

J. M. MORGAN.
REVOLVING CHAIR.

No. 595,781.

Patented Dec. 21, 1897.

Fig. 1.

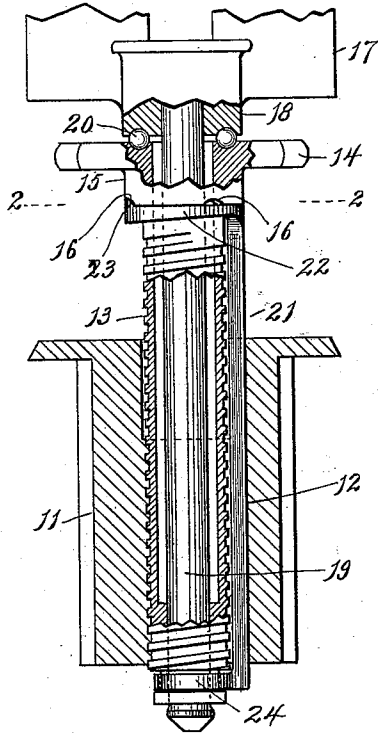


Fig. 4.

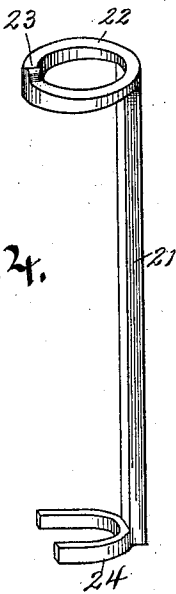


Fig. 2.

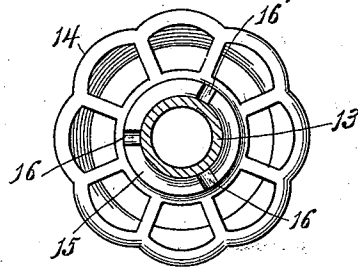


Fig. 9.

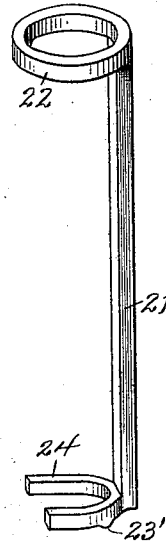


Fig. 3.

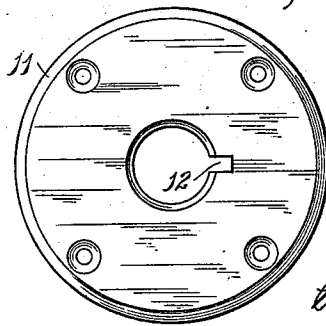
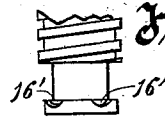


Fig. 10.



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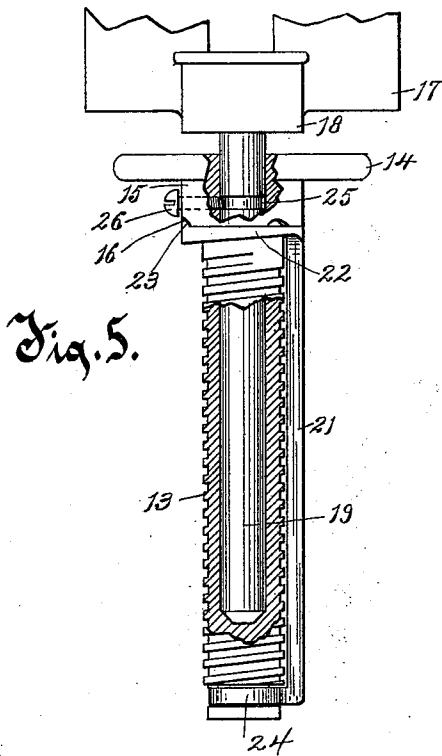


Fig. 5.

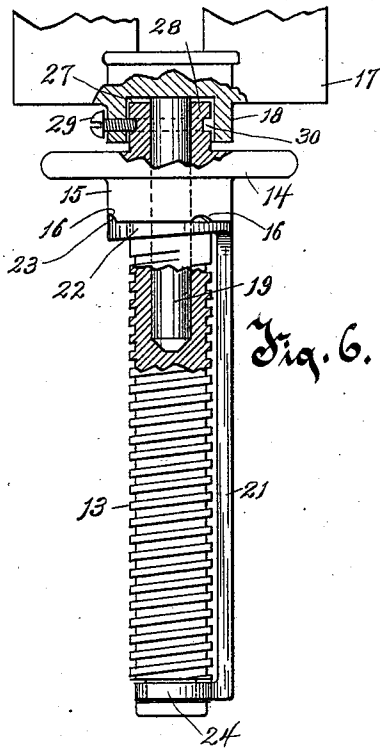


Fig. 6.

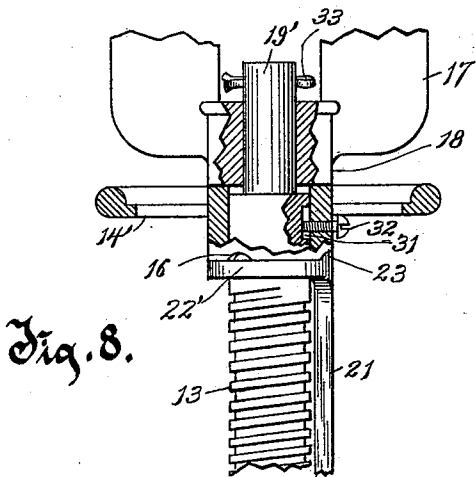


Fig. 8.

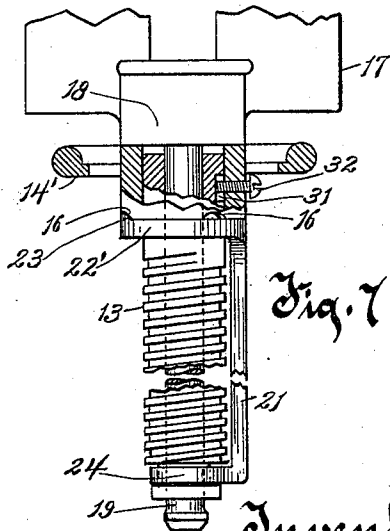


Fig. 7.

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UNITED STATES PATENT OFFICE.

JAMES M. MORGAN, OF PORT WASHINGTON, WISCONSIN.

REVOLVING CHAIR.

SPECIFICATION forming part of Letters Patent No. 595,781, dated December 21, 1897.

Application filed April 28, 1897. Serial No. 634,189. (No model.)

To all whom it may concern:

Be it known that I, JAMES M. MORGAN, of Port Washington, in the county of Ozaukee and State of Wisconsin, have invented a new and useful Improvement in Revolving Chairs, 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 revolving chairs.

It relates particularly to that class of revolving chairs in which the chair-seat, under normal conditions, is free to rotate without being raised or lowered, while, when it is desired to adjust the vertical height of said chair-seat, this may be readily accomplished by mechanism for that purpose.

Revolving chairs of the above description necessarily contemplate the employment of an adjustable screw-threaded portion and a freely-revoluble portion which is rotatable on or in the former. It has been found in practice that the friction created by the freely-revoluble portion, especially when the seat is occupied and turned to different positions by the occupant, against the normally non-revoluble screw-threaded portion has a tendency to turn and thereby raise or lower the chair-seat at such times when the adjustment of said seat vertically is not desired—as, for instance, when said seat is occupied and it is merely desired to turn the same from one position to the other for convenience of the occupant without changing its vertical height.

It is the primary object of my invention to provide an improved form of construction which is simple in its arrangement for permitting the free turning of the seat without danger of the friction engendered by the rotatable part causing a turning of the screw-threaded portion and the consequent changing of the vertical height of the seat.

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 elevation of a chair-iron embodying one form of my invention, parts being in section and parts broken away. Fig. 2 is a horizontal section on the line 2 2 of Fig. 1, looking upwardly. Fig. 3 is a top view of the hub.

Fig. 4 is an elevation of a detail of the mechanism for preventing the screw-threaded spindle from rotating under ordinary conditions. Figs. 5, 6, 7, and 8 are elevations of different modified forms with parts in each view broken away. Fig. 9 is a detail view of a modification in the locking-bar, and Fig. 10 is a fragmentary view of the lower end of a screw-spindle constructed to be used in conjunction with the locking-bar illustrated in Fig. 9.

Referring to the drawings, the numeral 11 indicates a chair-iron hub provided with a central screw-threaded vertical opening, as is usual in devices of this character. Branching from this central opening is a narrow straight slot 12, extending vertically throughout the height of the hub. A screw-threaded spindle 13 is adapted to fit and engage the threaded opening of the hub, and in Figs. 1, 2, 5, and 6 of the drawings this spindle is shown as formed at its upper end with a rigid hand-wheel 14. This hand-wheel is formed on its under side with a depending enlargement 15, the under edge of which is formed with a series of recesses 16, preferably three.

The numeral 17 indicates the seat-iron, which is provided with the usual central head portion 18, and said head has extending therefrom and fitting within the bore of the screw-threaded spindle and freely revoluble therein a pivot-spindle 19. In the form illustrated in Fig. 1 this pivot-spindle extends entirely through the screw-threaded spindle, and its lower end or extremity is upset to prevent the separation of the parts. In the Fig. 1 form of construction also, in order to provide for the chair-seat rotating with the least possible friction, antifriction-balls 20 are interposed between the under side of the head 18 and the upper side of the hand-wheel 14, said balls being disposed in registering grooves in the parts mentioned.

The device for preventing the turning of the screw-threaded spindle in the hub under normal conditions by the turning of the chair-seat consists of a vertical bar or arm 21, fitted in the slot 12. The extremities of this bar or arm extend, respectively, above and below the upper and lower ends of the hub, and said upper extremity is provided with a lateral projection 22, which is preferably of the

form of a ring or annulus and is adapted to surround the exterior of the screw-threaded spindle and to fit directly beneath the depending enlargement of the hand-wheel. This lateral projection is provided with an upwardly-extending nib or lug 23, which is adapted to normally engage any of the series of the recesses 16. The lateral projection 22 possesses more or less elasticity or tendency to spring by reducing the thickness of the same near the point where it merges into the vertical arm 21, as clearly shown in Fig. 4. This provides for a yield or give of the projection 22, so as to permit of the disengagement of one of the recesses of the hand-wheel with the lug 23 when said hand-wheel is turned. The lower end of the vertical arm is also provided with a lateral projection 24, which is preferably of a U-shaped form when the casting is finished, as clearly shown in Figs. 4 and 9. This lateral projection is adapted to engage around the lower end of the screw-spindle, preferably engaging in an annular groove, the arms forming a U being advisably bent around into the form of a circle. While I have shown the groove which the lateral projection 24 engages as being formed in the lower end of the screw-spindle, yet it will be obvious that in the Fig. 1 form of construction this lateral projection 24 could engage the lower projecting end of the pivot-spindle and successful results be obtained.

In the operation of the Fig. 1 form, when the seat is turned, either by a person occupying the same or otherwise, the head 18 is turned on the antifriction-balls disposed between its under side and the upper side of the hand-wheel, the pivot-spindle revolving freely in the bore of the screw-spindle. Inasmuch as the lug or projection of the ring or annulus is engaging with one of the recesses on the under side of the hand-wheel and inasmuch as said hand-wheel is formed integral with or rigid to the screw-spindle, it is obvious that the slight friction engendered by the head rotating on the hand-wheel cannot effect the disengagement of the recess of said hand-wheel from the lug of the ring or annulus, and consequently no turning whatever of the screw-spindle under these circumstances can take place. When, however, it is desired to adjust the vertical height of the chair-seat, all that is necessary to be done is to turn the hand-wheel, and this will have the effect of disengaging the recess from the upwardly-projecting lug and raising or lowering the screw-spindle in accordance with the direction in which the hand-wheel is turned. Of course as the screw-spindle is turned the vertical arm 21 is raised or lowered with it, the raising of the vertical arm being effected by the engagement of the lateral projection 24 with the lower end of the screw-spindle.

The Fig. 5 form is similar to the construction shown in Fig. 1, excepting that the pivot-spindle does not extend entirely through the screw-spindle, said screw-spindle not being

bored out throughout its entire length. The pivot-spindle is of such limited length as to hold the head above the upper surface of the hand-wheel, so that the chair-seat revolves entirely on the pivot-spindle. In order to prevent the withdrawal of the pivot-spindle from the screw-spindle, said pivot-spindle is provided with an annular groove 25, which is engaged by a small screw 26, extending inwardly through the enlargement of the hand-wheel.

In Fig. 6 the head 18 instead of being solid is provided on its under side with a recess 27, which receives an upward tubular extension 28 from the hand-wheel. The pivot-spindle in this form also does not extend through the screw-spindle, said screw-spindle being cored out from its upper extremity downwardly for a desired distance to receive the pivot-spindle. In the Fig. 6 form the pivot-spindle is preferably shorter in length than the pivot-spindle of the Fig. 5 construction. The parts are held against separation by means of a small screw 29, extending through the depending wall of the head and engaging an annular groove 30 in the upward extension 28.

In the forms illustrated in Figs. 7 and 8 of the drawings it is contemplated that the hand-wheel be formed entirely separate from the screw-spindle. In Fig. 7 the pivot-spindle extends from the head 18 entirely through the screw-spindle. The hand-wheel 14', as before stated, is entirely separate from the screw-spindle and is disposed between the lateral projection 22' of the arm 21 and the under side of the head 18. The upper extremity of the screw-spindle is plain or unthreaded and extends up into the tubular hub of the hand-wheel. This portion of the screw-spindle which is surrounded by the hub of the hand-wheel is provided with a vertically-elongated recess 31. In this form of construction it is not necessary that the lateral extension 22' be so constructed as to have a tendency to spring, inasmuch as the hand-wheel has a movement on the upper end of the spindle, which permits the recess on the under side of the hand-wheel to become disengaged with the projection of the lug of the lateral projection 22'. This vertical movement is limited by means of a screw 32, engaging the vertically-elongated recess 31. Fig. 8 is identical with Fig. 7, excepting that instead of the pivot-spindle depending from the head said pivot-spindle, which in this form is designated by the numeral 19', extends up from and is integral with the upper extremity of the screw-spindle through a vertical opening in the head. The parts are prevented from separation by means of a split pin 33, intersecting the upper end of the pivot-spindle.

As will be seen from Figs. 9 and 10, it is not absolutely necessary that the nib or lug 23 be formed on the upper lateral projection of the arm 21, but may be formed on and depend from the lower edge of the lower lateral

projection 24. In this case the lower edge of the annular groove of the screw-spindle is provided with the recesses 16', any one of which is adapted to be engaged by the nib or projection 23'.

In the forms illustrated in Figs. 1, 5, and 6 it is not absolutely necessary to successful results that the screw-threaded spindle be formed with a hand-wheel, inasmuch as successful results might be obtained merely by providing the screw-spindle with a part having the recesses 16 therein, leaving it optional to turn the screw-spindle for vertical adjustment in any desirable manner. In the Figs. 7 and 8 forms, however, it is necessary that a part be provided which is capable of sufficient independent rotation to admit of the recess being turned out of engagement with the nib or lug.

What I claim as my invention is—

1. In a revolving chair, the combination, of a hub, a screw-threaded spindle engaging the threaded bore of the hub, a revolving part turning on or in the screw-threaded spindle, a locking-bar fitted in a slot in the hub, provided with a lateral projection, mechanism between the lateral projection and the screw-threaded spindle, whereby the locking-bar, under normal conditions, is releasably locked to the screw-threaded spindle to prevent said spindle from being turned on its threads by the friction of the rotatable part, means for disengaging the locking mechanism to permit the screw-threaded spindle and the rotatable part to be adjusted vertically, and a connection between the locking-bar and the vertically-adjustable mechanism, whereby the locking-bar is moved vertically with said mechanism.

2. In a revolving chair, the combination, of a hub, a screw-threaded spindle working therein, a revolving part turning on or in the screw-threaded spindle, a locking-bar fitted in a slot in the hub, and provided with a lateral projection, said projection provided with a projecting nib or lug, a part having a recess or recesses therein with which the nib or lug is adapted normally to releasably engage, to prevent the screw-threaded spindle from being turned on its threads by the friction of the rotatable part, means for disengaging the nib or lug from the recess which it engages, to permit the screw-threaded spindle and the rotatable part to be adjusted vertically, and a connection between the locking-bar and the vertically-adjustable mechanism, whereby said locking-bar is moved vertically with said mechanism.

3. In a revolving chair, the combination, of a hub, a screw-threaded spindle working therein, said spindle having a portion thereof provided with a recess or recesses, a revolving portion turning on or in the screw-threaded spindle, a locking-bar fitted in a slot in the hub, and provided with a lateral projection having a nib or lug extending therefrom and adapted normally to engage a recess of the

screw-spindle, to prevent said spindle from being turned on its threads by the friction of the rotatable part, means for disengaging the nib or lug from the recess which it engages, to permit the screw-threaded spindle and rotatable part to be adjusted vertically, and a connection between the locking-bar and the vertically-adjustable mechanism, whereby the locking-bar is moved vertically with said mechanism.

4. In a revolving chair, the combination, of a hub, a screw-threaded spindle working therein, said spindle having a portion thereof provided with a recess or recesses, a revolving portion turning on or in the screw-threaded spindle, a locking-bar fitted in a slot in the hub and provided with a lateral spring projection having a nib or lug extending therefrom and adapted normally to engage a recess of the screw-spindle, to prevent said spindle from being turned on its threads by the friction of the rotatable part, means for disengaging the nib or lug from the recess which it engages, in order to permit the screw-threaded spindle and rotatable part to be adjusted vertically, and a connection between the locking-bar and the vertically-adjustable mechanism, whereby the locking-bar is moved vertically with said mechanism.

5. In a revolving chair, the combination, of a hub, a screw-threaded spindle working therein, said spindle having a portion thereof provided with a recess or recesses, a revolving portion turning on or in the screw-threaded spindle, a locking-bar fitted in a slot in the hub and provided at opposite ends with lateral projections, one of said projections provided with a nib or lug adapted normally to engage a recess in the screw-threaded spindle, to prevent said spindle from being turned on its threads by the friction of the rotatable part, and the other lateral projection engaging the vertically-adjustable mechanism, whereby the locking-bar is moved vertically with said mechanism, and means for disengaging the nib or lug from the recess which it engages, to permit the screw-threaded spindle and rotatable part to be adjusted together.

6. In a revolving chair, the combination, of a hub, a screw-threaded spindle working therein, said spindle formed with a hand-wheel and with a part provided with a recess or recesses, a revolving portion turning on or in the screw-threaded spindle, a locking-bar fitted in a slot in the hub, and provided with a lateral projection having a nib or lug extending therefrom, and adapted normally to engage a recess of the screw-threaded spindle, to prevent said spindle from being turned on its threads by the friction of the rotatable part, and a connection between the locking-bar and the vertically-adjustable mechanism, whereby the locking-bar is moved vertically with said mechanism.

7. In a revolving chair, the combination, of a hub, a screw-threaded spindle engaging the threaded bore of the hub, a pivot-spindle, a

seat-iron revoluble with or about said pivot-spindle, a locking-bar fitted in a slot in the hub, and provided with a lateral projection, mechanism between the lateral projection and the screw-threaded spindle, whereby the locking-bar, under normal conditions, is releasably locked to the screw-threaded spindle, to prevent said spindle from being turned on its threads by the friction of the rotatable part, means for disengaging the locking mechanism, to permit the screw-spindle and rotatable part to be adjusted vertically, and a connection between the locking-bar and the vertically-adjustable mechanism, whereby said bar is moved vertically with said mechanism.

8. In a revolving chair, the combination, of a hub, a screw-spindle engaging the hub, said spindle provided with a hand-wheel having a downwardly-extending enlargement provided with a recess or recesses on its under side, a seat-iron, rotatable on the hand-wheel, and provided with a depending pivot-spindle extending into the threaded spindle, and a locking-bar provided at opposite extremities with lateral projections, the upper lateral projection being a spring projection, and adapted to engage beneath the depending enlargement of the hand-wheel, and provided with an upwardly-extending nib or lug, adapted to engage with a recess on the under edge of said enlargement, and the lower lateral projection adapted to engage with the

vertically-adjustable mechanism, whereby the locking-bar is movable vertically with said mechanism.

9. In a revolving chair, the combination, of adjusting mechanism consisting of an inner part and an outer part, one of said parts having a threaded connection with the other so as to be raised or lowered, and one of said parts provided with a vertical passage, a rotatable part adapted to be supported by and to rotate on or about the adjustable mechanism, a locking-bar fitted in the vertical passage, and provided with a lateral projection, mechanism between the lateral projection and the adjustable part, whereby the locking-bar, under normal conditions, is releasably locked to the adjustable part to prevent said adjustable part from being turned on its threads by the friction of the rotatable part, means for disengaging the locking mechanism to permit the adjustable mechanism to be raised or lowered, and a connection between the locking mechanism and the vertically-adjustable mechanism, whereby the locking-bar is moved vertically with said mechanism.

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

JAMES M. MORGAN.

Witnesses:

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ANNA V. FAUST.