No. 756,955. PATENTED APR. 12, 1904.

J. M. GERMANSON.

CHAIR SEAT SPIDER.

APPLICATION FILED OCT. 17, 1902.

NO MODEL.

Fig. 1.

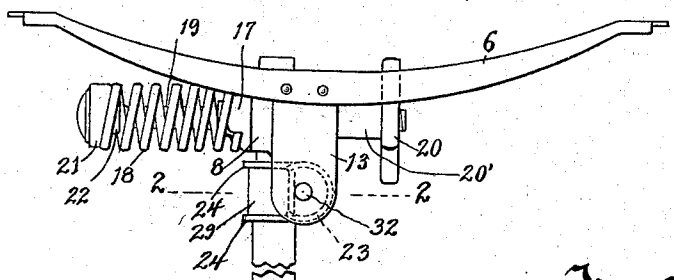


Fig. 2.

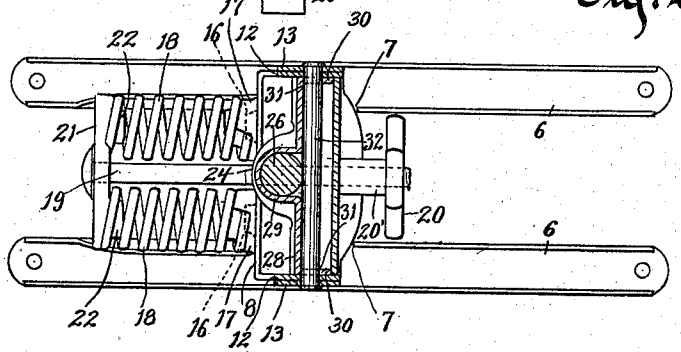


Fig. 3.

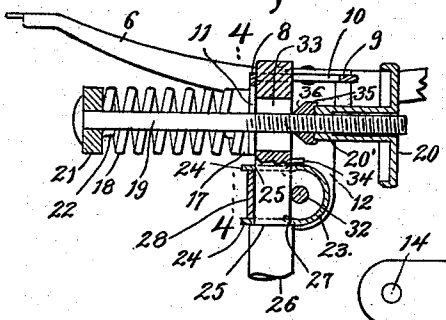


Fig. 4.

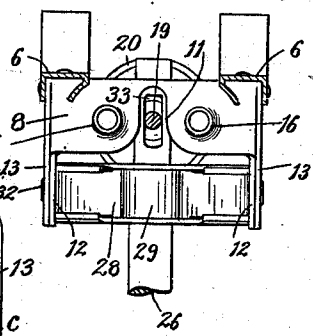
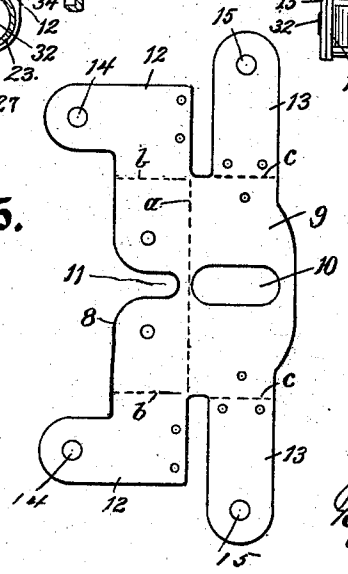


Fig. 5.



Witnesses.

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No. 756,955. Patented April 12, 1904.

UNITED STATES PATENT OFFICE.

JULIUS M. GERMANSON, OF MILWAUKEE, WISCONSIN.

CHAIR-SEAT SPIDER.

SPECIFICATION forming part of Letters Patent No. 756,955, dated April 12, 1904.

Application filed October 17, 1902. Serial No. 127,673. (No model.)

To all whom it may concern:

Be it known that I, JULIUS M. GERMANSON, of Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented a new and useful Improvement in Chair-Seat Spiders, of which the following is a description, reference being had to the accompanying drawings, which are a part of this specification.

My invention has relation to improvements in chair-seat spiders.

The object is to provide an improved form of seat-spider in which the principal parts are constructed from sheet metal, preferably steel, whereby lightness, cheapness, and the maximum strength are secured.

With the above primary object in view the invention consists of the devices and parts or their equivalents, as hereinafter more fully set forth.

In the accompanying drawings, Figure 1 is a side elevation of the device. Fig. 2 is a horizontal section on the line 2 2 of Fig. 1 looking upwardly. Fig. 3 is a central longitudinal central view. Fig. 4 is a cross-section on the line 4 4 of Fig. 3, and Fig. 5 is a view of the blank for forming the spreader before said blank is shaped.

Referring to the drawings, the numerals 6 6 indicate the usual longitudinal arms, which are attached at their opposite ends to the under side of the chair-seat. These arms are made from metal, preferably steel, shaped or drawn into approximate inverted-U-shaped form. The inner depending flange or downwardly-bent portion of each arm is provided at a central point with a cut-out portion or recess 7.

The spreader portion of the device is likewise of sheet metal, preferably steel, stamped out in the form illustrated in Fig. 5 and then bent by means of a suitable die or other desirable means into the form illustrated in the other figures of the drawings. The dotted lines of Fig. 5 indicate the lines along which the blank is bent in order to give the requisite shape thereto. It is bent along the line *a* to form a depending rear portion 8 and a top portion 9. In the stamping process an elongated slot 10 is formed in the top of the spreader and a recess 11 in the rear depending portion thereof. The said rear depending portion is bent inwardly along the lines *b b*, forming the inner thicknesses 12 of the depending pivot-ears of the spider, and, finally, the metal is bent downwardly along the lines *c c* to form the outer thicknesses 13 13 of the pivot-ears. Each inner thickness 12 is provided with an opening 14 and each outer thickness with an opening 15. These openings are brought into registration when the blank is shaped in the manner pointed out. The spreader constructed as described is now adjusted to the under sides of the arms 6, with the depending portion 8 at the rear. The recesses 7 of the inner depending flanges of the arms permit the ends of the spreader to pass therethrough and the outer sides of the upper ends of the pivot-ears to bear against the inner sides of the outer depending flanges of the arms. The spreader so constructed is now secured to the arms in any desirable manner, preferably by rivets passed through the top of the arms and entering the ends of the top portion 9 of the spreader and additional rivets passing through the outer flanges of the arms and entering the two thicknesses of metal of the pivot-ears. The rear depending portion 8 of the spreader in the process of stamping or drawing the metal is also formed with projecting lugs 16 16, around which are fitted bearings 17 17, which bearings extend into the inner ends of coiled springs 18 18. A rod 19 passes through the recess 11 of the rear portion of the spreader. The threaded forward extremity of this rod has turned thereon the interiorly-threaded tubular extension 20′ of a hand-wheel 20. The opposite end of the rod passes through a cross-bar 21 and is provided with a head bearing against the outer side of the cross-bar. The said cross-bar on its inner side and at opposite ends is provided with inwardly-extending bearings 22 22, which project into the outer ends of the coils of the springs 18. By turning the hand-wheel the tension of the springs 18 may be regulated, as is common in this class of devices.

The head-piece of the spider is formed from sheet metal 23, preferably steel, bent or shaped into approximately half-tubular form, with the rounded side foremost, as clearly shown in the drawings, and having at its top and bottom rear edges the projecting lips 24 24,

which are provided, respectively, with registering openings 25 25. The chair-iron spindle 26 passes through these registering openings, and said spindle is formed with the annular shoulder 27, on which the lower lip 24 of the head-piece is seated. A transverse spacing-plate 28 is interposed between the rear edges of the head-piece, and this plate prevents said edges from being bent toward each other. The central portion of the spacing-plate is bent into semitubular form in order to accommodate the chair-iron spindle, as indicated by the numeral 29 and as clearly shown in Figs. 1 and 2. The ends of said plate are bent or flanged forwardly, as indicated by the numerals 30 30, said forwardly-bent flanges having openings 31 31, which register with the openings 14 and 15 of the two thicknesses of metal forming the depending ears. The horizontal pivot-pin which secures the head-piece pivotally to the spider-frame is indicated by the numeral 32, and the ends of this pin pass through the registering openings or eyes 14, 15, and 31. This horizontal pivot is just in front of the spindle 26, as shown clearly in Fig. 2. The upper end of the spindle enters the elongated slot 10 in the top of the spreader, and the ends of said slot act as stops to limit the extent of the tilting of the chair-seat. Just below the top piece 9 of the spreader the spindle is provided with a vertically-elongated slot 33, through which the rod 19 passes. The spindle, furthermore, just above the upper lip 24 is intersected by a pin 34, which bears against the said upper lip and which, in conjunction with the annular shoulder 27 of the spindle, prevents vertical displacement of the spindle with respect to the head-piece.

I prefer to employ in connection with the rod 19 a collar 35, provided with the rearwardly-extending lugs 36, which bear against the spindle. By this construction when the spider is tilted a slight rocking play of the springs 18 is permitted, whereby the stress under which said springs are brought on account of said tilting operation is always maintained in line with the center of the rod 19.

While the primary object of my invention is to provide a chair-seat spider having the longitudinal arms, the spreader, and the head-piece thereof constructed from sheet metal bent or shaped as described, yet I do not wish to limit myself specifically thereto, inasmuch as said parts may be constructed of other metal and provided with the different parts described without departing from the spirit and scope of my invention. Again, any desired form of longitudinal arms may be employed in connection with a spreader of the form shown in the accompanying drawings, and the specific form of head-piece, also shown in the drawings, or, further, the specific form of head-piece may be provided in connection with other forms of spreaders and spider-arms.

My invention is also not necessarily limited to the pivot-ears formed of the two thicknesses of metal, inasmuch as the pivot-ears could be of a single thickness of metal merely by omitting the portions 12 or 13 of the blank without departing from the spirit and scope of my invention.

From the foregoing description it will be seen that the longitudinal arms, the spreader, and the head-piece may be constructed from sheet metal stamped and shaped into the desired form, thereby avoiding the necessity of constructing the spider from cast metal, as is commonly done, and which metal, owing to its brittleness, is subject to breakage. I furthermore provide a construction which is simple and economical to manufacture and not only light in weight, but durable in use. The device is, furthermore, of such character that the parts can be readily put together and as readily separated when necessary.

What I claim as my invention is—

1. In a chair-seat spider, the combination of longitudinal arms adapted to be attached at their ends to a seat, a spreader secured at its ends to the arms, said spreader provided with an elongated slot, depending pivot-ears, a spindle extended upwardly into a slot of the spreader, the ends of said slot acting as stops to contact with the extended end of the spindle, and thereby limit the tilting of the chair, and said spindle provided below the upper extremity thereof with an elongated slot, a head-piece supported on the spindle, a bolt for pivotally connecting the head-piece to the pivot-ears, and a spring-pressed adjusting-rod passing through the elongated slot of the spindle.

2. In a seat-spider, the combination of longitudinal arms adapted to be attached at their ends to a seat, a spreader secured at its ends to the arms, said spreader provided with a top piece and with a rear depending portion, the top piece having an elongated slot therethrough, and the ends of said top portion being downwardly bent to form the outer thicknesses of pivot-ears, and the rear depending portion having its ends forwardly bent to form the inner thicknesses of the depending pivot-ears, a spindle having its upper end extending into the elongated slot of the spreader, a head-piece supported on the spindle, and a bolt for pivotally connecting the head-piece to the pivot-ears.

3. In a seat-spider, the combination of longitudinal arms adapted to be secured at their ends to a seat, a spreader secured at its ends to the arms, said spreader being struck from a single blank of metal and shaped to form a top piece having downwardly-turned ends, a rear depending portion having forwardly-flanged ends, the said forwardly-flanged ends constituting inner thicknesses of pivot-ears, and the downwardly-turned ends of the top piece forming outer thicknesses of said pivot-

ears, a spindle, a head-piece supported on the spindle, and a bolt for pivotally connecting the head-piece to the pivot-ears.

4. In a seat-spider, the combination of longitudinal arms adapted to be attached at their ends to a seat, a spreader secured at its ends to the arms, said spreader provided with a top piece and with a rear depending portion, the top piece having its ends provided with depending portions forming the outer thicknesses of pivot-ears, and the rear depending portion provided with a recess, and having its ends forwardly flanged and forming the inner thicknesses of pivot-ears, a spindle provided below its upper extremity with an elongated slot, a head-piece supported on the spindle, a bolt for pivotally connecting the head-piece to the pivot-ears, and a spring-pressed adjusting-rod passing through the recess of the depending rear portion of the spreader and through the elongated slot of the spindle.

5. In a seat-spider, the combination of longitudinal arms adapted to be attached at their ends to a seat, a spreader secured at its ends to the arms, depending pivot-ears, a head-piece of approximately semitubular form with its rounded side foremost, and having its rear edges provided with projecting apertured lips, a spindle passing through the registering apertures of the lips and supporting the head-piece, and a bolt for pivotally connecting the head-piece to the pivot-ears.

6. In a seat-spider, the combination of longitudinal arms adapted to be attached at their ends to a seat, a spreader secured at its ends to the arms, depending pivot-ears, a head-piece struck from a single sheet of metal and formed into approximately semitubular form with its rounded side foremost, and with projecting apertured lips at its rear edges, a spindle passing through the registering apertures of the lips and supporting the head-piece, and a bolt for pivotally connecting the head-piece to the pivot-ears.

7. In a seat-spider, the combination of longitudinal arms adapted to be attached at their ends to a seat, a spreader secured at its ends to the arms, depending pivot-ears, a head-piece of approximately semitubular form with its rounded side foremost and having its rear edges provided with projecting apertured lips, a spindle supporting the head-piece and passing through the registering apertures of the lips, a spacing-plate arranged between the rear edges of the head-piece and rounded at a medial portion for the accommodation of the spindle, and a bolt for pivotally connecting the head-piece to the pivot-ears.

8. In a seat-spider, the combination of longitudinal arms adapted to be attached at their ends to a seat, a spreader secured at its ends to the arms, depending apertured pivot-ears, a head-piece of approximately semitubular form with its rounded side foremost and having its rear edges provided with projecting apertured lips, a spindle supporting the head-piece and passing through the registering apertures of the lips, a spacing-plate arranged between the rear edges of the head-piece, the ends of said plate being turned forwardly and provided with apertures, and a bolt having its ends supported in the registering apertures of the pivot-ears and the forwardly-turned ends of the spacing-plate, said bolt pivotally connecting the head-piece to the pivot-ears

9. In a seat-spider, the combination of longitudinal arms adapted to be attached at their ends to a seat, a spreader secured at its ends to the arms, said spreader struck from a single blank of metal and shaped to form a top piece having depending ends forming pivot-ears, a head-piece struck from a single blank of metal and shaped into approximate semitubular form with the rounded side foremost, and formed at its rear edges with projecting apertured lips, a spindle supporting the head-piece and passing through the registering apertured lips of said head-piece, and a bolt for pivotally connecting the head-piece to the pivot-ears.

10. A spreader for a seat-spider, comprising a top piece having downwardly-bent ends forming the outer thicknesses of pivot-ears, and a rear depending portion having forwardly-bent ends forming the inner thicknesses of the pivot-ears.

11. A spreader for a seat-spider struck from a single blank of metal and shaped to form a top piece having depending ends constituting the outer thicknesses of pivot-ears, and a rear depending portion having forwardly-bent ends forming the inner thicknesses of the pivot-ears.

12. A head-piece for a seat-spider, consisting of a semitubular piece having its top and bottom edges provided with projecting horizontal apertured lips.

13. A head-piece for a seat-spider struck from a single blank of metal and shaped into semitubular form, the top and bottom edges thereof formed with projecting horizontal apertured lips.

14. A head-piece for a seat-spider, consisting of a semitubular piece having its top and bottom edges provided with projecting horizontal apertured lips, and a spacing-plate between said top and bottom edges.

15. A head-piece for a seat-spider, consisting of a semitubular piece having its top and bottom edges provided with projecting apertured lips, and a spacing-plate between said top and bottom edges, said spacing-plate provided with forwardly-turned apertured ends.

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

JULIUS M. GERMANSON.

Witnesses:
A. L. MORSELL,
C. T. BENEDICT.