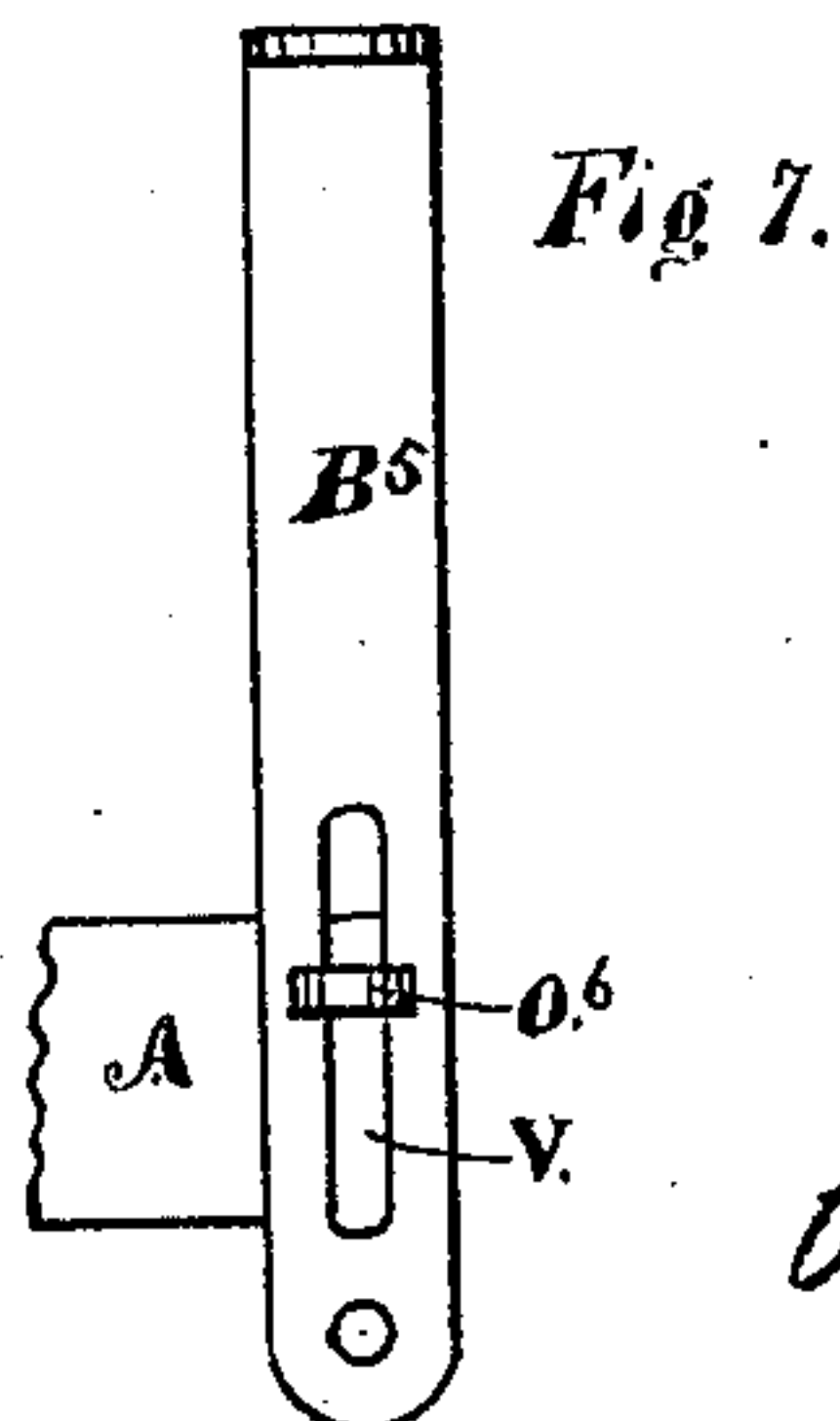
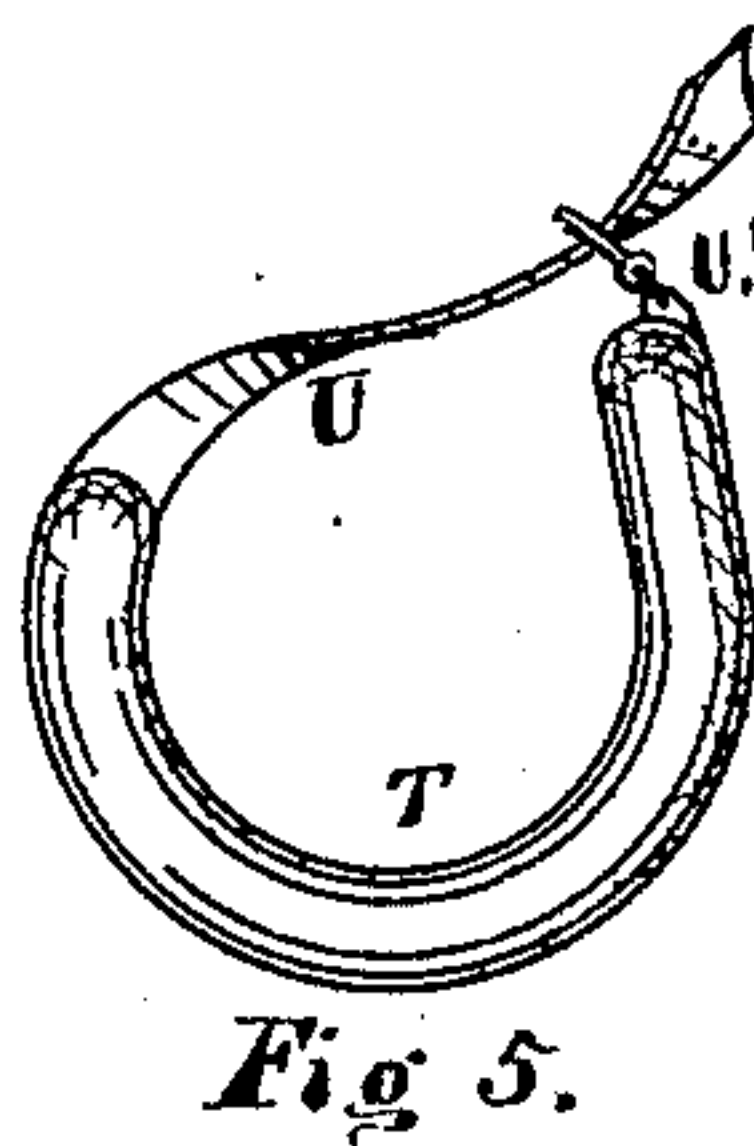
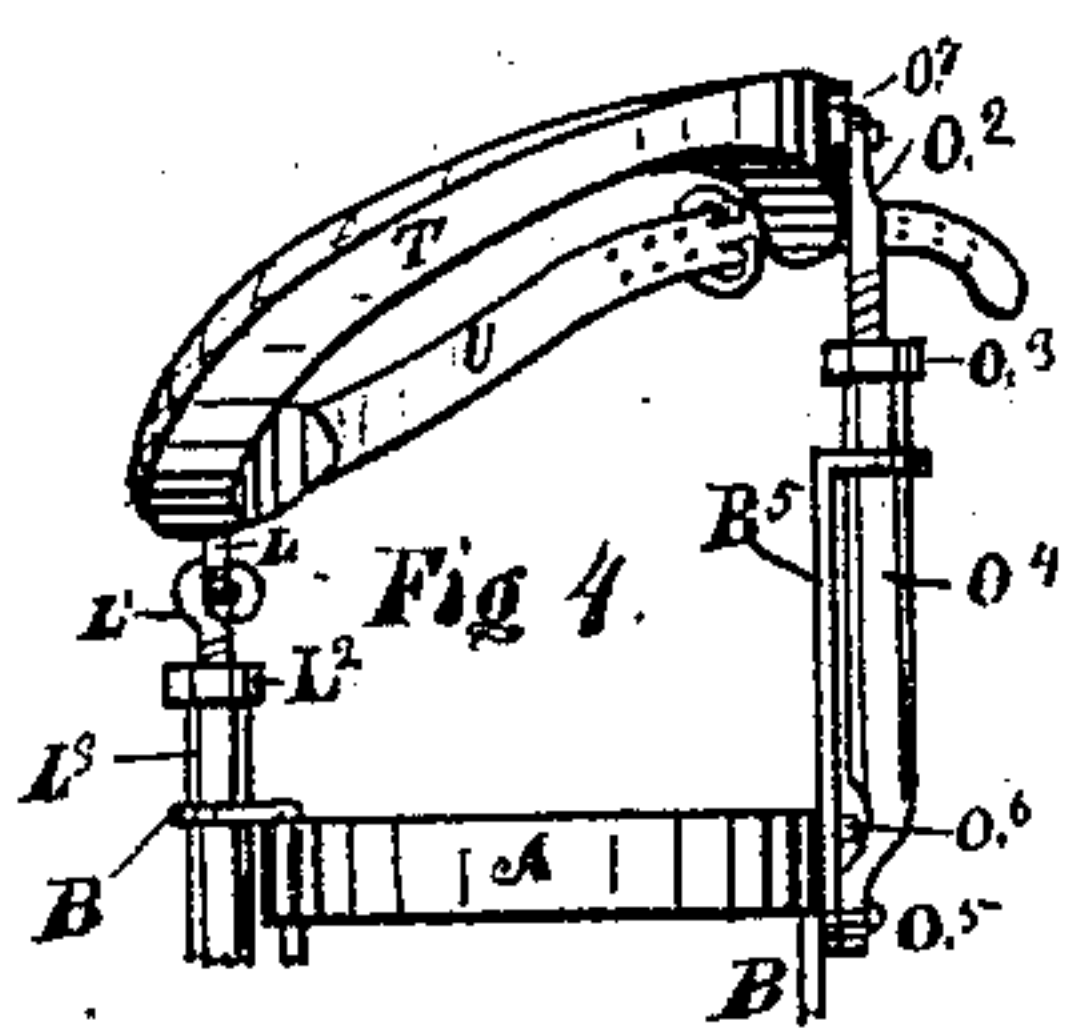
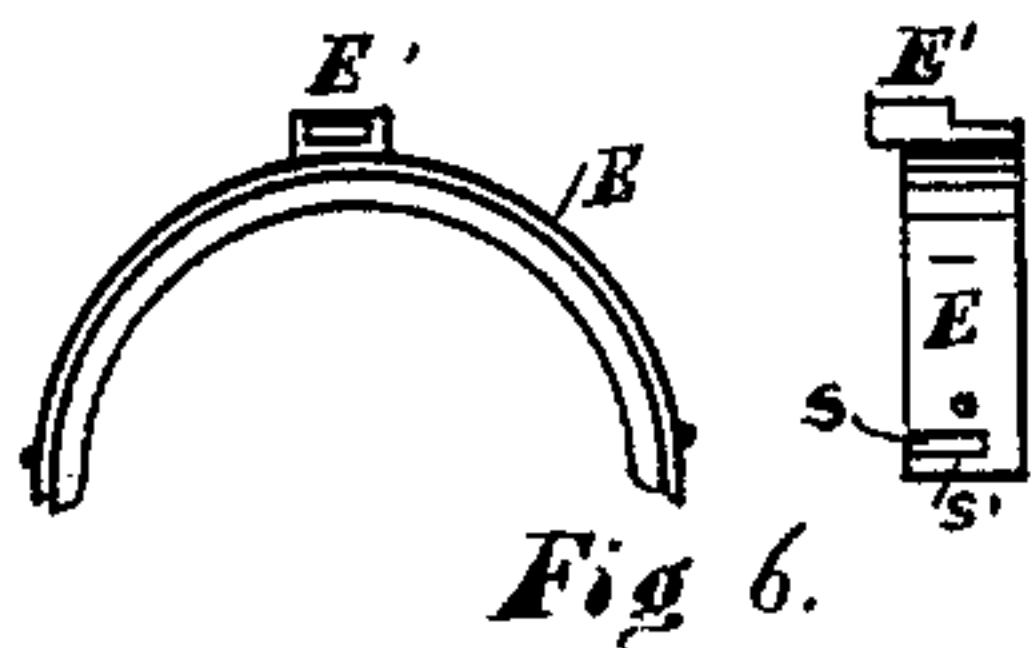
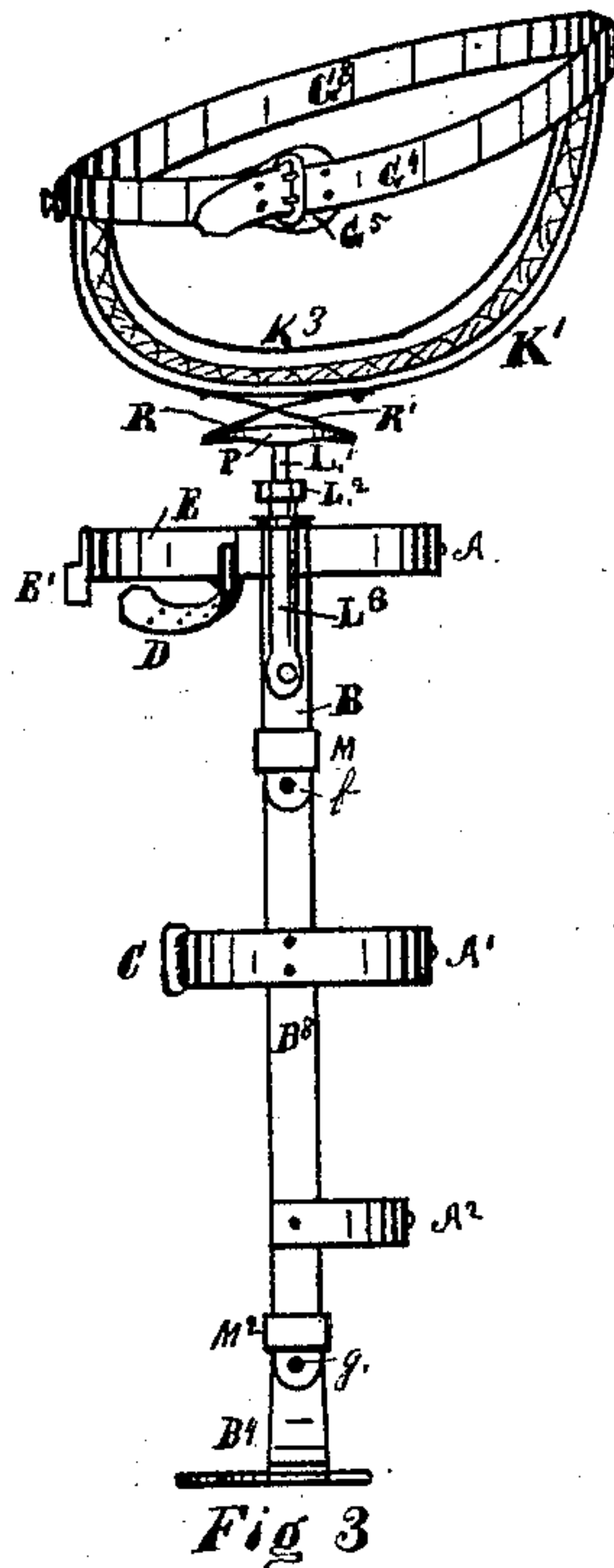
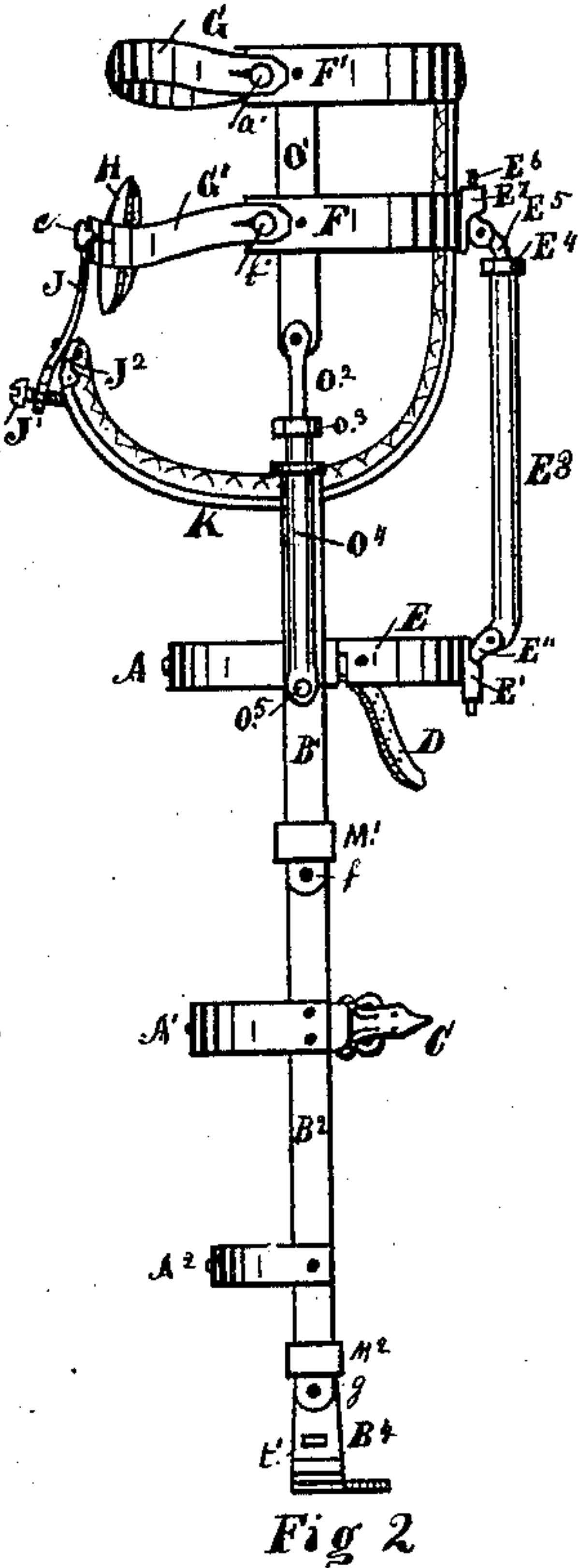
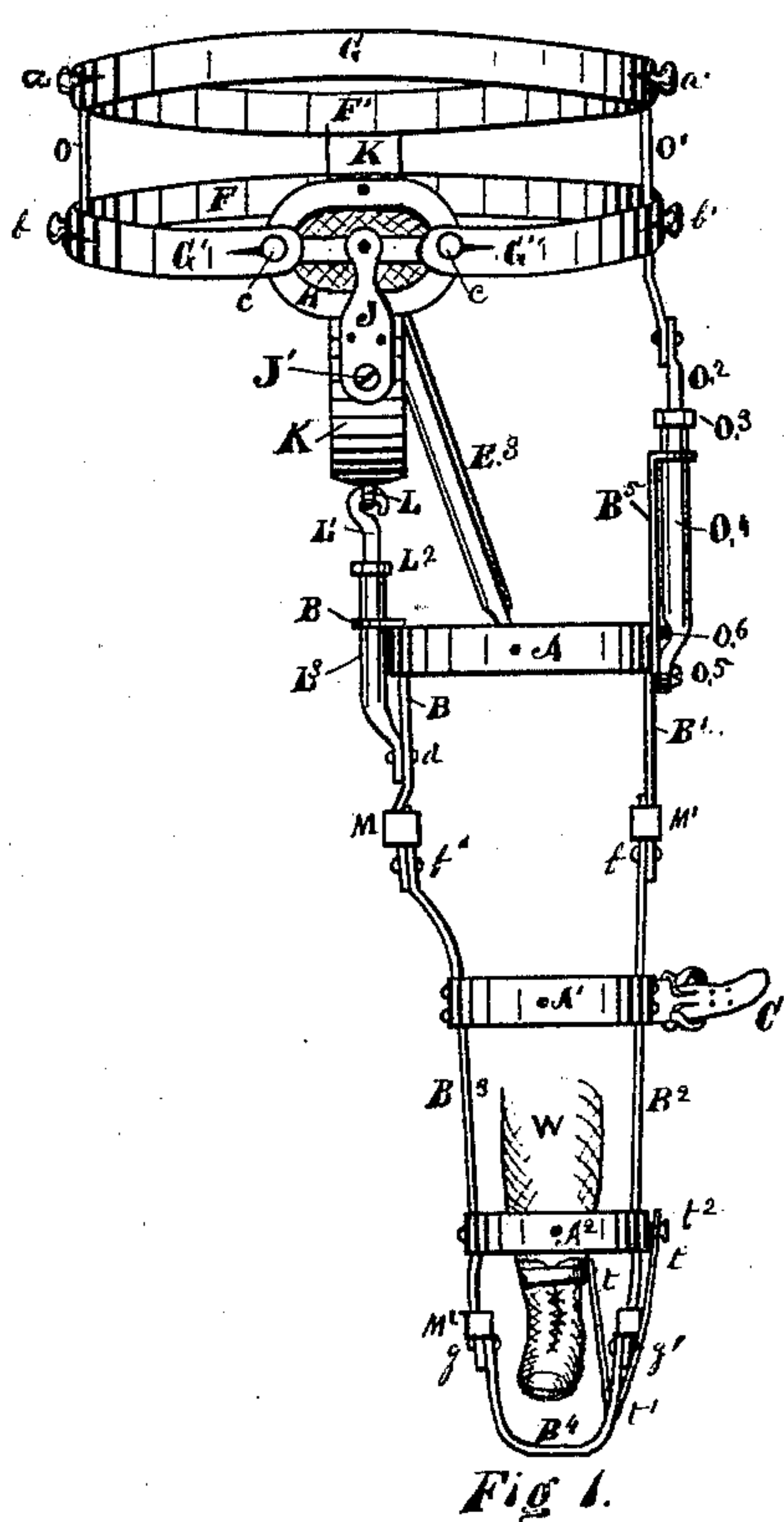


H. R. ALLEN.
HIP AND THIGH-BRACE.

No. 170,656.

Patented Dec. 7, 1875.



WITNESSES:
John M. Dowd
J. S. Lang

INVENTOR.
Horace R. Allen,
Per C. H. Smith, atty

UNITED STATES PATENT OFFICE

HORACE R. ALLEN, OF INDIANAPOLIS, INDIANA.

IMPROVEMENT IN HIP AND THIGH BRACES.

Specification forming part of Letters Patent No. 170,656, dated December 7, 1875; application filed September 25, 1875.

CASE C.

To all whom it may concern:

Be it known that I, HORACE R. ALLEN, of Indianapolis, county of Marion, State of Indiana, have invented a new and useful Improvement in Braces for Treating Deformed Portions of the Hips and Thighs, of which the following is a description, reference being had to the accompanying drawings.

My invention relates to the construction and arrangement of the different parts of the brace, the upper part of which is designed to be secured around the body at or below the waist, and is supported or pivoted to the lower or leg brace on the outside of the hip, also between the legs, so as to allow a natural motion of the body and legs.

In order to accommodate this brace to the several stages of treatment of males as well as females, it is necessary to employ several different designs and forms of the upper or body sections in connection with the lower or leg section, of which the following is a specification:

Figure 1 represents a back elevation of my improved brace. Fig. 2 is a side elevation of the same. Fig. 3 is an opposite-side view from that of Fig. 2, showing a different form of the upper section. Fig. 4 represents another form of the upper section—designed for general use. Fig. 5 is a plan view of the upper section as shown in Fig. 4. Fig. 6 represents a plan and side view of the auxiliary piece that is sometimes attached to the leg part of the brace to help form a support for the upper section, as shown in Figs. 1 and 2. Fig. 7 represents the removable side bar or extended connection at the thighs.

The lower or leg part of the brace is constructed after the same plan as that of my patent granted June 22, 1875. I will describe it in order to show its connections with the improved parts.

The leg-braces are formed with an ankle or foot piece, B^4 , pivoted at $g g^1$ to the upright side bars $B^2 B^3$, and the joint is provided with a sliding band, M^2 , so as to make the joint rigid, if required. The uprights $B^2 B^3$ are united by curved bars $A^1 A^2$, the bar A^2 having a strap and buckle, C , attached for securing the lower part of the brace to the leg below the

knee. Above the bar A^1 the side bars $B^2 B^3$ are pivoted to the upright side bars $B B^1$, with a sliding band, M , on the joints, so as to make the joints rigid, if required, or free to work on the pivots $f f'$. The upper ends of the side bars $B B^1$ are united by the curved bar A . The side bar B is turned outward, or forms a right angle at its upper end, and is provided with a hole, in which is inserted the tube L^3 ; or there may be a clip formed on the upper end of the bar B , to receive the tube L^3 . This is also secured to the side bar B by rivets d . In this tube L^3 is inserted an adjusting-screw, L^1 , provided with a nut, L^2 . The upper end of the screw L^1 is formed into an eye or hook, and is interlocked in a staple or eyebolt, L , that is secured to the padded spring-brace or seat-piece K , in such a manner as to allow all of that part of the brace above the leg-section to work freely on the eyebolt L and screw L^1 . At the rear end of the padded spring-brace or seat-piece K is attached one leaf of a hinge, J' , the other leaf of which is secured to the spring J , which is also attached to the pad H . The lower end of the spring J is provided with an adjusting-screw, J' , by means of which the pad H can be adjusted with any amount of pressure against the body that may be desired. The front part of the padded spring-brace K extends upward far enough to receive one or more curved spring-bars, $F F'$, which are riveted thereto. K^3 is an extra spring-brace, used to elevate the body when required. The spring curved bars $F F'$ extend around the back to the sides of the body, and are united together at the ends by the side spring-bars $O O^1$. The bar O^1 extends below the bar F , and is pivoted to the upper end of the adjusting-screw O^2 , which is also provided with an adjusting-nut, O^3 , and inserted into the tube O^4 . This tube O^4 is also inserted in a hole in the angular part of the side bar B^5 , or to a clip attached thereto, and secured therein by the pivot-screw O^5 , which also secures the lower end of the side bar B^5 to the side bar B^1 . The side bar B^5 is further secured to the curved bar A of the lower section of the brace by the bolt or stud O^6 , which has the sides of the head flattened, so as to pass through a slot, V , of the bar B^5 , as shown more fully in Fig.

7. The pivoted joint of the side bar O^1 and adjusting-screw O^2 , in connection with the universal joint formed by the eyebolt L and eye in the end of the adjusting-screw L^1 , allows the natural motion of the body and hips forward and backward, and, at the same time, the body-braces $F F^1$ can be elevated or depressed at pleasure between the legs and at the hip-joint by means of the adjusting screws and nuts $O^2 O^3$ and $L^1 L^2$. The upper spring curved bar F' is provided with studs $a a'$, or buckles, to which are attached the strap G , and the lower spring curved bar F is also provided with the same for the straps $G^1 G^2$, which are also secured to the pad H in the rear, as shown in Figs. 1 and 2.

At the front of the lower spring-bar F is pivoted a socket, E^7 , in which is inserted a piece, E^6 , which is hinged to the adjusting-screw E^5 , and this screw is provided with an adjustable nut, E^4 , and inserted into the tube E^3 , which is pivoted at the bottom to the piece E^2 , and inserted in the socket E^1 . This socket is pivoted or riveted fast to the auxiliary curved bar E . (Shown more fully in Fig. 6.) The bar E can be riveted solid to the uprights $B B^1$, and the bar A removed, or the bars A and E may be made continuous.

If used as shown in the drawings, the bar E has a notch, s , and a hook, s' , on each end, and can be inserted in two rings or eyes formed on the ends of the curved bar A , or secured in any other convenient manner.

By adjusting the nut E^4 the body of the brace can be inclined forward or backward, as desired. If the auxiliary curved bar E and adjusting-screw E^5 , with its connections, are removed, then the upper part of the leg-brace can be secured around the thighs by means of the strap D . In some stages of treatment the body-braces, as shown in Fig. 3, would have to be substituted for that, as shown in Figs. 1 and 2.

The body-brace, as shown in Fig. 3, is composed of the padded spring-brace or seat-piece K^1 , which is only supported on the end of the adjusting-screw L^1 . The screw in this case is provided with a **T** or **L** shaped head, P , on which are riveted on each side the springs $R R'$, which cross each other, and are attached to the padded spring-brace K^1 , in such a manner as to allow of a rocking motion to the body, and throw the center of motion higher up or opposite the hips. To the upper ends of the padded spring-brace K^1 are attached the straps $G^3 G^4$, which are buckled over the pad G^5 , as shown in Fig. 3.

The curved padded brace T , as shown in Figs. 4 and 5, is used at other stages of treatment. This padded brace T has a peculiar form. The part which is flat is connected by the eyebolt L to the adjustable screw L^1 , and comes between the legs. The curved part circles around the thigh, having a quarter-twist of the base of the padded brace, so that the pivoted joint O^7 can work freely on the adjustable screw O^2 . This arrangement forms a

brace for the hip, and at the same time allows a free and easy motion of the body at the hip-joints. The circular padded brace T is secured to leg by means of the strap and buckle $U U'$. The side bar B^5 , with the tube O^4 and adjustable screw O^2 , can be removed from the upper bar A of the leg-brace and the side bar B^1 by removing the pivot-screw O^5 , and turning the bar B^5 around, so as to allow the flat-sided stud or bolt-head O^6 to pass through the slot V .

At the bottom of the leg-section of the brace, on the piece B^4 , is a loop or hole, t^1 , through which passes a strap, t , one end of which is attached to the foot of the patient, and the other end is buttoned or buckled on the outside of the brace, as at t^2 .

The object of this arrangement is to cause a continued strain to be brought to bear on the limb to be treated. It is often necessary to place the limb that is to be treated in the lower section, but not to let it rest on the bottom of the brace, and the limb, if it is contracted, must be drawn out.

In order to accomplish this the strap t is used, as shown in Fig. 1, attached to the leg W . When cases of this kind are to be treated, or when the leg-brace, as shown in Figs. 1 and 2, is used, and it is required to prevent the brace from coming in contact with the ground while walking, it becomes necessary to elevate the opposite leg by placing on the foot an extended sole or calk, of sufficient height to allow the other foot with the brace thereon to clear the ground. This arrangement is not shown in the drawings, but is very essential and a valuable improvement in connection with the braces, as shown.

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

1. The curved padded spring-brace or seat-piece K , provided with an eyebolt, L , in combination with the adjustable screw L' , substantially as and for the purpose set forth and described.

2. The combination of the curved padded spring-brace K and one or more curved spring-bars, $F F'$, provided with straps $G G^1 G^2$, substantially as described.

3. The adjustable hinged spring-bar J , provided with the adjusting-screw J' , in combination with the curved padded spring-brace K and pad H , substantially as set forth and described.

4. The side bar O^1 , in combination with one or more curved spring-bars, $F F'$, and pivoted to the adjustable screw O^2 , substantially as and for the purpose set forth and described.

5. The removable side bar B^5 , constructed with an angle or clip, as described, in combination with the tube O^4 , adjusting-screw O^2 , and side bar O^1 of the body-brace $F F'$ or thigh-brace T , substantially as and for the purpose set forth and described.

6. In combination with the leg and body parts of the braces, the adjustable screw E^5 , tube E^3 , hinged at the top and bottom to pieces

E² E⁶, and secured in sockets E¹ E⁷, which are pivoted to the curved spring-bars F and E, or other parts, substantially as and for the purpose set forth and described.

7. The curved spring-bar E, provided with notches s and hooks s', or attached in any manner with the curved spring-bar A, substantially as set forth and described.

8. The curved padded spring-brace or seat-piece K¹, in combination with the rocking springs R R' and adjusting-screw L¹, constructed and operated substantially as set forth and described.

9. The curved padded seat-piece or band T, in combination with the eyebolt L, adjusting-screw L¹, and adjusting-screw O², arranged to operate substantially as set forth and described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

HORACE R. ALLEN.

Witnesses:

WM. P. JOHNSON,

WM. L. PECK.