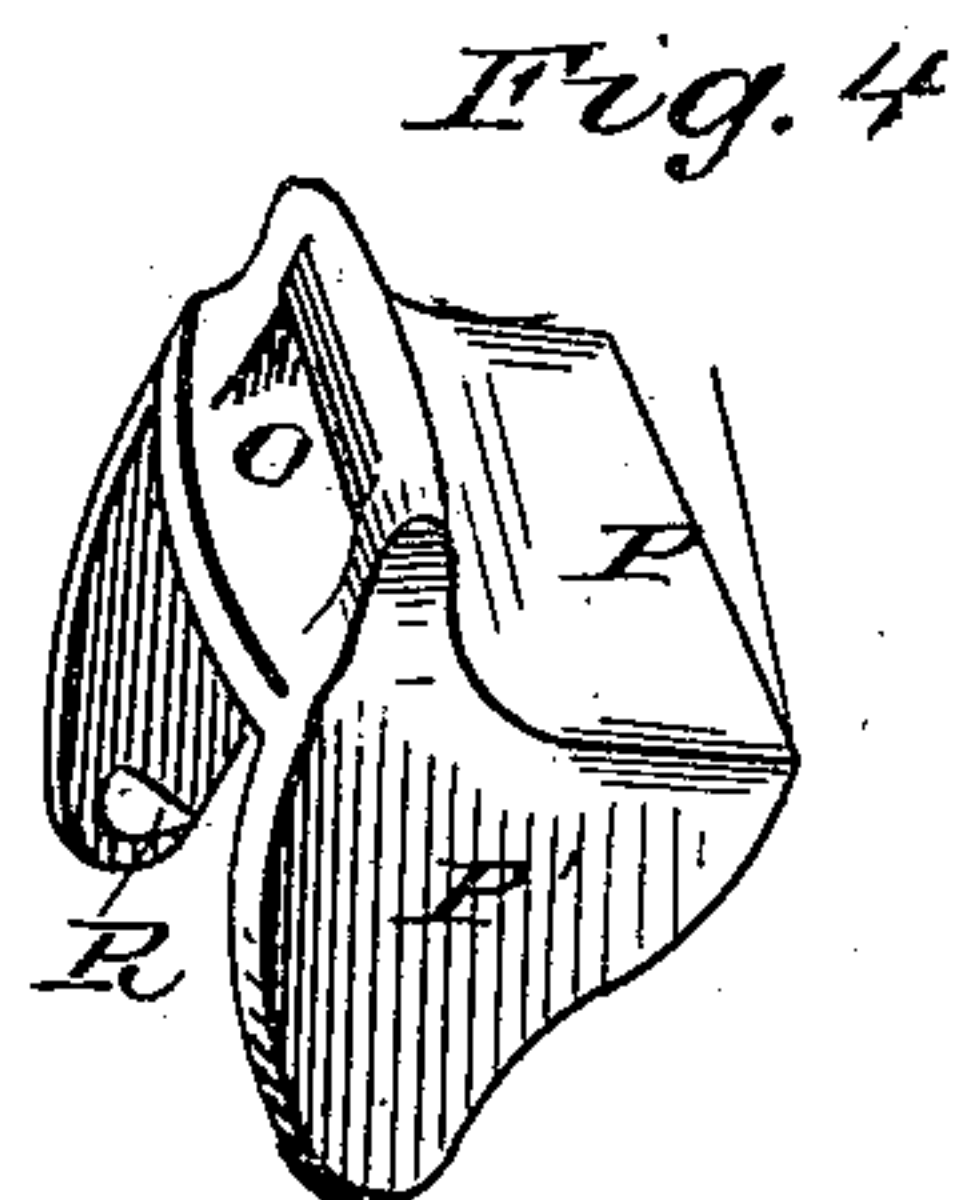
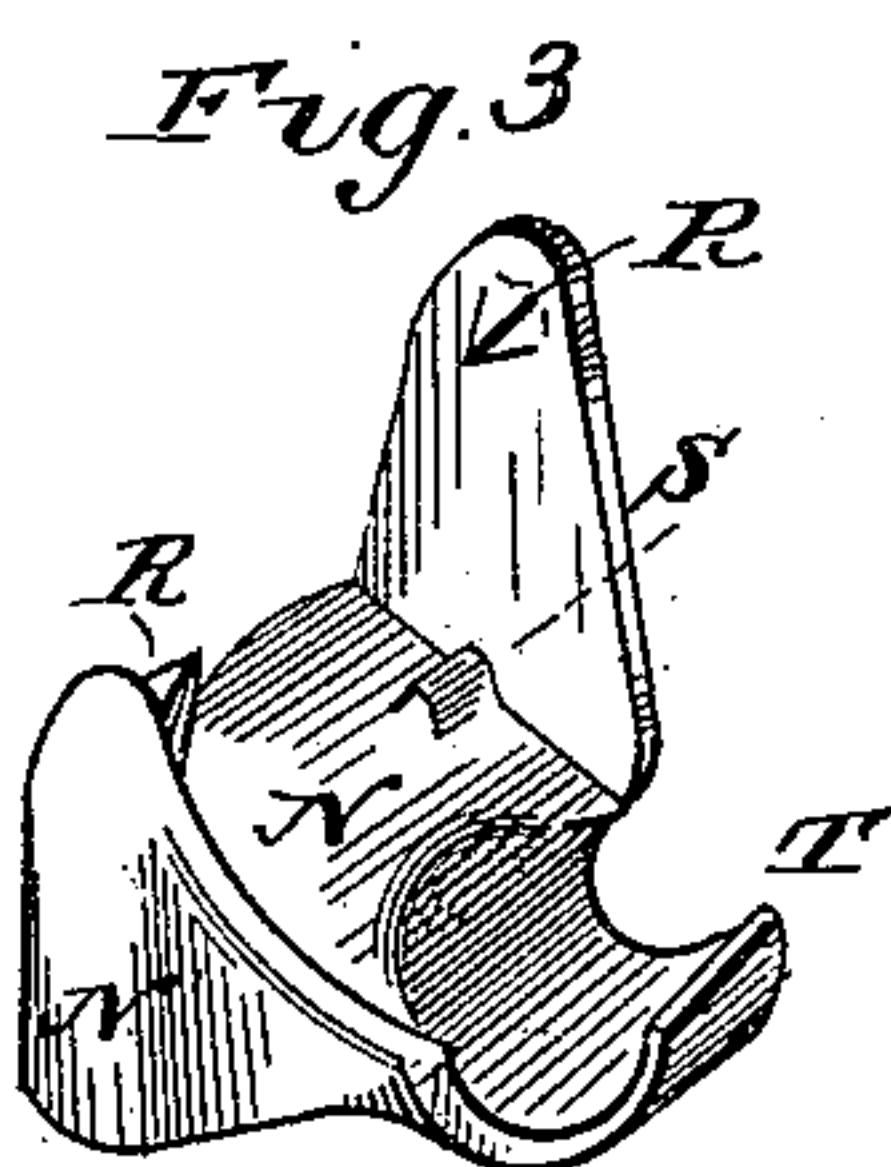
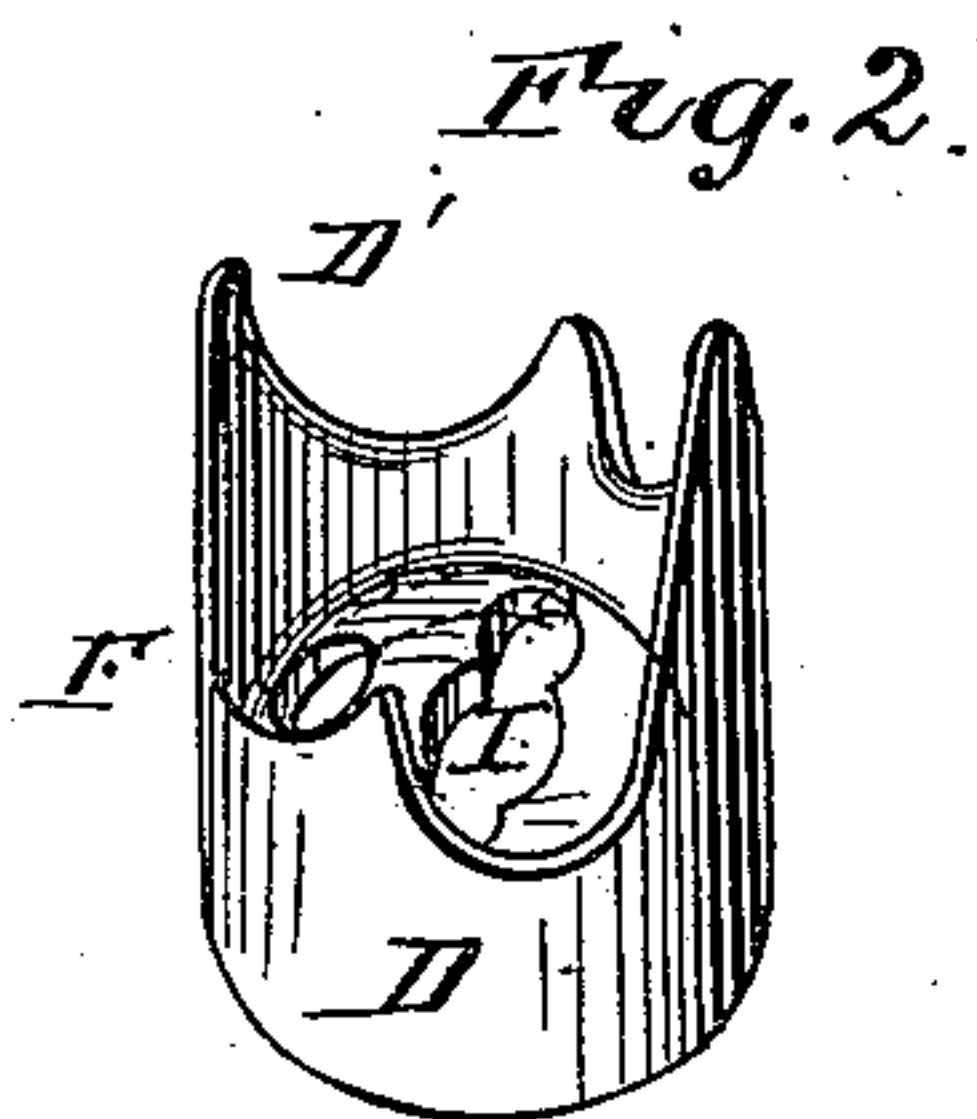
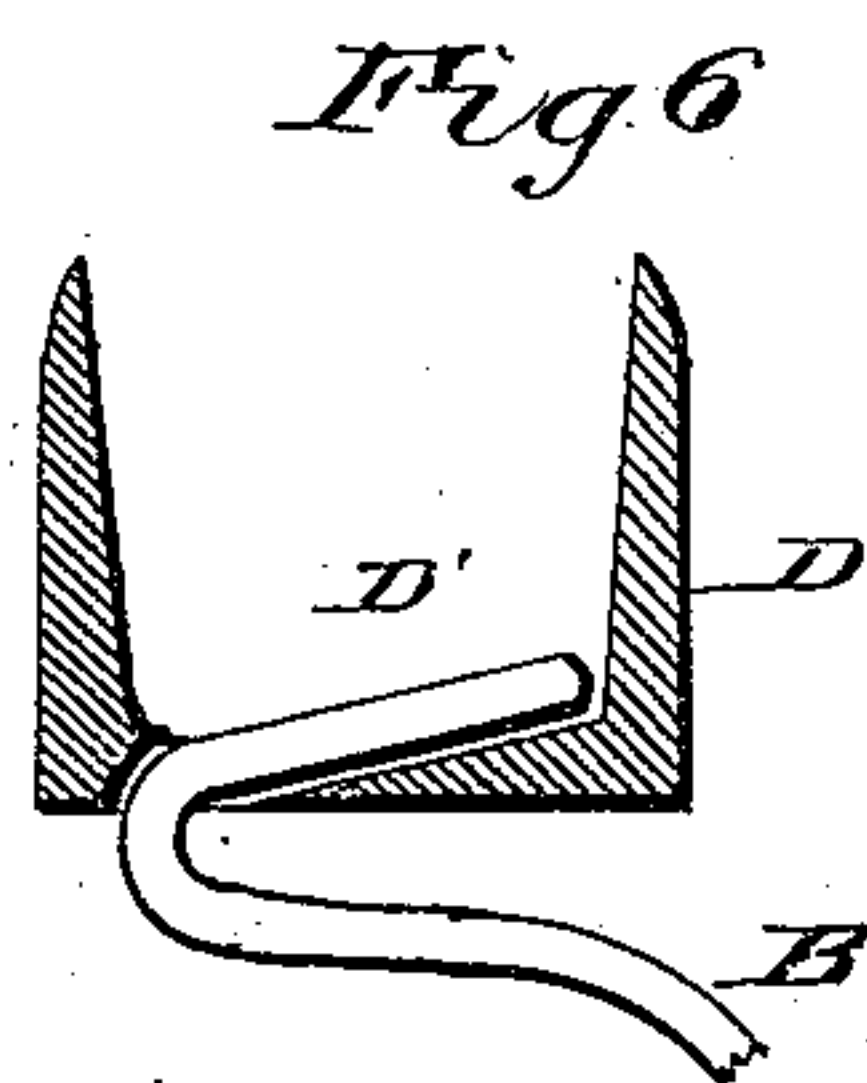
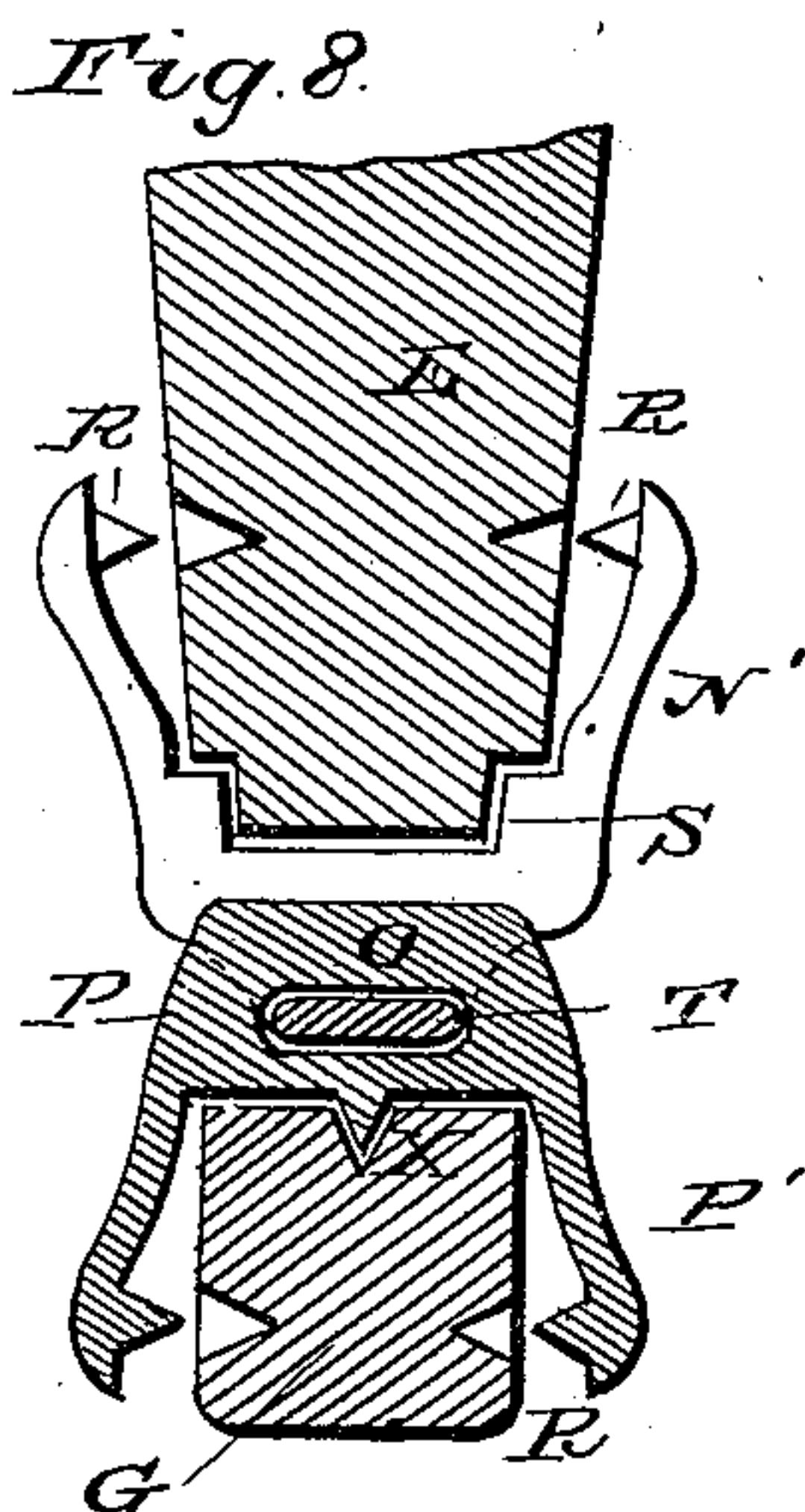
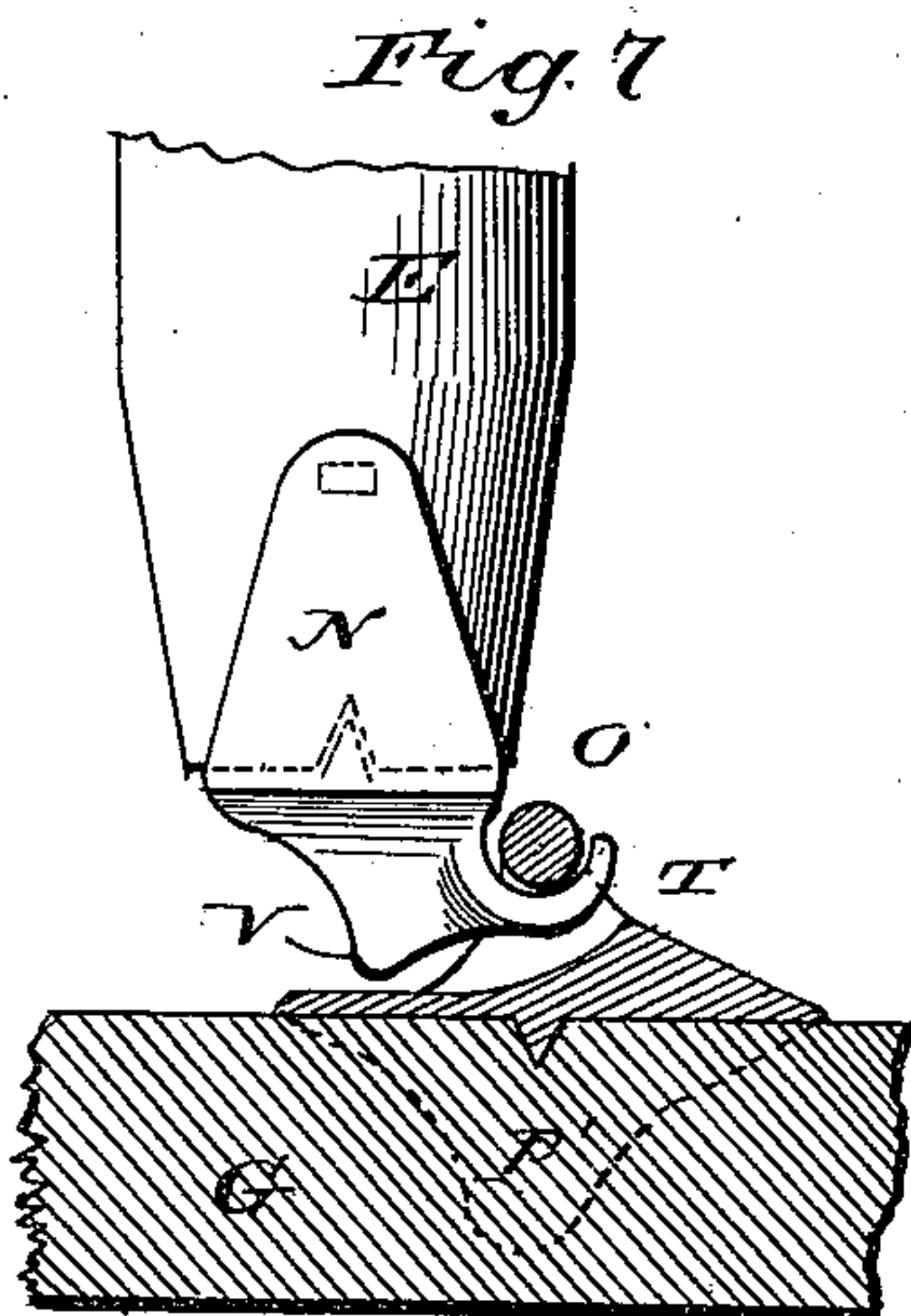
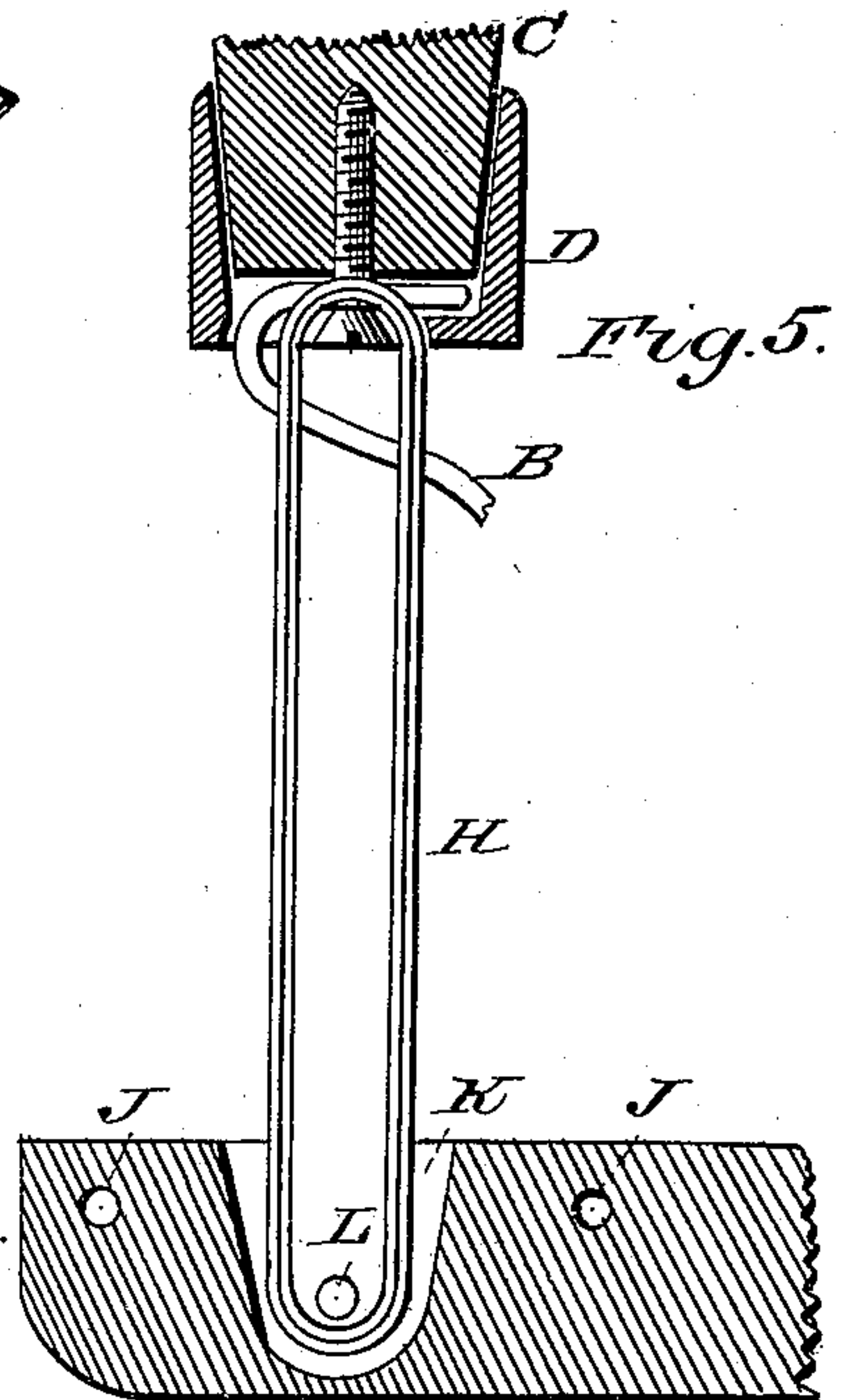
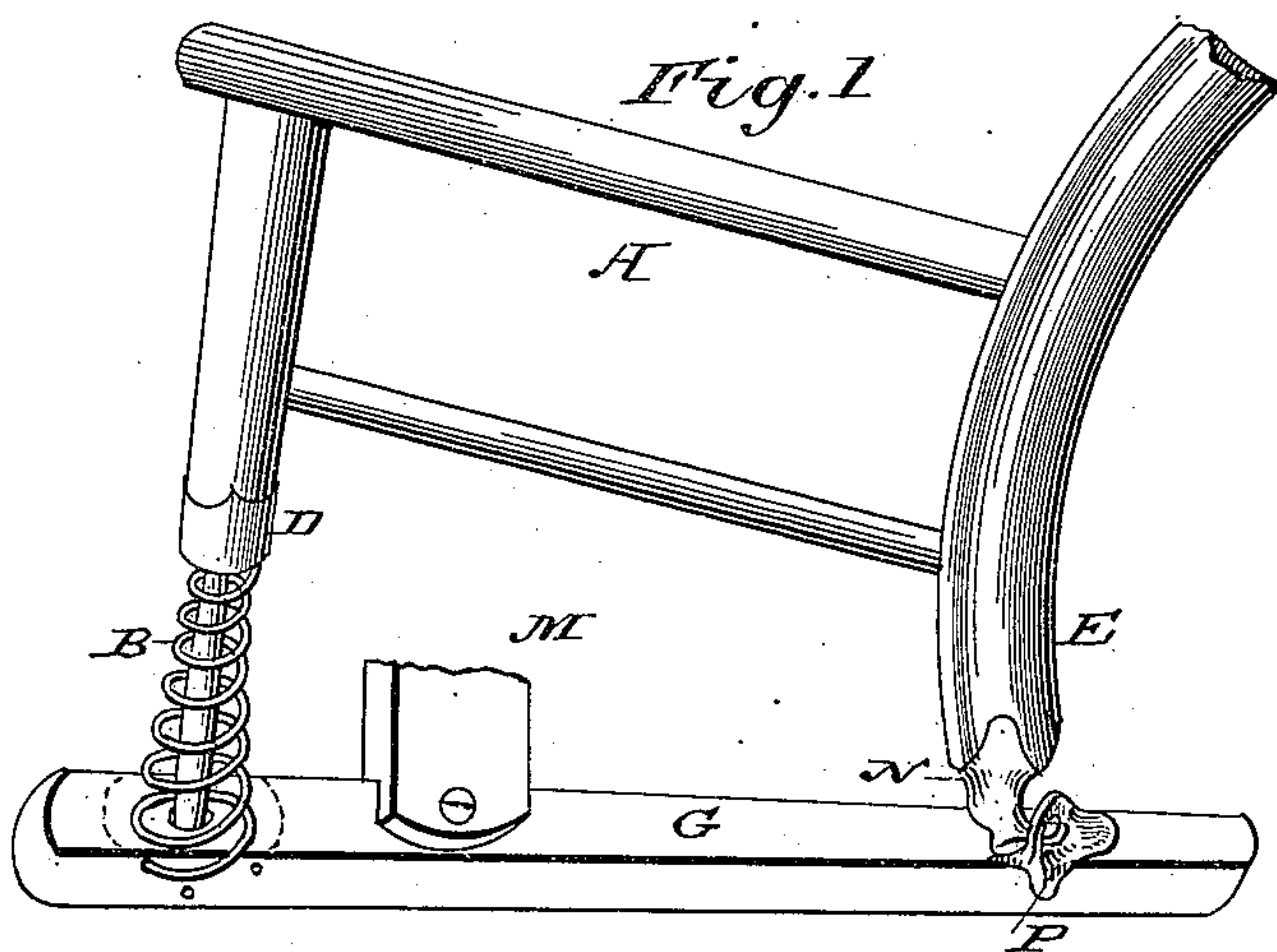


(No Model.)

T. D. DAVIS.  
SPRING CHAIR AND SEAT.

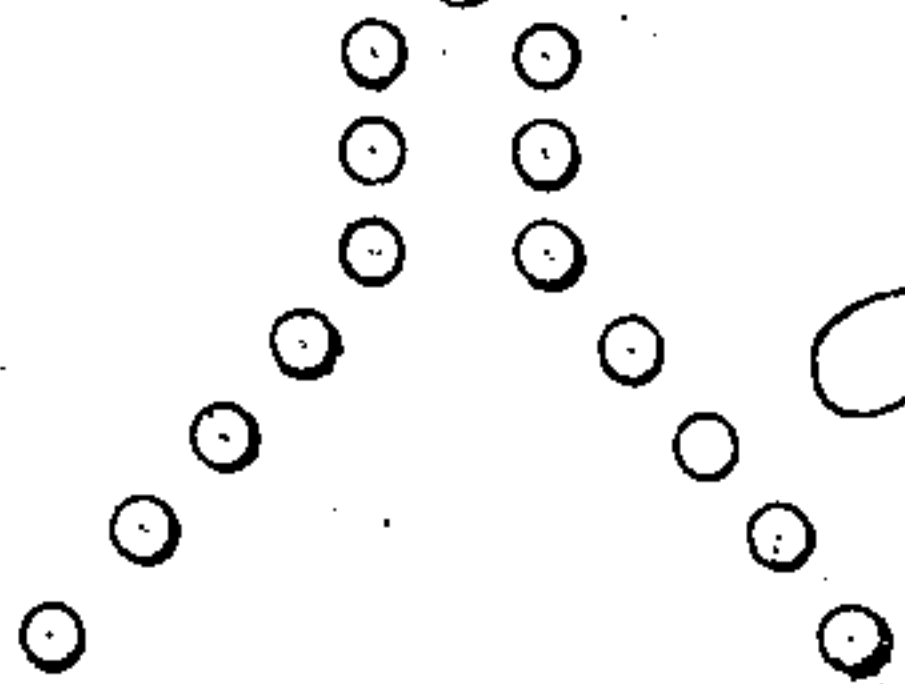
No. 333,998.

Patented Jan. 12, 1886.



Witnesses.  
Wm. B. Doane  
Fred J. Dietrich

Fig. 9.



Inventor

Theodore D. Davis



# UNITED STATES PATENT OFFICE.

THEODORE D. DAVIS, OF WILLIAMSPORT, PENNSYLVANIA.

## SPRING CHAIR AND SEAT.

SPECIFICATION forming part of Letters Patent No. 333,998, dated January 12, 1886.

Application filed July 8, 1884. Serial No. 137,143. (No model.)

*To all whom it may concern:*

Be it known that I, THEODORE D. DAVIS, a citizen of the United States, residing at Williamsport, in the county of Lycoming and State of Pennsylvania, have invented a new and useful Spring Chair and Seat for Household Purposes, Vehicles, &c., of which the following is a specification.

My invention relates to improvements in chairs and seats in which spiral springs are used, and the objects of my improvements are, first, to provide chairs and seats with springs limited in their expansive movement; second, to combine the springs with hinged frames or runners when applied to chairs and movable seats. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a vertical section of a common chair; Fig. 2, a perspective view of the socket for securing the upper end of the spring to the leg of the chair; Figs. 3 and 4, perspective views of the hinge; Fig. 5, a vertical section of chair-leg runner and tie; Fig. 6, a vertical section of the socket; Fig. 7, a vertical section of leg-runner and hinge; Fig. 8, a vertical cross-section of the same; Fig. 9, a section of spring.

Similar letters refer to similar parts throughout the several views.

A is one side of a chair-frame; B, a spiral spring secured to the leg C by the malleable-metal socket D, the wall of which is corrugated or split for a portion of its length so that it may be expanded or contracted to insure a fit. It has an oval opening through its bottom near the edge and an inclined channel on the inside for a part of its circumference, as shown by the dotted lines, Fig. 2, and at D', Fig. 6. It also has a similar channel on the outside, extending in the opposite direction. This gives the spring end a long and easy bearing and prevents it from bending where it leaves the socket. The bottom of the spring having been secured to the runner G by screwing it into and through the holes J J, Fig. 5, the upper end of the spring is passed through the opening F and around the edge, as shown by the dotted lines. One end of the flexible loop or tie H is now passed through the center opening, the socket placed on the leg,

and the screw inserted in the center and driven home, pressing the end of the spring against the bottom of the leg, and also securing the upper end of the tie. The spring is coiled in such a manner that when compressed the coils will have a partial bearing on each other in order to prevent chafing and noise; or it may be coiled so that the upper ones may have a bearing on each other, and the remaining coils nest within each other when compressed. This form will produce a more elastic spring and give it greater range. The endless loop H is composed of several strands of fine steel wire, and being flexible will conform to the interior of the spring when compressed, and when the pressure is removed prevents the spring from expanding beyond its proper limit, thereby preventing the spring from straightening or injury, and also prevents the chair from upsetting. A chain may be used in place of the wire for the tie, if desired. The lower end of the tie is passed into the mortise K, which extends nearly through the runner G, leaving a portion at the bottom to prevent the end of the loop from dropping through. When the spring is compressed, it is secured by a pin, L, passing through the runner and loop. The runners are rounded at each end and on the corners, to prevent injury to floors and carpets. They also extend a few inches in the rear of the leg E, to prevent the chair from upsetting when the weight is suddenly removed. The runners G are connected near the front ends by a cross-bar, one end of which is shown at M, Fig. 1.

The manner of constructing and attaching the hinge is shown in Figs. 7 and 8.

P is a malleable clip-saddle, with spurs R R, integral with the wings P', which are open to admit the runner between the points of the spurs, and are secured by compressing the wings, forcing the spurs into the runner, the spur X entering the top of the runner and preventing any end movement. The clip N has spurs R R for securing it to the leg, and also fins or lugs S, which brace and strengthen the clip, and when bedded in the end of the leg E prevent longitudinal movement of the clip. When the parts are connected, the hook T partly encircles the pin O and keeps them in position. The clip N has a rounded or knife



edge extension, V, which rests on the saddle P, sustaining a large portion of the weight, and on which the chair oscillates. This relieves the spring and enables the occupant to balance himself and control the motion of the seat with ease.

I reserve the right to claim this hinge-fastening in a separate patent.

I am aware that prior to my invention spiral springs have been used on chairs by attaching one end of the spring to the chair-leg, the other end resting on the floor. I therefore do not broadly claim the application of such springs to chairs; but

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

1. The combination of seat A, frame G, springs B, flexible tie H, and hinged joint N P, substantially as shown and described.

2. The combination, substantially as before set forth, of a runner-frame, a chair, the rear legs of which are hinged thereto, and springs

interposed between the front legs and the runner-frame.

3. The combination, substantially as before set forth, of a runner-frame, a chair, the rear legs of which are hinged thereto, springs interposed between the front legs and the runner-frame, and ties to limit the expansion of the springs.

4. The leg-socket having an oblique hole and an inclined channel in the bottom for the insertion of the spring, substantially as before set forth.

5. The combination, substantially as before set forth, of the runner-frame and the springs screwed through transverse holes in the runners to secure their lower ends thereto.

THEODORE D. DAVIS.

Witnesses:

JNO. M. LAUX,  
S. K. ROOK.