

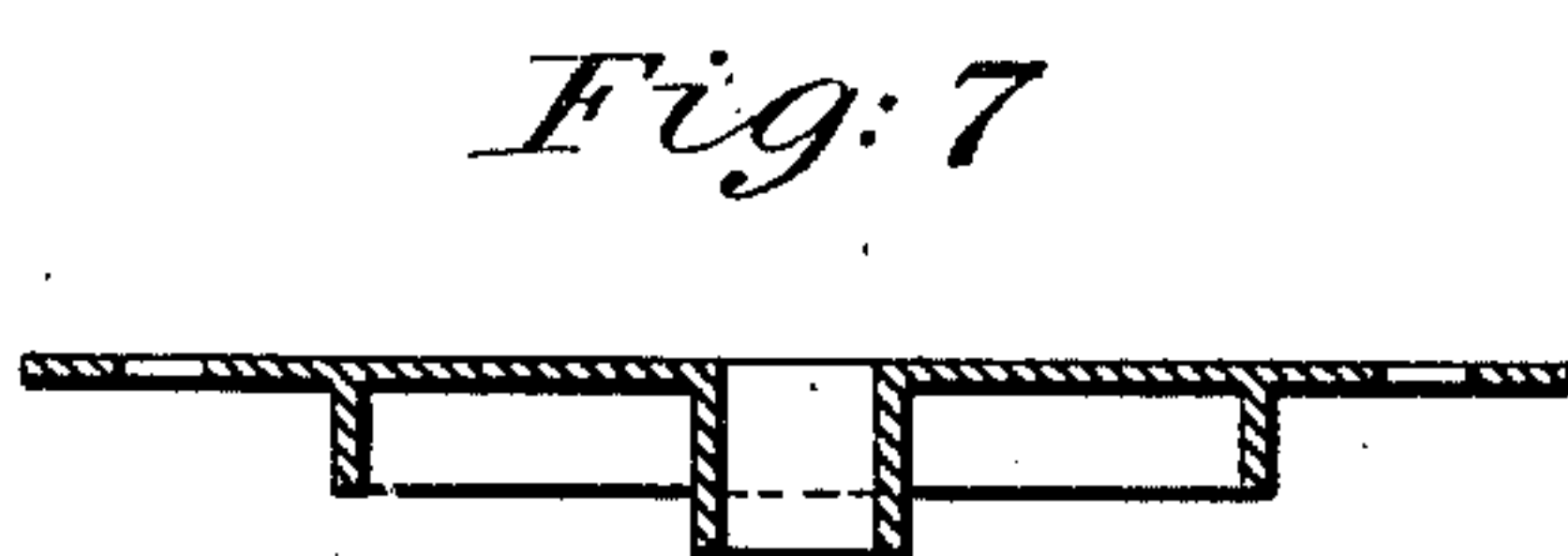
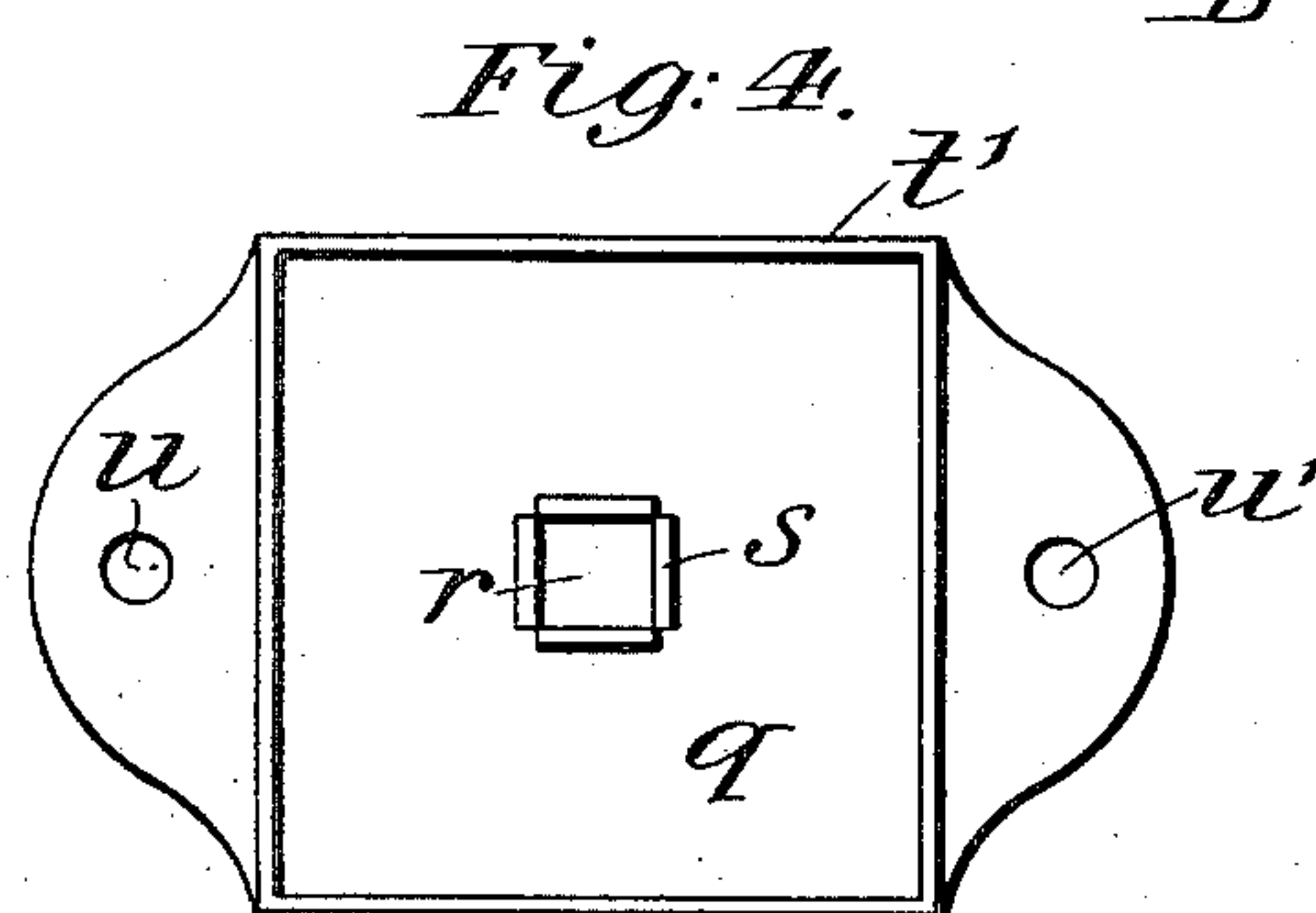
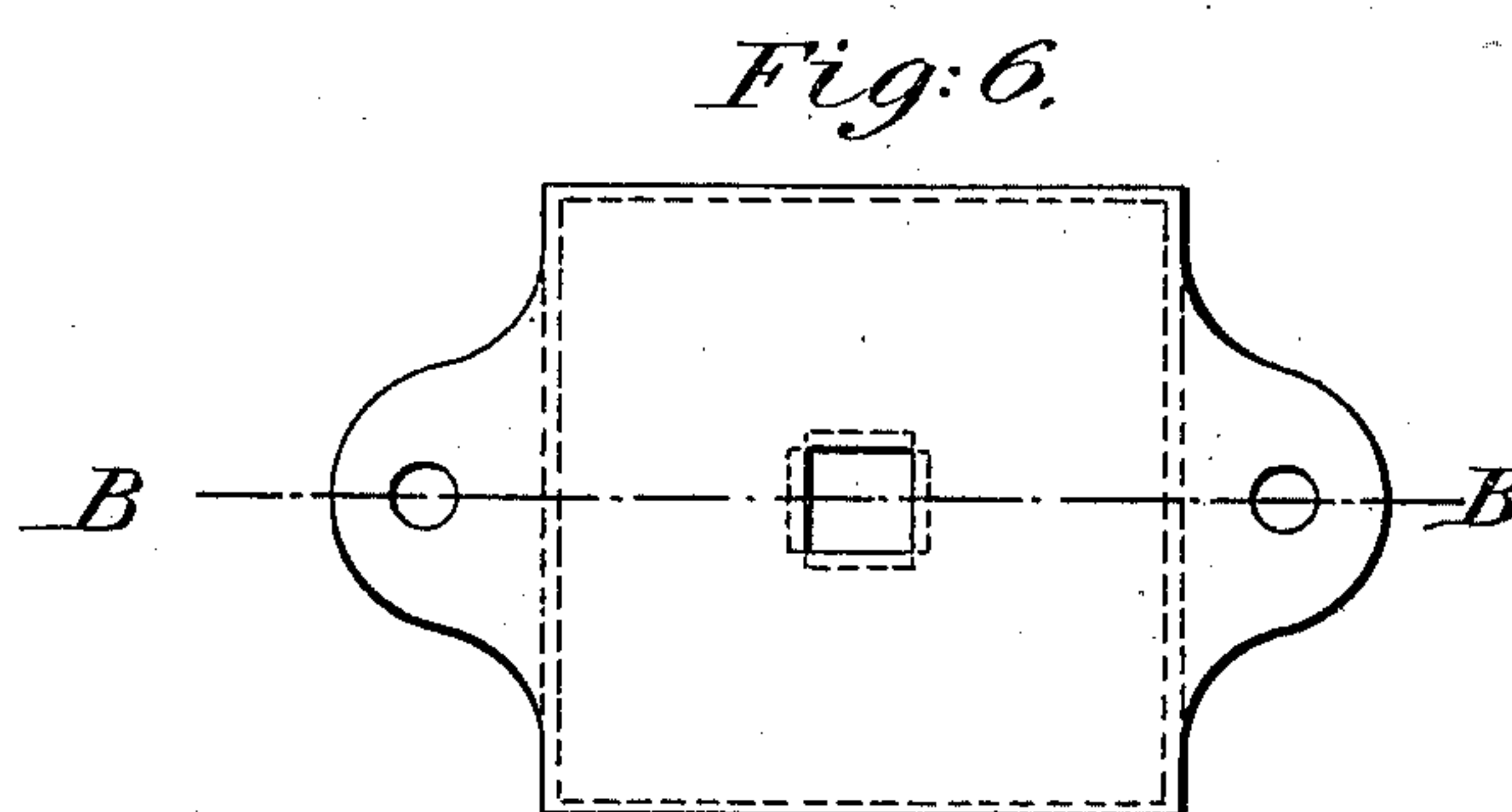
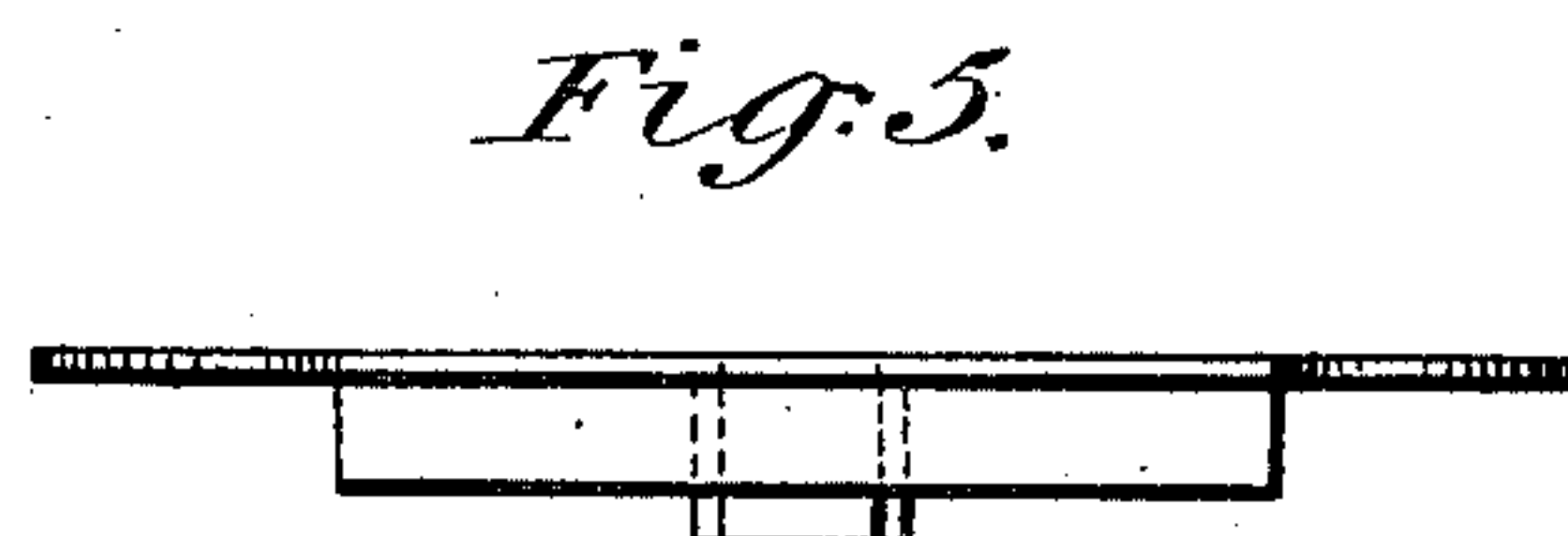
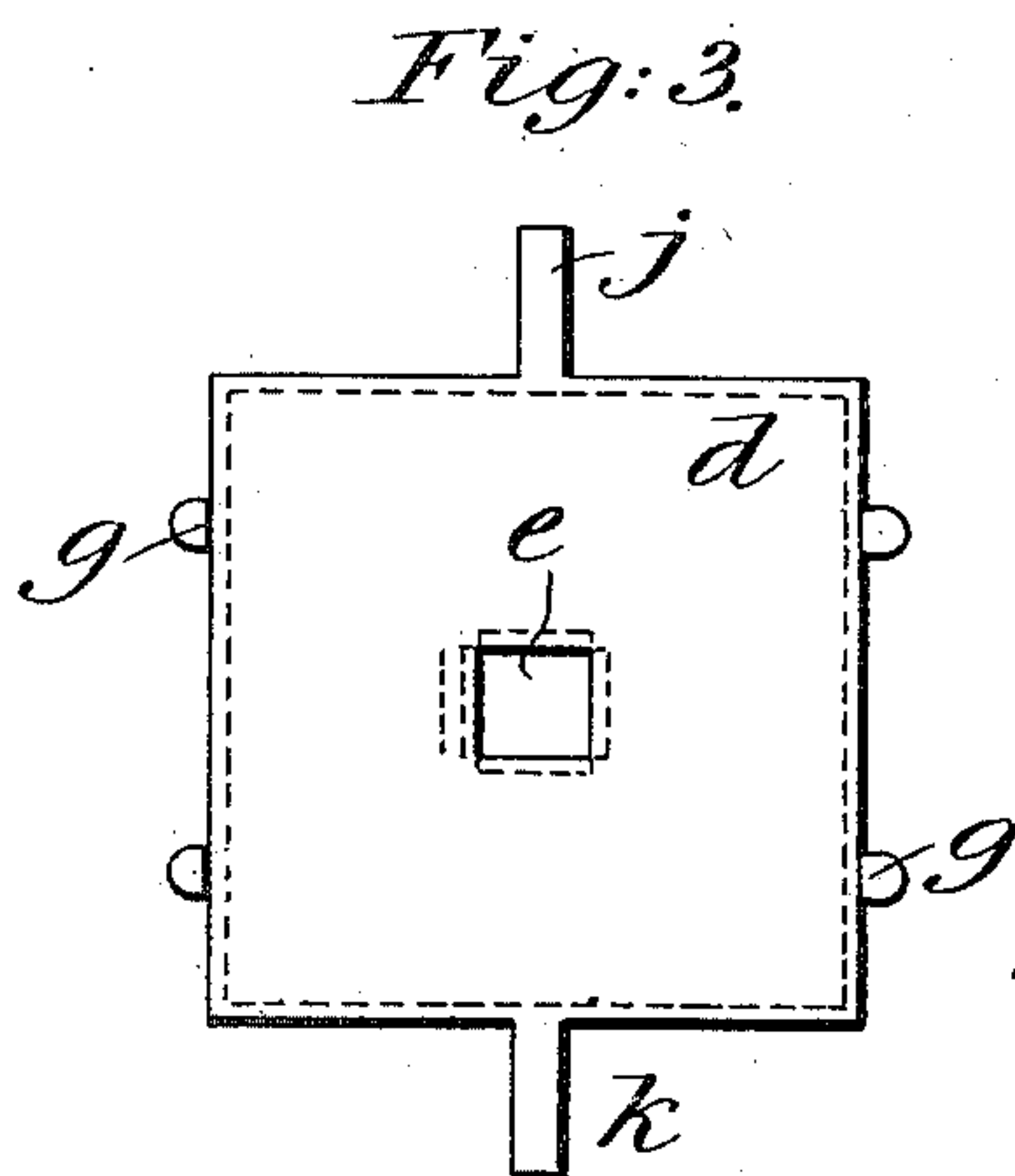
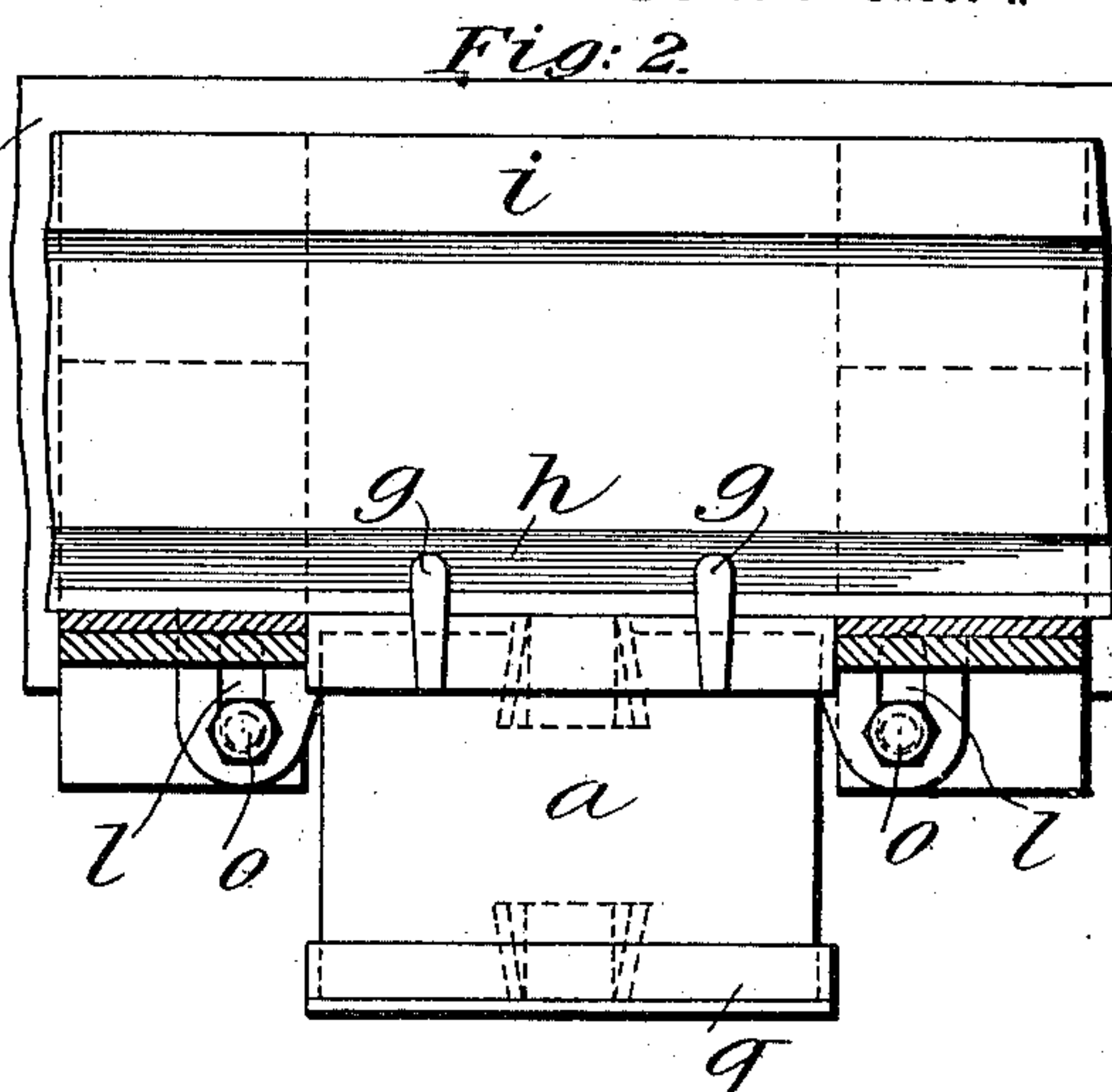
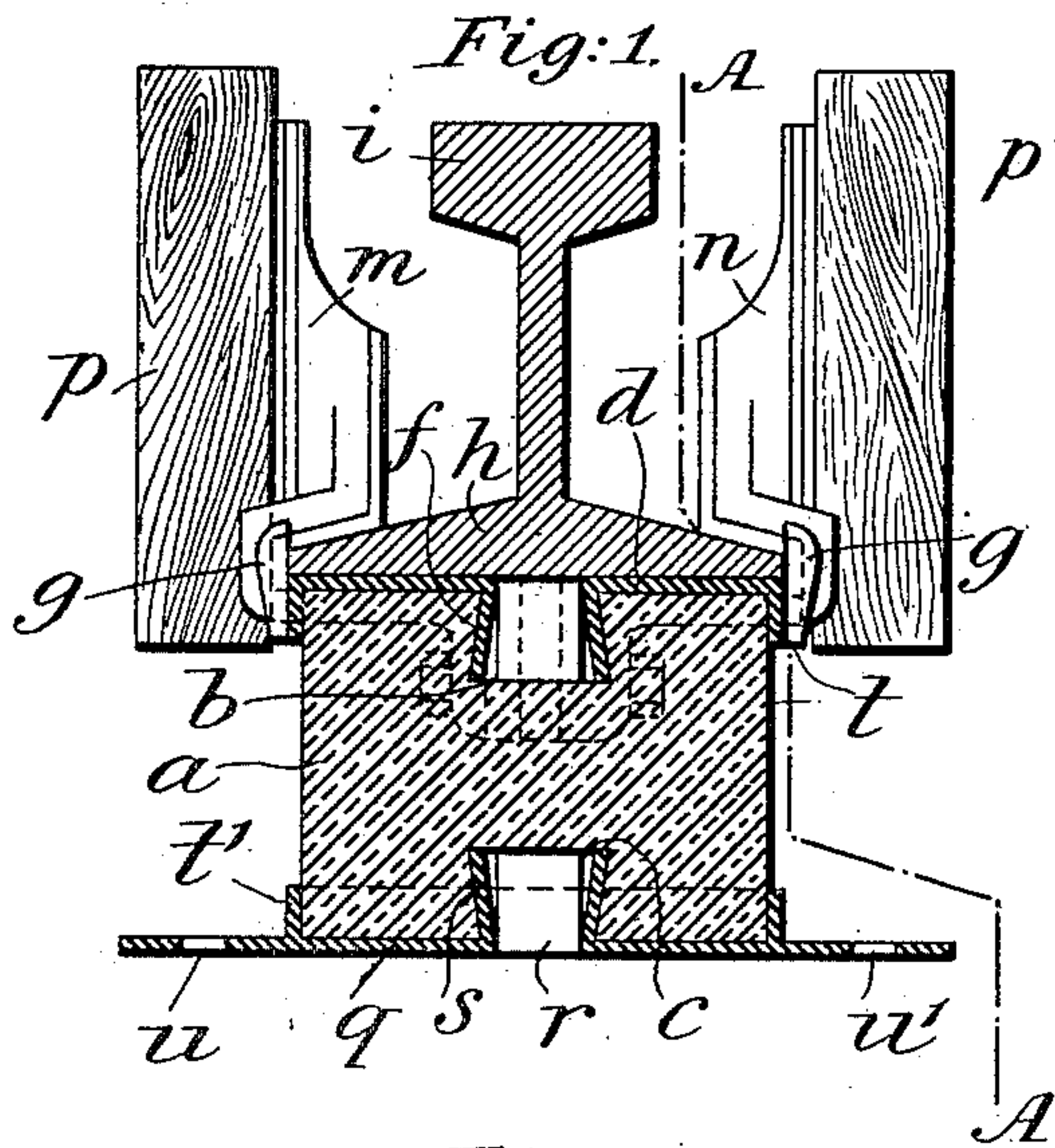
C. M. HOBBS.

THIRD RAIL INSULATOR FOR ELECTRIC RAILWAYS.

(Application filed July 24, 1901.)

(No Model.)

2 Sheets—Sheet 1.



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No. 693,603.

Patented Feb. 18, 1902.

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THIRD RAIL INSULATOR FOR ELECTRIC RAILWAYS.

(Application filed July 24, 1901.)

(No Model.)

2 Sheets—Sheet 2.

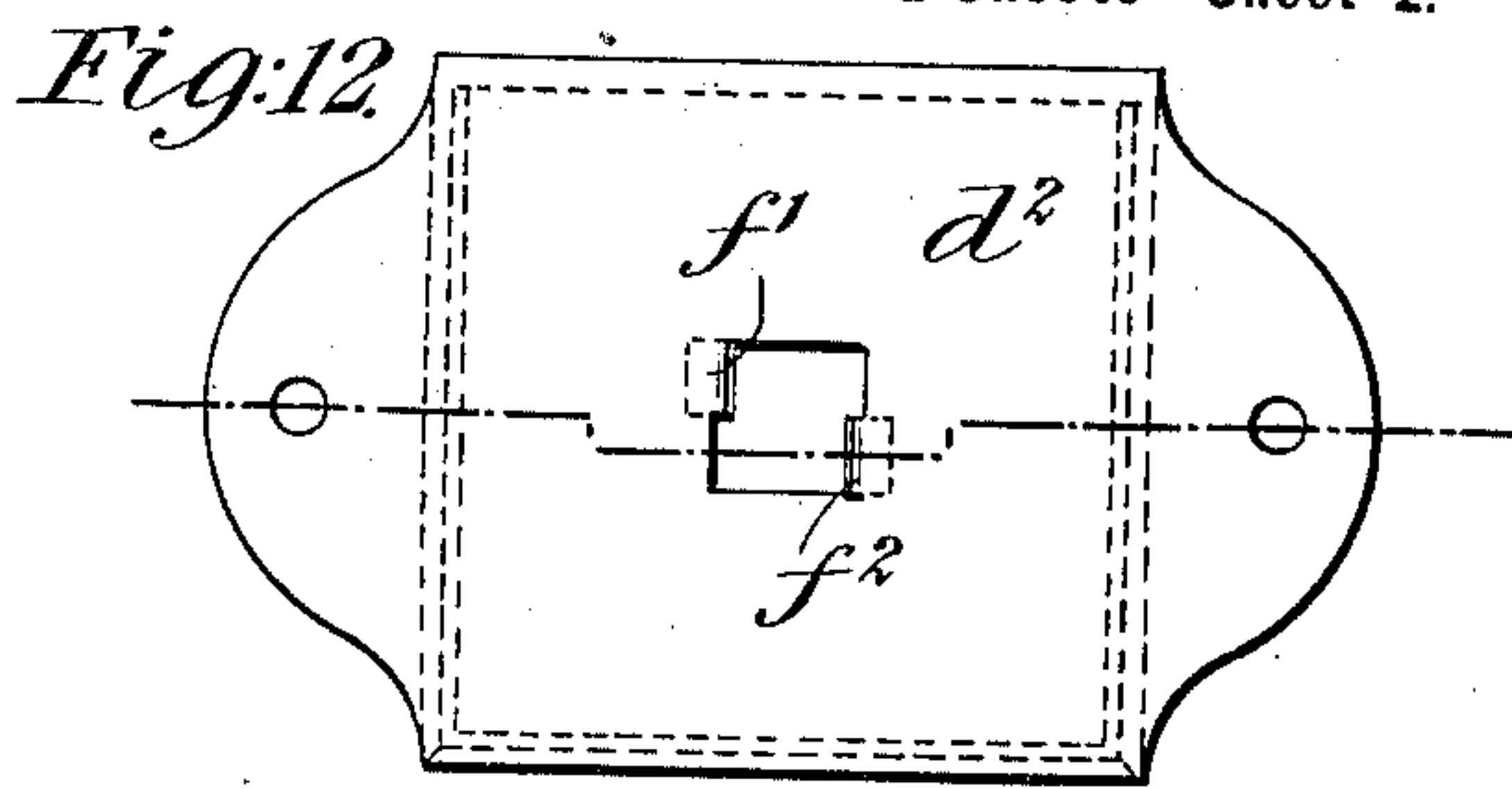
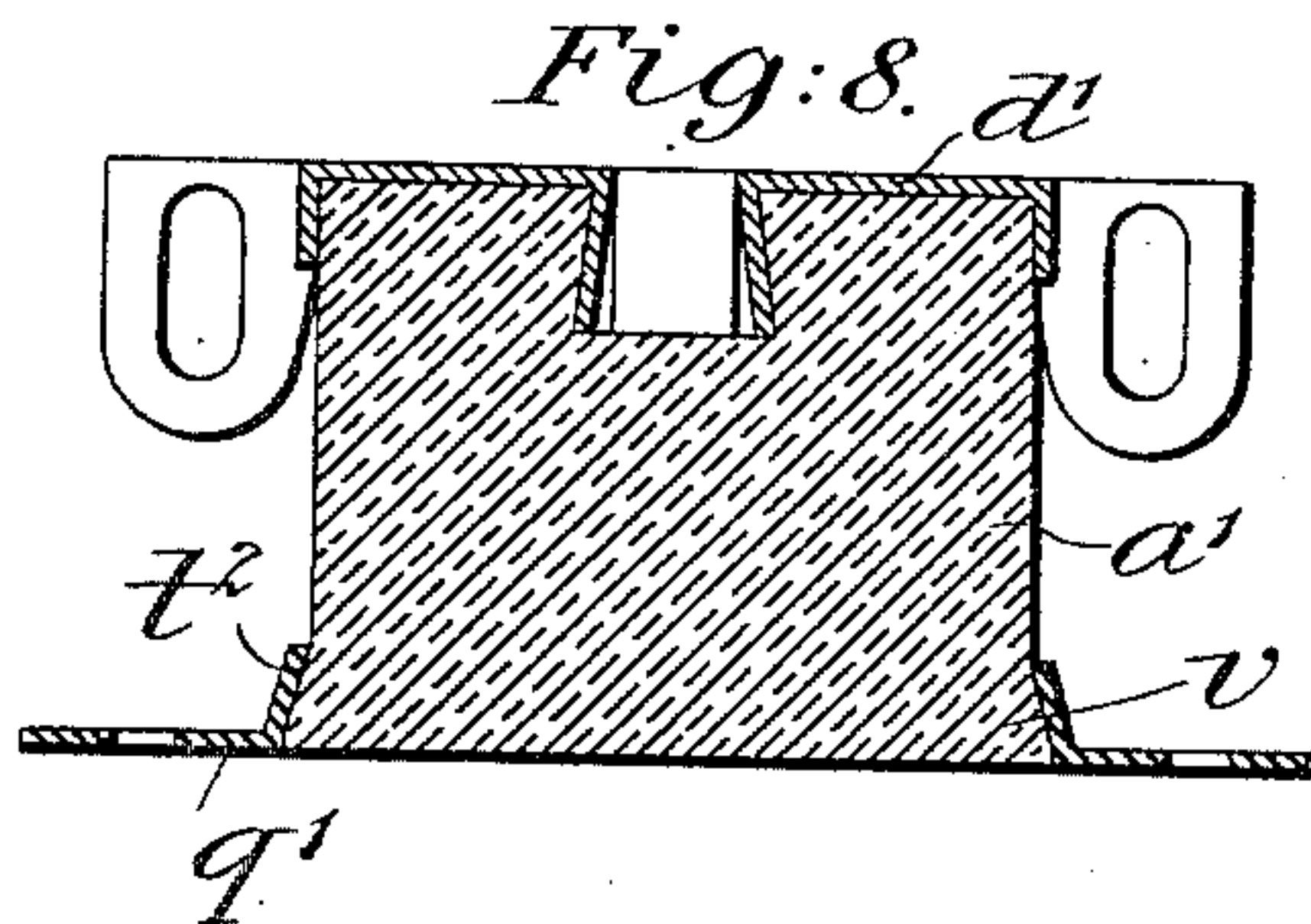


Fig:9.

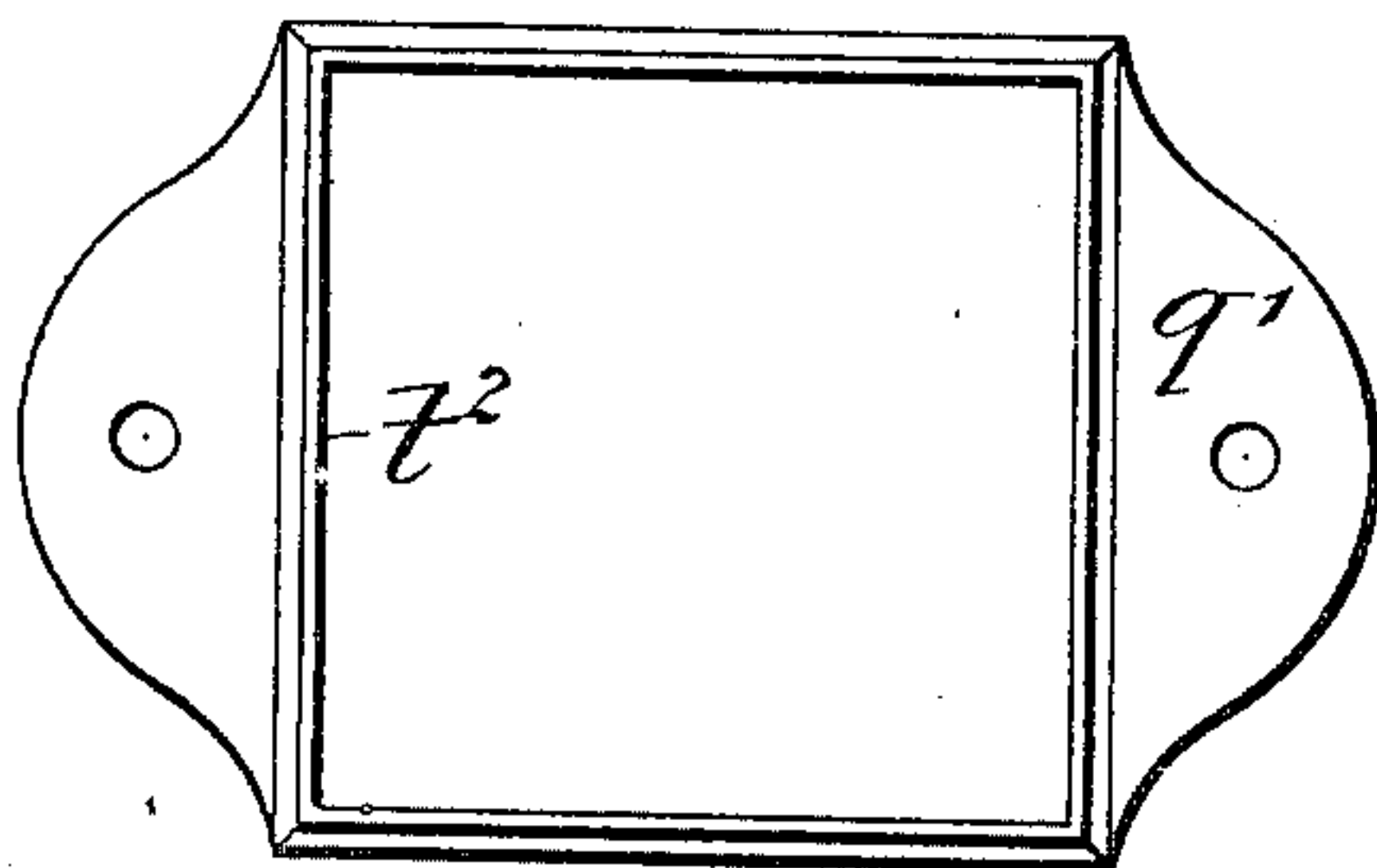


Fig:13.

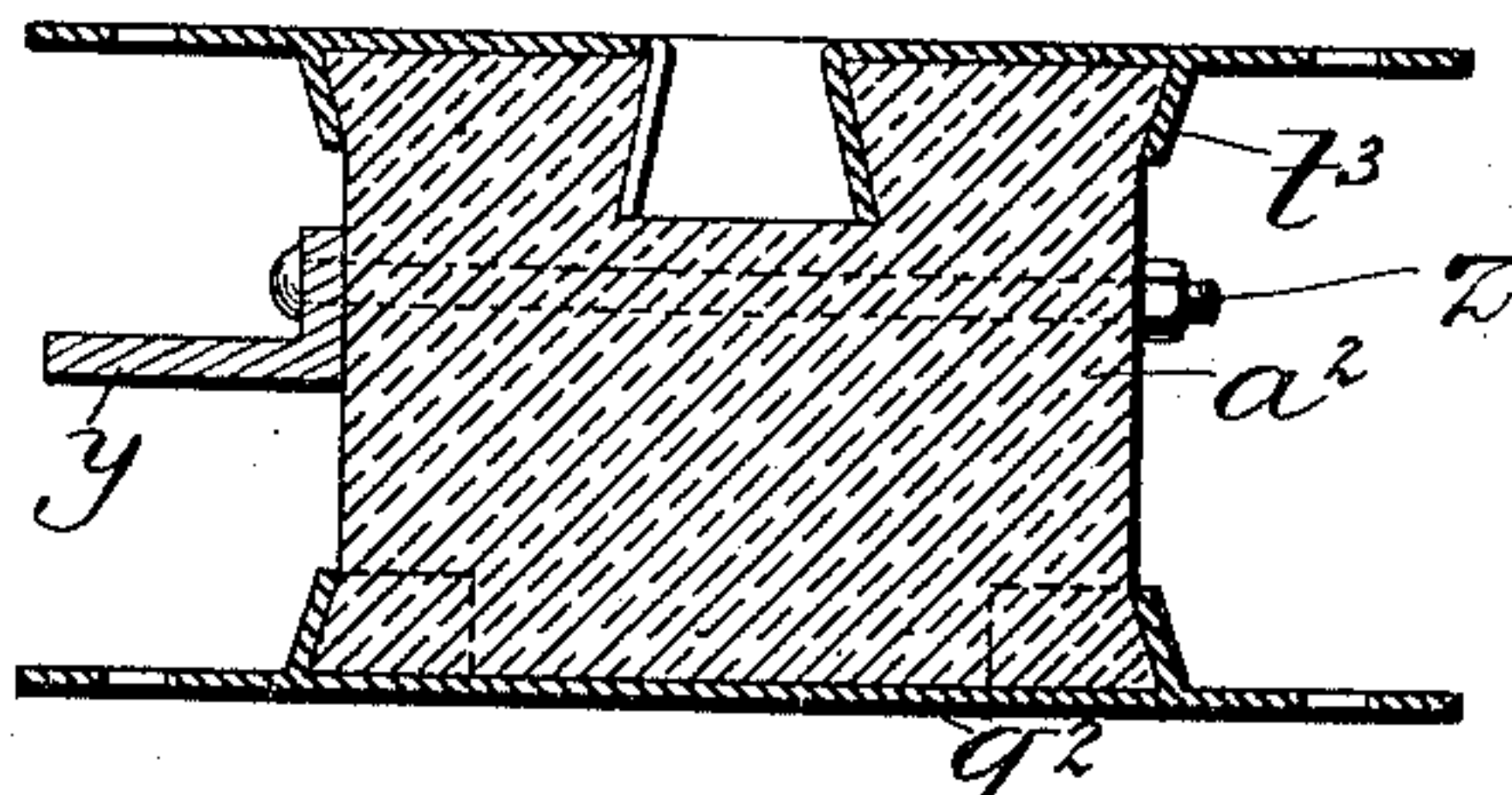


Fig:14.

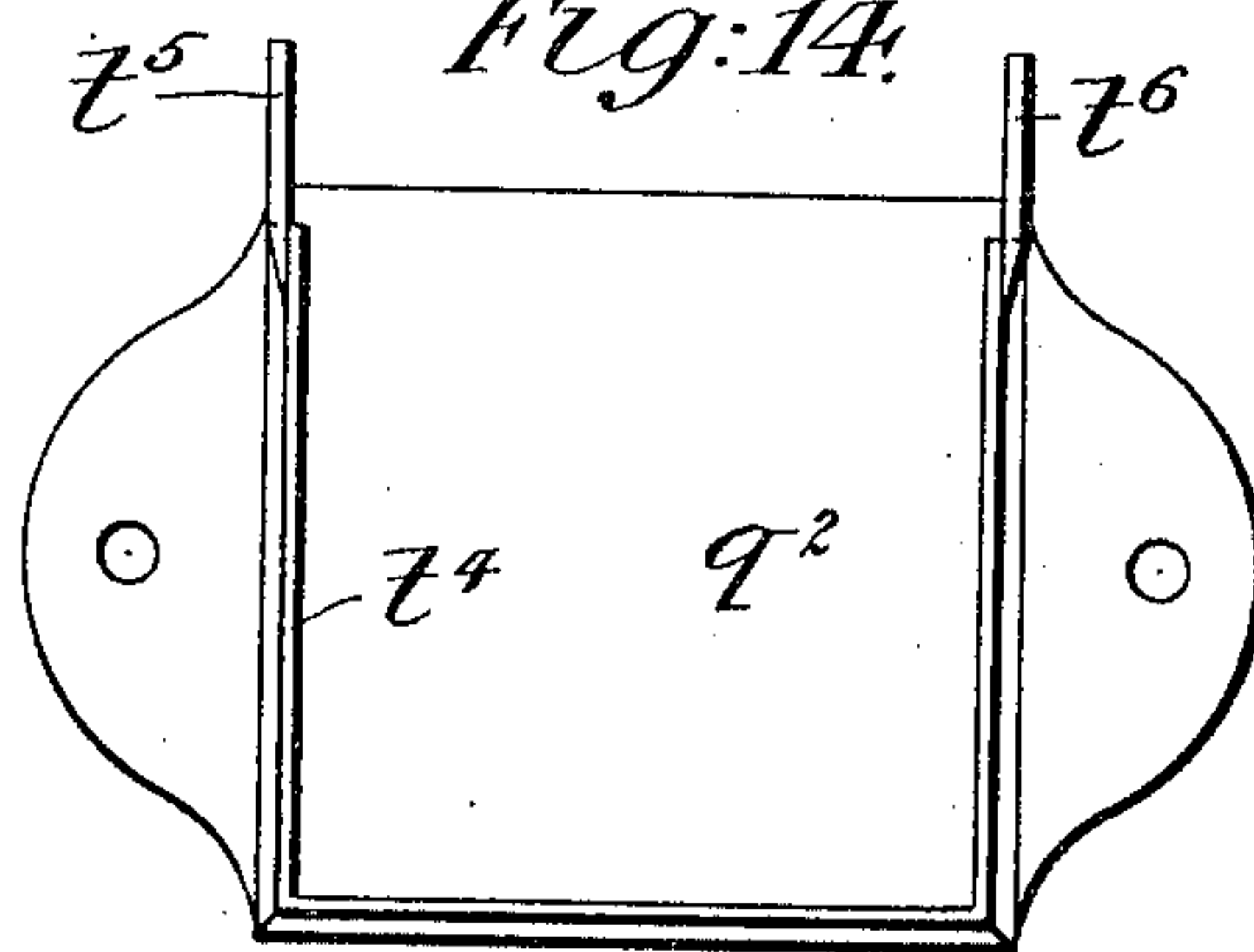


Fig:10.

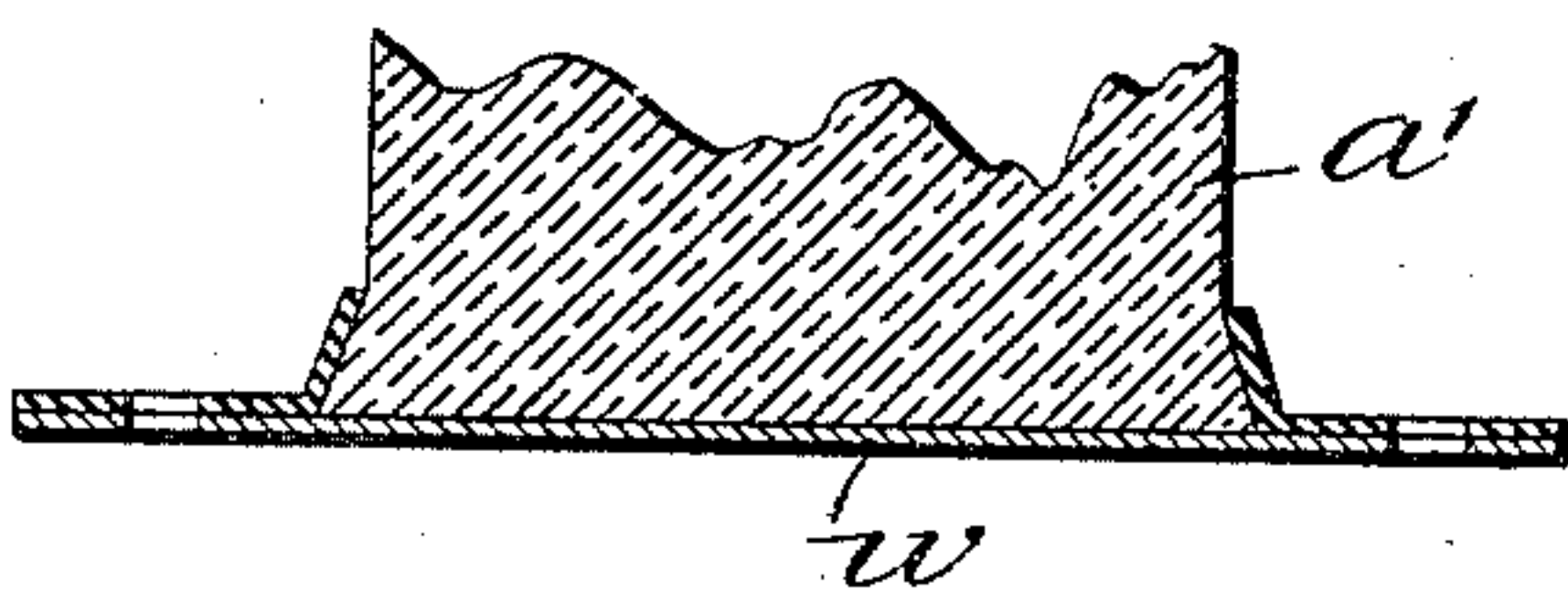


Fig:15.

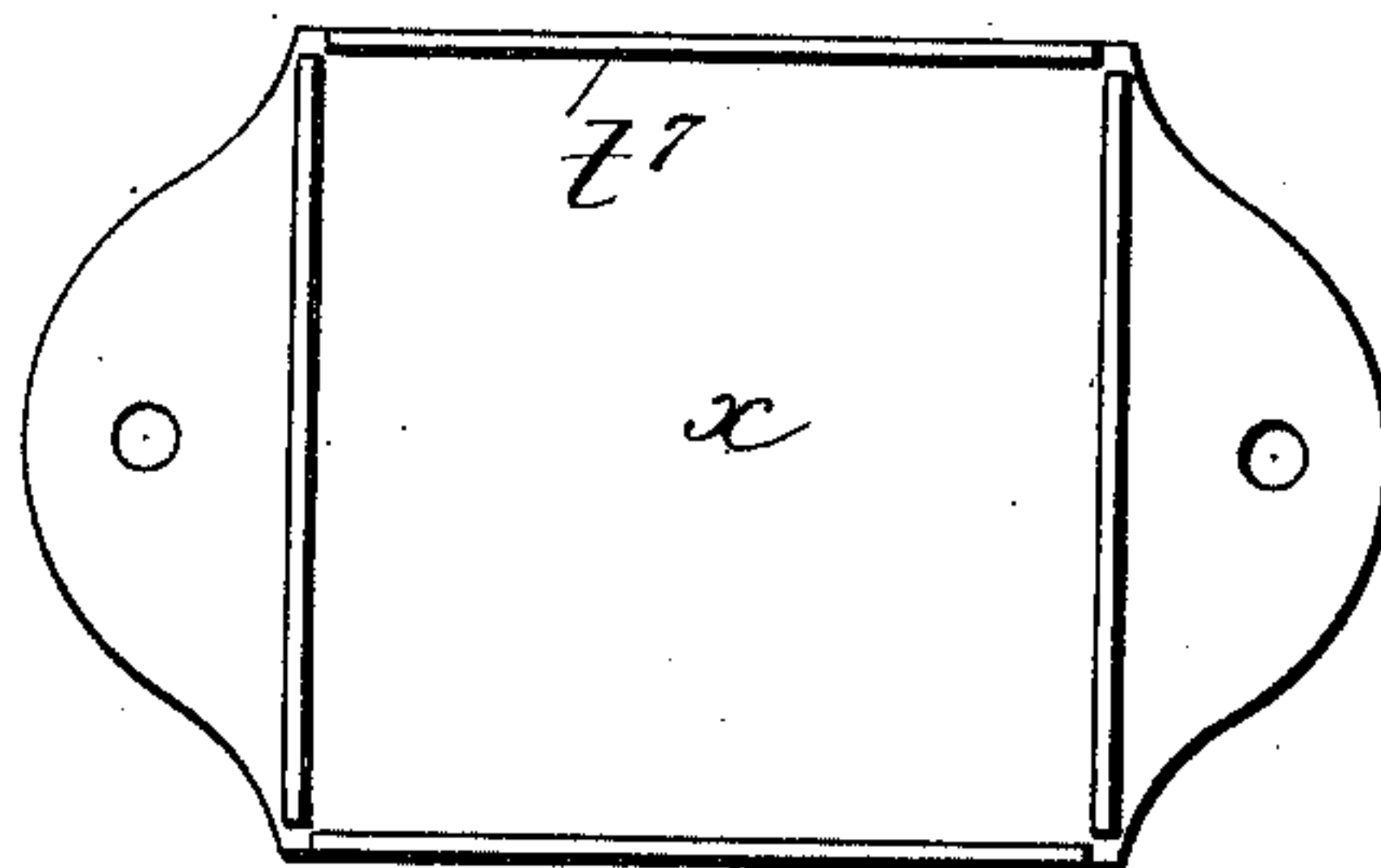
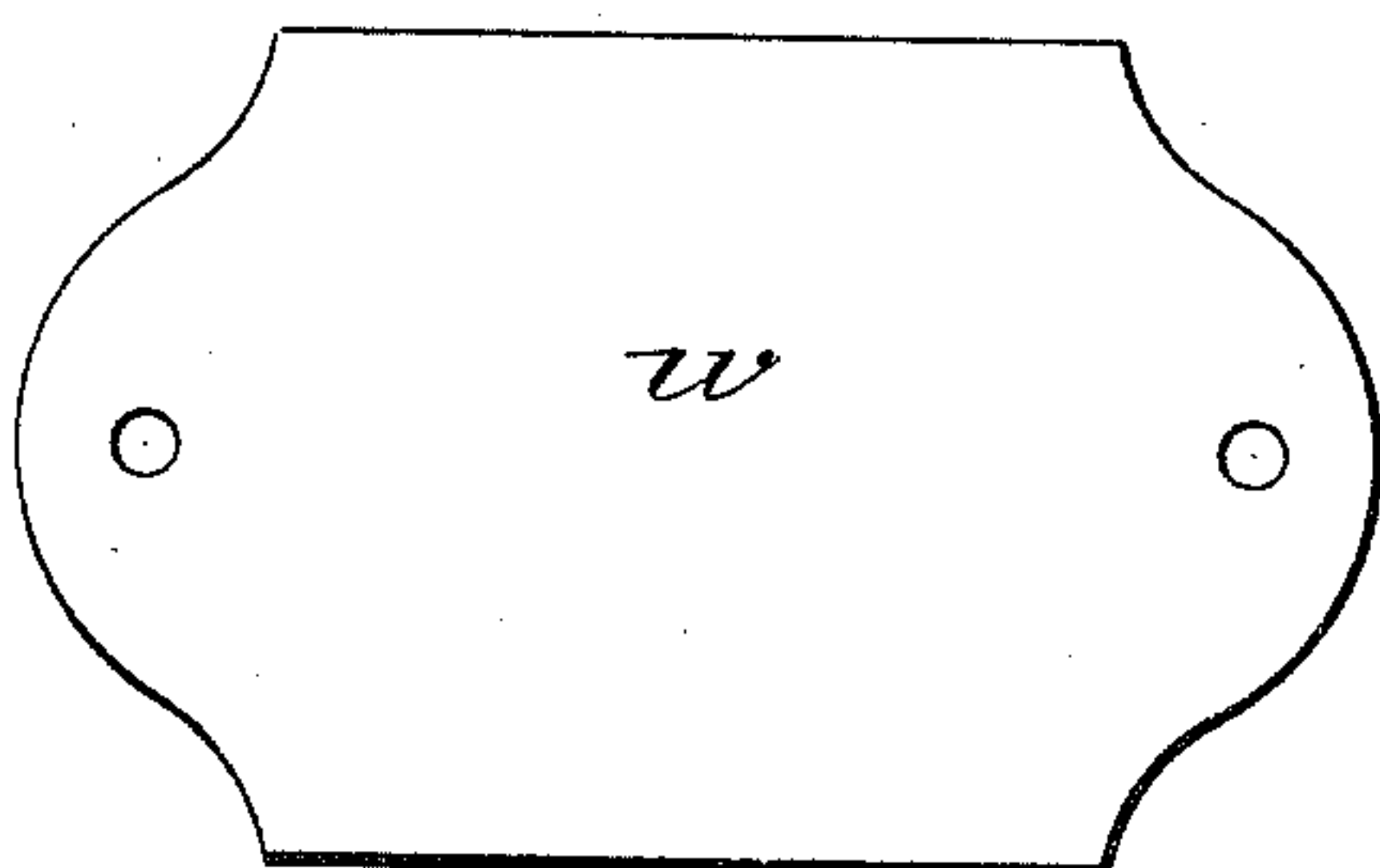


Fig:11.



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UNITED STATES PATENT OFFICE.

CHARLES M. HOBBS, OF BALTIMORE, MARYLAND, ASSIGNOR OF ONE-HALF
TO HAROLD P. BROWN, OF MONTCLAIR, NEW JERSEY.

THIRD-RAIL INSULATOR FOR ELECTRIC RAILWAYS.

SPECIFICATION forming part of Letters Patent No. 693,603, dated February 18, 1902.

Application filed July 24, 1901. Serial No. 69,463. (No model.)

To all whom it may concern:

Be it known that I, CHARLES M. HOBBS, a citizen of the United States, and a resident of Baltimore, in the State of Maryland, have invented new and useful Third-Rail Insulators for Electric Railways, of which the following is a specification.

My invention relates to third-rail insulators for electric railways, with the object in view of providing simple, effective, and durable insulation for the third rail whether the rail be of the ordinary rail type or in the form of a flat plate, and with the further object in view of providing insulation which may be inserted or renewed at pleasure without deranging the system and which will serve to prevent the wear or crumbling of the insulating material under shock or rubbing action.

In the accompanying drawings, Figure 1 represents in vertical transverse section one of the insulators, showing the position of the rail, rail-clamps, and guard-boards in position thereon. Fig. 2 is a view of the same in side elevation, partly in section, the view being taken in the plane of the line A A of Fig. 1. Fig. 3 is a top plan view of the cap. Fig. 4 is a top plan view of the base. Fig. 5 is a view in side elevation of a modified form of cap or base. Fig. 6 is a top plan view of the same. Fig. 7 is a vertical section of the same in the plane of the line B B of Fig. 6. Fig. 8 represents in vertical section a modified form of cap-block and base. Fig. 9 is a top plan view of the base represented in Fig. 8. Fig. 10 shows still another form of base. Fig. 11 is a bottom plan view of the same. Fig. 12 shows still another form of cap. Fig. 13 represents in vertical section the said cap, showing it attached to the insulating-block and at the same time indicating another form of base. Fig. 14 represents in top plan the base represented in Fig. 13, showing the position of its parts before it is attached to the insulating-block; and Fig. 15 represents in plan view still another form of cap or base.

An important feature of my invention, which runs through the several forms hereinabove presented, is the dovetailed connection between the insulating-block and its cap or base. This dovetailed connection may be formed by means of an undercut socket in the

top or bottom of the insulating-block, or it may be formed by tapering one or more of the exterior walls of the block and fitting the base or cap piece thereto.

Another important feature is the provision for attaching the rail and the guard-boards to the insulating-block in such a manner that the guard-boards may be renewed at pleasure without disturbing the security of the rail, and the said rail, with such parts as are connected to move therewith, may be submitted to vertical vibrations, shock, or movements without impairing the connections.

Referring to the structure shown in Figs. 1 to 4, inclusive, the block of insulating material is denoted by *a*. It may be formed of reconstructed granite or similar well-known insulating material having sufficient firmness to support the third rail in position to receive the sliding contact-shoe. It is here shown as a block of general cubical form provided in its top and bottom with undercut sockets, (denoted, respectively, by *b* and *c*.) The cap which supports the rail as well as the clips for holding the rail in position and the guard-boards for shielding the rail is denoted as a whole by *d*. It is provided at a point corresponding with the undercut socket *b* with an opening *e*, surrounded by depending walls *f*, separated at their corners and made of a length preferably substantially equal to the depth of the socket *b*. The walls *f* are intended, when they hang in their normal position at right angles to the plate *d*, to enter the contracted mouth of the socket *b*, and when the plate is in position on the top of the block *a*, as shown in Fig. 1, the opposite walls *f* may be spread apart at their lower ends, as shown in said Fig. 1, to rest against the slanting walls of the socket *b*, thereby securely locking the cap *d* to the insulating-block *a*. The cap *d* is further provided with lugs *g*, adapted to extend above the edges of the base *h* of the rail *i* to hold it in position on the cap and of sufficient height to permit a large vertical travel of the rail, and the said cap *d* may further be provided with ears *j* and *k*, each provided with a vertically-elongated slot *l*, (see Fig. 2,) through which brackets *m* and *n* may be secured to the cap by means of bolts *o* for the purpose of supporting the guard-

boards p , the bolts o being free to move vertically in the elongated slot l . It is obvious that the brackets m and n might at the same time form lugs for holding the rail in position, and in this case the cap d would be formed without the lugs g —for example, as represented in Fig. 8. The base-plate is denoted by q . It, like the cap, is provided with a central opening r , surrounded by depending walls s , arranged to enter the contracted mouth of the undercut opening c and to be spread apart to lock the base and insulating-block together in a manner quite similar to that in which the cap is locked to the block.

The base as well as the cap are preferably provided with flanges surrounding the exterior wall of the block a for a short distance to form a secure seat for the block. The flange on the cap which surrounds the top of the block is denoted by t and that on the base which surrounds the bottom of the block by t' . The base q extends beyond the flange t' at two of its opposite sides and is provided with perforations $u u'$, through which it may be bolted to a cross-tie or other suitable foundation.

In Figs. 5, 6, and 7 there is represented a cap which corresponds in its general structure to the base represented in Figs. 1 to 4 and is well adapted for the attachment of a third-rail conductor in the form of a flat strip of metal as distinguished from the rail-shaped conductor i .

In Fig. 8 the cap shown is denoted by d' and is quite similar in its structure to the cap shown in Figs. 1 to 3, inclusive, with the exception that the clips g are omitted. The insulating-block (denoted in this figure by a') is provided at its base with a tapered portion v in the form of a short frustum of a pyramid, and the upwardly-extended flange t^2 of the base q' is tapered to correspond to the frustum-shaped form of the bottom of the insulating-block, the base itself being cut away intermediate of the flange t^2 to permit the insulating-block to be inserted through the base from the bottom into its position shown in Fig. 8. In this form of base (shown in Figs. 8 and 9) the foundation for the base-plate is depended upon to hold the insulating-block in its position.

In the form shown in Fig. 10 a bottom plate w (shown in plan in Fig. 11) is utilized to lock the insulating-block a' to the base.

In the form shown in Figs. 12, 13, and 14 the cap (denoted by d^3) is provided with tongues $f' f^2$, cut from the material at the center of the cap on three sides, but left integral with the cap on the fourth side and turned downwardly into the undercut socket in the block of insulating material a^2 to lock the cap to the insulating material. In this instance the cap-plate is provided with inclined flanges t^3 on three of its sides to correspond to the frustum-shaped top of the block a^2 , the flange t^3 being cut away on the fourth side to permit the cap to be slid into position

onto the block and then fastened by the turning down of the tongues $f' f^2$ into the socket in the top. The base q^2 is in like manner provided with a flange t^4 , which tapers in a direction to correspond to the frustum-shaped lower portion of the insulating-block a^2 on three sides, the fourth side being provided with wings $t^5 t^6$, which after the block is in position may be turned over into the position shown in dotted lines in Fig. 13 to lock the block in its position on the base. Fig. 13 also shows a conductor-bar y , that is attached to the insulating-block by means of a bolt z passing through the hole in the insulating-block a^2 , and thus providing means for the suspension of a conductor-bar and a guard-board above it.

In Fig. 15 the plate x may serve either as a cap or base plate and is suitable to be used in connection with a block of insulating material having the same general shape as shown in Fig. 13, but without the socket in the top, the flanges, either uprising or depending and denoted by t^7 , being normally spread to receive the larger top or bottom of the insulating-block, but separated at their corners, so that they may be tilted inwardly to lie snugly against the inclined sides of the frustum of the top or bottom, either one or both, of the block to hold the plate securely in its position with respect to the block.

I have shown herein and described several of the more feasible forms which the dovetailed connection of cap and block may assume. In each the block and cap or base are secured against relative displacement both in a lateral and longitudinal direction.

It is obvious that changes other than those herein particularly pointed out might be resorted to in the form, construction, and arrangement of the several parts without departing from the spirit and scope of my invention. Hence I do not wish to limit myself strictly to the structure herein set forth; but

What I claim is—

1. The combination with a block of insulating material, of a rail-receiving cap, the insulating-block and the cap having a dovetailed or undercut connection arranged to secure the parts together against relative displacement both laterally and longitudinally, substantially as set forth.

2. The combination with a block of insulating material of a base for supporting the block, the insulating-block and the base having a dovetailed or undercut connection arranged to secure the parts together against relative displacement both laterally and longitudinally, substantially as set forth.

3. The combination with a block of insulating material, of a cap-plate and base-plate, the said cap and base plates each having a dovetailed or undercut connection with the block of insulating material to hold the parts assembled, substantially as set forth.

4. The combination with a block of insulating material having an undercut socket there-

in, of a bearing-plate provided with malleable-metal walls projecting therefrom adapted to enter the socket for locking the bearing-plate and insulating-block together, substantially
5 as set forth.

5. The combination with a block of insulating material, of a cap-plate for receiving the third rail, the said cap-plate having ears provided with vertically-elongated slots, means
10 for locking the cap to the insulating-block, guard-boards and means for locking the guard-boards to the said ears to permit the rail and guard-boards to move relatively to the insulator, substantially as set forth.

15 6. The combination with a block of insulating material, of means for suspending a con-

ductor-bar on the side of the block between the cap and base, the said cap-plate being provided with means for supporting guard-boards in a position other than vertical and
20 the said cap and base plates being also provided with means for attaching them to the insulator-block, substantially as set forth.

In testimony that I claim the foregoing as my invention I have signed my name, in pres-
25 ence of two witnesses, this 19th day of July, 1901.

CHAS. M. HOBBS.

Witnesses:

VIRGINIA MCCARTHY,
JAS. E. TIBBETT.