No. 754,413. PATENTED MAR. 15, 1904.

H. W. BOLENS.

SEAT SPIDER.

APPLICATION FILED APR. 22, 1901.

NO MODEL.

Fig. 1.

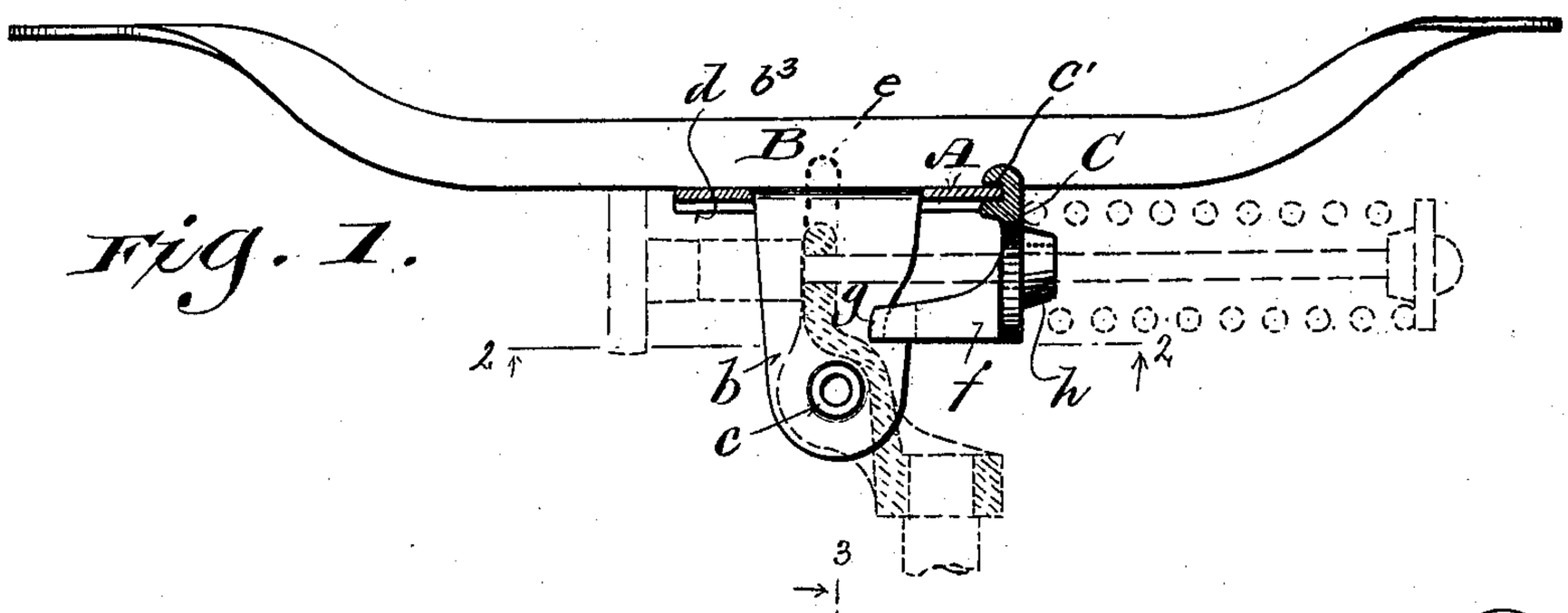


Fig. 2.

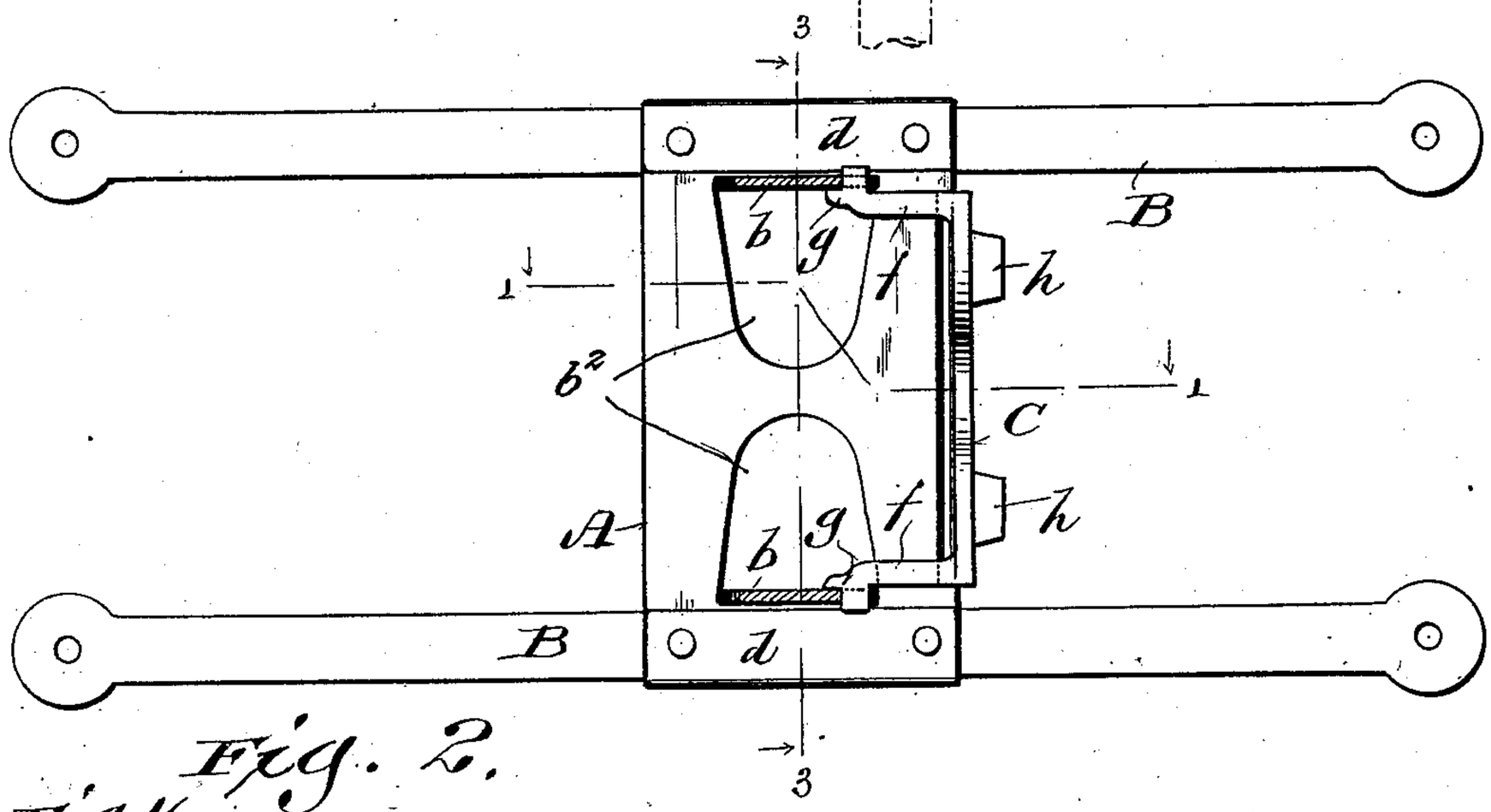


Fig. 4.

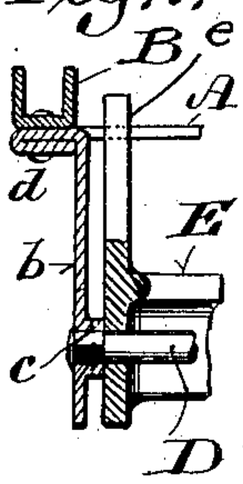


Fig. 5.

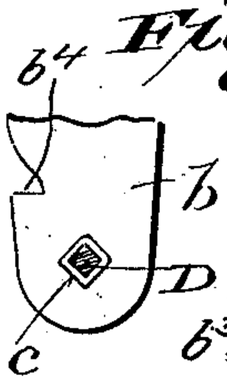
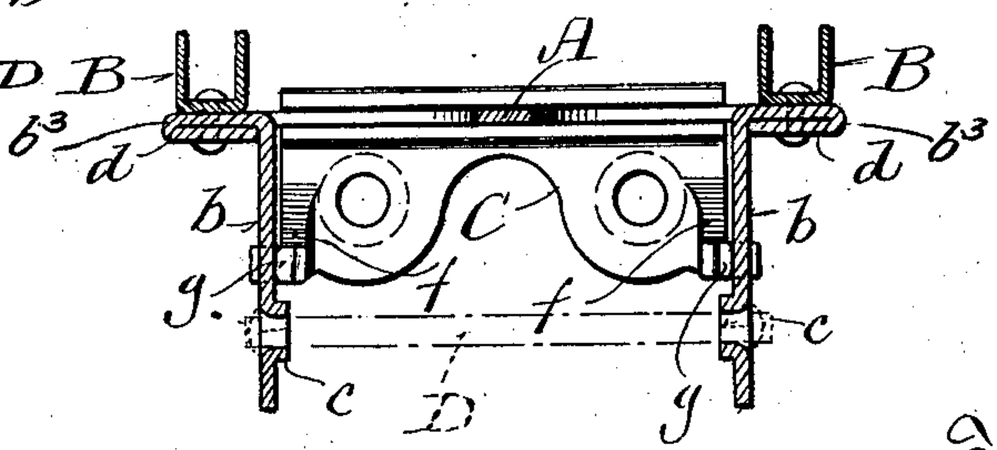


Fig. 3.



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No. 754,413. Patented March 15, 1904.

UNITED STATES PATENT OFFICE.

HARRY W. BOLENS, OF PORT WASHINGTON, WISCONSIN.

SEAT-SPIDER.

SPECIFICATION forming part of Letters Patent No. 754,413, dated March 15, 1904.

Application filed April 22, 1901. Serial No. 56,875. (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 the chair and stool trade with simple, economical, and durable seat-spiders, especially tilt-seat spiders, each of which preferably comprises a sheet-metal spreader, sheet-metal arms, and a cast-metal spring-support, 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 vertical longitudinal section view of a tilt-seat spider in accordance with my invention, this view being indicated by lines 1 1 in the second figure of the series, other adjacent parts of chair-iron mechanism being shown by dotted lines; Fig. 2, a plan view of the spider inverted and partly in horizontal section on the plane indicated by line 2 2 in the first figure; Fig. 3, a transverse sectional view of said spider on the plane indicated by line 3 3 in the second figure, and Figs. 4 and 5 fragmentary partly sectional views illustrating a preferred connection of a spreader-ear of the aforesaid spider with a pivot-rod that has its bearings in a tilt-seat standard.

Referring by letter to the drawings, A indicates the spreader, and B each of the arms of a tilt-seat spider in accordance with my invention, these parts being preferably swaged from primarily flat sheet-steel blanks of suitable gage. Herein shown struck out from the spreader are a pair of bent-down side ears *b*, provided with apertures bounded by inwardly-extending flanges *c*, that serve to increase surface area of the ears to the rod by which the spider and standard of a chair or stool are pivotally connected. The openings b^2 in the spreader formed by striking out the ears *b* are utilized as play-spaces for stop-ears *e* of an ordinary tilt-seat standard, one of these stop-ears being shown in Fig. 4. Outward from the ears *b* the metal at the opposite sides of the spreader-blank is folded under and upon itself to form rigid seats b^3. The spider-arms B are secured upon said seats b^3 by rivets or other suitable means, and the under folded portions *d* of the spreader-blank being extended inward against the ears *b*, as is shown in Fig. 3, the seats for the arms B are braced by said ears to further increase the rigidity. Corresponding edges of the ears *b* may be provided with notches b^4, adapted to receive oppositely rearwardly disposed end flanges *f* of a bridge-piece C, having an upper groove C′ formed in the rear face near its upper edge. This groove is engaged by a longitudinal edge of the spreader A aforesaid. The flanges *f* may be provided with stop-lugs *g*, that abut the inner sides of spreader-ears *b*, and the bridge-piece C may be provided with as many perforated lugs *h* as there are spiral tension-springs to be employed in connection with a tilt-seat spider made in accordance with my invention, each lug constituting a support for one end of such a spring. The flanges *f*, with their stop-lugs, and the bar C, with one spring-supporting lug or plurality of same, as herein shown, are preferably cast integral. As shown by Figs. 4 and 5, the aperture and flange *c* of each spreader-ear *b* are preferably angular, and the corresponding end of a pivot-rod D is made to fit snug therein, the otherwise round portion of the rod being loose in bearings with which the standard E of a tilt-seat is provided, said end of said rod being upset outside said ear to make the joint permanent, or for knockdown shipment the rod may be in the form of a headed bolt engaged at one end with a nut or key-pin outside of the adjacent spreader-ear. By having the spreader-ears in angular fit on the pivot-rod it is obvious that the entire spreader and said rod move together when the seat is tilted.

While I have shown a preferred form of bridge-piece, the same may be varied somewhat in matters of detail without departure from my invention, and it is not absolutely

essential that the spreader-ears be notched as above specified.

Each arm B of the spider is preferably of approximate ⌊ shape or angular in cross-section for the greater portion of its length and may be set on the seats b^3 of the spreader A, as herein shown, or inverted, and in either case its ends are 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 spider-arms B, being of the described ⌊ shape in cross-section, with the greatest area of the metal in their vertical walls, they are very rigid, and the apertures for rivets or other fastening devices may be punched in the wide flat horizontal portions of said arms and will be full, round, and clean. Whether said arms be edge up or inverted, they have sufficiens area of contact with the spreader A or the heads of the fastening devices by reason of their flat transverse portions.

The tilt-seat spider herein set forth is light in proportion to its strength and will withstand blows, vibrations, and other causes detrimental to the ordinary all-cast-metal seat-spiders, its general appearance being similar to those all-cast-metal spiders most familiar to the chair and stool trade.

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 comprising depending side flanges or ears, of a separate spring-receiving bridge-piece supported by said ears independent of the swivel-support.

2. In a seat-spider, the combination, with a spreader provided with opposite depending side flanges having notches, of a spring-receiving bridge-piece seated in said notches.

3. In a seat-spider, the combination with a spreader provided with opposite depending side flanges having notches, of a spring-receiving bridge-piece seated in said notches and between the same connected to the spreader.

4. In a seat-spider, a sheet-metal spreader having its opposite ends doubled upon themselves to form reinforced seats for the spider-arms, and between said seats provided with depending ears, in combination with spider-arms secured to the said seats, and a swiveled support pivoted to said depending ears.

5. In a seat-spider, a sheet-metal spreader provided between its ends with downwardly-struck ears and beyond the same provided with seats for the spider-arms, combined with spider-arms secured to said seats, and a support pivotally connected to said depending ears.

6. In a chair-spider, the combination with a spreader provided with depending ears at opposite sides of its center, of an independent transverse spring-supporting bridge-piece spanning the distance between the ears, connected to the same and to the spreader at a point between the ears, and a swiveled support connected to said ears.

7. In a chair-spider, a spreader having depending ears provided in their edges with notches, a spring-supporting bridge-piece engaging said notches and provided with a groove receiving the longitudinal edge of the spreader, and spider-arms supported by the spreader.

8. In a chair-spider, a sheet-metal spreader, having depending ears struck out from between the ends thereof, said spreader beyond the arms being folded upon itself to form reinforced seats and terminating against the ears, combined with a spring-supporting bridge-piece, and spider-arms mounted on the spreader.

9. In a seat-spider, a sheet-metal spreader having depending ears, in combination with a spring-supporting bridge-piece, comprising a bar, provided with end flanges having lugs and provided with an upper groove, the said groove receiving and engaging the longitudinal edge of the spreader, and the end flanges engaging the ears, and the lugs of the flanges abutting against said ears, and spider-arms mounted on the spreader.

10. In a seat-spider, a sheet-metal spreader having depending ears, the stock of which the spreader is formed being folded upon itself and terminating against said ears, combined with spider-arms seated on the folded ends of the spreader, and means for securing the same thereto.

11. In a chair-spider, the combination with a sheet-metal spreader, having downwardly and outwardly struck depending ears, forming openings b^2, and adjacent thereto providing seats, of spider-arms secured to the seats, a bridge-piece adapted to receive the tension bolt and spring, and a swiveled support pivoted between the depending ears and provided with stop-lugs entering the openings b^2 of the spreader.

12. In a chair-spider, the combination with a spreader, having depending ears and openings b^2, and adjacent thereto provided with seats, of spider-arms secured to the seats, a bridge-piece adapted to receive the tension bolt and spring and a swiveled support pivoted between the depending ears and provided with stop-lugs entering the openings b^2 in the spreader.

13. In a seat-spider, the combination with a spreader comprising depending securing flanges or ears, of an independent spring-receiving bridge-piece engaging said spreader between said ears.

14. In a seat-spider, the combination with

a spreader comprising depending securing flanges or ears, of an independent spring-receiving bridge-piece engaging said spreader between said ears and at its ends resting against said ears.

In testimony that I claim the foregoing I have hereunto set my hand, at Milwaukee, in the county of Milwaukee and State of Wisconsin, in the presence of two witnesses.

HARRY W. BOLENS.

Witnesses:
N. E. OLIPHANT,
B. C. ROLOFF.