

No. 632,734.

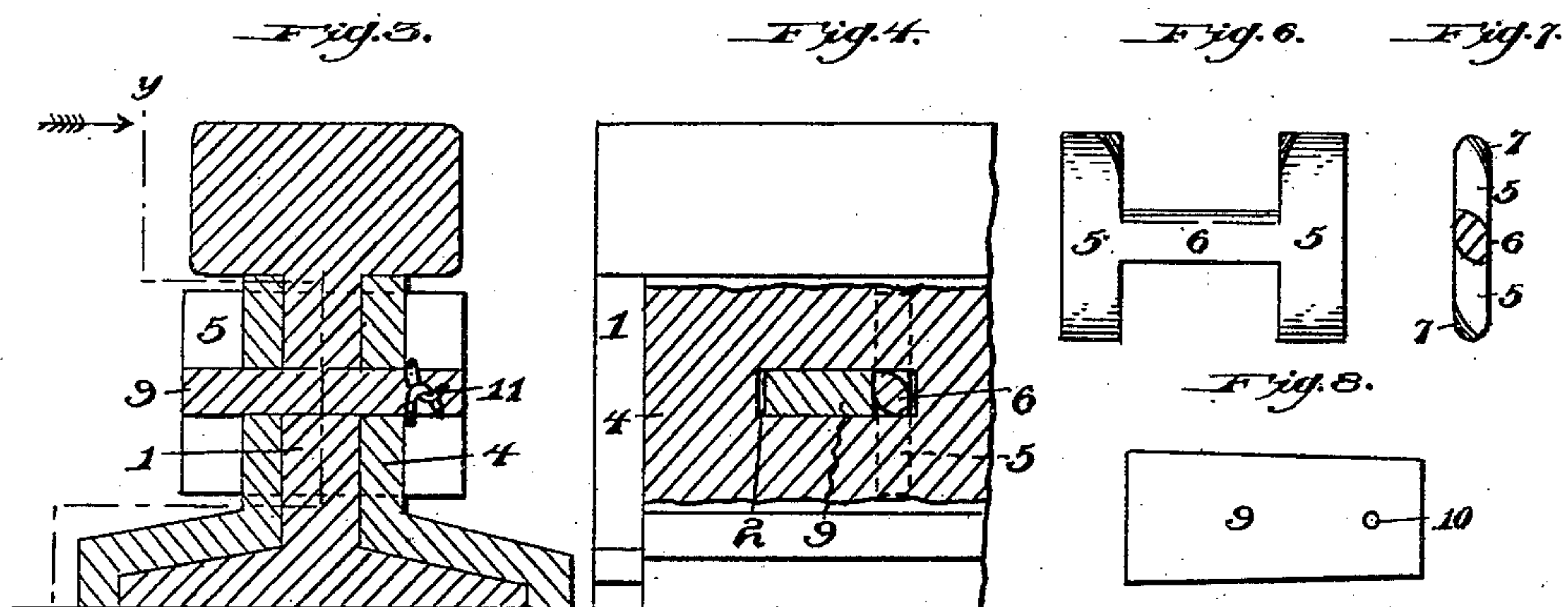
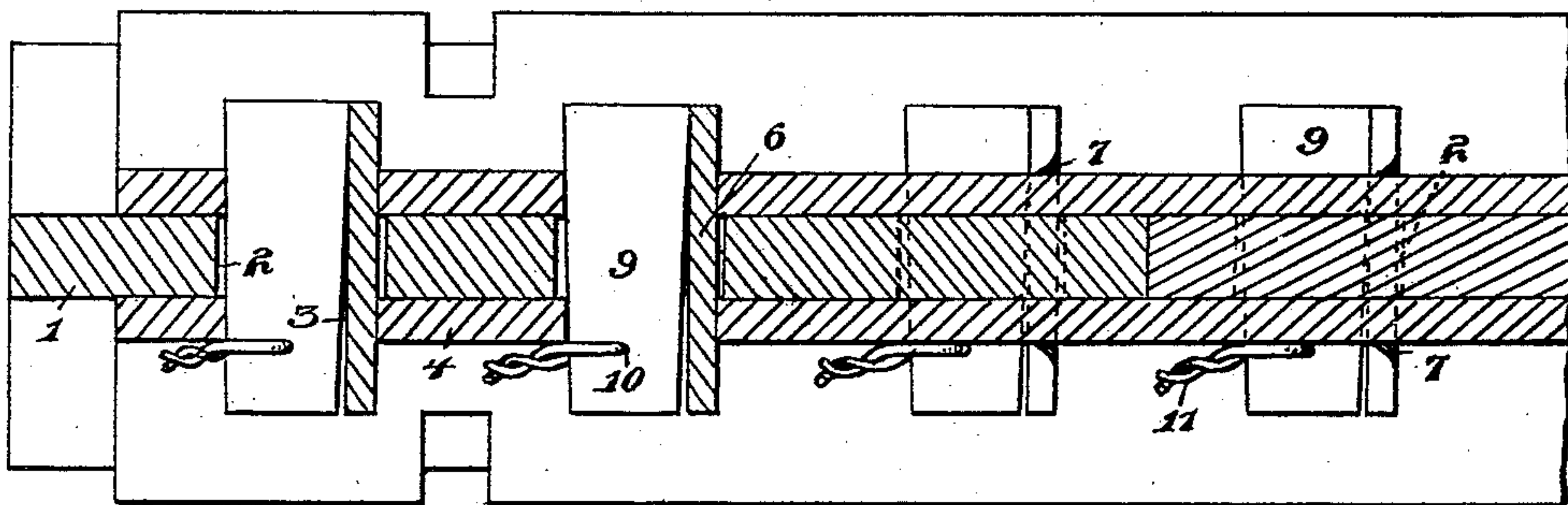
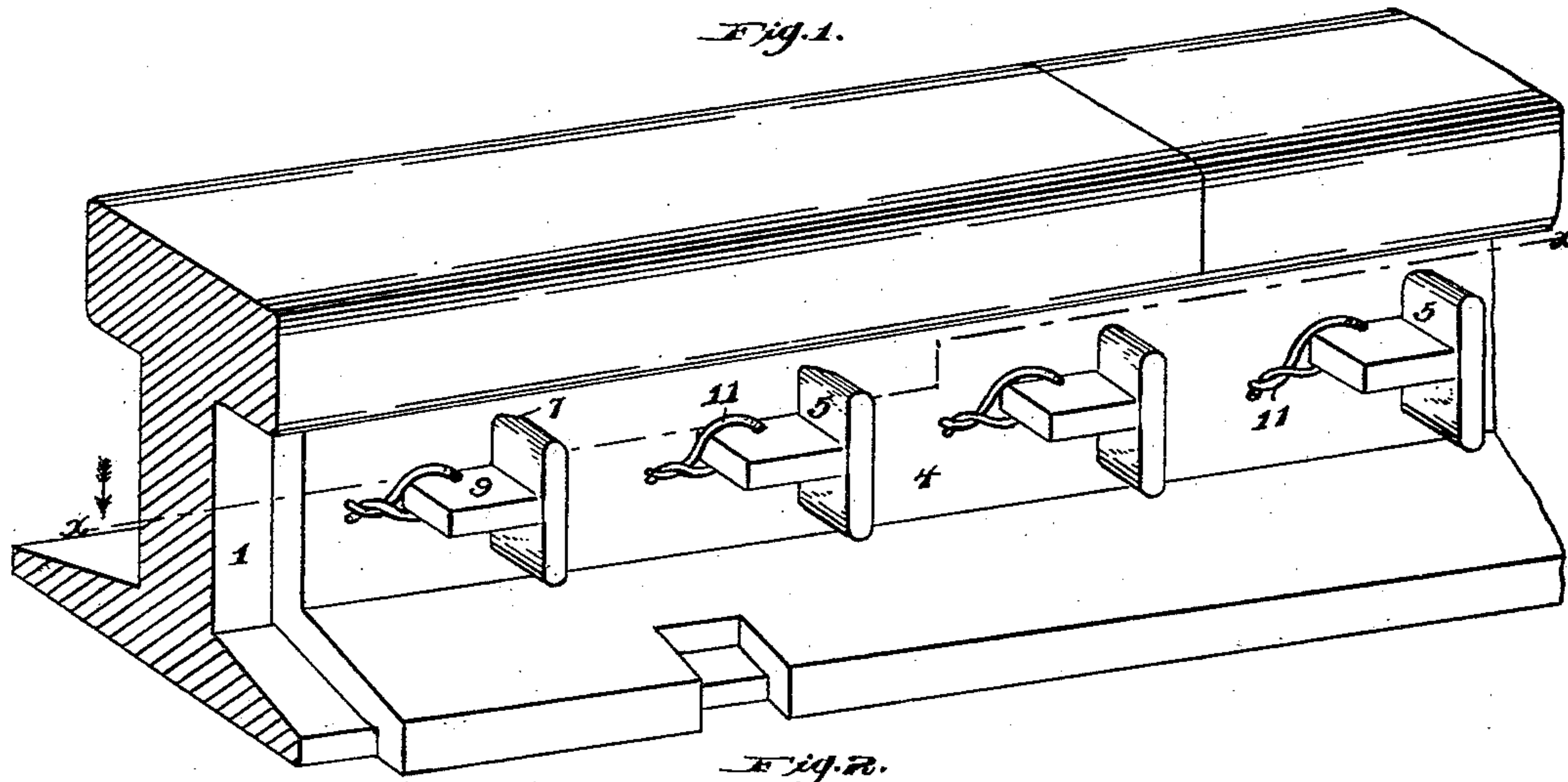
Patented Sept. 12, 1899.

J. W. MERCER.

FASTENING FOR RAILWAY FISH PLATES.

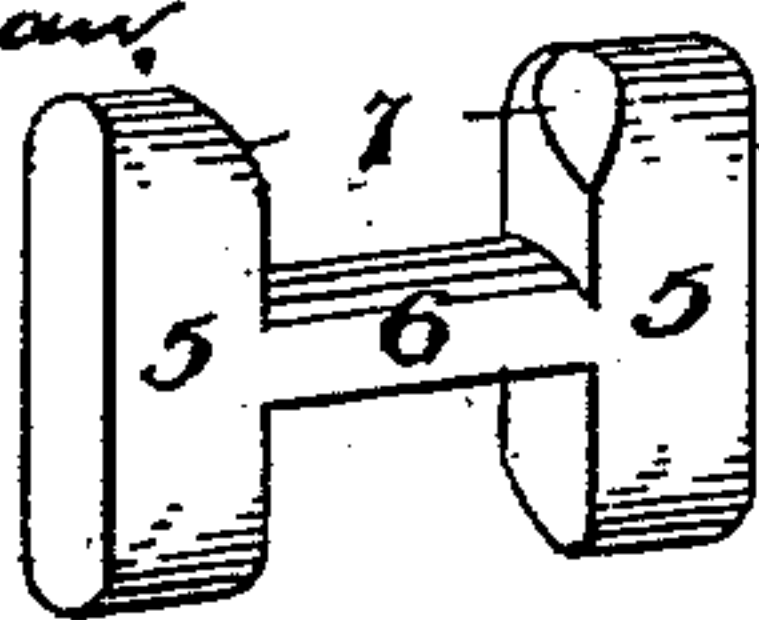
(Application filed May 8, 1899.)

(No Model.)



WITNESSES:

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UNITED STATES PATENT OFFICE.

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FASTENING FOR RAILWAY FISH-PLATES.

SPECIFICATION forming part of Letters Patent No. 632,734, dated September 12, 1899.

Application filed May 8, 1899. Serial No. 715,957. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH W. MERCER, a citizen of the United States of America, residing at Alliance, in the county of Stark and State of Ohio, have invented certain new and useful Improvements in Fastenings for Railway Fish-Plates, of which the following is a specification, reference being had therein to the accompanying drawings.

10 This invention relates to certain new and useful improvements in fastenings for railway-rail fish-plates, and has for its object to dispense with the ordinary bolts and nuts and to employ in lieu thereof a series of wedges
15 and keys so arranged that when placed in position they cannot become accidentally disengaged.

Briefly described, my invention consists in constructing the web of the rail and of the
20 fish-plate with oblong slots or apertures and in the employment in these slots or apertures of a double T-shaped bolt or key having a specially-formed shank adapted to frictionally engage the lower and upper walls of the
25 aperture or slot in both the web of the rail and in the fish-plate. The heads of these double T-bolts are about equal in length to that of the slots or apertures, so that after the bolts have been inserted in the slots or
30 apertures they may be locked therein against one side of the wall by giving a half-turn to the bolt, bringing the inner faces of the heads into frictional engagement with the outer face of the fish-plate, in which position they
35 are held by wedges or keys inserted through the slots or apertures and retained in position by a bent wire or pin passing transversely through the same.

My invention consists in other novel features of construction, which will be hereinafter more specifically described and then particularly pointed out in the appended claims.

In describing the invention in detail reference is had to the accompanying drawings, forming a part of this specification, and wherein like numerals of reference will be used to designate similar parts throughout the several views, in which—

50 Figure 1 is a perspective view of a part of two rails fastened together in accordance with my invention. Fig. 2 is a horizontal sectional

view taken on the line $x x$, Fig. 1. Fig. 3 is a transverse vertical sectional view of the same. Fig. 4 is a horizontal sectional view
55 taken on the line $y y$ of Fig. 3. Fig. 5 is a detail perspective view of one of the double T-shaped bolts. Fig. 6 is a detail plan view of the same. Fig. 7 is a cross-sectional view of one of these bolts. Fig. 8 is a detail plan
60 view of one of the wedge-shaped keys employed for locking the double T-shaped bolts in position.

Referring now to the drawings by reference-numerals, 1 indicates the web of the rails, 65 which are provided with oblong slots or apertures 2, which are of a greater length than the registering apertures 3, provided in the fish-plates 4. These fish-plates 4 fit upon the
70 base of the rail and against the web 1 thereof in the ordinary manner, and for the purpose of securing the same in position I provide double T-shaped bolts, the heads 5 5 of which are connected together by a shank 6, which is elliptical in cross-section and is adapted
75 when turned in the slot so as to bring its greatest diameter in a vertical line to lock against the upper and lower faces of the web 1 and fish-plate 4 within the slots 2 3. These heads 5 5 of the T-bolts are of about equal
80 length to the slots 3 in the fish-plates, the said slots 3 3 being of less length than the slots 2 2 in the web 1 of the rails in order to allow for the expansion and contraction of the latter when the fish-plates are in position
85 without damage to the fastening of the fish-plates. The heads 5 5 of the double T-bolts are each provided on the inner face near the edge with a chamfered or inclined face 7,
90 which engages the outer face of the fish-plate 4 as the T-bolt is turned after having been inserted through the fish-plates and rail and allows this inner face of the heads to obtain a firm frictional engagement with the faces
95 of the fish-plates. After having been placed in position in the web of the rail and in the fish-plates at one end of the slots these T-bolts are locked therein by means of the keys
100 9, slightly wedge-shaped in form and provided in their smaller end with an aperture 10 to receive a fastening wire or pin 11. The device illustrated in the drawings for this purpose consists of a piece of wire, which is first inserted through the aperture 10 and the ends

twisted together to prevent the removal of the key until the wire is removed. It will be observed, however, that a pin extending transversely through this key will serve the same purpose as the securing-wire shown herein.

The operation is as follows: The fish-plates 4 4 are placed against the sides of the rails, with the slots 3 3 therein registering with the slots 2 2 in the web of the rails. One end or head 5 of the double T-bolts is then inserted through the slots and the shank 7 of these bolts forced against the end of the slots in the fish-plates. When in this position, the bolts are turned in the slots, so as to throw the inner faces of the heads 5 5 into frictional engagement with the outer faces of the fish-plates 4 4, while the shank 7, being elliptical in form when viewed in cross-section and arranged with its greatest diameter at an incline to the length of the heads 5, is brought into frictional contact with the upper and lower faces of the web and fish-plates within the slots 2 and 3. When in this position, the key 9 is inserted through the slots in the rail web and in the fish-plates and its widest end completely fills the remainder of the slot in the fish-plate between the bolt and the end of said slot. By reason of this key 9 being slightly tapering or wedge-shaped a slight clearance will be provided between the edge of the same at its smaller end and the T-bolt. The keys are locked in position when thus inserted by means of the bent wire 11, as shown, or this may be accomplished by a pin, as heretofore described.

By providing the slots in the rail of a greater length than those in the fish-plates and by constructing the keys 9 slightly tapering sufficient clearance is thereby provided for any expansion or contraction of the rails that may occur without in any manner unduly straining the fastening, and when once secured in position the fastening is only removable by detaching the wire 11, driving out the key 9, and turning the T-bolt, so as to bring the heads 5 5 into alinement with the slots 2 and 3, so that these bolts may be withdrawn.

It will be noted that various changes may be made in the details of construction without departing from the general spirit of my invention.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A rail-fastening comprising in combination with the web of the rail having oblong slots and the fish-plates having registering slots of less length, of a double T-bolt having a shank elliptical in cross-section and adapted to engage in said slots, and a key for locking said bolt in position, substantially as described.

2. A rail-fastening comprising in combination with the web of the rail having oblong slots and the fish-plates having registering slots of less length, of a double T-bolt having a shank adapted to engage in said slots, and a key for locking said bolts in position, substantially as described.

3. A rail-fastening comprising in combination with the rails having their webs provided with oblong slots, and the fish-plates having oblong registering slots of less length, of the double T-bolts engaging in said slots with their heads engaging the outer faces of the fish-plates, keys engaging in said slots for securing the T-bolts in position, and means for locking said keys in the slots, substantially as described.

4. In combination with the web of the rails having oblong slots, a pair of fish-plates provided with oblong slots registering with the slots in the fish-plates, double T-bolts adapted to engage in said slots and when turned to frictionally engage the web of the rail and the fish-plates, keys engaging through said slots for locking the bolts in position, and means for locking said keys in position, substantially as described.

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

JOSEPH W. MERCER.

Witnesses:

JOHN NOLAND,
WILLIAM E. MINOR.