

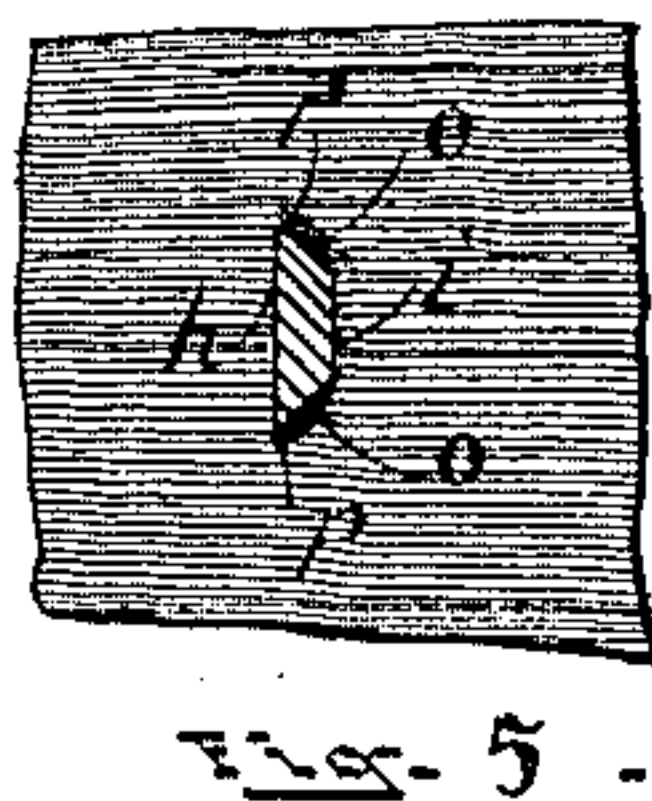
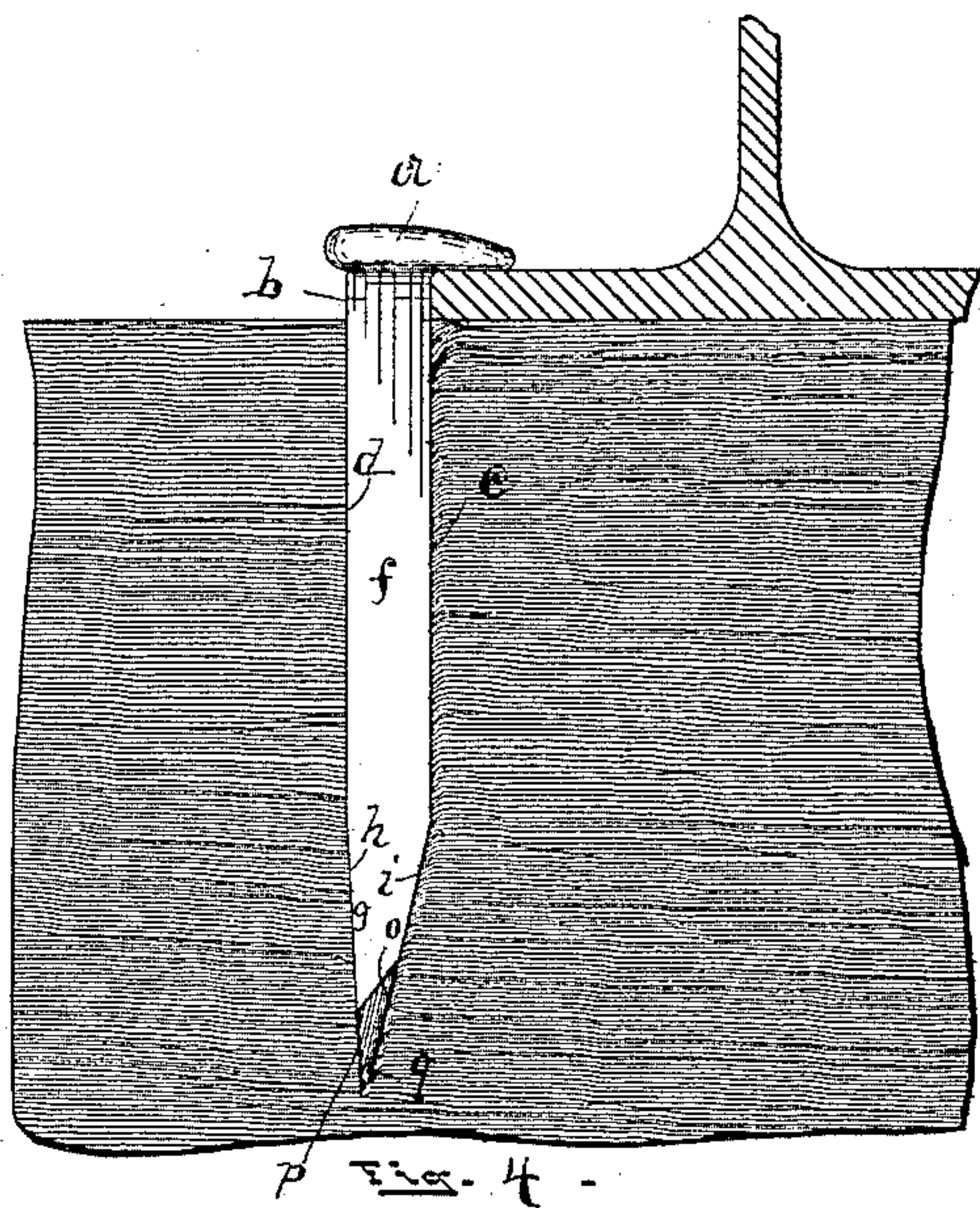
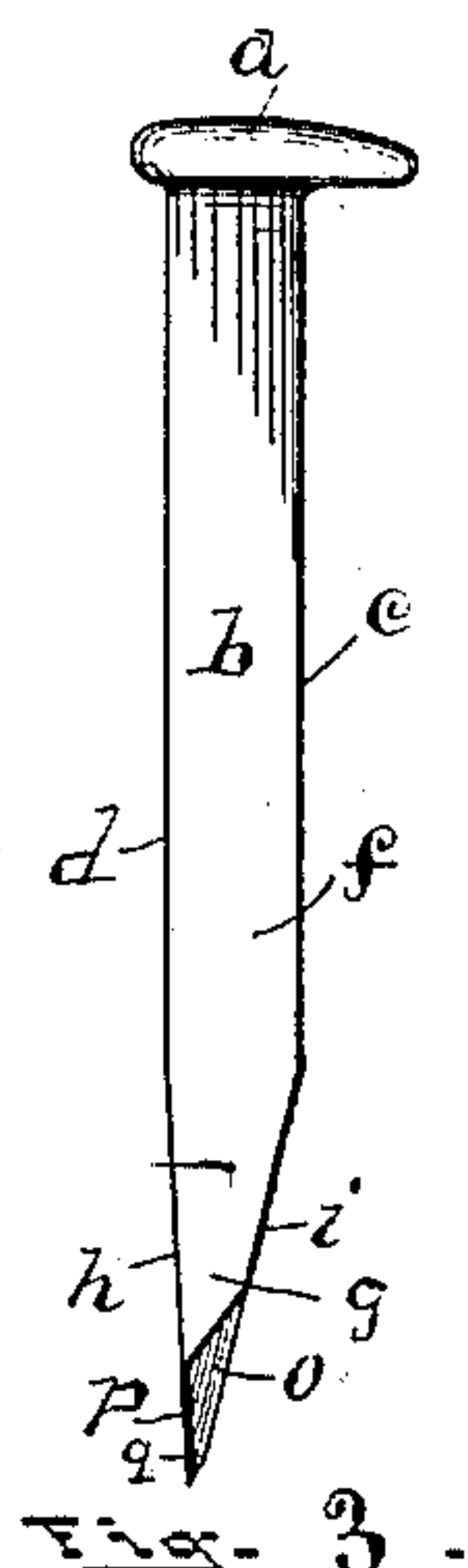
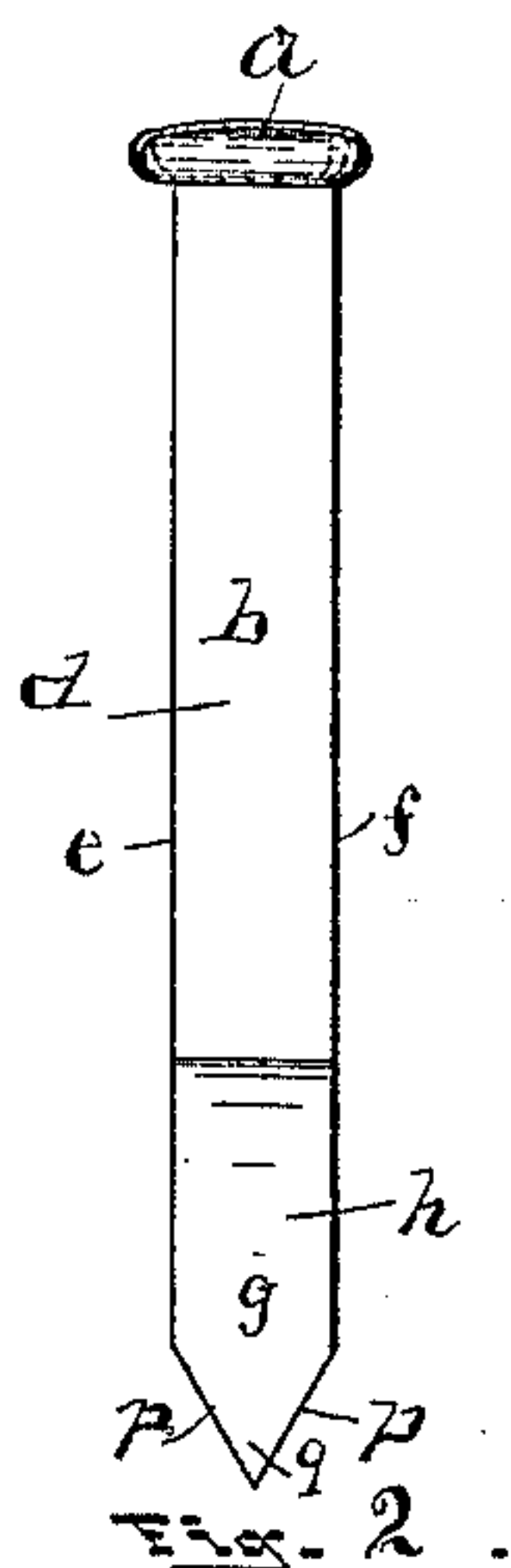
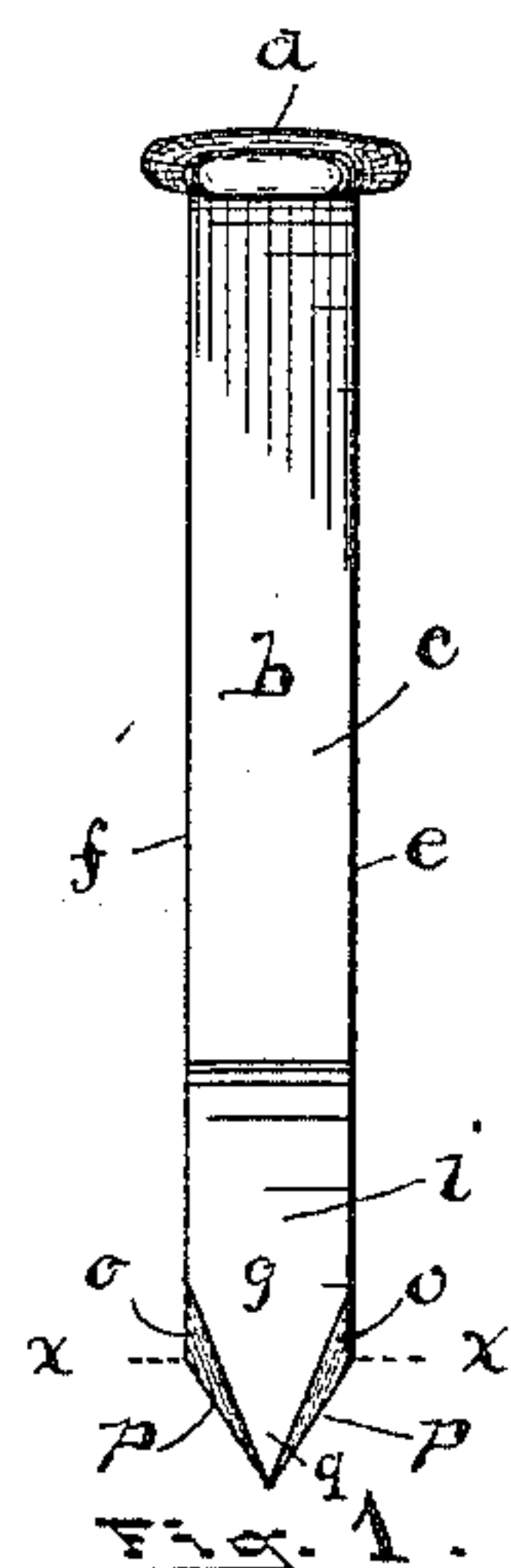
(No Model.)

W. GOLDIE.

SPIKE.

No. 394,113.

Patented Dec. 4, 1888.



ATTEST.

W. H. Brown.  
J. P. Thomas.

INVENTOR.

William Goldie.  
By Jas. C. Thomas.  
Atty.



# UNITED STATES PATENT OFFICE.

WILLIAM GOLDIE, OF WEST BAY CITY, MICHIGAN.

## SPIKE.

SPECIFICATION forming part of Letters Patent No. 394,113, dated December 4, 1888.

Application filed October 30, 1888. Serial No. 289,560. (No model.)

### *To all whom it may concern:*

Be it known that I, WILLIAM GOLDIE, a citizen of the United States, residing at West Bay City, in the county of Bay and State of Michigan, have invented certain new and useful Improvements in Spikes; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

This invention relates to improvements in spikes, and is more especially adapted to spikes used in the construction of railroads; and the invention pertains entirely to the point on the portion which punctures the wood and prepares a passage for the spike-body therein, and is more particularly an improvement on the point commonly and well known as the "lance-point," or a point provided on its lateral sides with centrally-located cutting-edges, which extend diagonally upward from the center of the point to the lateral sides thereof and divide the fiber of the wood with a shearing cut when driven.

My invention consists, chiefly, in a spike-point formed with oblique cutting-edges located coincident with the rear side edges or corners of the rear side compressing bevel or the rear inclined surface obtained by reducing the end on the front and rear to form the puncturing portion or point proper; and my invention further consists in a spike-point formed with diagonal cutting-edges on the rear corners of the lateral sides and with oblique side facets for compressing outwardly on one side of the point the ends of the severed fiber of the wood, while on the opposite side of the point the severed ends of the fiber retain their original position undisturbed and unbroken.

While spikes having a lance-shaped point provided in the ordinary way with centrally-located oblique cutting-edges, which divide the fiber of the wood with a shearing cut, answer to a great extent the purpose for which they are intended, they are still imperfect on account of the extreme regularity required in their form and construction, as a perfect uniformity

of bevels, &c., must be obtained in forming the oblique cutters in order to allow the spike to enter the wood and retain while being driven the same relative position as had when started, or, to be more explicit, to insure its passage into position in the timber without twisting or partially turning as it is driven, as the least variation in the corresponding bevels on the opposite sides of the oblique cutters causes the grain of the timber to present a different resistance in their compressing action, which continues to operate to a greater degree as the spike passes farther into the timber, which action or defect is more particularly troublesome in railway-spikes, as they must be especially adapted to resist a crowding strain against the rails, and it is extremely necessary that they should be uniformly held to bear, with the full width of their body beneath the head, against the side edges of the rail-flanges, and more especially the spikes which are driven outside of the rails and subjected to the crowding action of the cars; and the objects of my invention are to provide a spike with a point which, while it divides the fiber of the timber with a clean shearing cut, will also pass into the timber in the same relative position it had when started.

Another object of my invention is to provide a spike with a point which will cut through the fiber and pass into the timber without compressing or disturbing the fiber of the wood on the rear wall of the spike opening or passage, whereby a more solid and reliable supporting-wall is required to sustain the spike against a crowding strain of the rail.

My invention is illustrated in the accompanying drawings, similar letters of reference in which indicate similar parts throughout the several views, and in which—

Figure 1 is a front side view of a railway-spike containing my invention. Fig. 2 is a view of the rear side of the same. Fig. 3 is a view of one of the lateral sides of the same. Fig. 4 is the same illustrated in position in a broken tie-section, with transverse section of the rail. Fig. 5 is a transverse section of the point at *x x* shown as entering the broken tie-section.

*a* represents the head portion of a spike. *b* is the body. *c* is the front side of the body,



and *d* is the rear side thereof, while *e* and *f* are the lateral sides.

*g* represents the point, and is herein shown as provided with the rear side, *h*, slightly sloping toward the center of the point, and with the sloping front side, *i*, which forms the required compressing-surface for removing the wood to provide a proper passage or opening for the spike-body. The lateral sides of the point are each provided with an oblique facet, *o*, the form of the facets being oblique to the lateral sides and also oblique in relation to the sloping compressing-face *i*, so that diagonal cutting-edges *p* are formed by the facets *o* meeting the rear face, *h*, the edges beginning at the center of the extreme point and diverging upward to the lateral sides of the point at some distance above the extreme point or puncturing end *g*, and of course are located coincident with the rear face, *h*.

The spike-point, on entering the wood, first, by means of the diagonal cutting-edges *p*, divides the fiber or grain with a clean shearing cut, and the oblique facets *o* turn and compress the ends of the severed fiber outwardly toward the side grain of the timber that is beyond the spike and undisturbed, and also forces the fiber backwardly to form a passage for the spike-body, and the rear side, *h*, following downward on the line of cut made by the edges *p*, leaving the severed ends of the fiber undisturbed by compression to abut solidly against the rear side, *d*, of the spike-body when driven in position. The rear face, *h*, is formed, as herein shown, as slightly sloping, in order to overcome the tendency of the oblique facets *o* to crowd and cause the point proper, or extreme puncturing end *g*, to lead backward; and it will be noticed on inspection of Fig. 3 that the cutting-edges *p* do not stand parallel with the longitudinal center of the spike, but lead backwardly according to the slope or bevel of the rear side, *h*, which has the effect of partially compensating for the force of the compressing action against the front face, *i*. It will be seen, of course, that the cutting-edges *p* lie in the same vertical plane as the rear face, *d*, and that little or no compression of the wood fiber can occur in rear of the spike, and the rear face, *d*, therefore forms a guiding-surface which always conducts the spike in a direction coincident with the plane thereof, and hence the spike, following the line of the plane of the rear side, must retain the position in which it is placed in starting relative to the grain of the timber, however great the irregularities may be of the oblique facets *o* or the angular form of the cutting-edges *p*,

as the compressing action obtains entirely upon the front side of the spike as it passes into the timber.

As I have illustrated my invention in the drawings, the rear face, *d*, is slightly sloping; but this form is not essentially important, except that it serves in soft timber to force the spike firmly against the rail-flanges during the driving operation, and sets the cutting-edges to lead slightly toward the front and partly compensates for the backward strain of the compressing bevel *i*; but I wish to state that I do not confine my invention entirely to forming my improved point with a sloping bevel on the rear side thereof, as different kinds of timber require a slight modification in the form of the bevels in order to reach the proper result; and for driving in the harder or more dense varieties of wood the slope on the rear side of the point may be entirely dispensed with and the result will be the same and entirely satisfactory, the dense wall on the rear side of the spike in the harder woods serving to direct the point and prevent the tendency to lead rearwardly, as I have before explained in relation to the use of the spike in the softer and more porous woods; and the diagonal cutting-edge arranged or lying in a perpendicular plane with the rear side of the spike-point might be designated as the most essential and important feature of my invention, the compressing-surface on the front side provided with the oblique side facets in front of the cutting-edges being, however, an important construction which greatly assists in rendering the operation of the improved point capable and satisfactory under all common circumstances and conditions; and

Therefore what I claim as my invention is—

1. A spike having a point provided on each side with diagonal cutting-edges located in the same perpendicular plane with its rear side, substantially as set forth.
2. A spike having a point provided with a sloping compressing-surface on its front side, and with cutting-edges *p p*, located in a plane with the rear side of the point and diverging from the center diagonally upward to the lateral sides, and with the oblique facets *o o* on the front sides of the said cutting-edges, substantially as set forth.

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

WILLIAM GOLDIE.

Witnesses:

GEO. A. HOWARD,  
WM. H. DE LACY.