P. KUHNEL.

PLANISPHERES.

No. 174,424. Patented March 7, 1876.

Fig: 1.

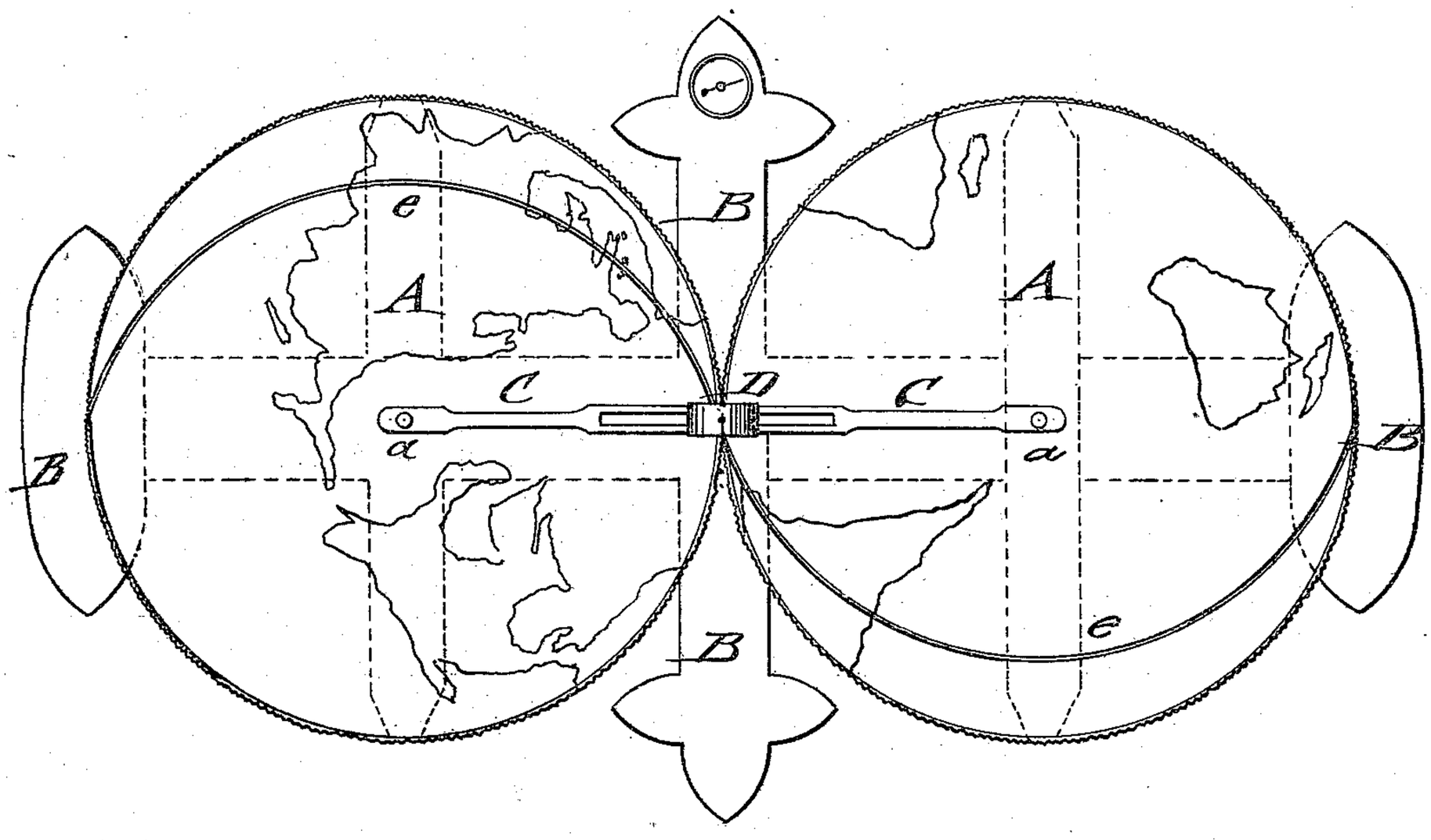

Fig: 2.

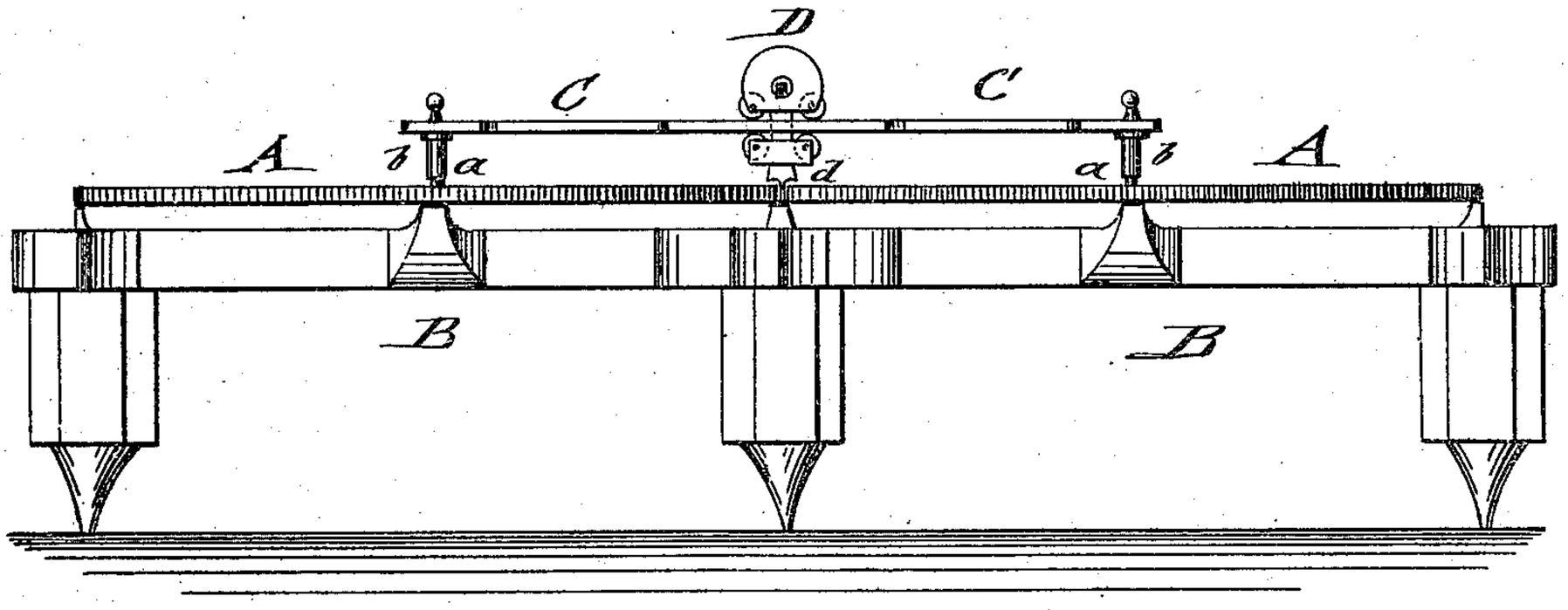

Fig: 3.

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IMPROVEMENT IN PLANISPHERES.

Specification forming part of Letters Patent No. **174,424**, dated March 7, 1876; application filed January 31, 1876.

To all whom it may concern:

Be it known that I, PAUL KUHNEL, of the city, county, and State of New York, have invented a new and Improved Planisphere, of which the following is a specification:

In the accompanying drawing, Figure 1 represents a top view of my improved planisphere; Fig. 2, a side elevation of the same, and Fig. 3 a top view of the latitude-indicating scale.

Similar letters of reference indicate corresponding parts.

The object of my invention is to provide for purposes of instruction, as well as for an elegant parlor or library ornament, an improved planisphere, by which a full and connected view of both the terrestrial and celestial hemispheres is obtained, the course of the sun on the ecliptic, and thereby the increase and decrease of the days and nights during the year illustrated, and also the distance and latitudes of different places on the earth, as well as the steamship connections of the different parts of the globe indicated.

The invention consists of two centrally-pivoted and jointly-revolving disks, provided with polar projections of the two halves of the earth on one side, and polar projections of the heavens on the other side.

The ecliptic is indicated by arc-shaped grooves on both sides of the disks, along which, in connection with a slotted supporting-arm, a movable carriage, representing the sun, is traversing. A graduated scale, seated between the center pivots of the disks, indicates the latitude and distance of any point on the globe.

In the drawing, A A represent two disks of metal or other material, which are mounted by center pivots *a* on a suitable ornamental supporting frame or stand, B. The disks A are provided at one side with a polar projection of the two hemispheres of the globe, and at the other side with polar projections of the northern and southern hemispheres of the heavens, so that by detaching the disks from the pivots and turning the same to either side, a full and connected view of the entire globe or of the heavens is obtained. The disks A are of equal size and touch at any point of their circumference, as their center pivots are placed at a distance from each other equal to the diameter of the disks, as shown in Fig. 1.

The circumference of the disks is either provided with intermeshing gearing or friction-bands, or connected by any other equivalent means, so that by turning one of the disks on its center pivot the other is jointly rotated therewith around its center pivot. This admits of the connection of any desired point on the equator to show clearly the connection of the land, sea, commercial lines, &c., and allow a correct measuring of the distances thereon.

The main advantage of the planisphere is that it exposes both hemispheres to view at one and the same time, which is not possible in the common globes in use, as only one-half of the earth can be seen thereon at the same time. The convenience by which transatlantic steamship, telegraph, and other connections can be shown, and be vividly impressed on the mind of the scholar, will be readily perceived. The center pivots *a* are connected by a slotted connecting-bar, C, placed detachably thereon by sockets *b* fitting the pivots *a*.

A movable carriage, D, represents the sun, and traverses the slotted bar by means of a spur, *d*, that engages arc-shaped grooves *e* at both sides of each disk, which represents the the ecliptic. The disks are so joined that the grooves of the ecliptic run together at their ends and admit the traversing of the sun-carriage D from one disk to the other.

The position of the carriage on the grooved ecliptic circle illustrates the increase and decrease of the days and nights over the two hemispheres during the year, showing by the movement of the disks the position of the sun in every month of the year.

The graduated scale E fits by its recessed ends to the center pivots *a*, and is thereby held stationary while the disks revolve, indicating thus the latitude of any place and the distances of different places.

The whole device forms an apparatus of great utility and perspicacy for illustrating the geography of the earth and of the heavens, and explaining the course of the sun through the ecliptic.

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

1. A planisphere, made of two centrally-pivoted and jointly-revolving disks of equal size, for exhibiting a full and connected map of the terrestial and celestial hemisphere, substantially in the manner and for the purpose set forth.

2. The centrally-pivoted and jointly-revolving disks, provided with arc-shaped grooves representing the ecliptic circle, in combination with the traversing-carriage, having spur running in the grooves, substantially for the purpose set forth.

3. The combination of the center pivots of the disks, with the slotted connecting-bar, having a traversing-carriage placed thereon for guiding the same from one disk to the other, substantially as set forth.

PAUL KUHNEL.

Witnesses:
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