

(No Model.)

L. P. JUVET.
Time Globe.

No. 238,913.

Patented March 15, 1881.

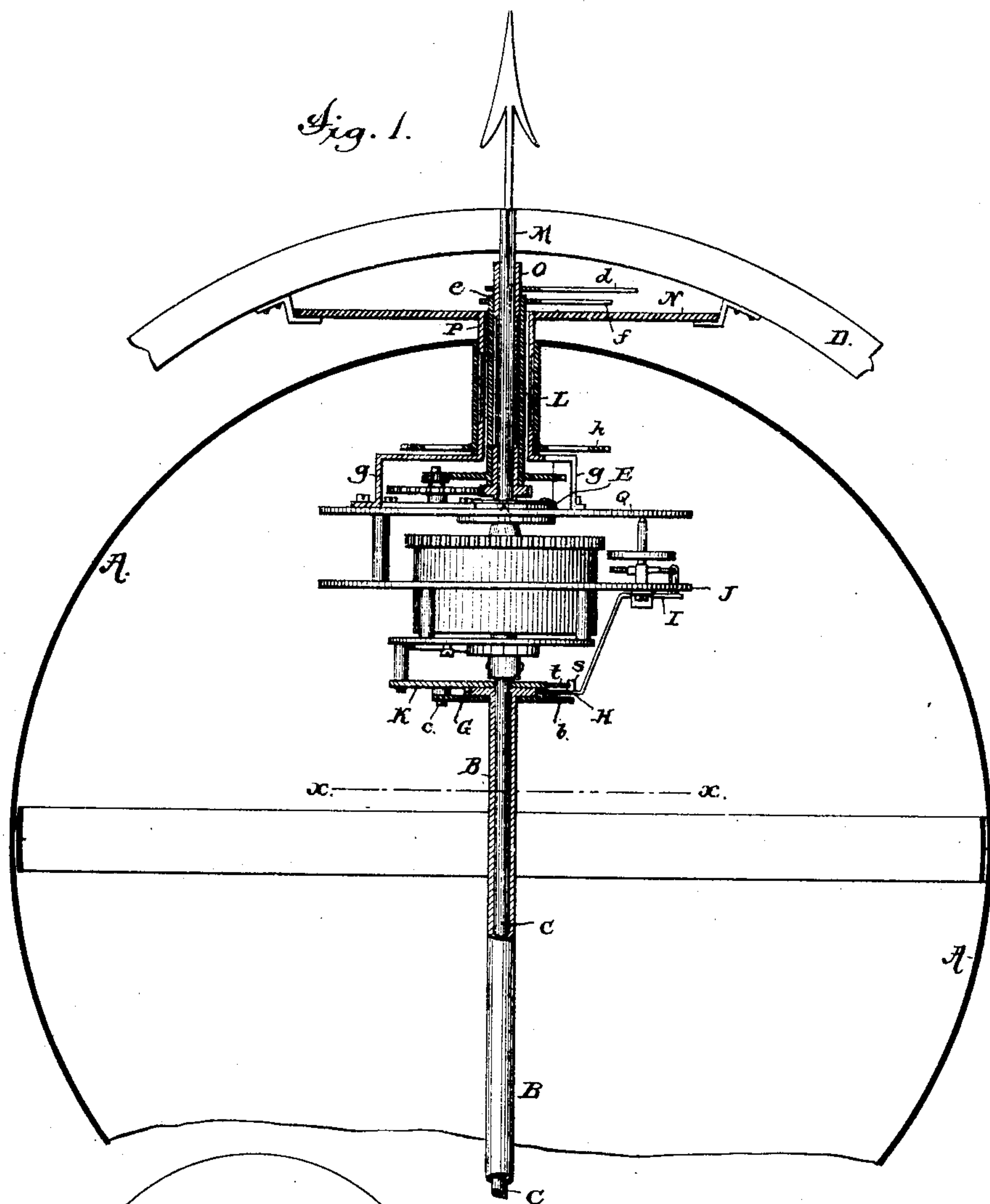


Fig. 2.

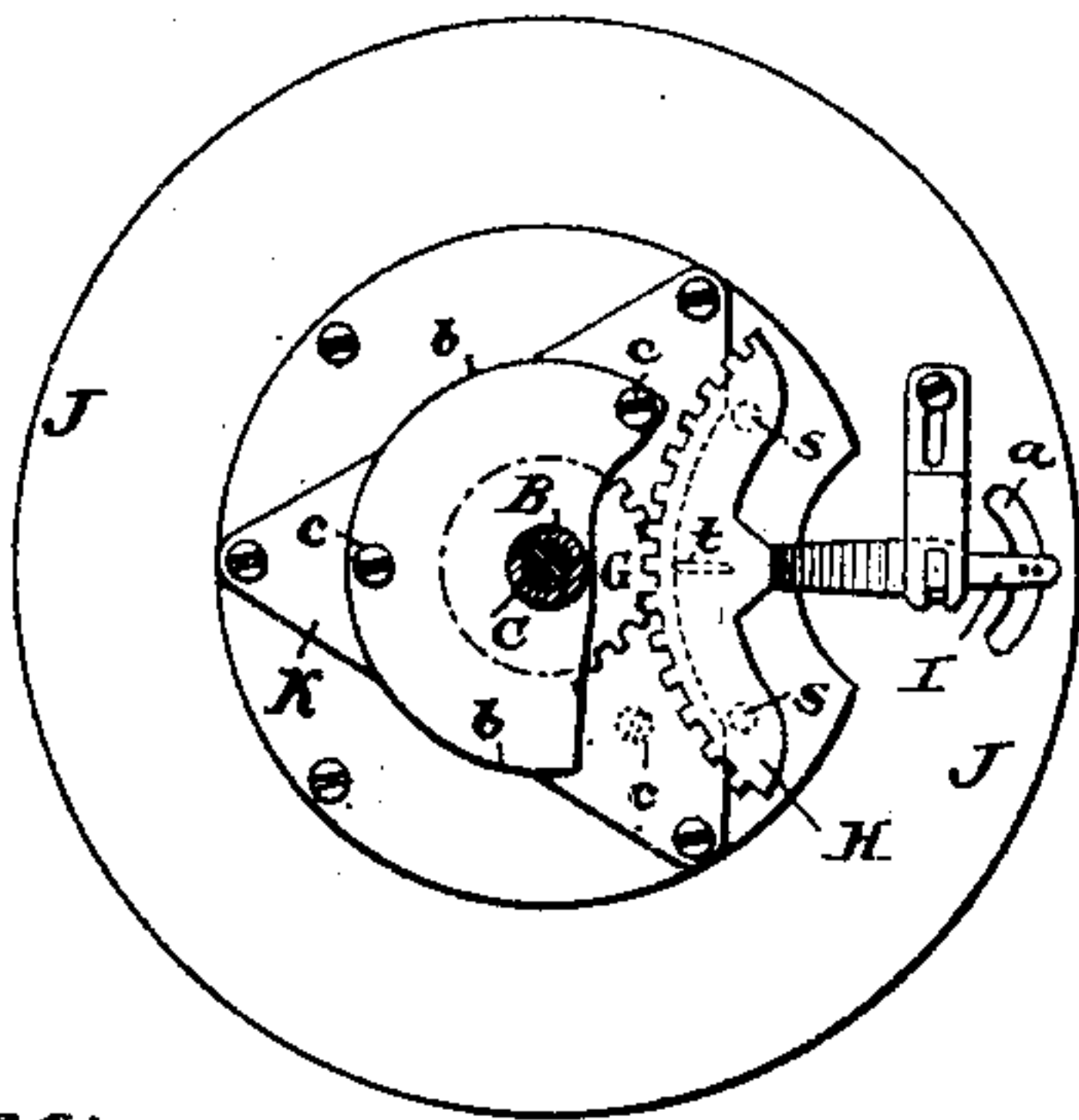
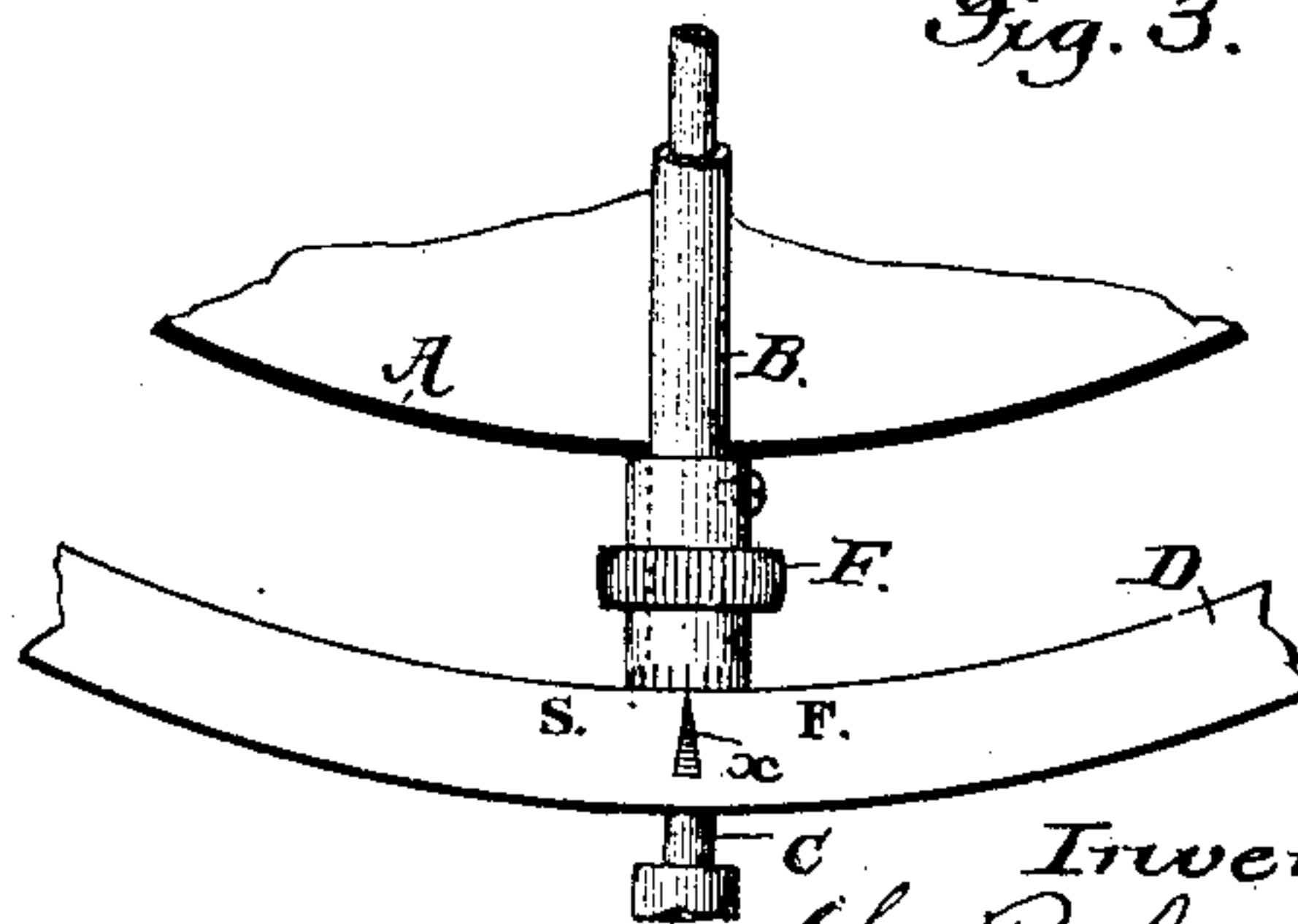


Fig. 3.



Witnesses;

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UNITED STATES PATENT OFFICE.

LOUIS P. JUVET, OF GLENS FALLS, NEW YORK.

TIME-GLOBE.

SPECIFICATION forming part of Letters Patent No. 238,913, dated March 15, 1881.

Application filed December 13, 1880. (No model.)

To all whom it may concern:

Be it known that I, LOUIS PAUL JUVET, of Glens Falls, in the county of Warren 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.

My invention relates to certain new and useful improvements in what are now most commonly known as "time-globes," though sometimes called "geographical clocks."

It has been suggested in the United States Letters Patent granted to me May 21, 1867, No. 64,989, to have combined with the clock-movement of a time-globe a regulator to govern the movements of the clock by increasing or diminishing (accordingly as the clock might run too slow or too fast) the tension of the hair-spring in the usual manner; and in said patent, which to the best of my knowledge exhibits the first instance of any attempt to combine a "regulator" with a time-globe, it was suggested that the regulator-wheel or sector (mounted loose on the arbor which carries the balance-wheel) which carries the pins controlling the hair-spring should be operated through the medium of a toothed sector engaging with said regulator-wheel, and provided with a tubular arbor or sleeve arranged round about that portion of the polar shaft which carries the mainspring of the clock; but, so far as I know, no means have ever been either employed or suggested for preventing any turning of the sleeve attached to the regulator-wheel by frictional contact with the interior thereof of the winding-up shaft of the clock mechanism, or for preventing any movement of the sleeve when casually touched, or for facilitating the manipulation of the regulator-sleeve-like arbor with any accuracy.

My present invention has for a part of its object to supply these defects of omission and afford means for the combination with the clock mechanism (of a time-globe) of a regulator mechanism in such manner that the clock can be regulated with perfect convenience, and that at the same time there will be no liability of derangement of the regulator, either in winding up the clock or by any accidental

touching of the exposed parts of the regulator; and to this end and object the first part of my invention consists in the combination, with the usual regulator mechanism, of means for holding the said mechanism against any accidental movement, caused either by casually touching the exposed parts of the mechanism or by frictional contact with the hollow arbor of said mechanism, of the winding-up arbor of the clock, all as will be hereinafter more fully explained; also, in the combination, with the regulator sector or wheel, or with some other moving part of the regulator, of means for limiting the extent of movement in each direction of the regulator, so that in manipulating the regulator from without the globe (from whence the regulator cannot be seen) the regulator cannot be operated to an extent of movement liable to break or injure the hair-spring, all as will be hereinafter more fully explained; also, in the combination, with the regulator hollow arbor and the meridian-ring of the globe, of a handle or knob for turning the said arbor, and having a graduated surface or a scale, adapted to indicate, in conjunction with some mark or device on the meridian-ring, the proper directions and extent of movement necessary to produce the desired effects on the clock.

Prior to my present invention it has been customary in the construction of time-globes to have the axle or arbor carrying the works made fast in the dial, and to have the sleeves which carry, respectively, the minute-hand, the hour-hand, and the globe, arranged concentrically round about and supported, together with their attachments, by the said axle. Under this principle of construction this difficulty or defect has been found to arise, viz., the excitement or creation of a certain degree of friction between the revolving sleeves and arbors, which have to revolve at different velocities, one within another, which friction, especially in cases where a large and consequently heavy globe is employed, has been found to influence the rotations of said sleeves and arbors in a manner very detrimental to that perfect action of each and all of the parts which is expected to be found in, and which is necessary to, a time-globe.

Another object of my invention is to over-

come this defect in time-globe mechanism, as heretofore made, and to this end and object the second part of my present invention consists in hanging the globe to turn on a sleeve which is secured to the polar dial (of the meridian-ring) at one end, and by a bridge, to the plate of the works at its other end, whereby the gravity of the globe, that would otherwise come on the revolving arbors, is supported directly by the dial through the medium of the supplemental sleeve, all as will be hereinafter more fully explained.

To enable those skilled in the art to which my invention relates to make and use the same, I will proceed to more fully describe its construction, referring by letters to the accompanying drawings, forming a part of this specification, and in which—

Figure 1 is a longitudinal central section of so much of a time-globe as it is necessary to show for the purposes of illustrating and describing my invention. Fig. 2 is a cross-section of the same at the line *xx* of Fig. 1, looking upward, and Fig. 3 is a partial elevation, showing the regulator-knob with its scale and the indicating device on the meridian-ring.

In the several figures the same parts, wherever visible, will be found designated by the same letter of reference.

A is the usual globe, mounted at one of its poles on the regulator-sleeve B, which, in turn, is mounted on the polar axle C, that, as usual, is journaled at its outer end in the meridian-ring D, and at its inner end (by a step and center bearing) in the plate E of the works. The other pole of the globe is secured to a sleeve, L, in a manner to be presently explained.

To the outer end of the sleeve (or hollow arbor) B is secured a handle or knob-like device, F, the cylindrical surface of which, as seen at Fig. 3, is marked off with a circumferential scale, and the ring D is lettered with "F" at one point and "S" at another, to indicate in which direction the knob F must be turned to either make the clock run faster or slower, while the line at *x* on the meridian-ring D (or any other device marked thereon or thereto attached) serves as the guide by which to note the extent of movement of knob F, and to thus observe the extent to which the regulator is worked.

To the inner end of the sleeve B is secured a gear, G, which engages with a toothed sector-plate, H, that has its axis of motion coincident with the axis of the balance-wheel, and from the hub of said sector-plate projects an arm, I, that carries the pins which affect the hair-spring in the usual manner. The pins of this arm I pass through a curved slot, *a*, in the plate J, and the sector-plate H is provided at its inner side with projecting pins or lugs *ss*, (see Figs. 1 and 2,) that come against a stop-pin, *t*, which projects from the plate K, before the pins which operate on the hair-spring can arrive at the extreme end of the curved slot in which they move. In turning the regulator in either direction, one or the other of these

pins *s* comes against the stop *t*, and thus is prevented any possibility of carelessly or accidentally turning the parts too far and injuring them. This provision is an indispensable one where the regulator is applied to a time-globe, because, the regulator mechanism being all hidden from view, the rotative adjuster F might be turned in one direction or another to an extent such as might injure the hair-spring.

Over the gear G is arranged (concentrically with it) a circular plate, *b*, which is bolted to the bridge K by three screws, (more or less,) *ccc*, which are to be so adjusted as to make the plate *b* bear against the gear G with sufficient force to act as a friction-brake on the said wheel and render it incapable of being turned except by the application of the designed amount of power applied to the hand-knob F. The sector-plate H is slightly thinner than the gear G, so that the plate *b* does not quite touch it; but this plate serves as a sort of casing or stop over sector H, and operates to prevent said sector from being sprung upwardly by any attempt to forcibly turn the regulator after its pins shall have been turned clear up to either end of the slot *a*.

That portion of the axle of the globe marked M is extended through a hole or eye in the center of the dial N, that, as usual, is supported by the meridian-ring D. Surrounding this (stationary) portion M of the globe's axis is the sleeve O, which carries the minute-hand of the clock, and surrounding said sleeve O is another hollow arbor or sleeve, *e*, that carries the hour-hand *f*.

Outside of and surrounding the sleeve *e*, and forming a bearing for it, is the sleeve or tube P, one end of which is made fast (in a suitable bushing or otherwise) to the dial N, and the other end of which is rigidly secured (by means of bracket-like arms *g* or by other means) to the plate Q of the works.

L is a hub or sleeve, mounted to turn freely on the tube P, as shown, and provided with a gear, *h*, that engages with the usual pinion, by which it is rotated at the proper speed to give to the globe A, which is secured to the hub L, the right speed of rotation about its axis to indicate the diurnal movements of the earth.

It will be seen that by having the globe thus mounted on the hub L, with the latter arranged to turn on sleeve or tube P, and said tube rigidly connected at one end to the dial and at the other to the plate of the works, as shown and described, the whole weight of the globe is borne by the meridian-ring and on the tube P, leaving the rotative parts which carry the hour and minute hands entirely unaffected by any frictional contact with the revolving and (sometimes) heavily burdened globe-sleeve; and it will be understood that, under this novel mode of construction, I am enabled to extend the hour and minute hand sleeves through the central eye or hole of the

dial and place the hands outside of the latter, if deemed expedient.

The general operation of the time-globe, with my present improvements added, is, of course, about the same as usual, and need not be here explained; but a perfect means of adjustment, through the medium of an ordinary regulator, is provided, and the weight of the globe is supported in the novel and desirable way, as described.

Having so fully explained my several improvements that one skilled in the art can readily make and use a time-globe embodying them, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination, with the regulator of a time-globe clock mechanism, of means for retaining the driving-gear or other moving part of the regulator by friction, for the purpose of preventing any accidental or improper manipulation of the regulator, as set forth.

2. The combination, with the circular adjuster F, without the globe and the sector-

plate or other moving part of the regulator within the globe, of a stop device, all substantially as and for the purpose set forth.

3. In combination with the axially-arranged sleeve B of a time-globe regulator, a circular knob-like hand-piece, the surface of which has a circumferentially-arranged scale to indicate, by a fixed pointer or other device on the meridian-ring, the extent of motion which may be given to said knob, as set forth.

4. In a time-globe, the combination, with the globe and the usual moving parts for rotating the globe and the clock-hands, of means, substantially as described, for supporting the weight of the globe on the meridian-ring and independently of the revolving sleeves that drive the clock-hands, as set forth.

In witness whereof I have hereunto set my hand and seal this 22d day of November, 1880.

L. P. JUVET. [L. S.]

In presence of—

JACOB FELBEL,
H. JANVIER.