

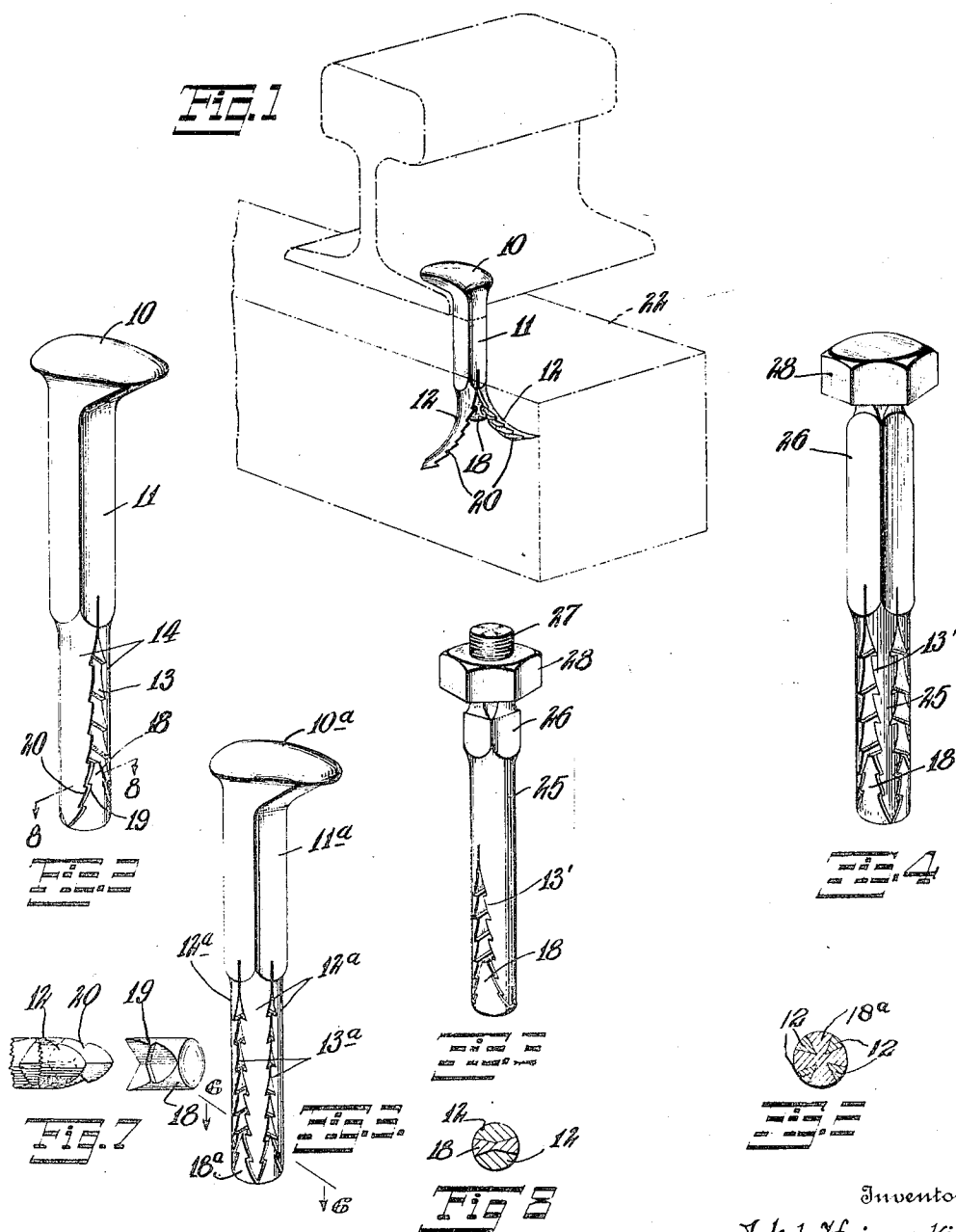
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J. HOJNOWSKI

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EXPANSIBLE SPIKE OR BOLT

Filed April 18, 1922



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UNITED STATES PATENT OFFICE.

JAKOB HOJNOWSKI, OR NEKOOSA, WISCONSIN.

EXPANSIBLE SPIKE OR BOLT.

Application filed April 18, 1922. Serial No. 554,659.

To all whom it may concern:

Be it known that I, JAKOB HOJNOWSKI, citizen of Poland, residing at Nekoosa, in the county of Wood and State of Wisconsin, have invented certain new and useful Improvements in Expansible Spikes or Bolts, of which the following is a specification.

This invention relates to an expansible fastener such as a spike or bolt adapted for use in securing railway ties, beams, flooring, or the like.

The invention has for a general object to provide an improved form of expansible spike, the present invention being a development of the one disclosed by me in a previous patent application filed by me on June 22, 1921, under Serial Number 479,466.

Specifically speaking, the invention may be said to have for its object the provision of an improved form of expansion causing element.

For further comprehension of the invention, and of the objects and advantages thereof, reference will be had to the following description and accompanying drawings, and to the appended claims in which the various novel features of the invention are more particularly set forth.

Fig. 1 of the drawings is a perspective view showing my improved spike as applied to a railroad track rail to secure the latter to the tie or sleeper.

Fig. 2 is a perspective view of the spike as it appears before insertion.

Fig. 3 is a perspective view showing the invention as embodied in an anchor bolt.

Fig. 4 is a similar view showing the invention embodied in a slightly different form of anchor bolt.

Fig. 5 is a perspective view of a spike having a modified arrangement of the expansion members.

Fig. 6 is a transverse sectional view of the form of spike illustrated in Fig. 5 and taken at the point indicated by the line 6—6 on Fig. 5.

Fig. 7 is a fragmentary perspective view showing the expansion wedge and the forked spike and with which the latter engages, these parts being shown as axially separated.

Fig. 8 is a transverse sectional view of the form of spike illustrated in Fig. 2 and taken at the point indicated by the line 8—8 on Fig. 2.

In the embodiment of the invention as shown in Fig. 1 I show a railway spike hav-

ing a head 10 and a shank comprising an upper square portion 11 and a lower circular portion. This lower portion is bifurcated by a slot 13, forming the entering end of the spike into a pair of prongs 14. The walls of the slot 13, considered in general terms, diverge very slightly throughout the major portion of the length of the slot but flare sharply away from one another adjacent the end of the spike to provide suitable wedge-like entering ends on the prongs.

The prong expanding, or expansion causing element of the spike comprises a wedge-shaped plug 18 which is normally carried by the spike between the prong ends. This plug 18, as seen in end view, corresponds in shape to the spike end while the tapered sides thereof are arranged so as to fit snugly in the slot 13. To hold the plug against displacement from the spike under ordinary conditions of handling the contacting tapered faces of the plug and slot walls have a particular configuration or conformation designed to that end. For the purpose, first, of preventing axial displacement of the plug 18 the faces of the latter are formed with the ratchet like notches or serrations which interlock with complementary formations 20 on the walls of the slot 13, while for the purpose of preventing transverse displacement of the plug through the sides of the slot 13 the said faces of the plug 18 are given a general concave formation from side to side thereof, the contacting walls of the slot being given a complementary convex formation. This concave formation of the faces of the block is here obtained by forming in them obtuse-angled V-grooves as indicated in Figs. 7 and 8. In addition to holding the plug against displacement the ratchet formations on the walls of the slot 13 also provide gripping teeth engaging the material into which the prongs are expanded so as to more securely hold the spike against withdrawal and for this reason the ratchet teeth on the slot walls are extended throughout the length of the latter. The transverse formation of the inner faces of the prongs, as above described, is also serviceable in increasing the facility with which the prongs enter the material.

The plug 18 may be sprung into place at any time subsequent to the manufacture of the spike itself as will be understood. In

the use of the spike a hole of the desired depth is first bored in the material such as the railway tie 22, into which the spike is to be engaged and the spike inserted in said hole. As will be apparent, when the end of the plug 18 engages the bottom of the hole a resistance to further inward movement results, and when the spike is hammered down to engage its head with the rail 23 the prongs 14 are spread laterally into the material by the plug, thus securely holding the spike in place.

In the modifications shown in Figs. 3 and 4 I illustrate the application of the invention to an anchoring bolt such as is used in securing parts to concrete, brick or stone walls. In this arrangement the bolt comprises a shank 25 having a square neck 26 with which the part to be secured may engage the bolt having a short outer screw threaded portion 27 on which a nut 28 is screwed. The shank is formed with a slot 13', similar to the slot 13 and in which the plug 18 is positioned. As indicated by a comparison of Figs. 3 and 4 the squared portion 26 of the anchor bolt may be of any length suitable for the use to which it is to be put and may have any number of prongs.

In Fig. 5 I have shown a construction

comprising a spike having a head 10^a and square body 11^a from which project four prongs 12^a formed by cutting two slots 13^a in the spike at right angles to one another, a plug 18^a having four wings being entered in the lower ends of these slots, the plug locking in position against axial displacement by the ratchet means above described. Having thus described my invention what I claim as new and desire to protect by Letters Patent of the United States is as follows:

1. An expansible fastener having a slot formed in its entering end, a wedge in said slot, and interlocking elements on said wedge and the walls of the slot holding said wedge in said slot, against outward displacement both axially and transversely.

2. An expansible fastener having its entering end bifurcated to form a pair of prongs, a wedge-plug located between the ends of said prongs, the contacting faces of said plug and prongs being of relative concave and convex formation considered transversely of the fastener, and having complementary ratchet-like formations thereon.

In testimony whereof I have affixed my signature.

JAKOB HOJNOWSKI.