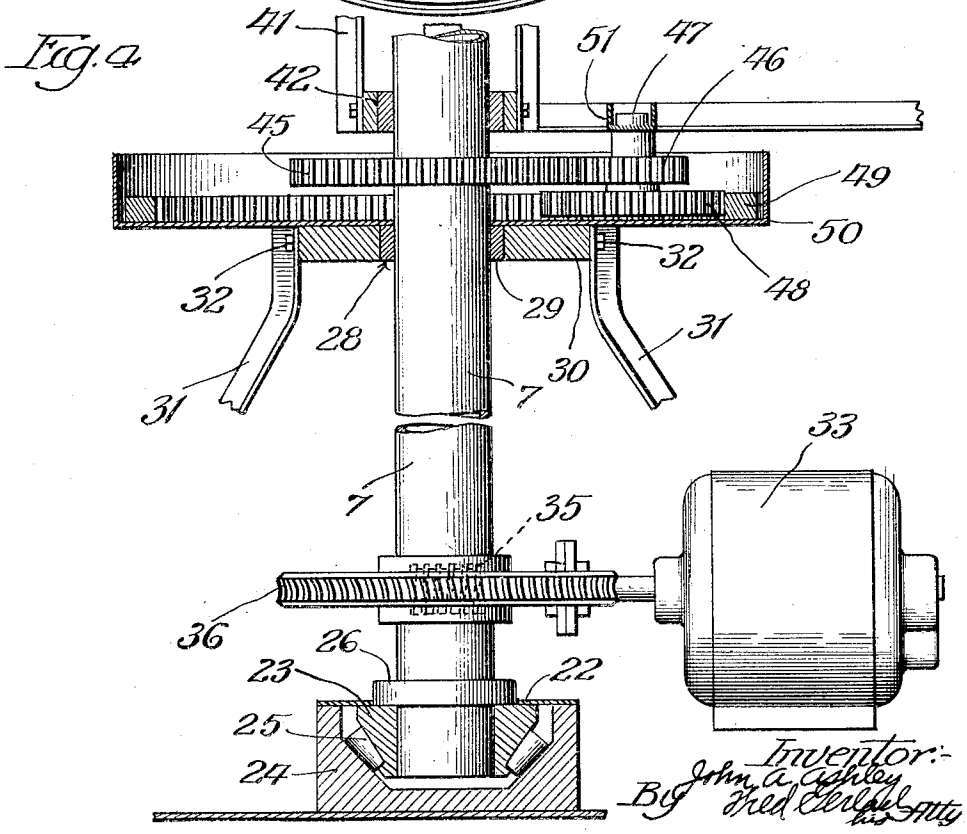


Fig. 4



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Patented July 26, 1932 1,869,003

UNITED STATES PATENT OFFICE

JOHN A. ASHLEY, OF CHICAGO, ILLINOIS

DISPLAY APPARATUS

Application filed October 12, 1931. Serial No. 568,283.

The invention relates generally to apparatus for displaying advertising material. More particularly, the invention relates to that type of display apparatus which is designed to be placed at a road or street intersection or upon a building or like structure and comprises (1) a hollow drum which is mounted to rotate on a vertical axis and has a substantially cylindrical peripheral portion for advertising material; (2) an element which is associated with and is rotatable relatively to the drum and has a vertical part for additional advertising material; (3) a motor and speed reducing gearing for rotating the drum so that the advertising material thereon can be seen from different points or places along the road or street intersection at which the apparatus is disposed; and (4) mechanism for rotating the element at a different rate of speed than the drum so as to cause attention to be directed to the additional advertising material.

One object of the invention is to provide a display apparatus of this type in which the drum extends around and is supported from the upper end of a vertically extending mast, and the motor and speed reducing gearing for rotating the drum are applied to the lower end of the mast.

Another object of the invention is to provide a display apparatus of the type under consideration in which the element is in the form of an arm which projects radially from and is supported for rotation relatively to the mast, and the vertical part for the additional advertising material is secured to the outer or distal end of the arm and laps the drum.

A further object of the invention is to provide a display apparatus of the last mentioned character in which the mechanism for rotating the radially projecting arm at a different rate of speed than the drum consists of gearing between the mast and the inner end of the arm.

A still further object of the invention is to provide an apparatus for displaying advertising material which is generally of new and improved construction, consists of but a small number of parts and is efficient in operation and durable.

Other objects of the invention and the various advantages and characteristics of the present construction will be apparent from a consideration of the following detailed description.

The invention consists in the several novel features which are hereinafter set forth and are more particularly defined by claims at the conclusion hereof.

In the drawings which accompany and form a part of this specification or disclosure and in which like numerals of reference denote corresponding parts throughout the several views:

Figure 1 is a side view of a display apparatus embodying the invention;

Figure 2 is a vertical section illustrating in detail the construction of the drum and the manner in which the arm is supported for rotation relatively to the mast;

Figure 3 is an enlarged horizontal section on the line 3—3 of Figure 2; and

Figure 4 is a detailed view of the motor and speed reducing gearing for driving the mast for drum-rotating purposes, and the gearing for rotating the arm from, and at a different rate of speed than, the drum.

The apparatus which forms the subject matter of the invention is designed to display advertising material and is adapted to be placed at a road or street intersection or upon a building or like structure. It comprises a drum 5 and an arm 6.

The drum 5 is supported by a mast 7 for rotation on a vertical axis and comprises a framework 8, a top 9 and a cylindrical side wall 10. The framework 8 consists of an upper angle iron ring 11, an intermediate angle iron ring 12 and a lower angle iron ring 13. The upper ring 11 is located directly over the intermediate ring and is supported in vertically spaced relation with respect to the latter by an annular series of bars 14. The latter are secured in any suitable manner to the horizontal legs of the rings 11 and 12 and are formed of angle iron. The lower ring 13 is located directly beneath the intermediate ring 12 and is suspended from the latter by

an annular series of angle iron bars 15. The bars 15 are aligned with the bars 14 and are secured in any suitable manner to the horizontal legs of the rings 12 and 13. The framework 8 extends around the upper end of the mast 7 and is supported by a plurality of cables 16. These cables are anchored to and project outwardly from a circular plate 17 on the mast 7 and have the outer ends thereof connected to the angle iron bars 14 and 15, as illustrated in Figure 2 of the drawings. The plate 17 is keyed or otherwise fixedly secured to the mast and operates together with the cables 16 to rotate the drum in response to rotation of the mast. Turn buckles 18 are applied to the cables so that the latter may be tightened or loosened in order to position the framework 8 concentrically with respect to the mast 7. The top 9 is supported in any suitable manner from the upper angle iron ring 11 of the framework and consists of circular sections 19, 20 and 21 which are arranged concentrically and serve to make the top attractive as far as appearance is concerned. The cylindrical side wall 10 fits around the framework 8 and is adapted to have advertising material painted or otherwise applied to the outer periphery thereof. During rotation of the drum, the advertising material on the outer periphery of the cylindrical side wall 10 is successively brought into view and may be readily seen from different points or places along the road or street intersection at which the display apparatus is placed.

The mast 7 is supported at its lower end by a roller bearing 22. The latter comprises an inner race 23, an outer race 24 and an annular series of rollers 25. The inner race is shrunk or otherwise secured on the extreme lower end of the mast and is held against axial displacement by means of a collar 26 which is secured fixedly to the mast and engages the top face of the inner race. The outer race 24 is cup-shaped and rests upon a slab 27 of concrete or any other suitable material. The rollers 25 are conical and extend between conical surfaces on the inner and outer races. In addition to the roller bearing 22, the mast 7 is supported by a bearing 28. This bearing is located at the central or intermediate part of the mast and comprises a bronze bushing 29 and a ring 30 in which the bushing is secured. The ring is supported by a plurality of angle iron legs 31. These legs are secured to the slab 27 and extend upwardly and inwardly. The upper ends of the legs fit against the outer periphery of the ring 30 and are secured in place by bolts 32. The drum 5 is rotated at a comparatively low speed by an electric motor 33 and speed reducing gearing. The motor is disposed in a housing 34 between the legs 31 for supporting the bearing 28 and is mounted upon the slab 27. The speed reducing gearing comprises a worm 35 on one end of the armature shaft of the motor and a worm gear 36 on the mast 7. The worm gear meshes with and is driven by the worm 35 and is secured fixedly to the mast so that the latter is rotated when current is supplied to the electric motor 33. The housing 34 for the motor is of such size that it covers or encases the speed reducing gearing.

The arm 6 extends horizontally and is located directly beneath the drum 5. It projects radially from the mast 7 and is supported so that it is rotatable relatively to the mast, by means of a bearing structure 37. The latter comprises a collar 38 on the central portion of the mast 7, a sleeve 39 and an annular series of rollers 40. The sleeve 39 is located above the collar 38 and fits loosely around the mast. It is supported rotatably from the collar by the rollers 40 and supports a plurality of depending bars 41. A ring 42 is secured to the lower ends of the bars 41 and fits loosely around the mast. The arm 6 comprises a pair of laterally spaced beams 6^a, the inner ends of which are secured fixedly to two of the bars 41. In addition to the beams 6^a, the arm comprises a vertically extending member 43. The latter is secured by braces 44 to the outer or distal ends of the beams 6^a and is arranged so that it laps the outer periphery of the side wall 10 of the drum. It is adapted to have additional advertising material applied thereto and, if desired, may be in the form of a vehicle (as shown in Figure 1) or an object in motion.

The arm 6 is rotated by means of gearing at a greater rate of speed than the drum 5 so that the member 43 at the outer or distal ends of the beams 6^a travels faster than the contiguous peripheral portion of the side wall 10 and thereby produces an optical effect which will attract attention. The gearing for rotating the arm at a greater rate of speed than the drum comprises a gear 45 which is fixedly secured to the mast 7 and is positioned between the bearing 28 and the ring 42; a pinion 46 which meshes with and is driven by the gear 45 and is secured to a pin 47; a gear 48 which is of greater diameter than the pinion 46 and is secured fixedly to the pin 47; and a ring gear 49 which is supported on a pan 50 and is arranged so that it is in mesh with the gear 48. The pin depends from and is supported rotatably by a crossbar 51. The latter extends between and is secured fixedly to the beams 6^a of the arm 6. The pan 50 rests upon and is secured fixedly to the ring 30 of the bearing 38 and holds the internal or ring gear 49 in a fixed position. When the mast 7 is rotated by the motor 33 and the speed reducing gearing between the motor and the mast, the gear 45 drives the pinion 46. The latter in turn drives or rotates the

gear 48. By virtue of the fact that the internal or ring gear 49 is stationary, the gear 48 is caused to travel in a circular path within the internal or ring gear and operates through the medium of the pin 47 to rotate the arm 6. The gear 45, the pin 46 and the gear 48 are designed with respect to size or ratio so that the arm 6 is rotated at a greater rate of speed than the mast. By employing gearing of this character, the cost of manufacture is reduced to a minimum.

If desired, the apparatus may be placed in a pit of such height that only the drum and the member 43 are exposed. If it is not feasible to locate the apparatus in a pit, a wall may be formed around the lower end of the mast so as to enclose the gearing between the mast and the arm and the legs 31 for supporting the bearing 28.

The operation of the apparatus is as follows:

Upon supplying current to the electric motor 43, the speed reducing gearing which consists of the worm 35 and the worm gear 36, rotates the mast 7 at a comparatively low speed and thus effects rotation of the drum 5. During rotation of the mast, the gearing between the arm and the mast rotates the arm at a greater rate of speed than the drum and thus causes the member 43 at the distal ends of the beams 6^a to travel around the periphery of the side wall 10 of the drum. By virtue of the fact that the arm 6 is rotated at a greater rate of speed than the drum, the member 43 travels faster than the contiguous peripheral portion of the drum and produces the aforementioned optical effect whereby attention is attracted to the advertising material which is displayed by the apparatus.

The herein disclosed apparatus may be manufactured at a comparatively low cost by virtue of the fact that it consists of but a small number of parts. It is efficient in operation and is extremely durable in that the various operating or driving parts are housed and thus protected from the elements. Whereas the drum 5 has been described as comprising a cylindrical side wall 10 and but one arm 6 has been described, it is to be understood that the side wall 10 may be polygonal in form and that two or more arms may be used if so desired. It is also to be understood that the invention is not to be restricted to the details set forth, since these may be modified within the scope of the appended claims, without departing from the spirit and scope of the invention.

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

1. In a display device of the character described, the combination of a vertically extending, rotatably mounted mast, a drum extending around and connected to rotate with the mast and adapted to have advertising or like material applied to the outer face thereof, a horizontally extending arm projecting radially from and rotatable relatively to the mast, a member for additional advertising matter secured to the outer end of the arm and positioned so as to lap the outer face of the drum, mechanism for rotating the drum comprising motor-driven gearing connected to the mast, and mechanism for rotating the arm at a different rate of speed than the drum.

2. In a display device of the character described, the combination of a vertically extending, rotatably mounted mast, a drum extending around and connected to rotate with the upper end of the mast and adapted to have advertising or like material applied to the outer face thereof, a horizontally extending arm positioned directly beneath the drum and projecting radially from and rotatable relatively to the mast, an upwardly extending member for additional advertising matter secured to the outer end of the arm and positioned so as to lap the outer face of the drum, mechanism for rotating the drum comprising motor-driven gearing connected to the lower end of the mast, and mechanism for rotating the arm at a different rate of speed than the drum.

3. In a display device of the character described, the combination of a vertically extending, rotatably mounted mast, a drum extending around and connected to rotate with the mast and adapted to have advertising or like material applied to the outer face thereof, a horizontally extending arm projecting radially from and rotatable relatively to the mast, a member for additional advertising matter secured to the outer end of the arm and positioned so as to lap the outer face of the drum, mechanism for rotating the drum comprising motor-driven gearing connected to the mast, and gearing between the mast and the inner end of the arm for rotating the arm at a different rate of speed than the drum.

4. In a display device of the character described, the combination of a vertically extending, rotatably mounted mast, a drum extending around and connected to rotate with the mast and adapted to have advertising or like material applied to the outer face thereof, a horizontally extending arm projecting radially from the mast and having the inner end thereof supported from the mast so that it is rotatable relatively thereto, a member for additional advertising matter secured to the outer end of the arm and positioned so as to lap the outer face of the drum, mechanism for rotating the drum comprising motor-driven gearing connected to the mast, and mechanism for rotating the arm at a different rate of speed than the drum.

5. In a display device of the character described, the combination of a vertically ex-

tending, rotatably mounted mast, a drum extending around and connected to rotate with the upper end of the mast and adapted to have advertising or like material applied to the outer face thereof, a horizontally extending arm beneath the drum projecting radially from the mast and having the inner end thereof supported from the mast so that it is rotatable relatively thereto, a vertically extending member for additional advertising matter secured to the outer end of the arm and positioned so as to lap the outer face of the drum, mechanism for rotating the drum comprising motor-driven gearing connected to the lower end of the mast, and gearing between the mast and the inner end of the arm for rotating the arm at a different rate of speed than the drum.

6. In a display device of the character described, the combination of a bearing structure, a mast journalled in and projecting upwardly from the structure, a drum extending around and connected to rotate with the upper end of the mast and adapted to have advertising or like material applied to the outer face thereof, a horizontally extending arm disposed directly beneath the drum and projecting radially from and rotatable relatively to the mast, motor-driven gearing connected to the mast and operative to rotate the drum, and gearing between the mast and the inner end of the arm operative in response to rotation of the mast to rotate the arm at a different rate of speed than the mast and comprising a stationary gear on the aforesaid bearing structure.

Signed at Chicago, Illinois, this 9th day of October, 1931.

JOHN A. ASHLEY.