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J. W. MORRIS & G. J. LUCK.
FOOT FOR CRUTCHES OR CANES.

APPLICATION FILED FEB. 24, 1899.

NO MODEL.

Fig. 3.

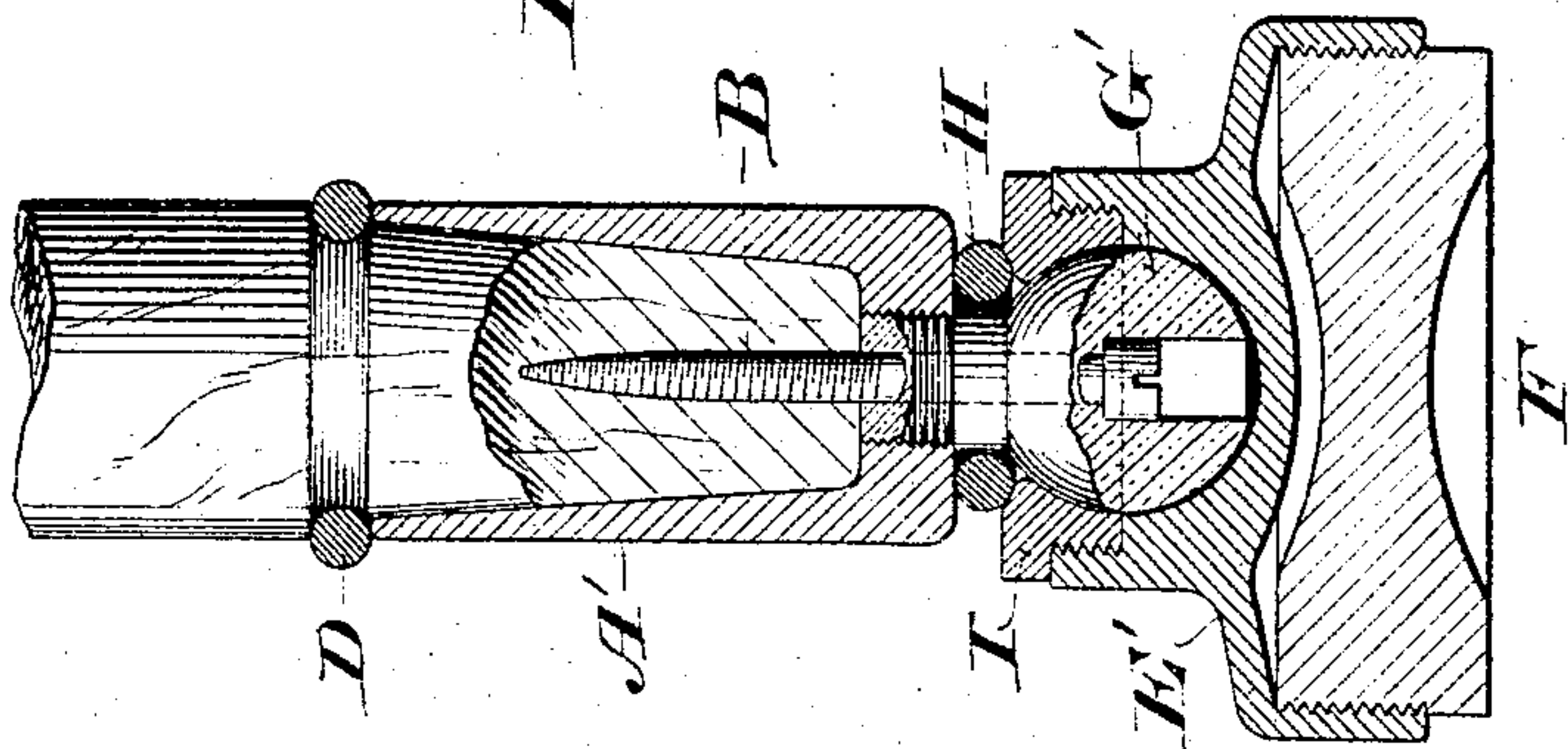


Fig. 1.

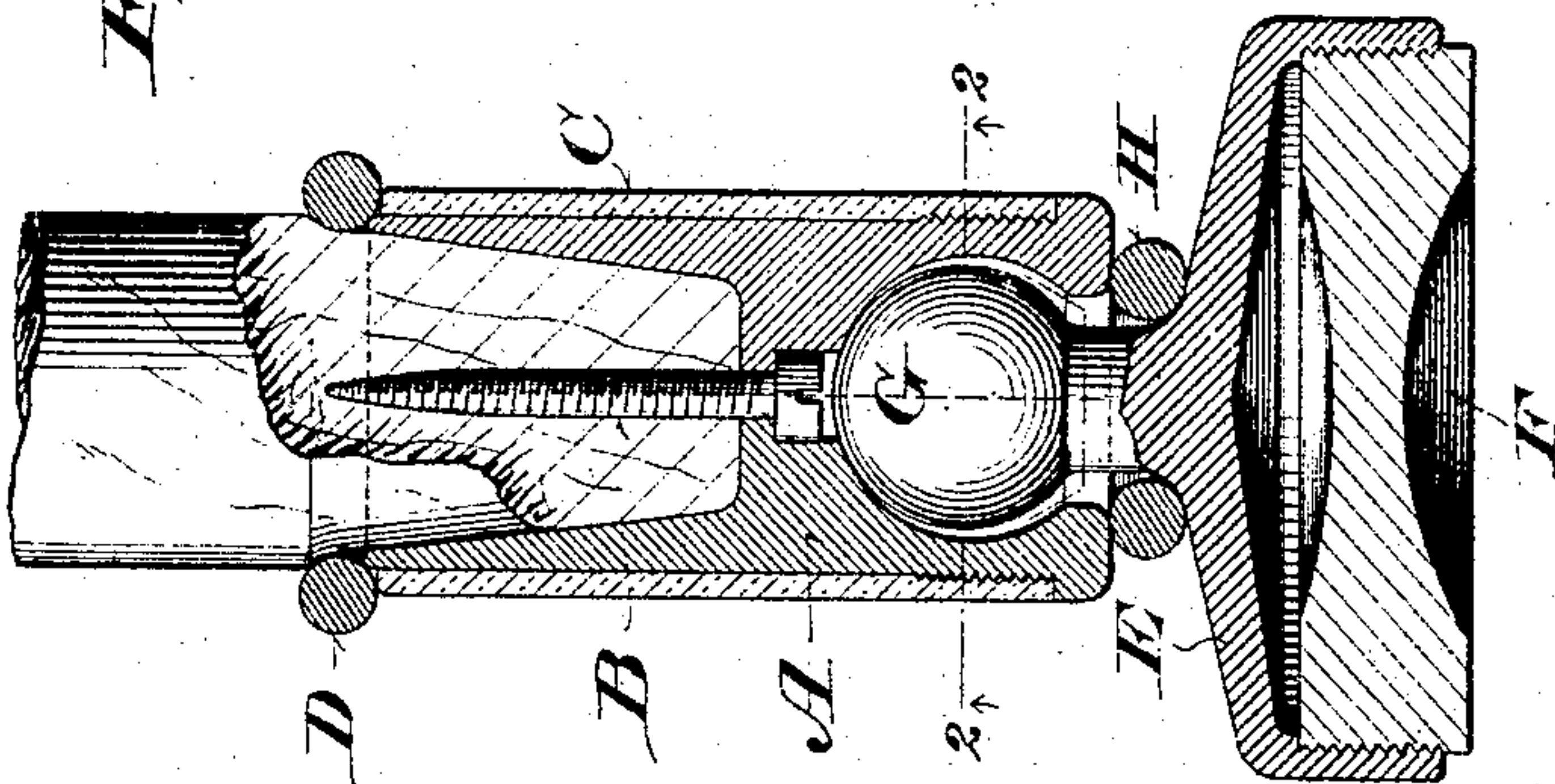
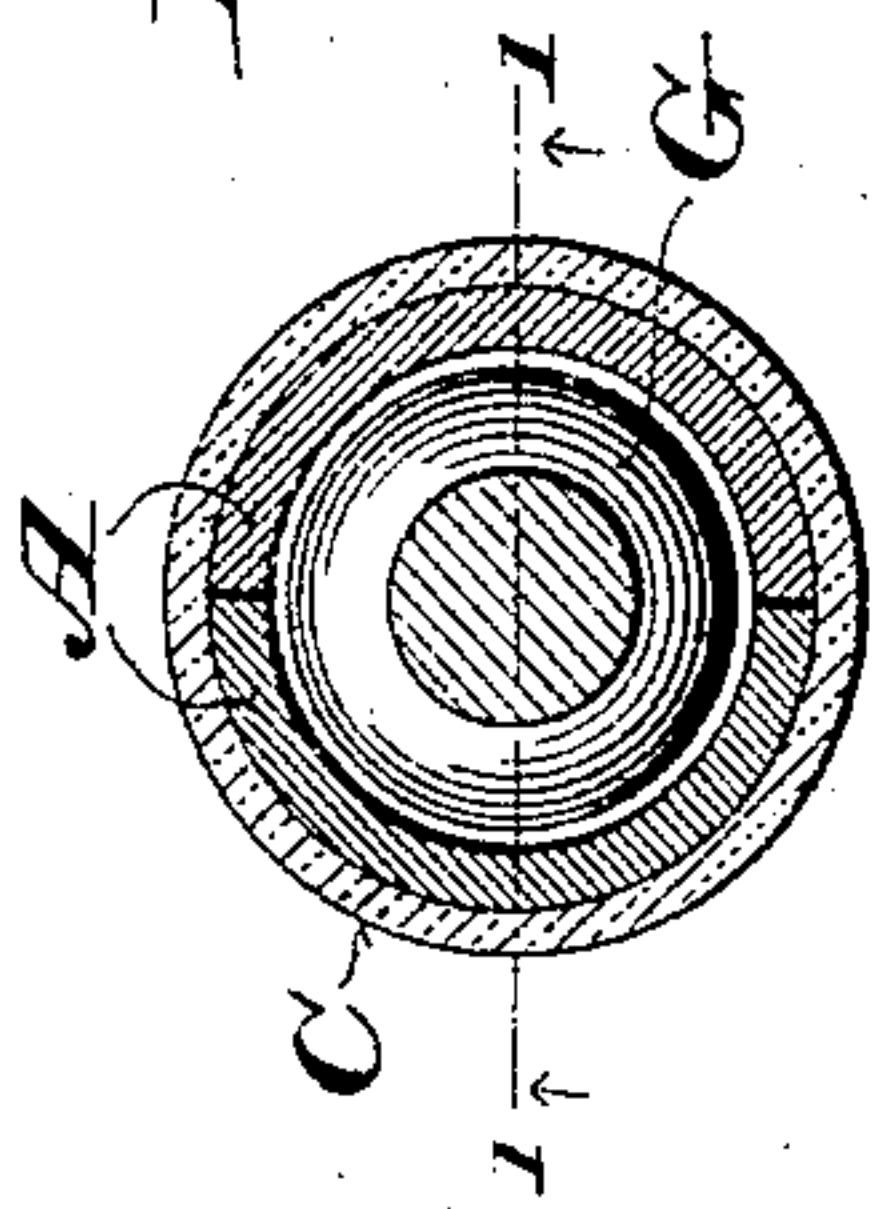


Fig. 2.



Witnesses:

Geo. W. Young,

Chas. L. Goss.

Inventors:

John W. Morris,

Gustave J. Luck,

By Winkler, Anderson & Smith, Attorneys.

Attorneys.

UNITED STATES PATENT OFFICE.

JOHN W. MORRIS AND GUSTAVE J. LUCK, OF MILWAUKEE, WISCONSIN.

FOOT FOR CRUTCHES OR CANES.

SPECIFICATION forming part of Letters Patent No. 765,984, dated July 26, 1904.

Application filed February 24, 1899. Serial No. 706,649. (No model.)

To all whom it may concern:

Be it known that we, JOHN W. MORRIS and GUSTAVE J. LUCK, citizens of the United States, residing at Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented certain new and useful Improvements in Feet for Crutches or Canes, of which the following is a specification, reference being had to the accompanying drawings, forming a part thereof.

The main objects of our invention are to prevent slipping, to prevent injury to carpets and floors, to avoid wear and the disagreeable grating or grinding sensation produced by the turning of one metal part in or upon another, and generally to improve the construction and operation of devices of the class to which my invention relates and to promote the convenience and comfort of those who are obliged to use crutches and canes.

It consists in certain novel features of construction and combinations of parts, as hereinafter particularly described, and defined in the claims.

In the accompanying drawings like letters designate the same parts in the several figures.

Figure 1 is a vertical medial section on the line 1 1, Fig. 2, of a jointed foot embodying our improvement. Fig. 2 is a horizontal section of the same on the line 2 2, Fig. 1; and Fig. 3 is a section similar to that shown in Fig. 1 of a modified form of the device.

Referring to Figs. 1 and 2, A designates a socket-piece, which is formed in the upper end with a tapering socket and in the lower end with a spherical socket. For the purpose of assembling the parts as hereinafter explained this socket-piece is made in two or more sections, as most clearly shown in Fig. 2. The end of the crutch or cane stick to which the foot is to be applied is tapered and fitted in the socket in the upper end of the socket-piece A, in which it swivels or turns freely, and is held by a headed pin or screw B, which passes through a countersunk hole in the socket-piece A into the end of the crutch or cane stick, as seen in Fig. 1. C is a ferrule or sleeve fitted over and threaded upon the socket-piece A for holding its component sections together in their proper relation to each

other and to other parts of the jointed foot. The socket-piece A is formed at or near its lower end with an outwardly-projecting flange or shoulder, against which the lower end of the ferrule C abuts when it is screwed down into place upon said socket-piece. D is a rubber ring which is placed over the joint between the upper end of the socket-piece A and the end of the crutch or cane and serves to exclude from said joint moisture and dirt which might prevent the crutch or cane from turning freely in said socket-piece. E is a circular metallic holder recessed on the under side and internally threaded to receive and hold a rubber cushion F, which constitutes the bearing of the foot. The holder is formed or provided centrally on the upper side with a ball G, which is loosely fitted in the spherical socket in the lower end of the socket-piece A. H is a rubber ring or annular cushion interposed between the lower end of the socket-piece A and the upper side of the holder E around the neck of the ball G. It serves to prevent shock or jar and the grating or grinding sensation when the foot strikes the floor or ground and one part of the ball-and-socket joint turns in the other part. The cushion F, which is preferably made of soft rubber, is recessed or concaved on the under side, so as to leave a bearing around the margin of the rubber, which is thus made to act when brought squarely down upon the floor or ground like a sucker. In this way slipping of the foot is prevented and at the same time injury to carpets and floors is avoided. To insure the foot being brought squarely down upon the floor or ground, the ball G is fitted loosely in its socket, so that when the foot is raised it will naturally assume a horizontal position at whatever angle the crutch or cane may be held. The upper side of the cushion F is also recessed or concaved, or a space is left between it and the top of the holder E, so that the middle of the rubber cushion can yield upwardly in the said holder. By this means if snow or mud collects in the cavity in the lower side of the cushion when a step is taken the rubber will be forced upwardly into the holder and when the foot is raised will by reason of its elasticity tend to spring back into its nor-

mal position, and thus expel the snow or mud taken up by the foot. The foot is thus made self-clearing.

In the use of a cane or crutch, particularly a crutch, it is turned or twisted more or less in taking a step. This turning or twisting movement is provided for in the swivel-joint between the crutch or cane end and the socket-piece A, so that when the foot is brought into contact with the floor or ground it does not turn thereon, nor does the ball G turn in the socket-piece A. Abrasion and wear of the contact-surface on cushion F are thus greatly reduced, the tearing of carpets and marring of floors are avoided, and the wear and disagreeable grating and grinding sensation produced by the ball turning in its socket are materially reduced. To prevent the grinding of the ball in its socket, a piece of rubber or leather may be placed between them or a stiff or semisolid lubricant may be employed.

Referring to Fig. 3, showing a modification of the jointed foot, the socket-piece A' is made in a single piece and is provided at the lower end with a ball G', which forms a part of the universal joint connecting the socket-piece A' with the holder E' of the foot. The ball G' is made separate from the socket-piece and attached thereto by a screw-thread or other suitable means, so as to admit of assembling the parts as hereinafter described. The end of the crutch or cane is tapered and fitted to turn in the socket-piece A', and the joint between them is protected by a rubber ring D. A headed pin or screw B passing upwardly through a countersunk hole in the ball G' and its stem into the end of the crutch or cane stick holds it loosely in the socket-piece. Holder E' is formed on the upper side with a part of a spherical socket to receive the ball G', which is held therein by a retaining-ring I, threaded in said holder. A rubber ring H is interposed between the lower end of the socket-piece A' and the ring I of the holder and forms a cushion serving the same purpose as the like designated ring in Fig. 1. A rubber bearing-piece or cushion F is screwed into the holder E', as in Fig. 1. The operation of this form of the device is essentially like that of the form shown in Fig. 1 and will be readily understood without further explanation.

Various changes in the minor details of the device may be made without affecting its operation and without departing from the principle and intended scope of the invention.

We claim—

1. A foot for crutches and canes comprising

a socket-piece in which the crutch or cane stick is swiveled and freely turns and a holder provided with a cushion and having a universal-joint connection with said socket-piece separate and distinct from the swivel connection between said socket-piece and the crutch or cane stick, substantially as and for the purposes set forth.

2. A foot for crutches and canes comprising a socket-piece in which the crutch or cane end is held, a holder provided on the bottom with a cushion and having a universal-joint connection with said socket-piece and a cushion interposed between said holder and socket-piece, substantially as and for the purposes set forth.

3. A foot for crutches and canes comprising a socket-piece in which the crutch or cane stick is swiveled, a rubber ring placed over the joint between the upper end of said socket-piece and the crutch or cane stick, and a holder provided on the bottom with a cushion and connected with said socket-piece by a ball-and-socket joint, separate and distinct from the swivel connection between said holder and the crutch or cane stick, substantially as and for the purposes set forth.

4. A foot for crutches and canes comprising a recessed holder having a jointed connection with a crutch or cane, and a flexible cushion secured in said holder at the edge or periphery and concaved or recessed on the under side, a space being left between the upper side of said cushion and the top of said holder, substantially as and for the purposes set forth.

5. A foot for crutches and canes comprising a socket-piece composed of sections, and formed in the upper end with a tapering socket and in the lower end with a spherical socket, the crutch or cane being fitted to turn in said tapering socket and loosely held therein by a headed pin or screw passing through the bottom of the socket, a ferrule fitted over and threaded upon said sectional socket-piece for holding the parts together, a holder recessed on the under side and provided on top with a ball which is fitted in said spherical socket, a cushion secured in said holder, and a cushion interposed between the holder and socket-piece, substantially as and for the purposes set forth.

In witness whereof we hereto affix our signatures in presence of two witnesses.

JOHN W. MORRIS.
GUSTAVE J. LUCK.

Witnesses:

CHAS. L. GOSS,
KENT H. FLANDERS.