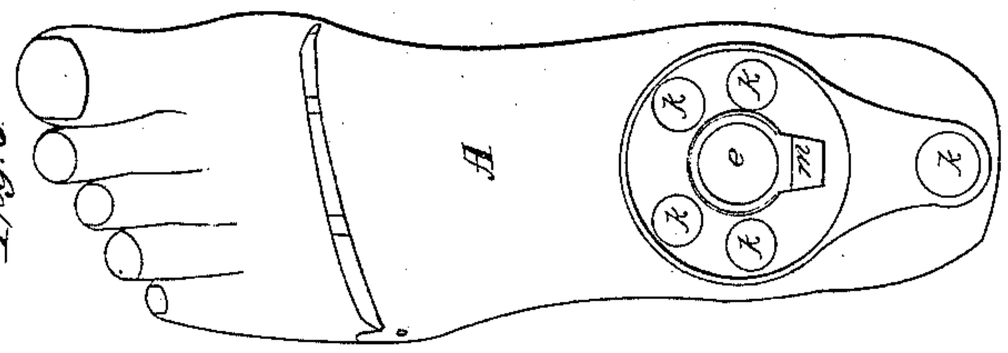
D. Bly,

Artificial Leg,

No. 31,438, Patented Feb. 19, 1861.

Fig. 3



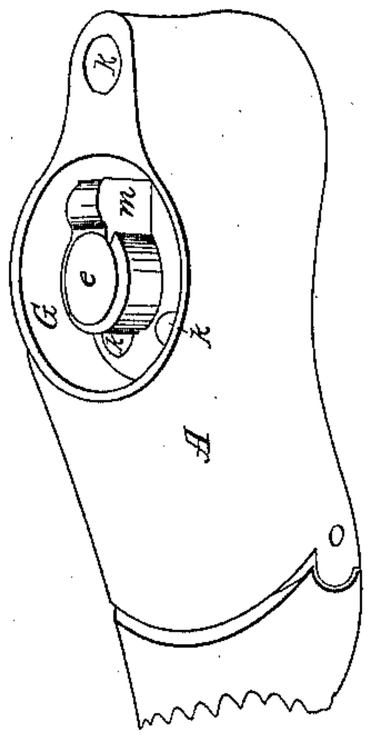


Fig. 1

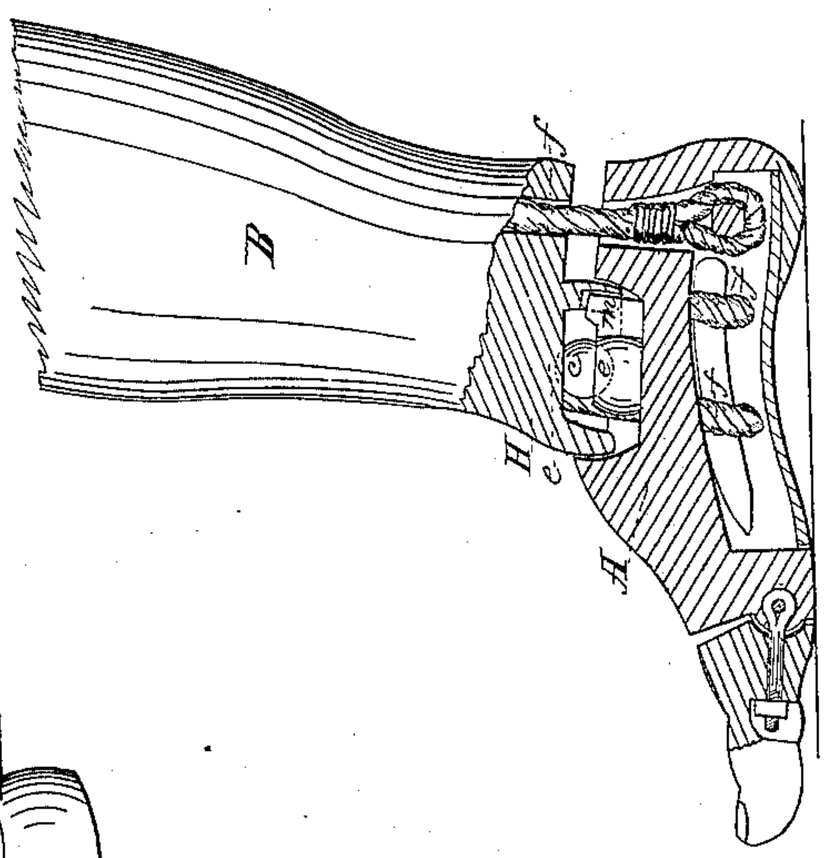
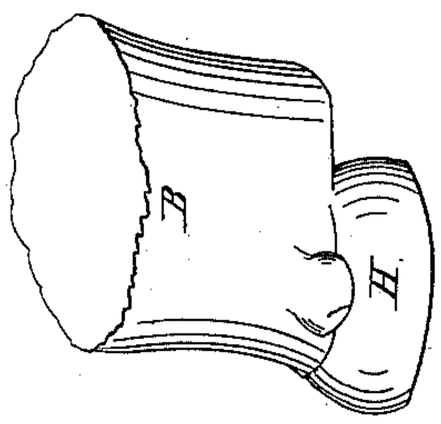


Fig. 2



Witnesses.

James C Campbell

J. Fraser

Inventor.

Douglas Bly

UNITED STATES PATENT OFFICE.

DOUGLAS BLY, OF ROCHESTER, NEW YORK.

ARTIFICIAL LEG.

Specification of Letters Patent No. 31,438, dated February 19, 1861.

To all whom it may concern:

Be it known that I, DOUGLAS BLY, of Rochester, in the county of Monroe and State of New York, have invented a new and useful Improvement 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, in which—

Figure 1, is an elevation of my improved leg, with the foot and ankle joint in section. Fig. 2, is a plan view of the foot and ankle, separately shown. Fig. 3, is a plan view of the foot with the leg removed.

Like letters designate corresponding parts in all of the figures.

My invention is an improvement on the mode of constructing the ankle with a ball and socket joint, as patented by R. H. Nicholas and Douglas Bly, July 28th, 1857. That invention consists in the interposition of a ball between two plane surfaces, one being the top of the foot, and the other the end of the leg, divided horizontally at the ankle, a socket being provided in each to prevent the ball from being displaced, and the two portions of the limb being held together by tendons passing through both. The ball receives the weight, and is the pivot, or center of the motion between the leg and foot.

My improvement consists in providing a circular or annular cavity around the bearing socket for the ball in the foot, and constructing the leg with a spherical or hemispherical termination, which also incloses the bearing socket of the ball. This spherical termination enters the cavity of the foot, nearly filling it, being sufficiently small to move without friction, and therefore completely incloses the ball, hiding it from observation, and protecting it from dust or dirt that might otherwise intrude between the bearing surfaces, and hinder their proper working.

The construction of the parts will be readily understood from the drawings, A, B, being the foot and leg, *c* the ball, *e e* its sockets in either surface, and *f f f* the tendons which connect the whole together.

G is the socket-cavity which receives the hemisphere H, and *k k* are the holes through which the various tendons pass. The foot has a limited rotary motion horizontally on the leg by this connection, which is circumscribed by the stop or bridge *m* in the rear of the socket G, which is received in a corresponding recess in the shell H. The amount of rotation allowed is as the difference between size of the latter and the stop *m*, which may be easily varied during its construction.

The shell surrounding the socket G, being worked thin at the edge, and the curve of H being such that as the foot flexes it rolls in all directions without varying the space between them unequally, it becomes far more sightly and more closely resembling the natural ankle. It prevents the stocking or other material being caught in the space between the surfaces of the foot and leg, and protects and disguises the mechanical joint which supplies the natural one.

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

1. The rounded or hemispherical termination of the leg at the ankle, with the recess G in the foot for the reception thereof, when combined and arranged with a joint-bearing having a universal motion on a single center, substantially as and for the purpose shown and described.

2. The stop or projection *m*, when combined with a corresponding recess in the shell of H, substantially in the manner and for the purpose set forth.

DOUGLAS BLY.

Witnesses:

J. FRASER,

JAMES C. CAMPBELL.