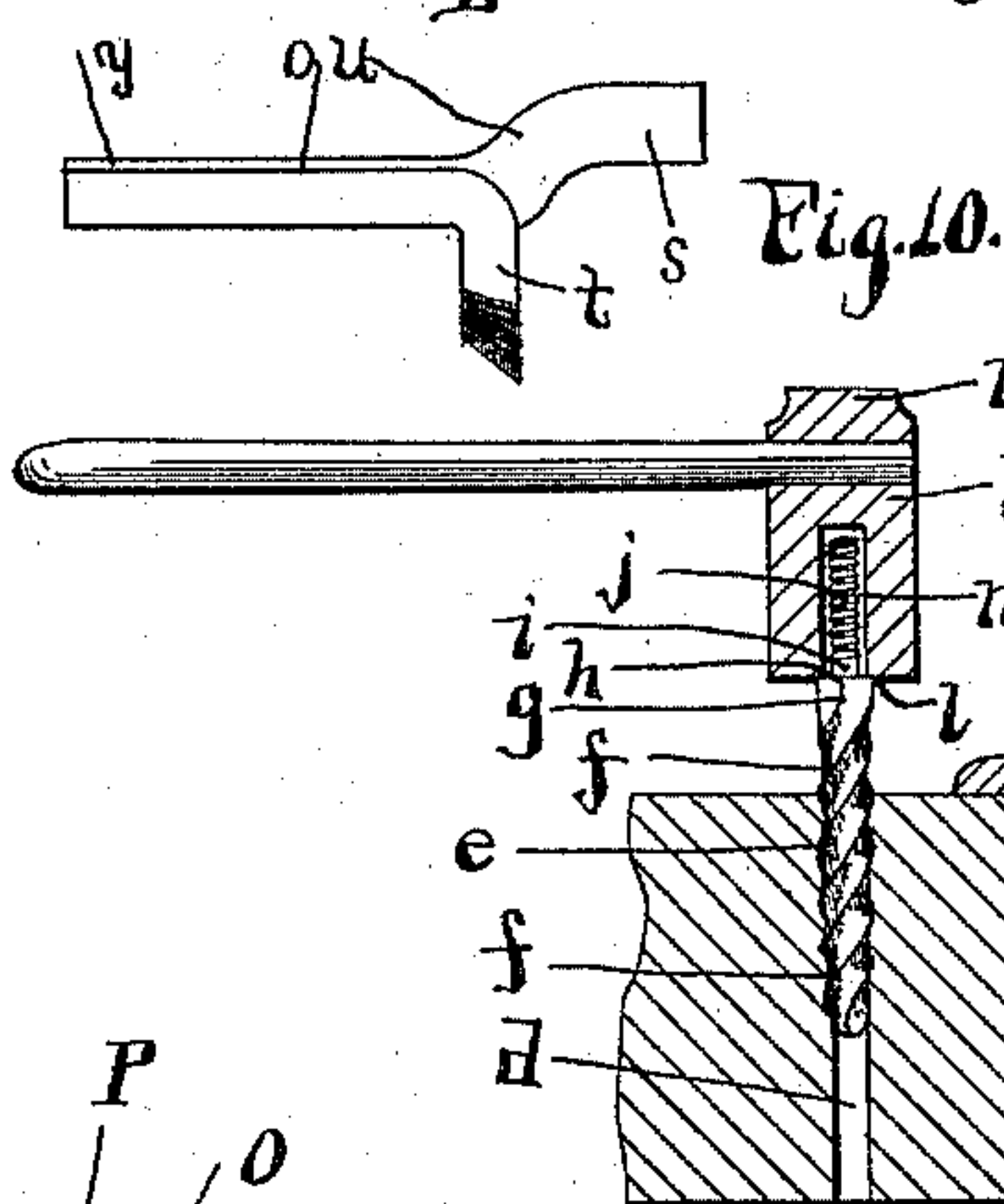
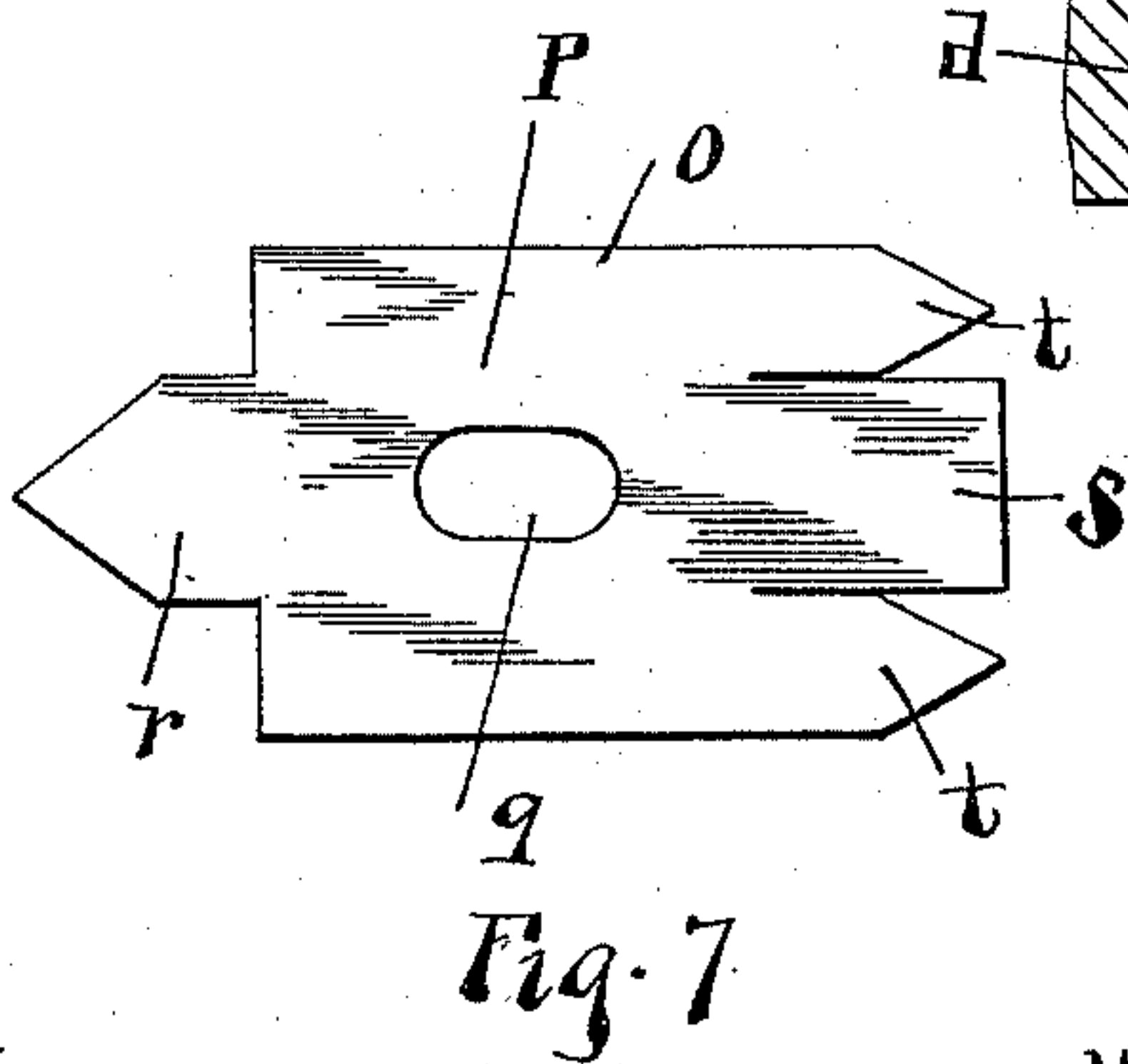
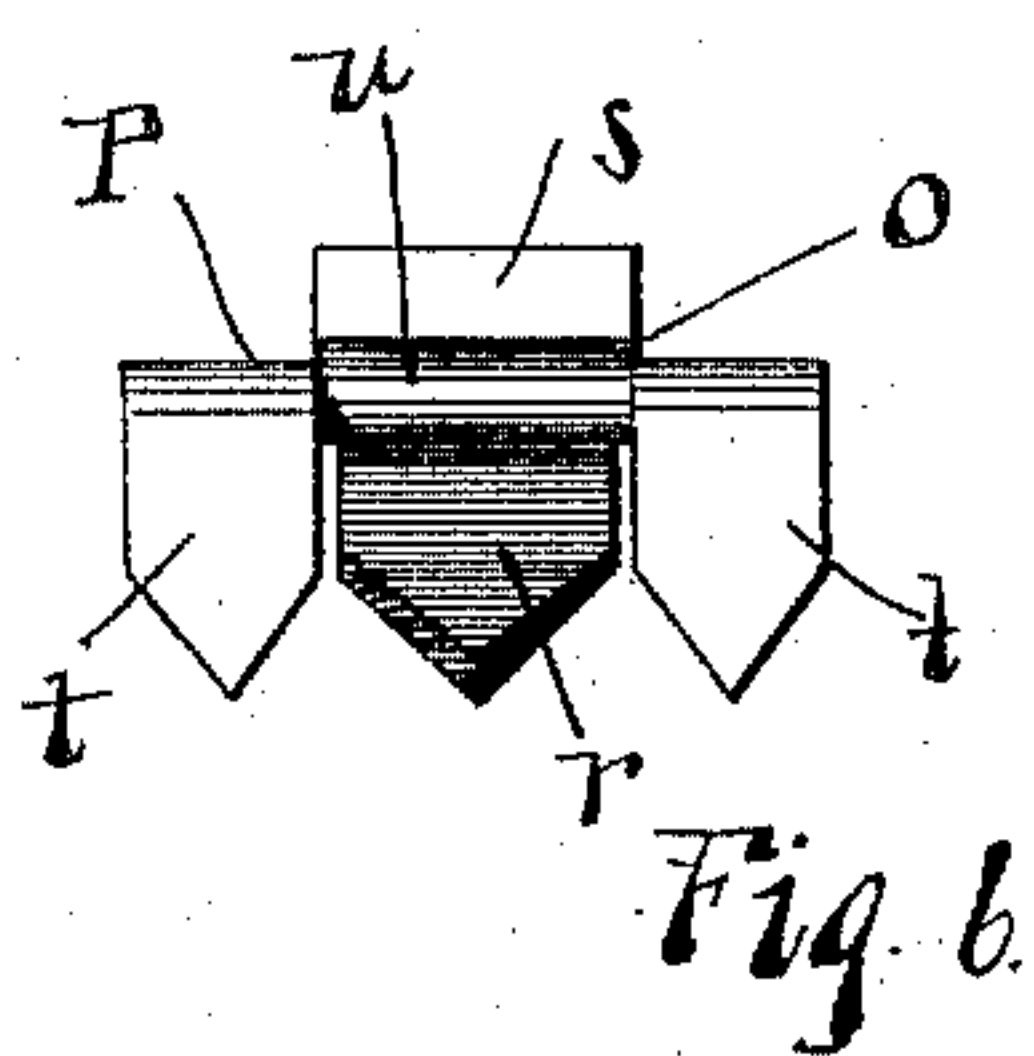
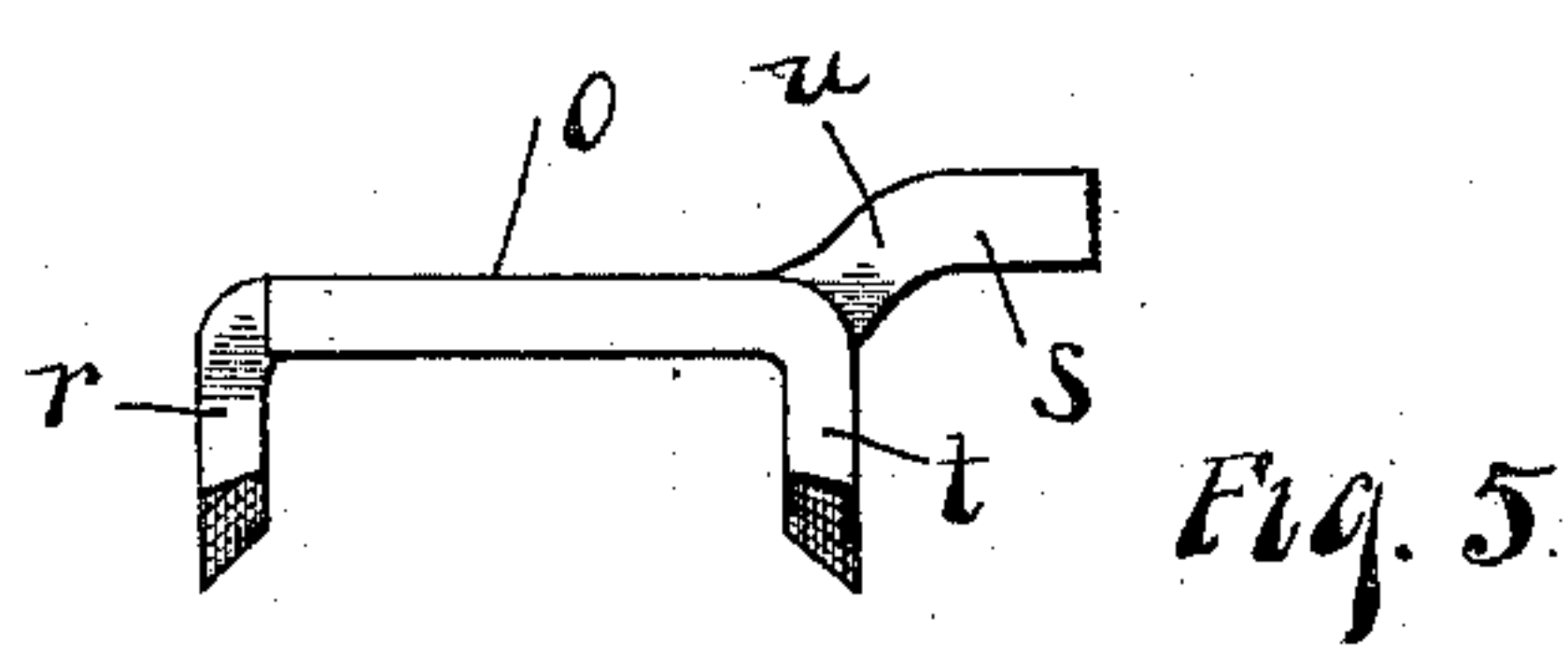
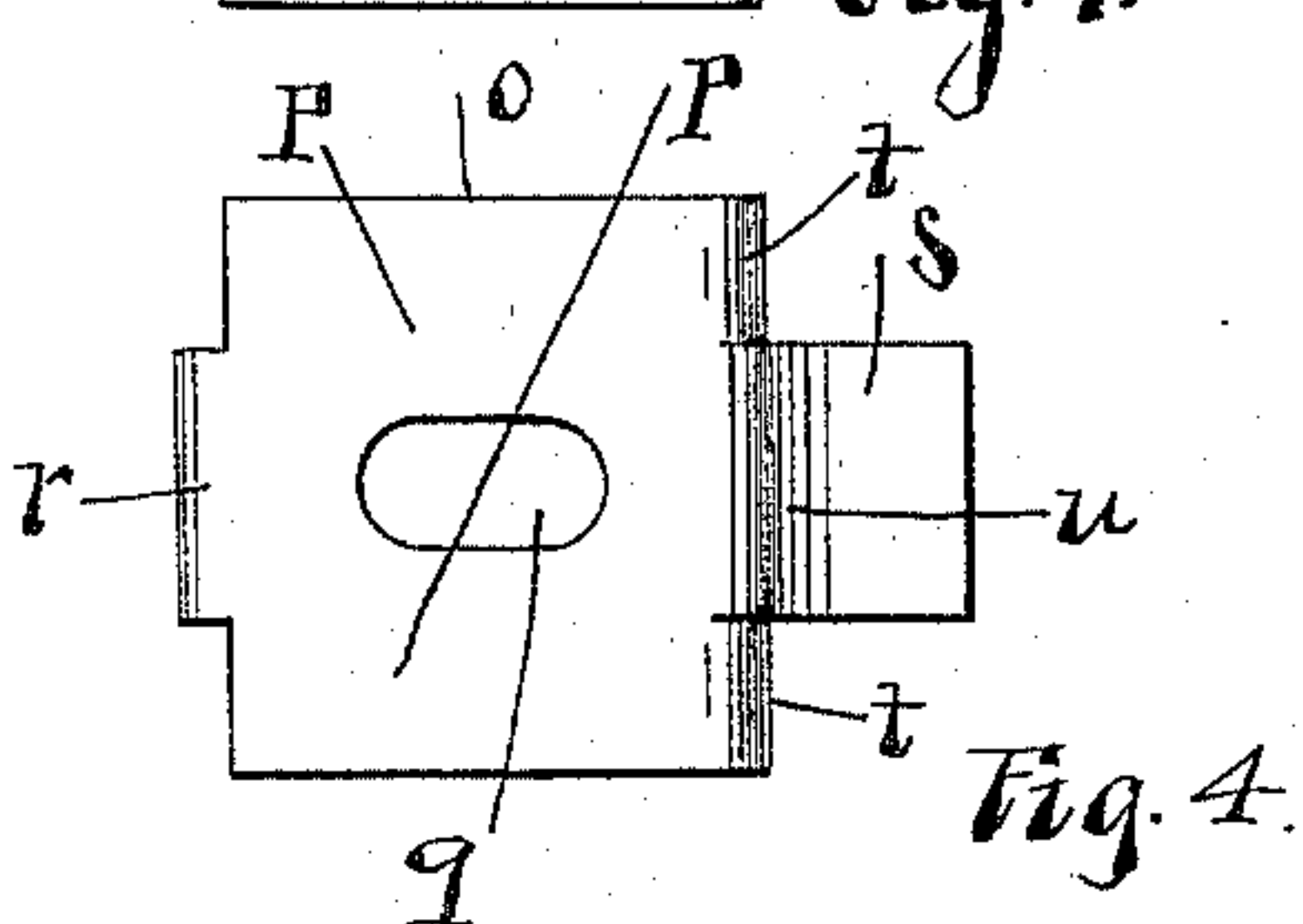
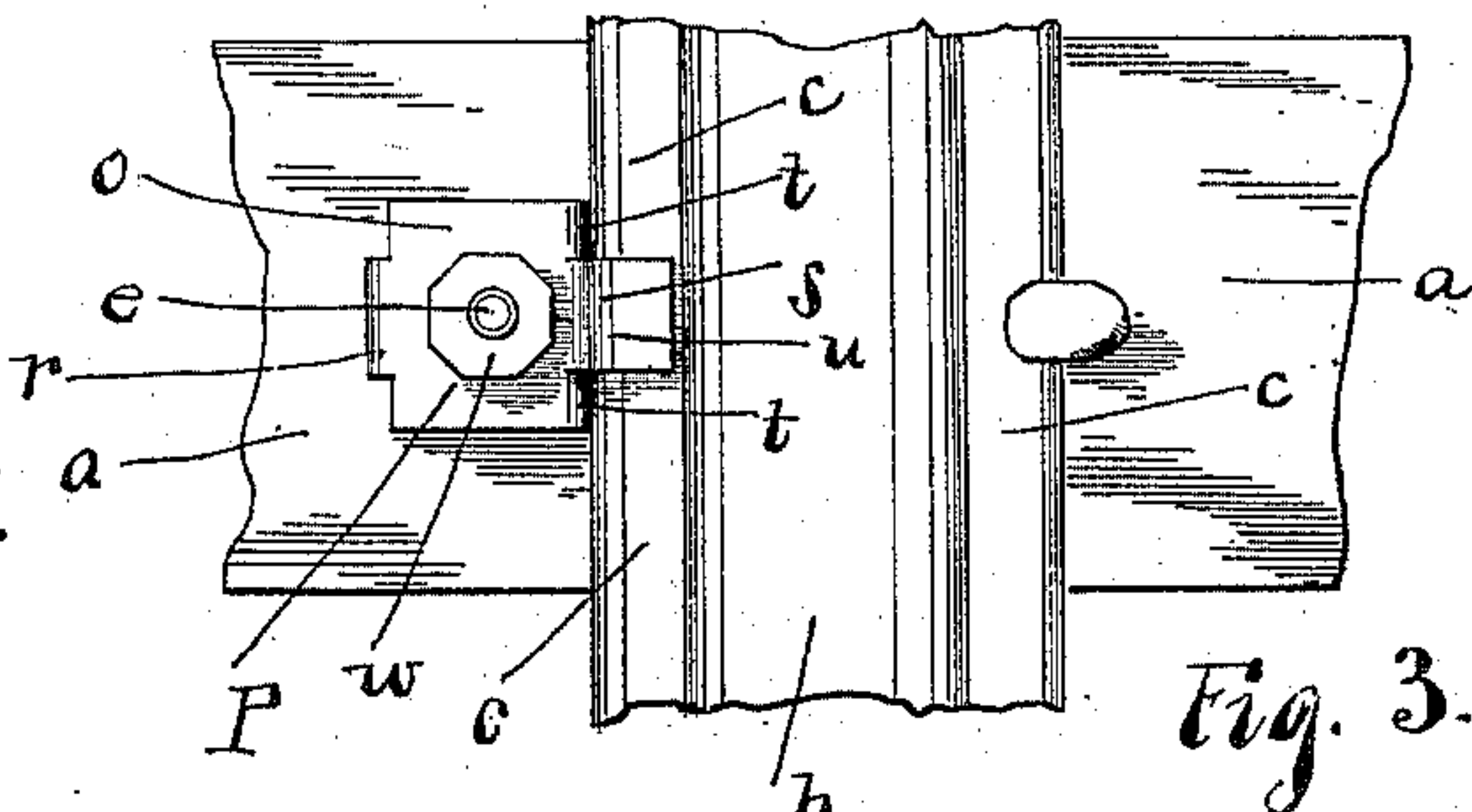
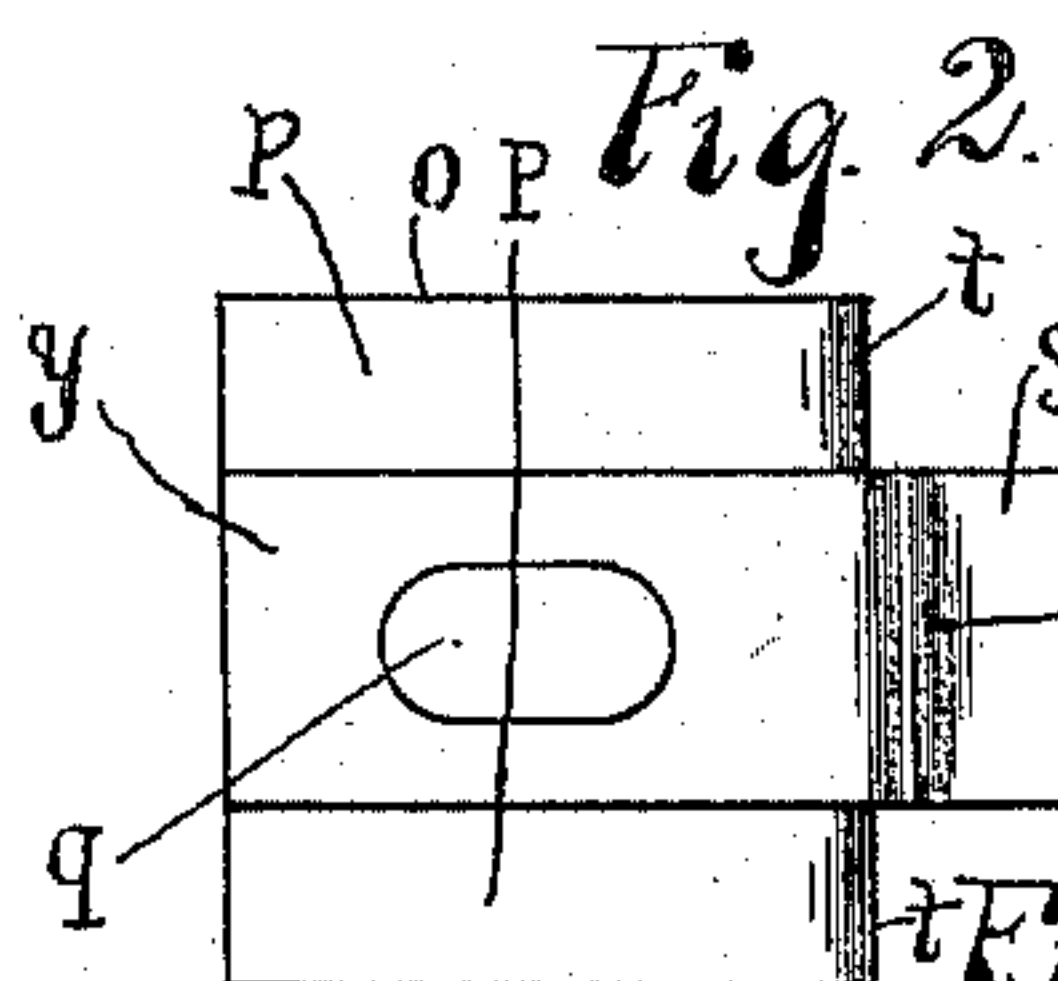
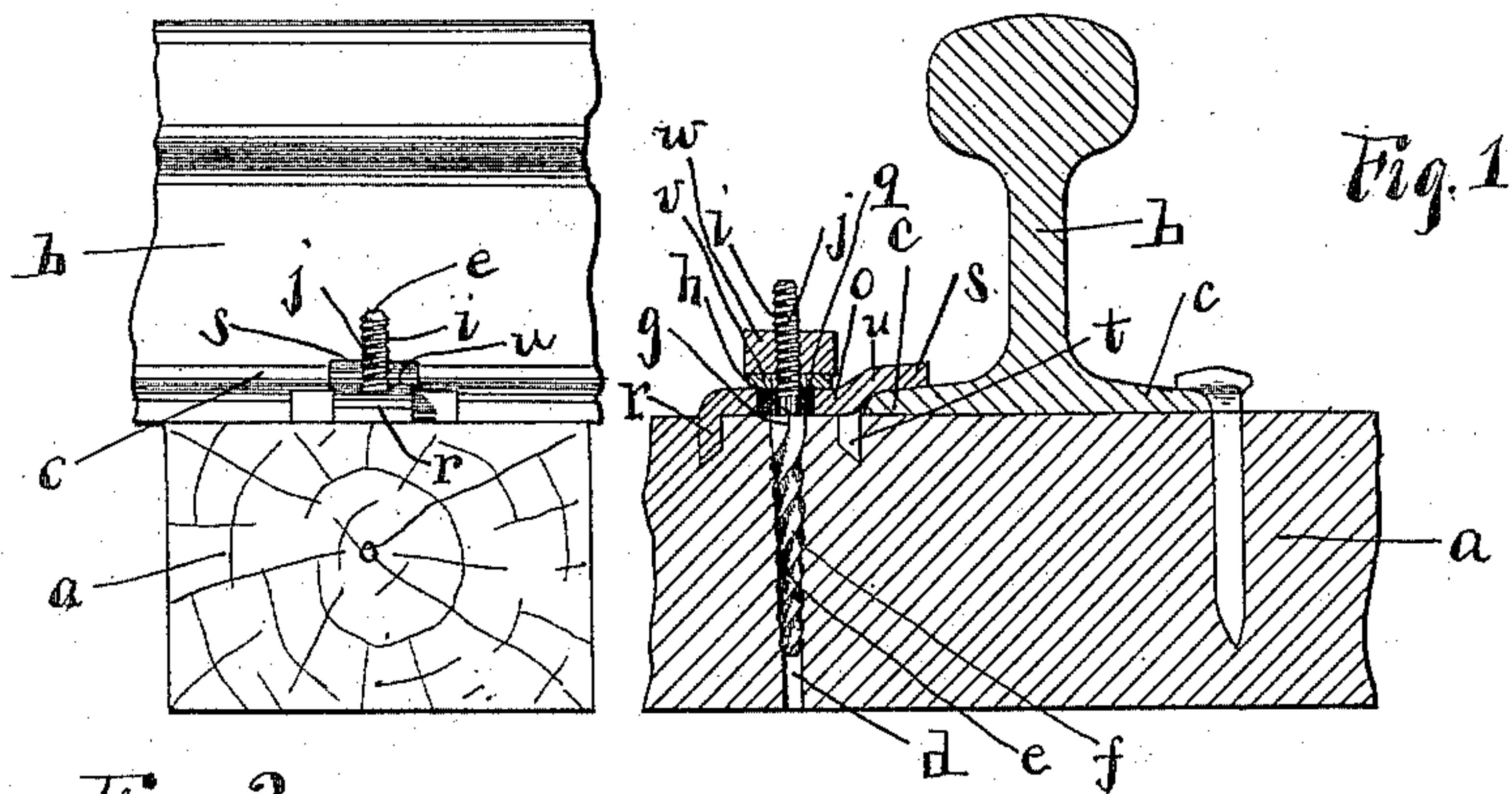


(No Model.)

W. GOLDIE.
RAILWAY RAIL FASTENING.

No. 488,195.

Patented Dec. 20, 1892.



Attest.
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UNITED STATES PATENT OFFICE.

WILLIAM GOLDIE, OF WEST BAY CITY, MICHIGAN.

RAILWAY-RAIL FASTENING.

SPECIFICATION forming part of Letters Patent No. 488,195, dated December 20, 1892.

Application filed December 21, 1891. Serial No. 415,800. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM GOLDIE, a citizen of the United States, residing at West Bay City, in the county of Bay and State of Michigan, have invented certain new and useful Improvements in Railway-Rail Fastenings, of which the following is a specification, reference being had therein to the accompanying drawings.

10 This invention relates to improvements in fastenings for securing the rails to the ties or sleepers of a rail road, and the object of the invention is to furnish a substantial and secure fastening for a rail road rail, which, while
15 holding the rail firmly in position against a lateral and a lifting strain, can be easily and quickly removed and replaced for repairing the track.

Another object of this invention is to provide a rail fastening for rail roads, in which the holding down action and the resistance against a crowding strain, are brought to bear upon different parts of the device, whereby
25 the devices for retaining the rail upon the tie are not disturbed by a lateral strain exerted upon the rail.

The first part of my invention consists in a blank for a rail clamp and brace, and composed of a body portion provided with a centrally located elongated opening, and having
30 a central tongue portion projecting from its opposite end portions, and provided on each lateral side of one of the central tongues with a side tongue having its outer ends cut to a V shape.

35 The invention consists, secondly, in a rail clamping device composed of a plate of metal with a body portion provided with an elongated opening for a bolt or spike and having a middle tongue portion of its front end bent upward and forward for reaching over the rail flange, and with the lateral portions beside the tongue and also a reduced part of its rear end bent downwardly to a right angle
45 with the body portion for driving into the tie. And the invention also consists in the combination, arrangement and form of construction of the several parts, and in the method of securing the rail to the tie as I shall presently proceed to explain, and which
50 will also be specifically pointed out in the claims following.

My invention is illustrated in the accompanying drawings in the several views of which the letters and figures of reference will be found designating the same elements or parts, and which are to be considered as a part of this specification.

Figure 1, represents a transverse vertical section of a rail and tie and of my improvement in position for holding the rail. Fig. 2, is a side view of the same in elevation with the securing nut removed. Fig. 3, is a plan view of the same. Fig. 4, is a top view of the rail brace ready for use, and enlarged. Fig. 5, is a side view in elevation, and, Fig. 6, is a front view of the same. Fig. 7, is a plan view of the blank cut to form for bending to produce the brace. Fig. 8, is a vertical transverse section of the rail and tie, and of an implement for fixing my fastening device in place. Fig. 9, is a plan view of the brace in a modified form. Fig. 10, is side view of the same.

a, represents a rail road tie or sleeper of the common form laid transversely with the road bed, and *b*, is one of the rails laid across the tie in the usual manner. At a short distance from the edge of the base flange *c*, of the rail, the tie is provided with a vertical opening *d*, and into this opening is passed, by driving the securing bolt *e*. This bolt *e*, is provided on its lower portion which passes into the tie, with coarse threads *f*, which have an abrupt lead, so that in driving the part into the tie the threads will impinge into the side walls of the opening and cause the bolt to turn in driving so that when the bolt is in place the threads thereon will have an engagement with the walls of the opening which precludes its withdrawal therefrom without turning the bolt in the opposite direction. The bolt is provided at the upper end of the lower threaded portion with a part *g*, of rectangular form which when a withdrawal of the bolt from the tie is required, is in perfect form to receive a wrench for that purpose; directly above the portion *g*, is arranged a shoulder *h*, the upper portion *i*, immediately above the shoulder being of a cylindrical form and of a slightly less dimension transversely than the portion below, and is provided with a thread *j*, of the usual form and dimension for bolts of this form. The bolt is forced into the open-

ing d , by any convenient means, but preferably by a tool k , provided in its face l , with a longitudinal opening m , which is of a dimension to receive the threaded portion i , with a
 5 near fit so that the tool will rest with its face l , bearing upon the shoulder h , and then a few blows with a hammer upon the upper end n , forces the bolt into the tie without mutilating or upsetting the upper end, the bolt turning
 10 in the opening m , to allow the threads f , to engage with the wood, and leaving the stud portion i , projecting above the tie surface. This bolt is preferably made by first preparing a rectangular bar with a cylindrical threaded
 15 upper portion and the shoulder, and then forming the threads f , on the rectangular portion by twisting, to bring the former corners of the bar to the form of four spiral threads which have an abrupt lead and which easily
 20 enter the opening and engage with the walls thereof by turning the bolt as it passes into the tie.

o , is a rail brace and clamping device, and is composed of a plate of metal preferably
 25 rolled, and cut to a blank as shown in Fig. 7, and consists of a body portion p , provided with an opening q , elongated longitudinally with the plate, and with a tongue r , projecting from one edge of the body and provided
 30 with a V point, while the opposite edge of the body is provided with the centrally located tongue s , and with a tongue t , on each lateral side of the tongue s , each of the tongues t , being provided with a V point, with cutters for
 35 driving into the tie. In forming the clamp the central tongue s , is provided with an upward and outward bend forming a shoulder u , for contact with the rail flange, and the lateral tongues t , and also the tongue r , is bent
 40 downwardly to a right angle with the plate. The brace is placed in position with the opening q , passed over the stud i , of the bolt, and with the parts t , against the lateral edge of the rail flange, and the implement k , is then
 45 placed upon the stud with its face upon the body of the brace, and then a few blows of a hammer upon the implement k , forces the parts t , and r , into the tie in a perfect position with the tongue s , reaching over upon
 50 the rail flange. A washer or spring nut lock v , is then passed over the stud i , upon the brace and a nut w is turned on the stud i , above the nut lock and firmly clamps the parts in position.

55 For moving the brace to repair the track the nut w , is removed, and then the brace is free to be raised from its position, and the brace can then be removed or replaced as necessary, and for lifting the track slightly,
 60 the nut is turned partly off and a thin web can be placed between the rail and tie, and the nut again tightened down, or a new brace having a tongue portion s , raised higher to coincide with the height of the rail flange
 65 from the tie can be substituted or whatever other changes in the brace portion found necessary can be made.

The bolt e , is designed as a permanent fixture in the tie, the elongation of the opening
 70 q , providing for an outward movement of the brace without contact with or bearing against the stud, the downwardly turned portions r , and t , of the brace receiving and providing
 75 the required resistance against the crowding strain upon the rail, so that the stud and the nut thereon serves only for retaining the brace against a lifting action of the rail, or
 for retaining the brace firmly upon the tie.

From long use and contact with the moisture contained in the tie, the bolt is liable to corrosion on its contact surface, which has the effect
 80 to retain the bolt more solidly and permanently in position and is an advantage so long as the parts are not too greatly weakened by the corrosive action, and in order to remove the
 85 bolt when corroded and held against turning thereby, the tool is placed upon the stud and tapped with a hammer for starting the bolt from its fixed position, and then the bolt may be
 90 easily turned out by a wrench applied to the rectangular portion g . It will also be noticed that with the threads f , firmly embedded into the walls of the opening d , a hold upon the tie
 95 is provided which requires an immense strain to withdraw or loosen the bolt while for a lateral resistance the tongues r , and t , provide a great area against the end grain of the timber for sustaining the rail against a crowding
 strain, and the shoulder u , together with the upper front faces of the tongues t , provides a
 100 large surface to receive the chafing and abrading action of the edge of the base flange of the rail, so that it is at once evident that a lengthy and superior service is obtained by the use of my improved fastening.
 105

Of course it will be understood that while I have described the most convenient and satisfactory method of constructing the improved fastening I do not limit my invention
 110 entirely to the structure explained, as other forms of construction substantially the same may be used if desired, and a fastening slightly different in form may be constructed, which, as far as operation and effect are concerned, would produce the same result.
 115

With the method of fastening as described the crowding strain and the lifting action of the rail are applied to different parts of the device, which is of a great advantage, as the
 120 ties being provided with a permanently fixed upwardly projecting threaded stud, allows several braces to be used in succession without disturbing the hold of the sustaining bolt in the wood, as the bolt so long as it is not
 125 subjected to a crowding or lateral strain, is not liable to displacement, so that the permanency of the upwardly projecting stud is assured, and the mutilation and cutting out of the tie by the usual method of respiking the
 130 rail is altogether avoided, while at the same time a stronger and more reliable fastening is produced.

As shown in Figs. 9 and 10, the tongue s , is formed with a greater thickness of metal than

the portions t , and the thickness of metal in the tongue s , is carried across the body portion p , forming a centrally located rib y , which provides a reinforce for the brace against bending from lifting the rail, and the part r , may, in that case, be omitted if desired, and this form would be preferable for use with heavy rails as a greater thickness of metal is provided for resisting a heavy upward strain while the parts t , which enter the tie are of a thickness to drive easily and without mutilating the tie.

Having described my improvement what I claim as my invention is:—

1. A blank for the manufacture of a rail road brace, consisting of a plate of metal having a body portion p , provided with an elongated longitudinal opening q , and having the tongue portion r , projecting from one end and provided with a V , point and having extended from its opposite edge the lateral tongues t , provided with V shaped points and a centrally located tongue s , substantially as and for the purpose set forth.

2. A brace for a rail road rail consisting of the body portion p , having an elongated centrally located opening q , the downwardly turned tongue r , upon the rear edge of the body portion, and having on the opposite edge of the body an upwardly bent and forwardly extended central tongue s , provided with a shoulder u , and with the downwardly turned tongue portions t , on the lateral sides of the said tongues s , substantially as and for the purpose set forth.

3. The combination of a rail-road rail and the supporting tie beneath the rail, provided with an upwardly projecting fixed stud having

a screw thread, with a clamping device, having an elongated opening passed over said stud, and having a portion reaching over the rail flange, and downwardly turned portions driven into the tie, and a nut upon the stud above the clamping device, substantially as set forth.

4. The combination with a rail way rail and the supporting tie provided with an upwardly projecting threaded stud in proximity to the rail, of a clamping device provided with an elongated opening passed over the said stud, and with its inner and outer ends provided with downwardly turned tongue portions driven into the tie, and having a portion of its inner end reaching over the rail flange, and a nut upon the upper end of the stud, substantially as set forth.

5. The combination with a rail way tie and the rail, of the clamping device having a body portion for resting on the tie surface and provided with an elongated opening and having its outer end portion turned downwardly and entering the tie, and having a portion of its front end reaching over and provided with a shoulder against the edge of the rail flange the threaded stud permanently secured to the tie and projecting through the said elongated opening, and provided with a threaded nut for holding the said clamping device upon the tie, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM GOLDIE.

Witnesses:

JAS. E. THOMAS,
FRANK H. DURELL.