

(No Model.)

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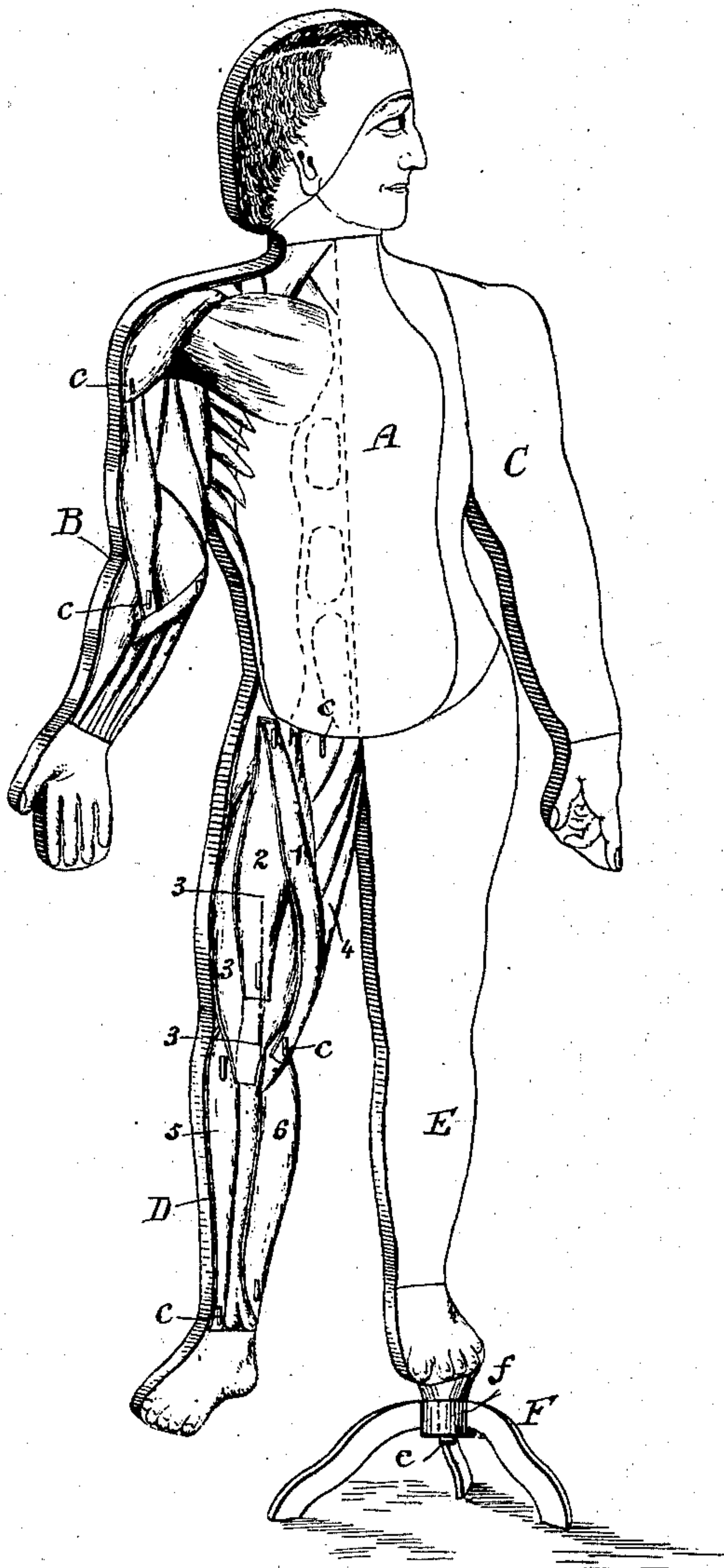
E. SMITH.

ANATOMICAL APPARATUS.

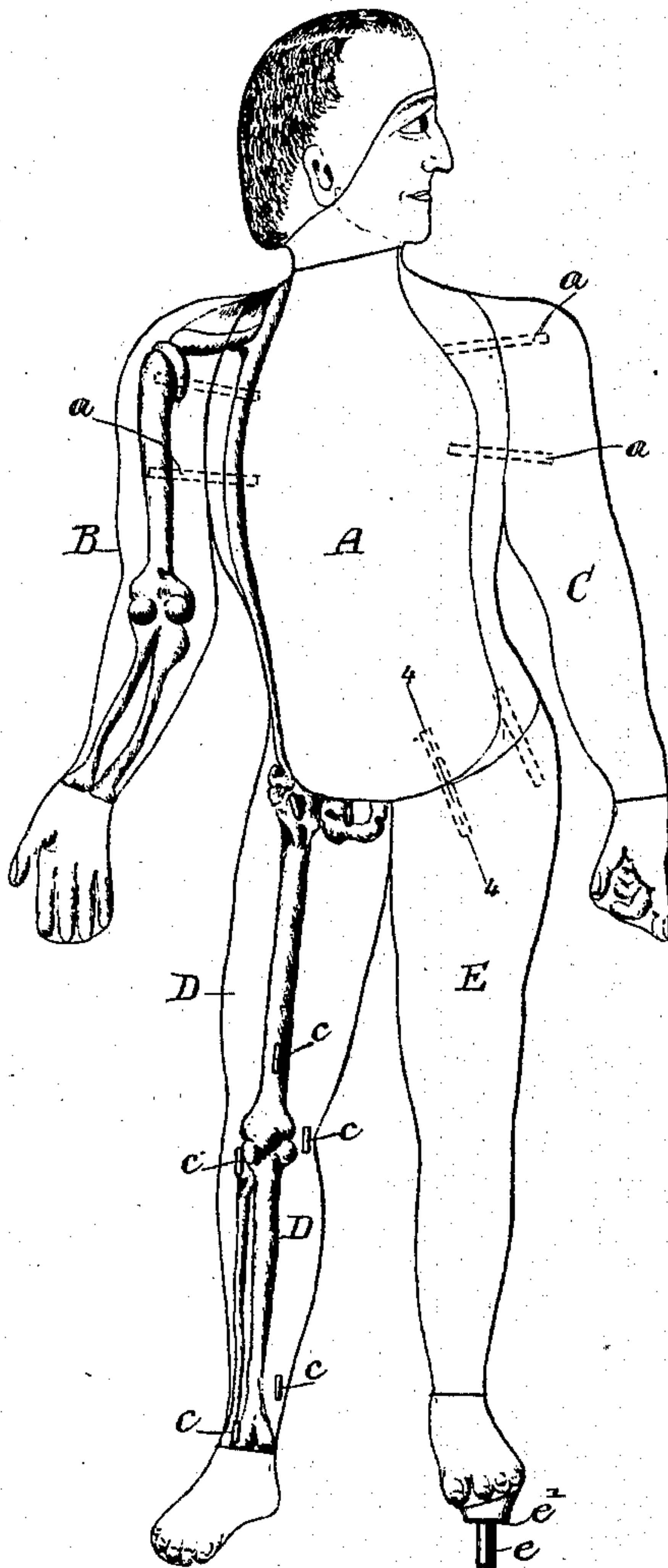
No. 388,593.

Patented Aug. 28, 1888.

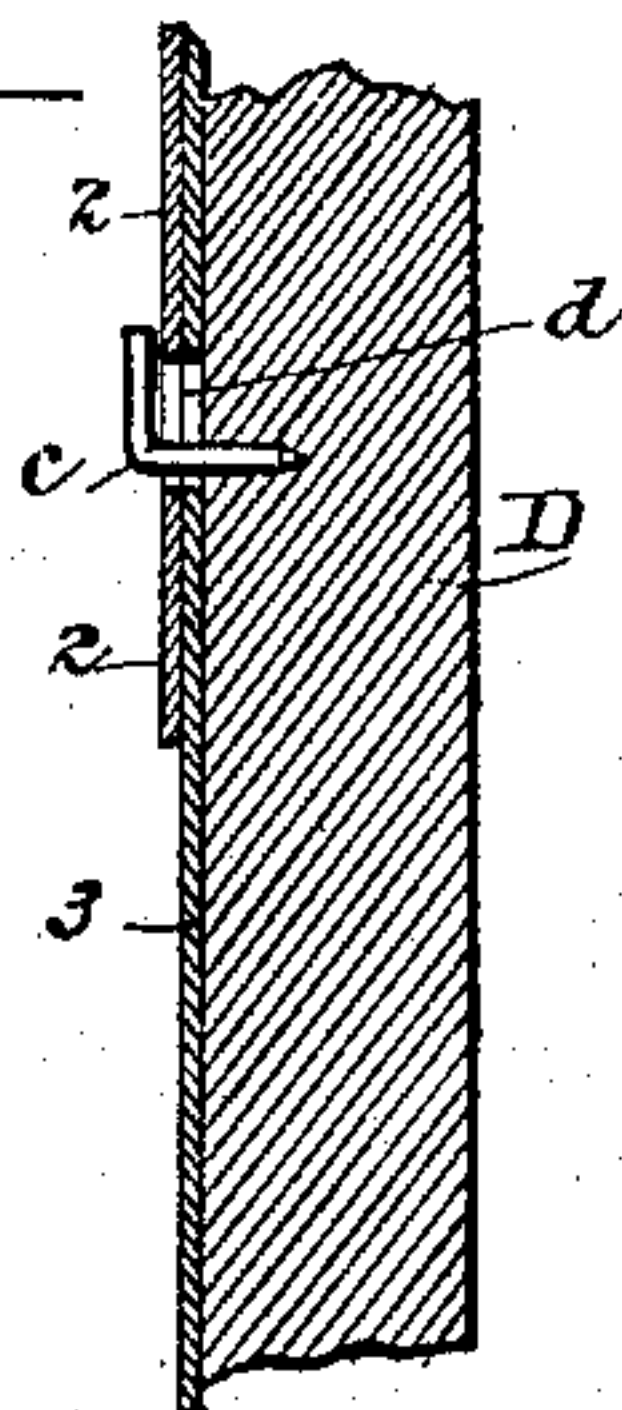
*Fig. 1.*



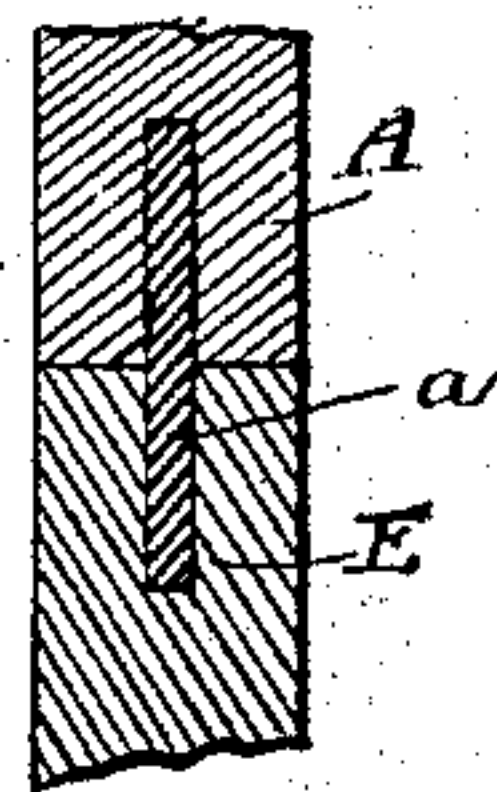
*Fig. 2.*



*Fig. 3.*



*Fig. 4.*



*Witnesses.*

*Wm. R. Chems.*

*Louis M. F. Whitehead.*

*Inventor.*

*Elias Smith.*

*By Dayton, Poole & Brown*  
*His Attys.*

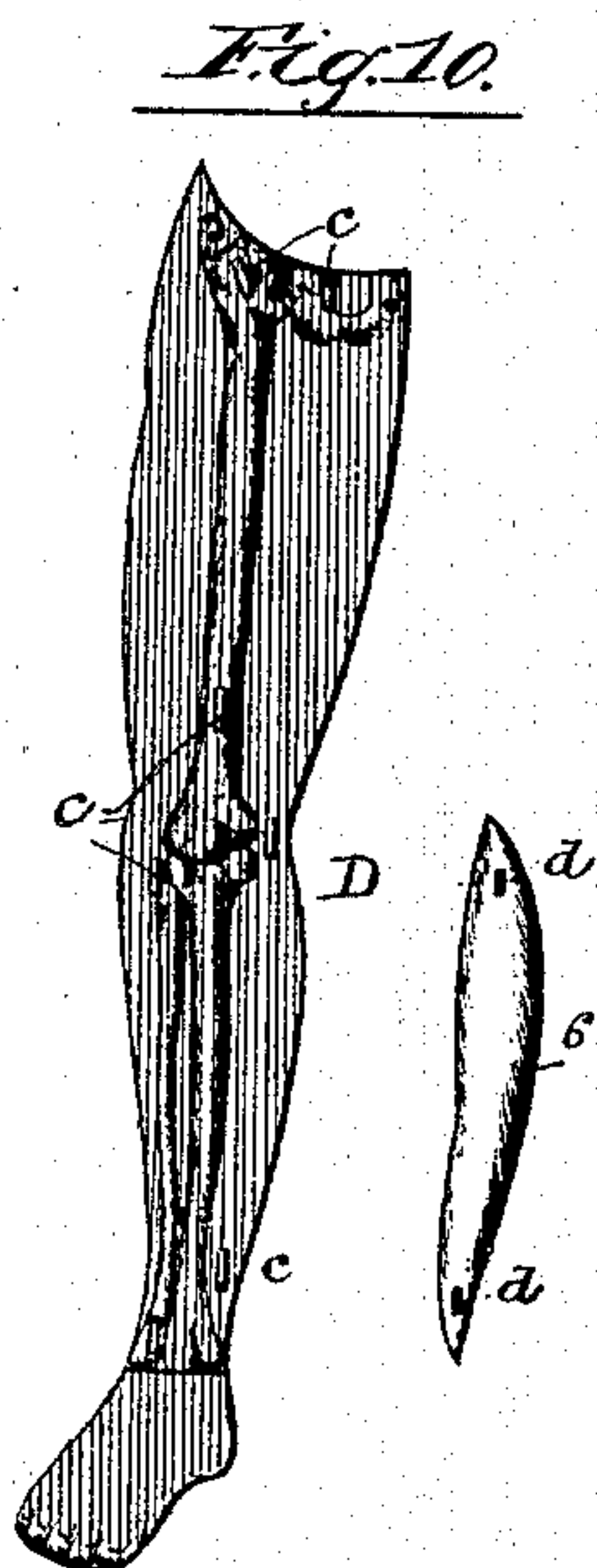
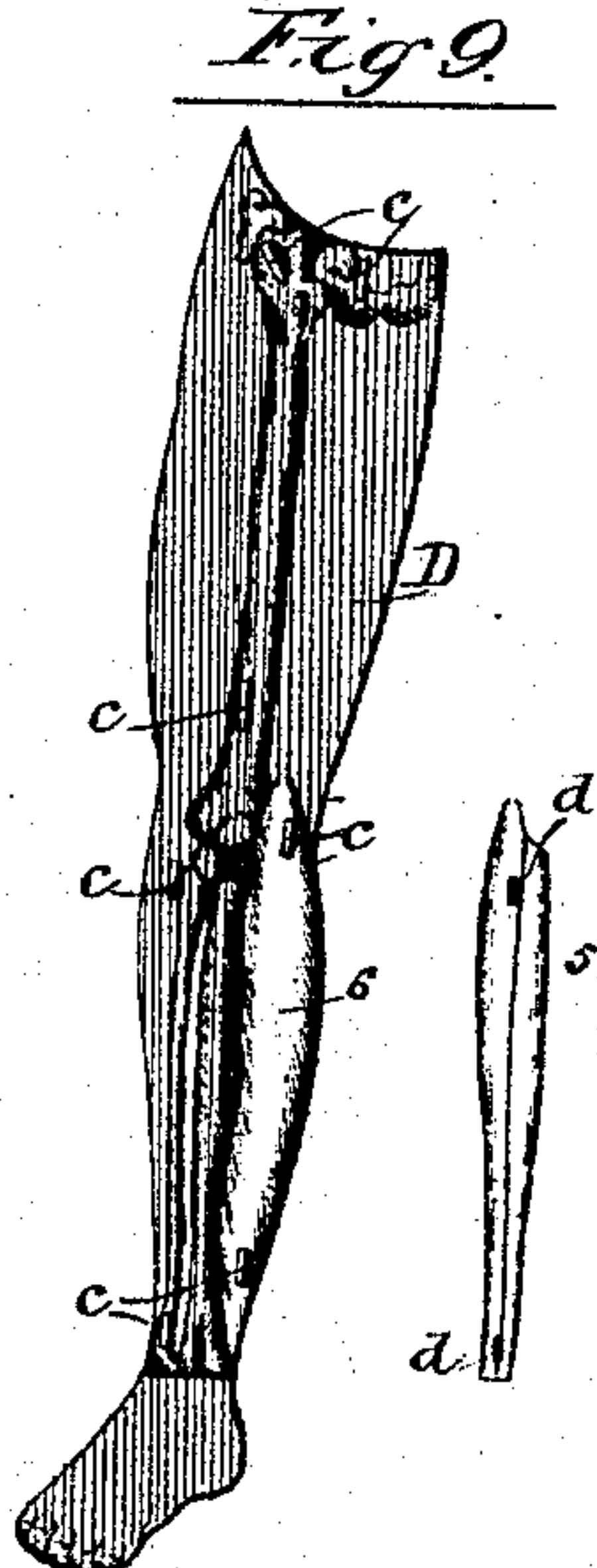
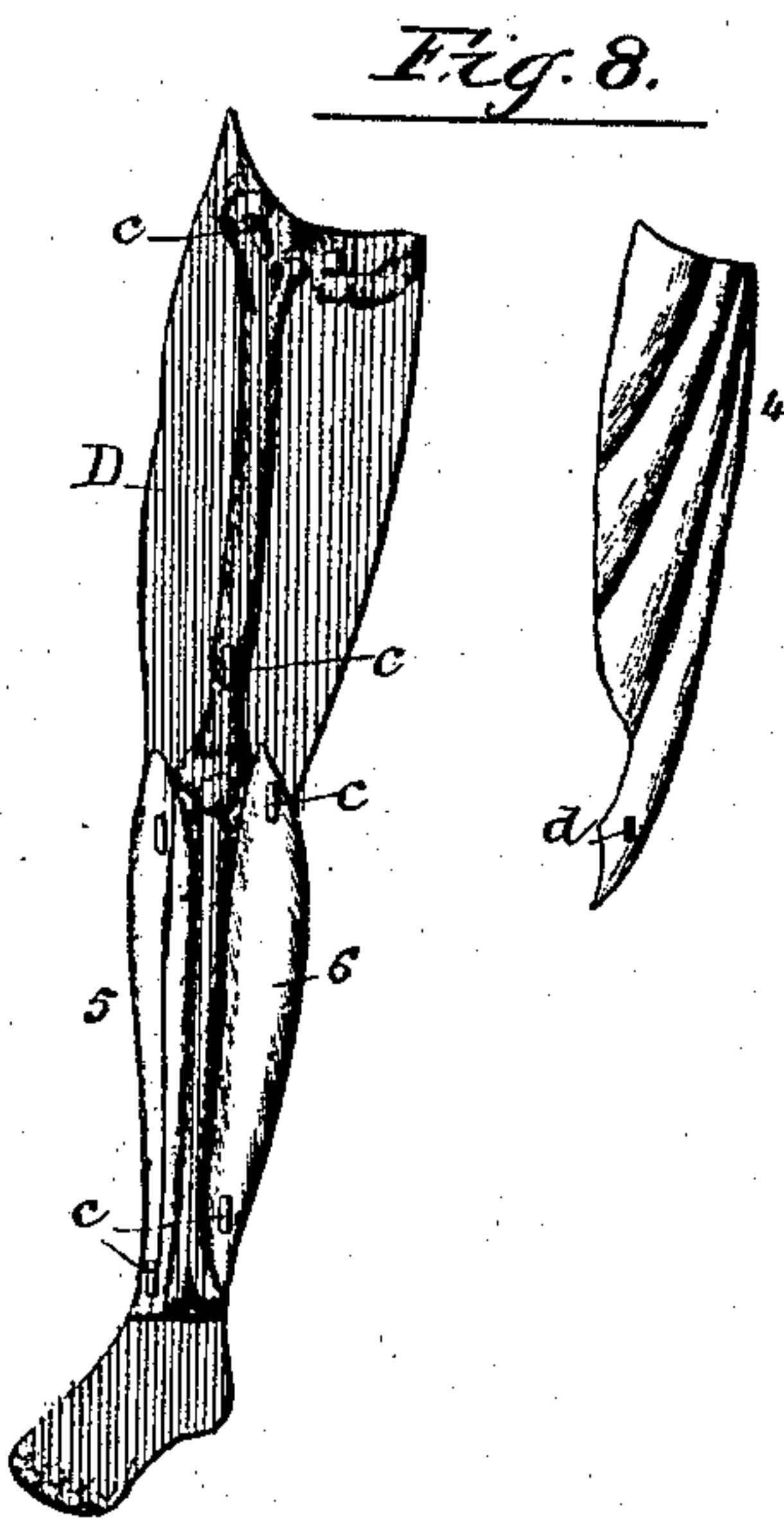
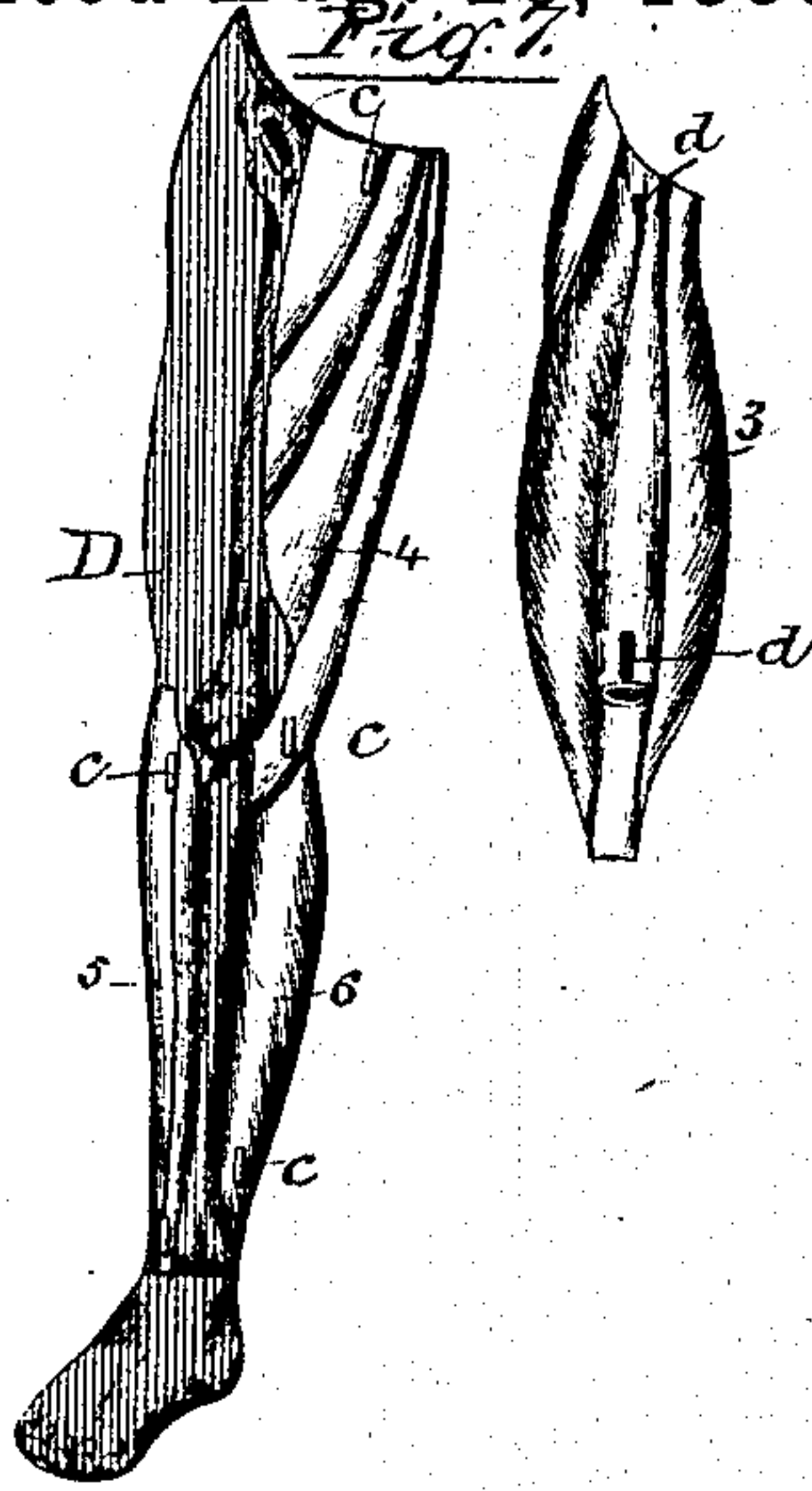
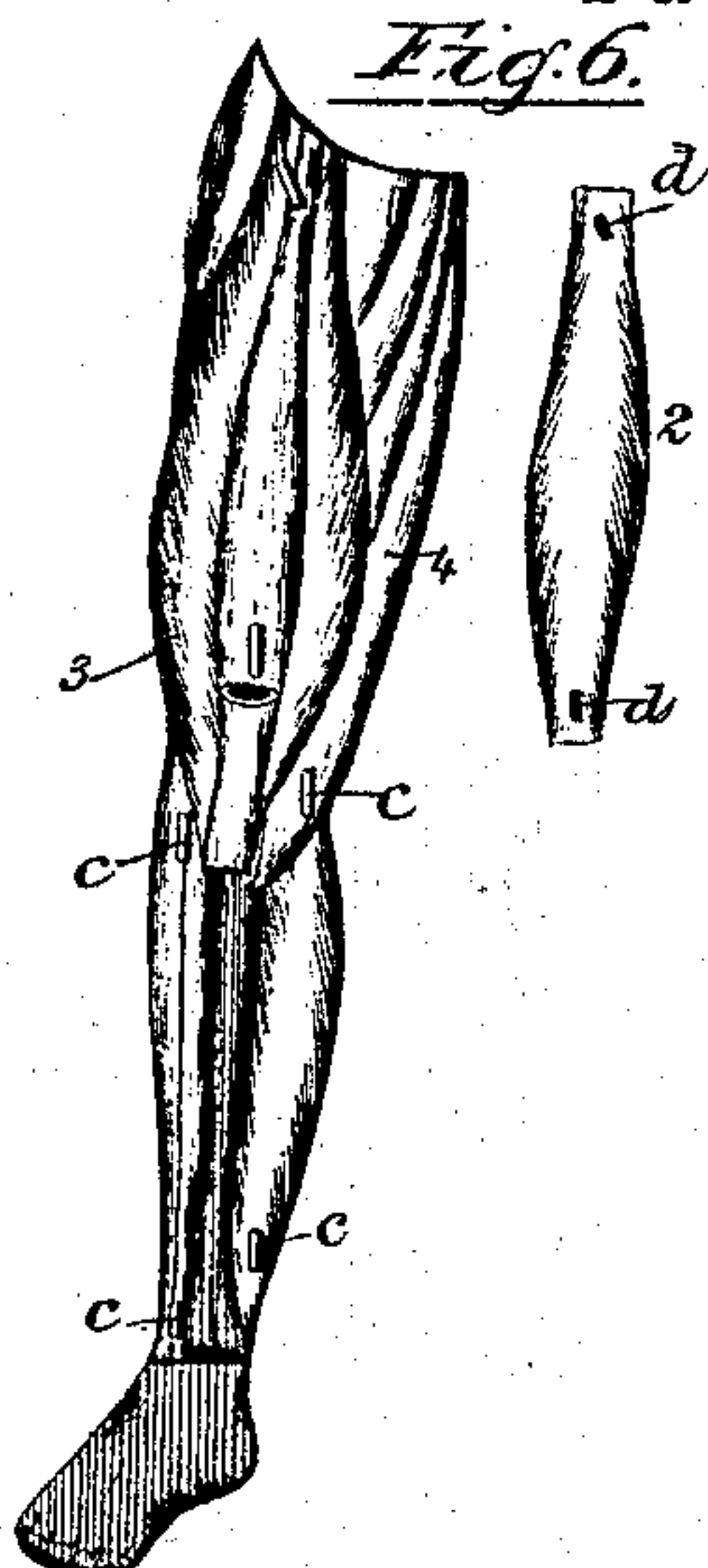
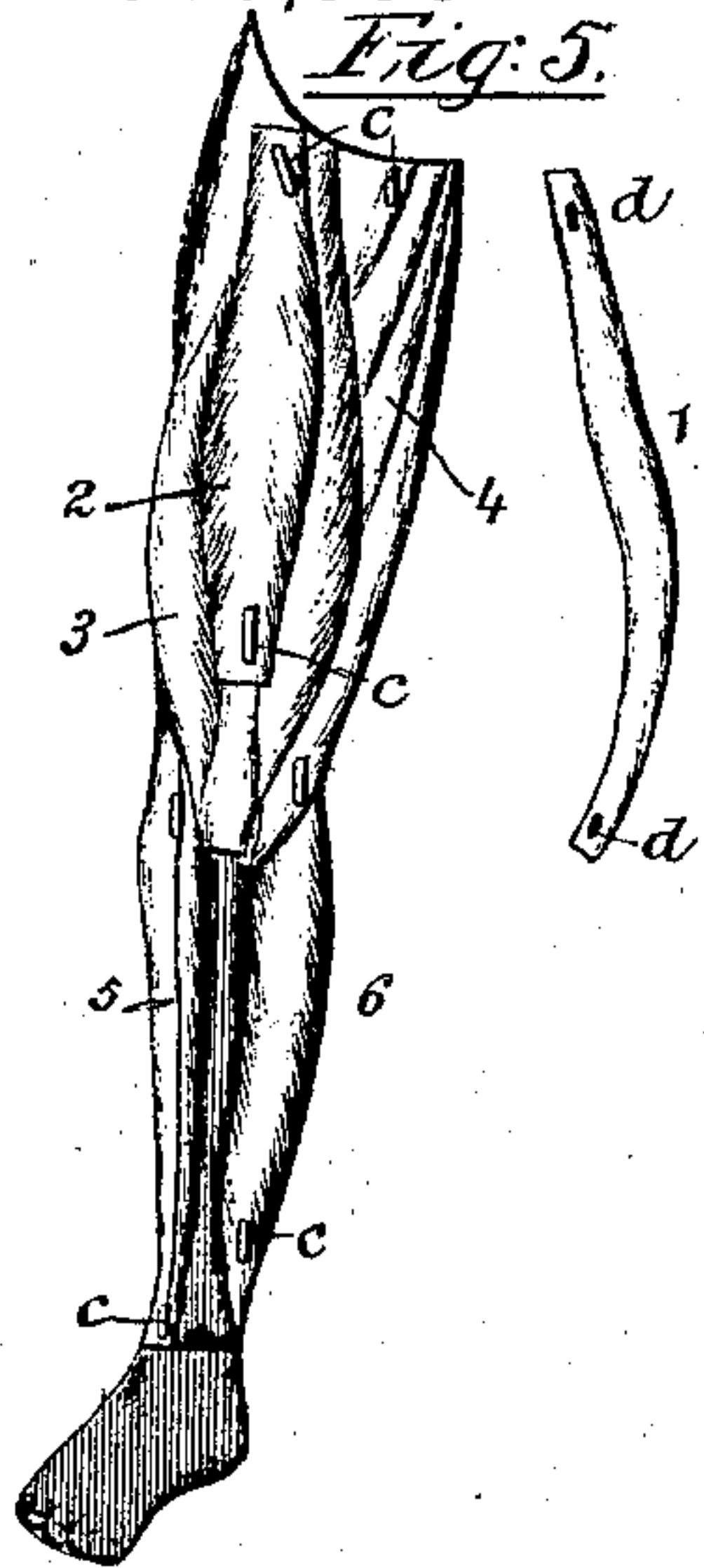
(No Model.)

2 Sheets—Sheet 2.

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Witnesses.  
Wm. R. Rheems  
Louis H. F. Whitehead.

Inventor.  
Elias Smith.

By Dayton, Poble & Brown  
his Attys.



# UNITED STATES PATENT OFFICE.

ELIAS SMITH, OF PEORIA, ILLINOIS, ASSIGNOR OF ONE-HALF TO FRED KIMBLE, OF SAME PLACE.

## ANATOMICAL APPARATUS.

SPECIFICATION forming part of Letters Patent No. 388,593, dated August 28, 1888.

Application filed February 28, 1888. Serial No. 265,564. (No model.)

*To all whom it may concern:*

Be it known that I, ELIAS SMITH, of Peoria, in the county of Peoria and State of Illinois, have invented certain new and useful Improvements in Anatomical Apparatus; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to improvements in anatomical apparatus for illustrating the anatomy of the human body, and by its convenient and portable construction it is adapted for the use of lecturers and school-teachers, as well as for private families.

Apparatus heretofore designed for the above purposes have been open to many objections. In the case of what is known as the "French manikin" the apparatus consists of a cast of plaster or other material molded or cast in the form of a human being and having the various parts of the body represented by detachable portions. This so-called "French manikin" is not only expensive and too heavy to be conveniently carried about, but the number of detachable parts in the manikin is necessarily limited, and consequently one apparatus fails to disclose the full anatomy of the body. Again, by reason of the relative arrangement in the body of certain muscles, organs, or other parts, it is almost impossible to illustrate said parts and their relative positions correctly, because some of the parts overlap others, some muscles are forked, and to illustrate correctly by plaster or cast forms any one muscle or part necessarily prevents the illustration of the overlapped and adjacent part in the same cast. It is obvious, also, that the making of a cast to represent a great number of thin and overlapping or intertwined muscles or other parts—as, for instance, the muscles of the arm—must necessarily render the structure so complicated and expensive as to prevent its successful introduction and use. It has been proposed heretofore to employ charts to illustrate the anatomy of the human body; but such charts require a large number of separate sheets, and cannot show relative positions of parts of the body. In those charts having the sheets or pages hinged to the main portion, so as to fold

thereon as the leaves of a book, it is found that only approximate correctness of position of the relative muscles and parts can be obtained, and also that these folding leaves are more or less in the way of the lecturer when using the chart before an audience, and also that the number of parts is necessarily limited to those parts of the body capable of illustration which may be attached by hinged connection to the base without interfering with the other hinged parts.

The object of my invention is to provide a cheap and portable apparatus which will embrace a maximum number of illustrations in compact form, showing the contour of each part, as well as the part itself, and which will obviate the objections found in other apparatus referred to. To this end an apparatus embodying my invention comprises a thin non-flexible background or frame cut or formed in the configuration of the human body, which frame is preferably arranged in sections for more convenient handling, said frame having hooks or hooked pins secured thereon to sustain a plurality of flat plates, together with a plurality of thin plates of paper, pasteboard, or other material, each plate representing some part, organ, or muscle of the body, and each plate having the configuration of the part pictured upon it.

The invention embraces, in addition to the construction above named, certain details of construction herein shown, described, and pointed out in the appended claims.

I have illustrated my invention in the accompanying drawings, but have not illustrated the same in detail, except as to one portion of the human body—namely, the leg—believing that a more extensive drawing is not necessary to the complete exemplification and understanding of the invention.

Figure 1 is a perspective view of my improved apparatus, and Fig. 2 is a front elevation of the same with some of the parts removed. Fig. 3 is a longitudinal sectional view taken on line 3 3 of Fig. 1, showing the pin-hook employed to secure the plates to the back or frame. Fig. 4 is a sectional view taken on line 4 4 of Fig. 2, illustrating the manner of uniting together the sections of the back or frame. Figs. 5, 6, 7, 8, 9, and 10 are



plan views of that portion of the apparatus illustrating the leg of a human being in different stages of dissection, Fig. 5 showing but one muscle as having been removed, while in Fig. 10 nothing but the bones of the leg remain.

As illustrated in the drawings, the letter A indicates the back or frame cut or shaped to the configuration of the human body. This frame is preferably made of wood about one-half an inch in thickness, as shown; but other material—such as a heavy pasteboard, sheet metal, or the like—may be used. For convenience in handling and packing into boxes for transportation from place to place I make the frame A in several parts or pieces, B C being the arms, and D E the legs. The head I preferably make integral with the trunk, as shown. These parts are secured together at their adjacent edges by means of one or more pins, *a*, one end of each pin being secured in one of the parts and the other end of said pin being adapted for insertion into a hole in the adjacent part, as more clearly illustrated in Fig. 4. The whole frame when together is poised upon a pedestal or tripod, F, which is provided at its top with a vertical hole, *f*. One of the parts D E (in this case the part E) is provided with a pin, *e*, adapted to fit into the hole *f* and turn therein. The part E is provided with a shoulder at *e'*, which rests upon the top of the tripod F when the pin *e* is inserted within the hole *f*. The apparatus may thus be supported in an upright position, as shown, and be turned to face in any direction while the lecturer is demonstrating.

Upon the face of the frame or base A is a representation of the human skeleton, as illustrated in Figs. 2 and 10. This representation may be painted directly upon the frame, or may be painted, engraved, or otherwise pictured upon paper, cloth, or similar material and said material glued or otherwise secured to said frame.

Secured to the frame, as illustrated in Fig. 3, are the small hooks or pins *c*. These pins are placed upon the frame wherever desired, and at convenient points, as shown. The various muscles, organs, or parts intended to be illustrated or described are pictured upon separate pieces of pasteboard, thin paper, or the like, and are made to conform as nearly as possible to the contour of such part or organ. Each of said plates is provided near each end with a slot or opening, *d*, whereby the said plate may be secured upon the frame by means of said pins *c*, as illustrated. One pin sometimes retains the ends of several plates, as shown by the part D of the drawings, wherein the upper ends of muscles 1, 2, and 3 are so secured.

The part D in Fig. 1 illustrates the muscles of the right leg, the skin having been removed. Fig. 5 illustrates the muscle 1 as having been removed. In Fig. 6 muscle 2, in Fig. 7 muscle 3, in Fig. 8 muscle 4, in Fig.

9 muscle 5, and in Fig. 10 muscle 6 have been removed, respectively. It will thus be seen that the various parts, organs, or muscles of the body may be correctly and faithfully represented both as to color and form, as well as in relative position, and at the same time may be easily detached one by one to show the underlying parts.

It will be obvious, furthermore, that by making a number of separate plates to represent the parts, and by attaching said plates to the base one over another, as described, the relative location and arrangement of any number of parts of the body may be clearly shown without the interference of one part with another, either as regards their relative position or as regards their means of attachment to the base; also, different plates may be employed to represent the same organ, either in section or in different stages of disease. The rounded feature or appearance of the body or part may be obtained by coloring or shading the plates. In practice I prefer to make these plates of thin paper with a linen backing, so that a large number of plates may be placed one upon the other without materially adding to the thickness or weight on the apparatus.

An apparatus for anatomical demonstration, consisting of a flat rigid base or frame having the outline of the human form, together with the pieces or plates severally representing muscles, organs, or other parts of the body and movably attached to the said base or frame, I consider to be novel, and such apparatus is herein broadly claimed, without restriction to the particular means for attaching the plates to the base herein illustrated. Other novel features illustrated and above described are also made the subjects of claims herein.

I claim as my invention—

1. An anatomical apparatus consisting of a flat non-flexible base or frame having the outline of the human body and a plurality of thin plates having the form of the various organs, muscles, and parts of the human body, said plates being movably attached upon said base.

2. An anatomical apparatus consisting of a flat non-flexible base or frame, a plurality of thin plates having the form of the muscles, organs, or parts of the body, and pins or hooks inserted in the base or frame for removably securing said plates in position upon said base or frame.

3. An anatomical apparatus consisting of a base or backing having the outline of the human body, and provided with a plurality of plates and with a pivot at its lower end, in combination with a tripod or equivalent support having a socket or hole to receive said pivot, whereby said apparatus is sustained in an upright position and is made capable of rotation on said tripod.

4. A base or backing for anatomical ap-



paratus, consisting of a flat non-flexible base  
having the outline of the human body, and  
divided into parts, and means, substantially  
as described, for removably uniting said parts,  
5 so that the same may be separated for con-  
venience in packing.

In testimony that I claim the foregoing as my

invention I affix my signature in presence of two  
witnesses.

ELIAS SMITH.

Witnesses:

BARRETT WHITE,  
H. B. HOPKINS.