

No. 896,727.

PATENTED AUG. 25, 1908.

J. HEBER.
SELF TIGHTENING JOINT.
APPLICATION FILED NOV. 4, 1907.

Fig 1

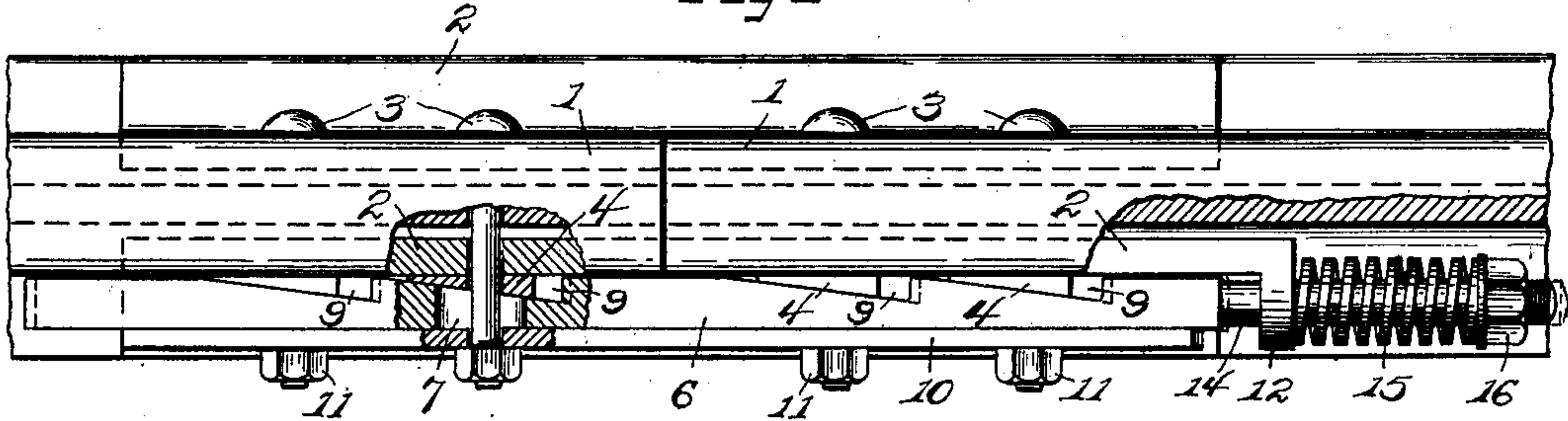


Fig 2

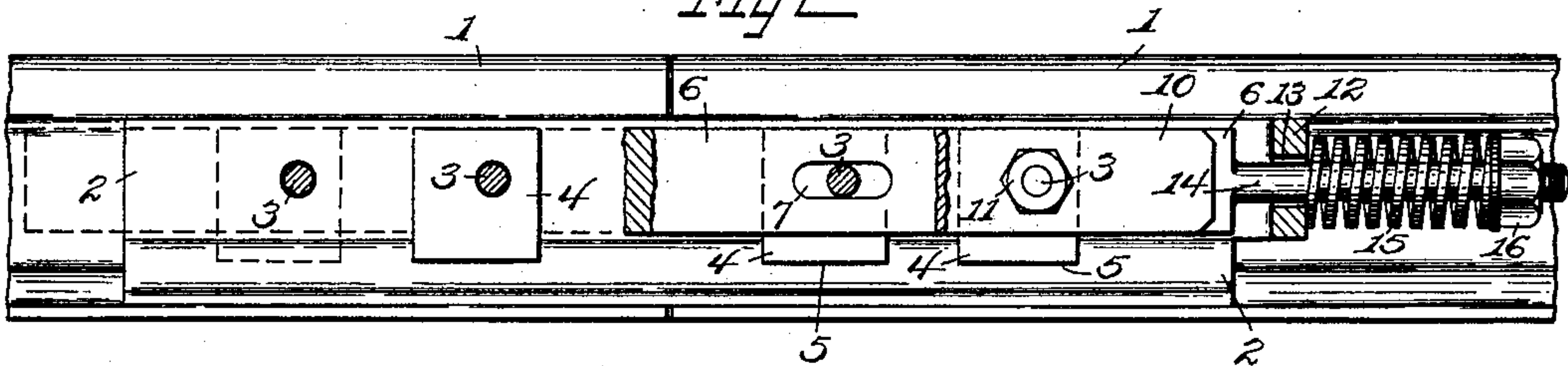


Fig 3

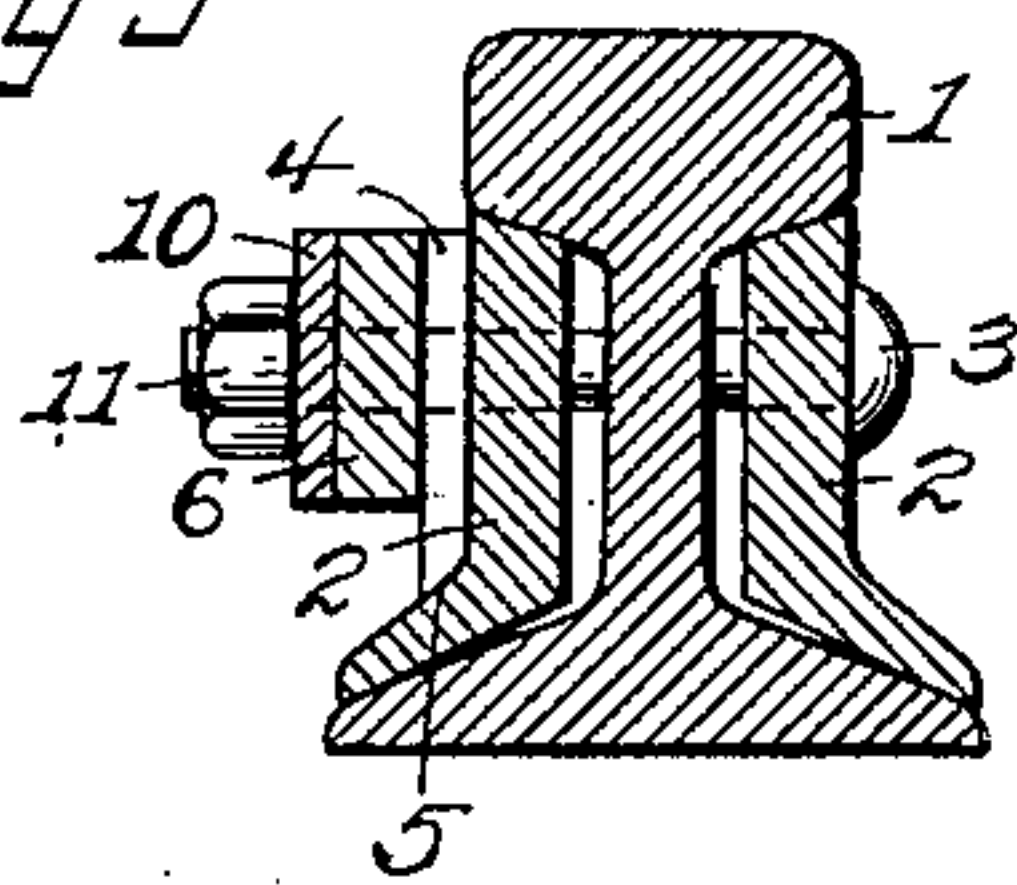


Fig 5

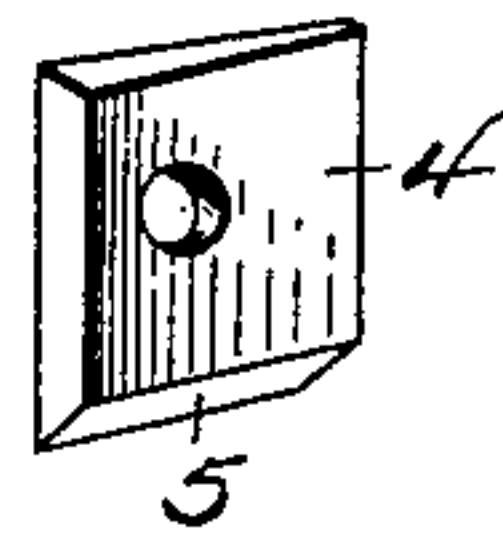


Fig 4

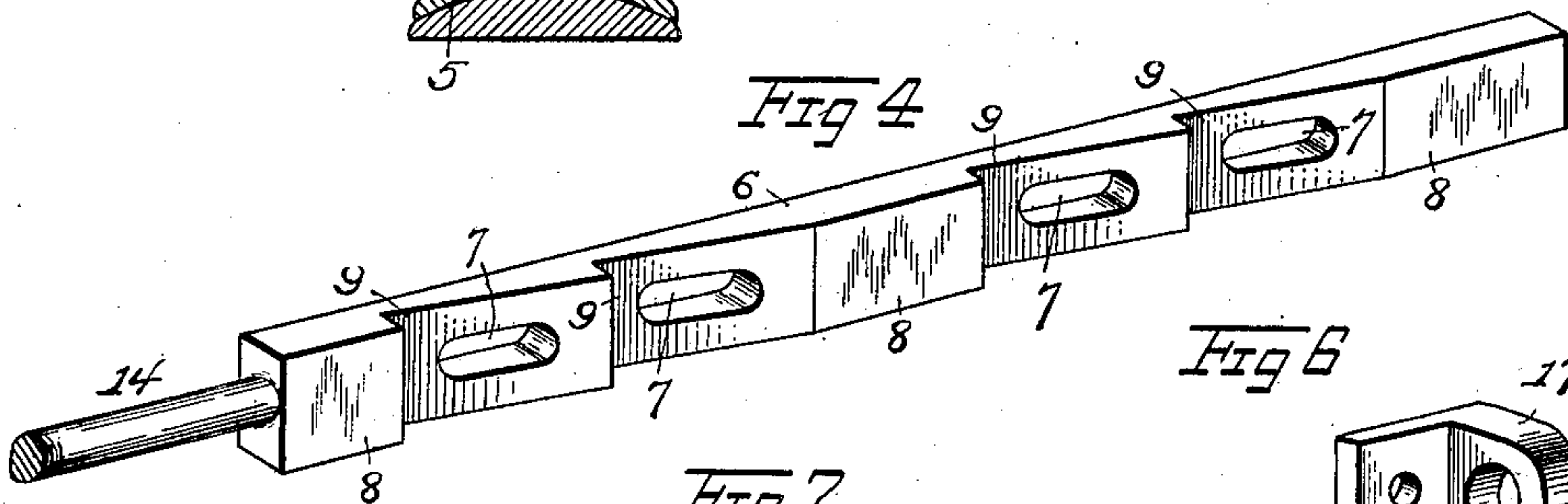


Fig 6

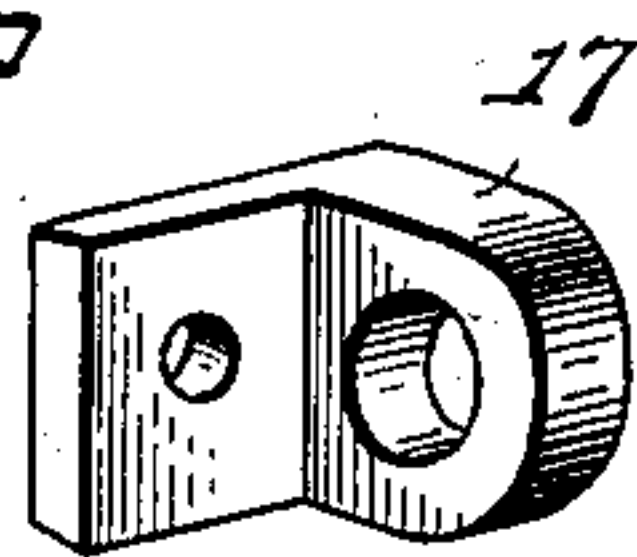
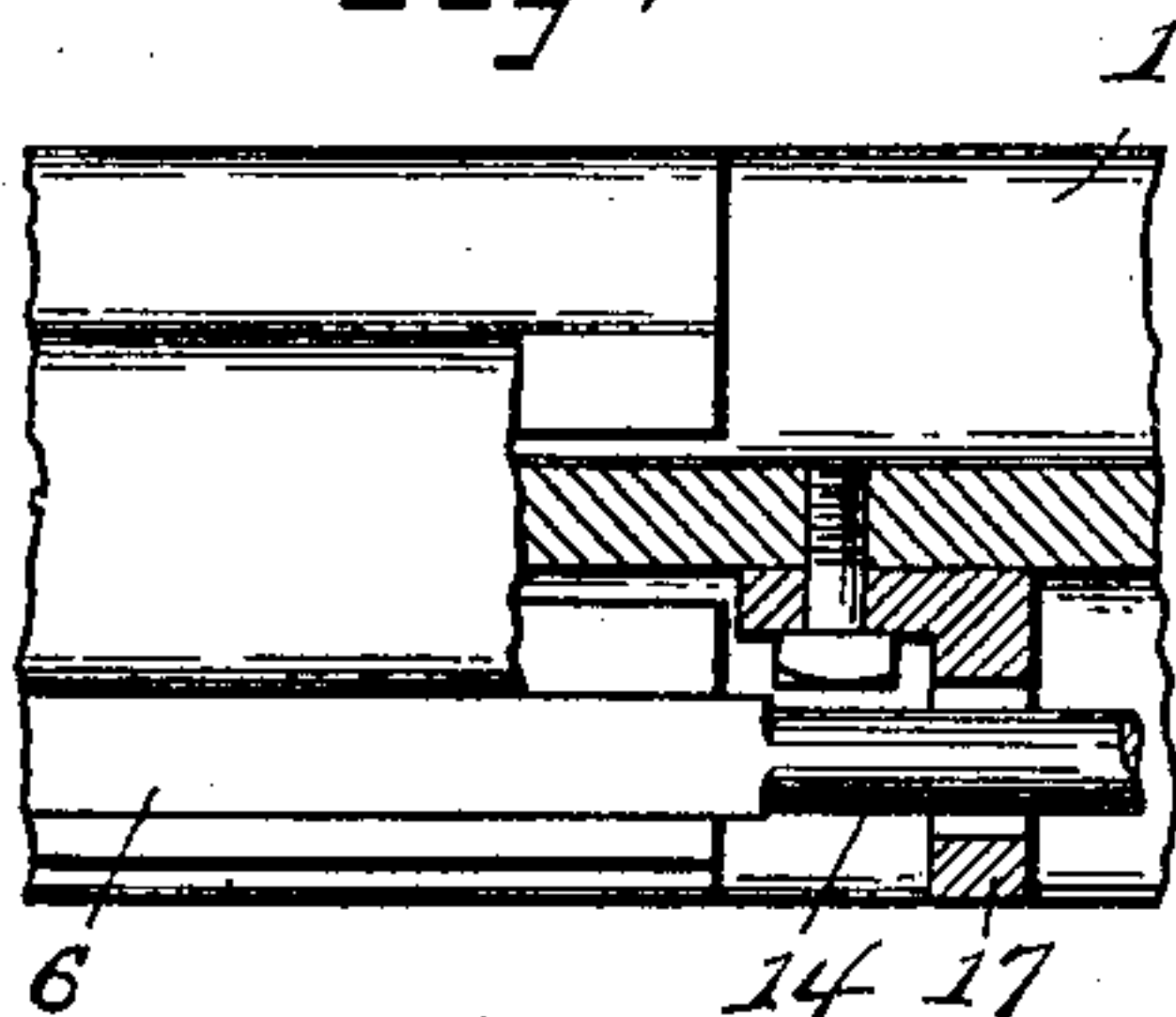


Fig 7



WITNESSES:

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JOHN HEBER, OF NEW MARTINSVILLE, WEST VIRGINIA.

SELF-TIGHTENING JOINT.

No. 896,727.

Specification of Letters Patent.

Patented Aug. 25, 1908.

Application filed November 4, 1907. Serial No. 400,452.

To all whom it may concern:

Be it known that I, JOHN HEBER, a citizen of the United States of America, and a resident of New Martinsville, county of Wetzel, and State of West Virginia, have invented certain new and useful Improvements in Self-Tightening Joints, of which the following is a specification.

My invention relates to new and useful improvements in joint tighteners, and more particularly to a device for tightening railway-rail joints.

The chief object of the invention is to provide a device by means of which the ends of railway rails at a joint are firmly held and whereby the grip of the fish-plates may be readily increased.

A further object is to provide a joint-clamping device which is self tightening, automatically taking up any slack resulting from the vibration of the rails with the passage of trains thereover. And a still further object is to provide a device of the character mentioned which is adapted for serving as a rail-bond for carrying an electric current when employed upon electric-railway tracks.

With these and other objects in view, the invention finally consists in the particular construction, arrangement and combination of parts which will hereinafter be fully described, reference being herein had to the accompanying drawing, forming a part of this specification, in which—

Figure 1 is a top plan view of a rail-joint, showing the application of my invention, parts being broken away to more clearly illustrate some of the details of construction; Fig. 2 is a view of the same partly in longitudinal section and partly in side elevation; Fig. 3 is a cross section of the same; Fig. 4 is a perspective of the key, showing the inner face thereof; Fig. 5 is a similar view of a wedge, or gib; Fig. 6 is a perspective view of a detachable lug; and—Fig. 7 is a view partially in top plan and partially in horizontal section, illustrating the modified construction in which the detachable lug is employed.

Referring to said drawing, in which like reference characters designate like parts throughout the several views—1 indicates the approaching ends of railway rails, 2 the fish-plates, and 3 the connecting bolts. Fitted on each of the bolts 3 against the outer face of one of the fish-plates 2 is a wedge or gib 4 whose lower edge 5 rests upon

the base flange of the fish-plate, which edge may be beveled to correspond with the inclination of said base flange, as shown in Figs. 3 and 5, although such bevel is not necessary. Fitted upon said bolts 3 so as to overlie said gibs is a longitudinal key 6, longitudinal slots 7 being provided through which the ends of said bolts project. The inner face of said key is provided with flat bearing-surfaces 8 which rest against the face of the fish-plate 2, and with intervening inclined recesses 9 corresponding in form with, but slightly greater in length than, said gibs 4. When said key is fitted in place, the said gibs occupy said recesses, as is clearly shown in Fig. 1. The outer face of said key 6 is plain and flat and has fitted closely thereagainst a metal plate or strap 10, the ends of the bolts 3 being projected through said strap for holding it in stationary position, and nuts 11 screwed upon said bolts bear closely against said strap, as shown. Formed integral with the fish-plate 2 against which said key rests, at one end thereof, is an outwardly-extending lug 12 having an eye 13 therethrough, and projected through said eye is a stem 14 which is formed integral with and is in direct alinement with said key 6. Mounted upon said stem with one end resting against said lug 12 is a spring 15 by means of which tension is placed upon said key, an adjusting-nut 16 threaded upon the end of said stem being adapted to be manipulated against the opposite end of said spring for adjusting the tension of the latter. In applying the device, the fish-plates are fitted against the rails and the connecting bolts are inserted as ordinarily; then, assuming the lug 12 to be carried by the front end of the fish-plate, the gibs 4 are fitted over said bolts against the fish-plate with their tapered ends directed rearwardly. The key 6 is then fitted over said bolts, the stem 14 of the key being first inserted through the eye 13 of said lug, and the strap 10 is fitted up over said bolts thereagainst, after which the nuts 11 are applied to said bolts and are forced up as firmly as possible against said strap. The tension spring 15 is next fitted upon the stem 14 and the adjusting nut 16 is forced up firmly thereagainst. The parts then occupy substantially the positions shown in full lines in Fig. 1. A sharp blow struck with a sledge upon the rear end of the key 6 will cause it to move forward slightly, the slots 7 admitting of such movement.

The forward movement of the key 6 over the gibs 4, with the inclined faces formed by the recesses 9 coinciding with the inclined faces of the gibs, the latter being stationary, results in keying up the joint and removing all slack or looseness remaining therein. The tension is then increased by further adjustment of the adjusting-nut against the tension spring, after which the parts occupy substantially the positions indicated in dotted lines in said Fig. 1.

A constant stress is exerted by the spring 15 upon the key 6 which results in the joint being at all times firm and tight. The self adjustment of said key is facilitated by the vibration of the parts due to the passage of trains over the track. The tension is increased from time to time, as required, by the simple screwing up of the adjusting-nut 16.

From the foregoing it will be seen that I provide a simple device whereby the rails at a joint are at all times firmly braced and whereby the joint is automatically kept tight, thus dispensing with the necessity for exercising constant vigilance upon the joints of a railway track and for periodically tightening the nuts on the connecting bolts.

While the lug 12 on the end of the fish-plate is preferred, a separable or removable lug 17 may, in the absence of such fixed lug, be employed for securing directly to the web of a track-rail, as shown in Figs. 6 and 7.

Various minor changes or alterations within the scope of the appended claims may be resorted to without departing from the general spirit or scope of the invention. Hence, I do not desire to be understood as limiting myself to the precise construction and arrangement of parts herein shown and described.

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

1. In a rail-joint tightener, the combination with the adjacent ends of rails, of oppositely-disposed fish-plates mounted in supporting relation to said rails, one of said fish-plates having at one end an integral out-turned lug having an eye therethrough, non-movable gibs mounted on the fish-plate-securing bolts against said fish-plate, a longitudinally-movable key mounted upon said bolts, the inner face of said key having recesses corresponding in form with said gibs and said gibs seating in said recesses, a longitudinal non-movable strap mounted upon said bolts against the outer face of said key and having the securing nuts screwed up thereagainst, a stem carried by one end of said key, said stem being projected through the eye of said out-turned lug, a nut adjustably mounted upon the end of said stem, and a tension spring interposed between said nut and said lug.

2. In a rail-joint tightener, the combina-

tion with the adjacent ends of rails, of oppositely disposed fish-plates mounted in supporting relation to said rails, an out-turned lug on the end of one of said fish-plates, said lug having an eye therethrough, non-movable gibs mounted on the fish-plate-securing bolts against said fish-plate, a key having longitudinal slots therein mounted on said bolts against said fish-plate, said bolts being projected through said slots, the inner face of said key having inclined recesses therein for the reception of said gibs, nuts upon the ends of said bolts, key-hugging means interposed between said nuts and said key, a stem carried by said key at one end thereof, said stem being projected through the eye of said lug, an adjusting nut on said stem, and a tension spring interposed between said adjusting nut and said lug.

3. In a rail-joint tightener, the combination with the adjacent ends of rails, of oppositely disposed fish-plates mounted in supporting relation to said rails, an out-turned lug on the end of one of said fish-plates, said lug having an eye therethrough, non-movable gibs mounted on the fish-plate-securing bolts against said fish-plate, a longitudinally-movable key mounted against said fish-plate, said key having inclined recesses therein for the reception of said gibs, nuts on said bolts, a plate interposed between said nuts and said key, coinciding inclined bearing-surfaces respectively carried by said key and said gibs whereby a longitudinal forward movement of said key results in exerting increased pressure upon said fish-plate, an integral longitudinal stem carried by said key and projected through the eye of said lug, an adjusting nut carried by the end of said stem, and a tension spring interposed between said adjusting nut and said lug.

4. A joint-tightener comprising, in combination with the adjacent ends of railway rails having bolts projected therethrough, non-movable gibs mounted upon said bolts, a slidable member having inclined recesses in one of its faces in which said gibs are seated and also having slots therein through which said bolts project, a longitudinal non-movable strap mounted upon said bolts against the outer face of said member, nuts mounted upon the ends of said bolts against said strap, said member being adapted when moved longitudinally to coact with said gibs and said strap for increasing the pressure exerted upon said rails, and means for exerting a constant tension upon said member in the direction which effects an increased pressure.

5. A joint-tightener comprising, in combination with the adjacent ends of railway rails having bolts projected therethrough, non-movable gibs mounted upon said bolts, a slidable member having inclined recesses in one of its faces in which said gibs are seated and also having slots therein through which said

bolts project, a longitudinal non-movable
strap mounted upon said bolts against the
outer face of said member, nuts mounted
upon the ends of said bolts against said
5 strap, said member being adapted when
moved longitudinally to coact with said gibs
and said strap for increasing the pressure ex-
erted upon said rails, and means for exerting
a constant tension upon said member in the
10 direction which effects an increased pressure,
said means comprising a stem carried by said

member, a stationary lug through which said
stem is projected, an adjusting nut threaded
upon the end of said stem, and a yieldable
element interposed between said lug and 15
said nut.

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

JOHN HEBER.

Witnesses:

J. W. SCHMIED,
E. E. HEADLEE.