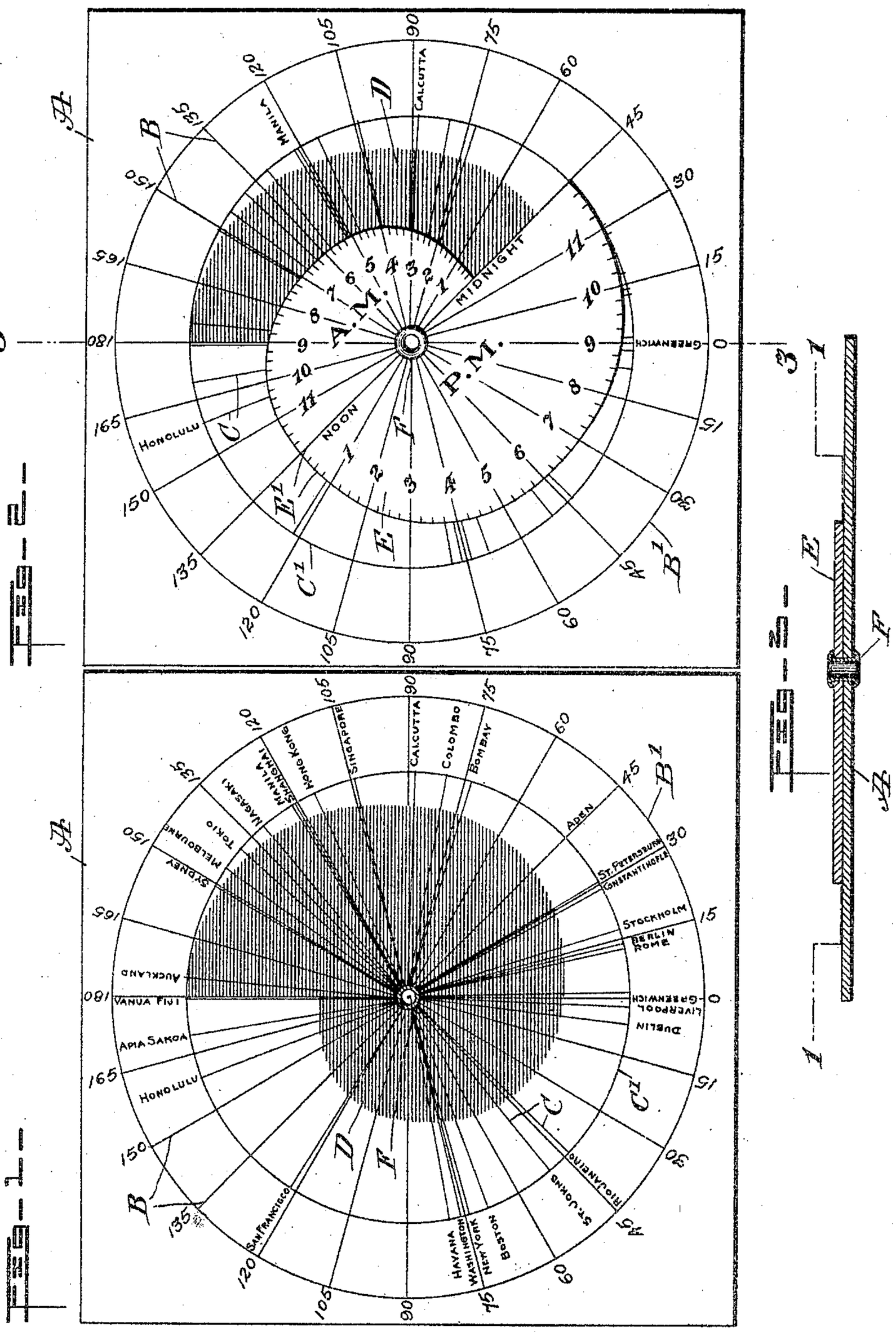
No. 776,297. PATENTED NOV. 29, 1904.

F. J. B. CORDEIRO.

INDICATOR.

APPLICATION FILED MAR. 31, 1904.

NO MODEL.



WITNESSES:

H. C. Talbott

S. H. Church.

INVENTOR

Frederick J. B. Cordeiro

BY Munn & Co

ATTORNEYS

No. 776,297. Patented November 29, 1904.

UNITED STATES PATENT OFFICE.

FREDERICK JOAQUIN BARBOSA CORDEIRO, OF NEW YORK, N. Y.

INDICATOR.

SPECIFICATION forming part of Letters Patent No. 776,297, dated November 29, 1904.

Application filed March 31, 1904. Serial No. 200,978. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK JOAQUIN BARBOSA CORDEIRO, of the United States Navy, a citizen of the United States, and a resident of the city of New York, borough of Brooklyn, in the county of Kings and State of New York, have invented a new and Improved Indicator, of which the following is a full, clear, and exact description.

My invention relates to devices for indicating the time at different points upon the earth's surface, and has for its principal object the provision of such a device from which the desired information may be readily obtained without special computation.

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 horizontal section above the base member of one embodiment of my invention upon the line 1 1 of Fig. 3. Fig. 2 is a top plan view with the indicating member in place upon the base, and Fig. 3 is a transverse section upon the line 3 3 of Fig. 2.

A designates a base, which may be of cardboard or any other suitable material and which, as here shown, is square in form. Upon this base are inscribed points upon the earth's surface, in the present instance consisting of degrees of longitude, indicated by the radii B of a circle B′ and separated by intervals of fifteen degrees. Within this circle, at the termination of the radii C of a concentric circle C′, are also preferably printed such geographical designations as the names of cities, these being placed with regard to their longitude. Upon the base is marked a definite area D, conveniently of a different color from the remainder of the surface and in the form of a logarithmic spiral—that is, a spiral in which the radii increase regularly with the angle. The major axis of this spiral lies in the diameter corresponding to the prime or Greenwich and one-hundred-and-eighty degree meridian and its center coinciding with the common center of the circles. Upon this base A is supported a relatively movable indicating member E, which may also be of cardboard and, as illustrated, is rotatable about a stud F at the center of the circles B′ and C′. This indicating member is similar in form to the area D, being so held in place that it may be turned about its stud to coincide therewith. The indicating member is provided with graduations E′, lying in lines radiating from the center and indicating units of time, such as hours and quarters. Upon the major axis of this indicating member may be inscribed the words "Noon" and "Midnight," the latter being at the longest radius, and upon opposite sides of this axis the letters "A. M." and "P. M." are inscribed, indicating that the hours are antemeridian and postmeridian, respectively.

If desired, to more readily distinguish these opposite sections upon the indicating member they may be tinted in different colors.

Suppose that in the use of my improved indicator for the hour of four p. m. at New York it is desired to learn the time at other cities. The graduation upon the indicating member corresponding to four o'clock in the afternoon is turned to coincide with the graduation marked "New York" or the radius indicating the longitude of that place. This being done, it is only necessary to read from the indicating member the hour or fraction thereof coming opposite the city the time of which is desired. It will be noted that in this position, which is substantially that illustrated in Fig. 2, a portion of the area D will appear between the midnight-line of the indicating member and the one-hundred-and-eighty-degree meridian-line. All times for cities coming opposite this area will be a day ahead of the place from which the time is calculated, while all others will fall upon the date previous. When the area D is entirely covered by the indicating member, the date is the same all over the world.

It will be seen that this indicator may be set instantly and the times read therefrom without further difficulty. This graphic showing makes it of great utility for educational purposes to clearly illustrate the relation of time and longitude and also to business houses to regulate such transactions as the sending of cablegrams.

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

1. The combination with a base having upon

it a series of graduations representing points upon the earth's surface and having a definite area marked thereon, of an indicating member similar in form to said area movable upon the base, and graduated in units of time.

2. The combination with a base having upon it a series of graduations representing points upon the earth's surface, of an indicating member having the form of a convolution of a spiral, and graduated in units of time.

3. The combination with a base having upon it a series of graduations representing points upon the earth's surface, of an indicating member having the form of one convolution of a logarithmic spiral and graduated in units of time.

4. The combination with a base having upon it a series of graduations arranged upon the radii of a circle and representing points upon the earth's surface and provided with an area in the form of a convolution of a spiral with its center coinciding with the center of the circle, of an indicating member possessing the same outline as the base area, rotatable about its center and graduated in units of time.

5. The combination with a base having upon it a series of graduations arranged upon the radii of a circle and representing points upon the earth's surface and provided with an area in the form of a convolution of a spiral with its center coinciding with the center of the circle, of an indicating member possessing the same outline as the base area, rotatable about its center and graduated in units of time, the divisions for post and ante meridian hours lying upon opposite sides of the major axis of the spiral.

6. The combination with a base graduated in degrees of longitude arranged upon the radii of the circle and representing points upon the earth's surface and provided with an area in the form of a convolution of the spiral with its major axis lying in the prime meridian and its center coinciding with the center of the circle, of an indicating member possessing the same outline as the base area rotatable about its center and graduated in units of time.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

FREDERICK JOAQUIN BARBOSA CORDEIRO.

Witnesses:

JULIUS CALMANN,

A. C. BUSHEEDY.