No. 634,413. Patented Oct. 3, 1899.

S. W. HIGGINS.

SPIKE.

(Application filed Oct. 12, 1898.)

(No Model.)

Fig. 1.

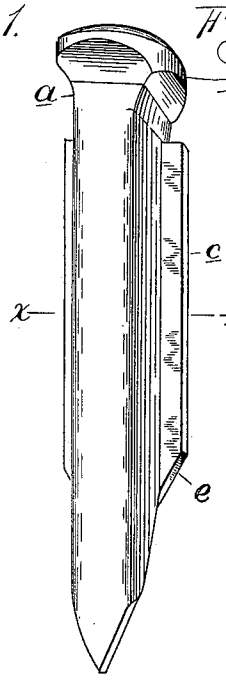


Fig. 2.

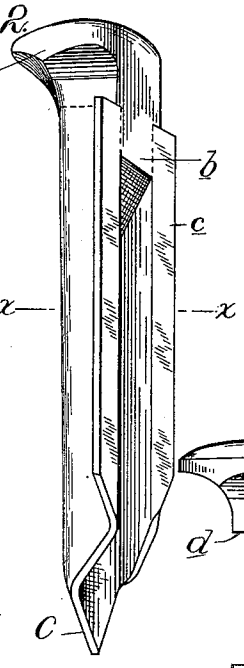


Fig. 3.

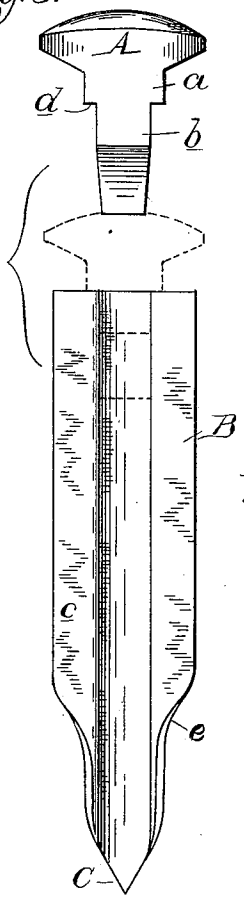


Fig. 4.

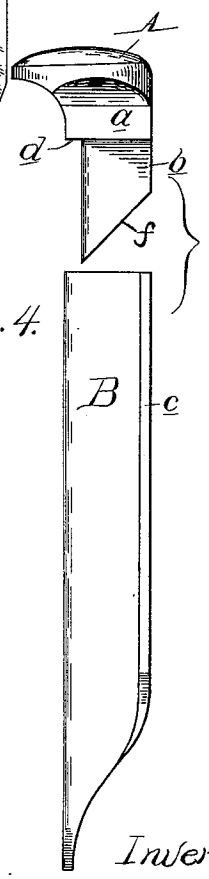
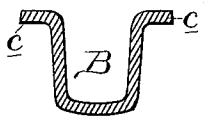


Fig. 5.



Witnesses:

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SPIKE.

SPECIFICATION forming part of Letters Patent No. 634,413, dated October 3, 1899.

Application filed October 12, 1898. Serial No. 693,331. (No model.)

To all whom it may concern:

Be it known that I, SYLVESTER W. HIGGINS, a citizen of the United States, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Spikes, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention more specifically relates to railway-spikes; and the principal object of the invention is to produce a spike which combines the advantages of the hollow and of the solid spike, the former having the advantage of superior holding quality and of being light and easy to drive, while the latter has the advantage of greater durability under the various contingencies of use.

To this end my invention consists in making a composite spike the shank of which or that portion which drives into the tie is made hollow, while the head and neck is a solid forging or casting, all as more fully hereinafter described and claimed, and shown in the drawings, in which—

Figures 1 and 2 are perspective views of my improved spike, showing it respectively in front and rear elevation. Fig. 3 is a rear elevation of the parts of the spike separately before welding together. Fig. 4 is a side elevation of the parts in Fig. 3, and Fig. 5 is a cross-section on line *x x* in Figs. 1 and 2.

The head proper, A, is of the usual size and shape as in solid spikes and is formed integrally with a solid rectangular-shaped neck portion *a*, terminating in a tang *b*. The shank B is formed of a suitable blank of sheet-steel shaped between dies, and it is substantially channel-shaped in cross-section, with wings *c* at the open ends of the channel, which extend laterally on opposite sides in a plane with the back of the spike. At the lower end of the shank a point C is formed, and the lower ends of the wings *c* are cut away at a slant toward the point, forming inclines *e* on opposite sides of the channel.

The tang *b* of the solid portion of the spike is made of a size to fit into and fill the hollow of the shank at the upper end, and the neck portion *a* rests squarely upon the shank by means of the shoulders *d*, thereby making a flush connection between the neck portion *a* and the shank, when the two parts are united together by welding or brazing. The tang is likewise provided with the inclined face *f*, as shown in Fig. 2, its function being to compress the material in the rear of the spike, and thereby force the latter in the direction of the rail. By this construction I obtain a spike which is not only superior in holding quality to the hollow spike of channel-shaped cross-section by reason of having wings *c*, which increase the superficial area, but the latter give the spike a better bearing at the back, whereby it can better resist any lateral thrust of the rail, which especially tends to loosen or bend the spikes along curves in the rails. By reason of the solid head the spike will not easily be disfigured in driving or pulling, and can thus be repeatedly used. Further, the solid neck portion gives the spike the wearing quality of the solid spike, as it is well known that the rail considerably wears away the spike at the neck, thereby making the all-hollow spike of inferior wearing quality.

The tang not only forms a means for solidly welding the parts together, but it makes the upper portion of the shank solid, and thus capable of resisting greater bending strain and by giving it more surface on the back to resist the lateral thrust of the rail.

My spike may be made without the wings *c*. The latter, however, in addition to the advantages already set forth have the peculiar advantage that they act in driving like wedges, compelling the sides of the spike to clench the core of wood between them, and thus make the spike of superior holding quality.

What I claim as my invention is—

1. A spike, composed of a solid head and a shank of uniform channel shape in cross-section, vertical wings extending at right angles from the sides of the shank and the inclines *e* formed upon the lower end portions of the wings.

2. A spike composed of a shank of uniform channel shape in cross-section, and a solid head united to the shank, the head being formed with a neck portion flush with the shank-body and with a reduced portion or

tang provided with an inclined face *f*, said tang projecting into and closing the upper end of the shank at the back.

3. A spike composed of a solid head and a shank of uniform channel shape in cross-section, and vertical wings extending laterally from the sides of the shank in the plane of the back of the spike.

4. A spike composed of a shank of uniform channel shape in cross-section, a tang projecting into and closing the upper end of the shank, a neck integral with the tang supported upon and extending above the shank, and a head for the neck, substantially as described.

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

SYLVESTER W. HIGGINS.

Witnesses:
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OTTO F. BARTHEL.