(No Model.) 3 Sheets—Sheet 1.

N. M. LOWE.

TELESCOPIST'S DOME.

No. 535,990. Patented Mar. 19, 1895.

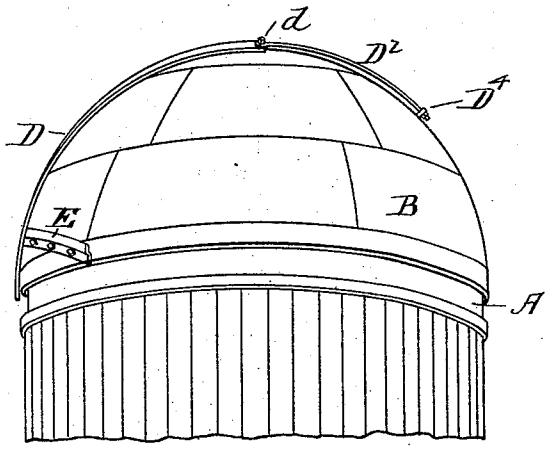

Fig. 1.

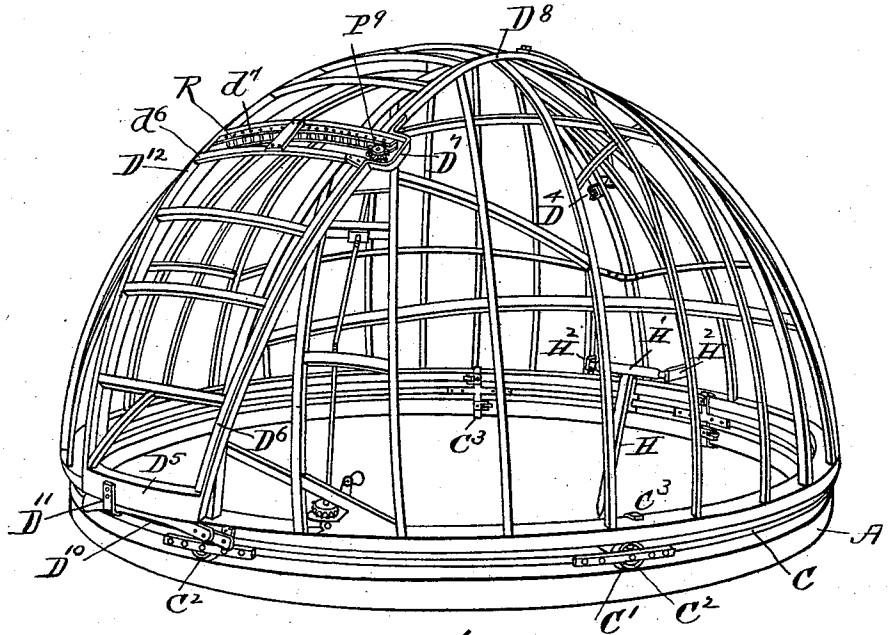

Fig. 2.

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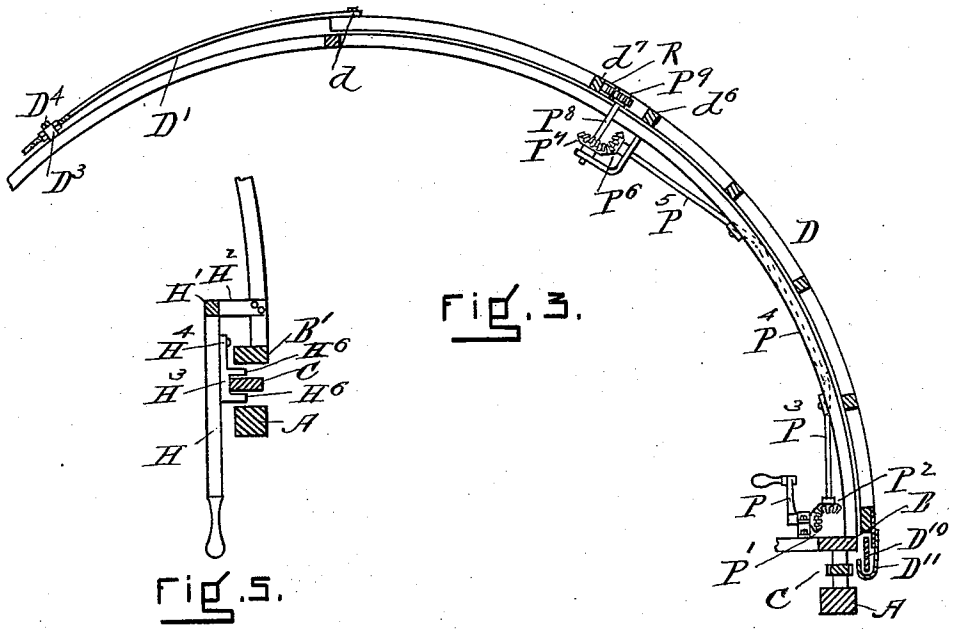

Fig. 3.

Fig. 5.

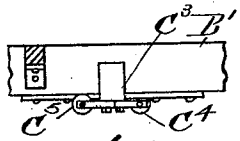

Fig. 6.

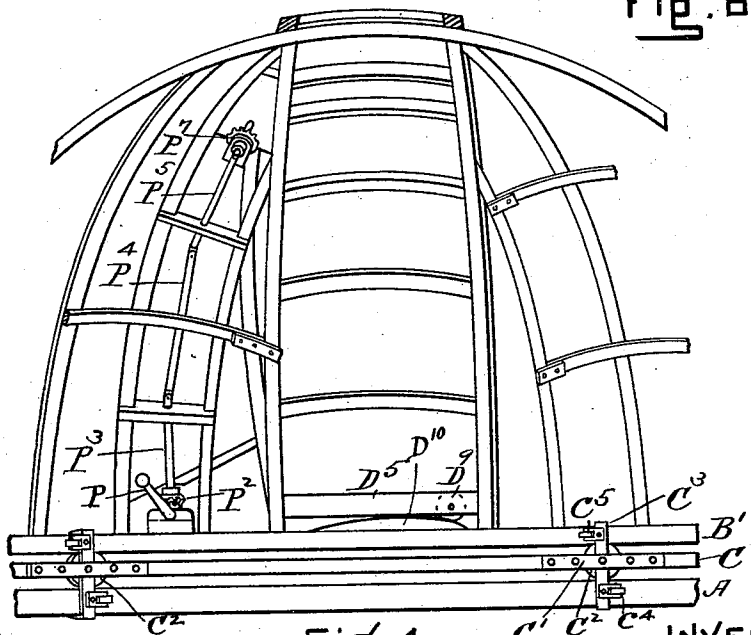

Fig. 4.

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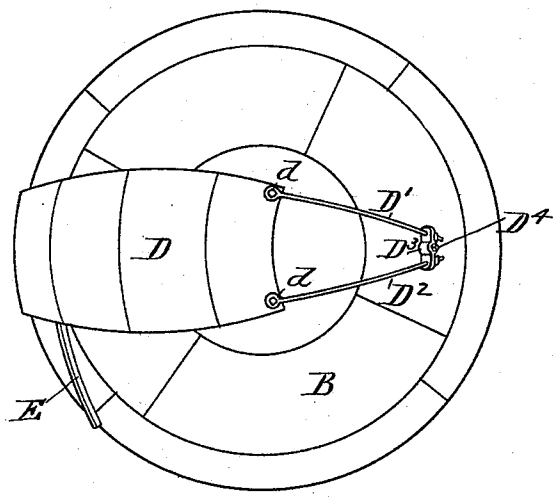

Fig. 7.

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NATHANIEL M. LOWE, OF BOSTON, MASSACHUSETTS.

TELESCOPIST'S DOME.

SPECIFICATION forming part of Letters Patent No. 535,990, dated March 19, 1895.

Application filed January 5, 1894. Serial No. 495,827. (No model.)

To all whom it may concern:

Be it known that I, NATHANIEL M. LOWE, of Boston, in the county of Suffolk and State of Massachusetts, have invented a new and useful Improvement in Telescopists' Domes, of which the following, taken in connection with the accompanying drawings, is a specification.

My invention relates to rotating domes used by telescopists and consists in the construction and arrangement of the parts, the exact nature of which may be best understood by reference to the drawings and specification, the object being to make a dome, all the parts of which are easily adjusted, light, and durable. This object I attain by the mechanism shown in the accompanying drawings, in which—

Figure 1 is a perspective view, showing the dome complete. Fig. 2 is a perspective view, showing the frame work of the dome, also showing the door frame and connected parts, also showing a device for holding the dome in any desired position. Fig. 3 shows in connection with a part of the frame work, details relating to the door. Fig. 4 is a view from the inside, showing a part of the frame work, and parts of the door. Figs. 5 and 6 are details. Fig. 7 is a plan of the dome.

In the drawings A represents an annular base, or track. This may be made of hard wood or metal, or of a combination of wood and metal, and should be level and firm. Immediately above the base or track-way A, I have an annular truck frame C. This frame C, has attached to it at suitable intervals truck housings C′ each housing being adapted to hold a roller C^2 and a standard C^3 the standard extending above and below the annular truck frame C, and having attached to it small friction wheels C^4, and C^5, so placed (see Fig. 4) as to bear against the interior edges of the base or track-way A and of the base piece B′, of the moving dome B, so that the dome cannot get out of place although it is free to rotate. The annular base piece B′ of the moving dome rests upon the tops of the rollers C^2—C^2. By this method of supporting the dome, ease and steadiness of motion are secured.

For convenience of moving the dome, and of locking it in any desired position, I have the device shown in Figs. 2 and 5 in which, H, represents a handle attached to a rotating cross bar H′, which is pivoted to the standards H^2 H^2, said standards being rigidly affixed to the frame work of the dome. Upon the under side of the handle H, I have a swinging clamping latch H^3 pivoted at H^4. The clamping jaws H^6 H^6 of the latch H^3 are arranged to embrace the annular truck frame C, rather loosely, but in such a manner that any movement of the dome will cause the latch to swing, and in swinging the jaws H^6 H^6, will clamp firmly on to the truck frame C, and thus at once check the further movement of the dome. When it is desired to move the dome, the handle H is lifted up. This action removes the latch H^3 from the truck frame C and the dome may be rotated to the desired position.

The dome is made up of frame work about as shown in the drawings, and is covered with any suitable sheathing, sheet copper being probably the best.

The door D, is shaped in contour about as shown, that is, in the form of a double truncated lune, and in surface it conforms to a section of a sphere so that in whatever position it is placed it fits closely to the surface of the dome. The door D has rigidly attached to its upper end bars D′ D^2 said bars being riveted, or otherwise firmly fastened to the door at *d d* Fig. 7, and are united at the upper ends to a pivot piece D^3. The pivot piece swings on the pivot or journal D^4. The location of the pivot D^4 is determined by geometrical construction, that is, if we suppose that the door D is a part of a spherical shell then the pivot D^4 must be at the end of one of its diameters, and also at the end of a diameter of the sphere of the dome and in line with the said diameter. With the pivot D^4 located as above described, it will be found that the door D in all positions fits closely to the surface of the dome. The lower end D^5, of the door is provided with a small friction roller D^9, adapted to run on the curved track D^{10} and to assist in keeping the lower end of the door in place I use a hooked shaped iron D^{11}. As an additional guide for the door while being opened I have a guiding track E, Fig. 7 on the outside of the dome.

For opening and closing the door the following described device is used: The two side

ribs (D^6, D^7, D^8) and D^{12} Fig. 2 of the frame of the door are united by cross ribs d^6 d^7, to the upper one d^7 of which, a lantern rack R is firmly attached, the curve of the rack coinciding with the spherical circle, having D^4 as its center of generation. P^9 Figs. 2 and 3 is a pinion adapted to work in the rack R. The lantern rack has side plates that hold the rungs (the parts that form the teeth) extending onward beyond the rungs so that some of the teeth of the pinion are always held between the two plates, so that the pinion itself being attached to the dome serves to hold the door (to which the rack is attached) to the dome. The pinion P^9 is connected to a shaft P^8, Fig. 3 having on it a beveled gear P^7, which meshes with a companion gear P^6, the gear P^6 being connected to a jointed shaft P^5 P^4 P^3 driven by the beveled gears P^2 P', which are operated by the crank P as shown.

I claim—

1. In a telescopic dome, an opening formed as described, and having a door adapted to close said opening, the said door being in form and surface a section of a sphere corresponding to the sphere of the dome and being pivoted to the dome so as to turn on an axis coinciding with one diameter of the sphere, so hat it must in all of its parts and positions closely fit the surface of the dome, substantially as and for the purpose set forth.

2. In a telescopic dome, an opening formed as described, having a door the form or surface of which is a section of a sphere and having a pivotal axis coinciding with a diameter of the sphere; in combination with a roller attached to the lower end of the said door and a track (for said roller) corresponding to the curve of the sphere, substantially as and for the purpose set forth.

3. In a telescopic dome, the combination of a door rotating on a pivot whose axis is in line with a diameter of the sphere of which the dome is a part; with curved lantern rack (R) having sides extending above the teeth of the said rack, attached to said door and operated by a pinion P^9, and the pinion P^9, substantially as and for the purpose set forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, on this 2d day of January, A. D. 1894.

NATHANIEL M. LOWE.

Witnesses:

FRANK G. PARKER,

EDWARD S. DAY.