H. D. Reinhardt,

Artificial Leg,

No. 41,535. Patented Feb. 9, 1864.

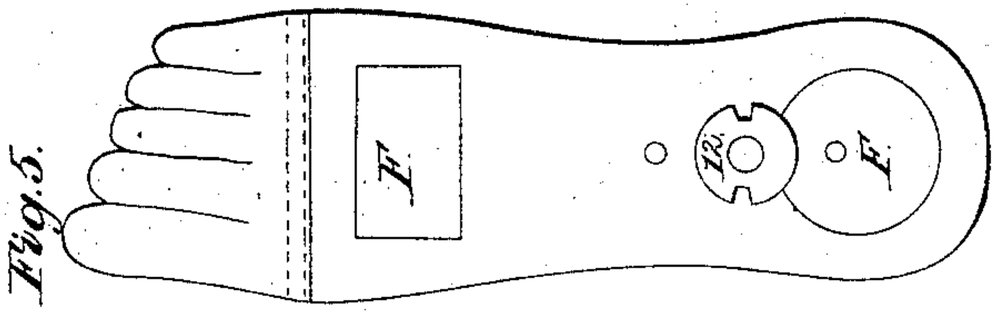

Fig. 5.

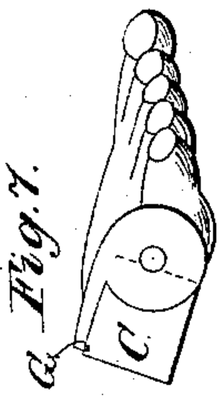

Fig. 7.

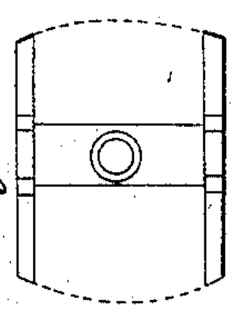

Fig. 9.

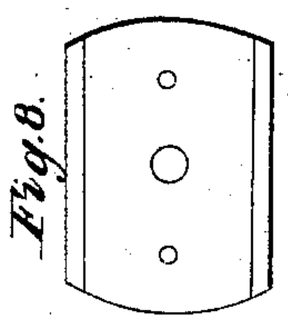

Fig. 8.

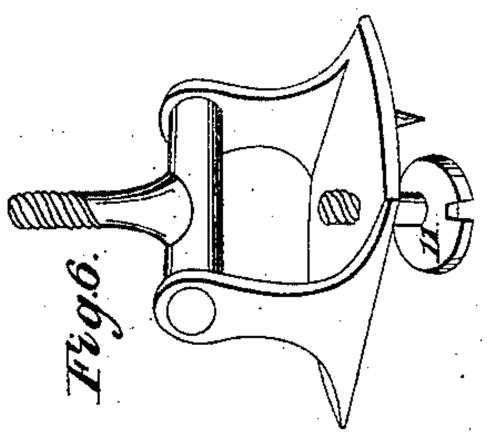

Fig. 6.

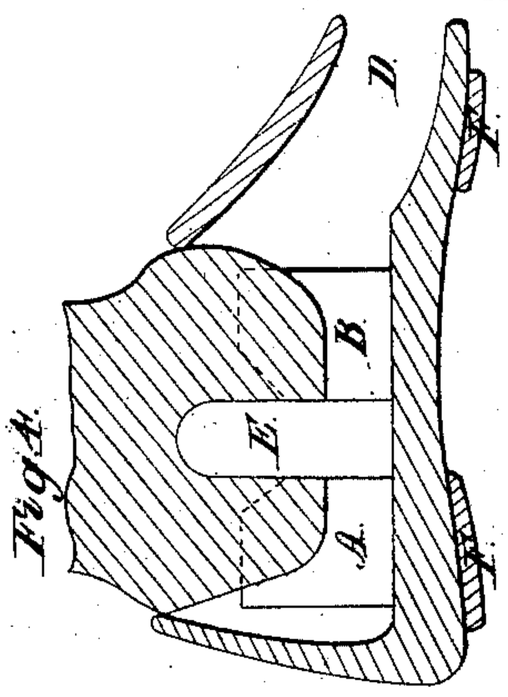

Fig. 4.

Fig. 1.

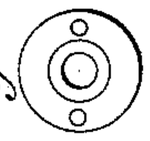

Fig. 10.

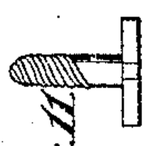

Fig. 11.

Fig. 12.

Fig. 3.

Fig. 2.

Witnesses.

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UNITED STATES PATENT OFFICE.

H. D. REINHARDT, OF BALTIMORE, MARYLAND.

IMPROVEMENT IN ARTIFICIAL LEGS.

Specification forming part of Letters Patent No. **41,535,** dated February 9, 1864.

To all whom it may concern:

Be it known that I, HENERY D. REINHARDT, of the city of Baltimore and State of Maryland, have invented new and useful Improvements in Artificial Legs; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, in which—

Figure 1 represents a side sectional elevation of artificial leg with attachments, the peculiar shape, hinge, india-rubber springs, &c.; Fig. 2, a rear sectional elevation with attachments; Fig. 3, a rear section showing the india-rubber spring, marked A; Fig. 4, a side section showing the recess E, with india-rubber springs A and B, with an opening, D, for the reception of the toes. Fig. 5 represents the sole of the foot and joint where the metatarsal and phalanges meet, also the head of the screw which fastens the hinge to the foot; F, the india-rubber in the sole of the foot. Fig. 6 represents the peculiar shape of the hinge which connects the foot and leg together. Fig. 7 represents the toes or phalanges with a rule or hinge joint and a projection from the upper part and a recess under the projection and a block of india-rubber cut to suit the recess under the projection for the purpose of giving motion to the phalanges or toes and to keep them in their natural and proper place. Fig. 8 represents the lower surface of the flange of the hinge. Fig. 9 represents the upper surface of the flange of the hinge. Fig. 10 represents the nut which suits the thread on the pin projecting from the upper part of the hinge or barrel used for the purpose of connecting the foot and leg together. Fig. 11 represents the screw which connects the flange to the sole of the foot. Fig. 12 represents the head of the screw of Fig. 11.

The nature of my invention consists, first, in providing artificial legs with india-rubber, which will act as springs and give a natural motion to the parts desired, it not having that rattling sound which is heard where steel or other metal is used; it being elastic and durable makes it the most desirable article which can be used; second, in constructing a peculiar-shaped hinge, having a pin projecting from the upper part of the joint or barrel, with a thread cut on it and a nut to suit the thread, and a flange at the lower part for the india-rubber blocks or springs to rest on; also, a screw under the flange for the purpose of connecting the foot and leg together permanently, and on each side of the flange a pin is attached for the purpose of keeping the hinge in its proper place; third, in carrying out the toes in such a shape so that I can leave a projection from the upper part and a recess under the projection for the reception of a block of india-rubber, from which the toes receive their motion. This I connect together by a hinge or rule joint, which will keep the toes in their proper place.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

First, I make the foot the size and shape desired and hollow it out as far as the joints of the metatarsal and phalanges. The material I use is gum or other light and durable wood. I cut the opening or recess in the line of the metatarsal joints, to suit the hinge or rule joint of the toes or phalanges, as seen in Fig. 4, letter D, and Fig. 7. I next proceed to carve out the phalanges or toes. In carving them out I leave a projection from the upper part, and under this projection I form a rule or hinge joint to suit the recess in the foot, as seen in Fig. 4, letter D. This I connect together with an iron pin under the projection, and near the hinge or rule joint I cut a recess for the reception of a block of india-rubber, which is to act as a spring to give the toes their desired motion and keep them in their proper place, as seen in Fig. 7. I then construct a hinge of the peculiar shape as seen in Fig. 6, and suited to the size of the hollow in the foot. This I make of steel or other metal, with a flange at the lower part and a pin projecting from the upper part or barrel of the hinge, with a thread cut on the end and a nut to suit the thread, and on each side of the lower part of the flange I attach a pin stationary, for the purpose of keeping the hinge in its proper place, and in the center of this flange I drill a hole and tap it. I next cut a screw to suit the thread. I then screw the flange permanently to the foot. Next I proceed to form the leg the size and shape to suit the foot. This I hollow out nearly down to the ankle-joint, as seen in Fig. 1, side sectional elevation, and directly under

the ankle-joint I cut a recess or opening suited to the size and shape of the hinge, as seen in Fig. 4, side section, letter E, and in the front and rear of this recess I cut another recess. I then cut a block of india-rubber to suit each recess, as seen in Fig. 4, side section, A and B. This will give the natural motion to the ankle-joint and keep the leg in its proper position. I then bore a hole through from the recess below to the hollow in the leg, as seen in Fig. 1, side sectional elevation. I then connect the foot and leg together by the screw and nut, and under the sole of the foot and near the phalanges I attach a small piece, F, of india-rubber, and near the os calcis I attach another piece, F, to be used for the purpose to give lightness to the step.

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

1. The peculiar shape of the hinge, Fig. 6, with a thread cut on the pin projecting from the upper part of the hinge and a nut to suit the thread, also a bolt or screw, Fig. 11, cut to suit the thread in the flange, for the use and purpose of connecting the foot and leg together.

2. The arrangement of india-rubber C under the projection, letter G, Fig. 7, in a recess cut out for the purpose in the line of the metatarsal joints and to act as a spring to keep the toes in their proper place and give to them their natural motion.

3. I do not claim the use of india-rubber in the ankle-joint, but I claim the arrangement of the blocks of india-rubber A and B, as seen in Fig. 1, side sectional elevation, and used as springs to give the ankle-joint a natural motion, in combination with the peculiar-shaped hinge, Fig. 6, and fitted in a recess above and near the ankle-joint, resting below on the flange of the hinge, one block on each side, as seen in Fig. 1, side sectional elevation, in the cavity of the foot, constructed, arranged, and operated substantially as herein set forth.

HENERY D. REINHARDT.

Attest:
D. D. GILL,
W. H. HAYWARD.