No. 755,560. PATENTED MAR. 22, 1904.

H. W. BOLENS & C. J. TRAVERS.

SHEET METAL CHAIR IRON.

APPLICATION FILED FEB. 29, 1903.

NO MODEL. 3 SHEETS—SHEET 1.

Fig. 1.

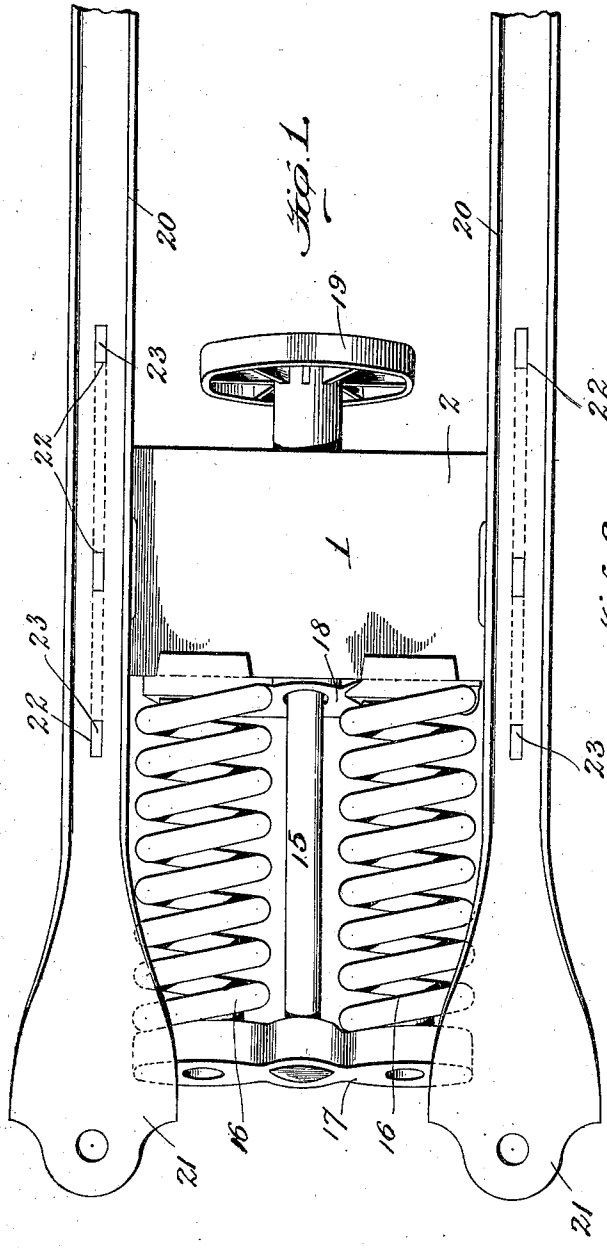
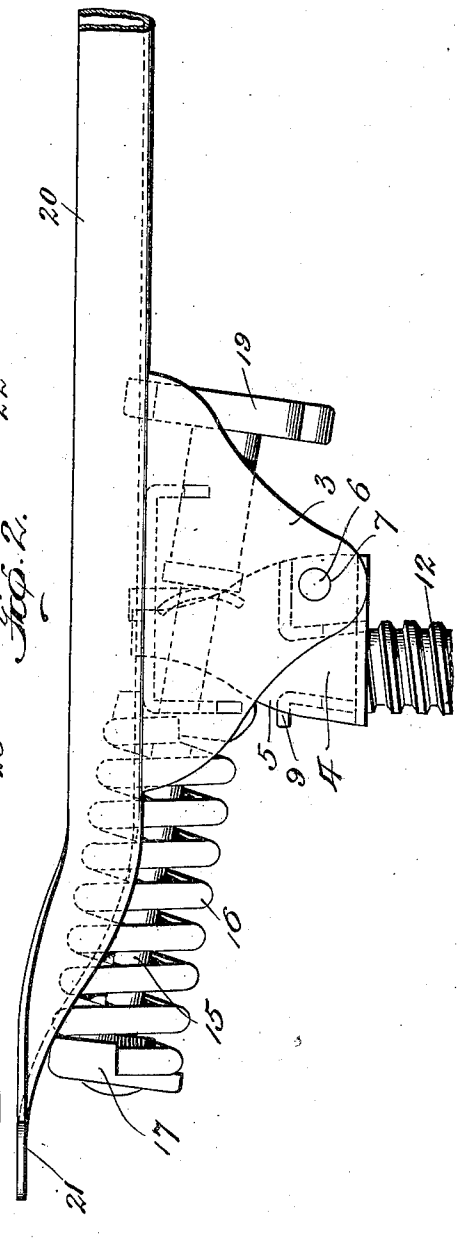


Fig. 2.



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NO MODEL. 3 SHEETS—SHEET 2.

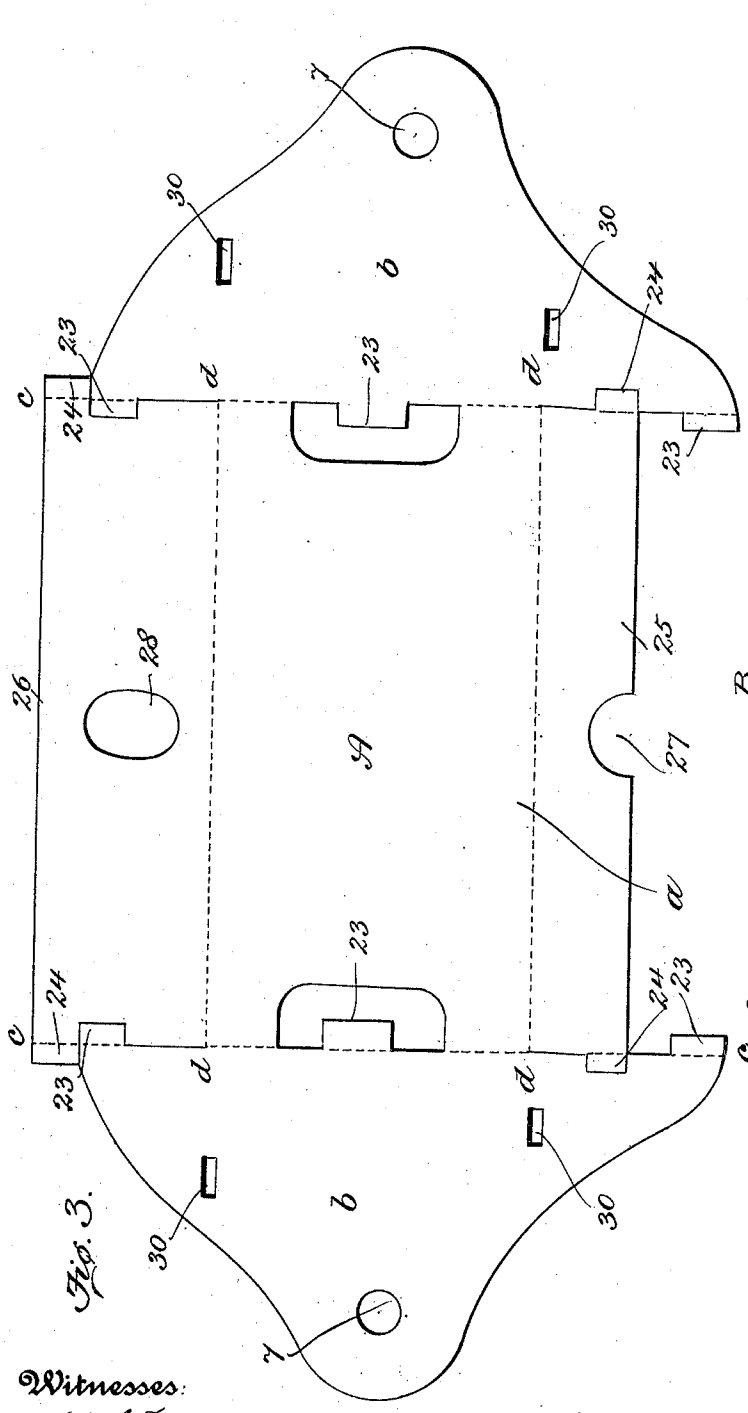


Fig. 3.

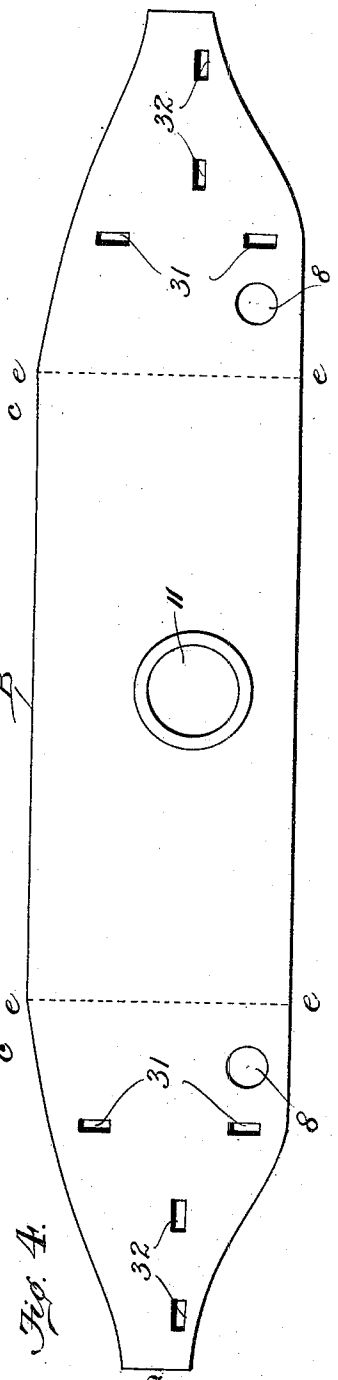


Fig. 4.

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NO MODEL. 3 SHEETS--SHEET 3.

Fig. 5

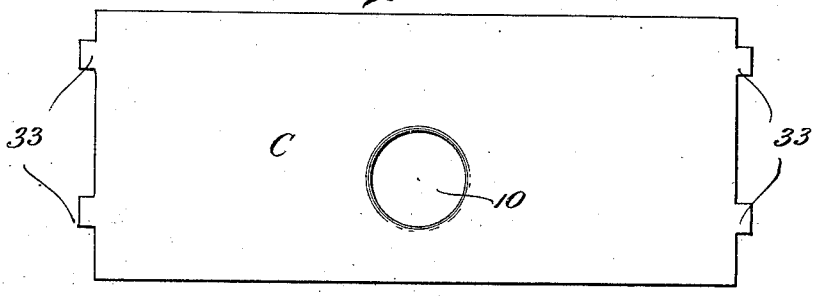


Fig. 6.

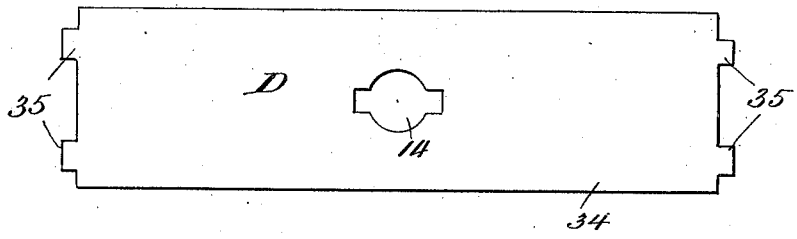


Fig. 7.

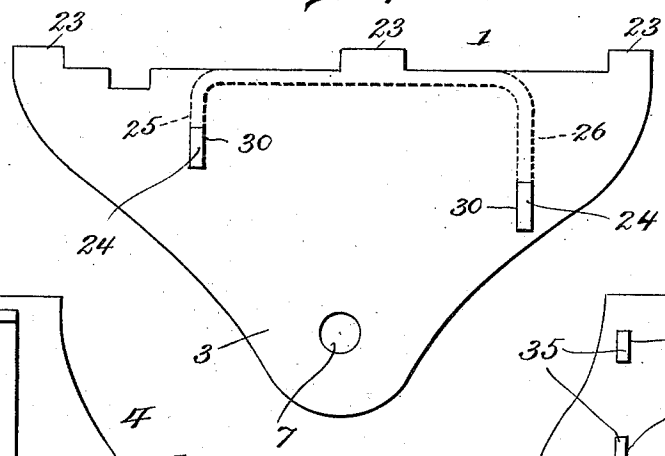


Fig. 8.

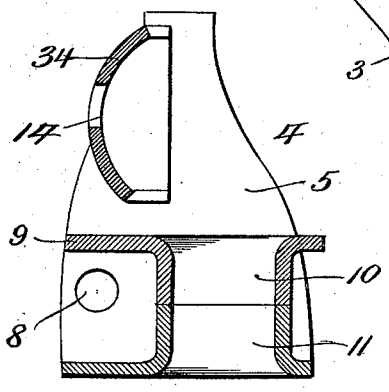
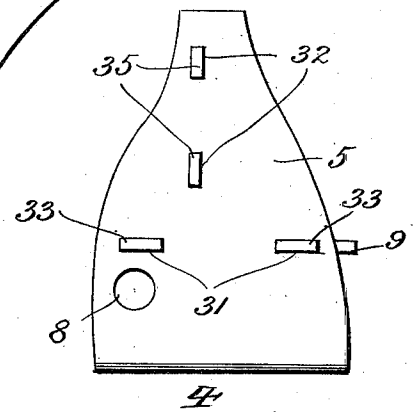


Fig. 9.



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No. 755,560. Patented March 22, 1904.

UNITED STATES PATENT OFFICE.

HARRY W. BOLENS AND CHARLES J. TRAVERS, OF PORT WASHINGTON, WISCONSIN, ASSIGNORS TO GILSON MANUFACTURING COMPANY, A CORPORATION.

SHEET-METAL CHAIR-IRON.

SPECIFICATION forming part of Letters Patent No. 755,560, dated March 22, 1904.

Application filed February 29, 1903. Serial No. 145,297. (No model.)

To all whom it may concern:

Be it known that we, HARRY W. BOLENS and CHARLES J. TRAVERS, citizens of the United States, residing at Port Washington, in the county of Ozaukee and State of Wisconsin, have invented new and useful Improvements in Sheet-Metal Chair-Irons, of which the following is a specification.

This invention relates to improvements in chair-irons, and more particularly to that part thereof commonly called the "spider."

The main objects in view are to produce a spider formed of sheet-steel, the parts of which spider are few, readily stamped, and readily and cheaply assembled and which shall be strong, rigid, and durable.

Various minor objects of the invention will hereinafter appear, and the novel features thereof will be particularly pointed out in the claims.

Referring to the drawings, Figure 1 is a top plan view of a chair-spider embodying my invention. Fig. 2 is a side elevation of the same. Figs. 3, 4, 5, and 6 are plans of the several blanks before folding composing the spider, which will be hereinafter referred to. Fig. 7 is a detail in side elevation of the spreader-blank after folding. Figs. 8 and 9 are vertical transverse sections and end elevations, respectively, of the yoke and its connecting cross-pieces, also hereinafter referred to.

Similar letters and numerals of reference indicate similar parts in all the figures of the drawings.

We will first proceed to describe the finished article and afterward the several blanks composing the same, together with their treatment, it of course being understood and appreciated that the several blanks may be varied in shape and mode of assembling from that herein shown and described and being capable of otherwise combining.

The spider comprises in its make-up an inverted-U-shaped spreader 1, which comprises the upper horizontal connecting portion 2 and the opposite depending supporting-flanges 3. There is also included in the make-up of the spider the U-shaped yoke 4, at the ends of which are the upwardly-disposed standards 5, located between the depending flanges 3 and pivoted thereto by the usual pintle 6, passed through perforations 7 and 8, formed, respectively, in the spreader and yoke.

A cross-plate 9 is located between and serves to brace the standard 5, and in the same is formed a flanged opening 10, a corresponding flanged opening 11 being formed coincident therewith in the bottom of the yoke 4. The flanges of these two openings tend in opposite directions and may meet, thus producing a socket to receive the upper end of the usual adjusting-screw 12, which may be secured in position in any desired manner—as, for instance, by shrinking the flanges 10 and 11 therearound. A brace-bar 34 is also located between and connected to the standards 5 of the yoke, said brace-bar being located at the front of the spider and convexed, as shown. At the center the usual hole 14 may be formed for the passage therethrough of the adjusting-bolt 15.

The bolt 15 and remaining parts comprising the adjustment or tension are of the well-known character, and hence require no detail description, it being sufficient for the purpose merely to refer to them by name.

16 designates the springs, 17 and 18 the compression-plates, and 19 the hand-wheel or nut.

20 designates the spider-arms employed in this instance, though it is to be understood that both their arrangement or disposition, as well as their style, may be varied. Those herein shown are formed of sheet metal and of semitubular shape in cross-section, each terminating in a flattened, flared, and perforated end 21, adapting it for attachment to the under side of a chair-bottom. In the present instance these spider-arms are perforated or slotted at intervals, as at 22, and through them pass tenons 23, formed on the spreader-frame, subsequent to which the tenons may be readily upset, and thus the parts secured together.

Referring now more particularly to Figs. 3 to 9 of the drawings, in the former figure the spreader 1 will be seen to be composed of an integral sheet-metal blank A, having a cen-

tral substantially rectangular part *a* and at opposite sides reduced ends *b*. This blank is folded along the transverse parallel fold-lines *c c* and the longitudinal lines *d d*, the latter extending from the lines *c c* at opposite sides. Also on the fold-lines *c c* the blank is cut irregularly between the points *c c*, thus producing the tenons 23 when the blank is folded. Other tenons may be formed at convenient points, as at 24. It will be understood that the blank beyond the lines *c c* and *d d* is downwardly folded, thus producing front and rear flanges 25 and 26, respectively, the former being recessed, as at 27, and the latter having a hole 28, both for the passage of the bolt 15. The tenons 24, with which the ends of these flanges are provided, take into and are upset beyond corresponding slots or mortises 30, formed in the depending flanges 3, the whole combining to make a most rigid spreader. The rear flange 26 also serves to support the inner compression-plate 18, or it may take the place of said plate.

In Fig. 4, B designates the yoke-blank, the same having its ends reduced and adapted for folding on the lines *e e* to form the upwardly-disposed standards 5. Beyond the fold-lines the blank may be provided with transverse and longitudinal mortises 31 and 32, respectively.

In Fig. 5 we show the blank C, from which the connecting-plate 9 is formed, the same having an oblong shape, end tenons 33 for engaging the mortises 31 in the yoke, and the hole 10, the metal of which is drawn downward to form the flange. A corresponding opening 11 is formed in the yoke, the flange surrounding the same being formed by drawing the metal up.

In Fig. 6 we have illustrated the blank D from which the brace-bar 34 is formed. The blank is oblong and subsequently made of concavo-convex form. At its center is the opening for the bolt 15, and at its ends tenons 35, that take in and are upset beyond the mortise 32 in the standard 5.

In Figs. 8 and 9 we have shown in section and elevation, respectively, the yoke, cross or connecting plate, and brace-plate all assembled.

What we claim is—

1. A chair-spider, comprising a sheet-metal yoke having upturned ends forming spreader-supports, and between the same a cross-plate, also of sheet metal, and connected to the said standards, said yoke and cross-plate having registering openings the metal about which is drawn therefrom so as to combine to produce a socket for the reception of the upper end of the adjusting-screw.

2. A chair-spider, comprising a sheet-metal yoke having upturned ends forming standards for supporting the spreader, said standards having slots or mortises, and a cross-plate arranged between the standards and provided at its ends with tenons entering and headed up in said slots or mortises, said cross-plate and yoke having registering openings, the metal about the two openings being drawn in opposite directions and meeting to form a socket for the reception of the upper end of the adjusting-screw.

3. A chair-spider, comprising a sheet-metal spreader having an upper horizontal central connecting portion and its opposite ends depending to form pivoting ears, and between the same having its longitudinal edges turned down between said ears and connected thereto.

4. A chair-spider, comprising a sheet-metal spreader having an upper horizontal connecting portion, opposite depending pivoting ears having slots, and between said pivoting ears said spreader having its longitudinal edges downwardly bent and provided with tenons entering and headed up in said slots.

5. A chair-spider, comprising, a sheet-metal spreader having an upper horizontal connecting portion and depending ends forming ears, said connecting portion having one of its edges downwardly bent between and abutting the ears and forming a transverse brace for and spacing the same apart.

6. A chair-spider, comprising, a spreader consisting of a central connecting portion having depending ears, and between the same having depending longitudinal edges abutting at their ends against the ears and serving to brace the same, and a spring-tension device supported by one of said longitudinal edges.

7. A chair-spider, comprising, a sheet-metal spreader consisting of a central connecting portion having depending arms and between the same having opposite depending longitudinal edges, having openings, and a bolt mounted in the openings of the two edges, a hand-wheel at one end of the bolt and received by the opening in the front depending edge, a pair of compression-plates at the opposite side of the spreader, the inner one of which pair bears against the rear depending edge, and springs interposed between said plates.

8. A chair-spider, comprising, a spreader formed of sheet metal and having depending pivoting ears and intermediate parallel connecting-flanges, the latter having openings, a yoke having standards extending upwardly between and pivoted to the ears of the spreader, a transverse brace-plate having its ends connected to the standards and between the same having an opening, and a spring-tension mechanism having its bolt passing through the openings in the brace-plate and rear flange of the spreader, its hand-wheel bearing against the brace-plate and its inner compression-plate secured and bearing against the said rear depending flange of the spreader.

9. A chair-spider, comprising, a sheet-metal yoke having end standards and an intermediate hole forming a socket, a spreader formed of sheet metal and having depending end ears, and between the same depending side flanges

bracing the said depending ears, a pivoting bolt or pintle connecting the ears and standards, spider-arms secured to the upper side of the spreader, a sheet-metal brace-plate secured to the yoke-standards and a spring-tension arrangement carried by the latter and the rear flange of the spreader.

10. A chair-spider, comprising, a yoke, a central flanged opening, and vertical standards, a cross-piece secured between said standards and having a flanged opening meeting that of the yoke, a spreader having a horizontal upper connecting portion and depending side and end flanges, the latter being pivoted to the standards and the former having openings, spider-arms mounted on the spreader, a transversely-curved brace connecting the standards and having an opening in rear of the opening in the front flange, a tension-bolt located in said openings, compression-plates and springs carried thereby at the rear of the spreader, and a hand-wheel or nut bearing against the said brace.

In testimony whereof we affix our signatures in presence of two witnesses.

HARRY W. BOLENS.
CHAS. J. TRAVERS.

Witnesses:
EDW. BARELMAN,
T. A. BOERNER.