

J. Townsend,

Folding Globe.

No. 101,185,

Patented Mar. 22, 1870.

Fig. 1

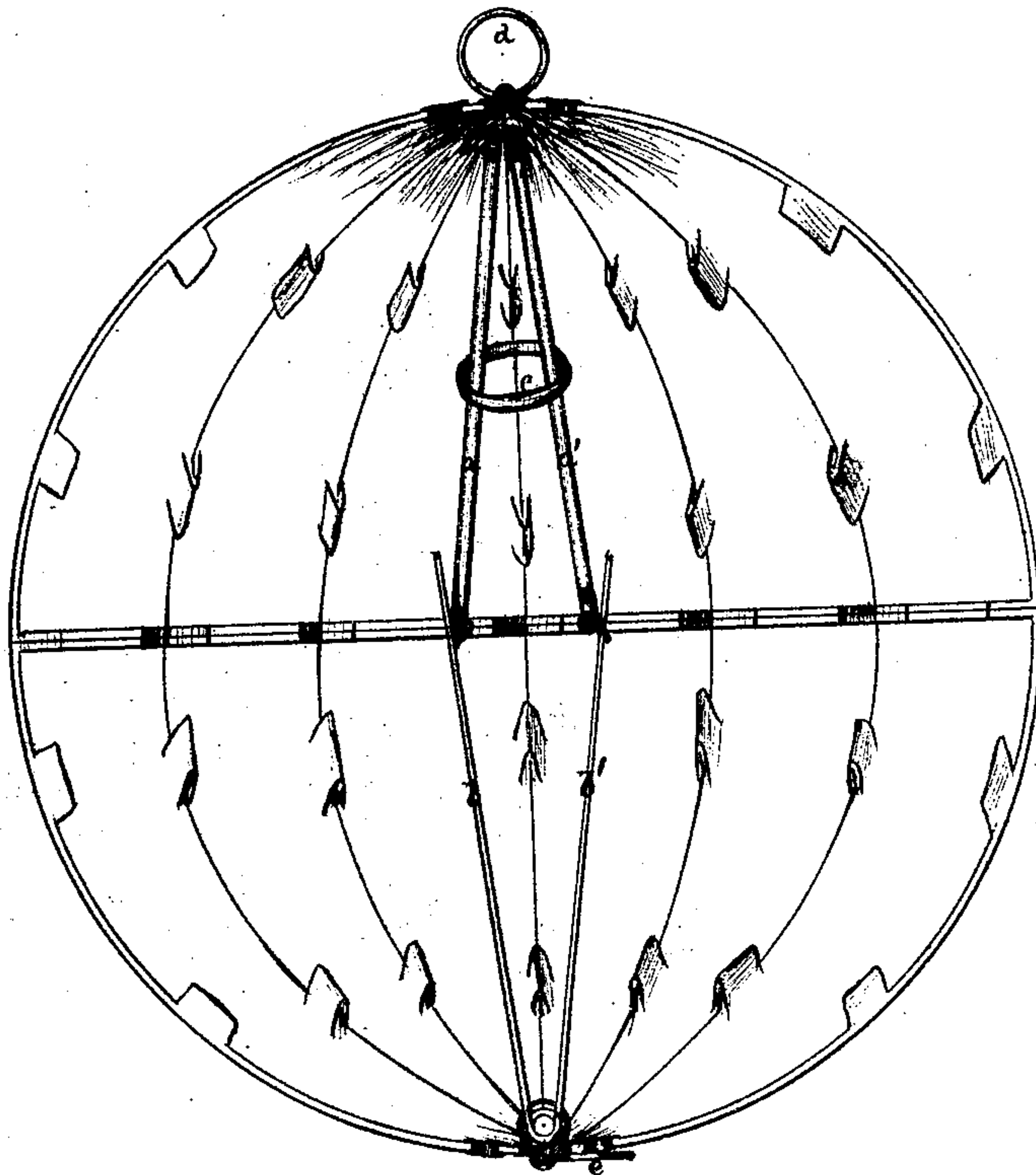


Fig. 2.

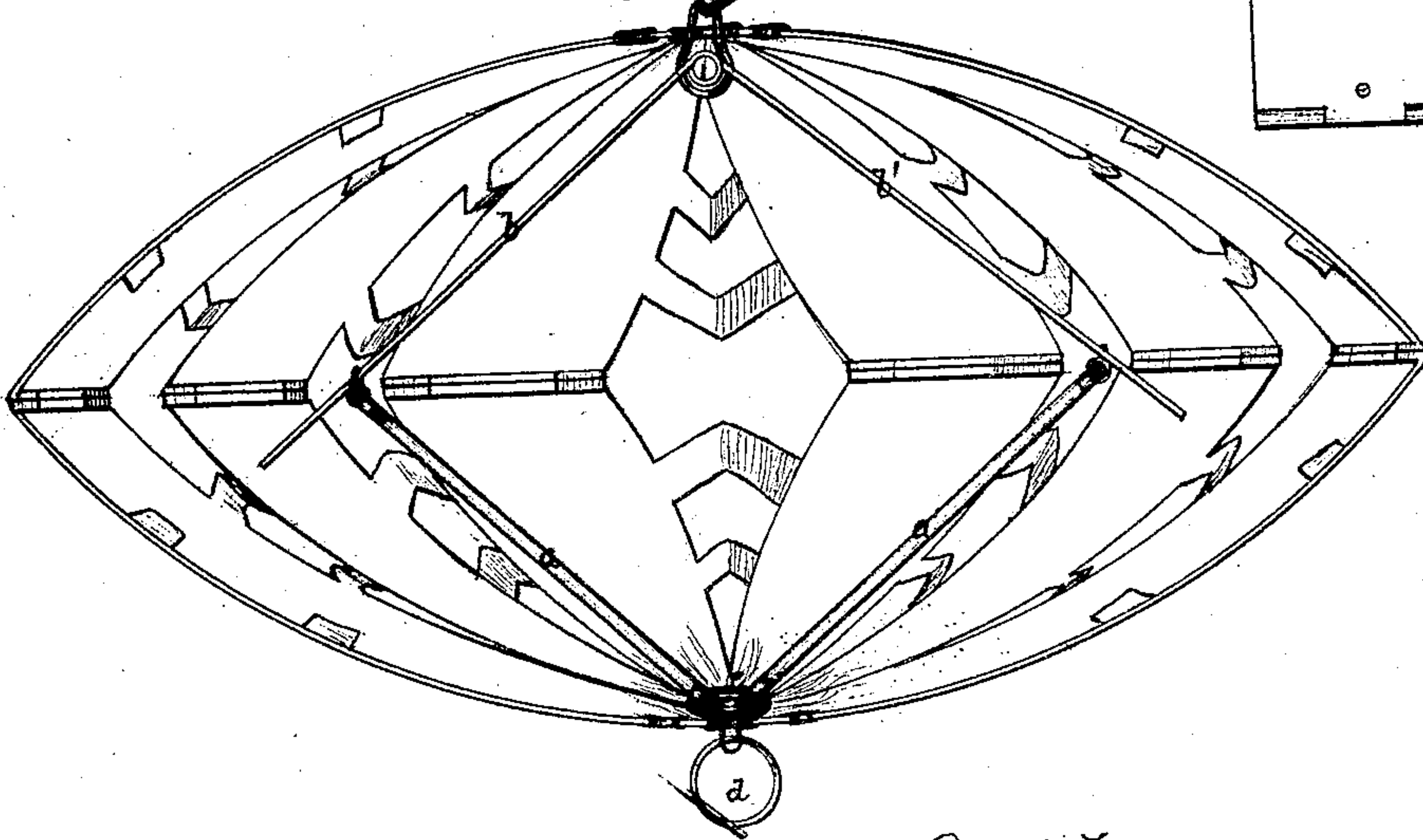
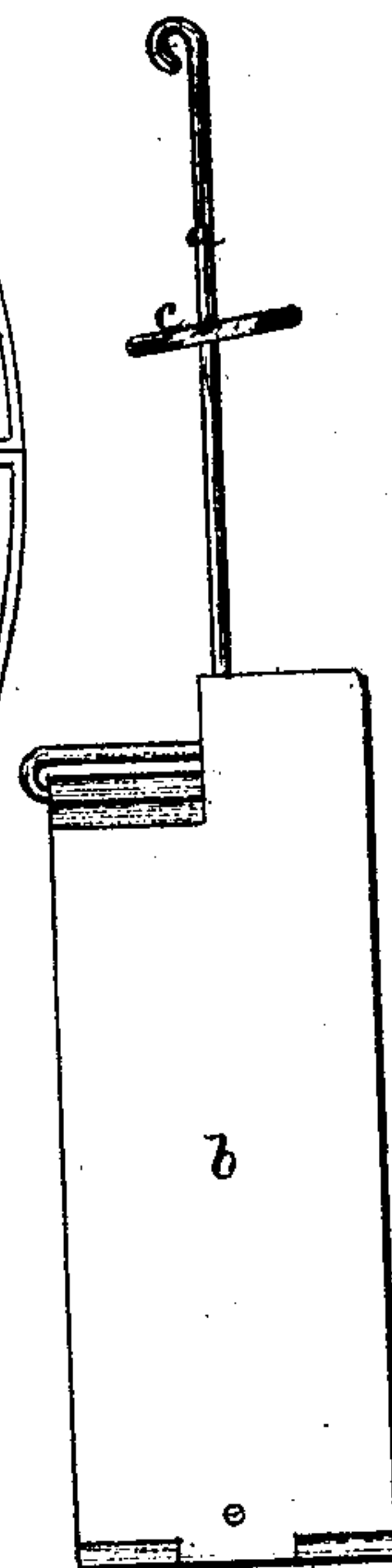


Fig. 3.



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                  M. W. Frothingham.

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DENNIS TOWNSEND, OF FELCHVILLE, VERMONT.

Letters Patent No. 101,185, dated March 22, 1870.

## IMPROVEMENT IN FOLDING CARD GLOBES.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, DENNIS TOWNSEND, now of Felchville, in the county of Windsor and State of Vermont, have invented an Improvement in Folding Globes; and I do hereby declare that the following, taken in connection with the drawings which accompany and form part of this specification, is a description of my invention sufficient to enable those skilled in the art to practice it.

In my patent of February 16, 1869, numbered 87,082, granted for my invention of improvements in globes, I describe a globe made flexible, expansible, and compressible, including devices for holding such globes in an expanded condition, such devices being applied and operating outside of the globes.

My present invention consists in the arrangement, within a folding globe, of a device which, when the globe is fully extended or expanded, will lock and sustain it in such position until, by manipulation exerted at will upon the outside of the expanded globe, the lock of the support is released, so that the globe may be compressed or folded.

It is unnecessary herein to set forth the detail of the construction of the globe or its advantages, as these were fully entered into in my aforesaid patent, to which reference may be had.

Figure 1 of the drawings shows my improvement in elevation, the globe containing it being represented as fully expanded, and in section, taken through the axis of the globe's rotation.

Figure 2 is a view similar to fig. 1, except that the parts are shown as they will appear when the globe is partially folded or compressed, with the poles of the globe reversed.

Figure 3 is a side elevation of the device by which the globe is held expanded, the plane of view being at right angles to that of the other figures.

To the pole of, and within each hemisphere are pivoted or hinged by one end, each of two radius bars, the other ends of which are hinged or jointed together so as to form a pair of toggle-joints.

The bars pivoted to the northern hemisphere are marked *a' a*, and those pivoted to the southern hemisphere are marked *b' b*. *a' a* are preferably made of wires, and *b' b* of thin flat metal.

When the globe is folded the bars *a'* and *b'* and *a* and *b* rest nearly parallel to each other, and nearly in contact, the bars *a' a* being nearly in a right line, and

in contact, or nearly so, with the inner surface of the material which in proper position forms the northern hemisphere; and the bars *b' b* are similarly located with respect to each other and the material of which the southern hemisphere is formed.

When the globe is expanded the bars *a' a* subtend an acute angle at the north pole, and the bars *b' b* at the south pole, the hinges by which the bars *b' a'* and *a* and *b* are joined together being in the equatorial plane of the expanded globe.

To keep the bars in the position which they assume when the globe is expanded, a ring, *c*, is located upon and so as to embrace *a' a*, which ring will, when the globe is expanded, slide down on said bars from the north pole toward the equatorial plane, the globe, of course, being held in the proper or conventional position, with the north pole upward and the axis of the globe vertical or approximating thereunto.

The angle of the bars *a' a* being slight and the outer surfaces thereof preferably roughened or serrated, the ring will not be forced upward by the tendency of the globe to flatten, but will remain in place, and, by holding the bars in the position seen in fig. 1, will keep the globe expanded.

To fold the globe, reverse its position so that the south pole will be uppermost, and then, by the rings *d e* which are attached to the poles upon the outside of the globe, strain the globe in a direction to elongate its polar axis, which will cause the bars *a' b'* and *a b* to slightly approach said axis, which will allow the ring *c* to fall, leaving the bars free to move their central joints outward, so that the whole globe can be brought into a substantially flat condition.

It will then be obvious how, by pulling the parts of the globe outward with the north pole upward, the globe will be expanded and so held, and how also, with the globe reversed, by a pull on the poles to extend the globe slightly, the bars will become unlocked so as to allow the closing or collapsing of the globe.

I claim, in combination with a flexible, expanding, and collapsing globe, a device arranged within it which will hold the globe in an expanded condition, and which will also by manipulation applied outside of the globe allow it to collapse, substantially as described.

DENNIS TOWNSEND.

Witnesses:

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