

W. D. F. JARVIS.  
RAILROAD SPIKE.  
APPLICATION FILED JAN. 13, 1906.

945,543.

Patented Jan. 4, 1910.

Fig. 1. Fig. 2. Fig. 3. Fig. 4.

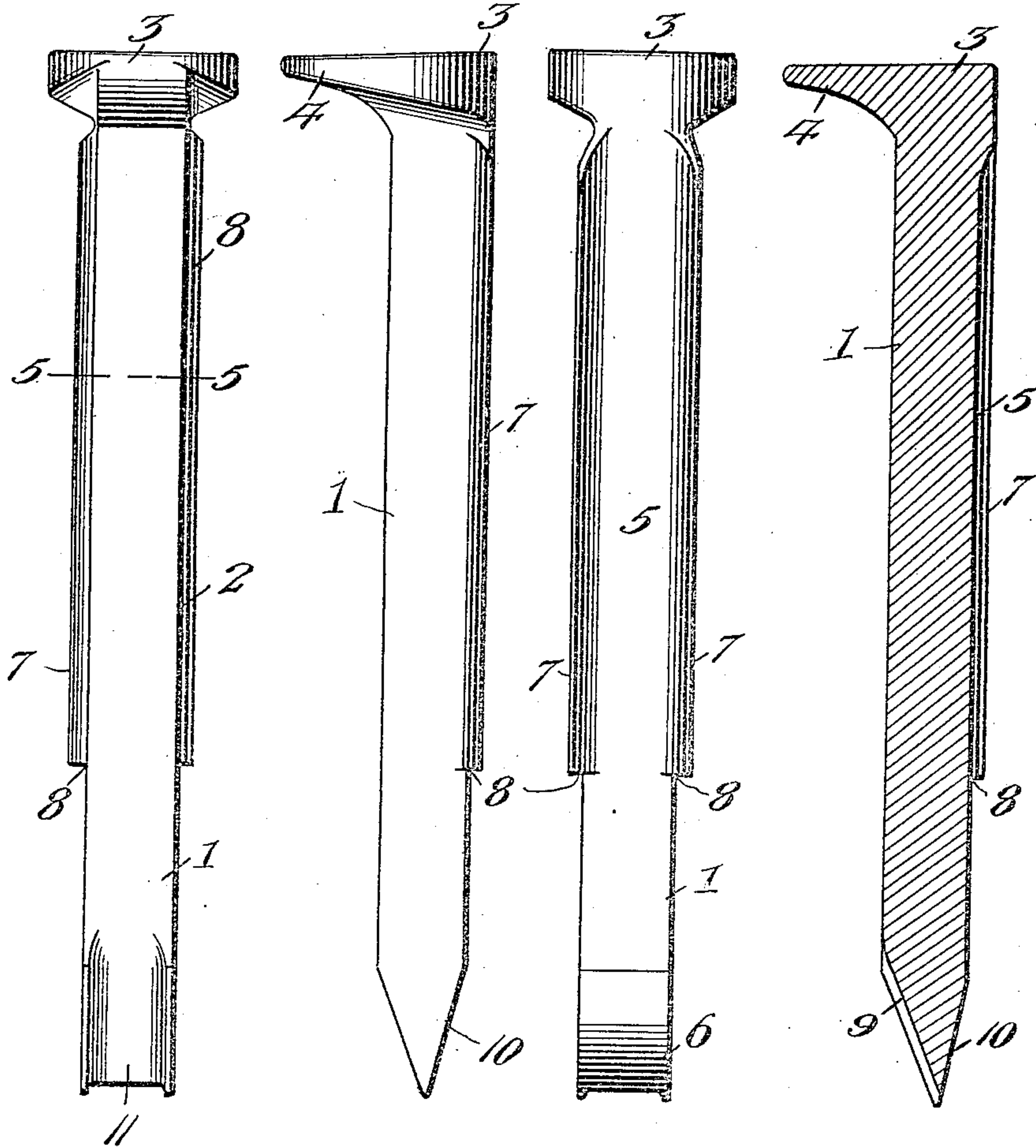
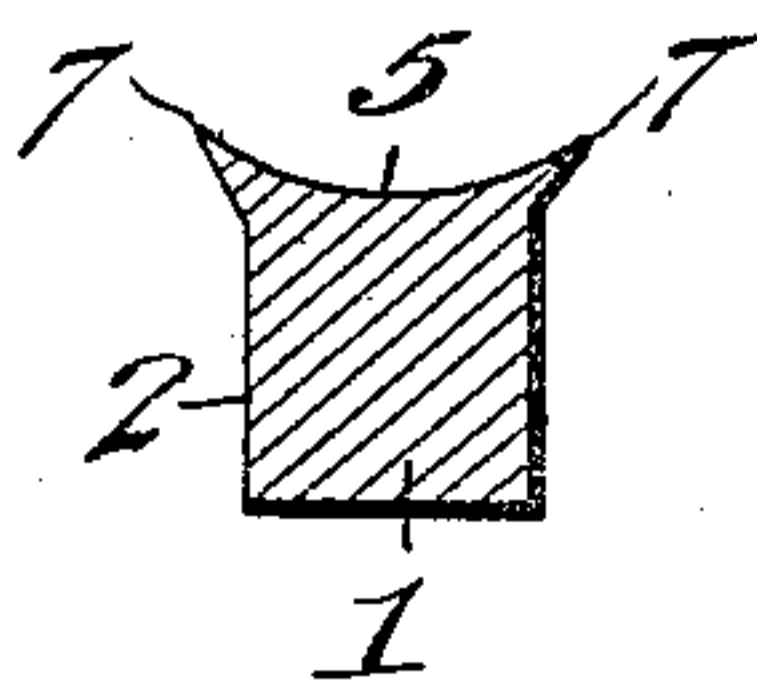


Fig. 5.



Witnesses  
Frank Hough  
H. B. Hoffman

Inventor  
W. D. F. Jarvis.

By Victor J. Evans  
Attorney



# UNITED STATES PATENT OFFICE.

WILLIAM D. F. JARVIS, OF BELINGTON, WEST VIRGINIA, ASSIGNOR OF ONE-HALF TO  
JULES A. VIQUSNEY, OF BELINGTON, WEST VIRGINIA.

## RAILROAD-SPIKE.

945,543.

Specification of Letters Patent.

Patented Jan. 4, 1910.

Application filed January 13, 1906. Serial No. 295,948.

*To all whom it may concern:*

Be it known that I, WILLIAM D. F. JARVIS, a citizen of the United States, residing at Belington, in the county of Barbour and State of West Virginia, have invented new and useful Improvements in Railroad-Spikes, of which the following is a specification.

The invention relates to an improvement in railroad spikes, and particularly to a spike constructed to afford the maximum resistance against movement under pressure when in place.

The main object of the present invention is the production of a spike constructed and arranged to cut a portion of the fibers of the tie and to group the severed ends of said fibers within a concavity of the spike, whereby to provide for the maximum resistance against movement of the spike in a direction away from the rail or in a direction longitudinally of the rail.

The invention will be described in the following specification, reference being had particularly to the accompanying drawings, in which:—

Figure 1 is a front elevation of a spike constructed in accordance with my invention, Fig. 2 a side elevation of the same, Fig. 3 is a rear elevation of the same, Fig. 4 a longitudinal section of the same, and Fig. 5 a transverse section on line 5—5 of Fig. 1.

Referring to the drawings, wherein like reference numerals indicate like parts throughout the several views, my improved spike 1, except in the particulars to be later described, is identical in construction with the standard spike of commercial use, comprising a squared shank 2 of uniform sectional dimension, formed at the upper end to provide the usual head 3 having a forwardly projecting lip 4. The shank of the spike in its commercial form comprises four plane surfaces, hereinafter termed for convenience the front edge, side edges, and rear edge, the latter being that edge away from the rail when the spike is in position and forming the strain resisting edge of the shank.

In carrying out the principle of my invention I provide the rear or strain resisting edge of the shank with a concave section 5, which is, of course, preferably integral with the shank and extends from a point adjacent the head of the shank, lengthwise the same and terminates a short dis-

tance above the point 6 of the shank. This concave section is designed to provide the strain resisting surface of the spike, and is so constructed that the side edges 7 thereof extend beyond the side edges of the shank, thereby providing a grooved or concaved edge which extends a portion of the length of the shank and is of greater transverse extent than the normal transverse dimension of the shank. As the concave 5 terminates above the pointed end of the shank, projecting edges 8, hereinafter termed cutting edges, are provided, it being understood that the central or lowest portion of the concave is in a plane coincident with the plane of the shank edge below said concave, while the edges 7 of the concave project above said plane. Cutting or shearing edges 8 are provided by this construction which are offset from and at right angles to the plane of the shank below the concave, as clearly shown in Figs. 2 and 3.

The toe or point 6 of the spike is, as is usual in the standard form of spike formed with the opposing inclines 9 and 10 to provide the desired wedge shape point. The wedge of my improvement is formed to provide the incline 9, which coincides with the forward edge of the shank, with a concave 11, preferably extending throughout the length of the incline and being practically equal in sectional dimension to the similar dimension of the shank.

As thus constructed it is to be noted that the improved shank of this invention is provided on opposing edges with concaves or grooves, one extending for the greater portion of the length of the shank and being arranged on the rear or strain resisting edge, and the other a shorter concave extending practically throughout the length of the incline forming one side of the wedge point of the shank, this latter concave being on the forward edge of the shank.

In use the spike in entering the tie will move downwardly therein, under the influence of the driving means, until the shearing or cutting edges 8 contact with the fibers of the tie, whereupon a further driving action causes said shearing edges to cleanly sever the fibers. As the tie is driven to its normal position, the fibers severed by its introduction and abutting the rear edge of the shank will be gathered or grouped within the concave 5, so that any tendency of the



spike to move in a direction away from the rail will result, owing to the curvature of the concave, in binding or drawing together the ends of the fibers resting within said  
 5 concave. As this action will of necessity tend to more firmly solidify or group the fiber ends it follows that their natural resisting power is materially increased.

It is well known that the strain of travel  
 10 upon the rail tends more or less to a spreading action thereof, which in the use of the standard spike will eventually cause said spike to move away or outwardly from its normal position and thereby become inef-  
 15 fective as a holding medium. Experience has demonstrated that this movement of the spike is in the nature of a pivotal movement, and that as a matter of fact the upper or head end of the spike moves outward from  
 20 its normal position, while the lower end of the spike moves forward from the normal position. To materially assist in resisting any tendency of movement I have arranged the opposing inclines 5 and 11, the action of  
 25 the former of which has been previously described, the action of the latter, it being understood, being practically identical with that of the former. Movement of the spike in the directions noted under the spreading  
 30 influence of the rails is thereby effectually prevented, as any tendency to movement of either end of the spike in the directions noted will crowd the ends of the fibers of the wood into a more compact and strain re-  
 35 sisting mass.

The spike of this invention possesses an additional advantage of material importance in articles of this character. That is the  
 40 concave 5 is effective in preventing movement of the spike longitudinally of the rail, which in the standard form of spike results from the necessary movement of the rail under contraction and expansion. This longi-  
 45 tudinal movement of the spike is difficult to provide against in the standard construction, as in that construction a square or plane surface is presented to the ends of the cut fibers, which surface will readily slip past said fiber ends under the contraction

and expansion of the rail and will eventu- 50 ally press said fibers apart exactly as would a wedge. This slipping movement of the spike is practically impossible with my construction, as the ends of the fibers as well as the opposing contracting face of the spike 55 are of curved formation, and direct longitudinal movement is prevented, owing to the greater length of the fibers at the central or lowest point of the concave as compared with the fibers at the edges of the concave. 60

The transverse sectional extent of the concave 5 is immaterial, it being preferred, however, to make such dimension sufficient to provide a comparatively broad bearing surface for the fiber ends. 65

The spike is designed, of course, to be formed integrally from a single piece of material as usual in the standard spike.

Having thus described the invention what is claimed as new, is: 70

A railway spike including a shank approximately rectangular in cross section, provided at one end with a head having a projecting lip and at the opposite end with a driving point, that edge of the shank underlying the projecting lip being plane and of uniform width throughout its length, the opposing edge of the shank having its lower portion arranged parallel to and corresponding in size to the first mentioned edge, the 75 upper portion of said opposing edge being projected laterally beyond the respective side edges of the shank and concaved throughout its width, the projected sections of said concaved portion forming cutting 85 edges and terminating abruptly beyond and in a plane at right angles to the lower portion of said opposing edge, the upper portions of the projected sections being gradually reduced adjacent the head to a plane co- 90 incident with the normal plane of the lower portion of said opposing edge.

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

WILLIAM D. F. JARVIS.

Witnesses:

JOHN L. FLETCHER,  
 DAVID W. GOULD.