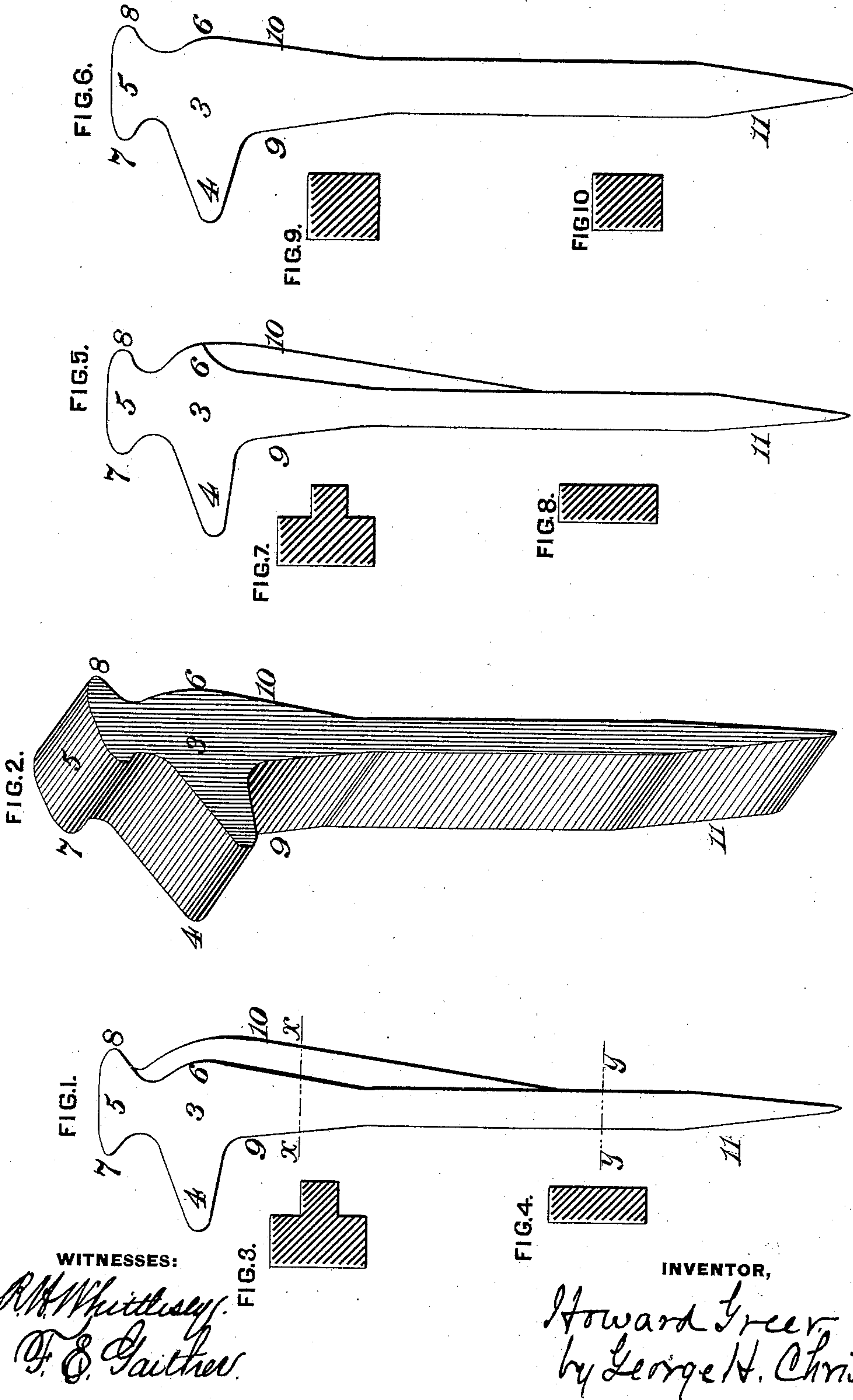


H. GREER.

SPIKE.

No. 387,066.

Patented July 31, 1888.



WITNESSES:

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UNITED STATES PATENT OFFICE.

HOWARD GREER, OF LAKE VIEW, ASSIGNOR TO HIMSELF, AND MORRIS
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SPIKE.

SPECIFICATION forming part of Letters Patent No. 387,066, dated July 31, 1888.

Application filed February 18, 1888. Serial No. 264,457. (No model.)

To all whom it may concern:

Be it known that I, HOWARD GREER, a citizen of the United States, residing at Lake View, in the county of Cook and State of Illinois, have invented or discovered a certain new and useful Improvement in Railway-Spikes and Spike-Blanks, of which improvement the following is a specification.

Figure 1, Sheet 1, is a view in side elevation of a railway-rail spike embodying a part of my present invention. Fig. 2 is a perspective view of the spike of Fig. 1. Figs. 3 and 4 are transverse sectional views on the lines x and $y y$ of Fig. 1. Figs. 5 and 6 show the same features of invention as applied to somewhat different forms of spikes. Figs. 7 and 8 are cross-sectional views of Fig. 5 in adjacent planes. Figs. 9 and 10 are like views of Fig. 6. Fig. 11, Sheet 2, shows my improved blank; and Fig. 12 is an end view thereof at the B end, Fig. 1 illustrating the other end.

By the use of properly-constructed and properly-grooved rolls I produce from steel or other homogeneous metal a spike bar or blank, represented at the remote or B end of Fig. 11, and of substantially the form shown by an end view thereof in Fig. 12; and by other rolls or forging mechanism, having suitable die-faces for the purpose, I break down the metal at intervals on the back or upper face of this blank, as represented at the other or B' end, where the broken down or depressed parts are represented at 1 and the intervening ribs at 2, and these parts are so proportioned that the distance between the middle lines of each two adjacent depressions, 1, shall be equal to the width desired in the finished spike. Then, by the use of a suitable severing mechanism, the bar or blank is divided up, lines of cleavage or separation being anywhere along the depressions 1, but preferably along the middle lines of such depressions, so as to convert the bar or blank into spikes having parallel sides, and each having the features presently to be described; but no claim is made herein to any of the appliances, devices, or mechanisms adapted to or used in the production of the bar or blank of Fig. 11, nor to the severing mechanism, or method of operation by which the blank is divided up into spikes, as these will

form the subject-matter of other applications to be filed in due time. The present application relates to the bar or blank, and the spike or one of the spikes produced therefrom.

In the final product the present invention relates, primarily, to a double-headed spike—that is to say, a spike having one head, which in use performs that function of the ordinary spike by which it takes hold of or engages the rail-flange, and also another head by which it is driven, and, in drawing, is partly or entirely drawn.

Double-headed spikes, broadly considered, are not new, as an article of that kind is described and shown in Patent No. 267,420, granted on an application of my own, November 14, 1882; but the double head of my present invention differs from this as well as from any other now known to me in the fact that the ribs or projection on the head which the claw-bar takes hold of in drawing are so disposed that the claw-bar in the act of drawing will move or operate in a plane which passes longitudinally through the rail, or parallel or approximately parallel to such a plane, instead of operating in a plane at right angles thereto, as heretofore. In fact, in the drawing of my improved spike the flange of the rail constitutes the fulcrum or bearing-point of the claw-bar.

The lower head, 3, of the double-headed spike has a lip or side projection, 4, of suitable form and size for properly engaging when driven the flange of the rail, in the usual way. Back of this, on the opposite side of the head, is a swell or enlargement, 6, by which to get the desired strength in that part of the spike, and also for purposes presently to be described. Above this lower head is the upper head, 5, which, on the sides next to and away from the rail, is expanded out or enlarged somewhat into beads or projections 7 8, which latter are of suitable size and shape for the engagement thereunder of the claws or prongs of a claw-bar in drawing the same. Heretofore in all the railway-track spikes of which I have any knowledge the only position in which a claw-bar could be brought to grip them at all was one in a plane at right angles to the general line of the track. Spikes driven

in the acute angle formed by the converging rails of a frog, or of some forms of switches, could not be caught at all by the ordinary claw-bar; hence in such cases the spike-head is commonly knocked off and the spike is lost; also, in the drawing of any of the old forms of spikes with the claw-bar at right angles to the general line of the track, the tie gives the fulcrum or bearing for the claw-bar. If, as sometimes happens, the tie is broomed out, or has its fiber disintegrated by train action, or is decayed, then an artificial bearing or fulcrum must be made; also, with soft-wood ties the effect of the claw-bar itself is to break the fiber of the tie at the bearing-point; and still further, after getting the spike started, if a new bite is desired, (and to avoid bending the spike a second bite is usually necessary,) what amounts to a second bite can be got only by putting a block or stone or something of the kind under the bearing point of the claw-bar for a new fulcrum. All these are objectionable features or elements met with in the use of the old form of spikes.

With my improved spike, when one is to be drawn the claw-bar is applied with one claw under the projection 7 and the other under the projection 8. Then it will be seen that the claw-bar occupies and will move in a vertical plane which passes longitudinally through the rail or is parallel to such a plane, or approximately so, and also that the under convex bearing curve or angle of the claw-bar, on which in use it turns as a lever, will so far lap onto the rail-flange that the latter will constitute the fulcrum. Thus I get a solid fulcrum or bearing for the claw-bar, and also am enabled to draw spikes which, with frogs, guide-rails, and in other like positions, cannot (if of the ordinary construction) be drawn at all, and, as another part of my invention, I provide for a new bite without change of fulcrum. As soon as the spike by the bite on the upper head has been drawn as far as can be conveniently done without bending, or so that the side projection, 4, is well clear of the rail-flange, then if the spike still holds in the wood the claw-bar may be withdrawn and reinserted, but with one claw under the projection 4 and the other under the back swell or enlargement 6, and thereby, with the rail-flange still as a fulcrum, the work of drawing the spike may be continued and ordinarily may be completed; but with some forms of spike-shanks and certain kinds of wood it may be that the spike will even yet hold to the wood with such power that a third bite is desirable. To provide for this when required, I have devised another feature of improvement, which consists in making the rail-face of the upper end of the spike shank from a little below the wood-line (when driven) to the junction with the lower face of the projection 4, slightly tapering, as at 9. I prefer also to make a corresponding taper on the back face of the upper end of the shank, as at 10; but most purposes will be subserved by the use of

the taper 9 without 10. Then, as the upper end of the shank is somewhat of a wedge shape, the claws or prongs of the claw-bar may be made to catch beneath the swelling or spreading front and rear faces, and thus a third grip be secured without change of fulcrum; but my main object in adding the taper 9 is this: In spike-driving the spike is usually slanted outward or away from the rail at starting, so that when driven it shall hug the rail as closely as possible; but even with the most skillful driving the spike tends to leave the rail-flange to such extent that a final blow or two on the back of the spike-head after the driving is done is thought to be necessary, so as to force the head end of the spike as close as possible up to the rail flange and add to the bite or engagement of the hook or lip on the rail-flange. Such a blow, if hard enough to be of any avail, must tend to break the spike or to slacken its hold in the wood, or both. By making the taper 9 of such length and at such angle that as the spike in driving tends to leave the rail-flange the sloping face of the upper end of the shank will approach or continue in contact with the edge of the rail-flange, I avoid the necessity of giving the objectionable blow to the back of the spike-head; and while not limiting myself to any particular length or acuteness of angle in the taper part 9, I believe the best construction is that in which the taper part 9 shall be of about the length of one face 11 of the wedge-point of the spike and of about the same angle.

Another advantage of the double head is this, that the spike can be gripped by a claw-bar equally well from either side, so that if one or the other or both projections 7 8 at one side of the spike break, the same projections at the other side of the spike are equally available for the purpose.

The features of improvement thus described are shown as applied to a spike the shank of which is rectangular in cross-section, and also to a T-shank spike, or to one having a rib up the back face; but the style or shape of shank is immaterial, and the features of improvement described and claimed herein are claimed as of my invention in their application to railway-track spikes generally.

With the foregoing explanation, and a reference to the bar or blank, Figs. 11, 12, from which the T-shank spike, Fig. 1, is made, the features of novelty and utility in the bar or blank will be readily understood. In the rolling operation I produce a continuous rib, 14, from which I get the projection 4 in the spike. The enlargement 16 on the blank gives the enlargement 6 of the head, and the blank-head 15, with its beads 17 and 18, produce the corresponding parts, 5, 7, and 8, of the finished spike, and the thickening of the blank, as at 19, gives me the taper part 9 of the spike.

I claim herein as my invention—

1. In a spike-bar, the head 15, having beads 17 and 18, produced or developed along one

edge of the bar exterior to the usual rib, 14, substantially as set forth.

2. A railway-rail spike having a driving-head and two claw-bar beads or projections, 5 one on the side next the rail (when the spike is driven) and the other on the opposite side, substantially as set forth.

3. A railway-rail spike having a double head, the upper one of which has a claw-bar 10 head or projection on the side next the rail (when driven) and another on the opposite side, and the lower head of which has a projection or lip, 4, for engaging the rail flange, and a swell or enlargement, 6, substantially as 15 set forth.

4. A railway-spike having a driving-head,

5, a claw-bar head or projection, 7, on the side of the head next the rail, another, 8, on the opposite side, a lip, 4, and a shank having a taper part, 9, substantially as set forth. 20

5. A railway-spike having a driving-head, 5, a claw-bar bead or projection, 7, on the side of the head next the rail, another, 8, on the opposite side, a lip, 4, and a shank having a taper part, 10, substantially as set forth. 25

In testimony whereof I have hereunto set my hand.

HOWARD GREER.

Witnesses:

CHARLES F. LOESCH,
JACOB GREMLI, Jr.