

(No Model.)

2 Sheets—Sheet 1.

W. C. WOOD.
GIRDER RAIL AND ITS FASTENING.

No. 433,923.

Patented Aug. 5, 1890.

Fig. 1.

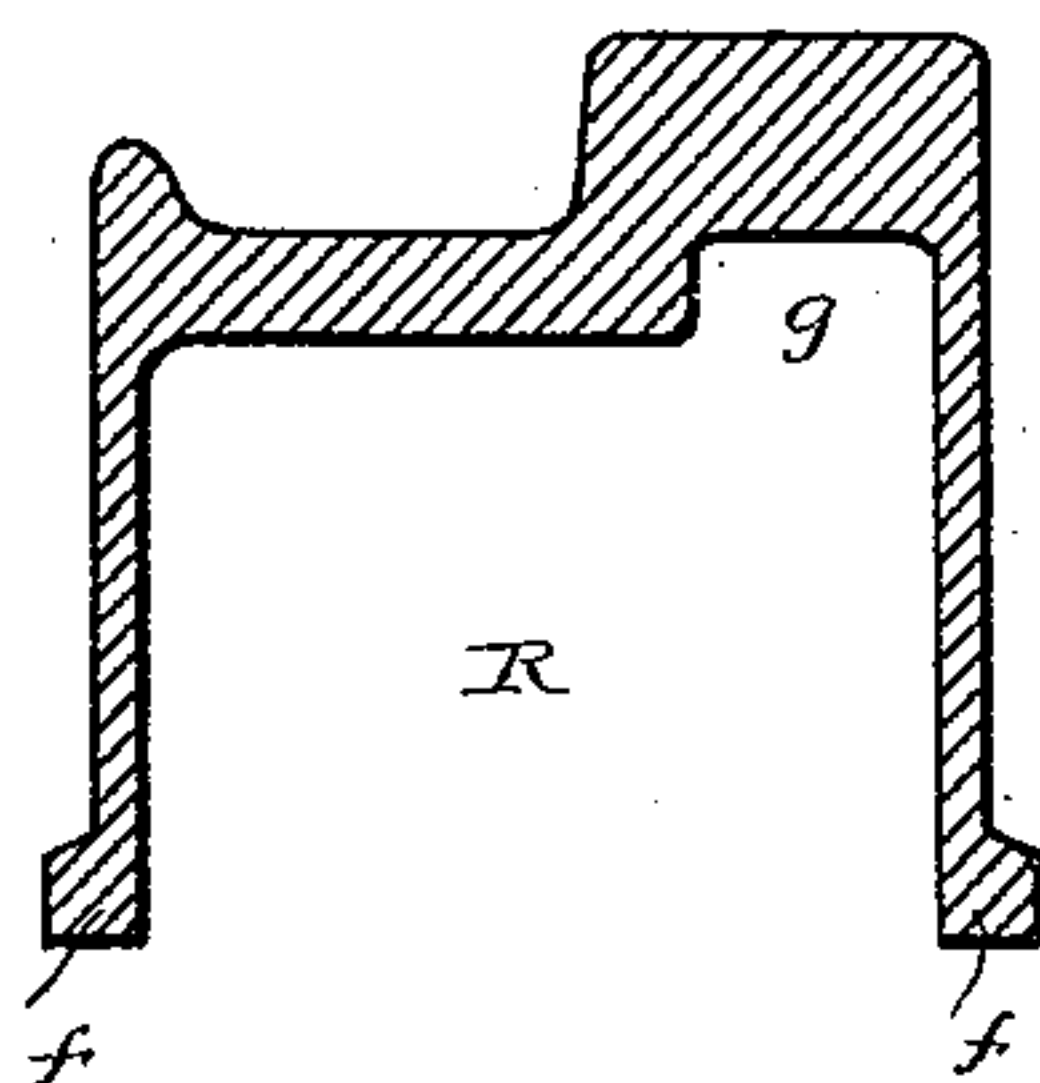


Fig. 2.

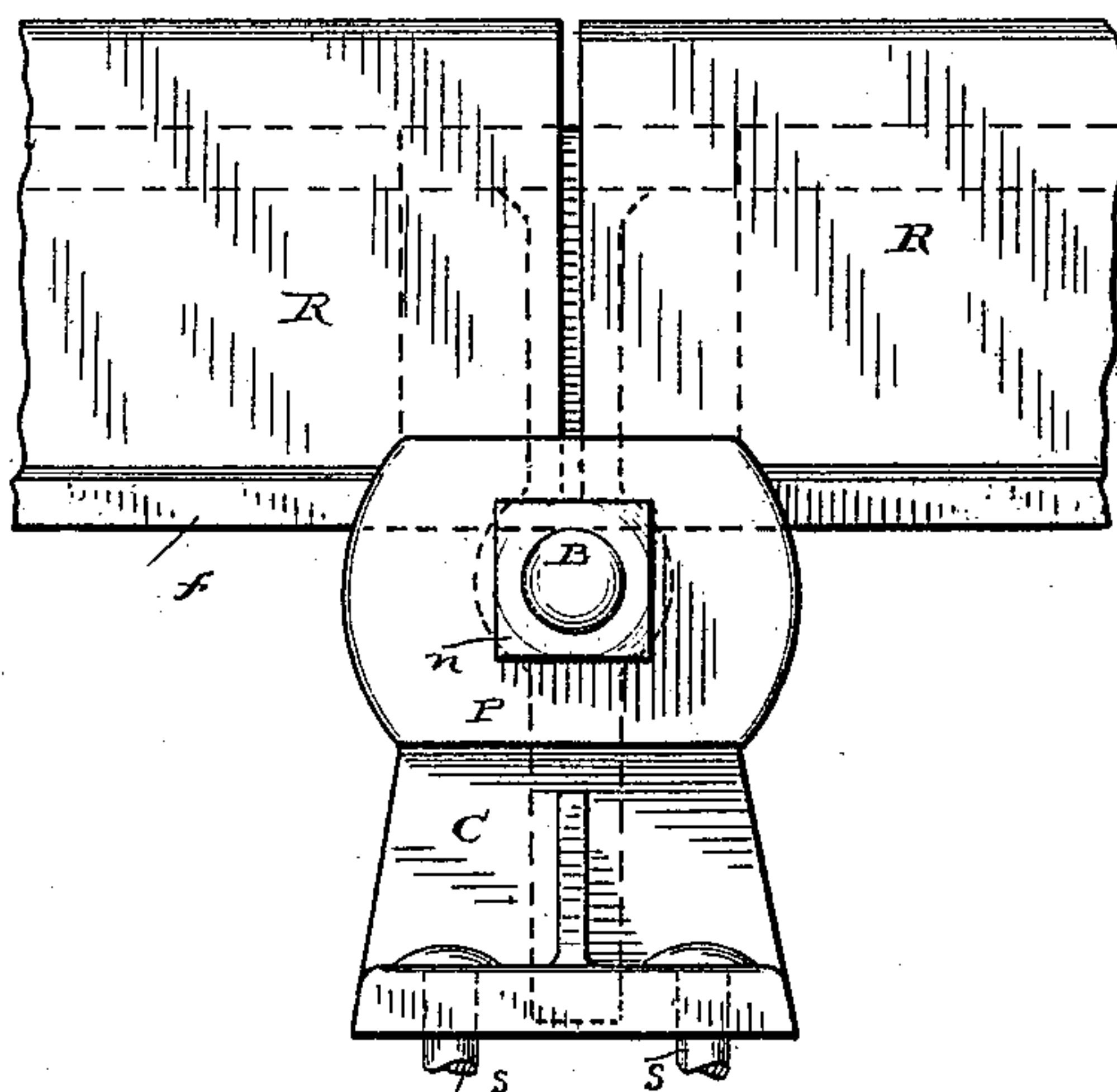


Fig. 3.

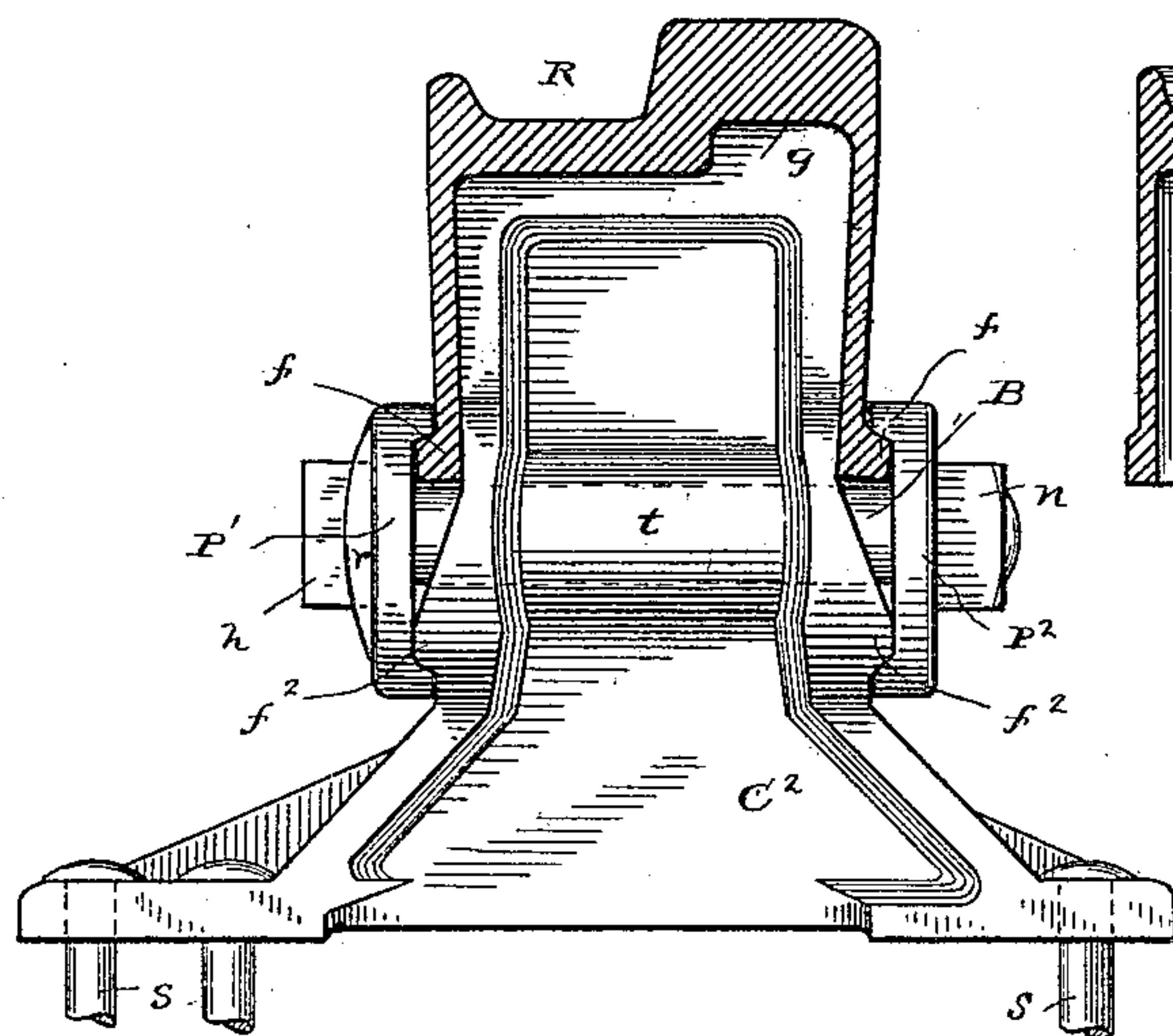
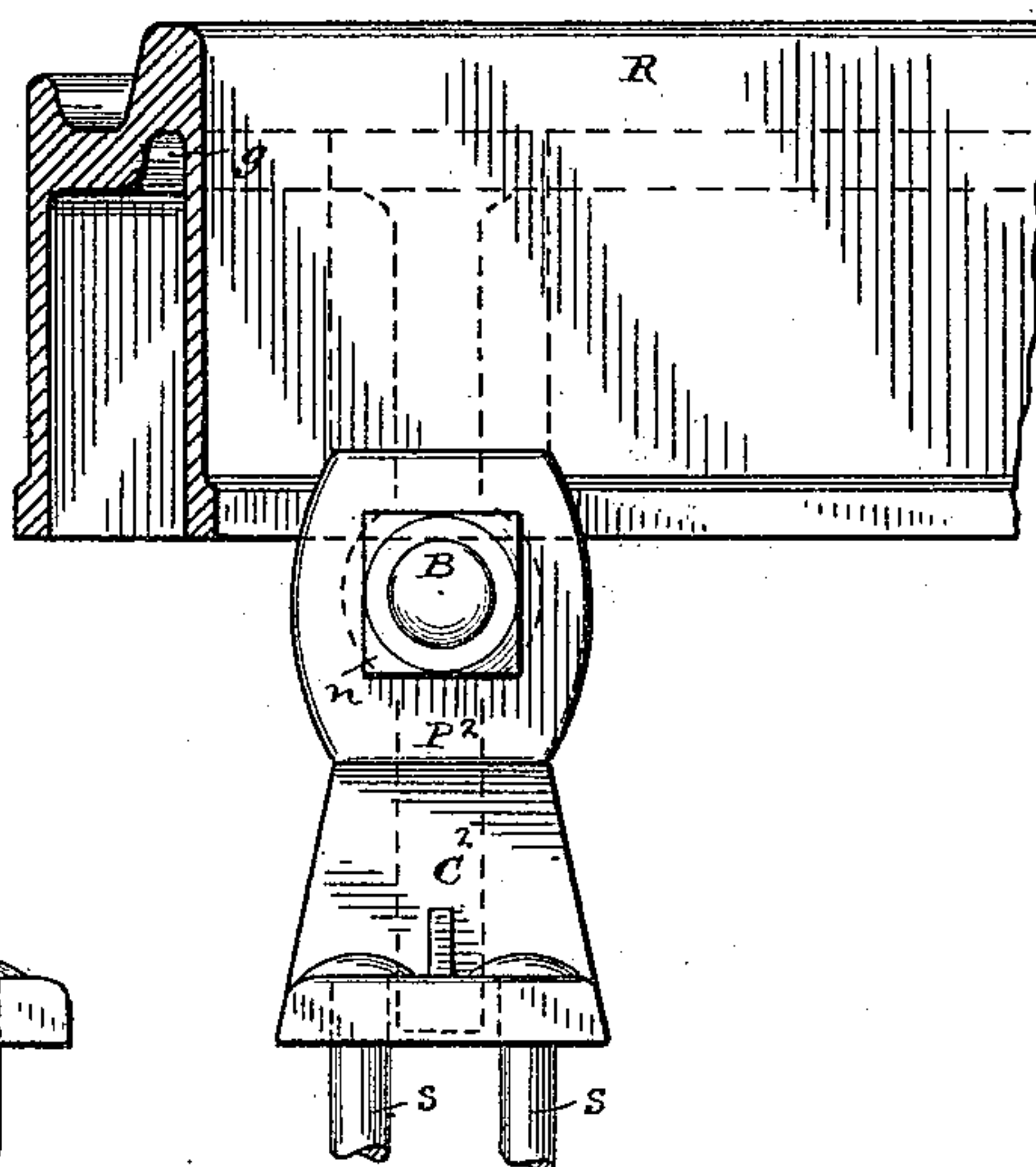


Fig. 4.



Witnesses

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Fig. 5.

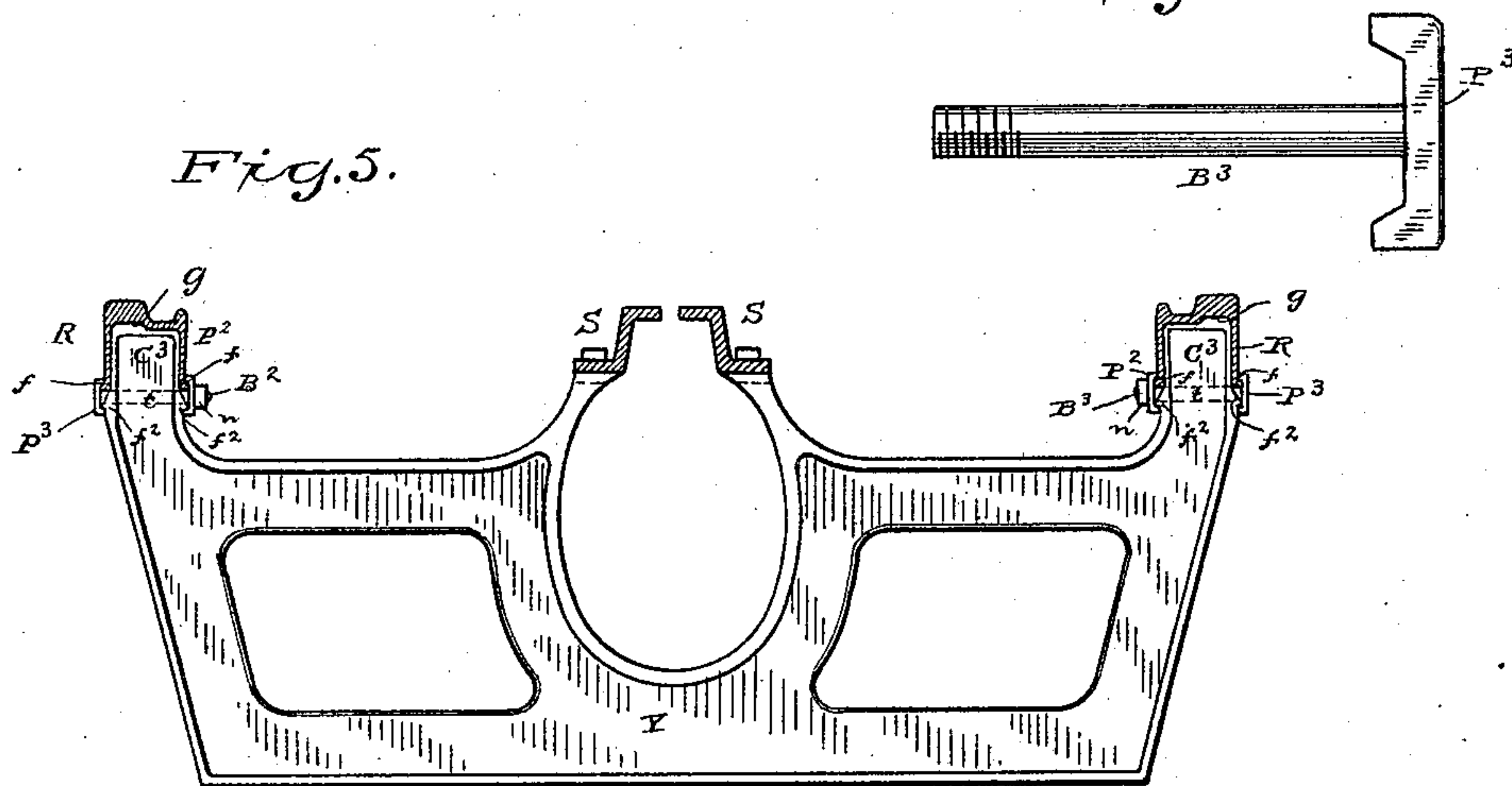


Fig. 6.

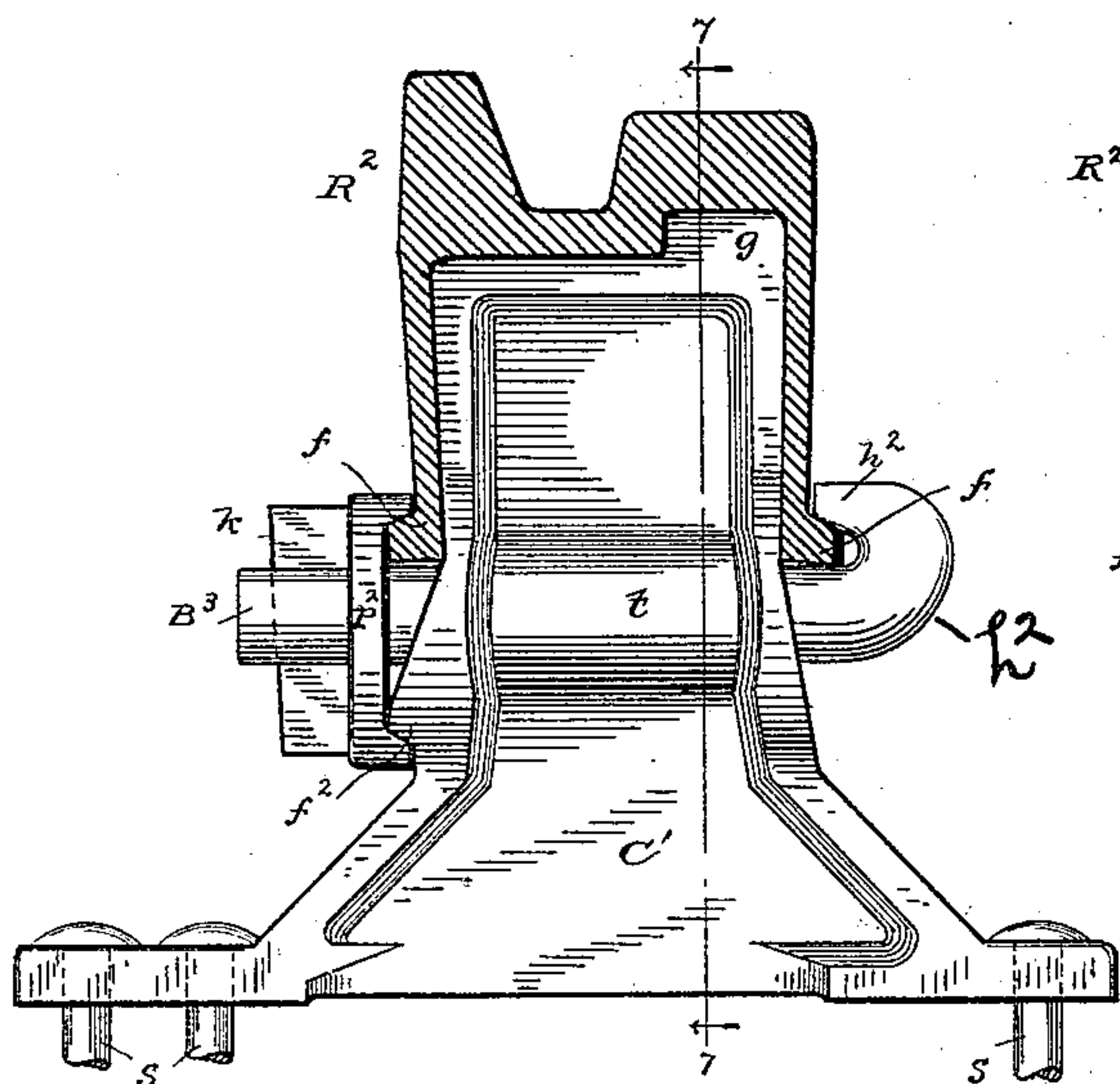
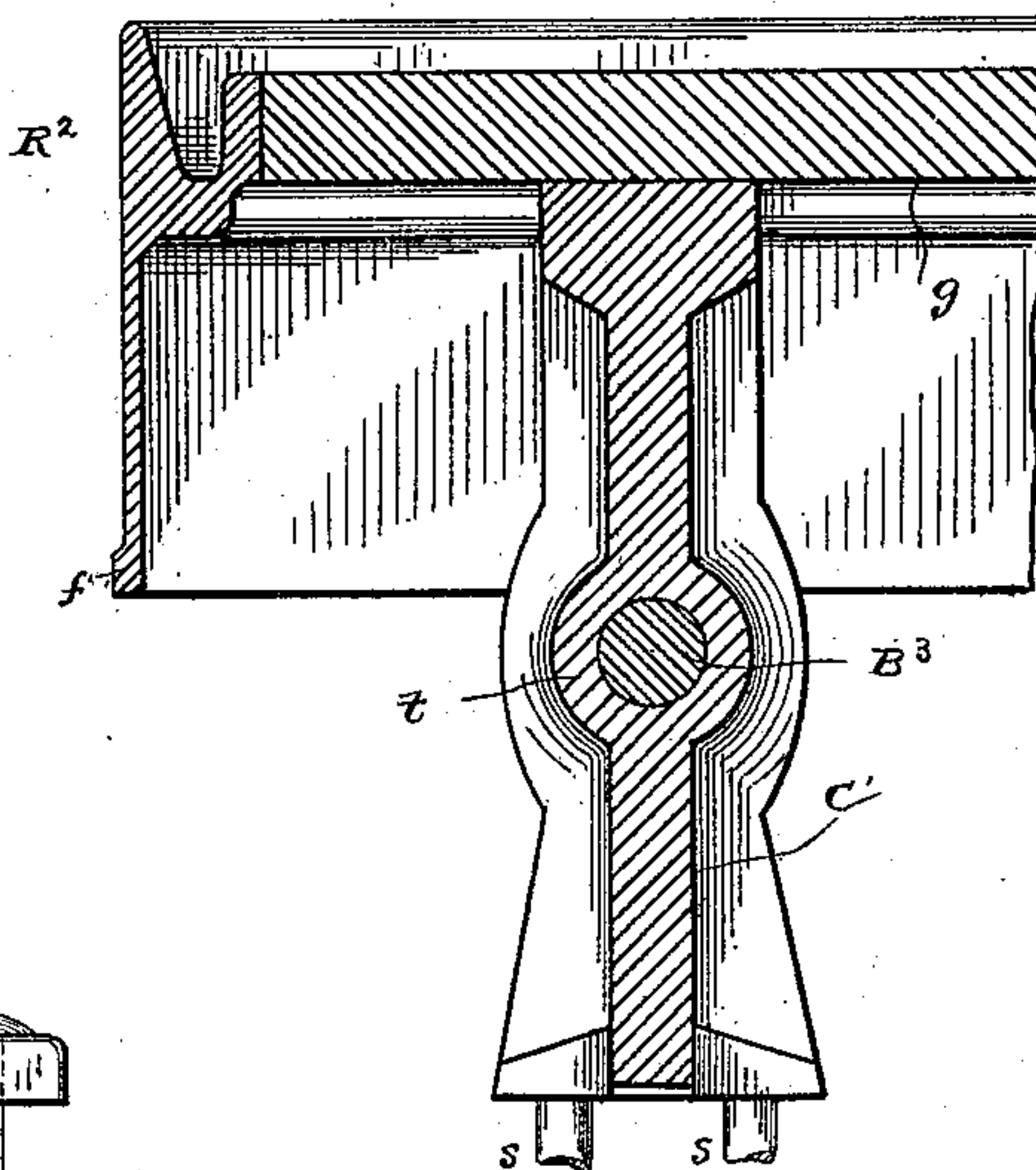


Fig. 7.



Witnesses

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UNITED STATES PATENT OFFICE.

WILLIAM CLARK WOOD, OF BROOKLYN, NEW YORK, ASSIGNOR OF ONE-HALF TO JOHN W. FOWLER, OF SAME PLACE.

GIRDER-RAIL AND ITS FASTENING.

SPECIFICATION forming part of Letters Patent No. 433,923, dated August 5, 1890.

Application filed May 9, 1889. Serial No. 310,135. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM CLARK WOOD, a citizen of the United States, and a resident of Brooklyn, in the State of New York, have invented a new and useful Improvement in Girder-Rails and their Chairs, of which the following is a specification.

This invention relates to "girder-rails" for different kinds of street railways or tramways; and it consists in such a rail having a depending elastic web along each edge, in combination with chairs, each of which has a downwardly-tapering seat portion, and clamping devices which draw the rail-webs inward against the sides of said seat portions of the chairs, and in the preferred arrangement are located below the lower edges of the rail-webs, as regards their bolts, as hereinafter more fully set forth.

The objects of the invention are, first, to combine in a light-weight girder-rail and its chairs the requisite rigidity in a vertical direction and adaptation to be readily bent laterally for curves, with superior provision against working loose at the ends of the rails or elsewhere; and, secondly, to fasten the rail in the manner above stated without perforating or notching it in any way.

Two sheets of drawings accompany this specification as part thereof.

Figure 1 of the drawings represents a cross-section of a girder-rail illustrating this invention. Fig. 2 represents an outer side view of the adjoining ends of two such rails with a double or broad clamp chair fitted for use at joints. Fig. 3 represents a cross-section of the clamped rail and a corresponding elevation of one of the chairs. Fig. 4 represents an outer side view of a single or narrow chair with a rail clamped thereon. Fig. 5 represents a cross-section through the way of a cable road, showing like clamp-chairs cast on a conduit-yoke. Fig. 5^x represents, on a larger scale, one of the combined bolts and clamp-plates indicated in Fig. 5. Fig. 6 represents a cross-section of a groove-rail constructed and fastened according to this invention; and Fig. 7 represents a vertical section through 7 7, Fig. 6.

Like letters of reference indicate corresponding parts in the several views.

The rails R R² are constructed with normally vertical webs *w* at both sides, and these in turn are provided with outwardly-projecting flanges *f*, preferably beveled on top. Being rolled hot, as is customary, the rails possess a considerable degree of elasticity, and their webs *w* consequently tend to spring back to their original set, (illustrated by Fig. 1.) when they are drawn toward each other, for example, as hereinafter described, and as shown in Figs. 3, 5, and 6.

The rails R have a specially designed and preferred side-bearing top and the rails R² have a specially designed and preferred groove-rail top; but for the purposes of the present invention the rail-top may be of any approved section. An internal longitudinal groove *g* in the back of the bearing portion of the rail-top at the outer side of the rail is conveniently common to the two special sections above referred to.

The chairs C C² C³ C' are in common constructed with upper ends or seat portions fitted at top to the back of the top of the rail, including, preferably, said groove *g*, which assists the inner web in resisting the tendency of the rails of a track to spread apart under strain. (See Figs. 3, 5, and 6.) Said seat portion of each chair tapers downward in width as far as the webs of the rail extend, and immediately below this point each chair is provided with a tubular portion *t*, extending from side to side, to which a bolt B or B² or B³ is fitted. At one or both ends of the bolt hole of said tubular portion *t* each chair is further provided with a projection or projections, each of which has a face *f*² located at its bottom and preferably beveled to match that of the rail-flange *f* above it, and each pair of clamp-faces thus formed is embraced by a clamp-plate P or P' or P² or P³, having flanges or projections with faces matching those of the rail-flange and chair projection, as shown in Figs. 3, 5, and 6, and drawn into effective coaction therewith by the corresponding bolt.

The bolts B, Figs. 2 to 4, are ordinary screw-bolts with square heads *h* and nuts *n*, and are fitted with the washer-like clamp-plates P and P' or P' and P², according to the width of chair, each clamp-plate P' having ribs *r* on

its back to hold the head of the bolt, while the plates P P^2 are without such ribs, so as to coact with the nuts n . Two widths of the plate P' would be employed corresponding, respectively, with P and P^2 .

The bolts B^2 , Figs. 5 and 5^x, have the clamp-plates P^3 united therewith as heads, and their threaded ends coact with nuts n and clamp-plates P or P^2 , as above described.

The bolt B^3 , Figs. 6 and 7, has a hook h^2 to coact with the flange f at the outer side of the rail, and is fitted with a clamp-plate P or P^2 and with a key k , by way of illustration, at its other end.

The chairs C , C^2 , and C' terminate alike below their clamp-faces f^2 in knee-bases, which are fastened down in customary manner by means of bolts or spikes s to sunken cross-ties on foundations of any approved kind.

The chairs C^3 , Fig. 5, are confined to the seat and clamp portions above described, and are formed on or cast to a conduit-yoke Y , which otherwise, together with its slot-rails S S , may be of any approved pattern. In connection with chairs having such downwardly-tapering seat portions and clamp-bolts, by which the webs of the rails are drawn against their converging sides, the screw-nuts or keys of the bolts are kept under tension by the elasticity of the rail-webs, and thus securely locked, while the rail is dovetailed down upon the chair. The spring of the rail-webs serves also to take up what little wear there may be between the rail and the chair. In connection with chairs having such downwardly-tapering seat portions and clamping devices located below the lower edges of the rail-webs, the rails are securely fastened down, as aforesaid, without being weakened by holes or notches.

I am aware that rigid rails or rail-caps have been dovetailed to chairs with the aid of internal keys, and do not, therefore, broadly claim downwardly-tapering seat portions. In my system the elastic webs of the rail are normally vertical, as shown in Fig. 1, and are drawn in by the clamp-bolts with the advantages above set forth.

Various modifications which have occurred

to me as desirable for practical use have been shown and described. Other like modifications will suggest themselves to those skilled in the art.

I do not claim herein the above-described clamping devices and their combination with the rails and chairs; nor the provision of the chairs with said projections, each of which has a face f^2 located at its bottom and preferably beveled to match the face of the rail-flange f above it, the pair of clamp-faces thus formed being embraced by a clamp-plate having flanges or projections with faces matching those of the rail-flanges and chair projections, as aforesaid, whereby provision is made for drawing the rail down upon its seat on the chair when the bolts are tightened. All this part of my original invention is made the subject-matter of my specification forming part of a divisional application for patent filed in the United States Patent Office November 1, 1889, Serial No. 328,906, and is hereby disclaimed as forming no part of the invention intended to be claimed in this specification.

Having thus described the said girderrails and chairs, I claim as my invention and desire to patent under this specification—

1. A girder-rail having a top of an approved section and a normally-vertical web along each edge, in combination with a chair having a downwardly-tapering seat portion, and clamping devices which engage with said webs and draw them against the converging sides of said seat portion, substantially as hereinbefore specified.

2. A girder-rail having a top of an approved section and a normally-vertical web along each edge, in combination with a chair having a downwardly-tapering seat portion and provided immediately below the lower edges of the rail-webs with clamping devices which engage with said webs and draw them against the converging sides of said seat portion, substantially as hereinbefore specified.

WILLIAM CLARK WOOD.

Witnesses:

HERMANN HARMS,
WILLIAM IOELE.