

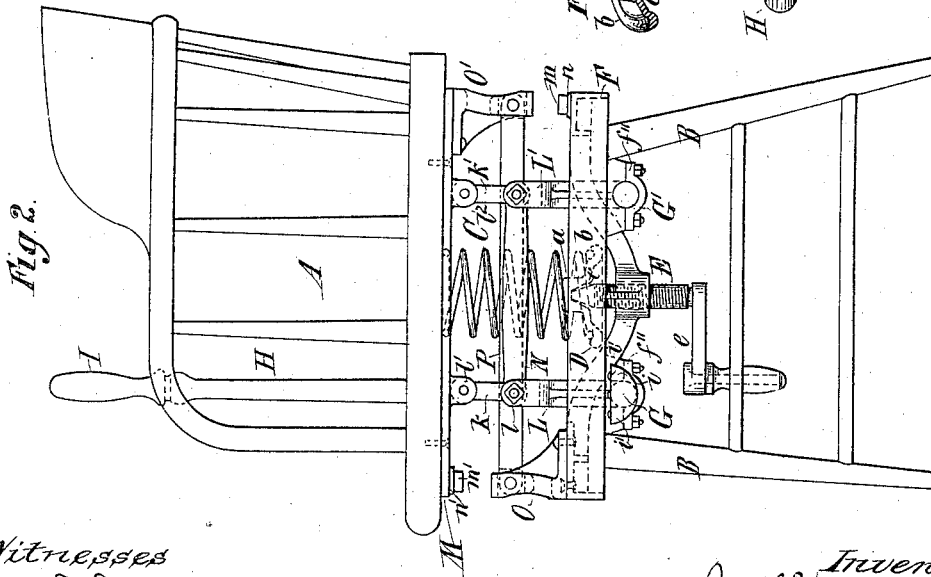
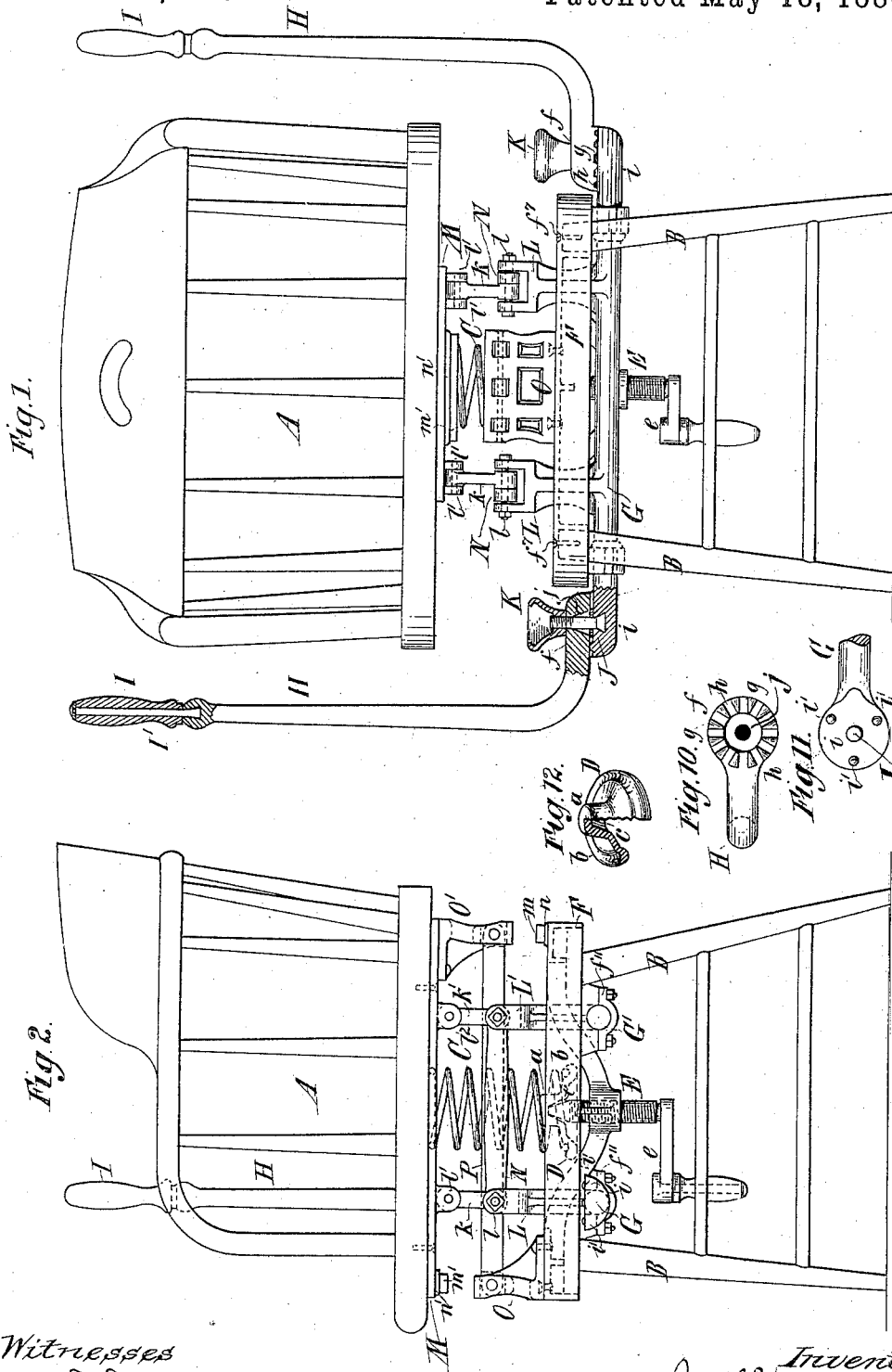
(No Model.)

2 Sheets—Sheet 1.

J. M. W. KITCHEN.  
EXERCISING CHAIR.

No. 342,020.

Patented May 18, 1886.



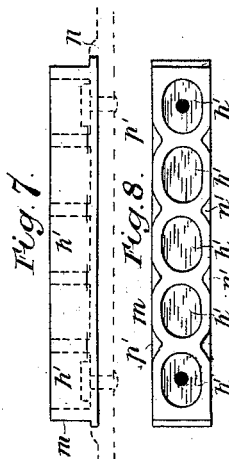
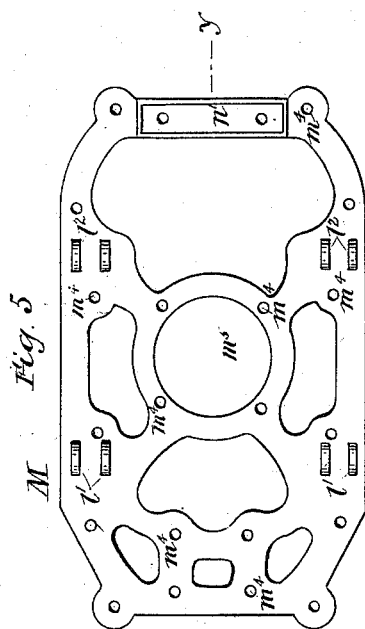
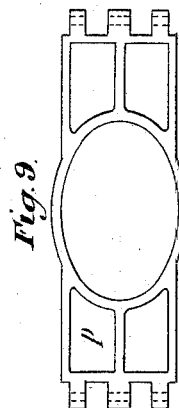
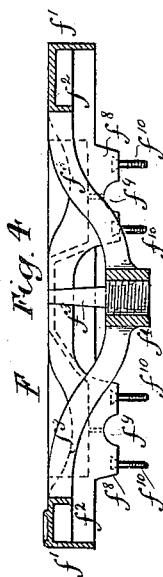
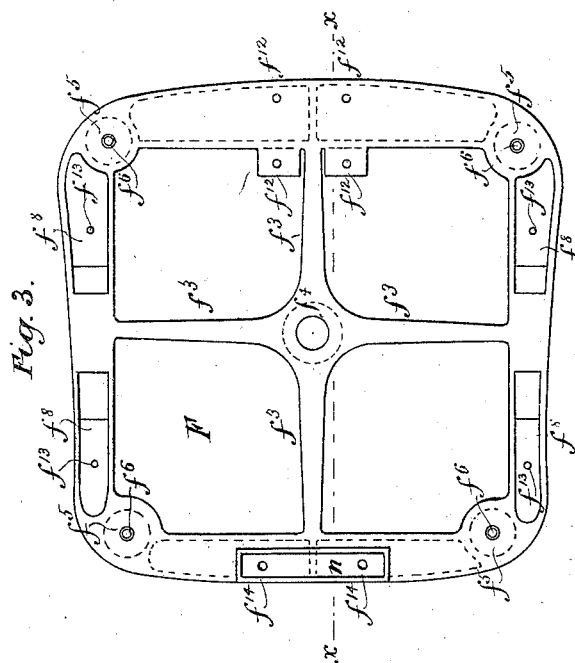
Witnesses  
Jas. Bowen  
R. J. A. Goddard

Inventor  
Joseph W. W. Kitchen  
by his attys.  
Gifford & Brown

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Gifford & Brown

# UNITED STATES PATENT OFFICE.

JOSEPH M. W. KITCHEN, OF NEW YORK, N. Y.

## EXERCISING-CHAIR.

SPECIFICATION forming part of Letters Patent No. 342,020, dated May 18, 1886.

Application filed November 6, 1885. Serial No. 182,077. (No model.)

*To all whom it may concern:*

Be it known that I, JOSEPH M. W. KITCHEN, of New York, in the State of New York, have invented a certain new and useful Improvement in Exercising-Chairs, of which the following is a specification.

My improvement relates to chairs so constructed that they may be manipulated to impart a jolting motion to the occupant. Such chairs are used chiefly in the treatment of disease, but are also useful as a means of exercise for persons in health.

I will describe in detail an exercising-chair embodying my improvement, and then point out the novel features in claims.

In the accompanying drawings, Figure 1 is a front elevation of an exercising-chair embodying my improvement, certain parts being in section. Fig. 2 is a side elevation of the same, having one of a pair of arms employed therein and its appurtenances removed. Fig. 3 is a plan view of a frame comprised in the chair. Fig. 4 is a section thereof taken on the line *xx*, Fig. 3. Fig. 5 is an inverted plan view of another frame comprised in the chair. Fig. 6 is a section of the same taken on the line *yy*, Fig. 5. Fig. 7 is a side view of a cushion comprised in the chair. Fig. 8 is a plan or top view of this cushion. Fig. 9 is a plan view of a bar which is used in the chair. Fig. 10 is an inverted view of an arm which is employed to rock the chair. Fig. 11 is a top view of one end portion of a rock-shaft that is used in the chair. Fig. 12 is a sectional perspective view of a bearing-piece for a spring used in the chair.

Similar letters of reference designate corresponding parts in all the figures.

A designates a chair-body, which may be of wood and of any desired form. As shown, it comprises a seat, a back, and arms. B designates the legs of the chair. They are not connected directly to the body A. The body A of the chair is supported upon a spring, C, which, as here shown, is of helical form. The upper end of the spring C fits in a socket or opening formed in a plate or frame, M, secured to the under side of the seat of the chair. The lower end rests in a bearing-piece, D, which is shown as unattached to anything, but rests upon a screw, E. As shown, this bearing-piece is somewhat bell-shaped, having

a central upwardly-projecting portion, *a*, and an external rim or flange, *b*. The spring impinges upon the rim or flange *b* of the bearing-piece D. The bearing-piece D has an internal socket, *c*, in the portion *a*, which fits one end of the screw E, extending through a tapped hole in a frame, F. The lower end of the screw is provided with a crank, *e*. By rotating the crank the screw may be elevated or lowered and the compression of the spring C varied for the purpose of increasing or decreasing its supporting power and resistance. Variation in the weight of different persons occupying the chair can be compensated for in this way, for heavy persons a greater resistance in the spring being required than for light persons. The severity of exercise obtained through the use of the chair may also be varied by changing the condition of the spring C.

G is a rock-shaft journaled in bearings in the frame F. Motion is to be imparted to said rock-shaft by means of arms H, provided with handles I.

The handles I are secured to the arms H by means of pins *I'*, having their heads cast into the arms H. These pins extend through the handles I, and are, as shown, shouldered near the outer ends, and at the outer ends riveted over outside washers arranged above the handles. The handles are thus very economically secured in place, so as to be free to rotate. The lower portion of each of the arms H is curved inwardly or toward the chair, and has near the end a circular portion, *f*. The lower sides of these circular portions are provided with a series of alternate grooves, *h*, and projections or lugs *g*, arranged in the position of radii of a circle. The outwardly-extending ends of the rock-shaft have upon them circular portions *i*, corresponding to the circular portions on the arms H.

Upon the upper sides of the portions *i*, I have shown three teats or projections, *i'*, arranged one at each of the apices of a triangle. These teats extend into the spaces *h*, and prevent the arms H from being turned about on the rock-shaft when the two are secured together. This is a very convenient way of locking the arms to the rock-shaft in different positions. The teats *i'* will always fit into the grooves *h* of the arms. They are so small in extent that the irregularities of form in the

arms due to casting will not interfere with their engagement with the grooves *h* of the arms or with their coming to a plane bearing.

J designates screws or bolts, the heads of which are cast in the rock-shaft G at about the center of the circular portions *i*. They are therefore, rigid with and in effect form parts of the rock-shaft. The portion *f* of the arms H are provided with central holes, *j*, through which the screws or bolts J extend. Nuts K, having cup-shaped flanges which can be conveniently grasped by the hand, serve to clamp the arms H tightly to the rock-shaft. By loosening the nuts the arms may be rotated, so as to bring the handles nearer to or farther from the chair-seat. This is for the purpose of accommodating the variations in the length of arm between different persons and for varying the length of stroke, as may be desirable. It will be seen that the screws or bolts J being cast rigid in the rock-shaft prevents the former from being turned around when the nuts K are being tightened or loosened.

The teats may be arranged on the portions *f* of the arms H, and the lugs or projections *g* may be arranged upon the circular portions *i* of the rock-shaft, if desirable. This would be a mere inversion.

L designates arms upon the rock-shaft G. As shown, they are cast with the shaft; but they may be made separate and secured to the shaft by any suitable means. Their upper ends are bifurcated and receive one of the ends of links *k*. Pins or pivots *l*, passing through holes in the bifurcated ends of the arms L and in the links *k*, secure said links to the arms. The links turn loosely on the pins or pivots. The upper ends of the links *k* are pivotally connected to the seat of the chair by means of pins passing through lugs *l'* upon the frame M, secured to the under side of the chair-seat and forming a portion thereof.

The links and arms constitute toggles.

Motion is conveyed from the rock-shaft G to a rock-shaft, G', mounted in bearings in the frame F, by means of rods N, having a loose connection at one of their ends with the arms L by means of the pins *l*. At their other ends they are similarly connected to arms L' upon the rock-shaft G', corresponding to the arms L. Links *k'* are pivotally connected to the arms L' and to lugs *l'* on the frame F in manner similar to the links *k*.

O O' designate bumpers. The bumper O is rigidly affixed to the frame F at the front of the chair and extends upward. The bumper O' is rigidly affixed to the frame M at the rear of the chair and extends downward. When the chair-seat is moved downward, the bumper O' is brought into contact with a cushion, *m*, affixed to the frame F within a socket, *n*, and a similar cushion, *m'*, arranged within a socket, *n'*, upon the frame M, is brought into contact with the bumper O. By this means noise and too violent jarring or bumping are prevented.

The cushions *m m'* are made, preferably, of

india-rubber, and I construct them as follows: I provide therein a series of vertical recesses, *h'*, extending nearly but not quite through the cushions, as will be more clearly seen in Figs. 7 and 8. I also prefer to indent the cushions, as at *p'*; but this I do not deem essential. By this mode of construction the resilience of the cushions is much increased. The cushions are, as shown, secured within the sockets *n n'* by means of bolts or rivets passing through them and the frames F M. These cushions allow of a bumping action without violent shocks or objectionable noise.

A bar, P, designed to prevent antero-posterior motion of the seat, extends between the bumpers O O', and is pivotally connected at each end to them. It has in it an aperture, whereby it is caused to extend about the supporting-spring C. By means of this bar P the chair-seat is always caused to ascend and descend in a vertical plane.

The frame F is cast in one piece, and is constructed as follows: It is in front flat upon the top. It has a circumferential rim, *f'*, and another rim, *f''*, inward thereof. From the rim *f'* reaches *f''* extend downwardly to a common central portion, *f'''*, in which is the tapped hole for the reception of the screw E. Sockets *f''* are formed upon the under side at each corner of the frame. These sockets are to receive the legs B of the chair. Screw-holes *f''*, to receive screws *f''*, (shown in Fig. 1,) are cast in the frame above the sockets *f''*. The screws *f''* pass through these holes and into the legs B, and so secure the legs to the frame. Lugs or projections *f''*, having semicircular portions *f''*, forming portions of the bearings for the rock-shafts G G', are cast upon the under sides of the frame at the sides thereof. Bolts *f''*, having their heads cast into the lugs *f''*, so as to be rigidly affixed to the frame and form parts thereof, are adapted to extend through suitable holes in cap-plates *f''*, (seen more clearly in Fig. 2,) to which they are secured by nuts. Holes *f''* in the socket *n* are cast in the frame, and other holes, *f''*, are cast in the frame at the front thereof, whereby the bumper O may be secured to the frame. Oil-holes *f''* are also cast in the frame, through which the journals of the rock-shafts G G' may be oiled. The frame M is likewise cast in one piece, screw-holes *m'* being cast in it at suitable points, to enable it to be secured to the bottom of the chair-seat. It also has in it a central aperture, *m''*, which receives the spring C. This feature may, however, be omitted, and the spring may be secured directly to the frame, if desired. By casting these frames in solid pieces with the bolts, bolt-holes, and screw-holes cast in them much expense is saved in the cost of manufacture, as there are no holes to be tapped, and little labor is required beyond casting, other than finishing up.

The operation of the chair is as follows: When the handles I are grasped and drawn backward or pushed forward, the arms H cause the shafts G G' to rock and move the body of

the chair-seat downward against the resistance of the supporting-spring C. The return movement of the arms H to a vertical or central position causes the chair-body to be raised.

5 The supporting-spring C eases the descent of the chair-body and assists its ascent. It may be adjusted to provide for slight or violent jolting or bumping, as desired, or for throwing more or less exercise on the arms, shoulders, and chest.

10 What I claim as my invention, and desire to secure by Letters Patent, is—

1. In an exercising-chair, the combination, with a rock-shaft having laterally-extended end portions, of arms, also having laterally-extended end portions, one of said end portions being provided with grooves and lugs or projections arranged in the position of radii of a circle, and the other with teats arranged in the position of apices of a triangle and adapted to fit the grooves first named, and screws or bolts for securing said arms and the shaft together, substantially as specified.

2. In an exercising-chair, the combination, with a base-piece or pedestal and a seat, of a single spring interposed between them supported by the base-piece or pedestal and sustaining the seat, and mechanism, substantially such as described, for adjusting the spring, substantially as specified.

3. In an exercising-chair, the combination, with a base-piece or pedestal and a seat, of a single spring interposed between them bearing at one end against the seat, a bodily-movable bearing-piece for supporting the spring at the other end, and a screw for varying the resistance of the spring, substantially as specified.

4. In an exercising-chair, the combination,

with arms for imparting motion to the chair-body, of handles for said arms secured thereto by means of bolts cast into the handles, extending through said handles and riveted up outside said handles, the handles being free to rotate on the bolts, substantially as specified.

5. In an exercising-chair, the combination, with lugs B and bumpers O O', of the frame F, cast in one piece, and comprising the rims  $f^1$ , reaches  $f^3$ , central portion,  $f^4$ , sockets  $f^5$ , lugs or projections  $f^8$ , having semicircular portions  $f^9$ , and bolts  $f^{10}$ , said frame being provided with the screw-holes  $f^6$ , bolt-holes  $f^{11}$ , bolt-holes  $f^{12}$ , and oil-holes  $f^{13}$ , cast therein, substantially as and for the purpose specified.

6. In an exercising-chair, the combination, with a chair-seat, of the frame M, cast in one piece and comprising the socket  $n'$ , the lugs  $l'$ , the screw-holes  $m^1$ , cast therein, and the aperture  $m^2$ , substantially as and for the purpose specified.

7. In an exercising-chair, the combination, with a frame, as F, and bumper, as O O', of india-rubber cushions for receiving the impact of the bumpers, having in them vertical apertures extending nearly through them, substantially as and for the purpose specified.

8. In an exercising-chair, the combination, with a base-piece or pedestal and a seat, of mechanism, substantially such as described, for imparting a vertical movement to said seat, a spring interposed between the pedestal and the seat, and vertically-arranged bumpers for receiving the impact of the seat, substantially as specified.

J. M. W. KITCHEN.

Witnesses:

DANIEL H. DRISCOLL,  
JAMES D. GRISWOLD.