

No. 673,257.

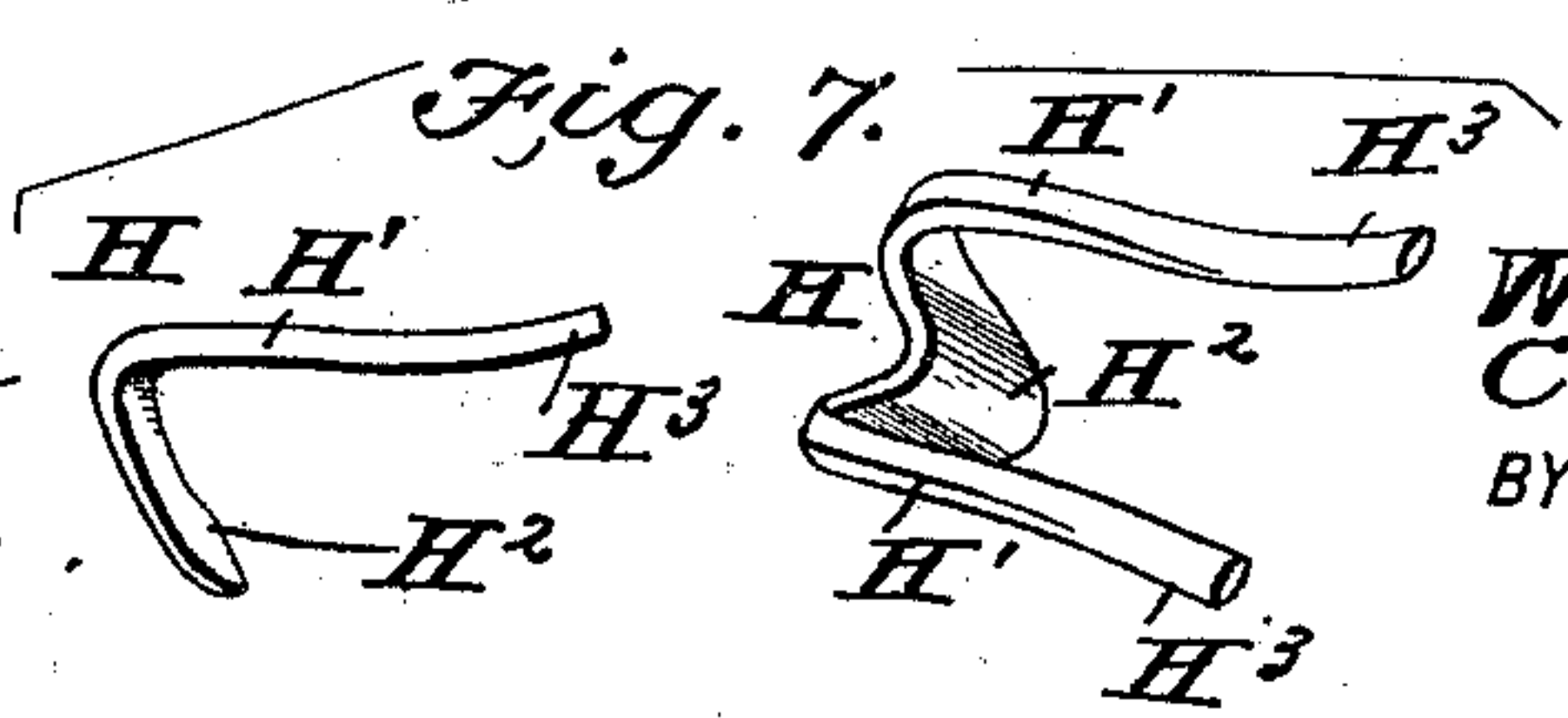
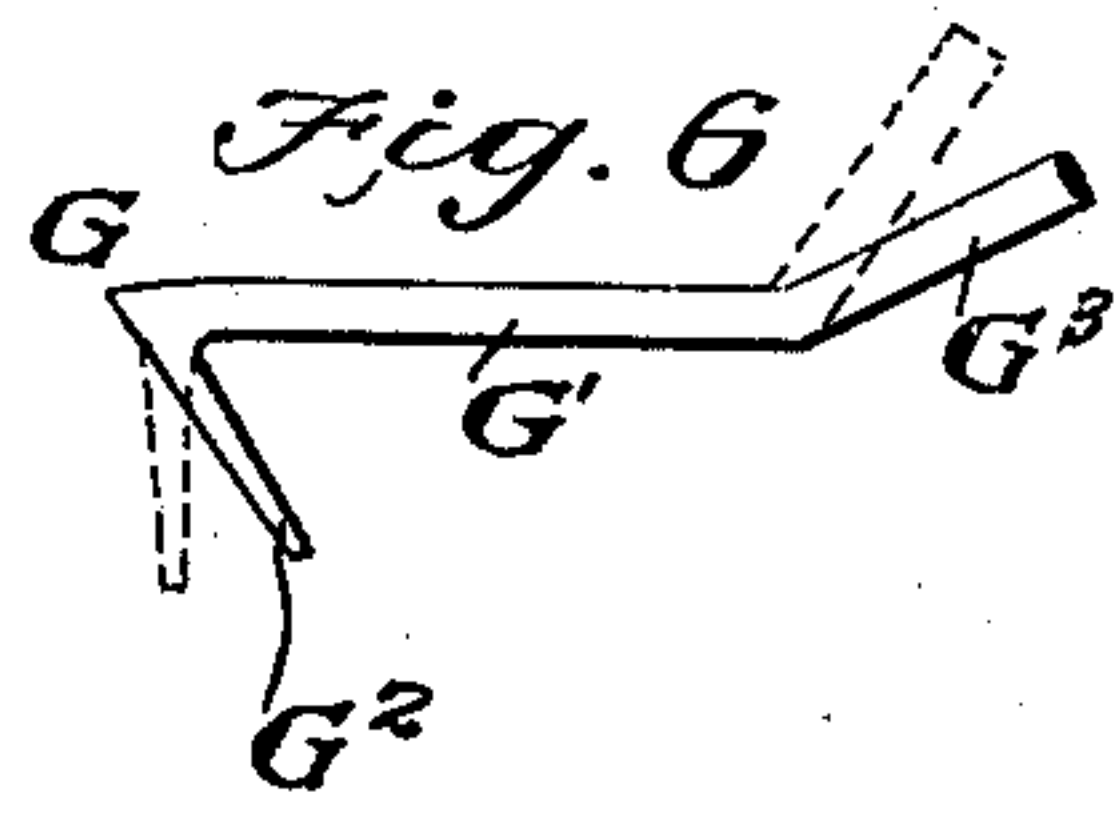
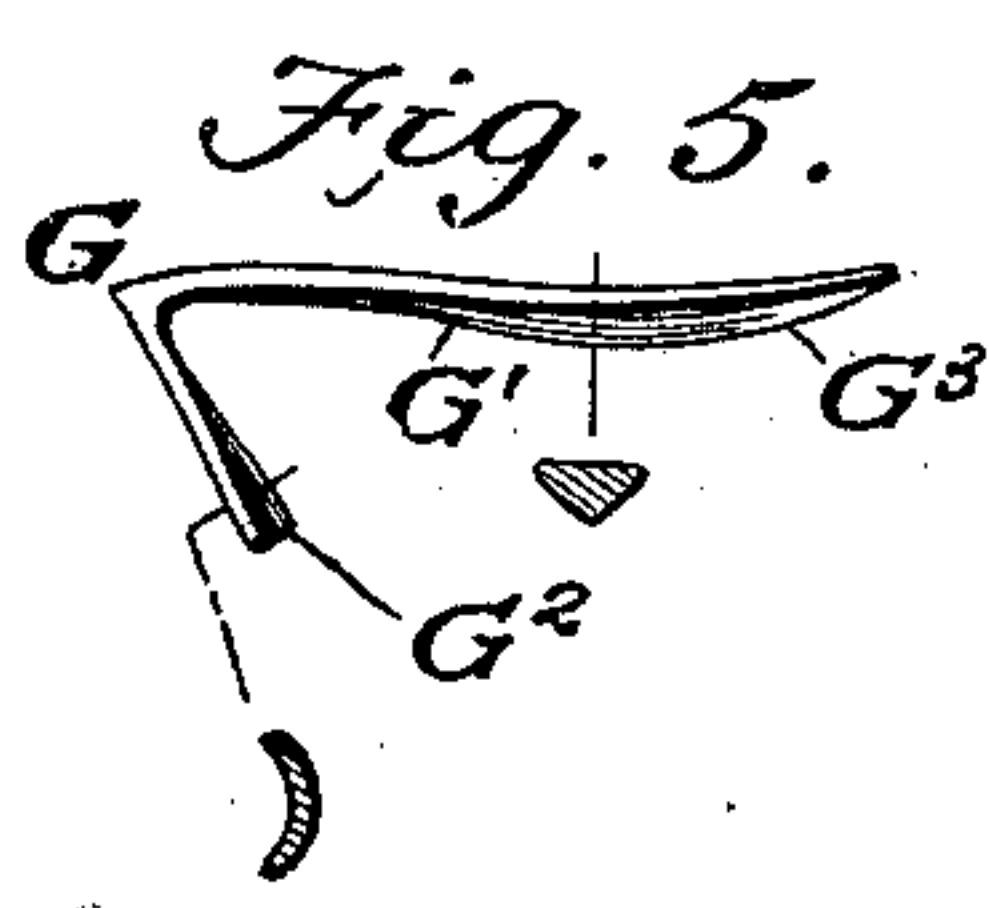
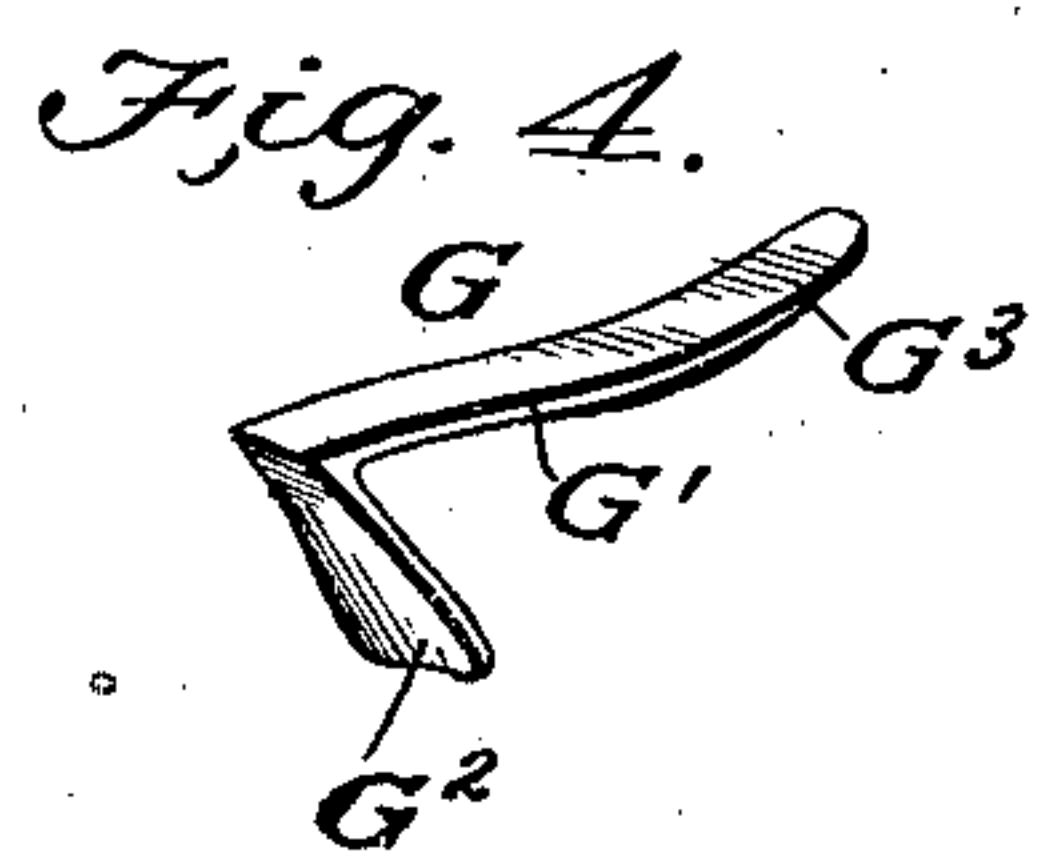
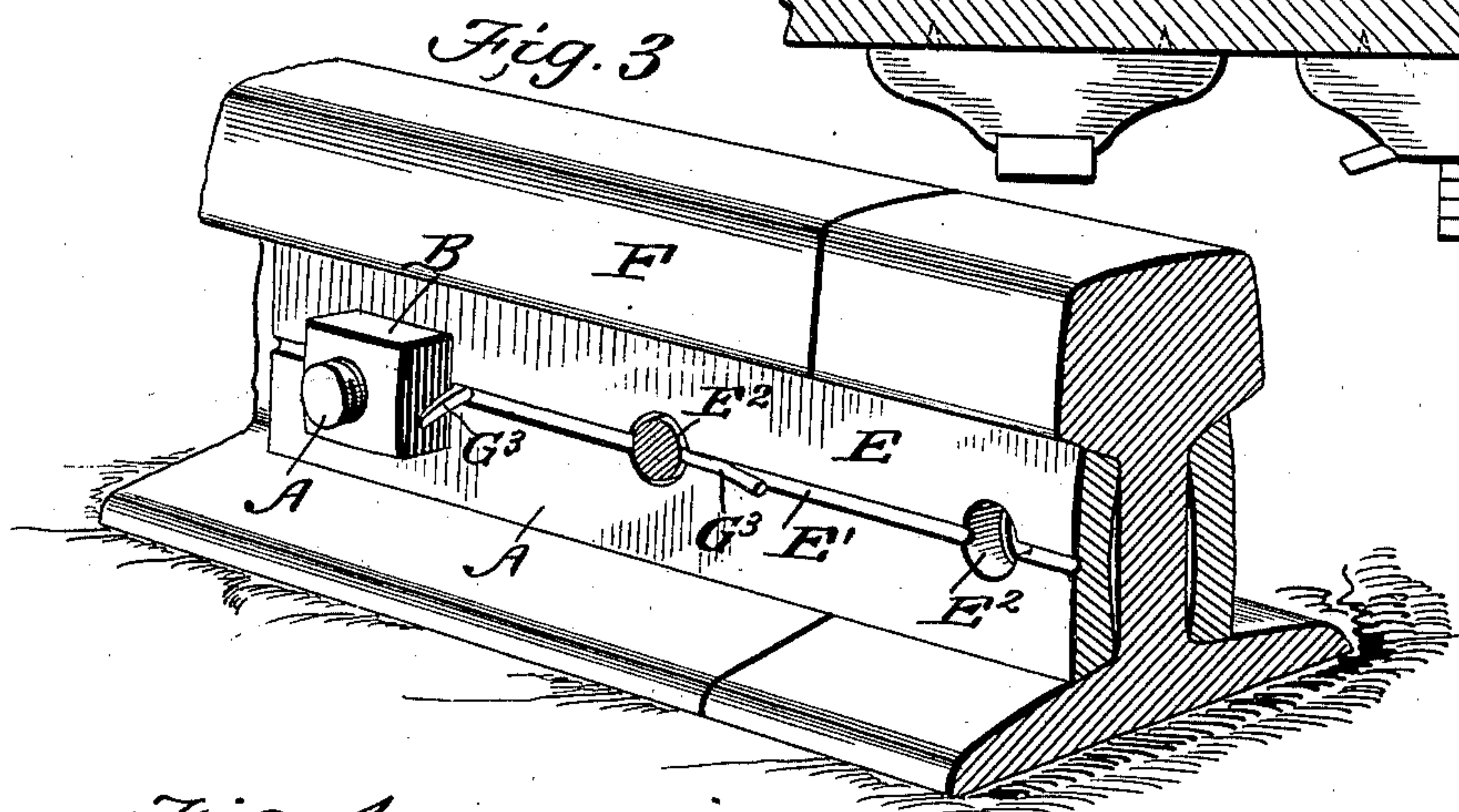
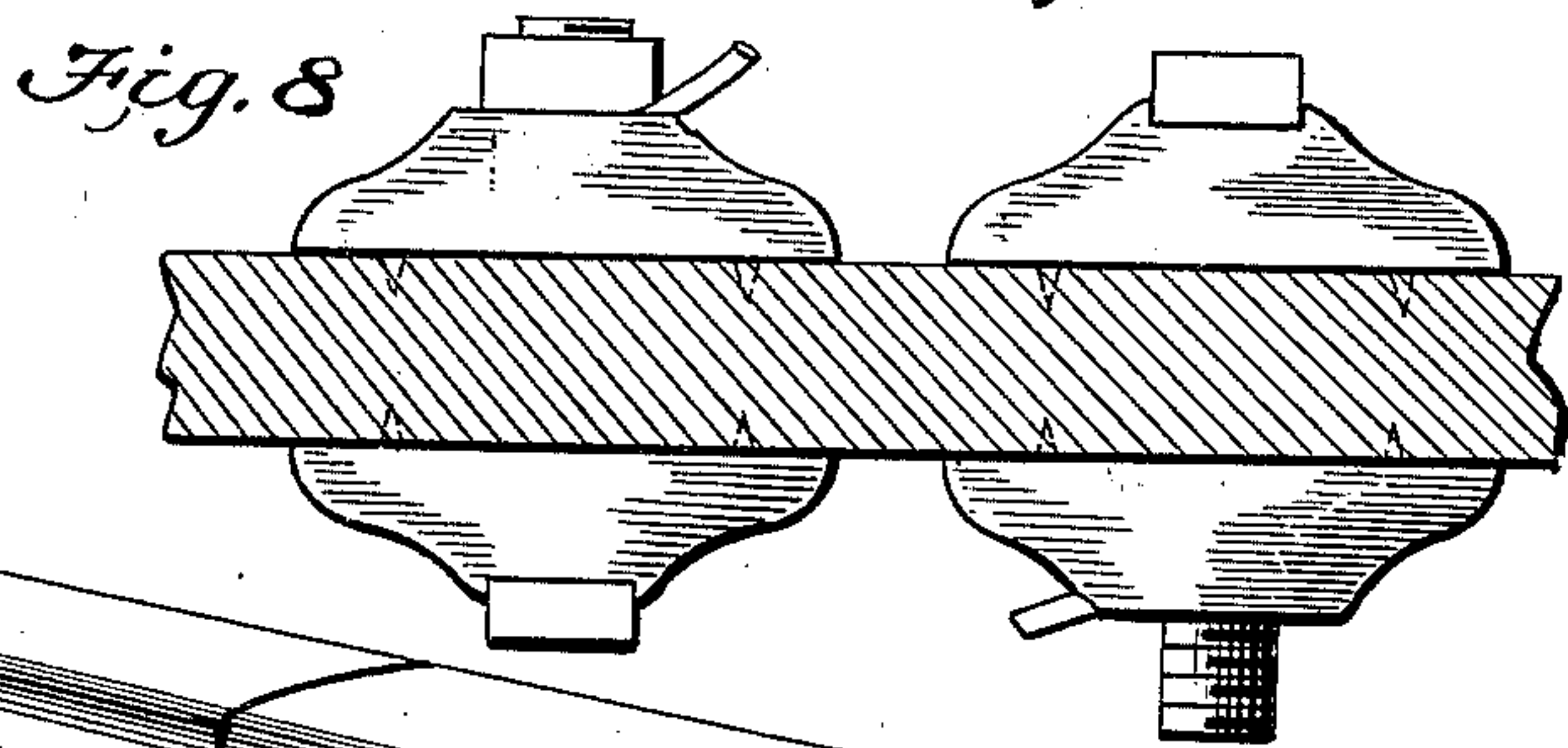
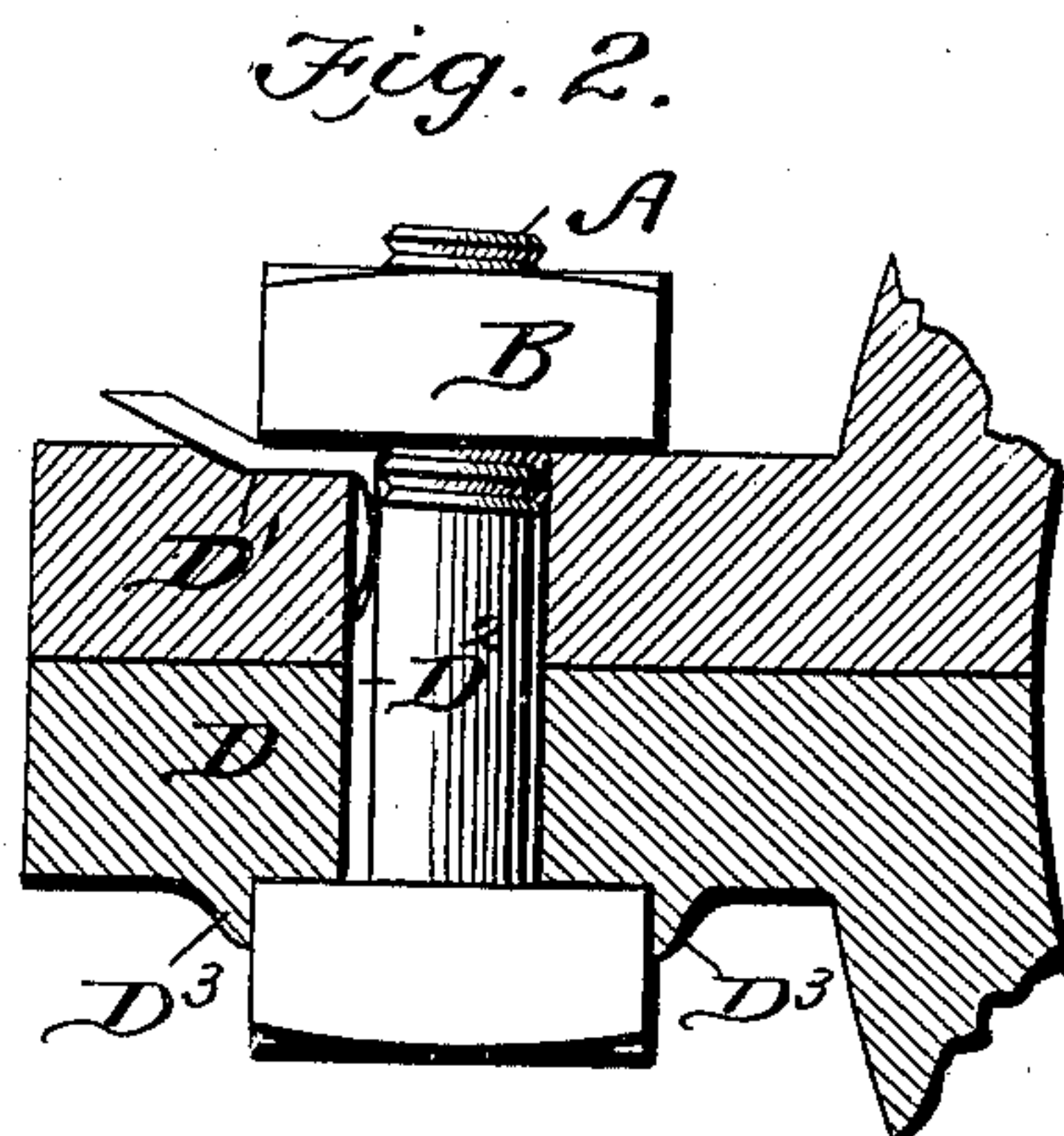
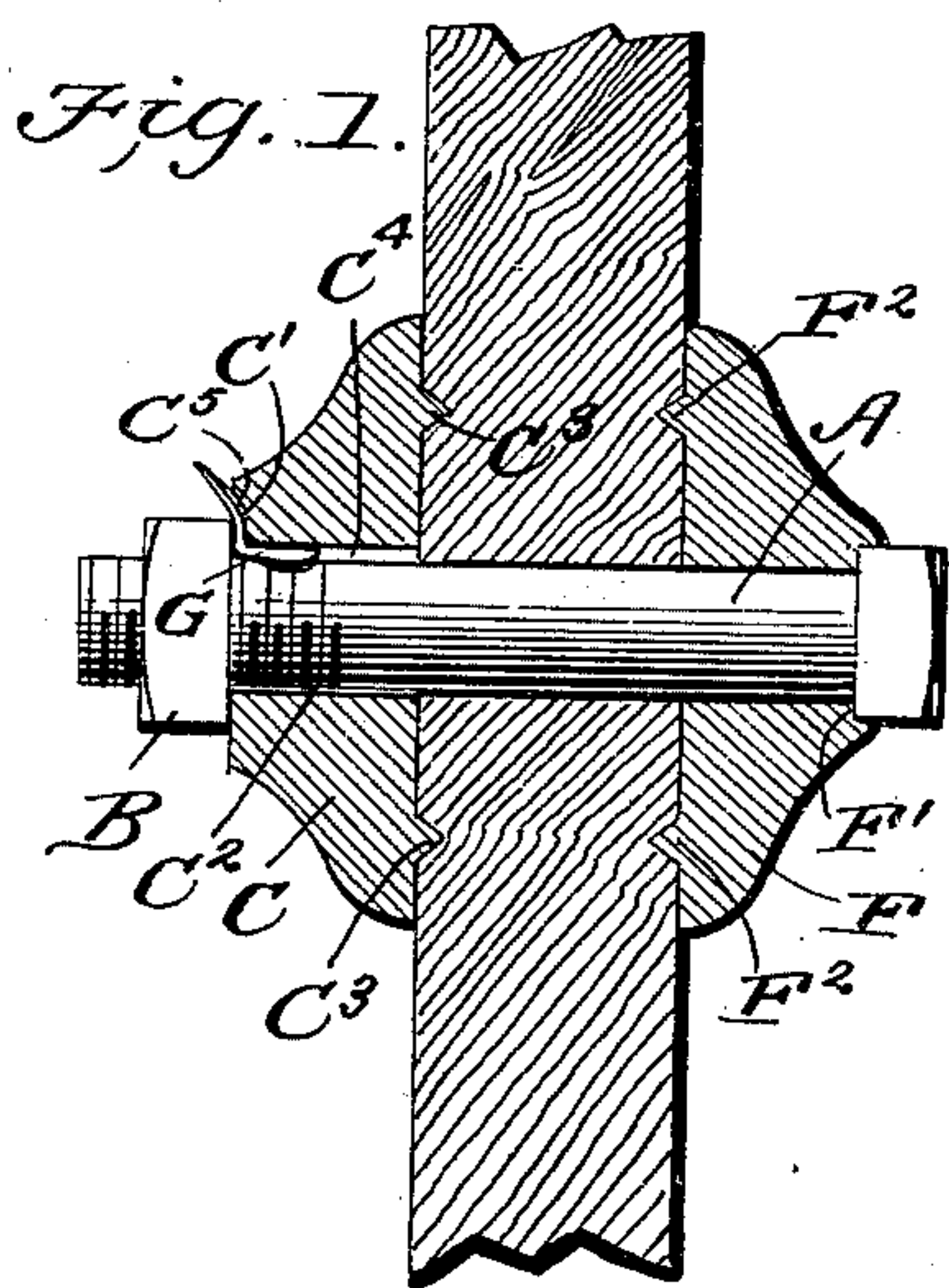
Patented Apr. 30, 1901.

W. A. HANVEY & C. WEST.

NUT LOCK.

(Application filed Feb. 5, 1901.)

(No Model.)



WITNESSES;

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UNITED STATES PATENT OFFICE.

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NUT-LOCK.

SPECIFICATION forming part of Letters Patent No. 673,257, dated April 30, 1901.

Application filed February 5, 1901. Serial No. 46,058. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM A. HANVEY and CHARLES WEST, citizens of the United States, residing at Big Rapids, in the county of Mecosta and State of Michigan, have made certain new and useful Improvements in Nut-Locks, of which the following is a specification.

This invention is an improvement in nutlocks, and particularly in that class of such devices in which a locking-pin is held at one end in the bolt-hole and is arranged at its other end to be bent alongside the nut, or it may be the bolt-head, if desired, for the purpose of locking such part from turning; and the present invention consists in the special construction of the locking device and in the combination of the several parts, as will be hereinafter described and claimed.

In the drawings, Figure 1 is a sectional view representing the invention in use in connection with the wooden framework. Fig. 2 is a similar view representing the invention embodied in connection with a metallic frame. Fig. 3 shows the invention in connection with a rail-joint. Fig. 4 is a detail perspective view of the locking device. Fig. 5 is a side view of the locking device or pin ready for use. Fig. 6 is a side view of the locking device, showing the same in full lines ready for use and in dotted lines bent as when applied to the abutment and set to lock the nut. Fig. 7 represents a double form of lock, which may be preferred in some instances; and Fig. 8 illustrates the application of the locking-pin to both the upper and lower ends of the bolts.

The bolt A and nut B may be of the ordinary construction, the nut being turned up against the abutment, which may be a cast washer C, as shown in Fig. 1, a portion D of a metallic box, as shown in Fig. 2, or a fish-plate E, applied to a rail F, as shown in Fig. 3, it being understood that the invention is not confined in its use to any special application, but is capable of embodiment in all kinds of machinery and to be used on wood or metal, as will be more fully described.

The abutment is provided with a groove C', D', or E', leading from the bolt-hole C², D², and E², to receive the body portion of the locking device presently described, and preferably such groove extends from diametrically

opposite sides of the bolt-hole, as shown in Fig. 3. The bolt A may be held from turning in any suitable manner. In Fig. 2 we show the head of the bolt seated between lugs D³, while in Fig. 1 the head of the bolt is seated in a recess F' of a washer F, which is provided with spurs F² to bite into the wooden framework and lock the washer from turning. In the construction shown in Fig. 1 the abutment C, in the form of a washer, has spurs C³ to bite into the wooden framework, and the bolt-hole C² is large enough to receive the spring tongue or point of the locking device G, as shown at C⁴. It is generally known that bolt-holes in standard rail and track constructions are made usually from one-eighth to one-fourth of an inch larger than the bolt designed for use in such hole. This leaves ample room for the introduction of the improved locking device. From the foregoing it will be understood that our invention is capable of a general application in connection with abutments having grooves leading from the bolt-hole, and it does not appear necessary to describe in detail all the different ways in which the invention may be used. Referring, however, to the construction shown in Fig. 1, it will be noticed that the abutment C has its bolt-hole sufficiently large at C⁴ to receive the spring-tongue of the locking device, and the groove or seat C' in the face of such abutment opens at one end into the enlarged portion of the bolt-hole and leads thence laterally outward and is inclined upwardly at its outer end at C⁵ to the face of the abutment. This upward inclination at C⁵ is desirable, because it holds the upturned outer end of the locking device when the same is applied to the abutment previous to adjusting it into position to lock the nut, and it also forms a stop for such portion when the locking-pin is bent back to release the nut and avoids any abrupt angle which would tend to break the pin and prevent its reuse in case it should be desired to simply release the nut and turn it up to take up slack and then relock it.

The locking-pin G is of a special form, being composed of a short length of metal having a body portion G', adapted to fit in the groove or seat in the outer face of the abutment and provided at one end with a spring point or tongue G², which is bent slightly un-

der the body portion G' and stands normally at an acute angle to such body portion, as shown in the detail views of the said locking device. At the opposite end of the body portion G' from the spring-point G^2 we form an upturned portion or head G^3 , which stands normally at an obtuse angle to the body portion G' and is inclined upwardly corresponding to the incline of C^5 at the outer end of the groove or seat C' .

In the operation of the device when the bolt is applied and before the nut has been turned thereon against the abutment the locking device is applied by pressing the spring-point G^2 alongside the bolt. When this is done, the spring point or tongue G^2 will be bent from its normal position, so that it will bind with a tension at its free end against the wall of the bolt-hole and at its end where it joins the body portion G' against the bolt-thread in such manner as to secure the locking-pin and cast washer also in place while the nut is being turned home, particularly on the side or overhead framework, in such manner as to secure the locking-pin in place while the nut is being turned home. This is an important feature, as it avoids the necessity of holding the locking device in place until the nut is turned home and leaves the operator free to manipulate the nut as desired. When the nut is turned home, it is only necessary to bend the head G^3 slightly upward toward the side of the nut, which may be effected with the point of a wrench or other implement. It should be understood that it is not necessary to bend the head G^3 up flat against the side of the nut; but it is desirable to set such head when adjusted to lock the nut clear of the side of the nut, so the point of a wrench or other implement may be readily inserted between the said head and the nut when it is desired to release the nut.

From the foregoing it will be understood that the invention provides a locking device which can be cheaply made, easily applied, readily adjusted to lock and release the nut, and can be used in connection with any form of abutment for the nut.

It may sometimes happen that the nut when turned home will present a corner or angle in line with the head G^3 of the locking device in such manner as to render the locking of the nut inconvenient or difficult, and it may be desirable in some instances to employ the double form of lock which we show in detail in Fig. 7. In this lock, as in that shown in Figs. 5 and 6, a locking device H is formed with a spring point or tongue H^2 , from which lead body portions H' , which diverge and are provided at their outer ends with heads or portions H^3 to be bent up alongside the nut. In the use of this form of locking device it is apparent that if one of the heads H^3 is in line with a corner or angle of the nut the other head will be in position for adjustment alongside a face of the nut to lock the same. This form of double lock also

enables us to lock the nut at any point and take up any slack there may be when the nut is turned home.

It will be noticed that the locking device shown in Figs. 5 and 6, as well as that shown in Fig. 7, has the spring-tongue reduced gradually to a point at its free end, so it may be conveniently inserted into the bolt-hole alongside the bolt. If a bolt comes into a round hole fair, it will admit the thin arm of the lock on either side of the bolt, and if it comes into the hole crooked it will leave larger space on one side than the other. It allows the large oval hole to be reduced in size to a round hole in rail-joint straps.

It will be understood that in practice the locking device may be made from round, oval, or other shaped wire.

It is preferred in practice to incline the outer end of the groove or seat in the abutment upwardly to the face thereof and also to form the outer end of the body portion of the locking device with an upturned portion, so it will stand normally above the face of the abutment in convenient position for operation by the wrench-handle or other implement.

The lock-nut is not intended to be made for any particular place, but will operate to lock every nut, and bolt also, on railroad bridges, cars, and every kind of castings and machinery, wood or iron alike, that is provided with a groove to suit the lock.

It should be understood that on all stationary or immovable abutments a groove is required leading from opposite sides of the bolt-hole, so the locking-pin can be inserted in one side or the other, while in the case of movable washers or other movable abutments the groove need only be provided at one side of the abutment. In overhead work the locking-pin secures itself and the washer on the bolt until the nut is screwed up, which is of great importance in railroad bridge, car, and wood framework.

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

1. A nut and bolt lock comprising a length of metal having a body or locking portion, and a spring point or tongue at one end thereof and standing normally at an acute angle to said body portion and approximating a right angle, and an upturned portion at the opposite end of the body portion, substantially as set forth

2. A nut and bolt lock comprising a length of metal having a body or locking portion arranged to extend in use along the face of the abutment, and a point or tongue at one end thereof, and standing normally at an acute angle to the said body portion whereby it will operate when pressed into a bolt-hole alongside the bolt to secure the device in place while the nut is being turned home, substantially as set forth.

3. The combination of the abutment hav-

ing a bolt-hole and a seat in its outer face leading to said bolt-hole, and the nut-locking device having a body or locking portion arranged at one end to be bent to lock the nut and its other end provided with a tongue standing normally at an acute angle to the body portion, the said portion engaging the seat of the abutment, substantially as set forth.

4. The combination of the bolt, the nut, the abutment provided with a bolt-hole and having in its face a seat leading from the bolt-hole, and the locking device consisting of a length of metal having a body or locking portion fitting in the seat of the abutment, and a spring-tongue at one end of said body portion to fit in the bolt-hole alongside the said bolt, the said tongue normally standing at an acute angle to the body portion and the opposite end of the body portion being bent upward whereby it will project from the seat in the abutment to facilitate the adjustment of said head to locking position, substantially as set forth.

5. The improvement in nut and bolt locks consisting of the bolt, the abutment having a bolt-hole and seat in its face leading from said bolt-hole and inclined upwardly at its outer end, the locking device having a body or locking portion engaging said seat and having its outer end upturned and coinciding with the inclined outer end of the seat and the spring-tongue at the inner end of the body portion, such tongue standing normally at an acute angle to the body portion and be-

ing reduced in thickness toward its point and adapted to fit in the bolt-hole alongside the bolt, substantially as set forth.

6. A nut and bolt locking device having a spring-tongue in the form of a bow and provided with a body or locking portion arranged to extend in use along the face of the abutment, the spring-tongue being arranged at an acute angle to the said body portion, substantially as set forth.

7. A nut and bolt locking device comprising a strip of metal provided with a body or locking portion and with a spring-tongue which extends normally at an acute angle to the body or locking portion and is gradually reduced in thickness as it departs from the body or locking portion the said body or locking portion being arranged to extend along the face of the abutment and adapted to be bent into position to lock the bolt, substantially as set forth.

8. A nut-lock comprising an abutment having a bolt-hole and provided in its face with a seat leading from said bolt-hole and the locking-pin having a spring-tongue to extend in the bolt-hole and also provided with a body or locking portion to fit in the seat of the abutment substantially as set forth.

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Witnesses:

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