

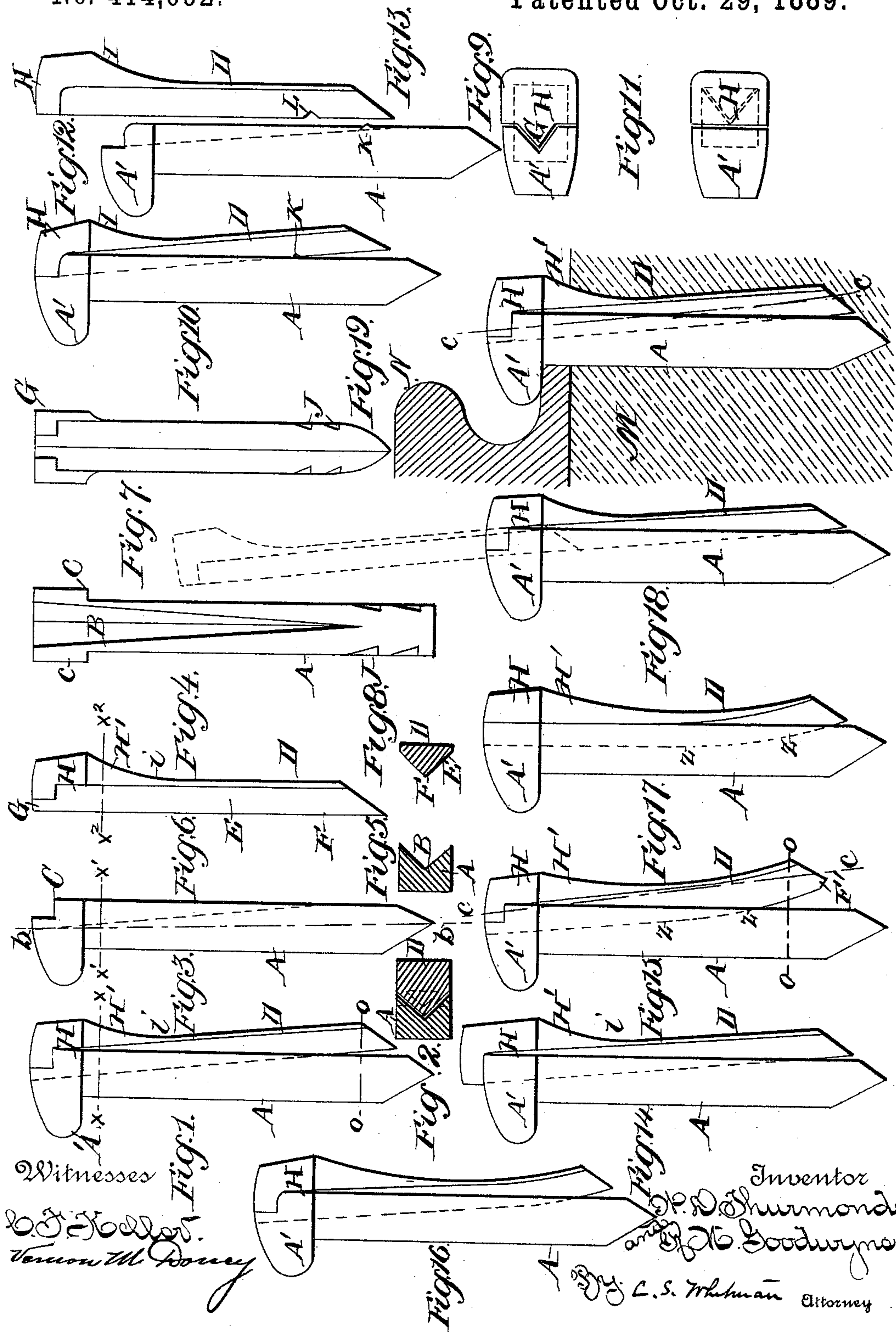
(No Model.)

W. D. THURMOND & R. M. GOODWYNE.

RAILROAD SPIKE.

No. 414,092.

Patented Oct. 29, 1889.





# UNITED STATES PATENT OFFICE.

WILLIAM DAVID THURMOND AND ROBERT MILTON GOODWYNE, OF FOR-  
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## RAILROAD-SPIKE.

SPECIFICATION forming part of Letters Patent No. 414,092, dated October 29, 1889.

Application filed January 31, 1889. Serial No. 298,257. (No model.)

*To all whom it may concern:*

Be it known that we, WILLIAM DAVID THURMOND and ROBERT MILTON GOODWYNE, citizens of the United States, residing at Forsyth, in the county of Monroe and State of Georgia, have invented a new and useful Spike or Nail, of which the following is a specification.

Our invention relates to certain new and useful improvements in spikes or nails, having for its object to provide a simple and efficient means for securing the nail or spike in place and preventing its withdrawal; and to this end it consists in forming a groove in one of the sides of the nail and inserting therein a key, which, as it is driven farther along the groove, rises therefrom, thus causing the nail and key to assume the shape of a wedge, having its base at or near the point of the nail, preventing the withdrawal of the nail without first removing the key, and in details of construction, as will be hereinafter more fully described and claimed.

Referring to the accompanying drawings, in which corresponding parts are designated by similar letters, Figure 1 is a side view of my invention applied to a railroad-spike. Fig. 2 is a cross-section on line  $x x$  thereof. Figs. 3 and 4 are a side and a rear view, respectively, of the nail or spike shown in Fig. 1. Fig. 5 is a cross-section on the line  $x' x'$  of Fig. 3. Figs. 6 and 7 are a side view and a front view, respectively, of the key shown in Fig. 1. Fig. 8 is a cross-section on the line  $x^2 x^2$  of Fig. 6. Fig. 9 is top plan view of Fig. 1. Fig. 10 is a side view of a modified form of Fig. 1. Fig. 11 is a top plan view of Fig. 10. Figs. 12 and 13 are side views, respectively, of the nail and key shown in Fig. 10. Figs. 14, 15, 16, and 17 are side views of other modifications of Fig. 1. Fig. 18 shows in dotted lines a key ready to be driven into place; and Fig. 19 is a side view of our invention, showing the method of using it as a railroad-spike for securing the rail.

As will be seen by referring to the drawings, the device consists of two parts, the main nail or spike A and an auxiliary key D. The main nail or spike A has formed in one of its sides a groove.

In the drawings, which, as has been stated,

illustrate our invention applied to a railroad-spike, the groove B is represented as being formed in the rear side of the nail A—that is, in the side opposite the overhanging head A'. The groove B is preferably of triangular cross-section, being deeper at the top of the spike or main nail A and gradually becoming shallower until its bottom comes on a plane with the side of the main nail at a point above the end thereof. The bottom of the triangular groove B may be either straight, causing a regular shallowing of the groove, as shown in Figs. 1, 3, 10, 12, 14, 18, and 19, or it may be curved, forming the arc of a circle, as shown in Figs. 15, 16, and 17, in either case its bottom forming an angle with the longitudinal axis  $b b$  of the main nail or spike A.

The nail or spike A may have shoulders C formed in its head A', as shown. These shoulders may either extend only a portion of the way to the bottom of the groove B, as shown in Figs. 1, 3, 9, 15, 16, 18, and 19, or they may extend entirely to the base thereof, as shown in Figs. 10, 11, and 12, or they may be dispensed with, as shown in Figs. 14 and 17. The key D is preferably of the cross-section shown in Fig. 8, being of polygonal form, having the sides E forming an apex F, adapted to partially rest within the groove B of the main nail or spike A.

Whatever may be the construction of the main nail or spike, that of the key D agrees with it. If the bottom of the groove B is straight, the apex F of the key is also straight, and if the bottom of the groove is curved the apex is also curved. On the sides E of the key may be constructed ears G, forming a part of the head H of the key. These ears either extend only along a portion of the sides or extend to the apex E, as the shoulders of the corresponding main nail either extend partially or wholly to the bottom of the groove B; or the ears may be dispensed with if the main nail or spike is without shoulders. The head H of the key is joined to the main portion thereof by a swell I, formed by the curved portion  $i$  of the rear side of the key.

Both the main nail and key may be provided with corrugations J upon their sides to



hold them more securely in place and to render their withdrawal more difficult. A lug K may be also formed in the base of the groove B, while a corresponding recess L may be  
5 formed in the apex F of the key, holding the parts together.

In use—say as a railroad-spike—the main nail A is first driven in the tie M, near the rail N, as shown in Fig. 19, and the point of  
10 the key is then inserted in the groove B, the key occupying the position shown in dotted lines in Fig. 18, its axis *c c* and that of the main nail *b b* forming an angle with each other, which relative position they also bear  
15 when the key is driven home. The key is then driven in, and as it penetrates farther it rises more and more out of the ever-shallowing groove until its point is entirely free, and projects beyond the side of the main  
20 nail.

In the drawings several keys are shown projecting different distances from the side of the nail, the construction shown in Fig. 15 affording a greater width at *o o* than that  
25 shown in Fig. 1, &c., and thus rendering it much harder to withdraw the spike and key at the same time, while the curved bottom of the groove and corresponding apex of the key will, at any attempt to withdraw the main  
30 nail first, bite at or about the points *z* of the several figures, and thus hold the parts together independent of the shoulder and ears forming the main nail and key. As the key is driven, the swell I, acting as a wedge  
35 against the tie, causes the nail to cant against the rail and seize it. It is therefore evident that any attempt to pull out the nail and key simultaneously can only be accomplished by tearing a hole in the tie as large  
40 as the base of the wedge formed thereby, and that the main nail cannot be withdrawn before the key is removed, as the shoulders C are under the ears of the key, and, as has been heretofore stated, the parts will bite at the  
45 points *z z*, or will be prevented from moving in relation to each other by the lug K and recess L; but if the key is seized by a prize it may be readily withdrawn, permitting the main nail to be removed in the ordinary man-  
50 ner. It will thus be seen that this device offers immunity from the main nail shaking loose, as in all cases the key must first be drawn, and as in practice this is not subjected

to the jars and strains to which the nail itself is subjected it is free from the danger of  
55 shaking loose.

This device is adapted to use not only as a railroad-spike, but is also adapted to general mechanical use where a secure fastening is required which is free from the danger of  
60 working out of its foundation.

We are aware that Patent No. 12,931, issued May 22, 1855, to John Wygant for improvements in spikes, shows a spike having a shoulder or offset on one of its sides, whereby the  
65 extreme point of a flexible locking-piece, the body or main portion of which is parallel to the spike, is deflected laterally from the latter, and therefore we do not claim such construction; but  
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What we do claim is—

1. A spike or nail consisting of a main nail having a groove in one side thereof and a key partially resting within the groove, the longitudinal axis of the main nail and key being  
75 at an angle with each other, as and for the purpose described.

2. A spike or nail consisting of a main nail having a groove in one side thereof, the bottom of the said groove being at an angle with  
80 the axis of the main nail and of a key partially resting within the said groove, as and for the purpose described.

3. A spike or nail consisting of a main nail having a groove in one side thereof and a key  
85 partially resting within the said groove, the longitudinal axis of the main nail and key being at an angle to each other, the said parts having shoulders and ears respectively formed thereon, as and for the purposes described.  
90

4. A spike or nail consisting of a main nail having a groove in one side thereof and a key partially resting within the said groove, the longitudinal axis of the main nail and the key being at angles to each other, and the said  
95 groove having a lug in the bottom thereof and a corresponding recess in the key, as and for the purpose described.

In testimony whereof we have hereunto set our hands in presence of two witnesses.

WILLIAM DAVID THURMOND.  
ROBERT MILTON GOODWYNE.

Witnesses:

R. G. ANDERSON,  
P. B. MAYNARD.