

No. 791,521.

PATENTED JUNE 6, 1905.

H. S. WATERMAN.

SPIKE LOCK.

APPLICATION FILED APR. 7, 1905.

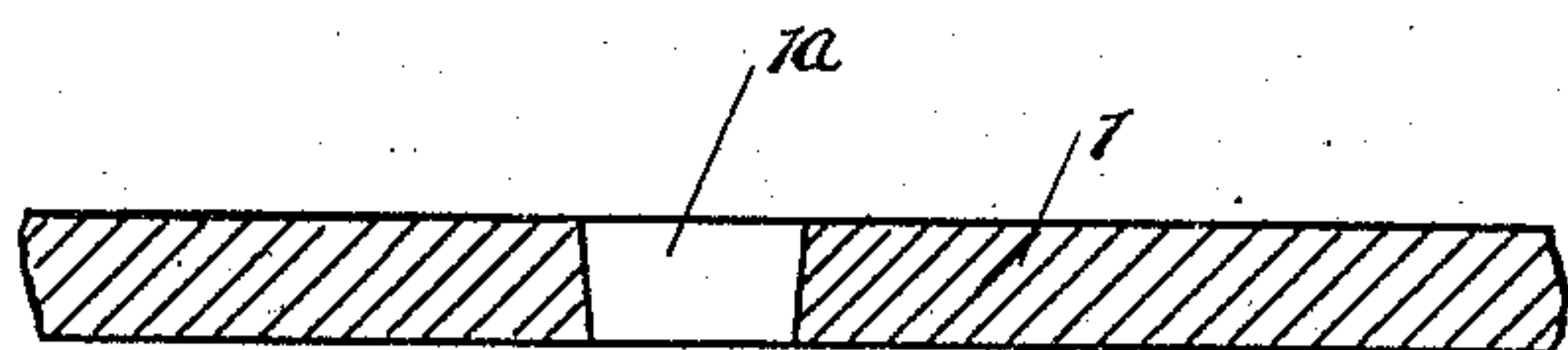


Fig. 1.

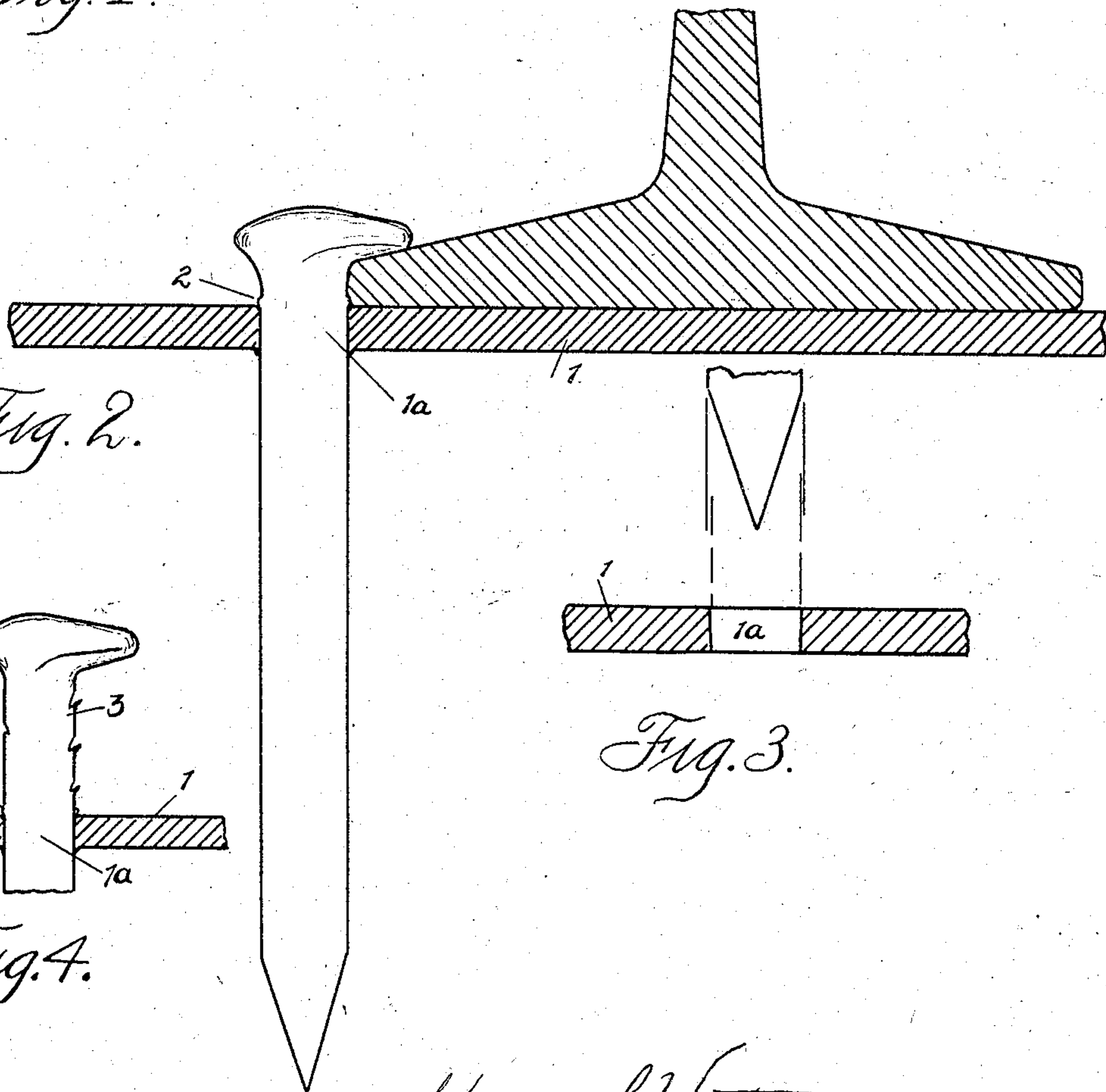


Fig. 2.

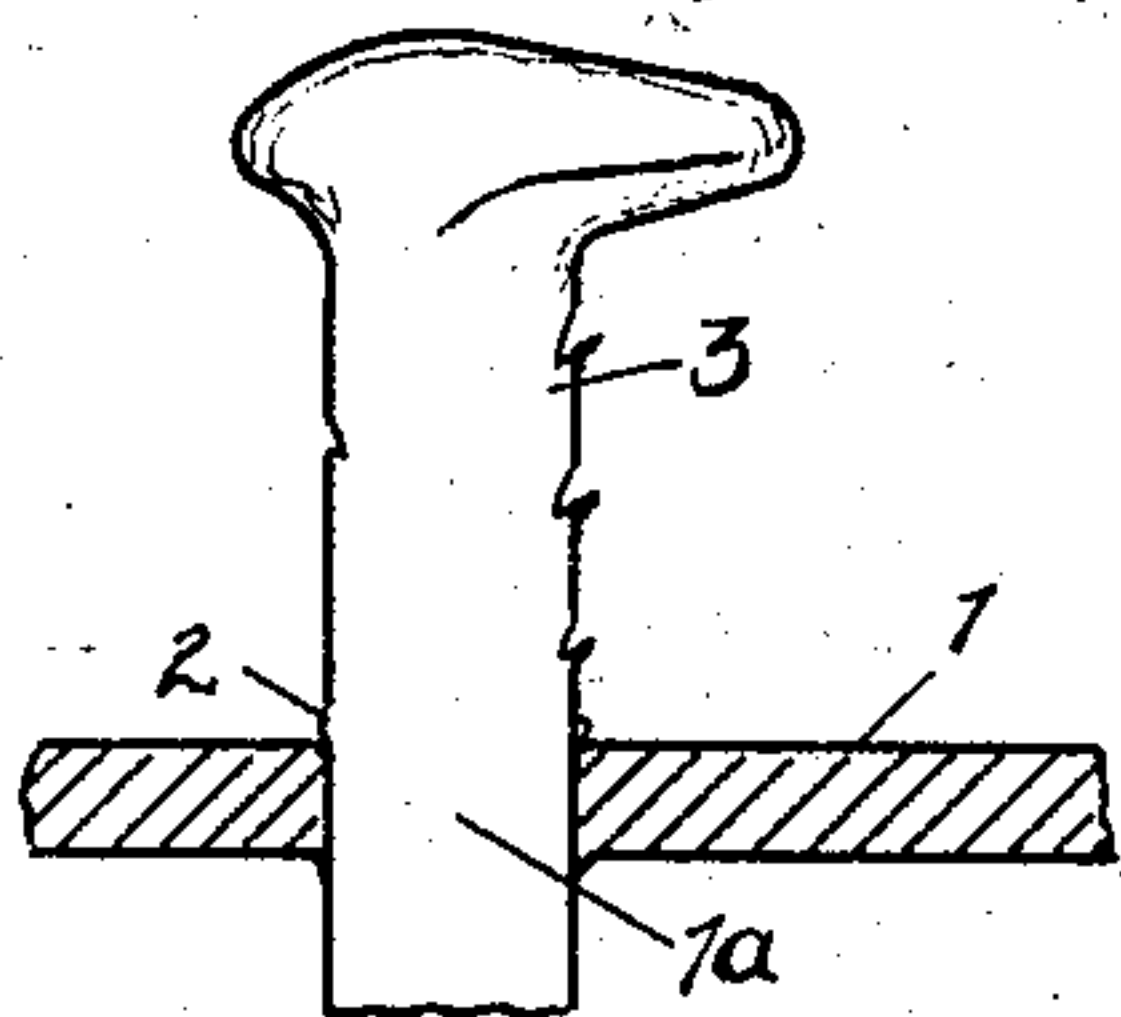


Fig. 4.

Fig. 3.

WITNESSES:

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HARRY S. WATERMAN, OF EAST TAWAS, MICHIGAN.

SPIKE-LOCK.

SPECIFICATION forming part of Letters Patent No. 791,521, dated June 6, 1905.

Application filed April 7, 1905. Serial No. 254,392.

To all whom it may concern:

Be it known that I, HARRY S. WATERMAN, a citizen of the United States, residing at East Tawas, in the county of Iosco and State of Michigan, have invented certain new and useful Improvements in Spike-Locks; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to rail-fastening devices, and pertains more particularly to devices for holding the rail down upon the tie-plate to prevent undue vibration or relative movement of the rail-flange and the spike.

The means consist in the devices illustrated in the accompanying drawings and the equivalents thereof.

In the drawings, Figure 1 represents a tie-plate provided with a preferred form of spike-hole. Fig. 2 is a sectional elevation of the spike, tie-plate, and rail-flange in place. Fig. 3 is a sectional detail showing a modified form of hole in the tie-plate, and Fig. 4 is a similar detail showing a spike provided with projections to facilitate its engagement with the tie-plate.

As is well-known, it is customary in modern railway practice to insert between the rail and tie a steel tie-plate in which holes are provided for the insertion of the spikes. These holes are usually made somewhat larger than the spike, the ordinary spike being about nine-sixteenths of an inch square. The spike can then be driven freely through the hole in the tie-plate, in which case its holding power depends solely upon the resistance of the fibers of the tie acting against the faces of the spike.

It is the purpose of this invention to provide in a tie-plate spike-locking means whereby the spike will in the act of driving be firmly gripped by the tie-plate and when fully driven will be held down upon the rail-flange, thus holding the flange, spike, and tie-plate together and preventing relative movement between the spike and the rail-flange, as above noted. I attain this result without the use of any extra fastenings or appliances,

utilizing for the purpose of locking the parts together only the spike and any form of tie-plate. I attain this object by providing a tie-plate 1 with a hole 1^a slightly smaller in at least one direction than the spike which is to be driven into it. This hole may be of any suitable shape, it being only necessary that in the act of driving the spike shall engage with powerful frictional resistance some part of that portion of the plate around the hole 1^a.

In Fig. 2 I have illustrated the manner in which the spike and tie-plate operate in practice. The comparatively rough surface of the spike as it is driven through the hole wipes down a thin layer of metal forming the edges of the hole in the tie-plate, and in so doing wipes up a similar part of the metal of the spike, as indicated at 2 in Fig. 2, the drawing being exaggerated to better show the effect. The result of driving the spike is that the metal around the edge of the hole and the metal of the spike in contact therewith are put under strain and brought into most intimate contact, so that a powerful resistance is set up against any tendency to withdraw the spike.

In the particular adaptation of this construction to a railway-tie plate and railway-spike I am enabled to firmly lock the tie-plate and spike. I have thereby attained an important improvement in the art of track construction and have effected great saving in the cost of track maintenance and added great safety to the track.

In Fig. 4 I have illustrated a modified form of spike provided near its top with serrations or projections 3, which may be formed by cutting into the face of the spike with a cold-chisel or any other suitable tool or by stamping or drop-forging. The office of the projections 3 is to provide on the faces of the spike near its upper end slight projections which are disturbed by driving, thereby tending to jam the spike in the plate-opening when withdrawal of the spike is attempted.

I have shown in Fig. 3 a parallel-sided opening and in Fig. 1 a tapered opening, either of which may be successfully used in connection with this invention.

What I claim as my invention, and desire to secure by Letters Patent, is as follows:

1. In a spike-lock the combination with a spike of a tie-plate provided with an opening
5 slightly smaller in at least one direction than the cross-section of the spike.
2. In a spike-lock the combination with a spike of a tie-plate having a tapered opening
10 slightly smaller in at least one direction than the cross-section of the spike for the purpose set forth.
3. In a spike-lock the combination of a spike having projections near its head; to-
15 gether with a tie-plate provided with an open-

ing slightly smaller in at least one direction 15 than the cross-section of the spike.

4. In a spike-lock the combination with a spike of a tie-plate provided with an opening
20 slightly smaller in at least one direction than said spike and adapted by frictional contact to engage said spike when the spike is driven.

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

HARRY S. WATERMAN.

Witnesses:

J. R. MANSFIELD,
H. F. TIEDKE.