No. 622,314. Patented Apr. 4, 1899.

J. WORTHINGTON.

STOP HINGE.

(Application filed May 16, 1898.)

(No Model.)

Fig. 1.

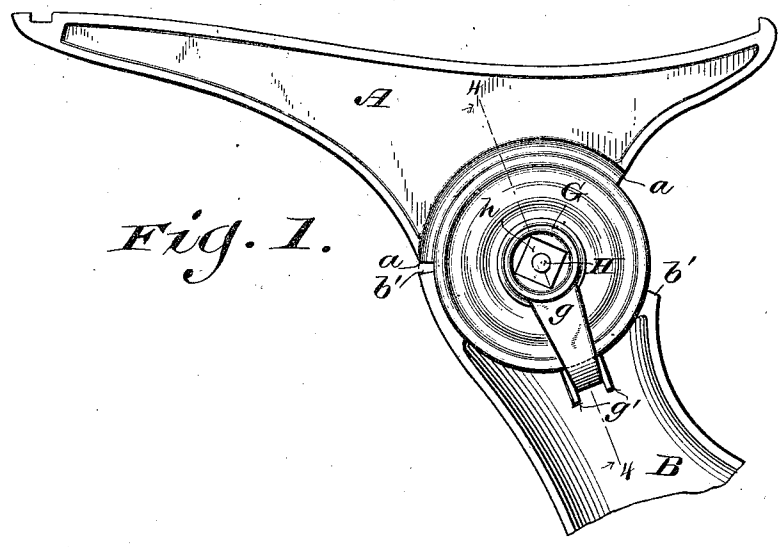


Fig. 2.

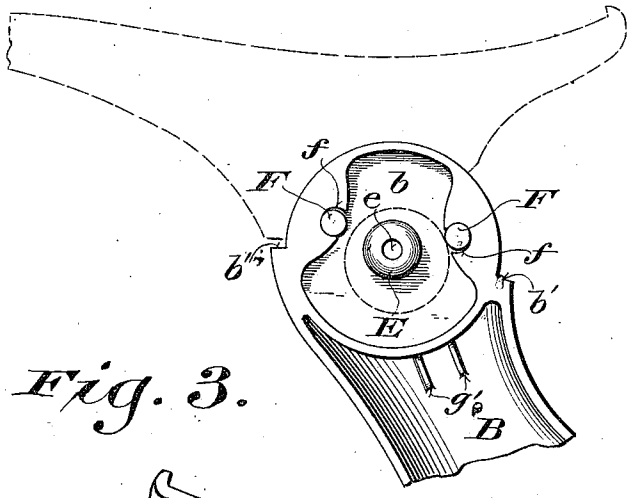
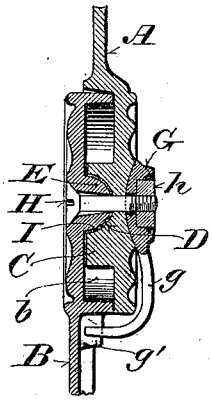
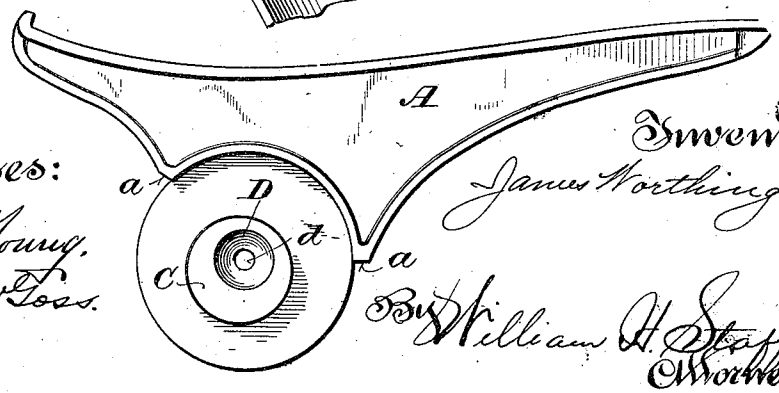


Fig. 3.

Fig. 4.





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UNITED STATES PATENT OFFICE.

JAMES WORTHINGTON, OF MANITOWOC, WISCONSIN, ASSIGNOR TO THE MANITOWOC SEATING COMPANY, OF SAME PLACE.

STOP-HINGE.

SPECIFICATION forming part of Letters Patent No. 622,314, dated April 4, 1899.

Application filed May 16, 1898. Serial No. 680,783. (No model.)

To all whom it may concern:

Be it known that I, JAMES WORTHINGTON, a citizen of the United States, residing at Manitowoc, in the county of Manitowoc and State of Wisconsin, have invented certain new and useful Improvements in Stop-Hinges, of which the following is a specification, reference being had to the accompanying drawings forming a part thereof.

My invention relates to hinged or jointed supports for folding seats and other fixtures or articles of furniture with folding or adjustable parts. Its main object is to prevent shock, jar, and noise when the seat or other folding or adjustable part is turned from one position into the other; and it consists generally in the construction and combinations of parts hereinafter particularly described, and pointed out in the claims.

In the accompanying drawings like letters designate the same parts in the several figures.

Figure 1 is an inside elevation of a jointed seat-support embodying my invention. Fig. 2 is a like view of the lower or stationary part of the support, the upper or movable part being indicated by dotted lines. Fig. 3 is a reverse or outside elevation of the upper or movable part detached from the lower or stationary part, and Fig. 4 is a vertical cross-section of the two parts through their connecting-hinge or pivot-joint. For the purpose of illustration I have shown and described my invention as embodied in a folding seat-support.

The seat-support consists of two parts A and B. The upper or movable part A, to which the seat is attached, is formed on one side of an approximately-circular depending portion with an eccentric or boss C and with a central socket D and bolt-hole *d*, as shown in Fig. 3. The lower or stationary part B, which is formed with or attached to a stand or base adapted to rest upon a floor, is formed on one side of its approximately-circular upper portion with a central boss E and bolt-hole *e*, as shown in Fig. 2. The boss E is fitted and adapted to turn in the socket D of the part A, as shown in Fig. 4. This boss and socket may be made cylindrical conical, or of any other suitable shape instead of spherical, as shown.

The part B is formed around the boss E with a recess or cavity *b* to receive the eccentric C. It is also formed on approximately-opposite sides of said boss with pockets *f f*, opening into said recess or cavity toward the periphery of the eccentric C. Rollers F F are inserted in and project from these pockets in position to engage said eccentric and limit its movement in either direction. The openings through which they project are contracted, thereby loosely holding them in place therein. These rollers may be made of steel or other hard metal and may be cylindrical, as shown, or spherical, or any other suitable shape that is round in cross-section.

G is a bearing having a rounded face fitted in a corresponding central depression in the inner face of part A opposite the socket D. It is formed with a curved or angular arm *g*, which extends downwardly around the lower edge of part A and is engaged at its end by lugs *g' g'* on part B.

H is a bolt passing through the holes *d* and *e* in parts A and B and threaded in the bearing G or in the nut *h*, with which it is provided, as shown in Figs. 1 and 4. This bolt secures the parts of the support together, with the movable part A between the stationary part B and the bearing G.

To reduce friction, a thin brass or other suitable washer I may be fitted and interposed between the boss E and its socket D, as shown in Fig. 4.

The upper part A is formed with shoulders *a a*, which serve with corresponding opposing shoulders *b' b'*, formed on the lower part B, as safety-stops to arrest the movement of the seat in both directions in case the eccentric C and rollers F F become worn or are broken or misplaced and fail to act.

My improved device operates as follows: When the movable part A, with the seat, is unfolded or turned down into the position shown by full lines in Fig. 1 and indicated by dotted lines in Fig. 2, the eccentric C will engage with the roller F at the right, as shown in Fig. 2, thereby carrying it into the upper part of the pocket *f*, in which it is held, and

arresting the downward movement of the seat without shock, jar, or noise. When the part A, with the seat, is folded or turned up, the roller F at the left, as shown in Fig. 2, will be engaged in like manner by the eccentric C and carried into the upper part of the pocket, in which it is held, thereby arresting the folding movement of the seat. At the same time the eccentric C, moving out of contact with the roller F at the right, allows it to drop into the lower part of its pocket *f*.

Various changes in the minor details of construction and arrangement of parts may be made without departing from the spirit and intended scope of my invention—as, for instance, the eccentric C may be applied to the part B and the rollers F F to the part A, the boss E may be applied to the part A and fitted to turn in a socket in the part A, and the bearing G may be made with a concave instead of a convex face, the adjoining face of the part A being correspondingly changed.

I claim—

1. A stop-hinge consisting of two parts pivoted together and provided, one with an eccentric and the other with pockets which are arranged on opposite sides of said eccentric, and rollers loosely but constantly held in said pockets and adapted by engagement with said eccentric to limit its movement in both directions at the desired points, without shock, substantially as and for the purposes set forth.

2. A stop-hinge consisting of two parts pivoted together and provided on their adjoining faces, one with an eccentric and the other with a recess to receive said eccentric and with pockets on opposite sides thereof, and rollers loosely but constantly held in said pockets and adapted by engagement with said eccentric to limit its movement in either direction without shock, substantially as and for the purposes set forth.

3. A stop-hinge consisting of two parts, of which one has a boss and the other a corresponding socket to receive the same, a bolt connecting said parts, which are provided on their adjoining sides, one with an eccentric and the other with pockets on opposite sides of said eccentric, and rollers loosely but constantly held in said pockets and adapted by engagement with said eccentric to limit its movement in both directions without shock or noise, substantially as and for the purposes set forth.

4. A stop-hinge consisting of a stationary and a movable part, of which one has a boss and the other a corresponding socket to receive the same, a bearing fitted to the movable part opposite and concentrically with said boss and socket and having an arm or projection engaged with the stationary part, a bolt passing through said bearing and the stationary and movable parts of said hinge concentrically with said boss and socket and securing them together, the parts of the hinge being provided on their adjoining faces, one with an eccentric and the other with a recess to receive said eccentric and with pockets on opposite sides thereof, and rollers loosely but constantly held in said pockets and adapted by engagement with said eccentric to limit the movement of one part of the hinge with reference to the other in both directions, substantially as and for the purposes set forth.

5. A stop-hinge consisting of two pivotally-connected parts, one of which is provided with an eccentric, and the other, with a pocket having a contracted opening presented toward the periphery of said eccentric, and a roller loosely held in and projecting from said pocket in position to engage with said eccentric and limit the movement of one part of the hinge with r spect to the other, substantially as and for the purposes set forth.

In witness whereof I hereto affix my signature in presence of two witnesses.

JAMES WORTHINGTON.

Witnesses:
CORNELIUS MADSON,
R. H. MARKHAM.