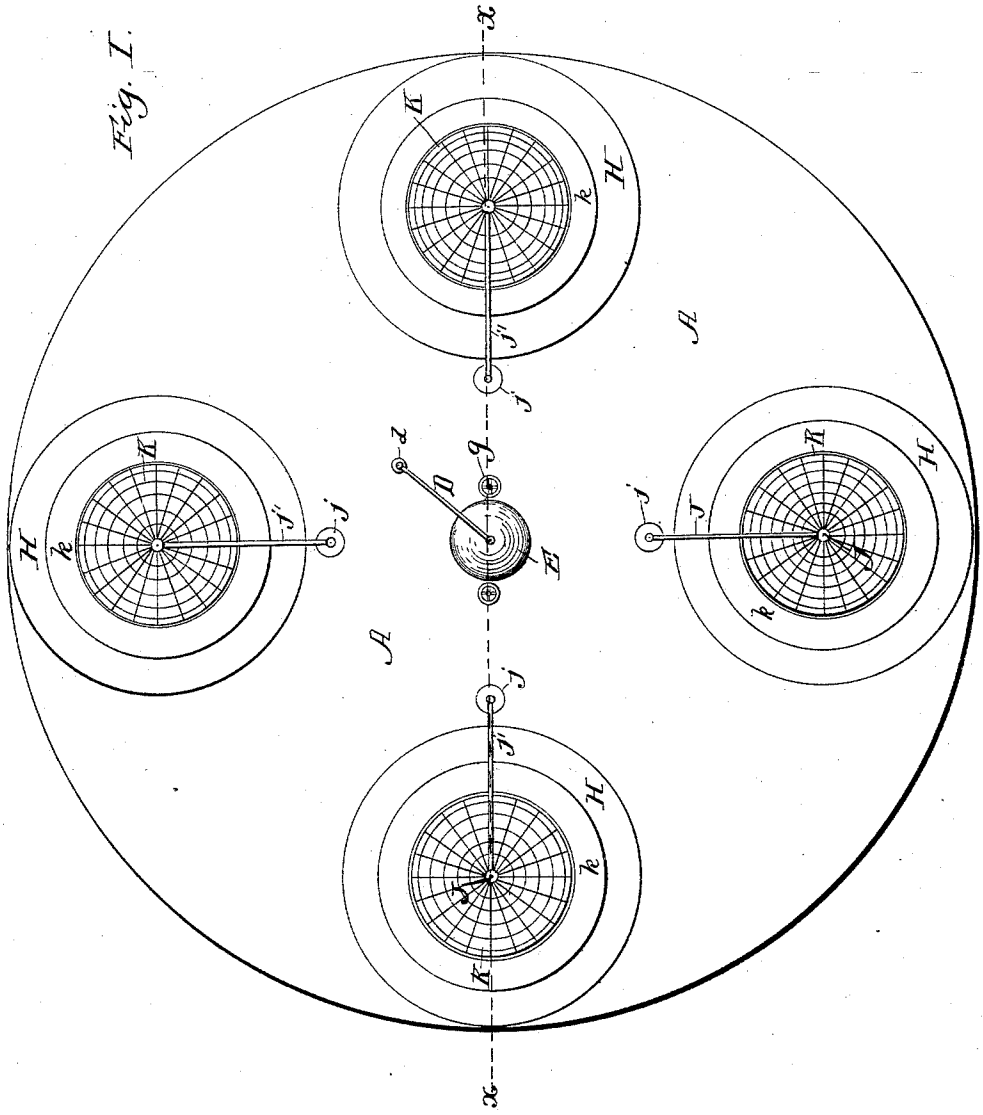
(No Model.) 3 Sheets—Sheet 1.

J. L. BUFORD.

ROUNDABOUT.

No. 483,530. Patented Oct. 4, 1892.

Fig. 1.



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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

(No Model.) 3 Sheets—Sheet 2.

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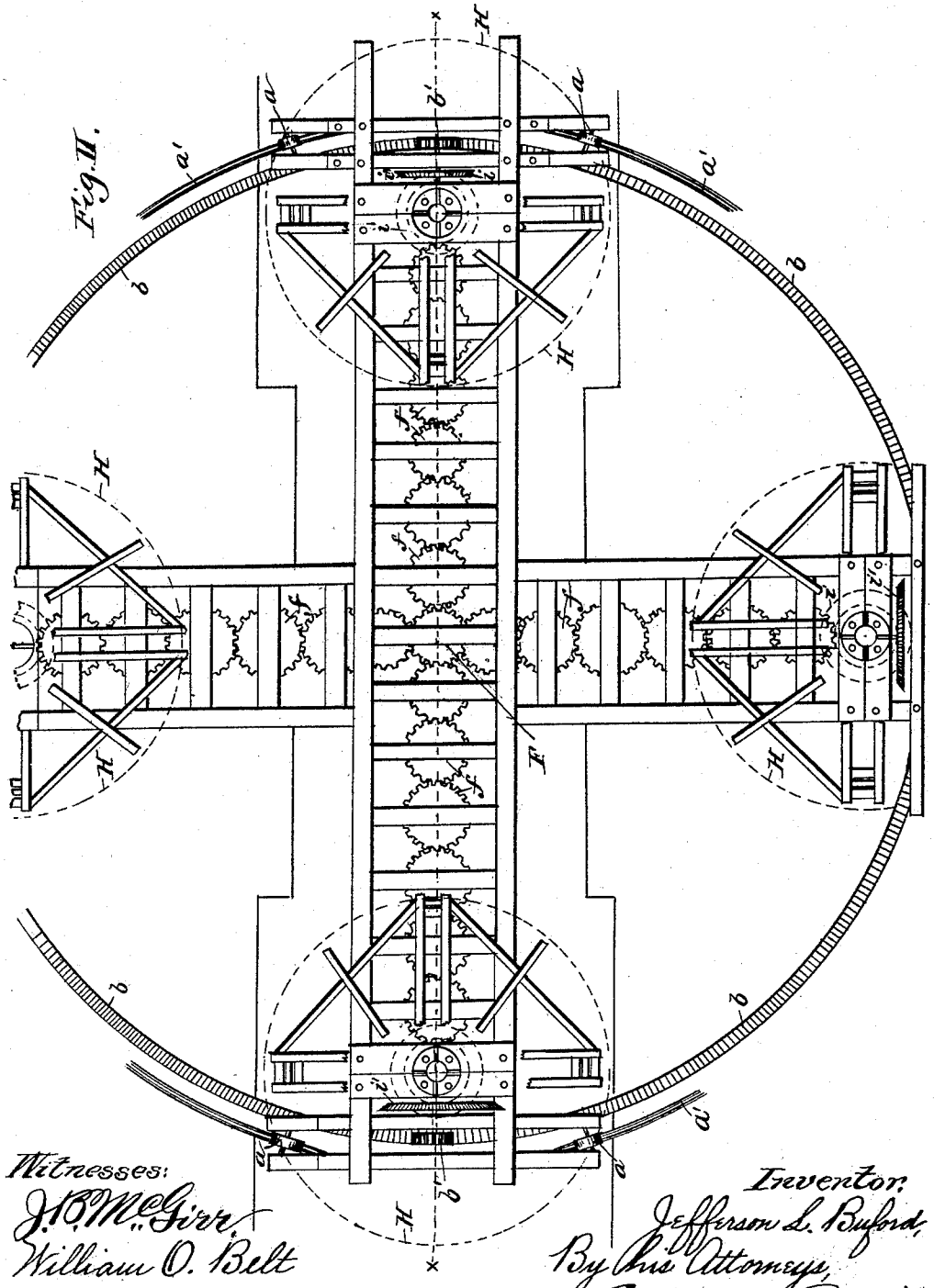
Fig. II.



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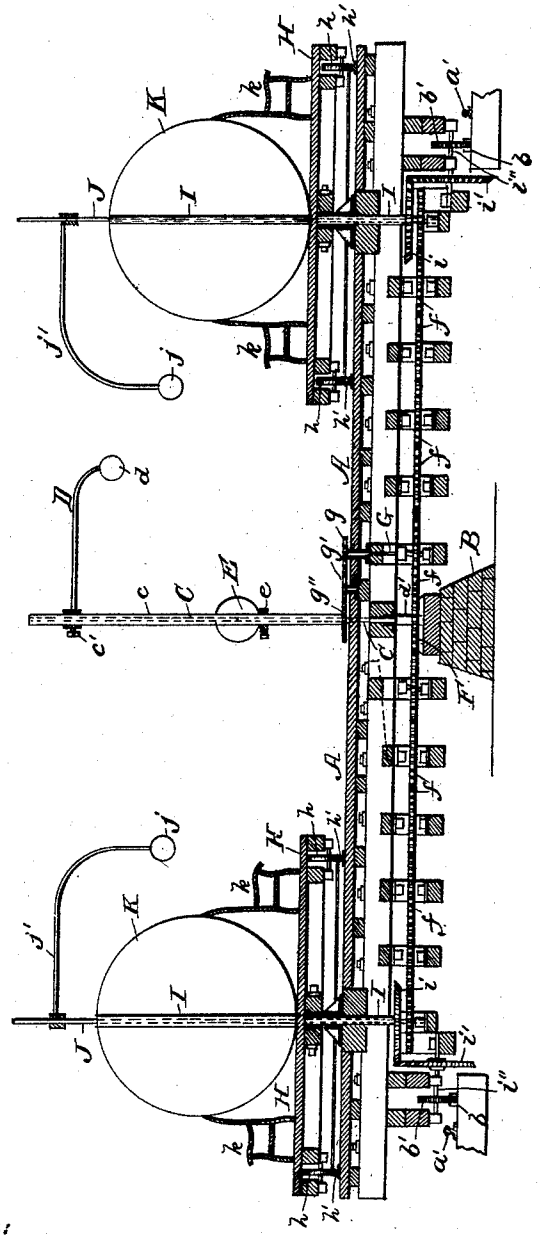

Fig. III.

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UNITED STATES PATENT OFFICE.

JEFFERSON L. BUFORD, OF BIRMINGHAM, ALABAMA.

ROUNDABOUT.

SPECIFICATION forming part of Letters Patent No. 483,530, dated October 4, 1892.

Application filed September 22, 1891. Serial No. 406,435. (No model.)

To all whom it may concern:

Be it known that I, JEFFERSON L. BUFORD, a citizen of the United States, and a resident of Birmingham, in the county of Jefferson and State of Alabama, have invented certain new and useful Improvements in Roundabouts; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in that class of devices for public amusements popularly known as "roundabouts," and more particularly to those which are used for instruction as well as pleasure.

The object of my invention is to provide an apparatus with figures or bodies representing the earth and other planets designed to revolve and illustrate the positions and movements of the earth and the other planets.

With these ends in view my invention contemplates the use of a primary platform mounted on wheels adapted to travel on a track or tracks and revolve about a central axis, and on this primary platform are one or more auxiliary or supplemental platforms also mounted to travel on a track, and globes representing the earth are fixed on these smaller platforms and turn with them. Seats for the public are placed on the auxiliary platforms, near the globes representing the earth, on which the audience can be seated, and the seats revolve with the auxiliary platforms when the machine is in motion. In the center of the primary platform is an upright spindle, on which is fitted a hollow or tubular shaft, which carries an illuminated globe to represent the planet Venus. Another illuminated globe is loosely secured on this tubular shaft below the upper globe, which represents the sun. The tubular shaft is operated by suitable gearing actuated by the power used to run the machine and is adapted to revolve at a proper rate of speed and cause the globe representing Venus to move around the sun. In each of the globes representing the earth on the auxiliary platforms are upright spindles, which pass freely through sleeves in the globes, and to the upper end of each spindle is secured an arm, which supports reflecting-globes representing the quarters of the moon. The central spindle in the main platform is connected by the intermediate gearing with the series of spindles in the globes representing the earth, and the smaller platforms are also connected with the larger platform in such a manner that the proper relative rate of speed will be maintained throughout, and the representations of the different planets and the earth assume their proper motions with relation to each other.

The machine may be operated by any suitable power, as by an electric motor, horse-power, or steam-power, and the power may be communicated to the machine in any desired manner.

To enable others to more readily understand my invention, I have illustrated the same in the accompanying drawings, in which like letters of reference denote corresponding parts in all the figures.

Figure I is a top plan view of the machine. Fig. II is an enlarged top plan view of a portion of the machine with the primary platform removed and the auxiliary platforms indicated by dotted lines, and Fig. III is a sectional elevation taken on the line $x\,x$ of Fig. I.

Referring to the drawings, A designates the primary platform, which is preferably circular in form and is constructed and braced in a substantial manner, a detailed description of which is unnecessary. The primary platform is pivotally supported at its center on a base B, and near its outer edge or periphery it is provided at suitable intervals with rollers a, which run on a circular track a', rigid on the foundation. Within this track a' is a toothed circular rack b, and a series of gears b', carried by shafts journaled on the platform A, engages with said rack as the platform is rotated and imparts motion to the other parts of the machine.

Extending upward from the base B is a vertical spindle C, which passes centrally through the primary platform, and on the spindle is fitted a vertical tubular shaft c. On the upper end of this tubular shaft c is adjustably secured, by means of a set-screw c', an arm D, which projects outwardly a suitable distance and carries an illuminated globe d to represent Venus. Below this globe d is another illuminated globe E, representing the

sun, which is loosely fitted on the tubular shaft *c* and is supported in position by a collar and set-screw *e*, secured on the sleeve.

Rigidly secured on an arbor *d'* is a stationary gear-wheel F, which engages with one of a series of idle-gears *f f*. A vertical shaft G is secured rigidly in the idle-gear *f* next to the stationary wheel F, and it projects slightly above the platform A and carries another gear *g*. This latter gear *g* engages with an idle-gear *g'*, carried by a shaft suitably mounted on the platform, and this idle-gear meshes with a fast gear *g''* on the lower end of the tubular shaft *c*. By this arrangement of parts it will be readily seen that as the train of gears *f f* mesh with the stationary gear F the motion of the main platform sets the idle-gears *f* in motion and turns the hollow shaft *c* through the medium of the gears *g g' g''* and the shaft G. These gears are so proportioned as to cause the globe representing Venus to revolve at a proper speed with relation to the other parts of the machine.

On the main platform A are arranged at suitable intervals the smaller auxiliary platforms H. I prefer to use four of these smaller platforms, as shown in Fig. I; but the number may be varied, as desired. These smaller platforms each move around vertical pivots, and they are provided with rollers *h*, arranged to run on circular tracks *h'* on the main platform. Projecting upward through the main platform and the center of each smaller platform is a series of sleeves or hollow shafts I, and a spindle J extends entirely through each hollow shaft and carries an adjustable arm *j'*, which supports a reflecting-globe *j*, designed to represent the moon. The lower end of the spindle J is rigidly secured to the outer idle-wheel *f*, and the globe representing the moon therefore revolves with the globes representing the sun and Venus. On the lower end of the hollow shaft I is secured a miter-gear *i*, which meshes with a similar gear *i'* on the horizontal shaft *i''*, which also carries the gear-wheel *b'*. Rigidly secured on the hollow sleeves I are large globes K, which represent the earth, and they revolve with the smaller platforms and the larger platform through the intermediate gearing before described. Seats *k* are provided on the smaller platforms around the globes representing the earth, on which the audience can be seated.

The whole machine is operated by horse-power, steam-power, an electric motor, or in any desirable manner. The revolution of the main platform turns the smaller platforms and the globes representing the planets. In this connection I would have it understood that I do not limit myself to the number of planets and globes, but may increase or diminish the number at pleasure.

This machine affords pleasant and instructive amusement, as it combines with the ordinary pleasures of a roundabout an interesting lesson in the movements of the earth and the planets at different times during the day and night throughout the space of one year.

A complete revolution of the main platform represents a year, and the globes representing the earth turn around, presenting different sides to the sun to represent day and night. The globes representing the sun and Venus are lighted in a suitable manner, preferably by electricity, and, as described, they revolve to assume their proper positions with relation to the sun and earth.

I am aware that changes in the form and proportion of parts and details of construction can be made without departing from the spirit or sacrificing the advantages of my invention, and I therefore reserve the right to make such changes as fairly fall within the scope of my invention.

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

1. In a roundabout, the combination, with a primary platform, of a series of auxiliary platforms mounted thereon and each carrying a globe and one or more seats, a hollow shaft rigid with each auxiliary platform and adapted to be rotated by gearing which meshes with a rack, a central shaft in the primary platform, carrying one or more globes, and independent gearing for rotating the central shaft, substantially as described.

2. In a roundabout, the combination, with a primary platform adapted to revolve on a central base, the auxiliary platforms rigid with the hollow shaft I, extending up through the platforms and carrying the globes K, representing the earth, the rollers *h*, carried by the auxiliary platforms and adapted to revolve on circular tracks *h'* on the primary platform, the seats *k*, arranged around the globes, the circular rack *b*, the gear-wheels *i* on the lower ends of the hollow shafts I, and gearing intermediate of said rack and gear to rotate the latter and the auxiliary platforms as the primary platform revolves, of the spindles J, the arms *j'*, carrying globes *j*, secured on said spindles, the stationary gear F and the train of gears *f*, meshing with said stationary gear, the outer gears of which are rigid on the spindles J to rotate the latter as the primary platform turns, the central shaft *c*, carrying a globe E, the arm D, carrying a globe *d*, and means for rotating said shaft and globes, substantially as described.

3. In a roundabout, the combination of the circular track, the primary platform supported on a central base B and having rollers to run on said track, the auxiliary platforms carried by the main platform and supporting globes, the spindles extending through said platforms and globes and having gears on their lower ends, a circular rack arranged concentric with the track beneath the primary platform, and gears carried by the primary platform and engaging with said rack and the gears on the spindles to rotate the

latter and the auxiliary platforms and globes as the primary platform is revolved, substantially as described.

4. In a roundabout, the combination, with a base, of a primary platform supported on said base, a spindle C, extending through the center of said platform, a tubular shaft fitted on said spindle, an arm secured on said shaft and carrying a globe on its end, a stationary gear on the base, the idle-gears *f*, meshing with said stationary gear, a vertical shaft G, secured rigidly to one gear *f* and extending above the primary platform, and gearing intermediate of said shaft and the tubular shaft to rotate the latter, substantially as described.

5. In a roundabout, the combination, with a base, of a primary platform supported thereon, the auxiliary platforms arranged on said primary platform and carrying globes, the hollow shafts I, extending through said auxiliary platforms and globes, a circular rack arranged beneath the primary platform, the gears *b'*, carried by said platform and adapted to impart motion to the hollow shafts I and platforms as the primary platform is revolved, the spindles J, extending through said hollow shafts and carrying smaller globes representing the moon on their upper ends and gears on their lower ends, a stationary gear arranged on the base B, and idle-gears intermediate of said stationary gears and the gears on said spindles to rotate the latter independently of the auxiliary platforms, substantially as described.

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

JEFFERSON L. BUFORD.

Witnesses:

J. F. MARTIN,

J. H. EDMONDS.