

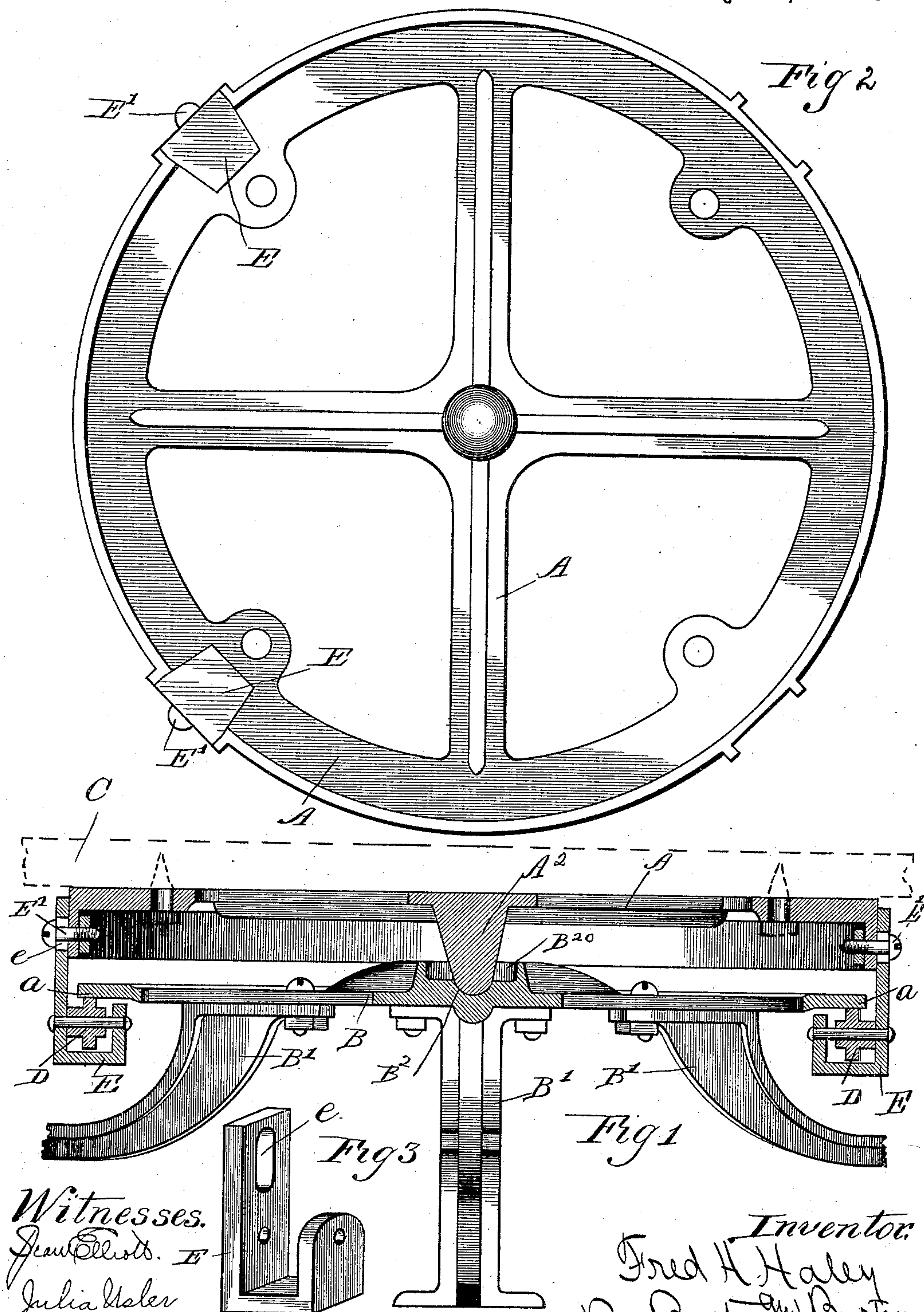
(No Model.)

2 Sheets—Sheet 1.

F. H. HALEY.
REVOLVING BOOK CASE.

No. 474,556.

Patented May 10, 1892.



Witnesses.
J. H. Ells. *E*
Julia Hale

Inventor.
Fred H. Haley
By Burton W. Burton
his atty.

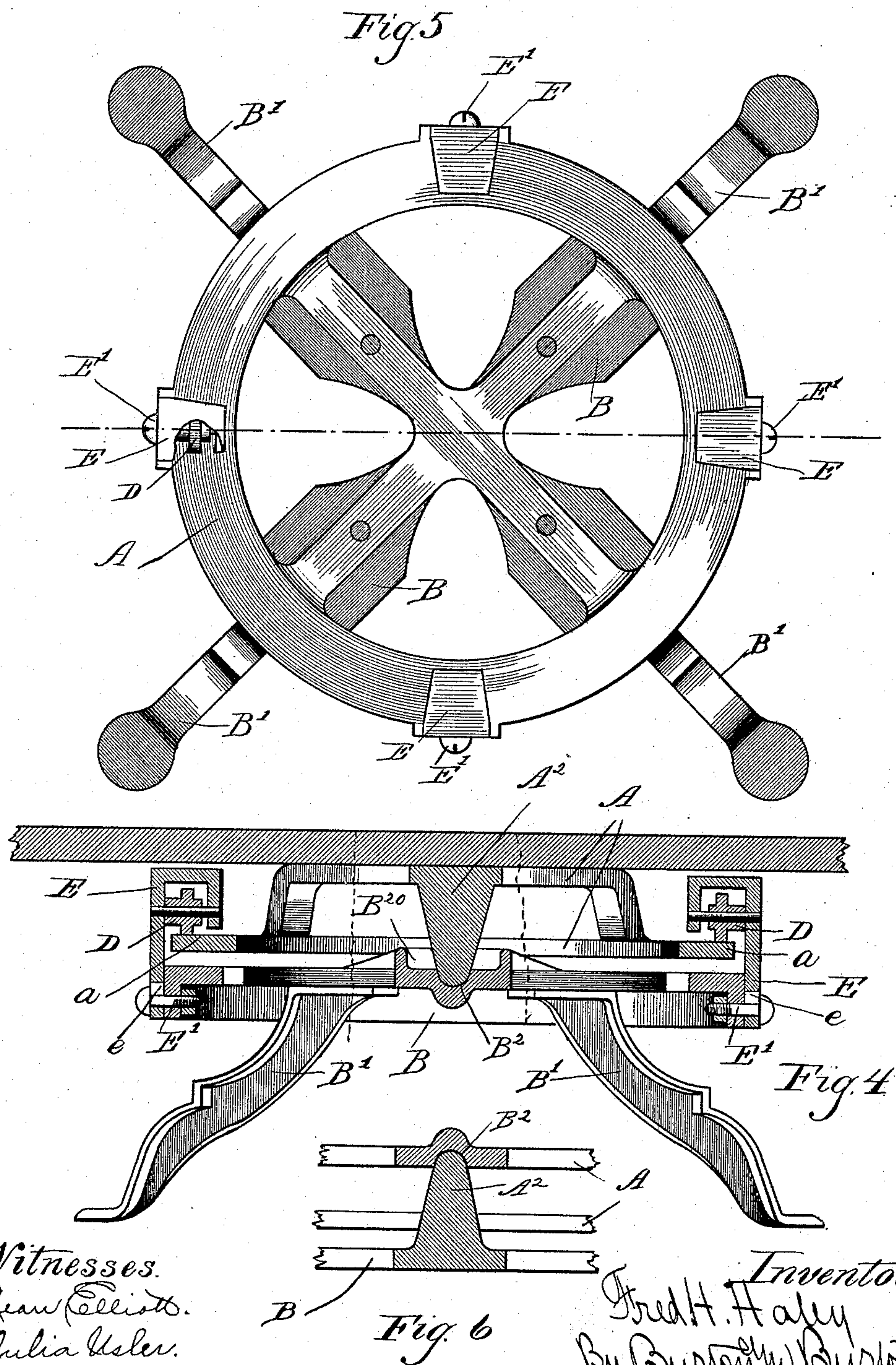
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UNITED STATES PATENT OFFICE.

FRED H. HALEY, OF MANITOWOC, WISCONSIN, ASSIGNOR, BY MESNE ASSIGNMENTS, TO IDA M. HALEY, OF HAMILTON, ILLINOIS, AND CHAS. E. DARROW, OF KIRKSVILLE, MISSOURI.

REVOLVING BOOK-CASE.

SPECIFICATION forming part of Letters Patent No. 474,556, dated May 10, 1892.

Application filed September 7, 1891. Serial No. 404,964. (No model.)

To all whom it may concern:

Be it known that I, FRED H. HALEY, a citizen of the United States, residing at Manitowoc, county of Manitowoc, and State of Wisconsin, have invented certain new and useful Improvements in Revolving Book-Cases, which are fully set forth in the following specification, reference being had to the accompanying drawings, forming a part thereof.

In the drawings, Figure 1 is a central vertical section through a base designed for a revolving book-case embodying my invention. Fig. 2 is a bottom plan of the revolving base. Fig. 3 is a perspective of a stirrup, of which several are employed to hold anti-friction pulleys and retain the revolving base on the fixed base. Fig. 4 is a view similar to Fig. 1, showing certain modifications. Fig. 5 is a top plan of the structure shown in Fig. 4, omitting the bottom plank of the case. Fig. 6 is a detail of the central part of the device, showing the relative positions of the spindle and socket reversed.

All devices of this class encounter the necessity of providing against cramping the vertical bearing of the revolving case when it is unequally loaded. A long vertical spindle extending up through the case is a familiar means, and roller or ball bearings in a circle around a short central spindle, the revolving case resting its weight on the rollers or balls which travel in a track on the base, is another means.

My present invention presents a third means, simpler in construction than the last mentioned and more stable than the first, and having certain other advantages over both, which will appear from the description.

B is the fixed base, having secured to it legs or feet B' B', &c.

A is the revolving base, which may constitute or be secured to the bottom of the case. It is illustrated in a form adapted to be secured to the bottom of a wooden case, whose bottom plank is represented in dotted line C in Fig. 1. The fixed and the revolving bases have at their centers, respectively, the one a spindle and the other a socket or seat for such spindle. As illustrated in the principal figures, the spindle is on the revolving base,

and therefore projects from its under side and is denoted by the letter A², and the seat or socket is on the upper side of the fixed base and denoted by the letter B². An advantage of making the socket in the fixed base is that thereby it holds oil and may be surrounded by an oil-cup B²⁰; but I do not limit myself to this relative disposition of the spindle and socket, and in Fig. 6 I have illustrated the reverse arrangement. In any case the socket need be only deep enough to seat the point of the spindle for the purpose of centering the revolving base with respect to the fixed base, and I prefer to make the end of the spindle and the socket hemispherical rather than conical or pointed, so that the spindle shall not bind laterally at all in such seat, although, as will hereinafter appear, I arrange so that even if the spindle and its socket were elongated it would not be liable to be cramped or made to bear severely against the sides of its socket.

The fixed base B extends horizontally beyond the circle at whose circumference the legs B' B' set off downward from said base, and is circular at its periphery, and on the under side just within its periphery it has the circular track *a*. Said bases have the one a plurality of bearings for anti-friction rollers D D D D and the other a track for such rollers on the side remote from the base to which they pertain. In Figs. 1 and 2 the rollers have their bearings on the revolving base, and the track *a* is therefore on the under side of the fixed base, and in Figs. 4 and 5 the arrangement is reversed and the rollers are journaled on the fixed base and overhang a track on the upper side of the revolving base. In both constructions hangers or stirrups E E E are provided to afford the bearings for the rollers and are made detachable from the base to which they are attached, and the bolt-holes *e*, through which the fastening-bolts E' are inserted, are elongated vertically, so that the hangers may be adjusted to level the revolving base and bring all the rollers simultaneously into contact with the track *a*. The hangers or stirrups E necessarily in both constructions extend through or past the horizontal plane of the track *a*, because that track

must be on that side of the base to which it pertains, which is remote from the base which has the hangers.

The characteristic of this construction, which distinguishes it from a common roller or ball bearing, is that the weight of the case does not rest primarily nor generally upon the pulleys or rollers, but upon the spindle and its seat, the rollers or pulleys receiving only the pressure which may result from unequal loading of the case, which would tip it to either side but for the restraining presence of the retaining-rollers and their track, and it is distinguished from those constructions which employ a comparatively long vertical spindle on the end of which the case rests and about which it is adapted to turn and which are stayed laterally by the bearing of the case about the spindle at its lower end, whether with or without anti-friction devices, by the fact, first and chiefly, that the stability of such cases is dependent upon having a comparatively long spindle, since in any event the distance of the seated end of the spindle from the horizontal plane of the circle at which the case bears laterally upon the spindle must be large relatively to the diameter of such circle, and the employment of a long spindle, which must protrude up through the center of the case, not only makes a more expensive construction of the case almost inevitable, but restricts the design and arrangement of shelving, &c., in the case to such forms as do not involve open spaces extending across the center, whereas by my invention, the horizontal plane of the track α being very near to the horizontal plane of the seated end of the spindle at which the weight of the case is received by the support and the radius of said track being large relatively to its distance from said seated end, the entire mechanism of the support is comprised within very short vertical compass, nothing protruding more than the necessary diameter of the anti-friction rollers and their supporting brackets or hangers. It is also distinguished from those cases which, being supported on a long vertical spindle, are stayed by lateral bearing against the spindle at a point remote from the seated end by the fact that the anti-friction rollers engage above and below the track, according to whether their hangers are fastened to the lower or upper base, and thereby constitute connection between the two bases, which prevents the case and upper base from being lifted off from the lower base, whereas the known construction above mentioned does not secure the two parts together, and if it is desired to prevent the case from being lifted off from the base it is necessary to provide special means to prevent such detachment.

I claim—

1. In a revolving case, in combination, a fixed base and a revolving base, the one hav-

ing a short spindle and the other a socket or seat for the end of such spindle, such spindle and seat being, respectively, on the proximate faces of the two bases, the one base being provided with a track in a circle about the axis of the spindle on that side of such base which is remote from the other base and proximate to the plane of the seated end of the spindle, the radius of such track being large relatively to its distance from said seated end and the other base being provided with bearings for anti-friction rollers, and rollers journaled therein adapted to roll on said track, substantially as set forth.

2. In a revolving case, in combination, a fixed base and a revolving base, the one having a short spindle and the other a socket or seat for the end of that spindle, such spindle and seat being, respectively, on the proximate faces of the two bases, the one being provided with a track in a circle about the axis of the spindle at that side of such base which is remote from the other base and the other base being provided with hangers or stirrups which extend outside the periphery of the base which has such track, and rollers journaled in such hangers or stirrups and adapted to roll in contact with the track, substantially as set forth.

3. In a revolving case, in combination, a fixed base and a revolving base, the one having a short spindle and the other a socket or seat for the end of that spindle, such seat and spindle being, respectively, on the proximate faces of the two bases, the one being provided with a track in a circle about the axis of the spindle on that side of such base which is remote from the other base and proximate to the plane of the seated end of the spindle, the radius of such track being large relatively to its distance from said seated end and the other base being provided with hangers or stirrups which extend through or across the plane of such track and are vertically adjustable with respect to the base to which they pertain.

4. In a revolving case, in combination, substantially as set forth, a fixed base having a central upwardly-open socket and a revolving base having a downwardly-projecting spindle stepped in such socket, one of said bases having a track in a circle about the axis of the spindle and socket on that side of such base which is remote from the other base and socket and proximate to the plane of the seated end of the spindle, the radius of such track being large relatively to its distance from said seated end, and the other base having hangers or stirrups which extend through or across the plane of such track, and rollers journaled in such hangers or stirrups and adapted to roll in contact with the track.

5. In combination, substantially as set forth, the fixed base having the central socket B^2 and the peripheral downwardly-facing track α , the revolving base having the spindle

stepped in said socket, and the hangers D, depending rigidly from the revolving base outside the periphery of the fixed base and underhanging the same, and the rollers journaled in such hangers under the said track and adapted to roll in contact with the same.

In testimony whereof I have hereunto set my

hand, at Chicago, Illinois, in the presence of two witnesses, this 28th day of August, 1891.

F. H. HALEY.

Witnesses:

CHAS. S. BURTON,
JEAN ELLIOTT.