(No Model.)

W. KOPLIN.

SPIKE BLANK.

No. 326,298. Patented Sept. 15, 1885.

Fig. 4.

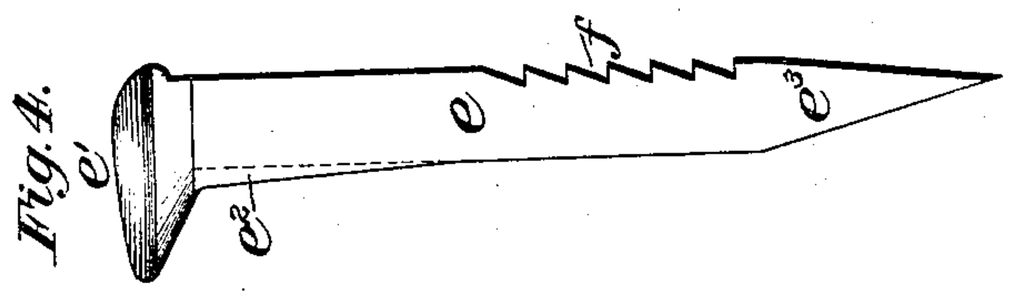


Fig. 3.

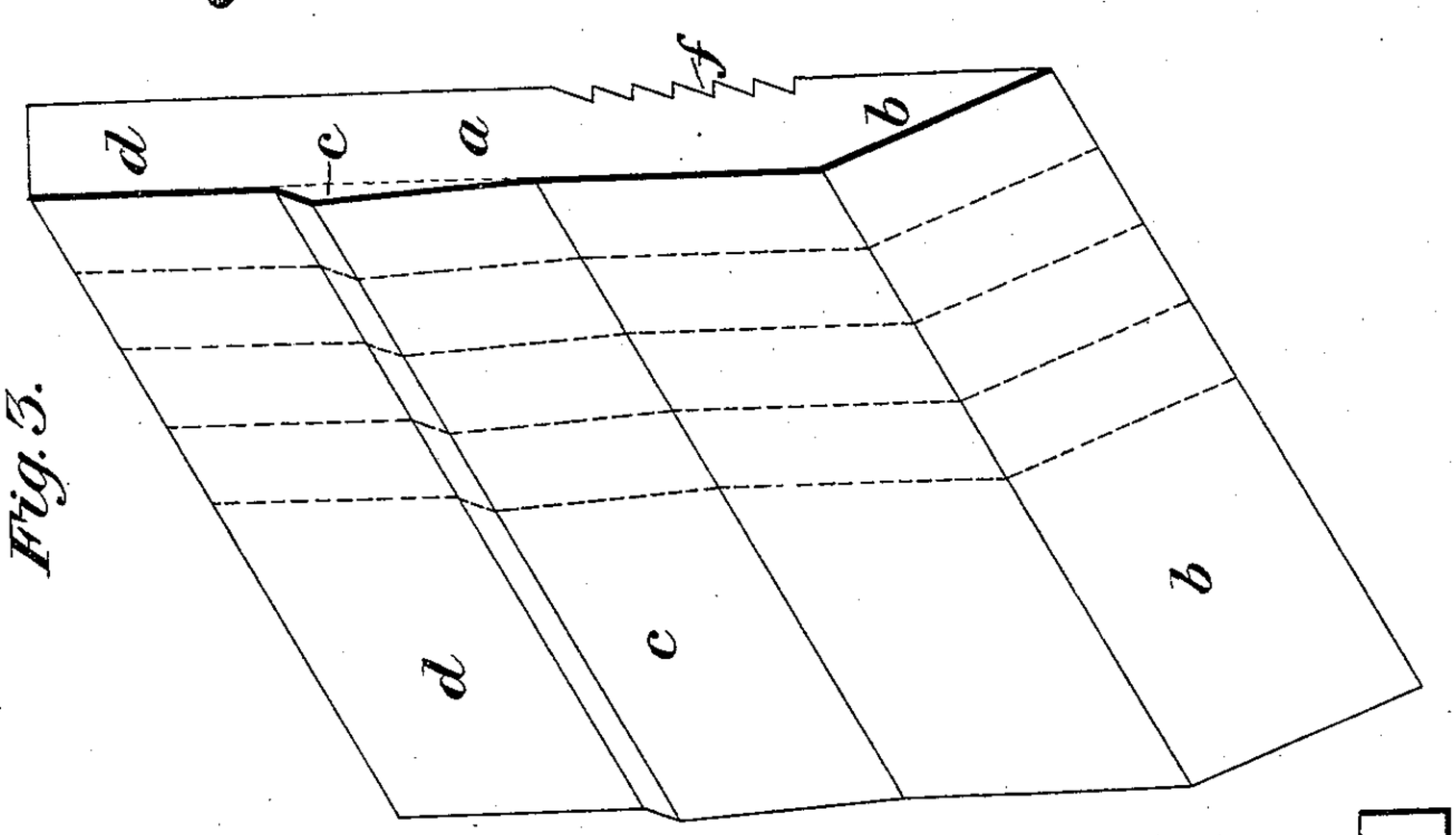


Fig. 2.

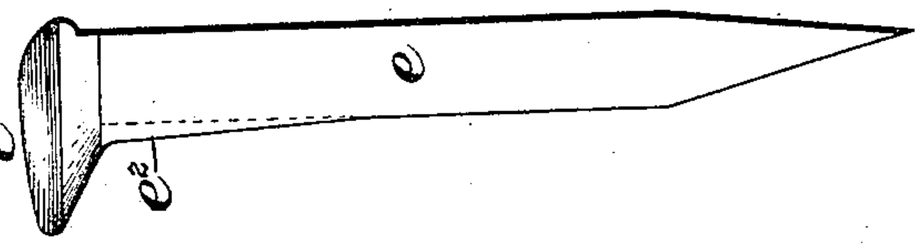


Fig. 1.

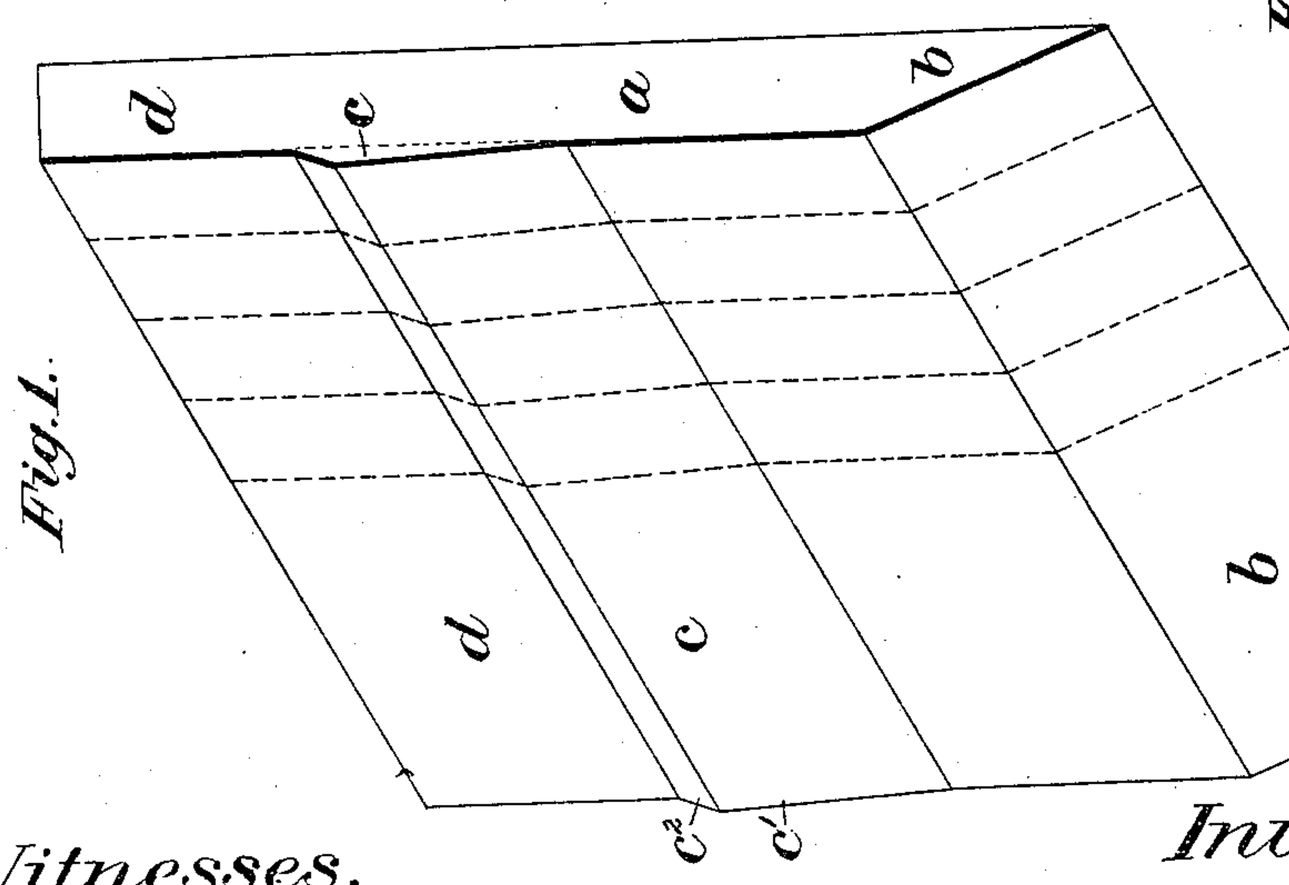
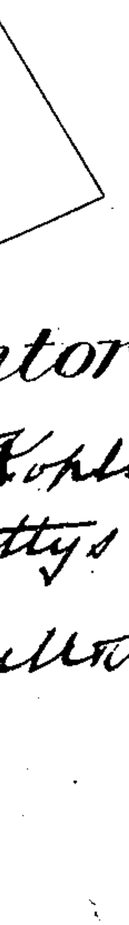


Fig. 5.



Witnesses.

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W. B. Corwin

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UNITED STATES PATENT OFFICE.

WILLIAM KOPLIN, OF YOUNGSTOWN, OHIO.

SPIKE-BLANK.

SPECIFICATION forming part of Letters Patent No. 326,298, dated September 15, 1885.

Application filed August 3, 1885. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM KOPLIN, of Youngstown, in the county of Mahoning and State of Ohio, have invented a new and useful Improvement in Spike-Blanks; and I do hereby declare the following to be a full, clear, and exact description thereof.

Heretofore railroad-spikes have usually been made from rods which were fed longitudinally into a spike-heading machine, where each spike-blank was cut off and pointed and the head formed by upsetting the end. It has also been proposed to make spikes by forming the head in rolls. Two ways of rolling blanks for this purpose have been proposed—first, rolling a rod longitudinally and forming thereby projections on one side at intervals, to constitute the heads, the intermediate portions being reduced to constitute the shanks, and, second, rolling a plate with a rib on one side to constitute the heads, and then cutting the plate transversely into spike-blanks. In all cases known to me the shanks of such spikes are of uniform thickness from the base of the heads to the base of the points. A spike having a shank of uniform thickness and an upset head is liable to be defective at the junction of the head and shank, and such spikes often break at that point, owing to the straining and weakening of the metal by the upsetting operation, which tendency is increased if the metal is somewhat cold when upset.

The objects of my invention are to facilitate and cheapen the manufacture of spikes and to provide against the danger of breaking at the junction of the head and shank.

To enable others skilled in the art to make and use my invention, I will now describe it by reference to the accompanying drawings, in which—

Figure 1 is a view of my improved spike blank or bar. Fig. 2 is a view of the finished spike. Figs. 3 and 4 are like views of the same, showing an additional feature. Fig. 5 is an edge view of a modified form of blank.

Like letters of reference indicate like parts in each.

In the drawings, *a* indicates a plate or blank made from iron or steel by rolling (in the direction of the arrow) in a suitable rolling-mill. This plate or blank has a bevel, *b*, along one edge, a swell or thickened portion, *c*, tapering toward the point-edge on one side near the other edge, and straight portion *d* beyond the swell *c*. It is designed to be cut into spike-blanks by a series of transverse cuts, as indicated by the broken lines in Figs. 1 and 3. The portion *d* of each spike-blank contains sufficient metal to form the head *e'* of the spike *e*, and the part *c* is provided to supply sufficient metal to form a fillet, e^2, at the junction of the head and shank, which, by reason of its tapering form, merges gradually into the shank. Thus the spike is thickened up and strengthened at the part which is subjected to the greatest strain, and which, in the spikes heretofore referred to as having upset heads, has been the weakest point. The blank thus made by cutting the plate *a* transversely, as stated, is put in a suitable heading-machine and headed by upsetting the end *d*, whereby the head *e'* is formed, the thickened portion *c* forming a fillet, e^2, between the base of the head and the shank on the side at which the head projects, which fillet, being thickest at the head, tapers toward the point and gradually merges into the shank. At the same time the end *b* may be shaped into a double-beveled point, e^3.

In Figs. 3 and 4 the blank and spike have the additional feature of a number of ratchet-shaped grooves, *f*, on the rear side, which grooves may be formed by the rolls or otherwise, as will be understood. These grooves assist the spike in holding in the wood, the fibers of which, being wedged outward by the inclined sides, and consequently not lacerated when the spike is driven in, will spring out into the grooves against the straight sides, and thus increase the holding-power of the spike.

In Fig. 5 the thickened portion *c* is shown with equally-inclined sides *c'*, instead of one long incline, *c'*, and one short abrupt incline, c^2, as in Figs. 1 and 3. This form increases the amount of metal in the blank slightly; but it effects the same end as the form shown in Figs. 1 and 3—viz., provides for the formation of the fillet e^2, while the surplus of metal will be worked into the head without detriment. I therefore include it in my claim as the equivalent of the first form.

If desired, the bevel *b* may be omitted from the blank *a* and the spike be entirely pointed in the upsetting-machine.

By the use of the blank thus described I am enabled to manufacture a superior quality of spikes with great rapidity and cheapness.

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

1. The plate or blank *a*, for making spike-blanks by transverse cuts, said plate having a swelled or enlarged portion, *c*, tapering toward the point-edge, forming a tapering fillet at the junction of the head and shank, and a portion, *d*, beyond the enlarged portion for the formation of the upset head, substantially as and for the purposes described.

2. The plate *a*, having a beveled edge, *b*, a tapering enlargement, *c*, forming a tapering fillet at the junction of the head and shank, and a flat portion, *d*, for forming an upset head beyond the enlargement *c*, substantially as and for the purposes described.

3. The plate *a*, having a beveled edge, *b*, a tapering enlargement, *c*, a flat portion, *d*, and ratchet-grooves *f*, substantially as and for the purposes described.

In testimony whereof I have hereunto set my hand this 29th day of July, A. D. 1885.

WILLIAM KOPLIN.

Witnesses:

H. RITTER,

GEORGE HEIM.