June 19, 1923. 1,459,564

E. M. TRACY

ARTIFICIAL FOOT

Filed March 9, 1922

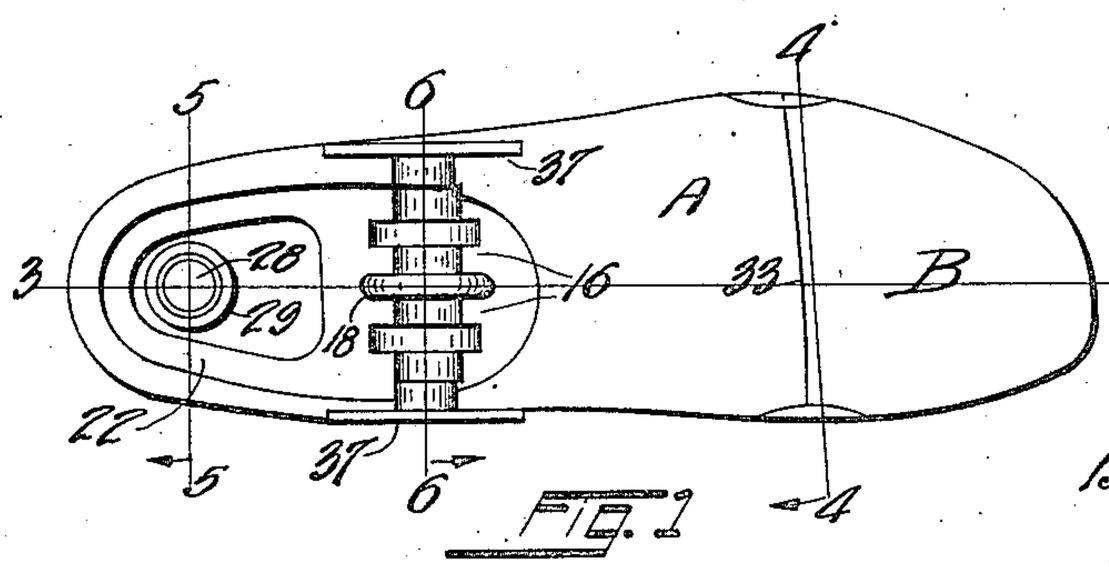

FIG. 1

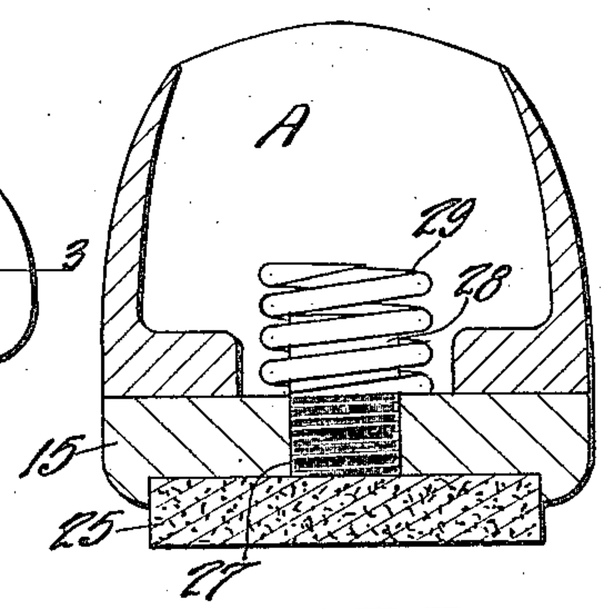

FIG. 7

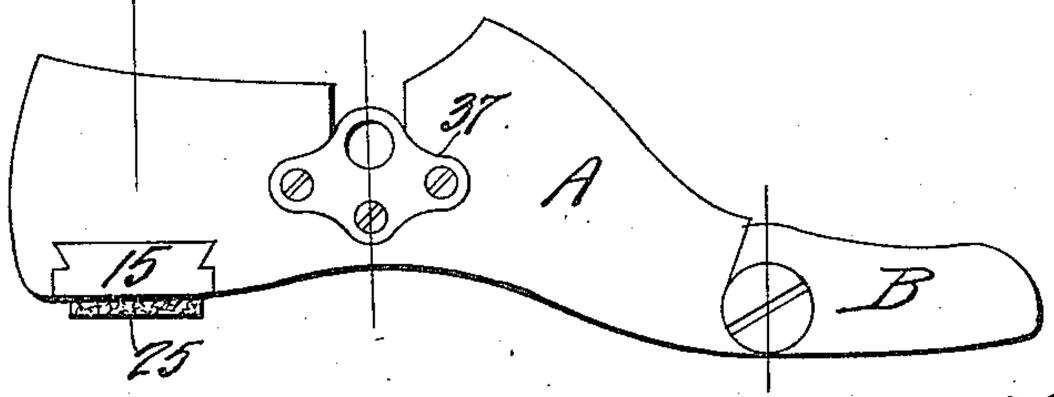

FIG. 2

FIG. 6

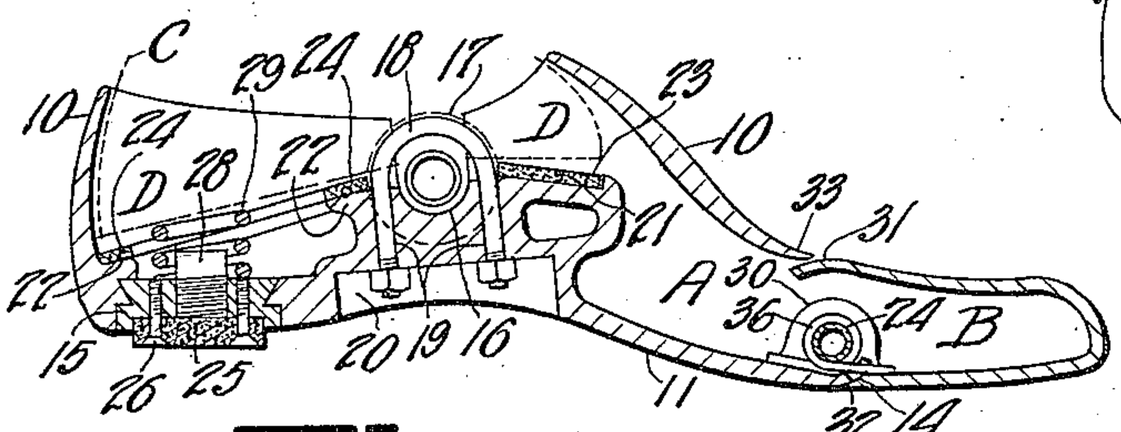

FIG. 3

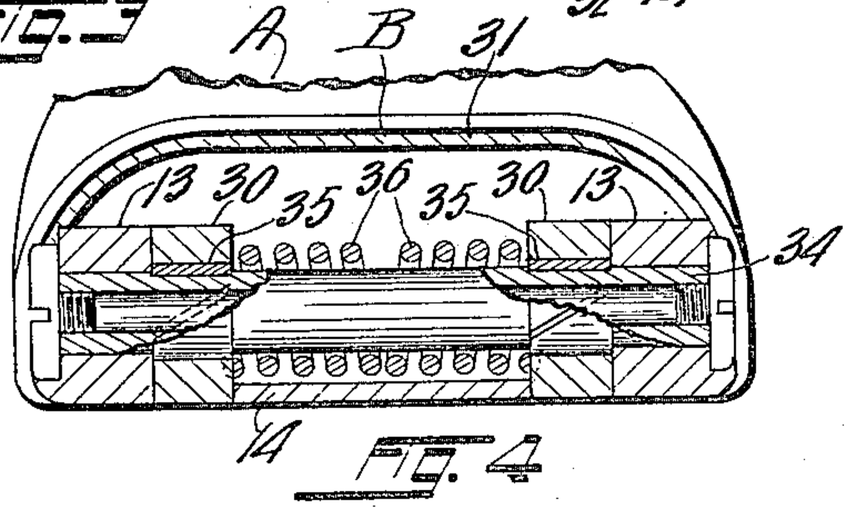

FIG. 4

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UNITED STATES PATENT OFFICE.

EDWARD M. TRACY, OF CLEVELAND, OHIO.

ARTIFICIAL FOOT.

Application filed March 9, 1922. Serial No. 542,261.

To all whom it may concern:

Be it known that I, EDWARD M. TRACY, a citizen of the United States, and a resident of Cleveland, county of Cuyahoga, and State of Ohio, have invented a new and useful Improvement in Artificial Feet, of which the following is a specification.

My invention relates to artificial feet.

The object of my invention is an artificial foot of light weight, simple, and durable construction and provided with efficient joint means and with efficient and cushioned means between the members of the foot as well as between the foot and a leg to which this foot may be attached.

I attain this object by the mechanism shown in the accompanying drawing in which Fig. 1 is a plan view of a foot; Fig. 2 is a side view of Fig. 1; Fig. 3 is a section on line 3—3 of Fig. 1; Fig. 4 is a section on line 4—4 of Fig. 1; Fig. 5 is a section on line 5—5 of Fig. 1; Fig. 6 is a section on line 6—6 of Fig. 1.

Similar reference characters refer to similar parts throughout the views.

Unfortunately, many persons are now minus a foot or leg and require some substitute to permit them to move about without the usual and inconvenient crutches.

Artificial feet have been made, of wood, or metal, or other material, or composition or combination thereof, but it is found that the present feet are either too expensive for the average footless man to purchase, or are too heavy, or are too complicated and get out of order easily, or are noisy in operation, or are not sufficiently cushioned to prevent injury to the spine of the wearer, or have other defects inconvenient or injurious to the wearer.

The present invention aims to overcome these disadvantages and does so by the mechanism shown in the drawing which, of course, is susceptible of modifications.

Referring now particularly to the drawing.

In this instance, the foot A is made of cast aluminum having sufficient strength for the purpose intended. The walls of the foot being sufficiently strong to support the structures connected therewith and portions of the structure are cut away where no metal is required. The object being to reduce the weight of the completed foot to a minimum without sacrificing any of the strength required for the purposes thereof.

The toe portion B is constructed and proportioned in a manner similar to the foot A and is hinged thereto.

The foot A has the outer shell 10 and the sole 11. At the front end, the sole 11 terminates into the ears 13 and the lap portion 14. At the rear end, the heel block 15 is dovetailed into the sole 11.

Near the middle portion of the foot A and in proper relation to the other members thereof and to the leg C, is the bearing portion 16 suitably formed to receive the bearing 17 shown dotted as a part of the leg C. This bearing 17 is held to the portion 16 by the U bolt 18, the prongs of which pass through the openings 19 provided for that purpose, and the nuts on the ends of these prongs are located within the recess 20.

On each side of the portion 16 are the shelves 21 and 22 each of which is sufficiently inclined to permit the foot to rock on the stub D as in natural walking.

Pieces of felt 23 and 24, or other resilient agent, is placed upon the shelves 21 and 22 to prevent noise and absorb the shocks caused by the act of walking.

The heel block 15 carries the pad 25, made of felt, rubber, or other shock and noise absorbing material, which may be secured thereto by the screws 26, or by cement, or other suitable means. This heel block 15 also has the threaded opening 27 into which the plug 28 is screwed. This plug 28 serves as a retaining means for the spring 29 which is introduced between the heel and the stub D to cushion the mechanism when the heel first strikes the ground while walking.

When it is desired to dispense with the spring 29 and rely upon the washer 24 for resiliency, the plug 28 may be removed and the opening 27 may be closed with a plug not projecting above the block 15.

The toe B has the ears 30 and the laps 31 and 32. The lap 31 fitting to the edge 33 of the foot A which edge is curved concentric with the center of the ears 13 and 30.

The pin 34, preferably of tubing to reduce weight, passes through the center of the ears 13 and is held in position by any suitable and well known means, preferably by the plugs as shown.

The bushings 35, preferably split and sunk into the pin 34 as shown, fit into the ears 30 to prevent wear of the openings in these ears 30 and to permit replacement of the bushings when worn.

The coil spring 36 is placed over the pin 34 and between the ears 30 and has one end thereof resting against the toe B and the other end against the foot A and is so arranged that it will hold the toe B in normal position in relation to the foot A and that the toe can bend upwardly while the wearer is in the act of walking. The laps 31 and 32 of the toe B abut against the lap 14 and the ears 13 of the foot A to prevent the spring 36 from forcing the toe B downward beyond its normal position.

The joint between the foot A and the toe B is located in the same position that a natural foot bends while walking and the creases form in a shoe on a natural foot, which is not only the natural position for such a joint but also preserves the appearance in case a person has only one artificial foot.

The liner brackets 37 are secured to the sides of the foot A and the shaft 38 of the bearing 17 is journaled therein. The object of these liner brackets being to line up the foot with the leg and release abnormal tension in the U bolts 18.

It will be seen that the apparatus shown and described embodies simplicity, durability, light weight, and efficiency due to the formation and arrangement of its members.

Without limiting myself to the precise construction shown and described,

I claim:—

1. An artificial foot comprising, a foot member provided with ears on its front end, bearing means on said foot member adapted to a leg, a resilient heel member secured to said foot member, a toe member provided with ears, a hinge pin through said ears on the foot and toe members, bushings in said ears on the toe member, and a coil spring over said pin and between said ears on said toe member and one end thereof acting against said foot member and the other end thereof acting against said toe member.

2. An artificial foot comprising, a foot member provided with ears on its front end and with a bearing means adapted to a leg, a liner bracket on each side of said foot member, a toe member hinged to said foot member and provided with an upper lap extending inside of the shell of said foot member and with ears, a hinge pin through all of said ears, a bushing in each of said ears on the toe member, a spring over said hinge pin and between said ears on the toe member, a heel member dovetailed to said foot member, a resilient pad on the bottom of said heel member, and a resilient means between the top of said heel member and the bottom of said leg.

3. An artificial foot comprising, a foot member provided with ears on its front end and with a bearing means adapted to a leg, a shelf on each side of said bearing means, a resilient pad on each of said shelves, a liner bracket on each side of said foot member and concentric with said bearing means, a toe member hinged to said foot member and provided with an upper lap extending inside of the shell of said foot member and with ears, a hinge pin through all of said ears, a bushing in each of said ears on the toe member, a spring over said hinge pin and between said ears on the toe member, a heel member dovetailed to said foot member, a resilient pad on the bottom of said heel member, and a resilient means between the top of said heel member and the bottom of said leg.

EDWARD M. TRACY