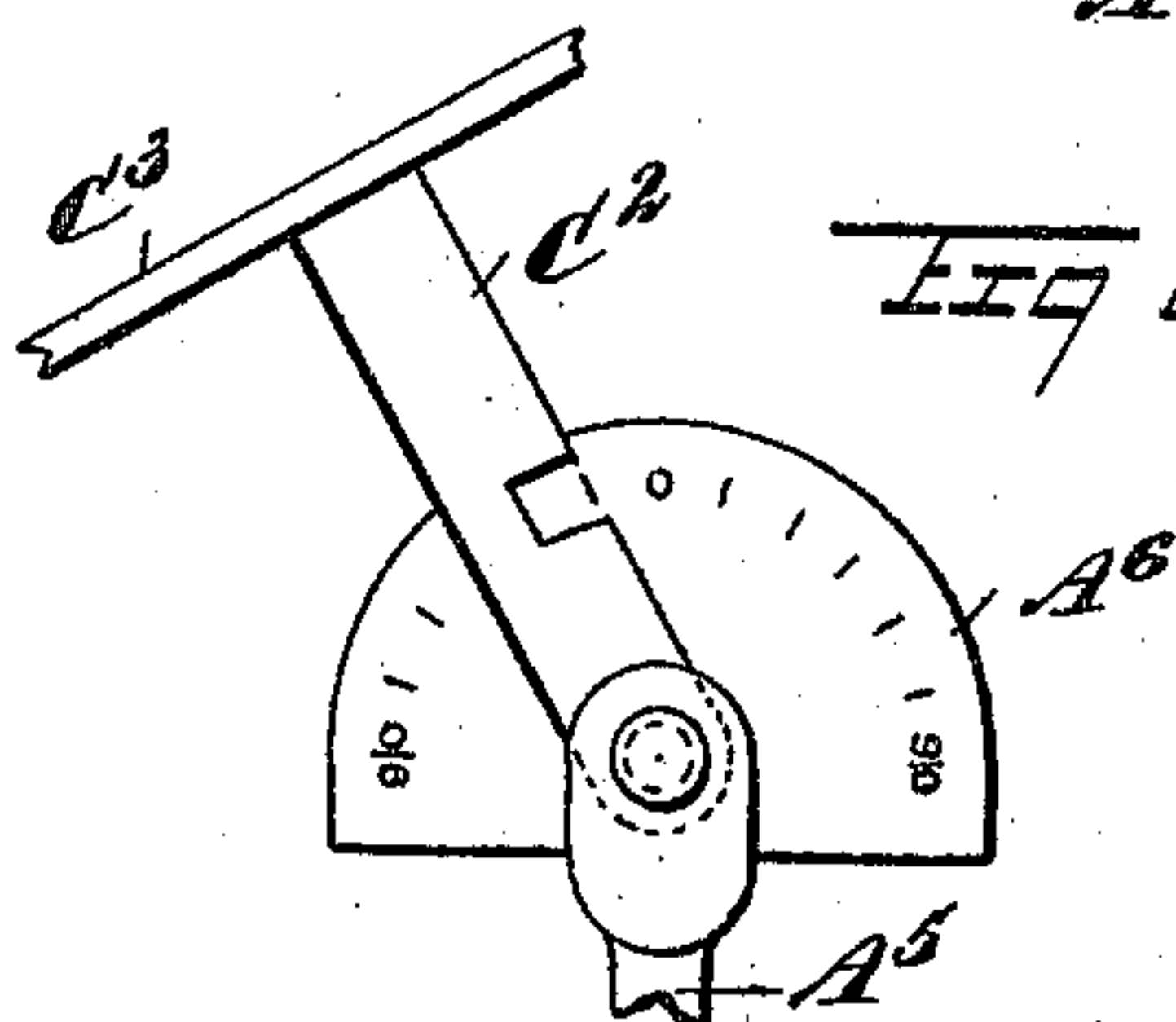
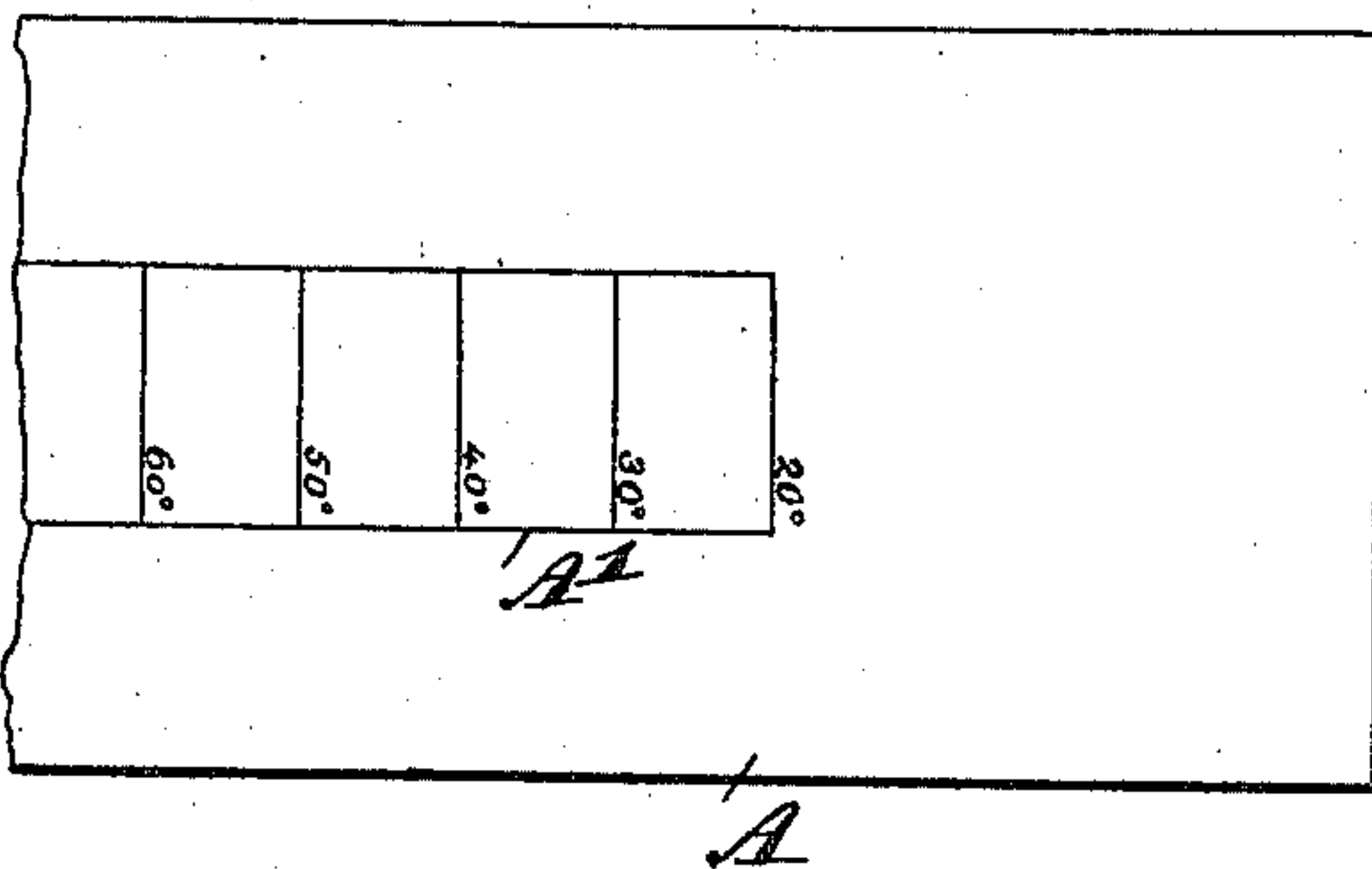
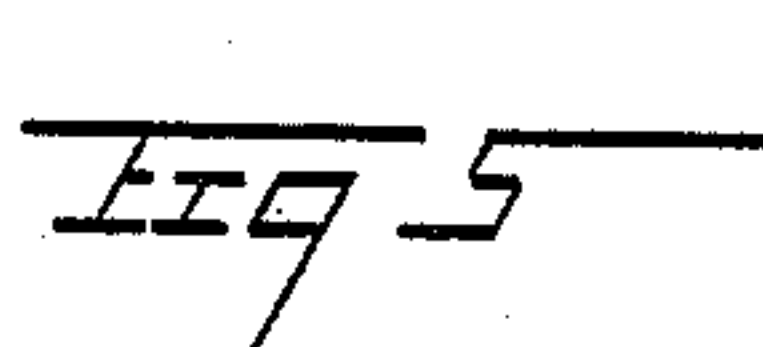
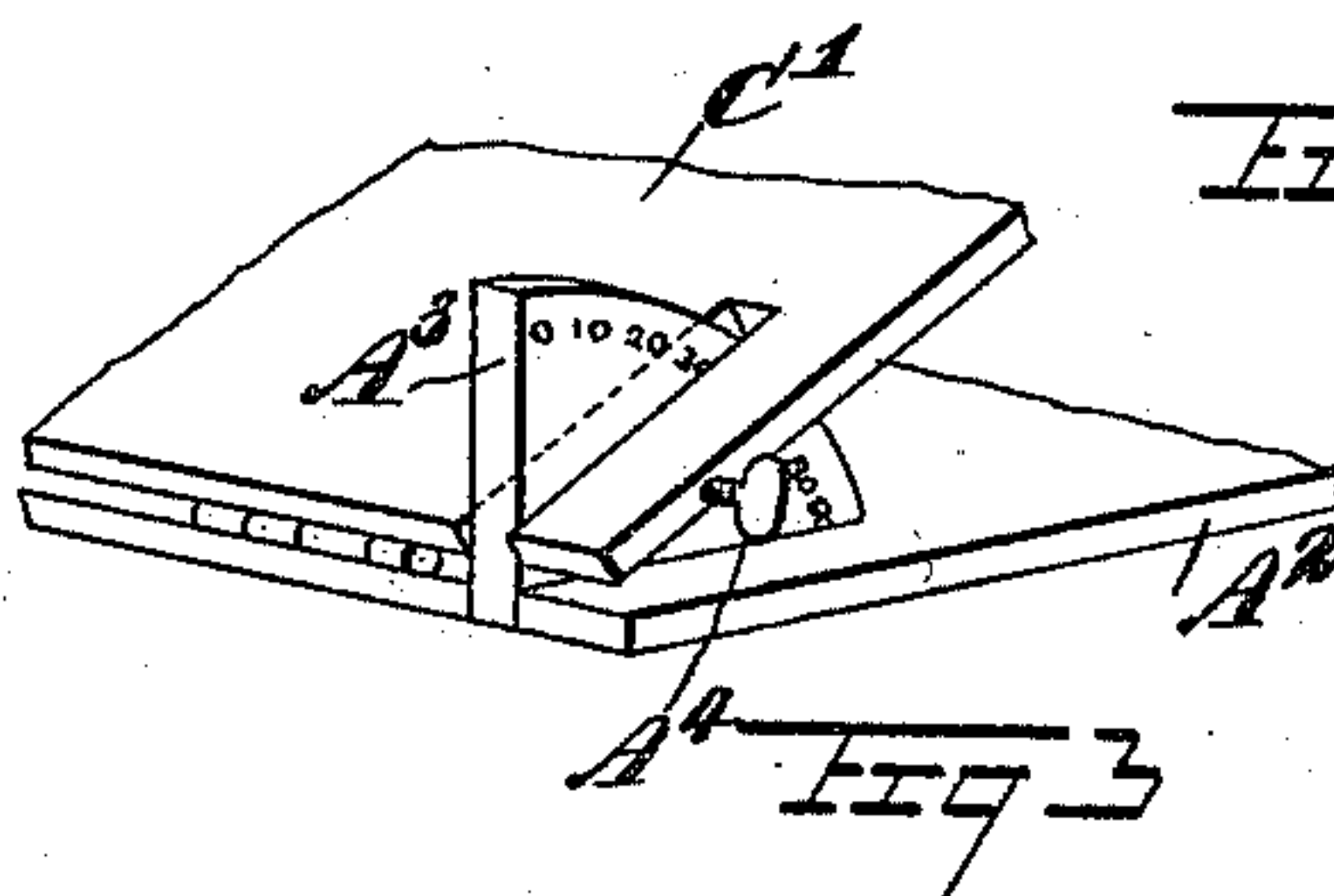
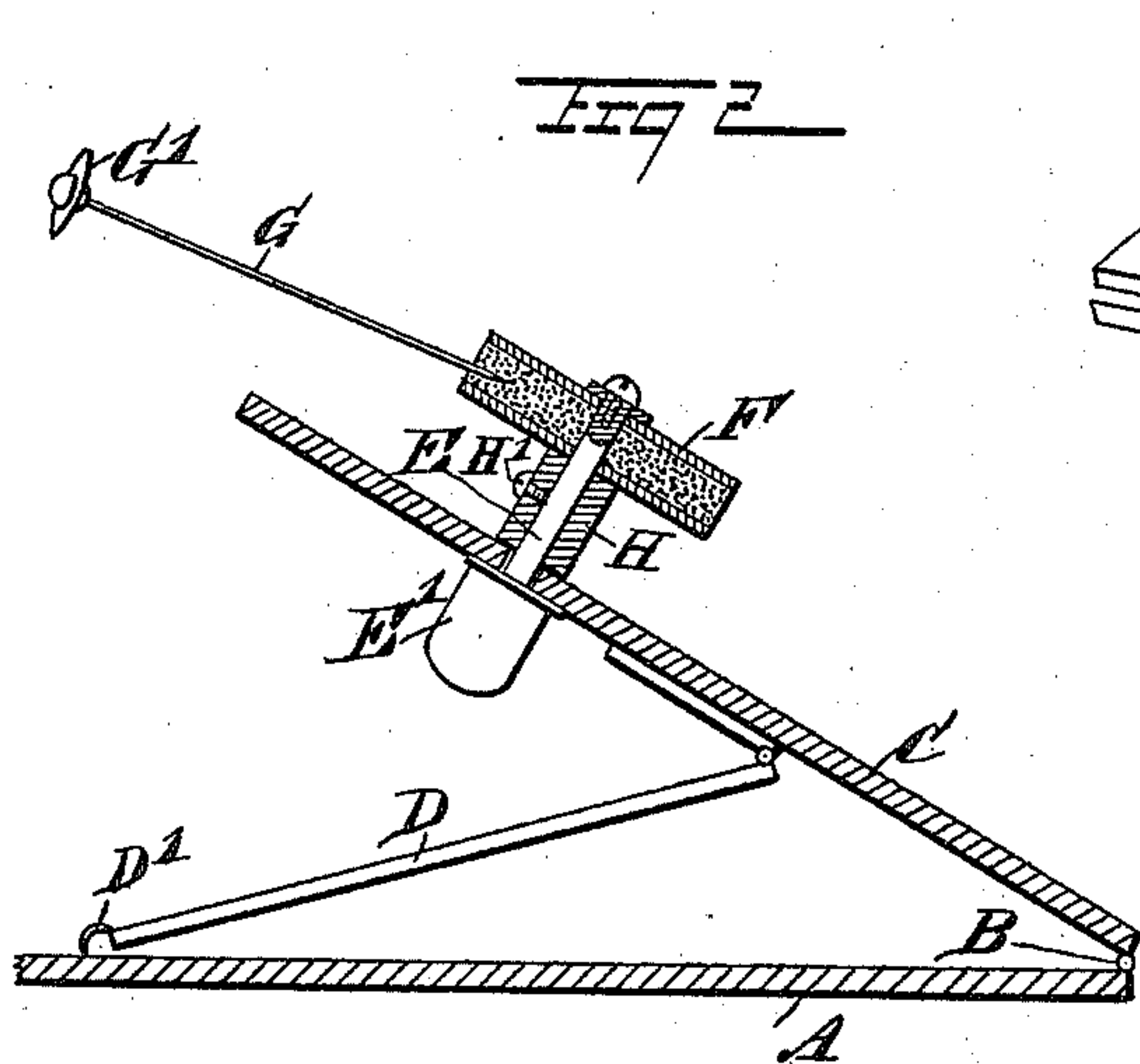
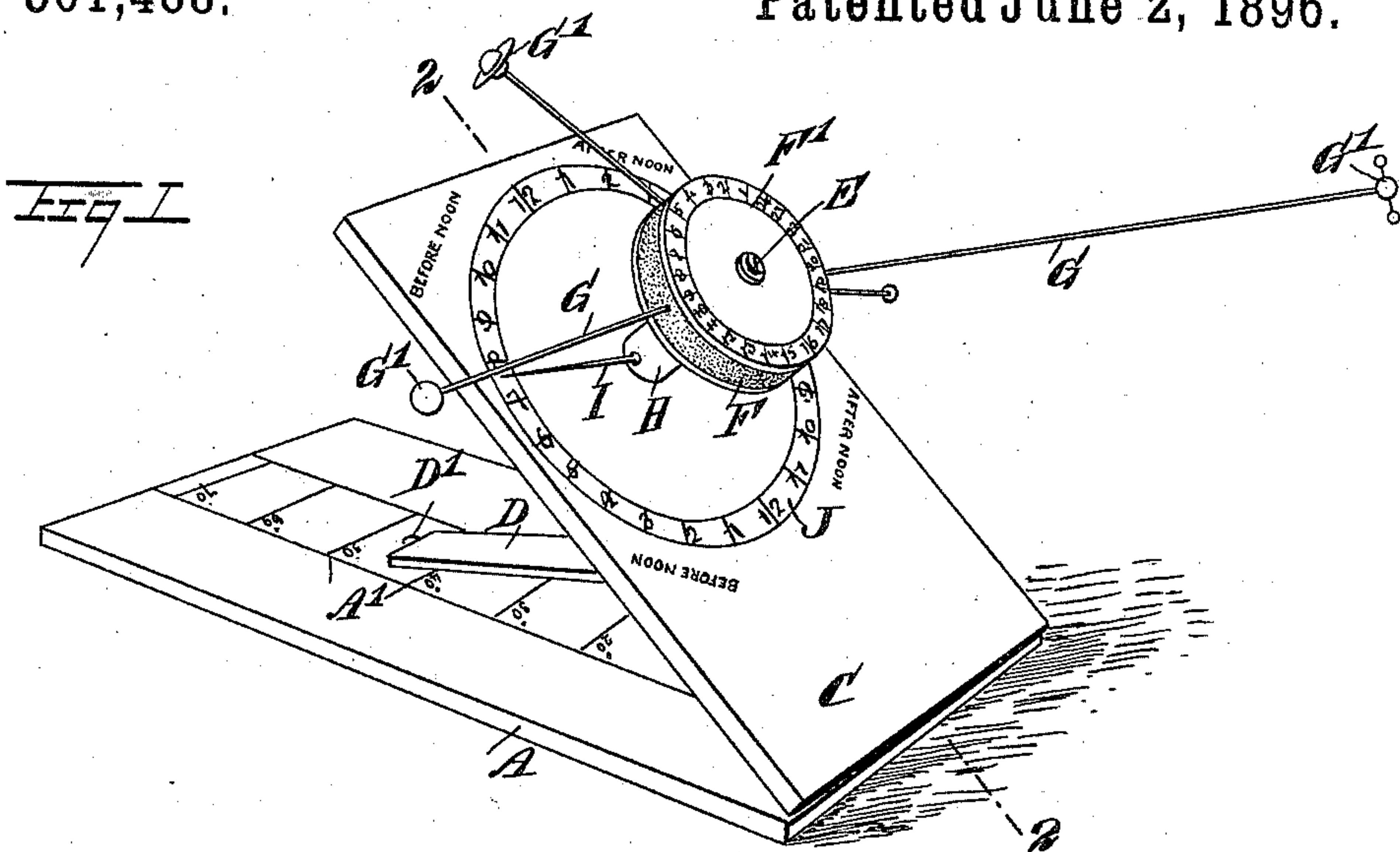


(No Model.)

J. M. CHANEY.
PLANETARIUM.

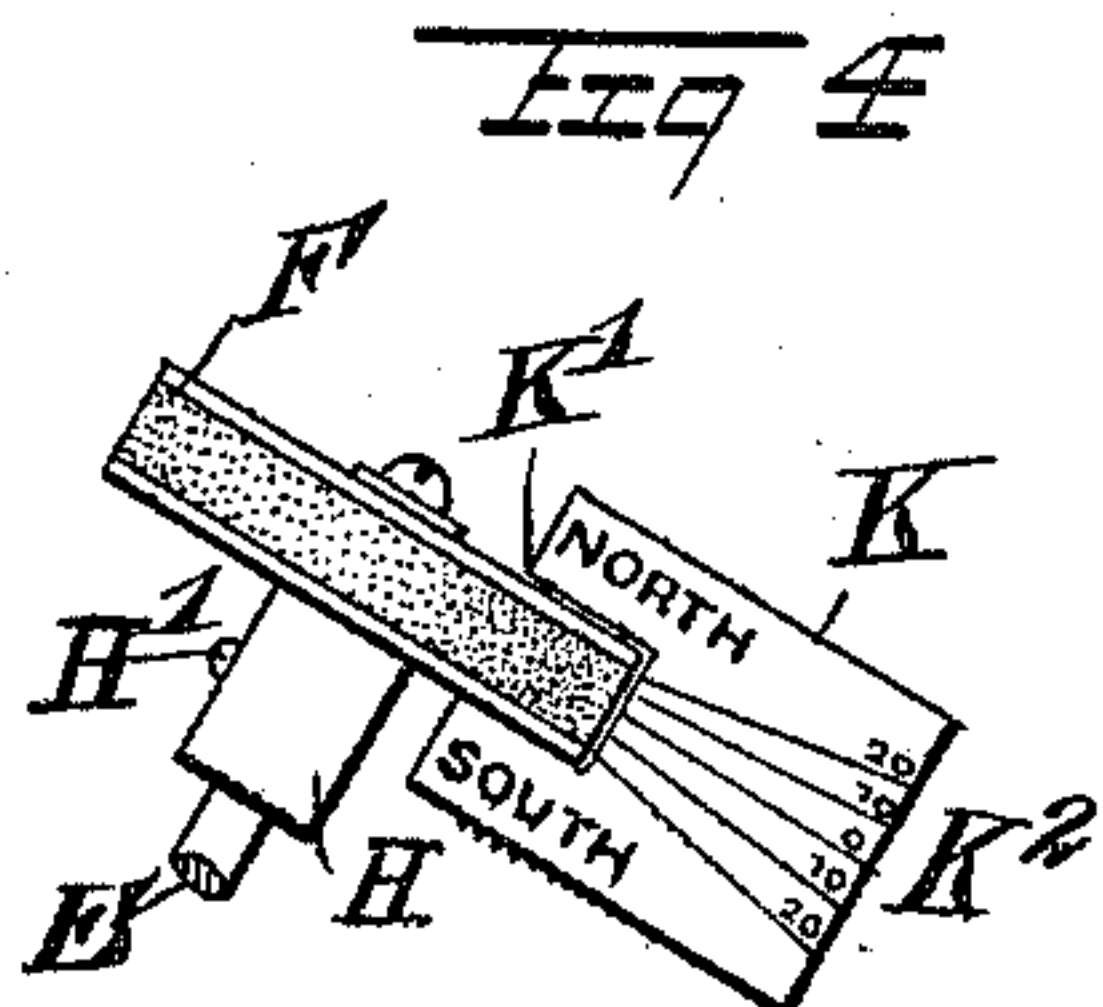
No. 561,488.

Patented June 2, 1896.



WITNESSES:

H. Walker
Rev. J. Koster



INVENTOR
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BY
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ATTORNEYS.

UNITED STATES PATENT OFFICE.

JAMES M. CHANEY, OF INDEPENDENCE, MISSOURI.

PLANETARIUM.

SPECIFICATION forming part of Letters Patent No. 561,488, dated June 2, 1896.

Application filed September 6, 1895. Serial No. 561,643. (No model.)

To all whom it may concern:

Be it known that I, JAMES M. CHANEY, of Independence, in the county of Jackson and State of Missouri, have invented a new and Improved Planetarium, of which the following is a full, clear, and exact description.

The invention relates to educational appliances; and its object is to provide a new and improved planetarium arranged to show at a glance the location of the planets and stars as seen from the earth at any time or place.

The invention consists of a revoluble disk set to the angle of the latitude of the place of observation and adapted to receive rods, each carrying at its outer end the representation of a planet or star, the rods being inserted in the periphery of the disk to the angle of declination of the planet or star.

The invention also consists of certain parts and details and combinations of the same, as will be fully described hereinafter, and then pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a perspective view of the improvement. Fig. 2 is a sectional side elevation of the same on the line 2 2 of Fig. 1. Fig. 3 is a plan view of part of the base. Fig. 4 is a side elevation of the declination angle-plate for guiding the insertion of the planet-rods in the revoluble disk. Fig. 5 is a perspective view of a modified form of base and table, and Fig. 6 is a side elevation of another modified form of the same.

The planetarium, as shown in the drawings, is provided with a suitably-constructed base A, on one end of which is arranged a hinge B, connected with a table C, provided at its under side with a hinged brace D, formed at its free end with a hook or pin D', adapted to engage the top of the base A at the graduation A', representing the degree of latitude of the place of observation, to set the table C to the corresponding latitude at which the observer is located.

In the table C is journaled a shaft E at right angles to the table, and on the lower end of the said shaft is secured a knob E' for turning the said shaft by hand, or instead of the knob E' the said shaft may be provided with

a clockwork for turning the shaft according to the hour of the day. On the upper end of the shaft E is secured a disk F, made of suitable material, so that the rods G can be readily stuck into the periphery of the said disk and at a desired and proper angle thereto, as indicated in Figs. 1 and 2. Each of the rods G is provided at its outer end with a representation G' of a planet or star, the sizes of the representations G' being in proportion to the sizes of the planets or stars they represent, and the length of the rods is in proportion to the distances of the planets or stars from the sun.

The rods G are inserted in the periphery of the disk F according to the angle of declination of the planet or star, the said rod being radial to the axis of the shaft E. On the top face of the disk F is arranged a graduation F' for indicating the time of the meridian passage of the planets or stars, the said graduation being provided with the consecutive numerals from "1" to "24," arranged in a circle and in the reverse direction in which the numerals on an ordinary clock-dial are arranged.

On the shaft E, between the disk F and the table C, is held a hub H by a set-screw H', and on this hub is secured a pointer I, indicating on a dial J the twenty-four hours of a day—that is, twelve hours from noon to midnight and twelve hours from midnight to noon.

In order to enable the user of the planetarium to readily set the rods G at the proper angle of declination in the periphery of the disk F, I provide a plate K, formed with a notch K' to fit the said plate on the top, bottom, and periphery of the disk F, as indicated in Fig. 4. On this plate K is arranged a graduation K², indicating the degrees, of which zero is radial from the middle of the disk F, and from zero the graduation runs up north and likewise down, south, as will be readily understood by reference to Fig. 4.

The instrument is used as follows: An observer at any place on the globe places the instrument on the table, so that the base A is perfectly level and the table C stands in a northerly direction. The observer inserts the hook D' at the degree A', indicating the latitude of the place of observation. When this has been done, the several rods G are inserted in the periphery of the disk F, first

relative to the graduation F' according to the time of the meridian passage, and then by the use of the plate K according to the angle of declination of the planet or star. When
 5 the several rods have thus been put in place on the disk F , the latter is turned to swing the pointer I to the hour of the day on the graduation J . The several representations G' of the planets or stars now indicate their
 10 exact location in the heavens.

It will be seen that an observer at any place on the earth can readily indicate the position of the various planets or stars in the heavens to enable scholars and others to at once find
 15 and observe the said planets or stars.

The instrument is very simple and can be readily adjusted and manipulated, as above described.

I do not limit myself to the special construction of base and table shown in Figs. 1 and 2, as the same may be varied, for instance, as shown in Fig. 5, in which the table A^2 is provided with a graduated segment A^3 , on which the table C' indicates the observer's latitude,
 25 the said table after adjustment being secured in place on the segment by a set-screw A^4 . As shown in Fig. 6, a post A^5 , secured on a base or other support, is provided with a graduated segment A^6 , the arm C^2 carrying the
 30 table C^3 , the said arm being pivoted on the post A^5 and is adapted to be fastened on the segment by a suitable device after the adjustment to the observer's latitude is made.

It is understood that as the representations
 35 G' may be those of stars, the device forms a stellarium as well as a planetarium.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent—

40 1. A planetarium, comprising a revoluble disk adapted to be set to an angle corresponding to the latitude of the place of observation, and rods adapted to be inserted in the said disk and carrying at their outer ends the
 45 representations of the planets or stars, each

rod being inserted in the periphery of the disk at an angle equal to the declination of the planet or star it represents, substantially as shown and described.

2. A planetarium, comprising a revoluble
 50 disk adapted to be set to the angle corresponding to the latitude of the place of observation, the said disk being provided on its face with a graduation indicating the time of the meridian passage of the planets or stars, and
 55 rods adapted to be inserted in the periphery of the said disk at an angle corresponding to the angle of declination of the said planet or star, the said rods being inserted in the disk relative to the said graduation at the merid-
 60 ian passage of the planet or star, substantially as shown and described.

3. A planetarium, comprising a base having a graduation indicating the degrees of latitude, a table hinged on the said base and
 65 adapted to be set to the said graduation, a disk mounted to turn on the said table and provided with a shaft indicating the hour of the day on a graduation affixed to the said table, a disk secured on the said shaft and
 70 provided on its face with a graduation indicating the time of the meridian passage of the planets or stars, and rods adapted to be inserted in the said disk and provided at their outer ends with representations of the
 75 planets, the said rods being inserted in the said disk relative to the graduation of the disk and to the angle of declination of the planet or star, substantially as shown and described.
 80

4. A planetarium, provided with a disk, and an angle-plate adapted to be fitted on the said disk to indicate the declination angle of the planet or star, substantially as shown and described.

JAMES M. CHANEY.

Witnesses:

A. F. TACEY,
 W. L. BRYANT.