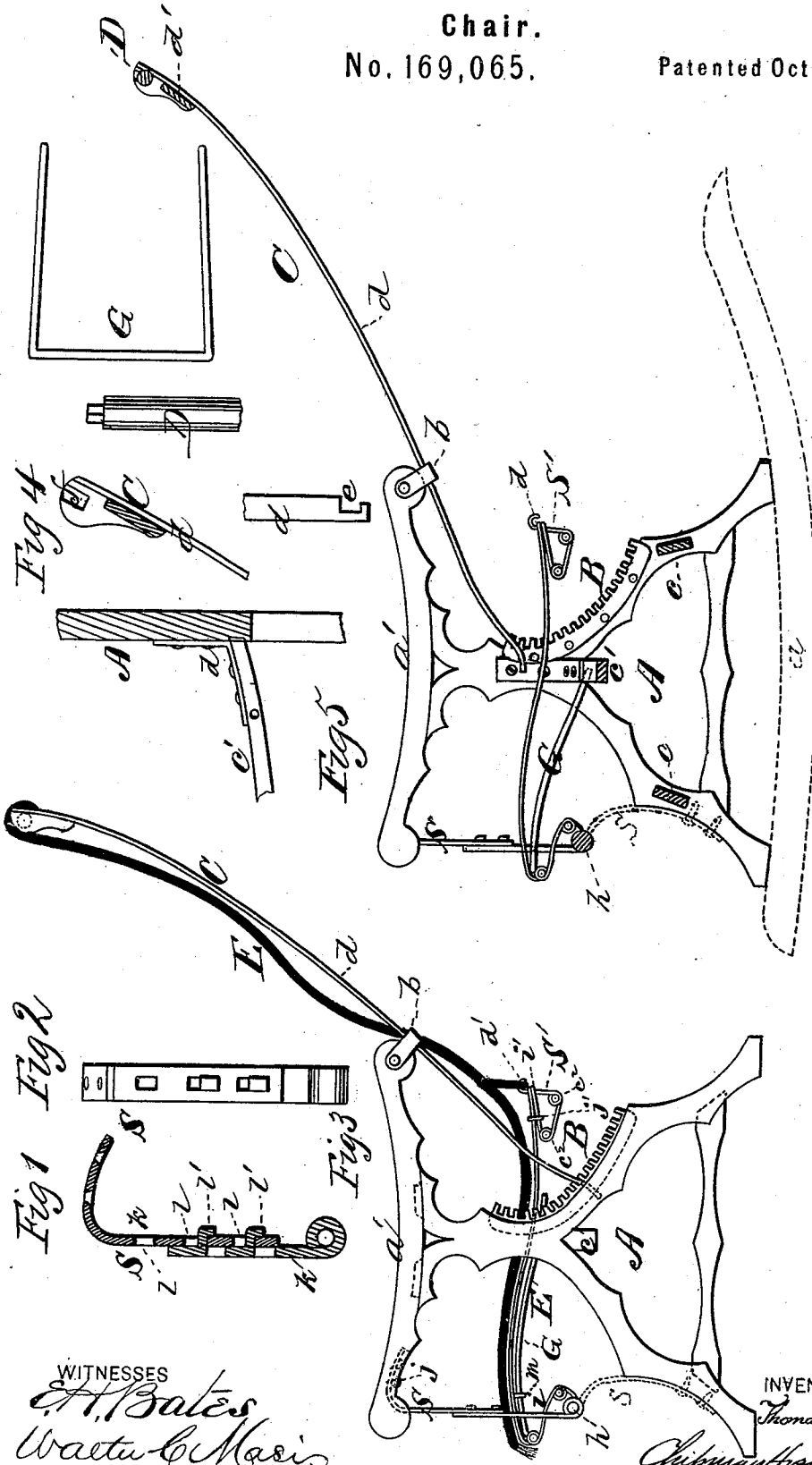


T. TOSTEVIN.
Chair.
No. 169,065.

Patented Oct. 19, 1875.



WITNESSES
E. H. Bates
Walter C. Harris

INVENTOR,
Thomas Tostevin
Chipman & Francis Co.
ATTORNEYS

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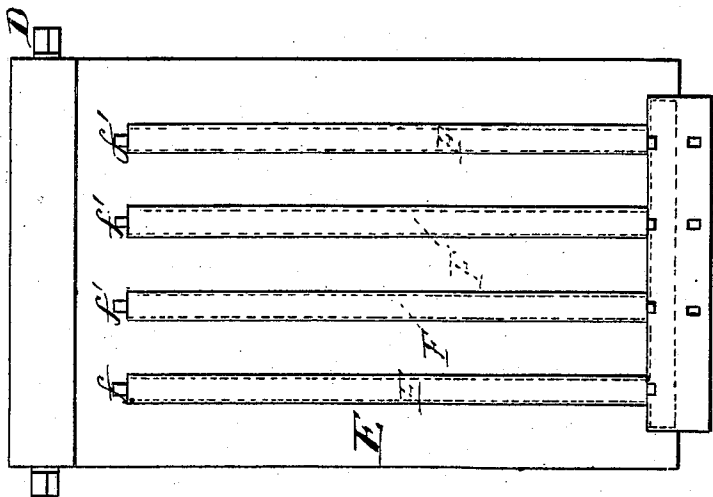


Fig 7

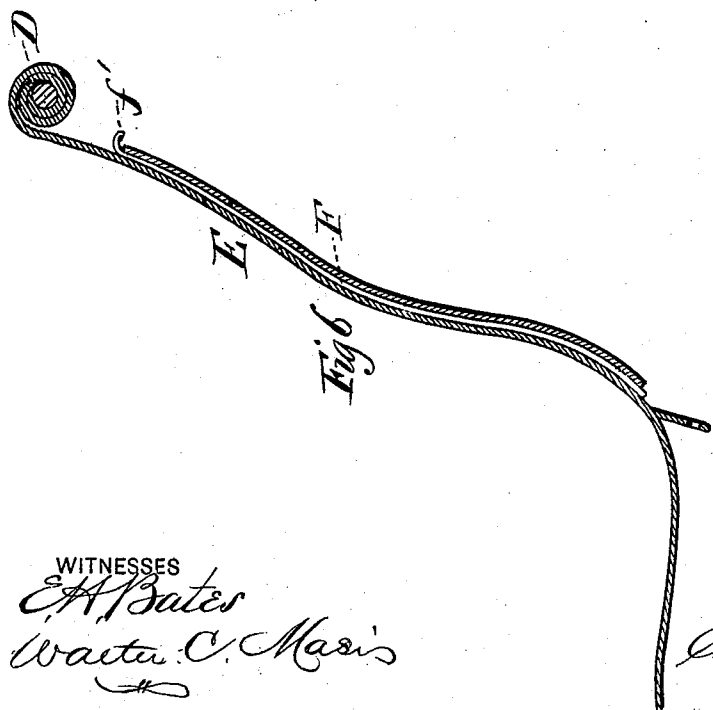


Fig 6

WITNESSES
E. A. Bates
Walter C. Maris

INVENTOR
Thomas Tostevin,
Chipman and Co
ATTORNEYS

UNITED STATES PATENT OFFICE.

THOMAS TOSTEVIN, OF COUNCIL BLUFFS, IOWA.

IMPROVEMENT IN CHAIRS.

Specification forming part of Letters Patent No. **169,065**, dated October 19, 1875; application filed September 11, 1875.

CASE A.

To all whom it may concern:

Be it known that I, THOMAS TOSTEVIN, of Council Bluffs, in the county of Pottawattamie and State of Iowa, have invented a new and valuable Improvement in Chairs and Seats; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings making a part of this specification, and to the letters and figures of reference marked thereon.

Figures 1 and 2 of the drawings are representations of detail views of my chair, and Fig. 3 is a side view thereof. Figs. 4 are detail views, and Fig. 5 a side view with back down. Figs. 6 and 7 are detail views thereof.

This invention has relation to improvements in chairs; and it consists in combining with a seat-frame a spring seat-back frame, whereby the latter is allowed to yield downwardly to some extent, and to have a vibratory motion to and fro. It also consists in combining with a seat-frame and a spring back-frame a spring-supported, suspended seat, whereby the latter is allowed to have a longitudinal swaying movement back and forth, as well as a slight lateral play between the uprights of the seat-frame, thereby adding greatly to the comfort of the occupant of the chair. It furthermore consists in combining with a seat-frame a vertically-adjustable spring-supported seat, whereby the height of the latter from the ground may be varied at pleasure, and yet the yielding swaying motion thereof preserved. It also consists in the combination, with a suspended seat and a suspended back attached thereto, of an adjusting-roller for raising the back part of the seat, and a lock for holding the said roller against backward rotation. It additionally consists in combining, with a suspended swaying seat and a suspended flexible back, adjustable springs having the general curvature of the spine, whereby the conformation of the seat-back may be changed to suit a long or short bodied man. It consists, moreover, in the combination, with a suspended swaying seat, a lock or stay, whereby the said seat is capable of being made stationary when necessary or desirable. It finally consists in the arrangement and novel construction of the various minor

devices used in connection with the above, whereby very useful and luxurious results are obtained, as will be hereinafter more fully explained.

In the annexed drawings, the letter A designates the side uprights or standards of my improved chair, which are, preferably, of the general shape of the letter T, and may be made of wood or iron, or of a combination of the two, as I may elect. The lower portion of these standards is broadly spread for the purpose of affording a proper base, and they may be provided with rockers *a*, if I so elect. The upper bar *a'* of the standards constitutes the seat-arms, and they are each provided upon their front ends with a curved spring, S, and upon their rear ends with a vertically-vibrating loop, *b*, for a purpose hereinafter explained. Standards A are connected by means of transverse braces *c*, the ends of which may be mortised into the lower part of the said standards, and by means of a curved central brace, *c'*, the connection of which with the uprights is further secured by means of angle-irons *d*. The object of curving brace *c'* will be seen hereinafter.

B represents segmental rack-bars, which are rigidly secured to the rear of uprights A, where the latter are of wood, but which may form a component part thereof when made of metal, with which rack-bars the lower ends of the side rails *d* of a spring back-frame, C, are adapted to engage. These rails are preferably of steel, and of flat curved form; but they may be made of wood, and their upper ends are united by means of a brace, *d'*. They also pass downward through loops *b* on the rear ends of seat-arms *a'*, as shown in Figs. 3 and 5. By this means the pitch of the frame in relation to the seat may be adjusted to any desired angle; and, in order that the entire chair may be lifted bodily when requisite, I have provided the lower ends of rails *d* with a hook, *e*, which, being engaged under racks B, will secure the back-frame detachably to the seat-uprights A. The upper ends of frame C, at each side, are provided with a prismatic socket, *f*, in which are received the correspondingly-shaped ends of a roller, D, which is thereby held against backward rotation. To this

roller the back E of the chair, composed of any suitable flexible material, is rigidly secured at one end, its other being attached to the rear edge of a flexible seat, E'. By this means the seat-bottom E' is suspended from the chair-back independently of the seat-frame at the rear, its front end being supported from the curved springs S in the following manner, to wit: These springs are rigidly secured into a recess in the under side of seat-arms *a* by means of a suitable bolt or screw, and they sustain, in their looped lower ends, a bar or rod, *h*, to which are secured one end of flexible steel springs *i*, the other ends of which are rigidly secured to the front edge of the seat-bottom, as shown in Fig. 3. The effect of this construction is, that the seat is allowed to sway back and forth and sidewise between the seat-arms, and also to have a degree of spring action in a vertical plane through the yielding of springs S under the weight of a sitter. In order that these springs may not be unduly racked or torn out of their recesses by the weight of a heavy sitter, I have employed stop-bolts *j*, which pass through slots made in the recessed portion thereof into the material of the seat-arms, the enlarged heads of which will catch the springs, and produce the desired result. The chair-seat E' may be raised or lowered in front, when necessary, by the following means, to wit: The suspension-springs S are made sectional or in two parts, the upper section K being provided with a number of spaced perforations, *l*, and the lower section K' with two or more hooks, *l'*, adapted to be received in the said perforations. By detaching the lower from the upper section, and passing the hooks into perforations above or below those formerly in use, the front of the chair-seat may be raised or lowered, as the case may be. The back of the chair-seat may also be raised or lowered, as may prove desirable, by detaching the adjusting-roller D from the lock-sockets in the upper end of the seat-back frame, rolling or unrolling the flexible material of the back, and, the desired adjustment being obtained, replacing the said roller in its seat.

In practice I sometimes use a series of independent springs, S', of angular form, which are provided with spring-coils *c*² at two of their angles, the third angle being formed by passing the free end of the wire through a loop, *i'*, formed on the other. These springs are secured to the flexible fabric of which the seat-bottom is preferably made by means of wire ties *j'*, and the flexible seat-back is attached thereto by means of a hook, *d'*, which is thrust into an eye formed on the lower edge of the seat-back. The effect of this arrangement, the seat being flexible, is that each spring acting independently of the other will allow the seat to conform to the angularities of the person, thus securing a great increase of comfort to the sitter.

F indicates suitable metallic springs, which are sheathed, as shown in Fig. 7, in the material of the back, and are made to simulate

the natural curvature of the spine. These springs are endwise movable in relation to their sheaths, and may be drawn up or thrust down into the same at pleasure, thus securing an adjustment by means of which that part of the said springs designed to fit into the small of the back may be raised or lowered to suit a long or a short bodied man, this adjustment being facilitated by means of a handle, *f'*, on the upper end of the springs.

In order that the seat-bottom may be held steady under certain circumstances, I propose to make use of a U-shaped rod, G, the bent portion of which is fitted in between the seat and springs *i*, and is attached to the former by means of a suitable tie, *m*. This rod is in the nature of a prop, and when its ends are drawn down and engaged in recesses in central brace *c'* it will prevent the seat from swaying, but will allow it to yield vertically.

In practice I may sometimes dispense with the seat-arms, in which case springs S will be secured to the lower front edges of uprights A, and will have their ends directly attached to rod *h*, thus securing the back-and-forth swaying motion and the vertical yield.

The central brace *c'* being curved, the yielding of the flexible bottom E' will not bring the person of the sitter in contact therewith.

What I claim as new, and desire to secure by Letters Patent, is—

1. The combination, with a seat-frame, of a back-supporting frame, having elastic side pieces *d d*, substantially as described.

2. The combination, with a seat-frame and a spring-back frame attached thereto, of a spring-supported suspended seat-bottom, substantially as specified.

3. The combination, with a seat-frame, of the vertically-adjustable suspended seat E', substantially as specified.

4. The combination, with the suspended seat E' and a flexible back covering said seat, and attached thereto at the rear edge, of an adjusting-roller, D, adapted to be locked against backward rotation, substantially as specified.

5. The combination, with the flexible and adjustable seat-back E, of the endwise-movable sheathed springs F, substantially as specified.

6. The combination, with the suspended swaying seat E', of a stav, G, for holding it stationary, substantially as specified.

7. The combination, with the suspended seat-bottom E and flexible seat-back E', of the springs *i* and angular rear supporting-springs S', substantially as specified.

8. The combination, with a flexible seat bottom and back, of the springs S', connecting the same, substantially as specified.

9. The combination, with a flexible vertically-adjustable seat-bottom, E, of the concave central brace *c'* between uprights A, substantially as specified.

10. The sectional suspension-spring S, con-

sisting of a hooked section, K', and a bent and perforated section, K, the latter being arranged in a recess in the chair-arm, and secured in position by the stop-bolt J, substantially as described and shown, and for the purpose specified.

11. The combination, with the seat-frame, of the back-support, having elastic side pieces, the flexible web constituting said back, and connected with the seat E', said seat being suspended by springs from the arm-pieces.

12. A chair-seat suspended within the seat-

frame by springs, and by a flexible webbing, the latter forming the back-support, as specified, by means of which universal horizontal motion is secured, substantially as described.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

THOS. TOSTEVIN.

Witnesses:

WALTER C. MASI,

BRYAN H. MORSE.