

G. E. ANDERSON.

HINGE.

APPLICATION FILED NOV. 6, 1903.

Fig. 1.

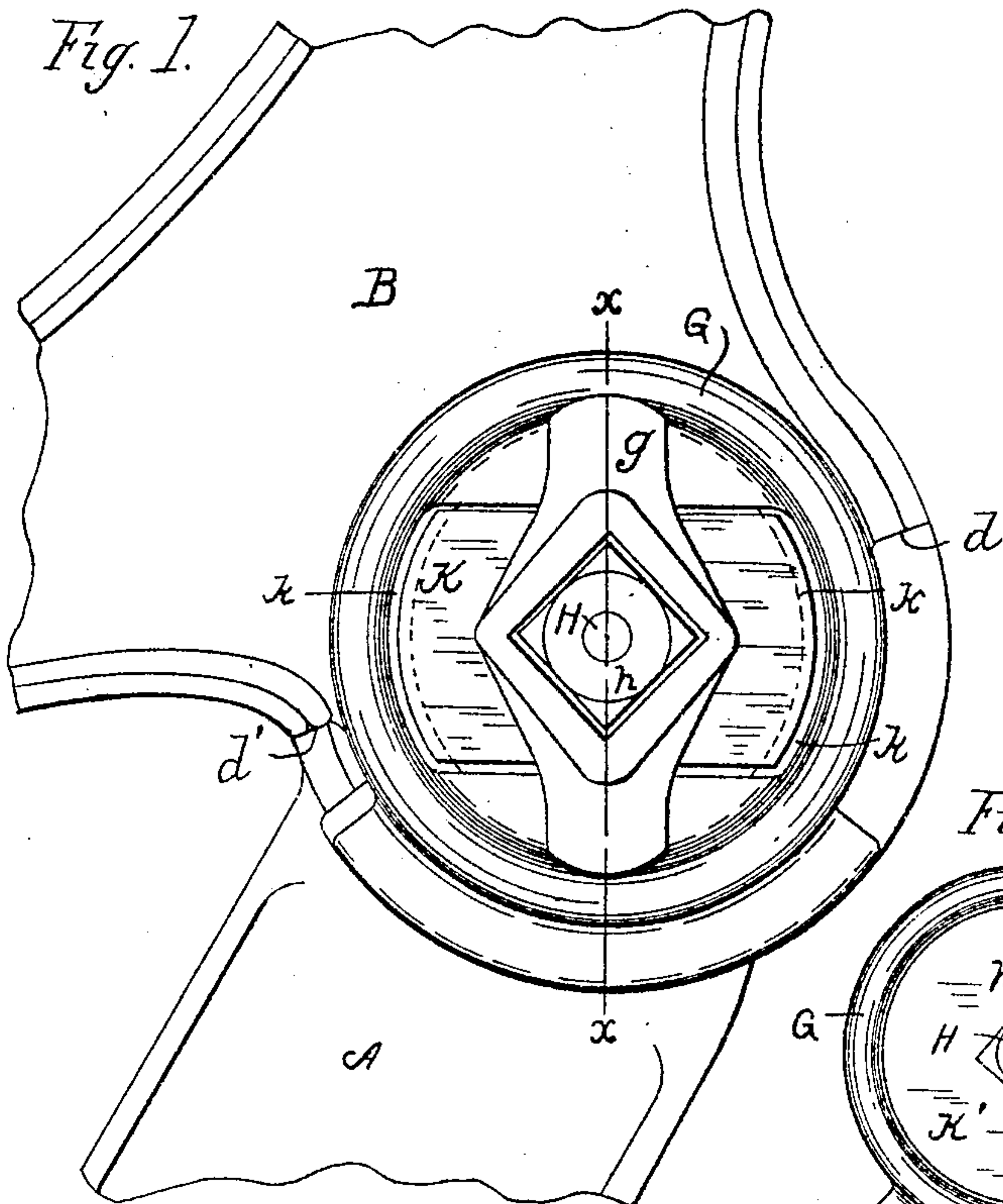


Fig. 3.

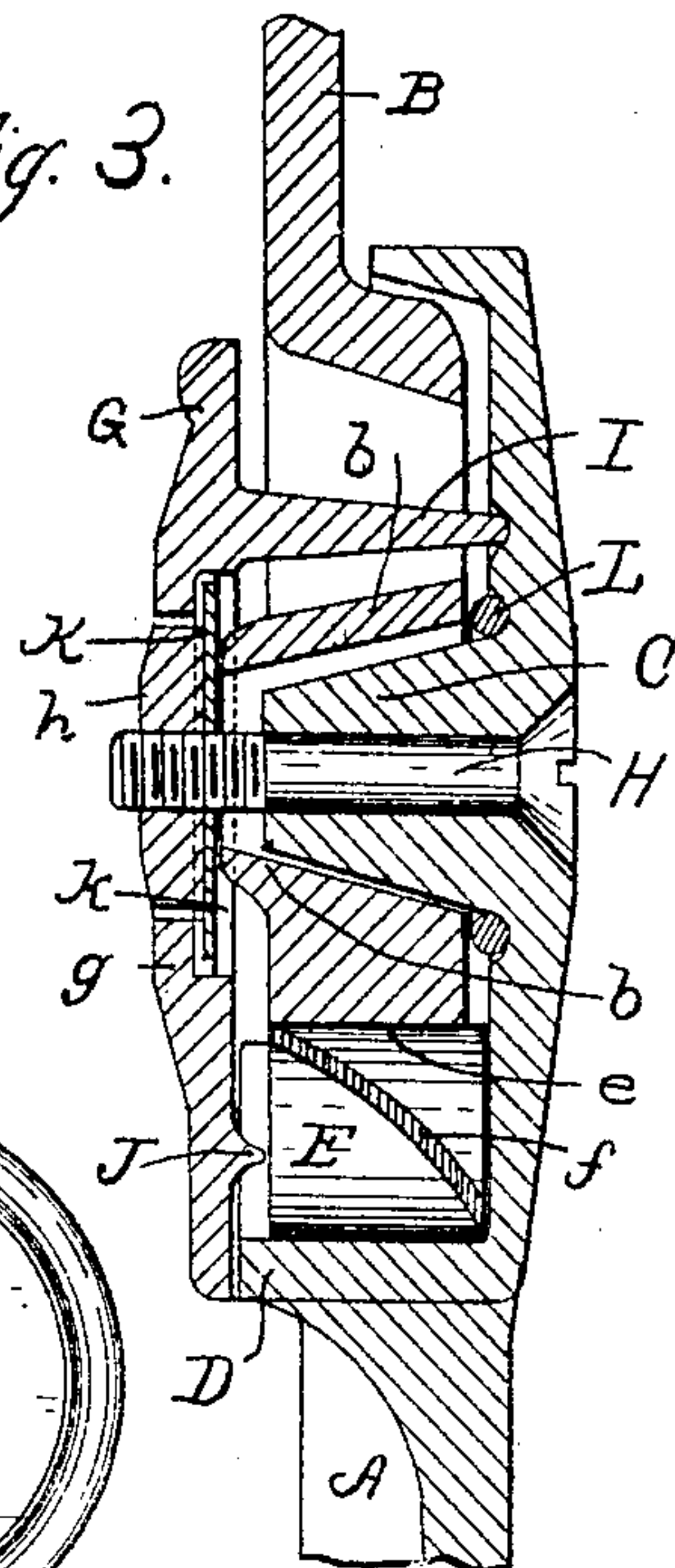


Fig. 5.

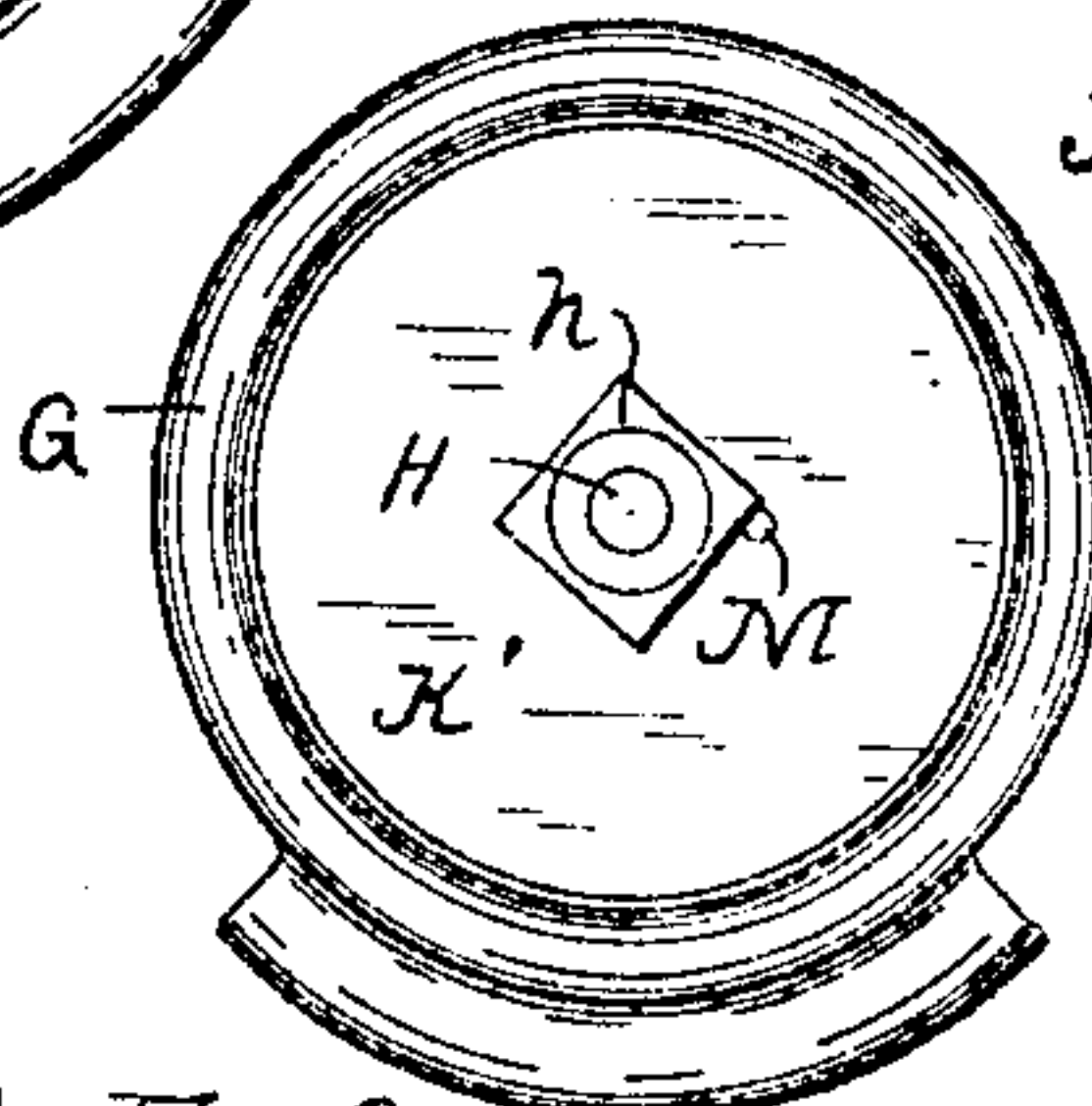


Fig. 2.

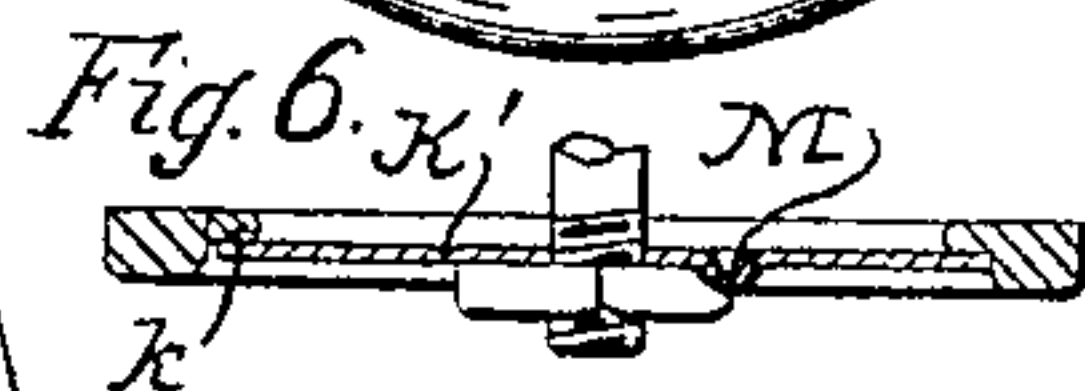
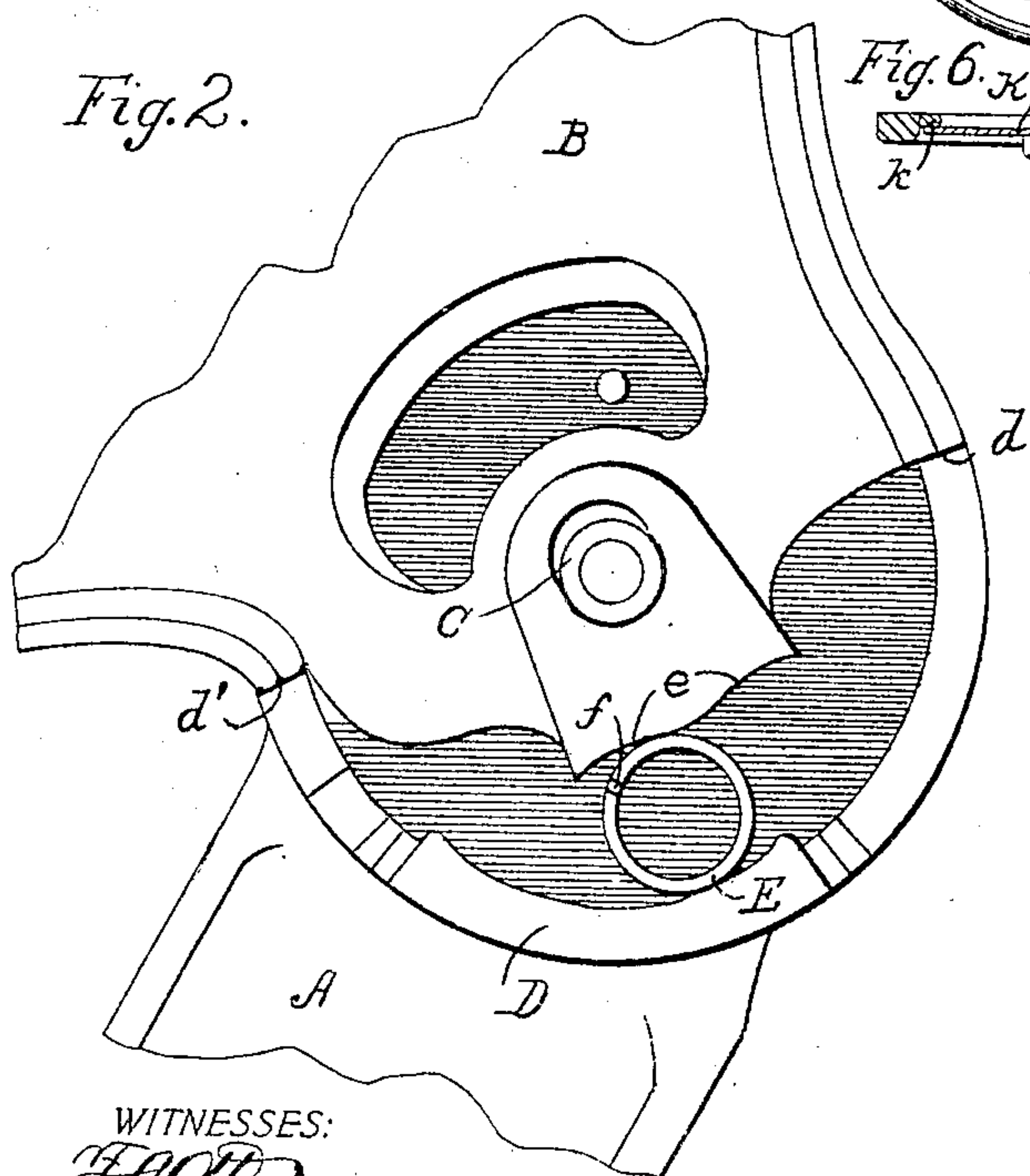
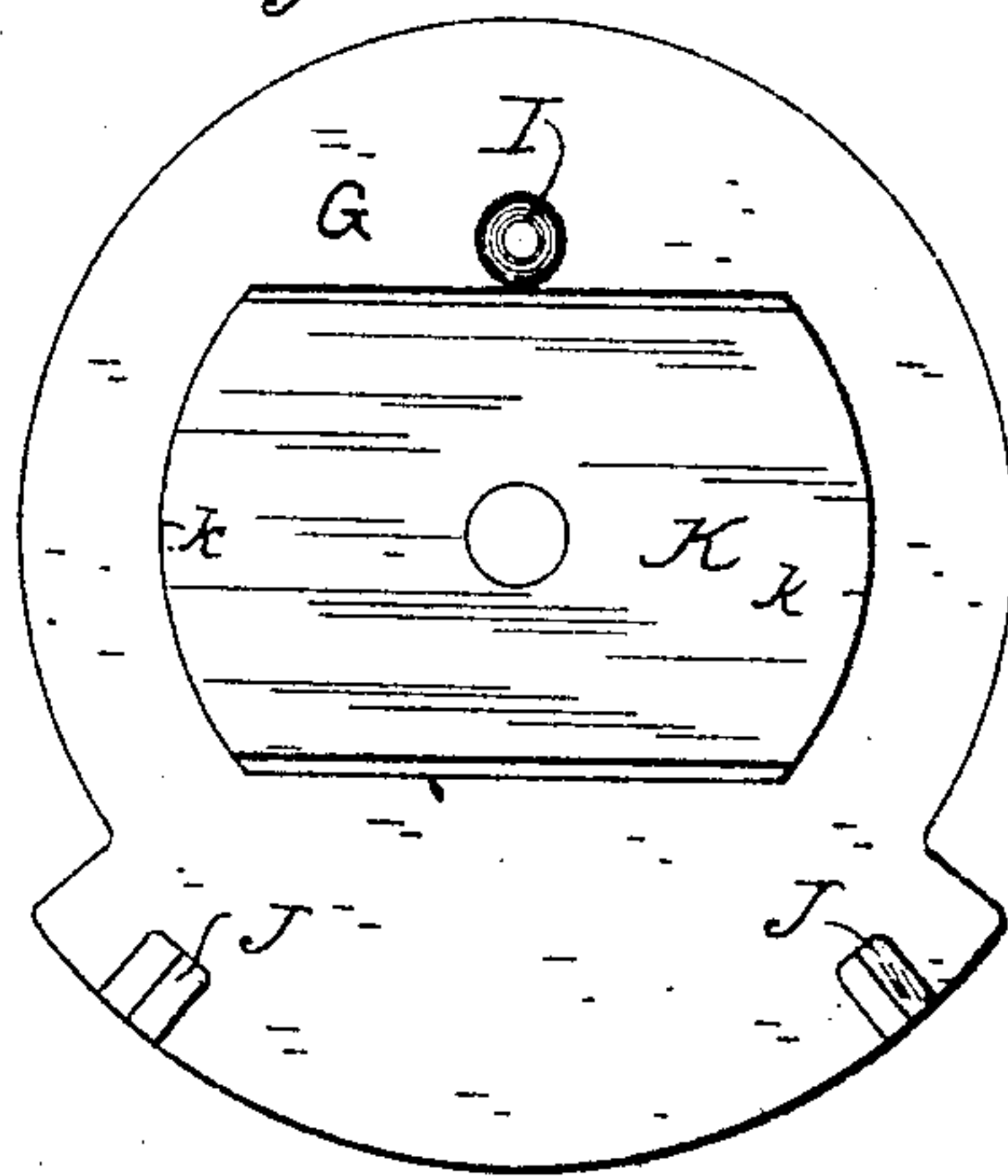


Fig. 4.



WITNESSES:

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UNITED STATES PATENT OFFICE.

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HINGE.

No. 805,515.

Specification of Letters Patent.

Patented Nov. 28, 1905.

Application filed November 6, 1903. Serial No. 180,029.

To all whom it may concern:

Be it known that I, GEORGE E. ANDERSON, a citizen of the United States, residing at Milwaukee, county of Milwaukee, and State of Wisconsin, have invented new and useful Improvements in Hinges, of which the following is a specification.

My invention relates to improvements in hinges or pivotal bearings for the seats of school-desks, opera-chairs, and other similar purposes; and it pertains more especially, first, to the construction of the metallic roller-cushion or cylindrical stop by which the movement of the seat upon its pivotal supports is stopped when moved to its limit in either direction without shock or noise; second, to the means employed for taking up wear between the contiguous bearing-surfaces of the hinge; third, to the device for retaining the bearing-surfaces of the seat-supporting brackets or arms in contact with the metallic cushion, whereby such parts are caused to move together and the noise otherwise incident to raising and lowering the seat is avoided, and, fourth, to the general construction and arrangement of the parts by which a single bolt of ordinary construction for each hinge serves to hold the several parts of the hinge in place, to take up the wear of the pivotal bearings of the hinge, to hold the bearing-surfaces of the seat-supporting arms firmly against the roller-cushion, and to retain all the bearing-surfaces of the hinge in their proper relative position to each other.

My invention is further explained by reference to the accompanying drawings, in which—

Figure 1 is a view of the inner side of my improved hinge, showing a portion of a seat-supporting bracket and a portion of the stationary seat-supporting arm. Fig. 2 is a similar view with the clamping-plate of the hinge removed. Fig. 3 represents a vertical section drawn on line *xx* of Fig. 1. Fig. 4 is a view of the inside face of the clamping-plate, showing the spring-plate. Fig. 5 is a view of a modified form of clamping-plate. Fig. 6 is a cross-sectional view of the same.

Like parts are identified by the same reference-letters throughout the several views.

A represents the seat-supporting arm of one of the end frames of the desk or chair, which end frames are supported from the floor, to

which they are usually secured. It will be understood that reversely-arranged duplicates of the parts shown are required at both ends of the desk or chair.

B is the seat-supporting bracket, which is pivotally supported from the arm A. The arm A is provided with an integrally-formed bearing-cone C, which projects into a corresponding conical socket in the hub *b* of the bracket B. The arm A is provided with a segmental shoulder-flange D, the respective ends of which are adapted to engage shoulders at *d d'* on the bracket B and limit the oscillatory movement of the bracket upon the bearing-cone C. A resilient cushion-cylinder E is interposed between the shoulder-flange D and a bearing-face *e* at the lower edge of the bracket B, the object of this cushion being to prevent contact or to relieve the shock which would otherwise result from the contact of shoulders *d* with the flange D when the seat is oscillated from one position of adjustment to another.

The bearing-face *e* is formed with two slightly-concave recesses for the reception of the cylinder E in the two positions of seat adjustment and is also formed with an intermediate convex portion, which is adapted to increase the pressure upon the cylinder E when the seat is being adjusted from one position to the other, whereby the cylinder E tends to hold the seat in either its raised or lowered position and offers a moderate resistance to its movement from one position to the other.

The extremities of the bearing-face *e* and the extremities of the shoulder-flange D converge, so that when the cylinder E is near these extremities the pressure thereon is greatly increased. It is obvious that when the seat-bracket B is swung the cylinder E will be caused to roll on the flange D, and the construction is such that the cylinder E will reach a point near the extremities, where it will bind sufficiently to check the movement of the seat and relieve the shock of contact between the shoulder *d* (or *d'*) and the corresponding end of the shoulder-flange D. The cylinder E is preferably formed of a sleeve of steel or other resilient metal split or slitted along a spiral line, as shown at *f*, the object of the spiral trend of the slit being to prevent the edges from catching.

The bracket B and arm A are held in position by a clamping-plate G and pivot-bolt H.

The upper portion of the clamping-plate is provided with a pin I, which enters a socket in arm A, and the lower portion of the clamping-plate is provided with V-shaped projections J, which enter counterpart recesses in the shoulder-flange D. These interacting projections prevent the clamping-plate from rotating. A flexible plate K is adjusted to the clamping-plate G, the same extending underneath the web-bar *g*, with its ends resting upon the inwardly-projecting flanges *h h*. The pivot-bolt H passes through the plate K, and the web-bar *g* is apertured to permit the nut *h* to bear directly upon the surface of plate K and press the same against the hub *b* with the degree of pressure required to keep the bracket from wobbling. The nut fits the aperture in the bar *g*, which prevents the nut from turning, the pivot-bolt being screwed into the nut from the other side. The bolt may be adjusted from time to time to take up the wear, as the plate K will yield inwardly under the pressure of the nut.

L is a ring adjusted to the arm A at the base of the cone C and furnishing an end bearing for the hub *b*.

Referring to Figs. 5 and 6, it will be observed that the web-bar *g* is omitted and a circular disk K' substituted for the plate K. The disk is provided with a projection at M to prevent the nut from turning. As the nut is drawn inwardly by the pivot-bolt the disk is dished or sprung inwardly into contact with the hub. The plate K (or disk K') is preferably formed of resilient material, so that a slight loosening of the pivot-bolt will not loosen the clamping-plate.

It will be observed that the socket in the hub *b* is somewhat larger than the cone C, and the cushion-cylinder E is of sufficient size to support the bracket B, with the hub *b* bearing resiliently against the under side of the cone. The reactionary pressure upon the cyl-

inder is sufficient to insure its rolling movement on the shoulder-flange D.

It will of course be understood that sufficient space is left between the opposing surfaces of the stationary parts of the hinge to permit of the required adjustment of said conical bearing-block and its inclosing bearings to each other from time to time as such contiguous moving parts become worn.

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

1. In a device of the described class, the combination of pivotally-connected members; a segmental recess between said members radial to the pivotal connection; and a resilient cushion in said recess in direct contact with the opposing surfaces of the members, said surfaces being formed to converge at the ends of the line of roller travel, together with a clamping device rigidly secured to one of the members, and having a resilient member bearing against the other member axially to the pivotal connection.

2. In a device of the described class, the combination of a supporting stationary member; a stationary clamping member rigidly bound to the stationary member; an oscillatory member pivotally secured between the supporting member and the clamping member; a resilient member connected with the stationary member, a pivot-bolt arranged to draw said resilient member against the oscillatory member and a resilient roller located between said members in yielding contact with the same.

In testimony whereof I affix my signature in the presence of two witnesses.

GEORGE E. ANDERSON.

Witnesses:

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