

(No Model.)

2 Sheets—Sheet 1.

L. E. ROUSSEL.
TELLURIAN.

No. 459,871.

Patented Sept. 22, 1891.

Fig. 1.

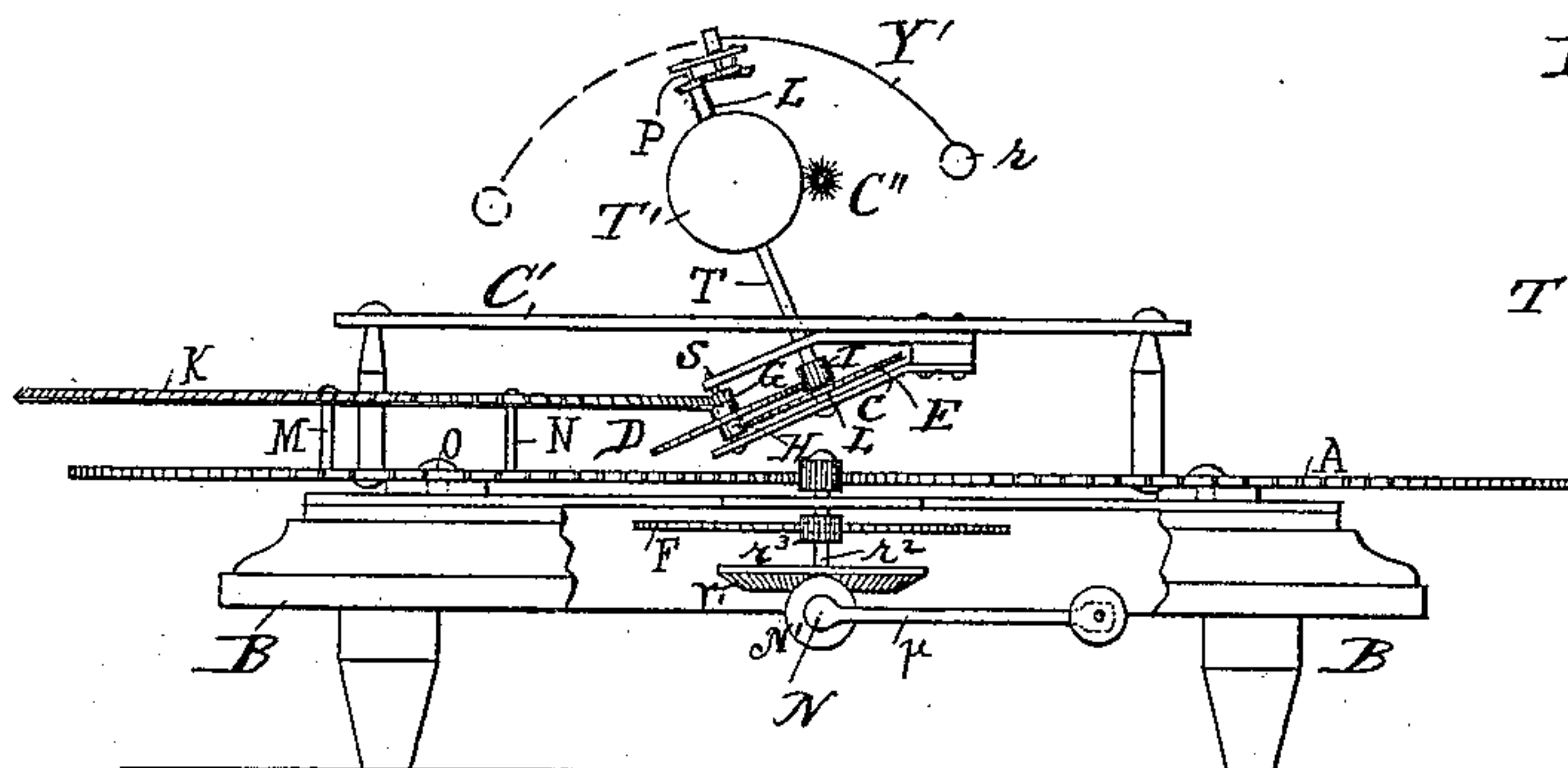


Fig. 5.

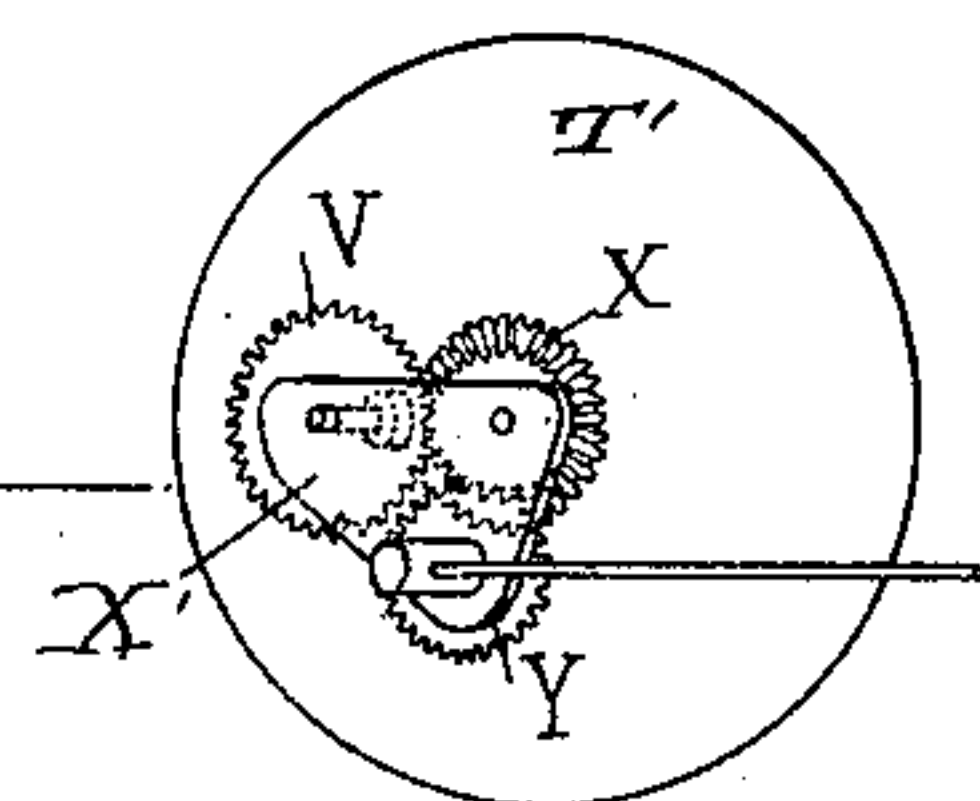
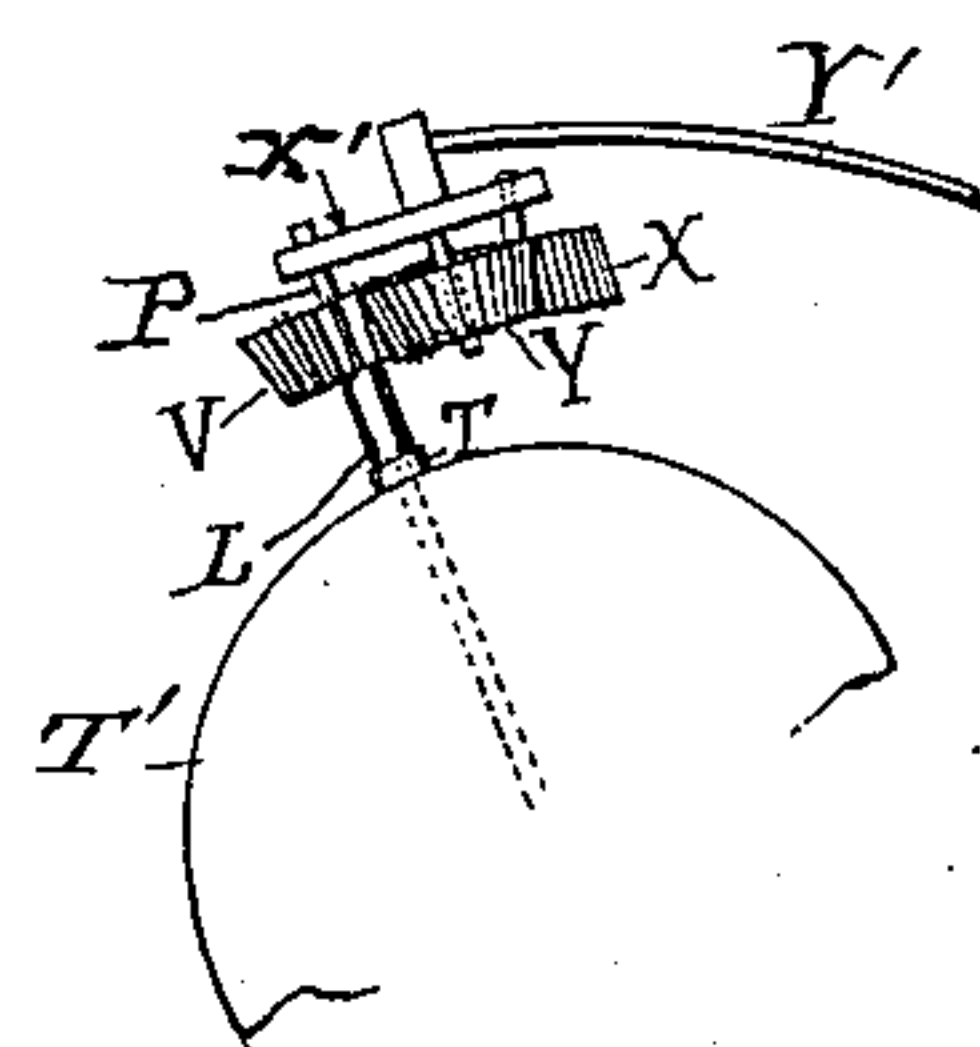


Fig. 2.

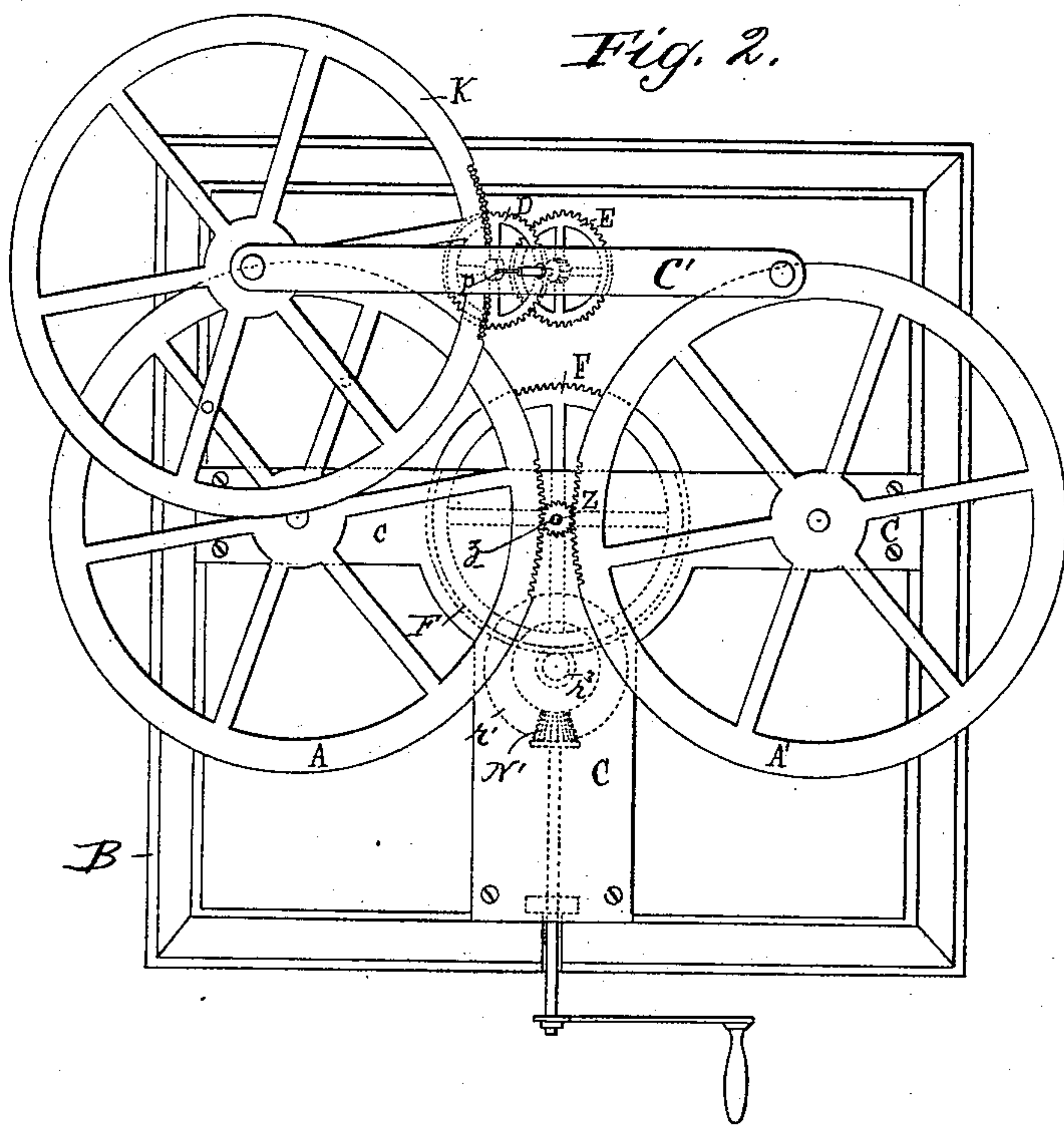


Fig. 6.

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2 Sheets—Sheet 2.

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Fig. 4

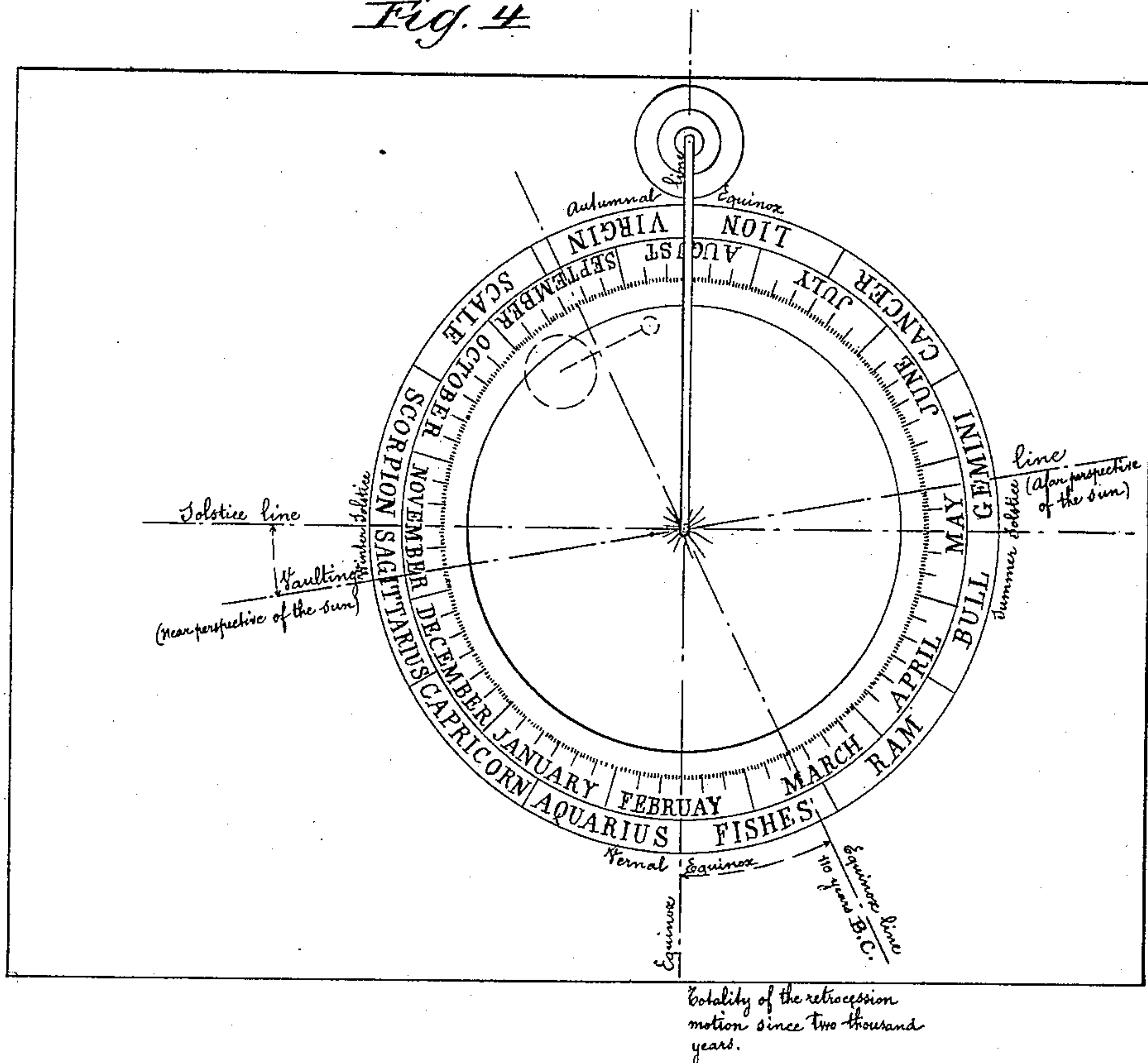
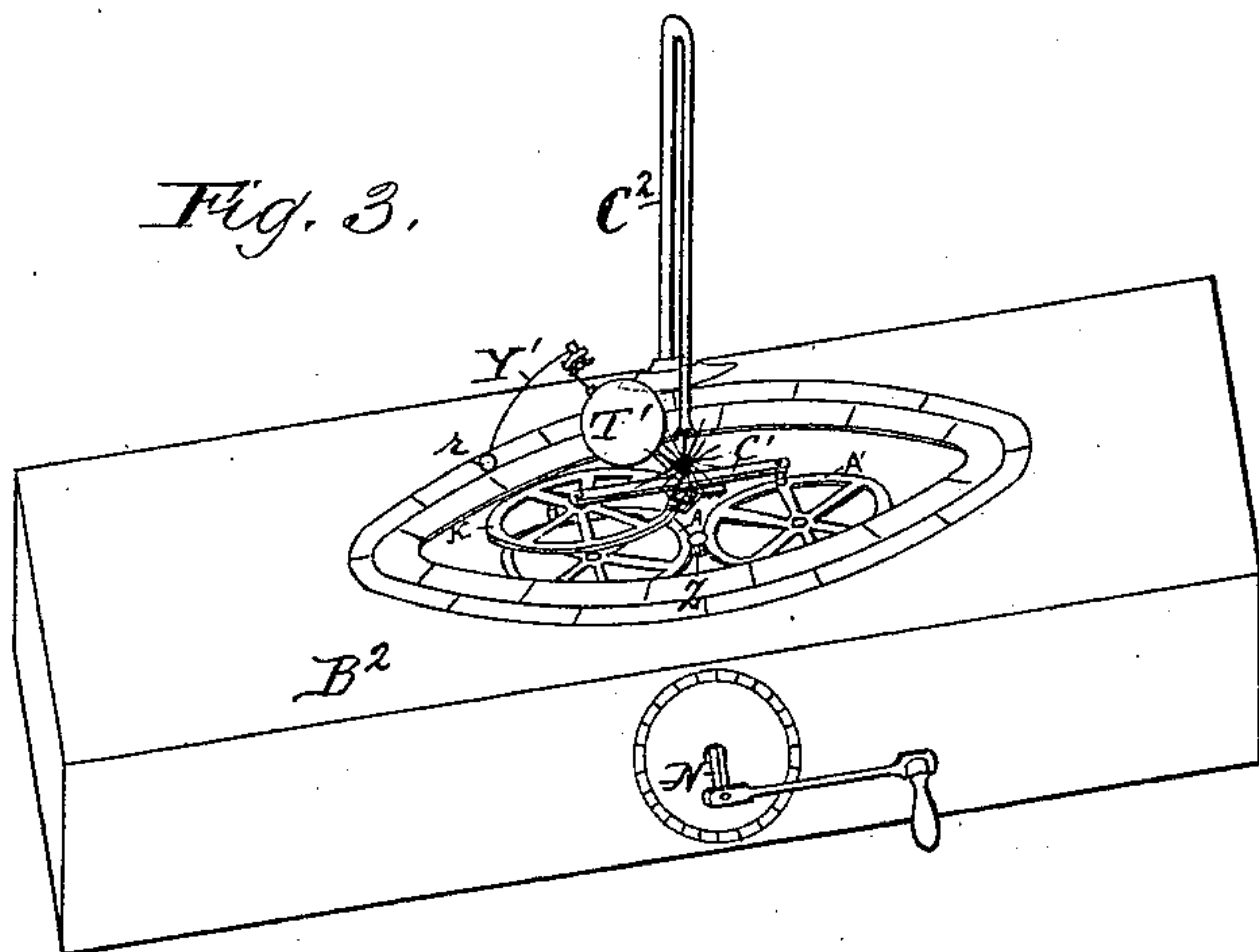


Fig. 3.



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UNITED STATES PATENT OFFICE.

LOUIS EDOUARD ROUSSEL, OF DIJON, FRANCE.

TELLURIAN.

SPECIFICATION forming part of Letters Patent No. 459,871, dated September 22, 1891.

Application filed April 10, 1891. Serial No. 388,378. (No model.)

To all whom it may concern:

Be it known that I, LOUIS EDOUARD ROUSSEL, a citizen of the French Republic, residing at Dijon, in France, have invented certain new and useful Improvements in Tellurians, of which the following is a full, clear, and exact description.

My invention has relation to tellurians; and it has for its object to provide a device of this character by means of which may be clearly and easily demonstrated the movement of the earth around the sun, the rotation of the earth upon its own axis, the movement of the moon around the earth, and the rotation of the moon upon its axis, whereby are produced the succession of days and nights, the succession of the seasons, the inequality in the lengths of the days and nights, the phases of the moon, the eclipses of the sun and moon, and the precession of the equinoxes.

A further object of the invention is to provide a device of the character described which shall be extremely simple in construction and easily and conveniently operated, all as will be hereinafter more fully described, illustrated in the accompanying drawings, and pointed out in the appended claims.

In the drawings, Figure 1 is an elevation of my improved tellurian without its inclosing case; Fig. 2, a plan view thereof; Fig. 3, a perspective view of the device within its inclosing case. Fig. 4 is an enlarged plan view of the top of the case provided with subdivisions bearing the names of the zodiacal signs and the seasons. Fig. 5 is a detail elevation, upon a slightly-enlarged scale, of a portion of the sphere, representing the earth and the means for imparting movement to the body representing the moon; Fig. 6, a plan view of the devices shown in Fig. 5.

Although in the device presently to be described in detail I have not represented the earth, moon, and sun in the exact relative proportions as they exist in reality, nor given to the earth and moon such movements the relative durations of which will be in exact proportion, since were this the case it would necessitate the employment of complicated

mechanism and make the apparatus large and cumbersome, the device will, however, serve for all ordinary purposes to accomplish the object sought, and as hereinabove specified.

Upon a suitable table or case B are rotatably mounted two gear-wheels A A', each provided with two hundred and forty teeth. These gear-wheels are of the same diameter and located intermediate, and gearing with the teeth thereof is a pinion Z, mounted upon the upper end of a vertical shaft z, having a bearing in the bar C of the table.

C' indicates a bar whose ends are pivotally secured to the perimeters of the wheels A A', as shown. To the under side of this bar is secured a plate c, in which is rotatably mounted a spindle P, having an inclination of about twenty-three degrees thirty-two minutes, corresponding to the inclination of the axis of the earth from the vertical. The wheels A A', being caused to rotate in the same direction through the medium of the pinion Z, cause the spindle P to describe a circle to correspond with that of the orbit of the earth.

D E I represent toothed wheels supported by means of the bar c. Said wheel D has sixty-four teeth and is formed integral with two pinions G H, the former having eight teeth and the latter sixteen teeth. The wheel E has fifty-nine teeth and is formed integral with a sleeve or tube L, serving as its axis or shaft, and through which extends the spindle P, around which latter the wheel E and sleeve L are free to turn. The wheel I has eight teeth and is formed integrally with a sleeve or tube T, which carries a sphere T', representing the earth. The tube T surrounds the tube L, and can turn freely upon the latter. The wheel D gears with the wheel I. The pinion H gears with the wheel E. The sleeve or tube L carries at its upper end a bevel gear-wheel V, gearing with another like gear-wheel X, which in turn gears with a bevel gear-wheel Y. Said gear-wheels have the same diameter and may have any desired number of teeth, though they must have an equal number of such teeth. The wheels X Y are rotatably mounted on studs secured in the triangular-shaped plate X', carried by the upper end of the spindle P. The axis of wheel Y is in a

plane passing through the center of the earth and to the upper end of said axis is secured a curved rod Y', carrying at its lower end a small sphere r , representing the moon.

5 Above the wheel A is located a toothed wheel K, having a diameter equal to that of said wheel A and supported upon the latter by means of legs or supports M Q N. The support Q is at the center of the wheel K,
10 and when the wheel A turns about its central shaft or pivot O each point of wheel K describes a circle whose center is that of the shaft O. The wheel K has three hundred and sixty-five teeth and gears with the pin-
15 ion G, before described. During its circumferential movement about the point O said wheel K determines the rotation of the pinions G H and of the wheel D around their common axis S, and their rotation is communi-
20 cated to the sleeves L and T. Consequently the earth turns on its axis and the moon is caused to circle around the earth.

For communicating motion to the pinion Z, I may employ the following means: N in-
25 dicates a shaft extending transversely of the apparatus and adapted to rotate in bearings formed in the table. At its outer end this shaft carries a crank, by means of which it may be conveniently turned, and at its oppo-
30 site end carries a bevel gear-wheel N', which gears with a horizontal bevel gear-wheel r' , secured upon a vertical shaft r^2 , carrying a pinion r^3 , which meshes with a toothed wheel F, mounted upon the shaft z , carrying the
35 pinion Z. The latter has sixteen teeth, the wheel F has one hundred and twenty-eight teeth, the pinion r^3 has sixteen teeth, the bevel-gear r' has seventy-three teeth, and the bevel-gear N' has twenty-four teeth. The
40 number of teeth of the said wheels and pinion is calculated to give one rotation of the earth to every rotation of the crank. Thus it requires three hundred and sixty-five turns of the crank to make the earth complete an
45 entire revolution of the same around the sun, and it requires twenty-nine and one-half turns of the crank to accomplish a revolution of the moon about the earth.

The entire device may be inclosed in a case
50 B², having an opening in its top to permit of the movement of the earth around the sun. The latter may be represented by a small incandescent electric or other light, as C'', supported by means of a bent rod or support C²,
55 secured to the table.

The lid of the case is divided into twelve parts, representing the months, and these divisions are subdivided into thirty-one, thirty, or twenty-eight parts, to represent the days
60 in the months. Another circle of larger diameter is divided into twelve equal parts corresponding to the signs of the zodiac. Other indications are inscribed upon the lid.

I would state that the diameter of the wheel
65 K may vary with relation to the diameters of

the wheels A A'. It may have a much less diameter than said wheels, but should be provided with three hundred and sixty-five teeth, whatever may be its diameter.

Instead of imparting rotation to the pinion 70 Z by the means described, the said pinion may be actuated by suitable clock-gearing, so that the parts will be kept in motion for a considerable length of time and the rates of movements of the different parts be kept uniform. 75
Other minor changes might be made in the device without departing from the principle of the invention.

I claim—

1. In a tellurian, the combination, with the 80 gear-wheels A A', adapted to be rotated in the same direction, a bar connecting said gear wheels, and gear-wheel K, connected with said bar, as described, of an inclined shaft carried by the bar and supporting a sphere, 85 and mechanism intermediate said shaft and the gear-wheel K, whereby said shaft and its sphere are rotated, for the purpose specified.

2. In a tellurian, the combination, with the 90 gear-wheels A A', adapted to be rotated in the same direction, and a bar connecting said gear-wheels and adapted to partake of the movements thereof, as described, of a shaft carried by said bar and supporting a sphere, 95 said shaft and sphere being caused to partake of the movements of said bar and simultaneously therewith, as described, for the purpose specified.

3. In a tellurian, the combination, with the 100 gear-wheels A A', adapted to be rotated in the same direction, a bar connecting said gear-wheels and adapted to partake of the movements thereof, and a gear-wheel K, connected with said bar, as described, of an inclined shaft carried by the bar and supporting a 105 sphere, mechanism intermediate the shaft and gear-wheel K, whereby said shaft and its sphere are rotated, as described, a second bar carrying at its lower end a sphere, and mechanism intermediate said bar and the inclined 110 shaft, whereby said bar is caused to describe a circumferential movement around the said shaft and the sphere carried thereby, for the purposes specified.

4. In a tellurian, the combination, with the 115 gear-wheels A A', adapted to be rotated in the same direction, the bar connecting said gear-wheels and adapted to partake of the movements thereof, and the gear-wheel K, connected with said bar, as described, of an inclined 120 shaft carried by the bar and supporting a sphere, mechanism intermediate said shaft and the gear-wheel K, whereby said shaft and its sphere are rotated, a second bar carrying at its lower end a sphere, mechanism inter- 125 mediate said bar and the inclined shaft whereby said bar is caused to describe a circumferential movement around said shaft and the sphere carried thereby, and a supporting-rod carrying at one end a light in proximity 130

to the latter sphere, as and for the purposes specified.

5 In a tellurian, the combination, with a suitable supporting table or base, of the gear-wheels A A', rotatably supported upon said base, a bar connecting said gear-wheels, the shaft carried by said bar and supporting a sphere, and an inclosing case in which all of said parts except the sphere are arranged,

said case being provided with an opening in its top, for the purpose specified.

In testimony that I claim the foregoing I have hereunto set my hand this 14th day of March, 1891.

LOUIS EDOUARD ROUSSEL.

Witnesses:

VICTOR MATRAY,
JOSEPH SALING.