

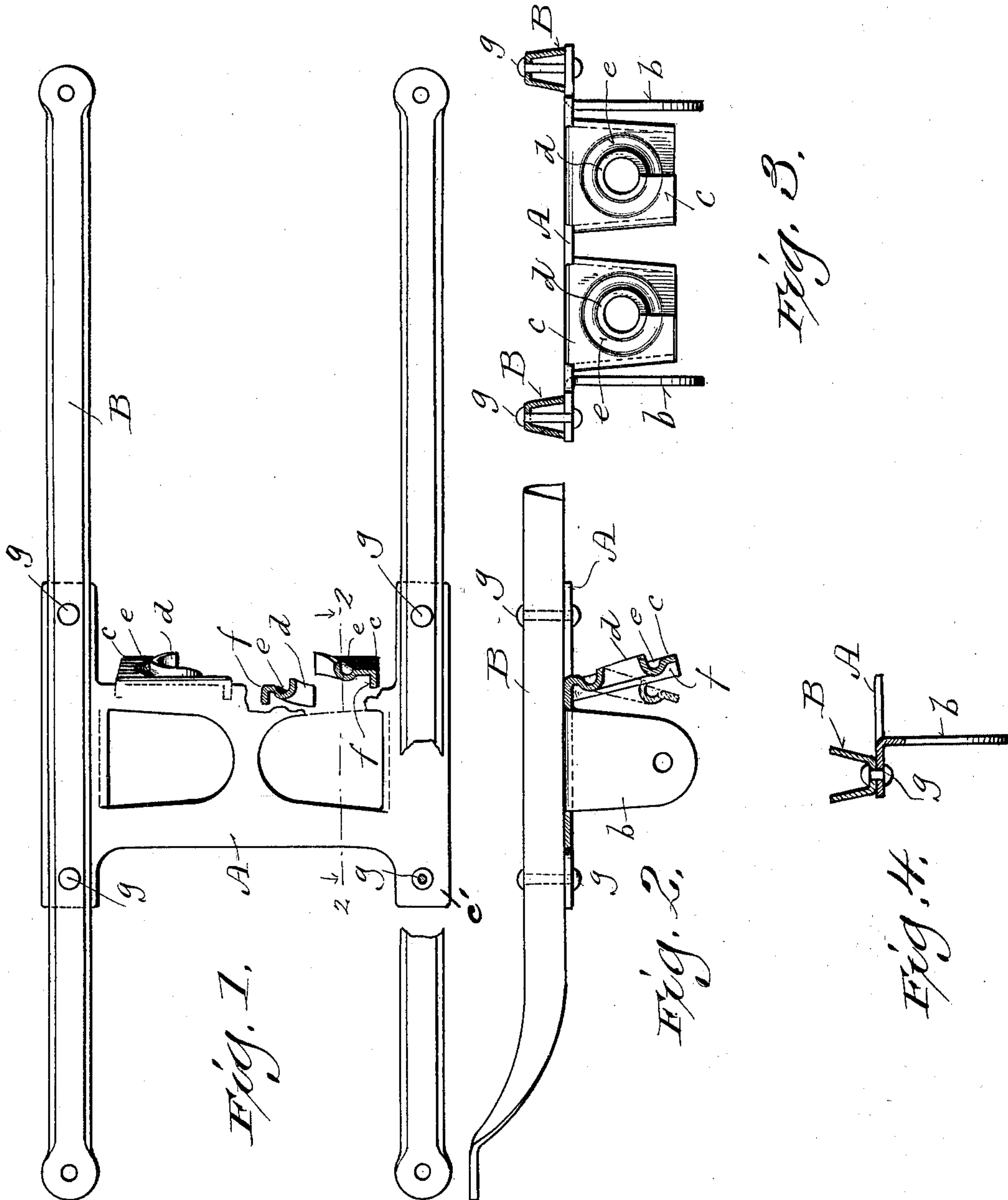
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PATENTED FEB. 3, 1903.

H. W. BOLENS.
SEAT SPIDER.

APPLICATION FILED MAR. 22, 1901.

NO MODEL.



Witnesses
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UNITED STATES PATENT OFFICE.

HARRY W. BOLENS, OF PORT WASHINGTON, WISCONSIN.

SEAT-SPIDER.

SPECIFICATION forming part of Letters Patent No. 719,730, dated February 3, 1903.

Application filed March 22, 1901. Serial No. 52,306. (No model.)

To all whom it may concern:

Be it known that I, HARRY W. BOLENS, a citizen of the United States, and a resident of Port Washington, in the county of Ozaukee and State of Wisconsin, have invented certain new and useful Improvements in Seat-Spiders; and I do hereby declare that the following is a full, clear, and exact description thereof.

My invention has for its object to provide simple, economical, and durable all-sheet-metal tilt-seat spiders for the chair and stool trade, said invention consisting in certain peculiarities of construction and combination of parts hereinafter particularly set forth with reference to the accompanying drawings and subsequently claimed.

Figure 1 of the drawings represents a plan view of an all-sheet-metal seat-spider in accordance with my invention, partly broken away; Fig. 2, a partly-sectional view of the spider on the plane indicated by line 2 2 in the first figure; Fig. 3, a rear elevation of said spider, partly in transverse section; and Fig. 4 a sectional view of a portion of the aforesaid spider, illustrating one of its arms in a position reverse to that of those shown in the other views.

Referring by letter to the drawings, A indicates the spreader, and B the arms of my improved all-sheet-metal seat-spider. The spreader is primarily a flat sheet-steel blank of such gage as may be found best suited to my purpose. Struck out from the blank and downwardly bent is a pair of bent-down side ears *b*, provided with pivot-apertures near their lower ends. Similarly formed from the blank are rear ears *c*, the angle of these ears being preferably obtuse to the horizontal portion of the spreader. Each ear *c* is apertured and swaged thereabout to form a conically-flanged opening *d*, this flange being extended from an annular groove *e*, surrounding said opening, and also obtained by swaging said ear. Each ear *c* is also split from the bottom edge upwardly through its flanged opening *d* and groove *e*, a portion of said ear adjacent to the split being struck forward a limited distance to offset it from the other portion, whereby provision is had for the proper seating of one end of a spiral tension-spring, such as is common to tilt-seat chairs

and stools, the openings in the spreader formed by striking out the side pivot-ears *b* being utilized as play-spaces for stop-ears of an ordinary tilt-seat standard. The ears *c* are bent at their side edges to form longitudinal flanges *f* that extend under and bearing against the upper horizontal portion of the spreader and thus said ears are braced against the tension-springs for which they are utilized as supports.

It will be observed that the ears *b* are struck downwardly from a metal blank and between its opposite side edges or, in other words, within its edges or area. The result is that there are formed by the remaining undisturbed portions or ends of said blank and beyond the ears a pair of transversely-horizontal seats *c'*, designed to support the spider-arms B. Any means for attachment—such, for instance, as rivet-holes—may be formed at proper points in said seats.

The partly or semi tubular or substantially U-shaped spider-arms B are so located on the seats that the strain to which they are subjected is equally borne by the opposite walls thereof or, in other words, may be said to be vertically through the axis of the arm and also through the vertical axis of the arm. By such terms, therefore, as employed in the claims I mean a spider-arm the strain upon which is borne equally by the opposite walls thereof, to secure which such arm must either rest upon its convexed side with its walls upwardly disposed or upon its edges with its convexed side uppermost, so that the weight of the occupant of the seat will be vertically down through the center of the arm and be disposed to each of the opposite walls thereof.

Each arm B of the spider is sheet-steel swaged to approximate a U or V shape in cross-section for the greater portion of its length and may be inverted on the horizontal portion of the spreader or otherwise, as preferred, both ways being shown. The arms may be held in place on the spreader by rivets *g* or other convenient means and are bent to have their ends at a greater elevation than the remainder thereof, these ends being flattened and apertured for the engagement of fastening devices by which they are held snug against the under side of a seat. The arms are curved between their ends and at or near

their centers may be slightly flattened or otherwise shaped to adapt them to conform to the seats *c'*.

The tilt-seat spider herein set forth is not only economical and strong, but all parts thereof will withstand blows, vibrations, and other causes detrimental to the ordinary cast-metal seat-spiders, while at the same time the general appearance of my improved all-sheet-metal spider is similar to those cast-metal spiders that are most familiar to the chair and stool trade.

While I have shown my improved seat-spider as made with a pair of rear ears as supports for a like number of tension-springs, it is practical to make said spider with but one such ear central of same for the support of a single tension-spring, this being a matter that depends entirely on the demands of the trade.

The approximately V-shaped flute-arms are preferably flat-bottomed and have the greatest area of the metal in their side walls, the latter being as nearly vertical as possible in order to attain the utmost rigidity. By flattening the bottoms of the flute-arms the holes therein for the rivets *g* or other fastening devices may be punched full round and clean, and said arms will have a sufficient area of contact with the spreader or the head of a fastening device accordingly as said arms are edge up or inverted.

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

1. In a seat-spider, the combination with a spreader provided with opposite flat seats, of a pair of sheet-metal spider-arms mounted on said seats, each of said arms terminating in attaching ends and between the same comprising in cross-section opposite vertical side walls and a transverse connecting-wall.

2. In a seat-spider, a spreader provided with laterally-horizontal flat seats, and spider-arms formed of sheet metal substantially U-shaped or partly tubular in cross-section adapted at their ends for attachment to a chair-seat and between their ends mounted on and secured to the seats of the spreader, said spider-arms being so disposed with relation to the spreader as to receive strain vertically and equally through its opposite side walls.

3. In a seat-spider, a spreader provided with flat seats, and substantially U-shaped or partly-tubular spider-arms formed of sheet metal and supported on said seats between the ends of said arms, said spider-arms being so disposed with relation to the spreader as will cause the strain to which they are subjected to pass vertically and equally through the opposite walls of said arms, which latter terminate in attaching ends.

4. In a chair-spider, a spreader provided with horizontal seats, and spider-arms formed of sheet metal, inverted-U shape in cross-section and having its edges between its ends resting upon said seats, whereby a vertical

strain will be equally distributed to the opposite walls of the said spider-arms, the said spider-arms terminating in attaching ends.

5. In a chair-spider, the combination with a spreader, provided with flat horizontal seats, of spider-arms of substantially U shape or semitubular in cross-section and between their ends secured to said seats and having their edges resting thereon, said arms being adapted at their ends for attachment to a chair-seat.

6. The herein-described spreader for chair-spiders, the same formed of sheet metal, and having a central horizontal portion, and opposite downwardly struck and disposed perforated ears formed between the front and rear edges thereof, and spider-arm-receiving seats formed on the spreader beyond the point from which the ears are struck.

7. The herein-described spreader for chair-spiders, the same formed of a single piece of sheet metal, and comprising a flat central portion, a rear depending spring-supporting ear formed between the side edges of the blank, opposite depending side ears formed within the edges of the blank, and spider-arm-supporting seats beyond said ears and produced by the unbent end portions of the blank.

8. In a spider for chairs, the herein-described integrally-formed sheet-metal spreader, the same comprising opposite depending perforated side ears adapted to receive the usual supporting-pivot, and rear depending ears provided with flanged openings and surrounding grooves adapted to receive the tension bolts and springs.

9. In a spider for chairs, a sheet-metal spreader, comprising a means for receiving the usual supporting-pivot, and at one edge provided with a depending tension-bolt and spring-receiving ear provided with side flanges bent rearwardly under the base of the spreader to form stops and limit the rearward movement of said ear.

10. In a chair-spider, a sheet-metal spreader, provided at its front edge with a depending, inclined, tension-bolt and spring-receiving ear, and means for limiting the rearward movement of said ear.

11. In a chair-spider, the combination with the spreader having the opposite depending pivot-receiving ears, the front depending tension-bolt-receiving ears, and the opposite laterally-horizontal seats *c'*, of spider-arms seated on the seats *c'* and riveted thereto, said arms being formed of sheet metal substantially U-shaped in cross-section, shaped on their under sides to fit the seats *c'*, and adapted at their ends for attachment to a chair-seat.

12. A tilt-seat spider comprising a primarily-flat sheet of metal having a pair of bent-down pivot-ears struck out therefrom, a bent-down, apertured, flanged and annularly-grooved ear split through the flange and groove thereof, one portion of the latter ear adjacent to the split being offset from the other portion.

13. A tilt-seat spider comprising a spreader
consisting of a sheet of metal having depend-
ing pivot-ears and flanged tension-springsup-
port, the flanges of said support being ex-
5 tended under the horizontal portion of the
spreader.

In testimony that I claim the foregoing I

have hereunto set my hand, at Milwaukee, in
the county of Milwaukee and State of Wis-
consin, in the presence of two witnesses.

HARRY W. BOLENS.

Witnesses:

N. E. OLIPHANT,

B. C. ROLOFF.