J. ARKELL.

Time-Globe.

No. 220,462. Patented Oct. 14, 1879.

Fig. 1.

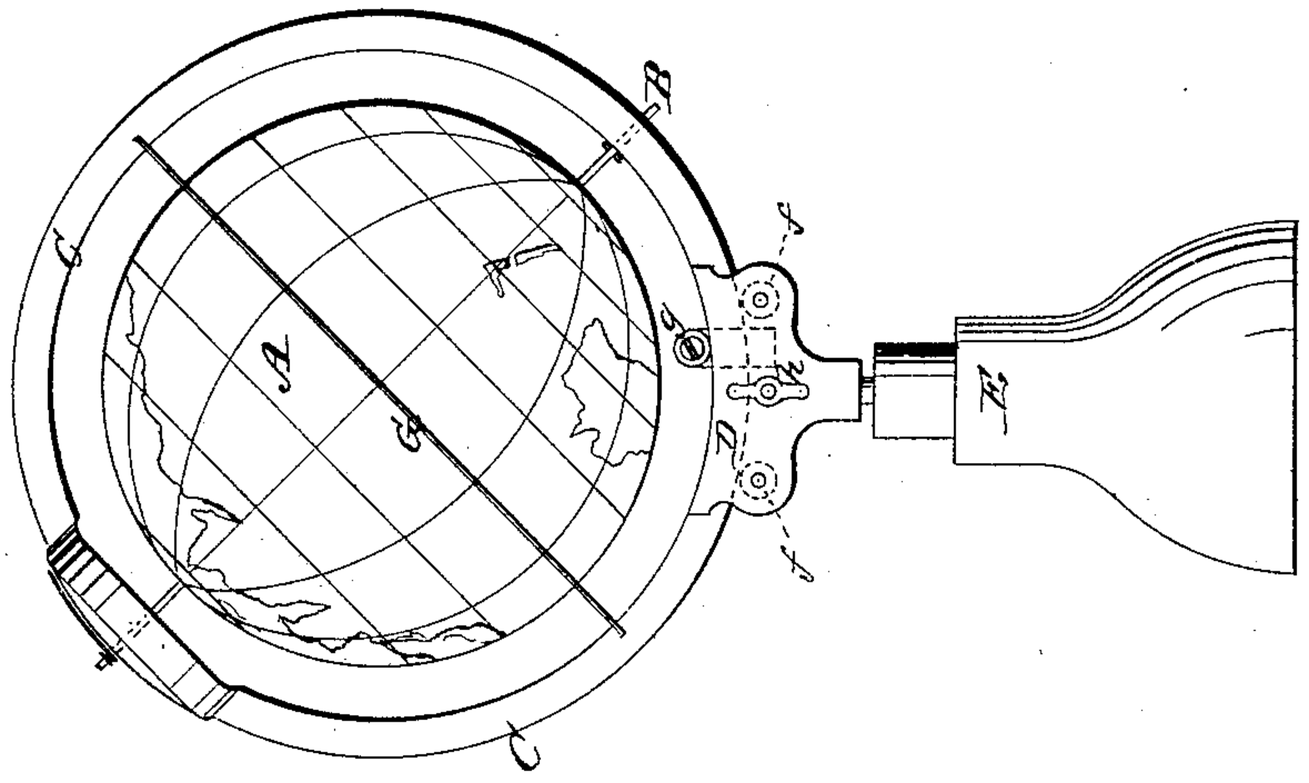


Fig. 2.

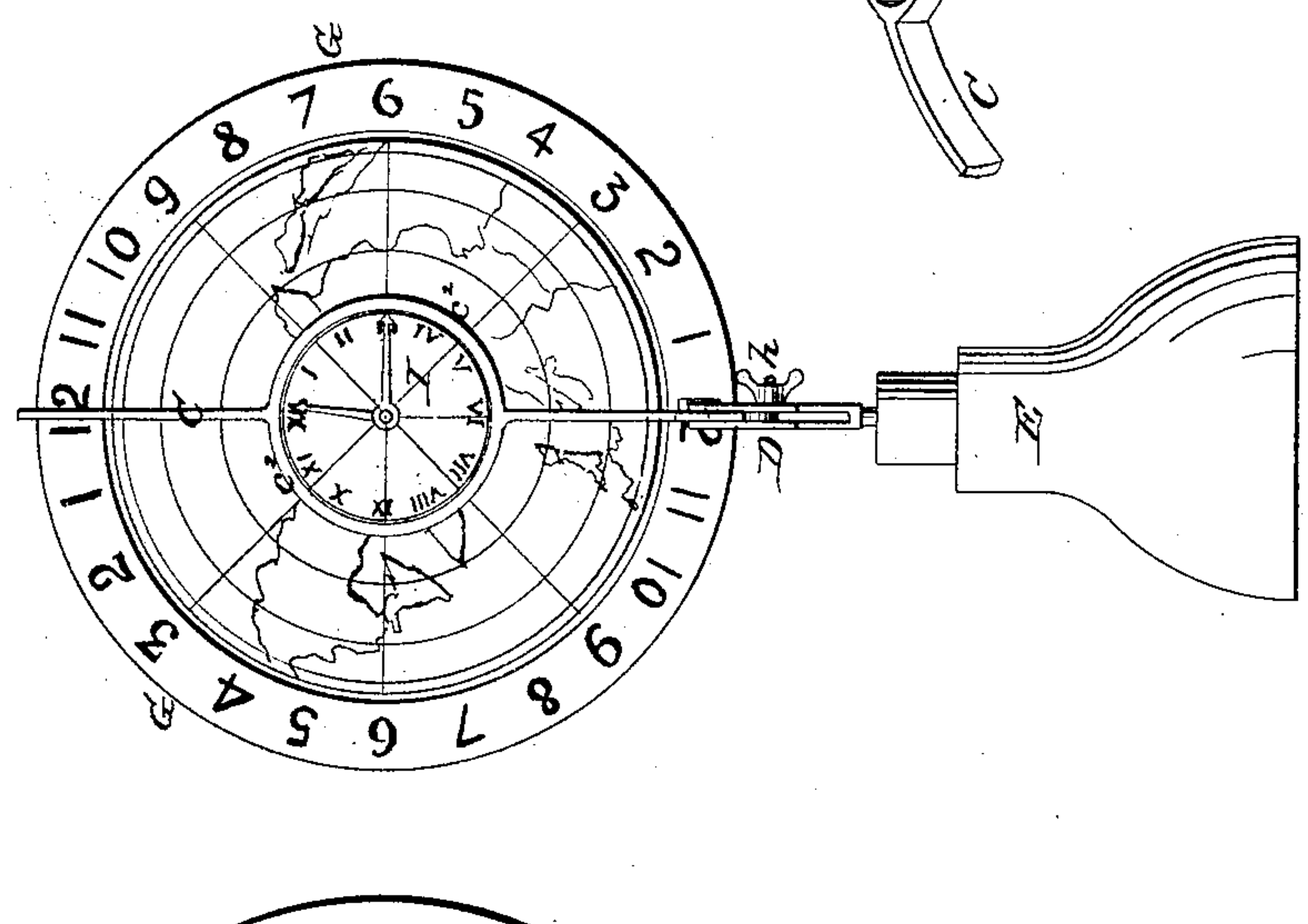
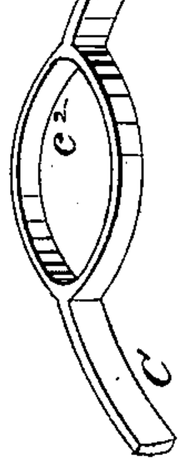


Fig. 3.



WITNESSES

E. Wolf

Jacob Felbel

INVENTORS

James Arkell

By J. N. McGuire

Attorney

N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

UNITED STATES PATENT OFFICE

JAMES ARKELL, OF CANAJOHARIE, NEW YORK.

IMPROVEMENT IN TIME-GLOBES.

Specification forming part of Letters Patent No. **220,462,** dated October 14, 1879; application filed March 6, 1879.

To all whom it may concern:

Be it known that I, JAMES ARKELL, of Canajoharie, in the county of Montgomery and State of New York, have invented certain new and useful Improvements in Time-Globes; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making part of this specification.

Previous to my invention it has been customary in the construction of time-globes of that kind in which are employed two stationary dials (one at the equator and another at one of the poles) to have the polar dial mounted either about the axial shaft of the globes, and within the meridian-ring, or attached to the said meridian-ring, and arranged wholly outside of it. In either case the construction of the apparatus is more or less objectionable, since where the polar dial is arranged within the meridian-ring, a full view of the figures on its face is more or less obstructed by the presence, in front of them, of the meridian-ring, and where the said dial is located, as has been suggested, outside of the meridian-ring, it has to be placed more distant from the globe, and the structure is more cumbersome and costly than is desirable. It has also been customary previous to my invention to mount the globe on a stand in such manner as to permit an adjustment of it with its axis at any desired degree of inclination to the horizon; but for this purpose it has been necessary to have either the meridian-ring or a metal stand, in which it is mounted, grooved to permit the necessary adjustment of the ring without permitting its complete disengagement from the said stand, and this mode of construction is objectionable on account of its expensiveness and complexity.

Another objection to such contrivances, as have been heretofore made, is that the opacity of the polar dial, however located, has prevented a full view of the globe's surface.

My invention has for its main objects to overcome the several objections in time-globes, to which I have just above alluded, and also to provide for use a contrivance which, while equally or more desirable in use, shall be more economic of manufacture and better than any heretofore made; and to these ends and objects my invention consists, first, in making the meridian-ring with a circular eye or yoke at the vicinity of the pole, at which the polar dial is designed to be employed, and arranging the said dial therein, as will be hereinafter more fully explained; second, in a novel construction of meridian-ring and supporting-stand, whereby these parts are rendered simpler, while equally capable of all the useful purposes for which they are usually employed; third, in the use of a transparent polar dial, whereby a less obstructed view of the globe's surface is obtained.

To enable those skilled in the art to make and use my invention, I will proceed to more fully describe the construction and operation of a time-globe embracing the several features thereof, referring by letters to the accompanying drawings, forming part of this specification.

Figure 1 is a side elevation of an apparatus embracing my invention. Fig. 2 is an elevation of the same, looking toward the north pole of the globe, and with the latter shifted to a position in which its axis is about horizontal; and Fig. 3 is a detail (partial) perspective view of the meridian-ring alone.

In the several figures the same part will be found designated by the same letter of reference.

A is the globe, the axial shaft B of which is mounted about as usual in a position diametrical to the meridian-ring C, which ring is mounted in the metal holder-stand D of the main stand or pillar E of the contrivance.

The ring-holder D is arranged, as usual, to turn freely on a vertical axis or stem in the pillar or pedestal E, and is composed simply, as shown, of two plate-like portions, united at their lower parts or root, and three (more or less) anti-friction rollers, *f*, *f*, and *g*, two of which, *f f*, serve to support the gravity of the meridian-ring C, while the other, *g*, operates to hold down in place the said ring C, and said stand D is provided with a thumb-screw, *h*, which passes through one of the plate-like portions of D, and is tapped into the other, for the purpose to be presently explained.

G is the usual annular equatorial dial, numbered (in opposite directions) on its two sides, from one to twelve, twice, and which is arranged

between the globe A and the meridian-ring C, and secured to the latter in the ordinary manner.

The meridian-ring C, instead of being made as usual, is formed (or provided) with a circular eye or yoke at c^2, as clearly illustrated, within which eye or yoke is fitted and held in any proper manner the polar or second stationary dial I of the apparatus; and at the center of this dial I is formed or provided a bearing or journal-box for one end of the axial shaft B of globe A, the other end of said shaft having its bearing in the ring C, as usual.

The dial-plate I, I make, by preference, of glass or other transparent material, in order that it may not, to the extent that an opaque dial does, obstruct a full view of the globe's surface in the vicinity of the pole, about which is placed the said dial-plate. This dial-plate I is numbered like an ordinary clock or watch face, and is provided with hands, which turn upon axis of rotation coincident with the axis of motion of the globe.

I have, by preference, shown my invention as applied to a time-globe in which the clock mechanism is located inside of the globe, and in which the hands of the dial I would, of course, be attached to and moved by hollow arbors mounted on or around the axial shaft B; but it will be understood that the several features of my invention may (either together or separately) be employed in a time-globe in which the chronometer may not be located in side of the globe.

The usual movement of the ring C to effect the adjustment of the globe with its axis at any desired degree of inclination is permitted by reason of said ring C being confined loosely in a lateral direction between the two plate-like portions of stand D, and in a vertical direction between the rollers *f*. *f* and *g;* and when it is desired to clamp or hold the ring C fast in any given position, it is only necessary to tighten the thumb-screw *h*, whereby the two sides of stand D are sufficiently sprung toward each other to clamp and hold fast said ring.

This structure of clamping-stand D and the described combination and arrangement of stand, retaining-rollers, ring, and set-screw are, it will be seen, efficient in operation, but simple and economic of manufacture.

The general operation of the time-globe shown is, of course, about the same as that of analogous contrivances known to those skilled in the art, and needs no explanation here.

By making the meridian-ring with a yoke or eye, c^2, and placing the clock-face or polar dial I in said yoke, as shown and described, the construction of the apparatus is not only simplified and cheapened, but is made better and of neater appearance, while by making the dial I transparent a much fuller and readier observation is had of that part of the globe's surface which is located immediately under the dial and near the pole.

As I have indicated, one or more of the several features of my invention may be separately used in a time-globe with more or less advantage, and either or all of them may be employed in a globe differing as to the location of the chronometer (and in other details of structure) from that which, from preference, I have shown my invention embodied in.

I am aware that in a case of L. P. Juvet, now pending in the United States Patent Office, is shown and claimed a polar dial arranged outside of the meridian-ring, and I do not wish my invention to be confounded therewith, and make no claim to any such broad feature of invention.

What I claim as new, and desire to secure by Letters Patent, as an improvement in time-globes, is—

1. A meridian-ring formed or provided with an eye or yoke adapted to receive the polar dial, substantially as set forth.

2. The combination, with a plain or ungrooved meridian-ring, C, of a holder-stand, D, provided with means, substantially such as described, for both vertically supporting and laterally clamping said ring, as and for the purposes set forth.

3. In combination with the globe and meridian-ring, a transparent polar dial or clock-face, substantially as and for the purposes described.

In witness whereof I have hereunto set my hand and seal this 28th day of February, 1879.

JAS. ARKELL. [L. S.]

In presence of—
W. J. BRUMLEY,
A. G. RICHMOND.