

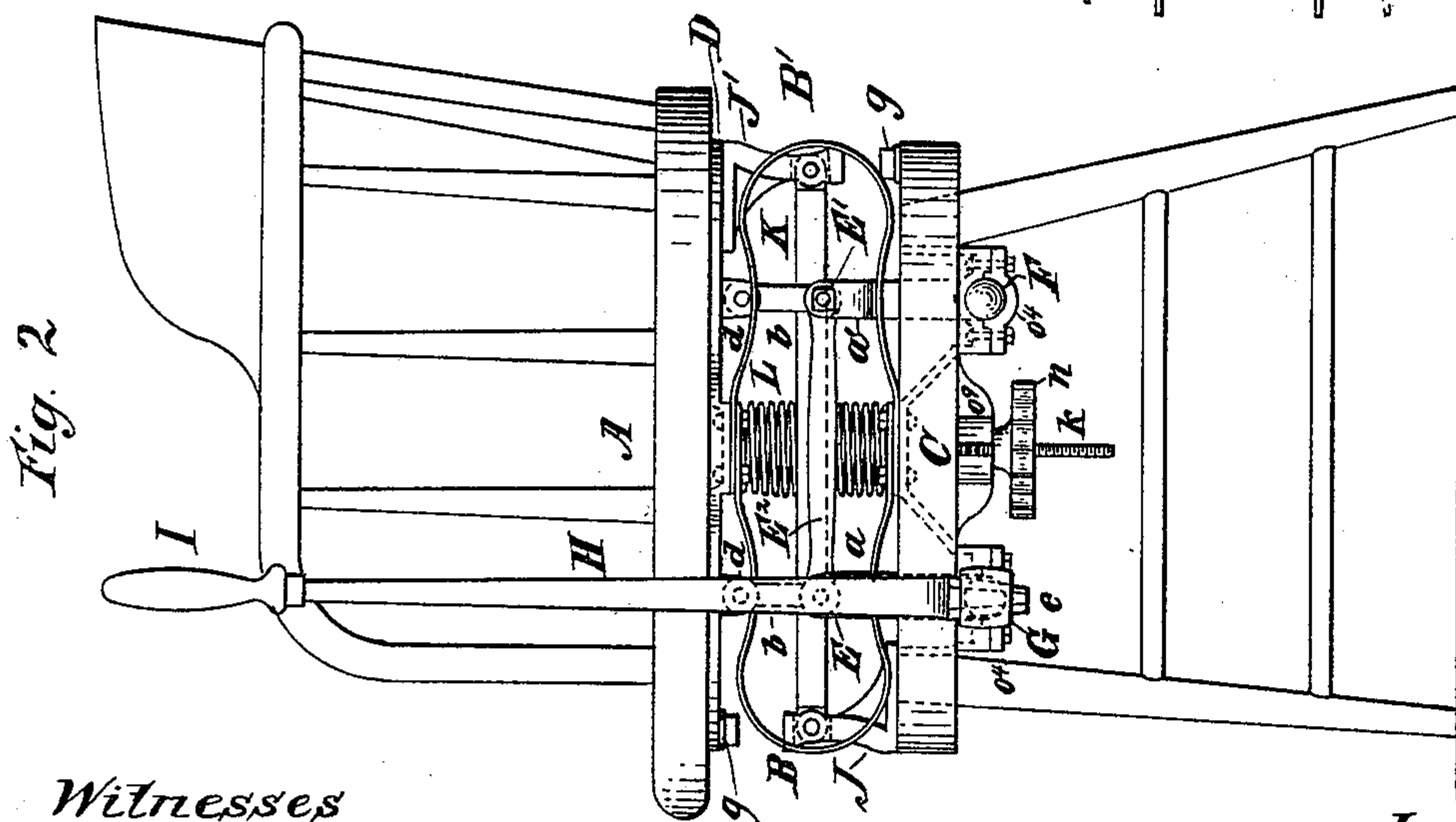
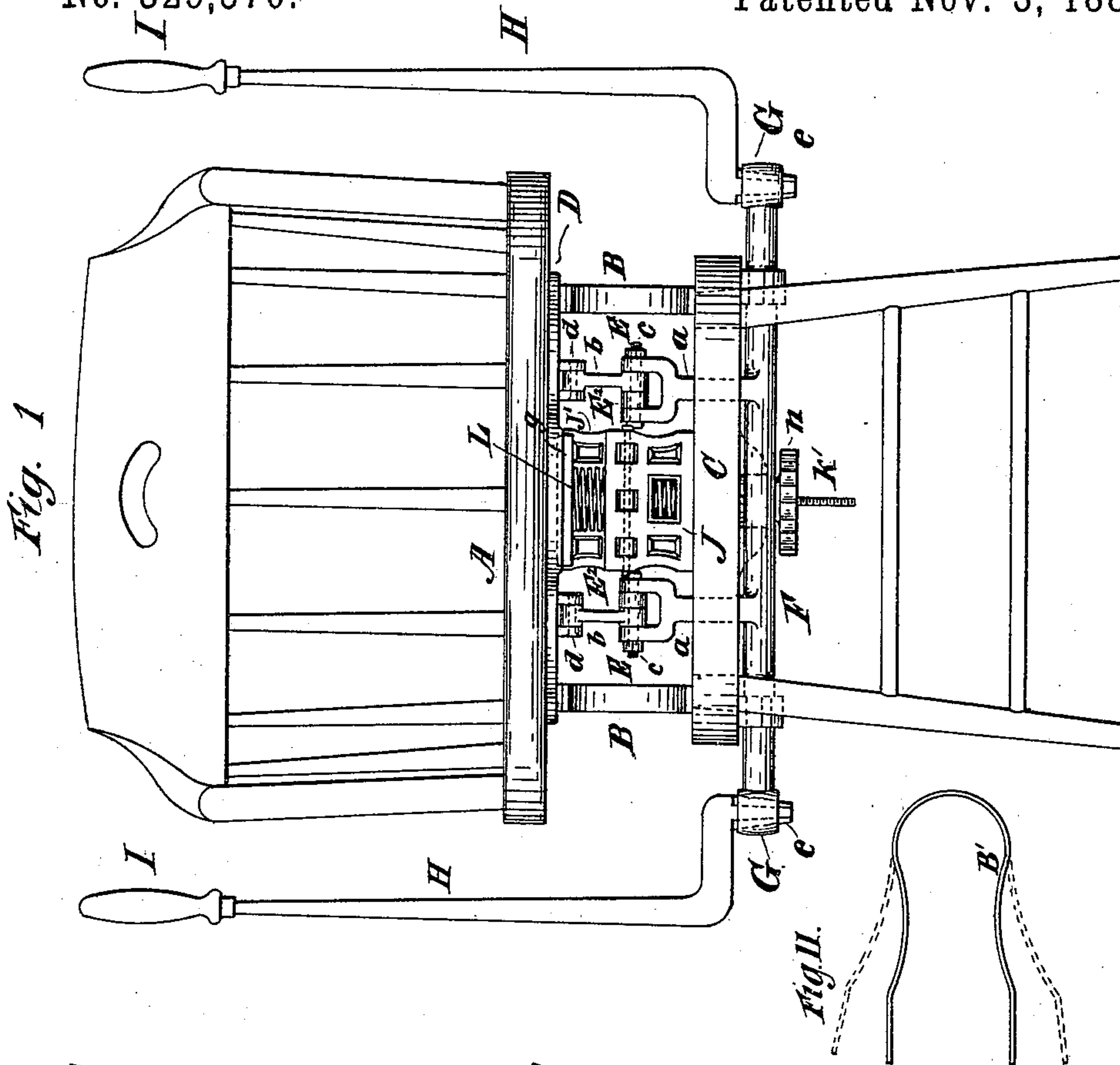
(No Model.)

2 Sheets—Sheet 1.

J. M. W. KITCHEN.
EXERCISING CHAIR.

No. 329,570.

Patented Nov. 3, 1885.



Witnesses
Edward T. Roche
Wm G. Lipsey

Inventor
Joseph M. W. Kitchen,
by his attorneys,
Gifford & Brown

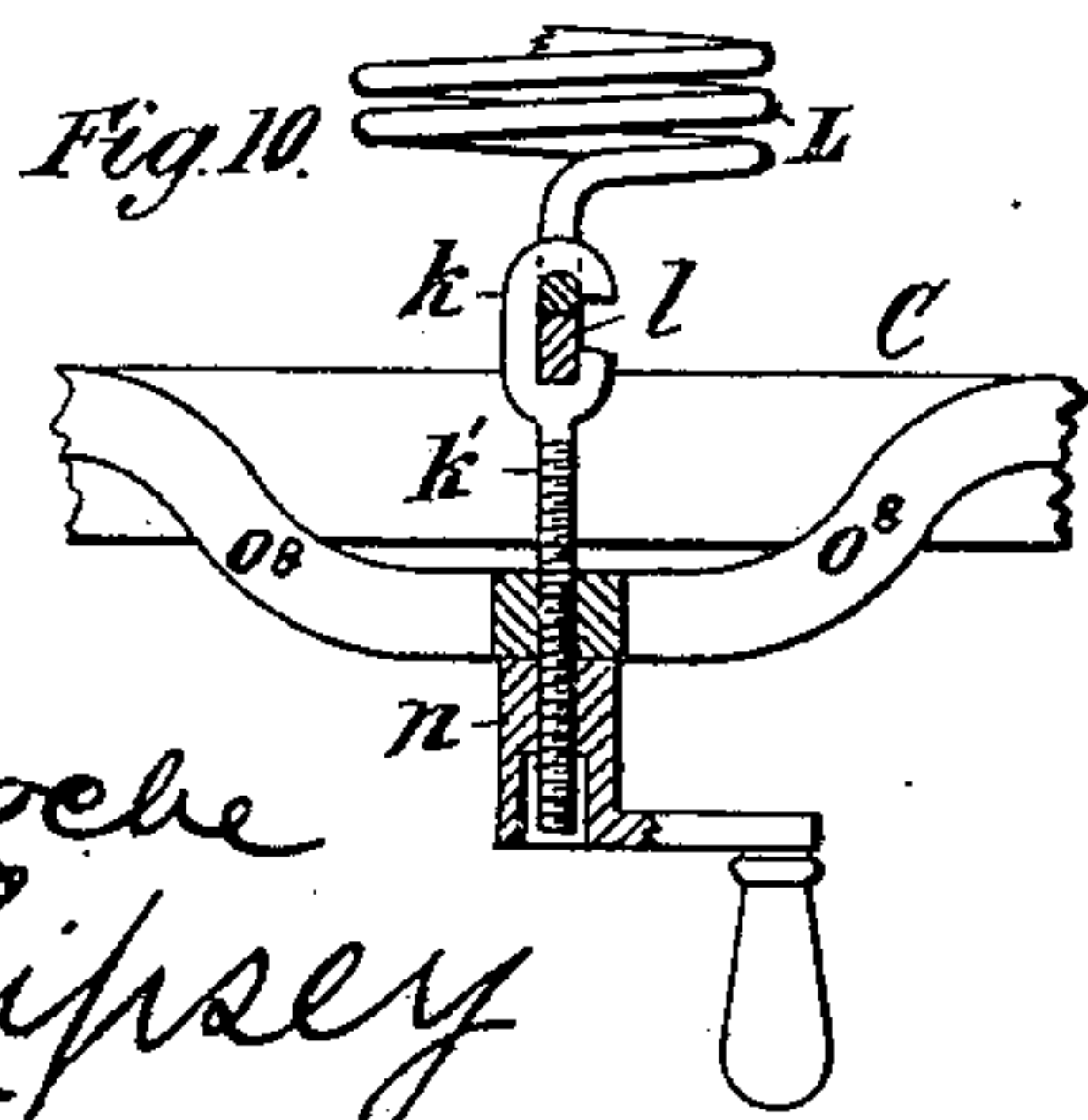
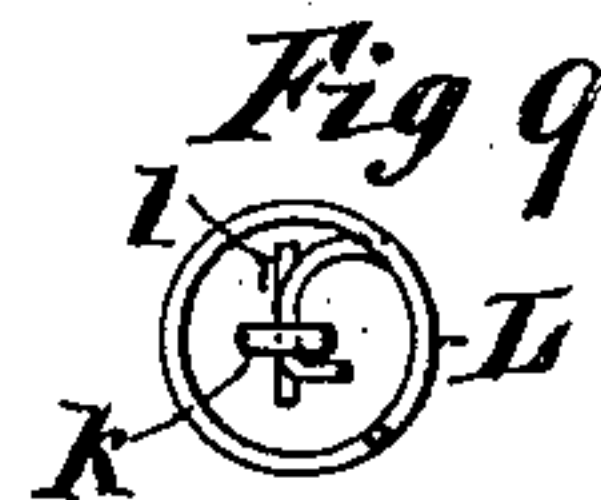
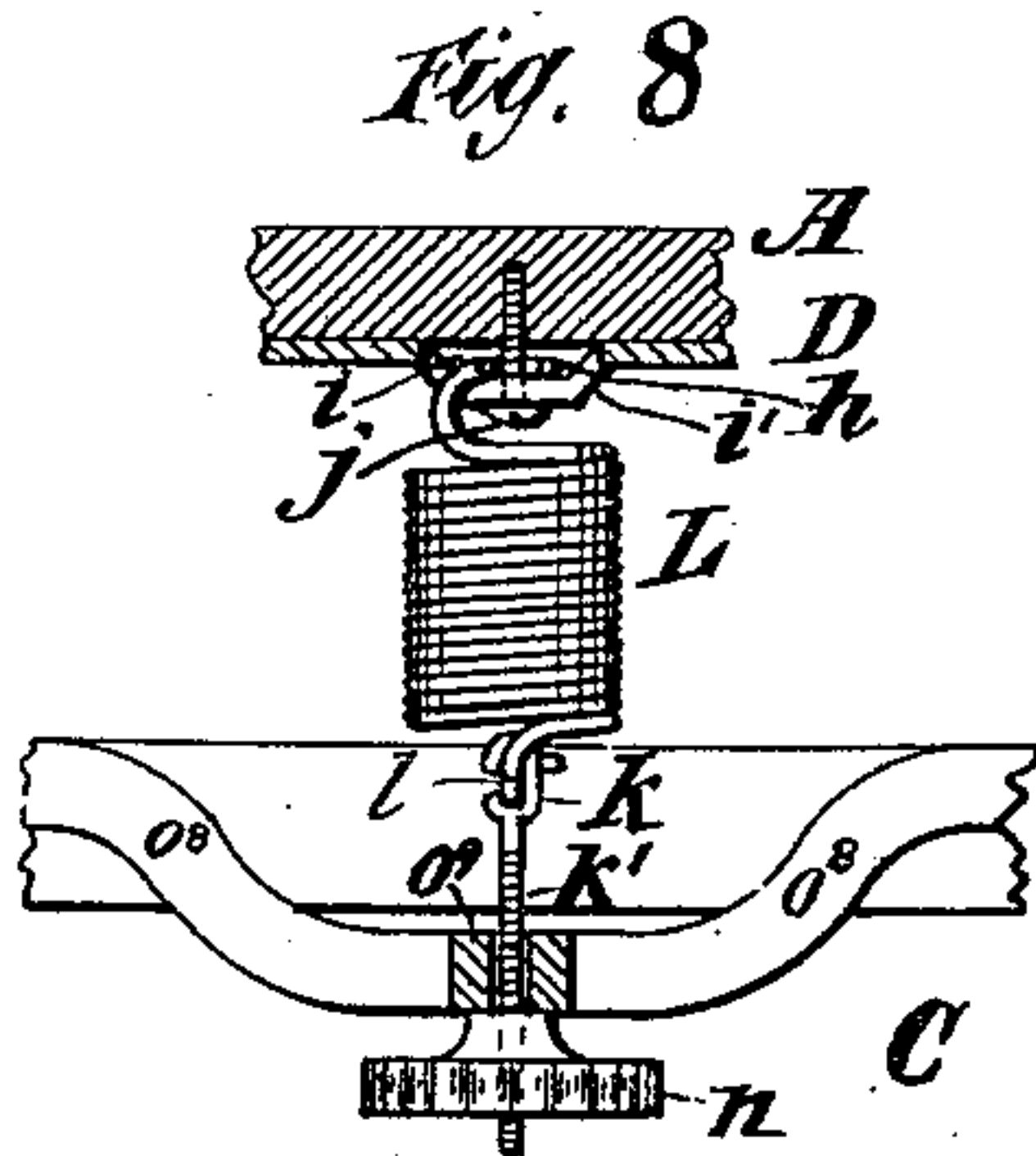
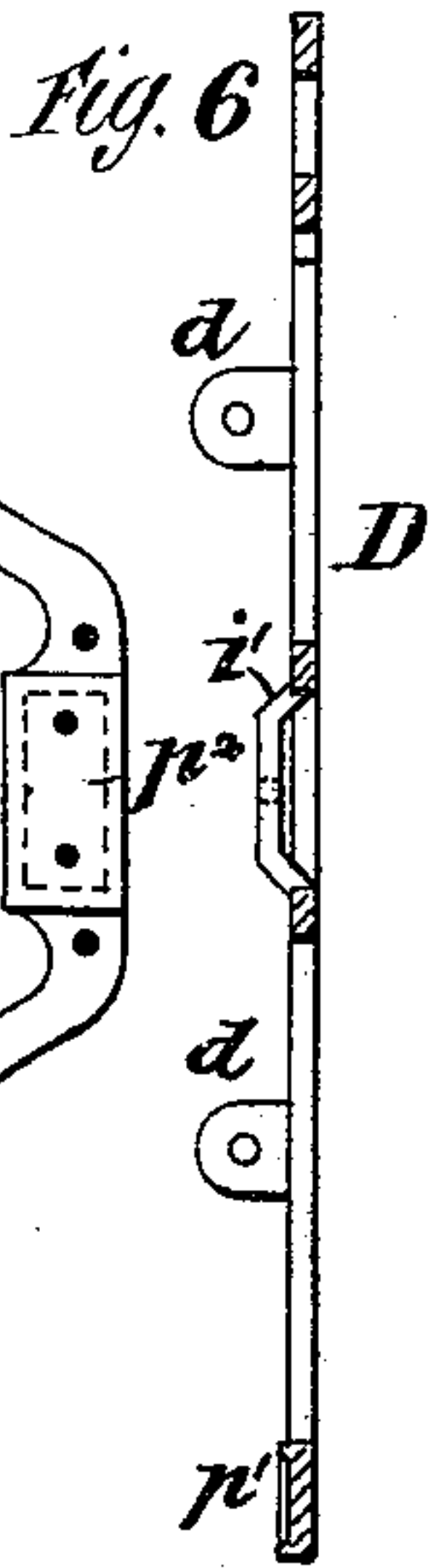
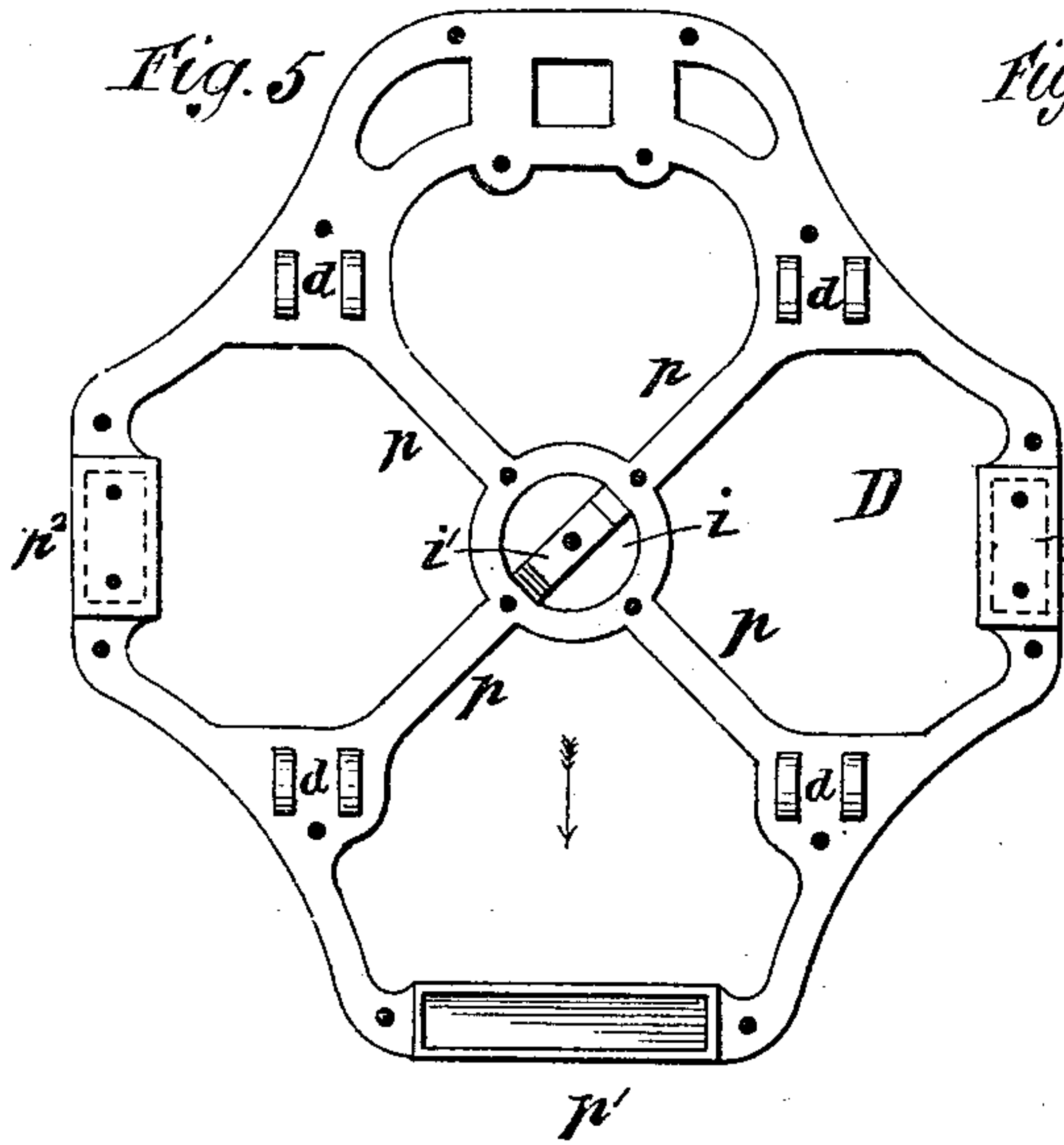
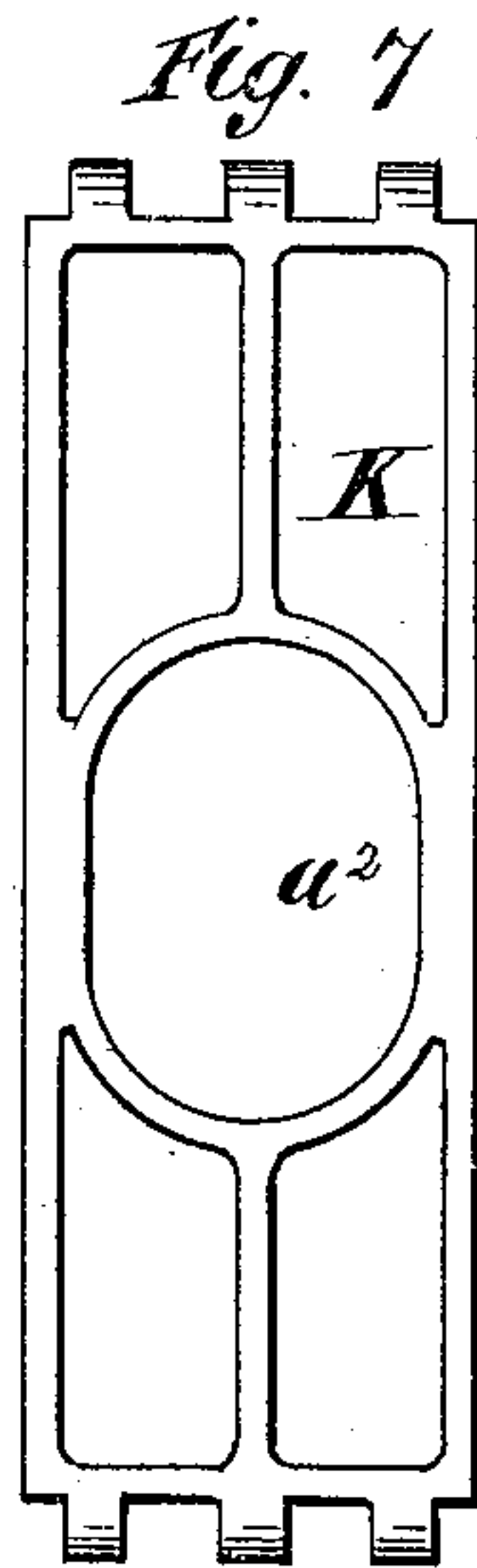
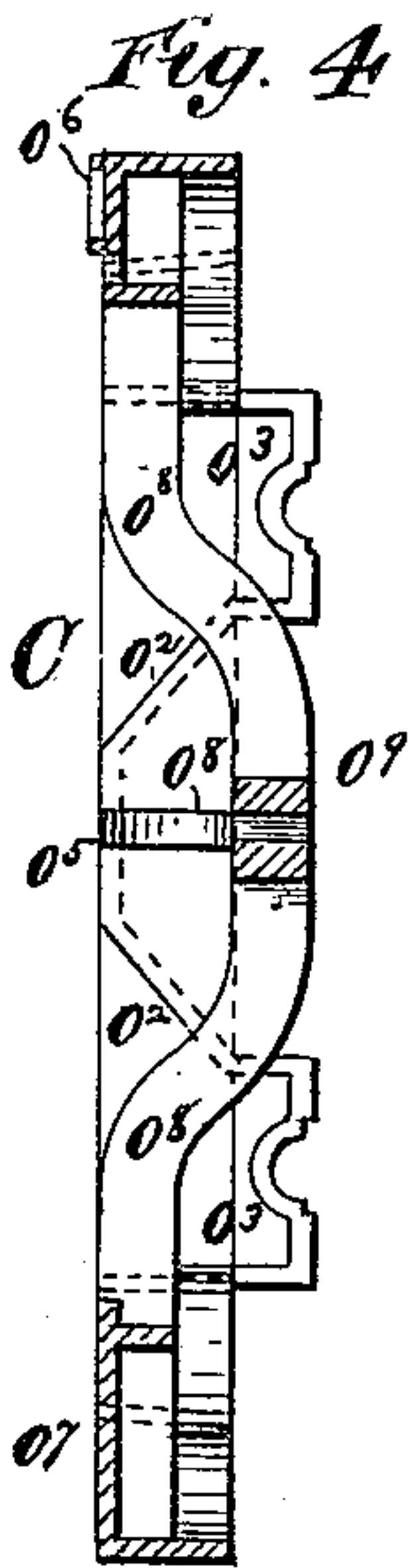
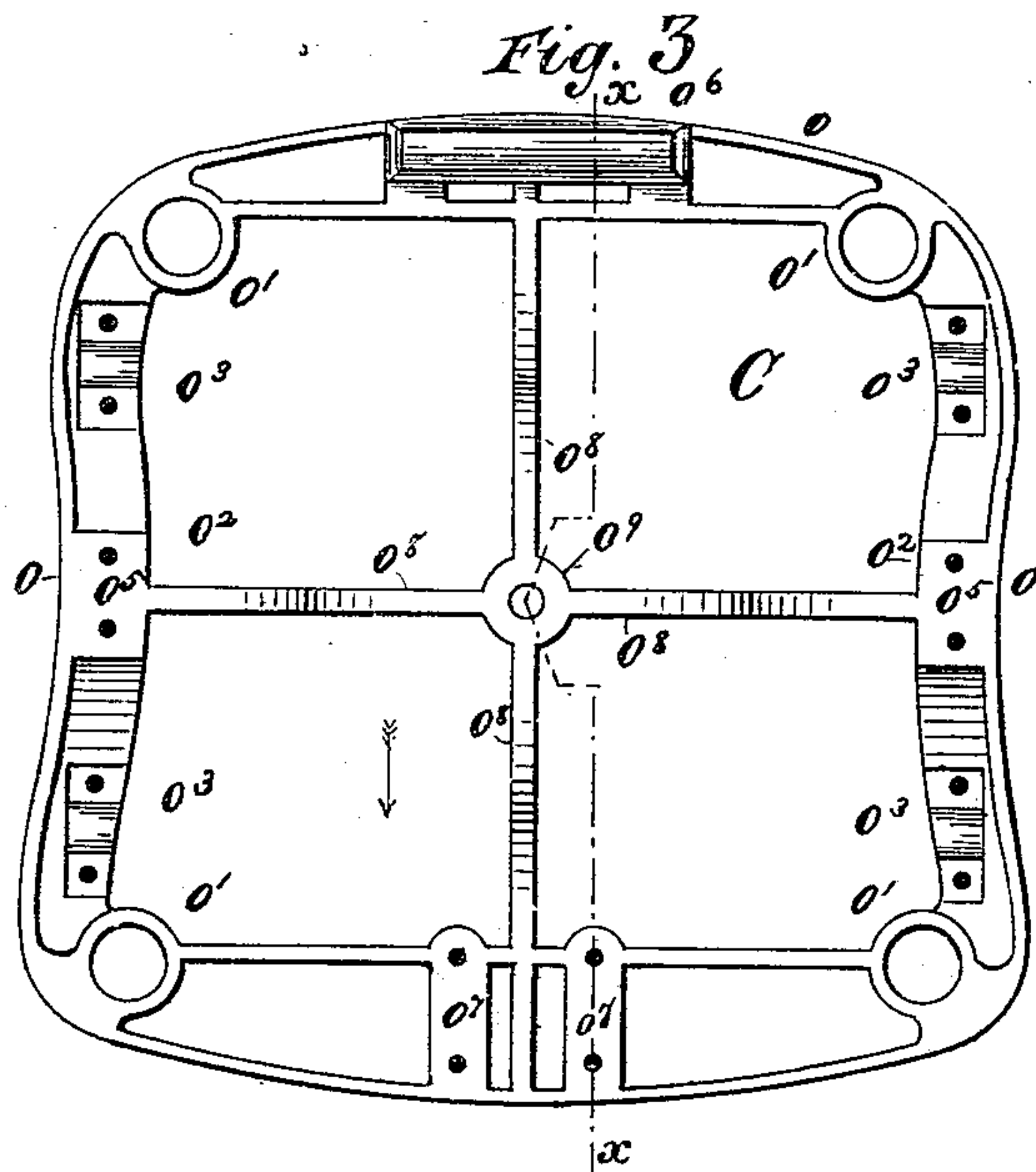
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2 Sheets—Sheet 2.

J. M. W. KITCHEN.
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UNITED STATES PATENT OFFICE.

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

EXERCISING-CHAIR.

SPECIFICATION forming part of Letters Patent No. 329,570, dated November 3, 1885.

Application filed January 27, 1885. Serial No. 154,155. (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 person of the occupant of the chair, and is used in the treatment of disease, particularly of those diseases incident to the abdominal region. It is also useful as a means of exercise.

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

In the accompanying drawings, Figure 1 is a front elevation of an exercising-chair embodying my improvement. Fig. 2 is a side elevation thereof. Fig. 3 is a top view of a portion of the frame thereof detached. Fig. 4 is a sectional view of the same, taken on the plane of the line *x x*, Fig. 3. Fig. 5 is an inverted view of a certain other portion of the frame thereof. Fig. 6 is a sectional view of Fig. 5. Figs. 7, 8, and 9 are details thereof, and Figs. 10 and 11 are modifications of certain parts.

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

A designates the seat of a chair, which may be of wood and of any desired construction, and is shown as provided with a back and pair of arms. This chair-seat is not in direct connection with the legs of the chair, but is supported a distance above them upon springs B B', extending between said seat and a frame, C, in which said legs are secured. A pair of these springs B B' is arranged upon each side of the frame C. As here shown, said springs are made of flat strips of metal. Each of these springs is approximately U-shaped. The ends of the springs in each pair are shown as overlapping when placed in position between the seat A and the frame C. They are there bolted firmly, the upper of said ends to a frame, D, rigidly affixed to the under side of the seat A, and the lower of said ends to the frame C. The curved or bow-shaped portions of the springs extend one toward the front and the other toward the rear of the chair. It is not alone the function of these springs to support

the chair-seat, but also to aid in elevating the same to a normal position when the same has been depressed from any cause. In order to conduce to the resilience of these springs, I prefer to so construct them that considerable force will be required to bend them into position for being secured between the seat A and frame C. I have shown in Fig. 11 one of these springs before adjustment in the chair.

It is the object of this chair to impart an up-and-down motion to the chair-seat. To accomplish this, I employ toggles E E', arranged beneath the seat A and between it and the frame C. The arms *a* of the toggles E, which are the toggles nearer the front of the chair, have their downwardly-extending ends rigidly secured to a rock-shaft, F. As here shown, they are made integral with said rock-shaft. These arms, near their upper or free ends, are bifurcated to receive one of the ends of links *b*, which are pivotally connected thereto by pins or bolts *c*, passing through suitable holes therein and in the links *b*. The other ends of said links are pivotally connected by means of bolts or pins to downwardly-extending lugs or projections *d* upon the under side of the frame D.

The toggles E' are arranged to the rearward of the toggles E. The arms *a'* of these toggles are connected to a shaft, F'. The construction of these toggles and the mode of their attachment are in all respects similar to the toggles E, except that the arms *a'* of the toggles E' may have a loose connection with the shaft F', if desired. I have found that the best results are obtained with these toggles when the arms *a* are approximately twice the length of the links *b*.

The toggles E E' are connected together by means of links E², pivotally connected at either of their ends with said toggles by the pins or bolts *c*, the bifurcated ends of the arms *a a'* being adapted to receive them. By this means motion imparted to the toggles E will be correspondingly transmitted to the toggles E'.

The shafts F and F' are, as shown, arranged beneath the frame C, and are journaled in suitable bearings, the main portions of which are formed integral therewith, and the removable caps of which are secured in place by screws or bolts in the well-known manner. They extend crosswise of the frame C, or in

the direction of the width thereof. The shaft F extends outwardly for a considerable distance beyond the frame C, and has arranged near its ends sockets G, adapted to receive the end portions, *e*, of levers H. I make these sockets of such shape that they will interlock with the arms in different positions. I prefer to make these sockets of hexagonal or kindred shape, and the portions *e* of the lever to correspond therewith, in order to prevent rotary motion of said portions *e* therein. The end portions, *e*, are preferably tapering, to admit of easy insertion and removal into and out of the socket G. Immediately above the portions of the levers H entering the sockets G said levers are preferably bent for a distance at approximate right angles to the portions *e*, and above said bent portion extend upwardly in a direction approximately parallel with the sides of the chain. Upon the upper ends of the levers H are handles I in such position as to be conveniently grasped by a person seated in the chair. By varying the positions of the portions *e* of the levers H in the sockets G the handles I may be brought nearer to or farther away from the chain, in order to accommodate the varying lengths of the arms of persons occupying the chair. It will be seen that as the levers are moved backward and forward the shaft F is rocked, operating the toggles E, and by means of the links E² the toggles E', in such manner as to admit of the descent, and subsequently to elevate, the chair-seat A, and consequently any person seated thereon, and a jolting motion is thereby imparted to the occupant of the chair.

J J' are arms or brackets rigidly secured, by bolts or otherwise, to the frames C and D. The bracket J is secured near the front of the frame C, and extends upwardly therefrom. The bracket J' is secured near the rear of the frame D, and extends downwardly therefrom. The brackets J J' are of approximately the same length. Extending between said brackets is a rod, K, shown of frame-like construction. (More clearly illustrated in Fig. 7.) This rod is pivotally connected, or, in other words, hinged, at one end to the bracket J, near the top thereof, and at the other end to the bracket J', near the bottom thereof. The rod K extends about a convolute spring, L, a central aperture, *a*², being made therein for such purpose. The free ends of the brackets J J' are preferably flattened, and are adapted to come in contact with bumpers *g*, here shown as consisting of pieces of india-rubber secured in sockets, one upon the frame D, above the bracket J, and the other upon the frame C, above the bracket J'. By this arrangement the seat A is always maintained in an approximately horizontal position, and prevented from lateral or antero-posterior motion, while the too sudden jar incident to the coming together of the brackets J J' with the seat A and frame C is obviated, and noise prevented.

I have found it necessary to adjust this chair to the weights of different persons, and to vary

the degree of the bumping action. For these purposes I employ the spring L, and provide for varying the force with which the same acts. This spring I arrange vertically beneath the seat A and at about the center thereof. The upper end is secured to the frame D in manner more clearly shown in Fig. 8, consisting of a loop, *h*, formed upon the end of the spring by bending the same. This loop is bent over in such manner as to lie flat within a recess, *i*, formed upon the frame D. This recess is formed by a downwardly-projecting portion, *i'*, of the frame D, in which is a hole adapted to receive a screw, *j*. The screw *j* passes upwardly through the part *i'* and the loop, and is screwed into the chair-seat A. By this means the upper end of the spring is firmly secured. As the upper portion of the spring is adapted to bear against the portion *i'* of the frame D, said spring is thereby prevented from having any material rotary motion. The lower end of the spring is bent into hook shape, which engages with a loop, *k*, upon the upwardly-extending end of a screw-rod, *k'*. A wedge, *l*, which may be driven into the loop *k*, as shown more clearly in Fig. 9, secures the hook within the loop. The screw-rod *k'* passes through an aperture in a central portion, *o*⁹, of the frame C, and the screw-threaded portion receives a nut, *n*, below the portion *o*⁹. This nut is in the form of a wheel. By adjusting this nut upon the screw-rod *k'* the tension upon the spring L may be varied. Instead of the wheel-nut *n*, I may use a crank-nut having a screw-threaded hole adapted to receive the rod *k'*. I have shown such an arrangement of parts in Fig. 10. The nut and core on the crank are made long, so as to avoid all necessity for protrusion of the rod *k'*. When a person of heavy weight is occupying the chair, the tension upon the spring L is relaxed by adjusting the nut *n*; but when a person of lighter weight occupies the chair the tension of the spring is increased. The spring then exerts a downward pull upon the chair-seat, which compensates for the decreased weight. By this simple device the chair is made equally operative for persons of all weights. I prefer to construct it to accommodate persons weighing from seventy-five pounds up. The nut *n* may also be adjusted to vary the violence of the bumping action.

The construction of the frames C and D is an important feature of my improvement. Each of these I prefer to cast in one piece. These are clearly indicated in Figs. 3, 4, 5, and 6.

The arrow shown in Figs. 3 and 5 points to the direction of the front of the chair when the frames C and D are in position. The frame C is shaped approximately like the seat of an ordinary chair. It has an outer rim-like portion, *o*, having approximately parallel top and bottom edges. Extending inwardly from the four corners of the frame are portions *o'*, having in them apertures forming sockets

adapted to receive the upper ends of the four legs of the chair. Upon the sides of the frame transversely to the length of the arrow are inwardly-extending rims or flanges o^2 . The flanges o^2 have in them depressed portions o^3 , in which are holes adapted to receive bolts, by which certain caps, o^4 , are secured to the frame C, in order to form journal-bearings for the shafts F F'. Certain portions, o^5 , of the flanges o^2 are flush with the top edge of the rim-like portion o , and have in them holes adapted to receive bolts, by which the springs B B' are secured to said frame. Upon the rear of the frame is cast a recess, o^6 , adapted to receive one of the bumpers g . Opposite the recess o^6 the frame has upon it a portion, o^7 , extending inwardly from the front thereof. To this portion the bracket J is bolted through appropriate bolt-holes. Brace-pieces o^8 extend inwardly from the four sides of the frame. Near their inner ends the brace-pieces o^8 dip downwardly, but meet in an approximately horizontal plane. At their meeting ends they are extended somewhat laterally, forming a central portion, o^9 . Through the central portion, o^9 , extends downwardly an aperture, through which passes the screw-rod k' . The depressed portions of the brace-pieces o^8 form a recess for the lower end of the spring L. The frame D has brace-pieces p extending inwardly toward the center, where they meet and form a recess for the upper end of the spring L, as previously described. It has upon the front side a recess, p' , for one of the bumpers g , and upon each of the sides transverse to the length of the arrow a recess, p^2 , adapted to receive the bolt-heads by which the springs B B' are secured to the frame. Lugs d extend downwardly from the same, to which the links b are secured, and the frame is provided with suitable screw-holes, by which the same may be secured to the chair-seat.

My mode of constructing these frames and their attachment to the chair give rigidity to a structure which is subjected to more strain than is usual in chairs.

My exercising-chair is simple and effectual, and will be found invaluable in the treatment of certain kinds of diseases.

I have filed an application for Letters Patent on an exercising-chair June 19, 1884, No. 135,404. A feature of that application consists in a chair-seat, a pedestal below the seat, and mechanism for producing a vertically-vibratory motion in the seat, and a spring or springs supported by the pedestal, and which equalizes the motion of the seat. Another feature of said application consists in two shafts, upright standards secured to said shafts, rollers upon the said standards adapted to be moved to and fro within slotted bars, bars connecting said standards, and handles for rocking the shafts, whereby when the standards are oscillated through the rocking of the shafts an up-and-down motion will be given to the chair-seat. Another feature of said improvement consists in sockets in the outer

ends of one of said rocking shafts and handles provided with bends or offsets, and adapted to be secured in different positions in said sockets. Still another feature of that application consists in a bar or strap extending between the chair-seat and the pedestal, and having its ends pivotally connected to the seat and pedestal for limiting the backward and forward oscillation of the seat. In my present application I do not lay claim to any of these features when broadly considered.

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

1. In an exercising-chair, the combination, with a vertically-movable seat, of springs upon which said seat is supported, a frame below the springs and supporting the same, toggles consisting of arms $a a'$ and links b , for imparting a vertical motion to the chair-seat, and levers for operating the toggles, substantially as specified.

2. In an exercising-chair, the combination, with a vertically-movable seat, of pairs of springs B B', supporting the seat, a frame below the springs supporting the same, toggles for imparting a vertical movement to the seat, and levers for operating the toggles, substantially as specified.

3. In an exercising-chair, the combination, with a vertically-movable seat, of springs upon which said seat is supported, a frame below the springs supporting the same, a frame affixed to the under side of the seat to which said springs are secured, toggles secured at one end to shafts supported in bearings in the frame upon which the springs are mounted, and pivotally connected at the other end to lugs or projections upon the frame, secured to the under side of the seat, links connecting said toggles, and levers for operating the toggles, substantially as specified.

4. In an exercising-chair, the combination, with a vertically-movable seat, of springs upon which said seat is supported, a frame supporting the springs, the toggles E E', having the arms $a a'$ and the links b , the arms $a a'$ being approximately twice the length of the links b , and the levers H, substantially as specified.

5. In an exercising-chair, the combination, with a vertically-movable seat, of springs for supporting the seat, a frame below the springs and supporting the same, toggles arranged between the seat and the frame, levers for operating the toggles, and bumpers arranged between the seat and the frame, substantially as specified.

6. In an exercising-chair, the combination, with the chair-seat A, of the frame C, the springs B B', toggles, the brackets J J', the rod K, of frame-like construction, and the levers H, substantially as specified.

7. In an exercising-chair, the combination, with the chair-seat A, of the frame C, the springs B B', toggles, the brackets J J', the bumpers g , and the levers H, substantially as specified.

8. In an exercising-chair, the combination,

- with a vertically-movable seat, of springs for supporting the seat, a frame below the springs and supporting the same, toggles arranged between the seat and the frame, levers for operating the toggles, and an adjustable spring arranged between the seat and the frame, substantially as described, whereby the pressure of the seat upon the first-mentioned springs may be varied.
- 10 9. In an exercising-chair, the combination, with the seat A, of the frame C, the springs B B', the spring L, rod k' , and the nut n , substantially as specified.
- 15 10. In an exercising-chair, the combination, with a seat, A, of a frame, C, a frame, D, the springs B B', the brackets J J', the rod K, of frame-like construction, having the aperture a^2 , and the spring L, substantially as specified.
11. In an exercising-chair, the combination 20 of the seat A, the frame D, having the brace-pieces p , the recess i , the recess p' , the recesses p^2 , and the lugs d , the frame C, having the portions o' , the rims or flanges o^2 , with depressed portions o^3 , the recess o^6 , the portion 25 o^7 , and brace-pieces o^8 , with the springs B B', the toggles E E', and the levers H, substantially as specified.
12. In an exercising-chair, the combination, with the seat A, of the springs B B' and the 30 frame C, having sockets for the legs of the chair cast therein, substantially as specified.

J. M. W. KITCHEN.

Witnesses:

T. J. KEANE,
W. G. LIPSEY.