(No Model.)

M. A. HANSON & W. W. WOLFF.

TILTING CHAIR IRON.

No. 599,502. Patented Feb. 22, 1898.

Fig. 1.

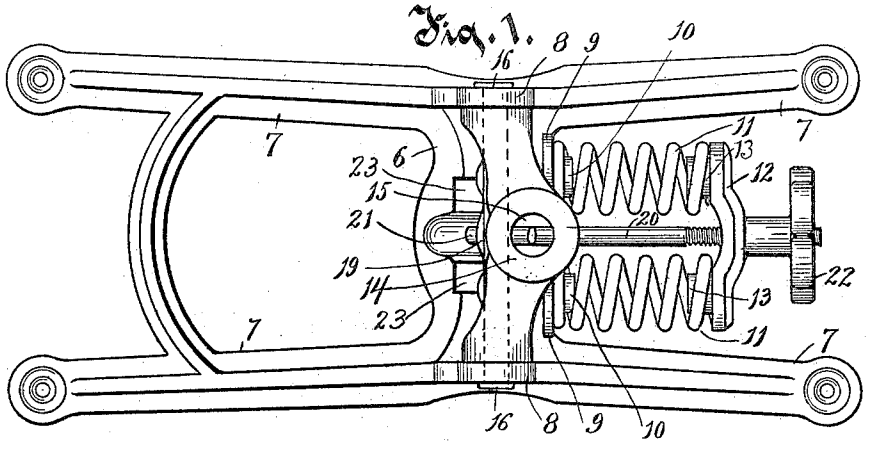


Fig. 2.

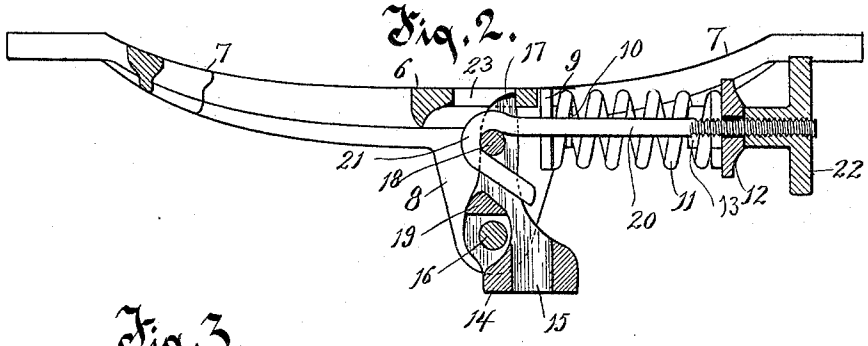


Fig. 3.

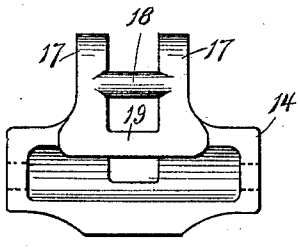


Fig. 4.

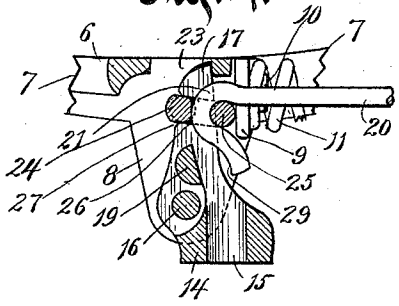
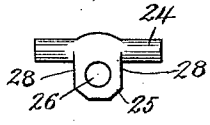


Fig. 5



Witnesses.

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UNITED STATES PATENT OFFICE.

MILES A. HANSON AND WILLIAM W. WOLFF, OF SHEBOYGAN, WISCONSIN.

TILTING-CHAIR IRON.

SPECIFICATION forming part of Letters Patent No. 599,502, dated February 22, 1898.

Application filed October 16, 1897. Serial No. 655,452. (No model.)

To all whom it may concern:

Be it known that we, MILES A. HANSON and WILLIAM W. WOLFF, of Sheboygan, in the county of Sheboygan and State of Wisconsin, have invented a new and useful Improvement in Tilting-Chair Irons, of which the following is a description, reference being had to the accompanying drawings, which are a part of this specification.

Our invention has relation to improvements in tilting-chair irons.

The primary object had in view is to provide an improved form of stop for limiting the rearward tilting of the chair.

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 an inverted plan view of the complete iron. Fig. 2 is a central longitudinal section of Fig. 1. Fig. 3 is a detail view, on a reduced scale, of that portion of the iron which is secured to the upper end of the spindle and forms the head-piece thereof. Fig. 4 is a fragmentary sectional view of a modified form of construction, and Fig. 5 is a detail of Fig. 4.

Referring to the drawings, the numeral 6 indicates the spider-frame, which is provided with the usual arms 7, which extend in a horizontal plane and are secured at their ends to the under side of the chair-seat. The spider is also formed with the depending side arms 8 8. The rear edge of the central cross-piece of the spider is also cast with the depending integral ears 9 9, said ears provided with the rearwardly-projecting lugs 10 10, which lugs extend into the inner ends of coiled springs 11 11. A cross-bar 12 bears against the outer ends of these springs, and said cross-bar is provided with the inwardly-extending lugs 13 13, which extend into the coils of the springs.

The numeral 14 indicates a casting which forms the head-piece of the chair-spindle, (not shown,) said casting being provided with a central opening 15, into which the upper end of the chair-spindle passes. This casting is arranged between the lower ends of the depending side arms 8 of the spider and has projecting therefrom laterally trunnions 16 16, which extend into openings in the depending arms 8, and upon which trunnions said depending arms and the spider of which they form a part are adapted to turn. The casting 14 is also provided medially with upwardly-extending arms 17 17, which arms are connected medially by a cross-arm 18 and are also connected near their lower ends by another cross-bar 19, said bar 19 having preferably a beveled rear edge.

The numeral 20 indicates a rod which passes through the cross-bar 12 and between the springs 11 11 and is formed at its inner end with a hook 21. The under side of this hook is advisably arranged at a rearward incline, so as to conform to the beveled edge of the cross-bar 19. The outer end of this rod is threaded to receive a hand-wheel 22, which hand-wheel is adapted to be turned up against the cross-bar 12, and thereby regulate the tension of the springs 11. In the form of device illustrated in Figs. 1, 2, and 3 of the drawings the hook 21 of the rod 20 is made to engage over the medial cross-bar 18.

In the operation of the invention when the chair is tilted rearwardly after it has reached a certain rearward slant the inclined under portion of the hook 21 will contact with the beveled rear edge of the lower cross-bar 19. This bar therefore forms an effective stop against further rearward tilting. The springs 11, of course, when the chair is thus tilted rearwardly are compressed, so that when the occupant of the chair ceases to exert force rearwardly the recoil of the springs 11 will assist in returning the chair to its forward position. The forward turning of the chair is limited by contact of the upper ends of the arms 17 17 with the rear edges of slots similar to 23, formed in the connecting cross-bar of the spider.

In the modified form of construction illustrated in Figs. 4 and 5, instead of employing the cross-bar 18 shown in the other figures of the drawings, which cross-bar was shown in said other figures as integral with the arms 17 17, we provide a separate or removable cross-bar 24. This cross-bar is provided medially with a rearwardly-extending ear 25, which ear is provided with an opening 26. The arms 17 17 are also provided with sockets or recesses 27, which receive the ends of the cross-bar 24. The space between the arms 17 17 is sufficient to accommodate the

ear 25 of the cross-bar 24, and the side edges of said ears therefore form shoulders 28 28, which are adapted to bear against the inner sides of the arm 17, and thereby prevent the cross-bar from working out of place endwise or laterally. The inner hook 21 of the rod 20 in this form of device, instead of engaging around the cross-bar 24, is passed through the opening 26 thereof, and the under rearwardly-inclined portion of the hook, in order to interfere as little as possible with the turning of the hook when the chair is tilted rearwardly, is reversely curved or curved rearwardly, as clearly shown and as indicated by the numeral 29.

What we claim as our invention is—

1. In tilting-chair irons, the combination, of a spindle-head formed or provided with a cross-bar and with a stop, a spider pivoted to the spindle-head, a coiled spring bearing at its inner end against the spider, a rod provided with a hooked inner end engaging the cross-bar of the spindle-head, and adapted, when the chair is tilted rearwardly to a certain extent, to contact with the stop, and a nut engaging the outer end of the rod, and adapted to regulate the tension of the spring.

2. In tilting-chair irons, the combination, of a spindle-head, formed or provided with cross-bars, one of said cross-bars forming a stop, a spider pivoted to the spindle-head, a coiled spring bearing at its inner end against the spider, a rod provided with a hooked inner end engaging one of the cross-bars of the spindle-head, and adapted, when the chair is tilted rearwardly to a certain extent, to contact with the other cross-bar forming the stop, and a nut engaging the outer end of the rod, and adapted to regulate the tension of the spring.

3. In tilting-chair irons, the combination, of a spindle-head formed or provided with a cross-bar and with a stop, a spider pivoted to the spindle-head, a coiled spring bearing at its inner end against the spider, a rod provided with a hooked inner end engaging the cross-bar, the under portion of said hook being inclined rearwardly, said rearwardly-inclined portion adapted, when the chair is tilted rearwardly to a certain extent, to contact with the stop, and a nut engaging the outer end of the rod, and adapted to regulate the tension of the spring.

4. In tilting-chair irons, the combination, of a spindle-head formed or provided with cross-bars, one of said bars forming a stop having its rear edge beveled rearwardly, a spider pivoted to the spindle-head, a coiled spring bearing at its inner end against the spider, a rod provided with a hooked inner end engaging one of the cross-bars, the under portion of said hook being inclined rearwardly, said rearwardly-inclined portion adapted, when the chair is tilted rearwardly to a certain extent, to contact with the rearwardly-beveled edge of the cross-bar forming the stop, and a nut engaging the outer end of the rod, and adapted to regulate the tension of the spring.

5. In tilting-chair irons, the combination, of a spindle-head formed or provided with upwardly-extending arms and with a stop, a cross-bar connecting the arms, a spider pivoted to the spindle-head, a coiled spring bearing at its inner end against the spider, a rod provided with a hooked inner end engaging the cross-bar, and adapted, when the chair is tilted rearwardly to a certain extent, to contact with the stop, and a nut engaging the outer end of the rod.

6. In tilting-chair irons, the combination, of a spindle-head, formed or provided with upwardly-extending arms, cross-bars connecting said arms, one of said cross-bars forming a stop, a spider pivoted to the spindle-head, a coiled spring bearing at its inner end against the spider, a rod provided with a hooked inner end engaging one of the cross-bars, and adapted, when the chair is tilted rearwardly to a certain extent, to contact with the other cross-bar forming the stop, and a nut engaging the outer end of the rod.

7. In tilting-chair irons, the combination, of a spindle-head formed or provided with a cross-bar and with a stop, a spider pivoted to the spindle-head, coiled springs bearing at their inner ends against the spider, a cross-bar bearing against the outer ends of the springs, a rod passing through the cross-bar and provided with a hooked inner end engaging the cross-bar of the spindle-head, and adapted, when the chair is tilted rearwardly to a certain extent, to contact with the stop, and a nut engaging the outer end of the rod, and adapted to be turned up against the cross-bar which bears against the outer ends of the springs.

8. In tilting-chair irons, the combination, of a spindle-head formed or provided with a stop, a removable cross-bar fitted to said spindle-head, a spider pivoted to the spindle-head, a coiled spring bearing at its inner end against the spider, a rod provided with a hooked inner end engaging the cross-bar of the spindle-head, and adapted, when the chair is tilted rearwardly to a certain extent, to contact with the stop, and a nut engaging the outer end of the rod.

9. In tilting-chair irons, the combination, of a spindle-head formed or provided with a stop, a removable cross-bar fitted to said spindle-head, said bar having an opening therethrough, a coiled spring bearing at its inner end against the spider, a rod provided with a hooked inner end, said hook passing through the opening of the cross-bar, and adapted, when the chair is tilted rearwardly to a certain extent, to contact with the stop, and a nut engaging the outer end of the rod.

10. In tilting-chair irons, the combination, of a spindle-head formed or provided with a stop, a removable cross-bar fitted to said spindle-head, said bar having an opening therethrough, a spider pivoted to the spindle-head,

a coiled spring bearing at its inner end against the spider, a rod provided with a hooked inner end, said hook passing through the opening of the cross-bar, and its under side being reversely or rearwardly curved, and said hook adapted, when the chair is tilted rearwardly to a certain extent, to contact with the stop, and a nut engaging the outer end of the rod.

11. In tilting-chair irons, the combination, of a spindle-head, provided with upwardly-extending arms and with a stop, and the edges of said arms provided with sockets or recesses, a removable cross-bar fitting in said sockets or recesses, a spider pivoted to the spindle-head, a coiled spring bearing at its inner end against the spider, a rod provided with a hooked inner end engaging the removable cross-bar and adapted, when the chair is tilted rearwardly to a certain extent, to contact with the stop, and a nut engaging the outer end of the rod.

12. In tilting-chair irons, the combination, of a spindle-head having upwardly-extending arms and provided with a stop, and the edges of said arms provided with sockets or recesses, a removable cross-bar fitting in said sockets, said bar provided with shoulders adapted to contact with the inner sides of the upwardly-extending arms, and prevent the cross-bar from working out of place laterally, a spider pivoted to the spindle-head, a coiled spring bearing at its inner end against the spider, a rod provided with a hooked inner end, said hook engaging the removable cross-bar, and adapted, when the chair is tilted rearwardly to a certain extent, to contact with the stop, and a nut engaging the outer end of the rod.

13. In tilting-chair irons, the combination, of a spindle-head having upwardly-extending arms and provided with a stop, and the edges of said arms provided with sockets or recesses, a removable cross-bar fitting in said sockets, said bar provided medially with a projecting ear having an opening therethrough, a spider pivoted to the spindle-head, a coiled spring bearing at its inner end against the spider, a rod provided with a hooked inner end, said hook engaging the opening of the ear of the removable cross-bar, and adapted, when the chair is tilted rearwardly to a certain extent, to contact with the stop, and a nut engaging the outer end of the rod.

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

MILES A. HANSON.
WILLIAM W. WOLFF.

Witnesses to Miles A. Hanson's signature:
CHARLES E. SCHARLAU,
GEO. A. MUGLER.

Witnesses to Wm. W. Wolff's signature:
WILLIAM LOEFFLER,
M. A. LONG.