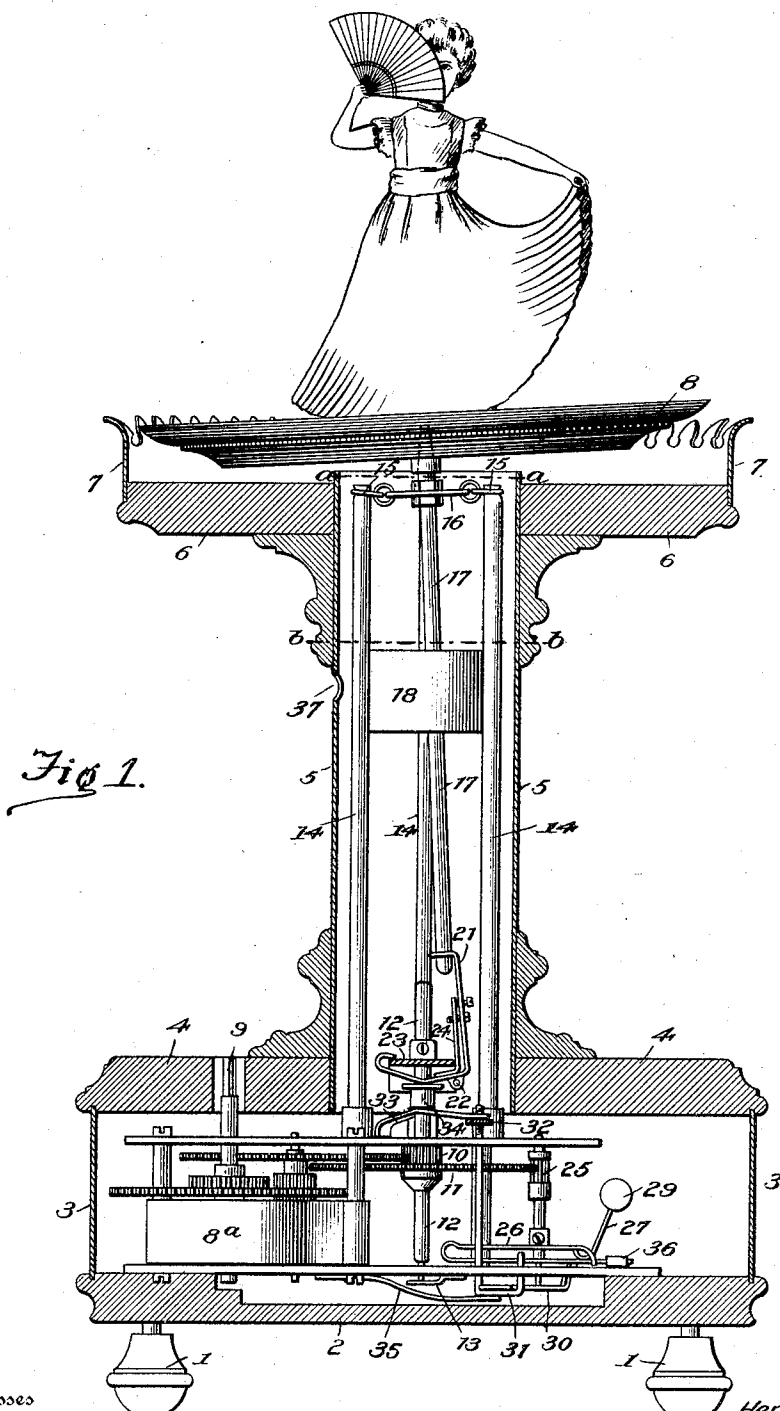


No. 792,806.

PATENTED JUNE 20, 1905.

H. WOLKE.
DISPLAY STAND.
APPLICATION FILED NOV. 16, 1903.

2 SHEETS—SHEET 1.



Inventor

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Fig. 2.

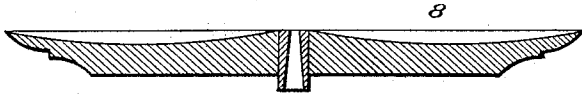


Fig. 3.

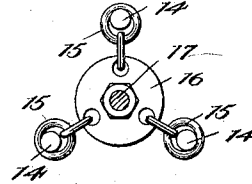


Fig. 5.

Fig. 4.

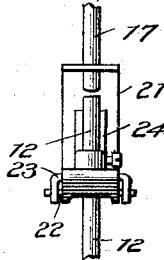
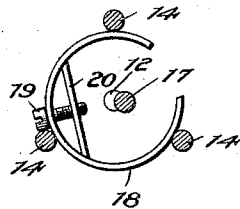


Fig. 8.

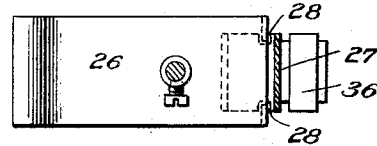


Fig. 6.

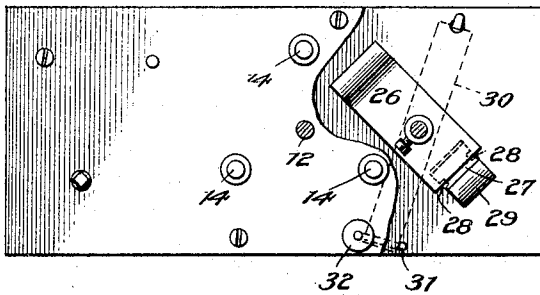
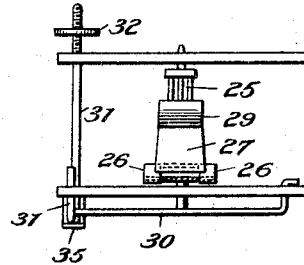


Fig. 7.



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UNITED STATES PATENT OFFICE.

HERMAN WOLKE, OF NEWARK, NEW JERSEY.

DISPLAY-STAND.

SPECIFICATION forming part of Letters Patent No. 792,806, dated June 20, 1905.

Application filed November 16, 1903. Serial No. 181,311.

To all whom it may concern:

Be it known that I, HERMAN WOLKE, a citizen of the United States, residing at Newark, in the county of Essex and State of New Jersey, have invented new and useful Improvements in Display-Stands, of which the following is a specification.

The object of my invention is to provide a display-stand with an automatically-operated wabbling platform for the purpose of operating and displaying such figures or objects that are capable of moving down an inclined plane. The purpose of the wabbling platform is to present a continuously-changing inclined surface to any rolling or performing object, causing it by such an inclination to travel in a circular path upon said platform. The speed of surface travel of the moving or performing object is regulated by the degree of inclination of the platform and governing devices forming a part of and acting in combination with said moving object and the power mechanism that wabbles the platform of the display-stand. Such a stand having a continuously-wabbling platform will also be very serviceable for displaying stationary objects where this peculiar rocking motion will attract more particular attention to such articles.

In the accompanying drawings, Figure 1 is a vertical section of the display-stand and an elevation of its driving and governing mechanism, and a dancing doll upon the platform serves as the performing object displayed. Fig. 2 is a vertical section of the wabbling platform. Fig. 3 is a detailed top plan view showing the platform suspension on the line *a a* of Fig. 1. Fig. 4 is a detail top plan view showing an adjustable ring for regulating the tension of the suspension devices for the platform, which are carried by three upright rods, said view taken on the line *b b* of Fig. 1. Fig. 5 is a detailed side view of a part of the driving mechanism. Fig. 6 is a top plan view of the spring and wheel frame with part of the top plate broken away, giving a top view of the governor. Fig. 7 is an end view of the governing mechanism, and Fig. 8 is another top plan view of the same with the swinging weight cut away.

Three legs, of which two, 1 1, are shown, support a low cylindrical casing constituting the base of the stand and consisting of a bottom piece 2 and a cover 4, with the cylindrical shell 3. Another cylindrical shell 5, of smaller diameter and mounted centrally on top of the casing, supports a top piece 6, provided with an upwardly-projecting peripheral and ornamental band 7, forming a guarded space within which the oscillating platform 8 takes its position. The hollow-base casing contains the driving mechanism, consisting of a coiled spring 8^a, whose winding-arbor 9 projects through the top 4 of the casing, an ordinary train of power-transmitting gear-wheels, and a governing device, all mounted in a suitable frame, which is secured to the bottom piece 2. Mounted revolubly in this frame and carrying a fixed pinion 10 and spur-gear 11 is a shaft 12. This takes the central position in the casing and receives its power from the coiled spring 8^a, with which, through pinion 10, it is in geared connection. To prevent any free up-and-down play of this shaft, the top face of the pinion 10, serving as a stop-shoulder for said shaft, is kept in continuous contact against the upper frame-plate by the flat spring 13 bearing on the lower-shaft end and pressing it upward. At an equal distance from each other and from the center shaft are three upright rods 14 14 14, secured to the top plate of the spring and wheel supporting frame. The upper ends of these rods are notched to prevent the slipping of the rings or washers 15 15 15, which they hold, and which in turn are linked to a central disk 16, Figs. 1 and 3. Extending downward from this disk and secured to it by means of threaded nuts is a rod 17. The upper tapered end of this rod projects a little distance above the disk 16 and is seated in a center socket carried by the platform 8, to the transverse horizontal plane of which said rod is perpendicular. Within the three upright rods 14 and some distance below their top ends is a split ring 18, provided with a screw 19, engaging a threaded adjusting or spreading piece 20, to be used by manipulating the screw 19 for either increasing or diminishing the diameter of the split ring. This device is for spreading the three upright

rods more or less apart and is used for the purpose of regulating the tension of the connected links and washers from which the rod 17 is suspended and which serves as a flexible support for the platform 8. At the point of suspension the rod 17 rests in the same center line as shaft 12; but in order to give the platform 8 a wobbling motion or an undulatory motion in a circular path the lower end of this rod is required to swing in a circle about said center. The diameter of this circle also bears a definite relation with the degree of inclination of the platform. A crank 21 is hinged at 22 to a yoke 23, provided with a set-screw collar and attached to the rotating shaft 12. This crank has its outwardly and upwardly extending end provided with a hole and bent over to such an angle that permits the lower end of rod 17 to project through said hole, in which it is free to rotate. The inwardly-extending part of crank 21 makes at the point where it crosses the center line of the shaft, which passes here freely through a central hole, a downward knee-bend, and its outer end is bent over and partly around the collar-plate of the yoke 23 in such a manner as to give to said crank a limited amount of play, permitting its upper and outward end to rock a little distance either to or from the center. A rectangular bent arm 24, riveted to the center portion of the crank and projecting upward and parallel with the outer crank part, acts in combination with two set-screws, one threaded in the crank-piece and bearing against the arm and the other threaded in the arm and holding the crank-piece against it. This permits a variation of the length of the radial crank action and a convenient adjustment of the platform to a desirable inclination with relation to the power-shaft.

To regulate the rotation of the shaft 12 and to prevent a too rapid velocity of the same, a governor whose pinion 25 is in gear with the spur-wheel 11 is suitably mounted in the wheel-frame. This governor consists of a flat strip of sheet metal 26, doubled over so that the two parallel ends leave a free space between them. The upper part is provided with a set-screw collar, which fastens to the shaft, and the lower flexible end rests on the bottom frame-plate. A weighted member or arm 27 is hinged to part 26. The curved end of this arm by means of two short slots 28 embraces with an easily-sliding fit the downwardly-bent prongs of the upper governor part 26, between which the weighted arm is loosely held, the lower flexible end of part 26 pressing the curved end of arm 27 lightly upward, so that its end edge is in contact with the upper part of 26. The free and upwardly-extending end of arm 27 carries the weight 29. The governor-shaft, having a certain amount of endwise play and with its top and bottom pivots projecting through suitable holes in the

two frame-plates, rests with its lower pivot end on and about in the middle of a flat and horizontally-extending metal strip 30, arranged beneath the lower frame-plate, of which strip one end has a double bend and is hooked loosely through a hole in the frame-plate and the other end being straight rests on the horizontal part of a rectangular bent wire 31, the vertical part of which passes through and above both frame-plates and carries a little distance above the top plate a nut 32 on its threaded end. The other end of this wire making an upward bend also and projecting a little distance through a hole in the bottom plate serves as a guide and keeps the wire from turning. A lever 33, of which one end is provided with a hole to fit over the wire 31, rests with this end on nut 32, and the other downwardly-bent end bears against the top-plate surface. In the middle of this lever is a hole for the shaft 12 to pass through, the lever making here, in line with the shaft center, a slightly-upward knee-bend, on which is resting a bushing 34. This bushing being able to slide and turn freely on the shaft comes with its top end in contact with the crank-knee, which supports the rod 17. The nut 32 on wire 31 is used for bringing the bushing and the governor-supporting piece 30 to the exact position required for them. As long as the governor is permitted to rest with its weight on the lower frame-plate the frictional contact is too great for the coiled spring to overcome; but a flat spring 35, secured to the under side of the lower frame-plate, presses the wire 31 and the part 30 upward. This lifts the governor and frees its flexible part from frictional contact with the surface of the bottom plate sufficiently to leave it free to rotate. The rotation of the governor forces the weighted end of arm 27 centrifugally outward, and the curved end of this arm, acting as a lever, presses the flexible end of part 26 downward, which retains in this manner a more or less frictional contact with the surface of the bottom plate, keeping thus the rotating velocity in check and assuring thereby a self-regulating and moderate speed to the governor and the other connected moving parts with it. To make the frictional contact of the governor noiseless, some soft rubber, leather, or other noise-deadening material is attached to the contact-making end, (shown at 36.) The spring 35, which lifts the governor, will, through the wire 31, which is pressing upward, and through the other successive parts, also press the crank-knee of the lever 33, that is in contact with bushing 34, likewise upward. The upper end of crank 21 having a limited in-and-outward play, as previously described, will, responding to the pressure of spring 35, take the most outwardly position. At this stage as the governor is in a raised position the apparatus will be in motion; but if now by spreading ring 18 with screw 19 the tension of the flexible platform-

suspension devices is increased the lower end of the rod 17 will be forced toward the center, and by properly manipulating screw 19 it is possible to bring this tension to such a degree as to just overbalance spring 35 and force the outer end of crank 21 sufficiently inward and the other parts downward until the governor is lowered far enough to rest again on the bottom plate and is unable to make any more revolution, bringing in this manner the mechanism to a full stop. This should be ordinarily the normal condition to which the apparatus is adjusted.

The slightly-inclined platform 8, which is now stationary, may be compared to an equally-balanced scale-beam, which when receiving a weight on the raised end will press the lower end of the rod 17 toward the center and placing this weight on the lower platform end will force said rod outward. A line crossing the center of the platform transversely to its raised and lowered ends constitutes a neutral and, for any weight, ineffective position. The platform's surface has at about half the radial distance from the center a concentrically-concaved depression. This is for the purpose of giving to any rolling or otherwise moving object as it travels toward the lowest level a prescribed circular path, whose linear circle corresponds with the line of lowest depression in the concentric concavity. Placing a rolling object on the forwardly-inclined part of the wobbling platform—that is, with regard to the direction in which the object is intended to travel—and on the neutral line, said object will immediately roll toward the lower end of the platform and by doing so will with its weight depress this end to such an extent as to destroy the previously-balanced condition of the apparatus and force the lower end of rod 17 and the thereto connected end of crank 21 outward. This restores to spring 35 sufficient force to raise the governor to the rotating position, after which the driving power being free to act causes the shaft 12, with the attached crank 21, to revolve. This swings the inclined portion of the platform, on which the rolling object at that time travels, forward—that is, in the traveling direction of the moving figure. If now this forward movement of the platform should be faster than what the object is traveling, said object will be brought upon the neutral point again, and the apparatus then being in the normally balanced condition once more will stop revolving, after which the same method of operation in relation with the moving object will be repeated. Ordinarily when the apparatus is in working order no interruption will be noticeable, as the balanced condition of the different coacting devices is delicately sensitive to the progressive and downward movement of the traveling object, keeping the governor with the other connected revolving parts at a proper and continuously

even speed. The speed with which the rolling object is moving around on top of the wobbling platform may to some extent be lowered, if desired, by tightening the adjusting-screw 19, which is easily accessible through a specially-provided hole 37 in the cylindrical shell 5. This causes an increased tension of the platform suspension and a decreased sensitiveness of the mechanism, with the consequent result of a slower-moving object. Should it be desirable to give the platform a continuous motion—as, for instance, in displaying stationary objects—it is only necessary to loosen the adjusting-screw 19 sufficiently until the tension has been brought to such a point where the governor remains in a raised and permanently-revolving condition.

Spring, weight, electricity, or any other kind of adaptable motive power may be employed for driving this mechanism, and as long as such an applied power continues to act the displayed article will be kept in motion.

As any displayed and moving object, acting in combination with the driving mechanism, effects the same through the gravity only, it is possible when there is a variety of such figures to be exhibited to make a periodical and easy change of the same by merely replacing one with another.

I do not limit myself to details of construction and arrangements herein described, and shown in the drawings, as I desire to avail myself of such modifications and equivalents as fall properly within the spirit of my invention.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a display or amusement device, a plurality of movable supports, a platform, connecting means uniting the platform and supports, means to adjust the supports with relation to each other to regulate the tension on said connecting means, and means to impart a wobbling motion to the platform.

2. In a display or amusement device, a plurality of supports bearing a fixed relation to each other at one point, and having movable portions, a platform, flexible means to connect the platform to the supports, and means to adjust the supports with relation to each other to regulate the tension on said connecting means.

3. In a display or amusement device, a plurality of supports, a platform, flexible suspension devices connecting the platform and said supports, a spreading device engaging the supports for varying the tension on the suspension devices, and means to impart a wobbling motion to the platform.

4. In a display or amusement device, a platform, a plurality of supports, flexible suspension devices connecting said platform, and supports, a split ring engaging the supports, and a spreading device for the ring, said ring

and device operating to vary the tension of the suspension devices, and means to impart a wobbling motion to the platform.

5 5. In a display or amusement device, a platform and means to impart a wobbling motion thereto, comprising a power-shaft, a hinged crank driven by said shaft, said crank having a limited free movement on its hinge to permit the platform to assume various angles of
10 inclination during its wobbling motion a member connecting said platform and crank, and means to limit the movement of the crank on its hinge.

6. In a display or amusement device, a platform, a power means to impart movement to the platform, means to permit the platform to assume various positions during its movements a governor for said power means, and means whereby the change of position of the
15 platform affects the governor.

7. In a display or amusement device, a plurality of supports movable with relation to each other, a platform flexibly connected to the supports, a power means, a governor
20 means for said power means, driving connections between the power means and the platform to impart to the latter a wobbling motion, and means operable by a relative movement of the supports to affect the governor
25 means.

8. In a display or amusement device, a plurality of supports movable with relation to each other, a platform connected to the supports, a power means, a governor means, driving connections between the platform and the power means to impart a wobbling motion to the platform, means operable by a relative movement of the supports to affect the governor means, and means to move the supports.
30 35 40

9. In a display or amusement device, a platform adapted to support a freely-movable object, and means to impart a wobbling motion to the platform, said platform having a continuous concave way concentric therewith
45 which serves during the wobbling movement of the platform to maintain the object thereon.

10. In a display or amusement device, a platform, means to wobble the platform, means to permit the platform to assume various
50 angles of inclination, a power means to actuate the wobbling means, a speed-governor for said power means, and means whereby the governor is actuated at a determined inclination of the platform.

11. In a display or amusement device, a platform, means to wobble the platform, means to permit the platform to assume various angles of inclination, a power means to actuate the wobbling means, a speed-governor for
55 the power means, means whereby the governor is actuated at a determined inclination of the platform, and means to regulate the degree of inclination at which the governor is affected.

12. In a display or amusement device, a platform, means to wobble the platform, means to permit the platform to assume various angles of inclination, means to actuate the wobbling means, and means whereby the speed
60 of rotation of the platform is determined by the degree of its inclination.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

HERMAN WOLKE.

Witnesses:

L. S. DEETHS,
F. RAY BEMIS.