

(No Model.)

W. GOLDIE.
SPIKE POINTING MACHINE.

No. 413,341.

Patented Oct. 22, 1889.

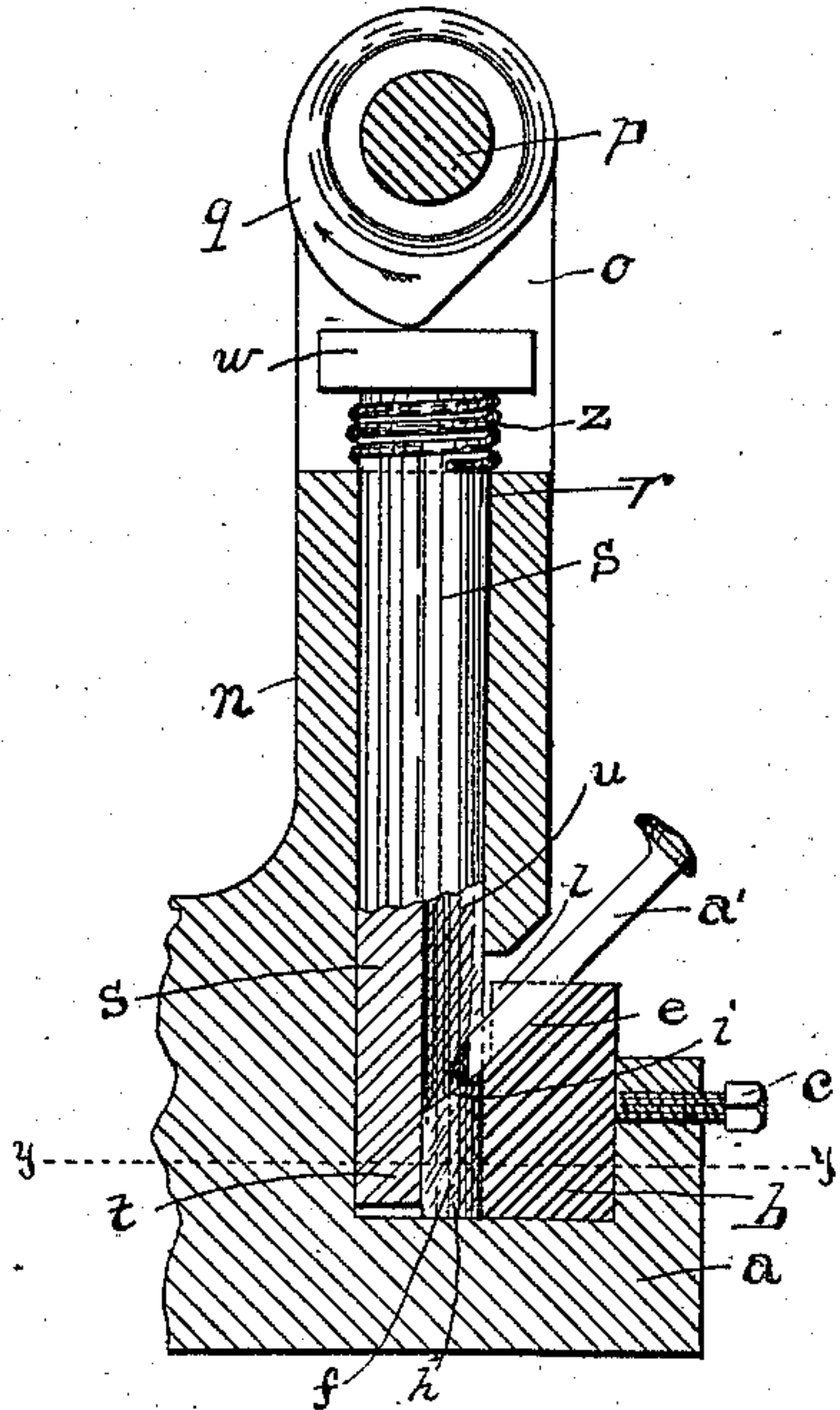


Fig. 2.

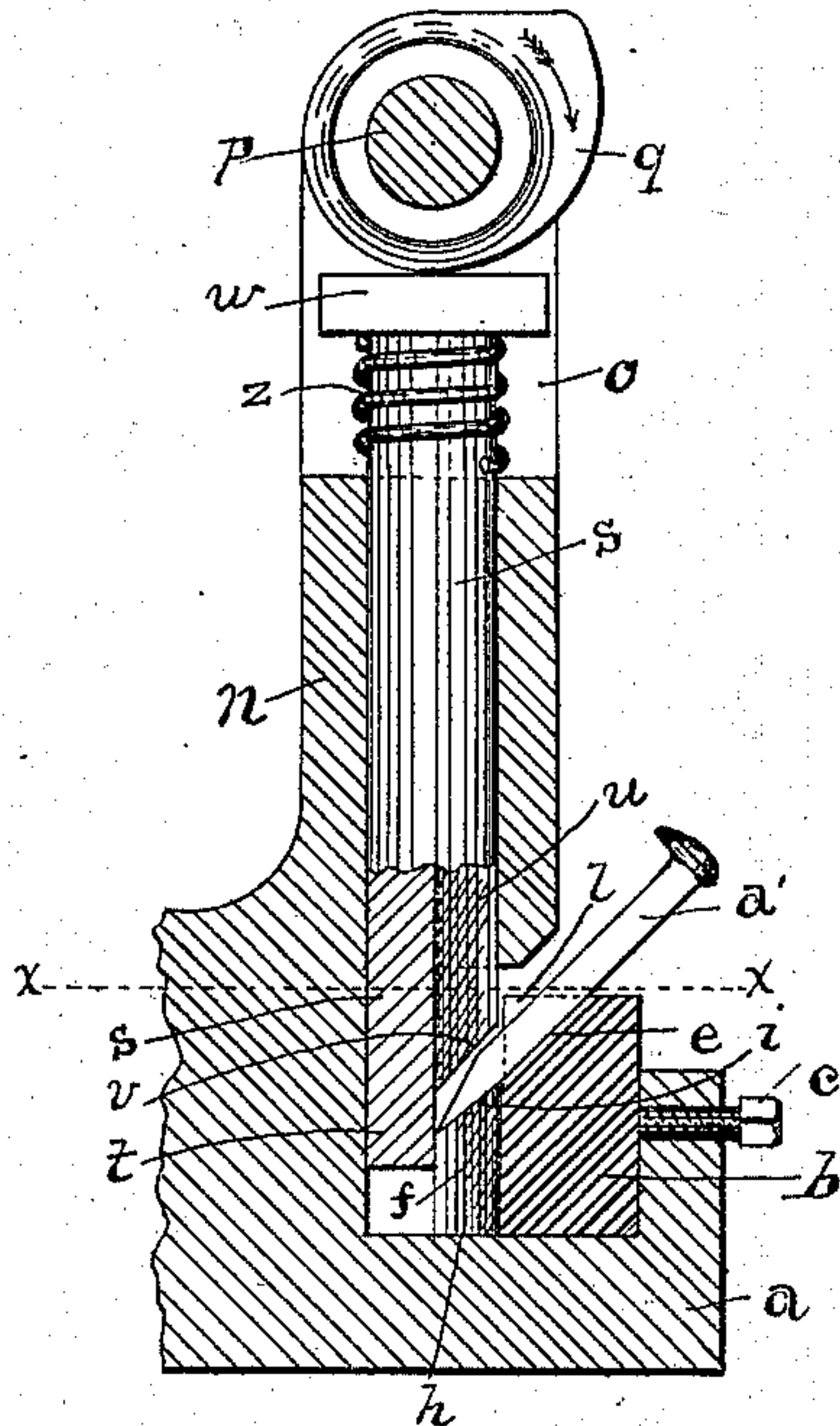


Fig. 1.

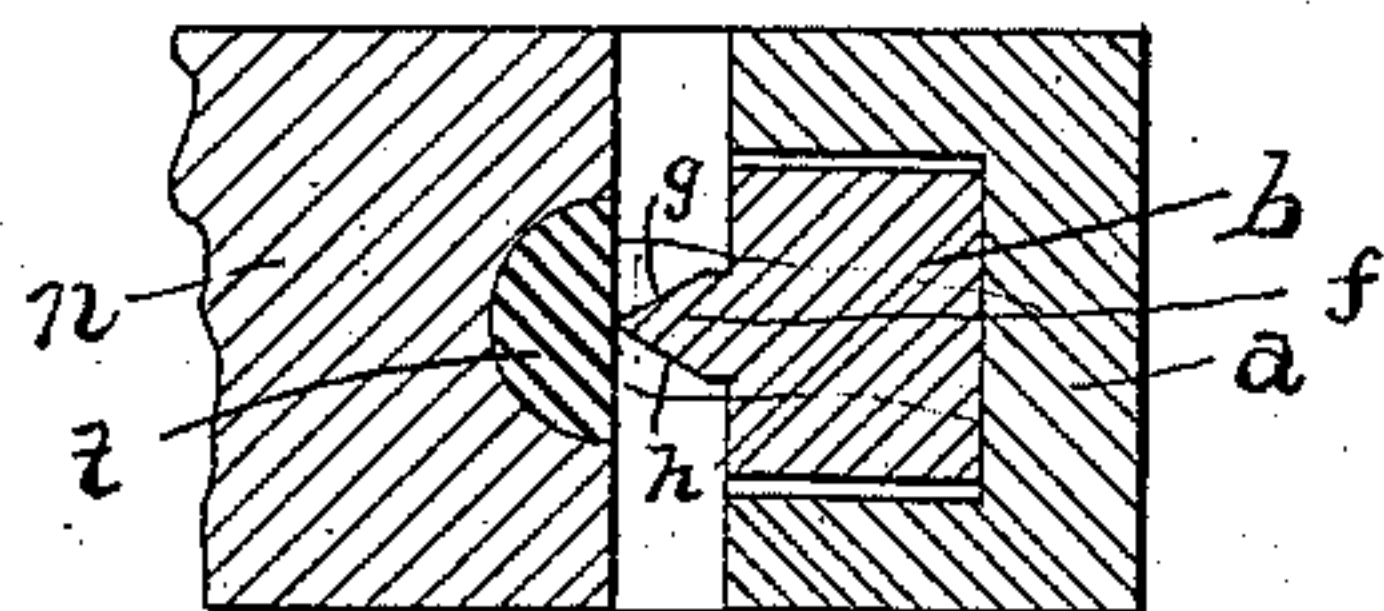


Fig. 4.

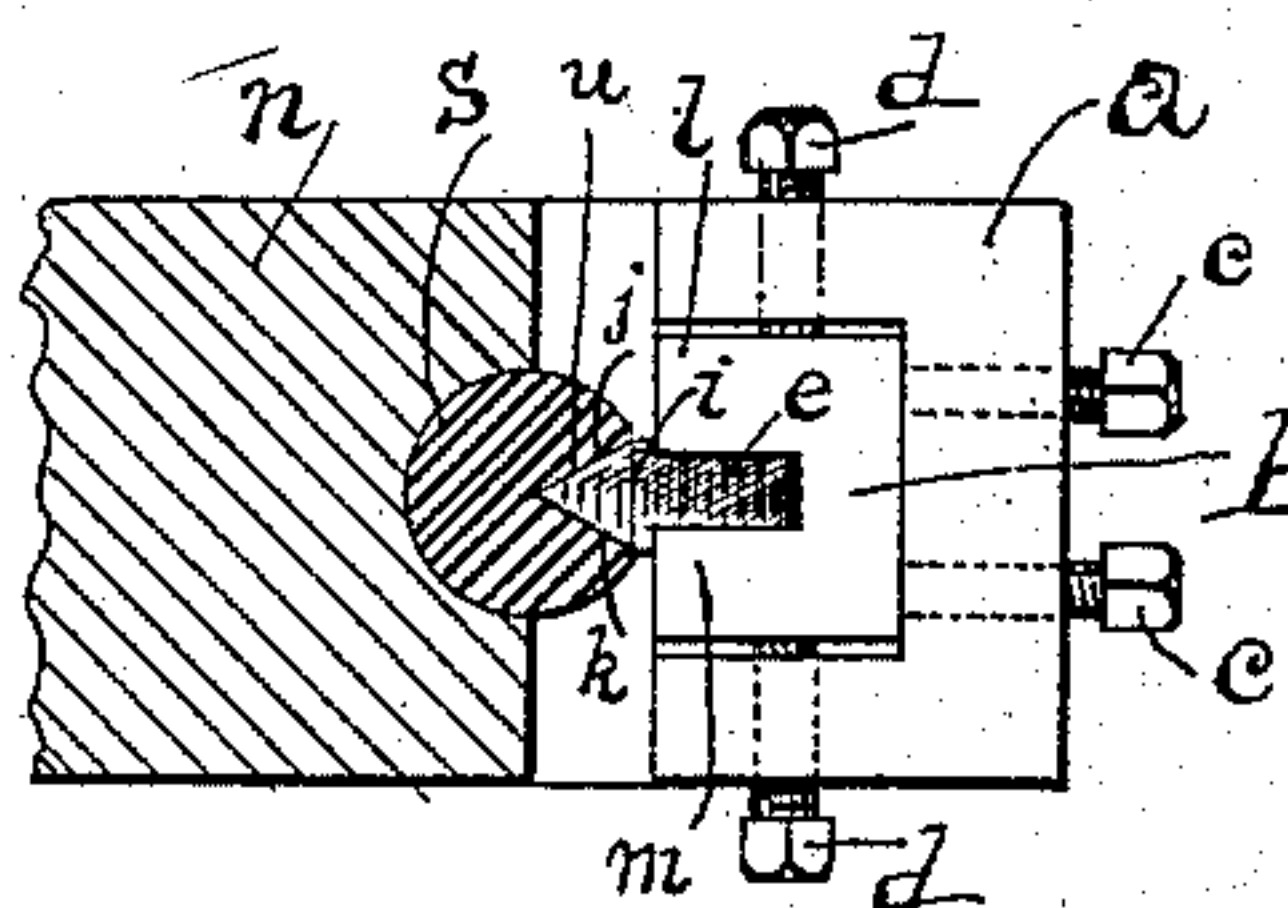


Fig. 3.

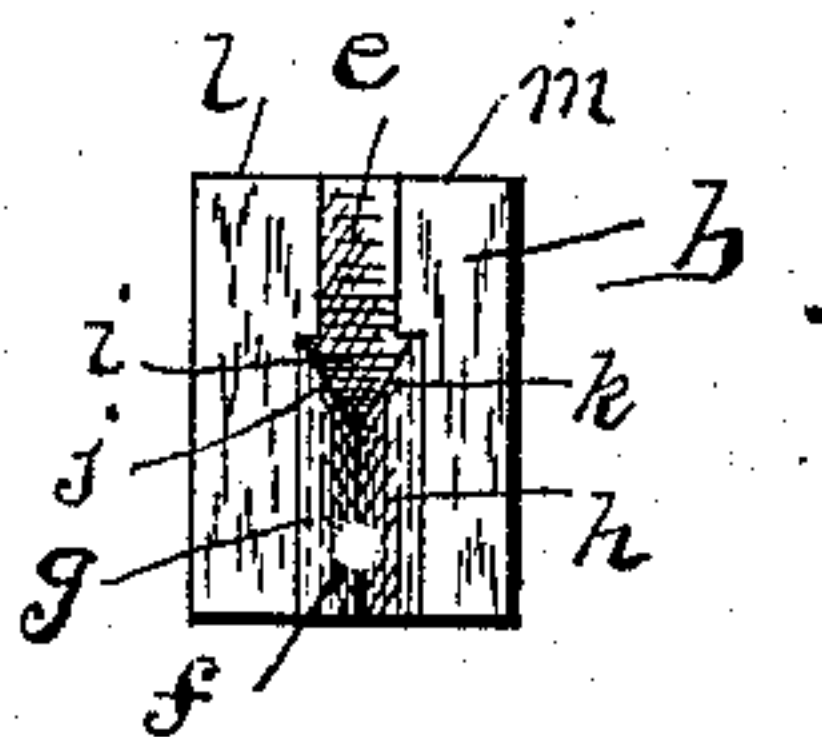


Fig. 6.

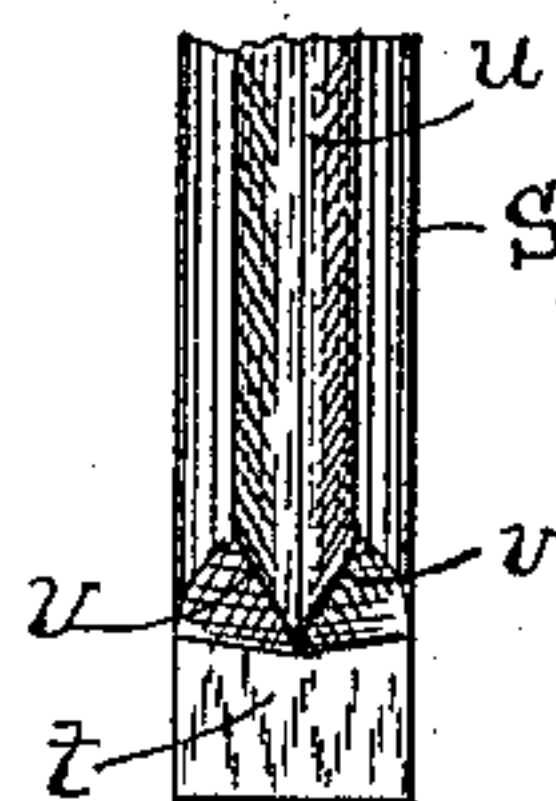


Fig. 5.

ATTEST:
J. A. M. Hay,
J. O. Thomas

INVENTOR:
William Goldie,
By Jas. E. Thomas,
Atty.

UNITED STATES PATENT OFFICE.

WILLIAM GOLDIE, OF WEST BAY CITY, MICHIGAN.

SPIKE-POINTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 413,341, dated October 22, 1889.

Application filed January 2, 1889. Serial No. 295,143. (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 Spike-Pointing Machines; 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.

My invention relates to improvements in machines for forming on a spike a point or extreme puncturing end having cutters or cutting-edges, preferably located on its sides, and of a sloping form beginning at or near the center and sloping outwardly toward the head to the lateral sides of the body, although my improved device, by a special adaptation of the dies and cutters, would form a chisel-edge of the ordinary form, or at right angles with the sides, which would greatly improve the driving and holding qualities of spikes of that form.

Spikes, especially those used in railroad work for holding the rails to the ties, must be provided with a keen and sharp cutting-edge to cut or divide the edge of the timber without breakage or mutilation, in order to obtain a fair and economical result in holding the rails in place; and the points as now constructed are commonly swaged into form with a cutting-edge not in the least sharp or keen, and are used with very unsatisfactory results, while other points are formed by reciprocating cutters opposite each other and cutting across the grain of the rolled iron of the spike; but this action on the iron causes the edges or cutters so formed to be rough and uneven and not well adapted to produce the result intended, as they do not divide the grain with a clean sharp cut, but, on account of the roughness and irregular edges, tear and break the fiber of the wood, so that a true and solid wall to support the spike is not obtained.

One object of my invention is to provide a machine for placing a keen and sharp cutting-

edge upon the spike-point after it has been swaged or pressed into form.

A second object of my invention is to provide a machine to form diagonal cutting-edges on the lateral sides of the reduced end or point by shearing off the superfluous metal or corners partially in the direction of its length, whereby the shearing action of the die obtains in a great measure lengthwise of the grain of the metal and keen knife-edges are formed as well as smooth compressing surfaces.

A third object is to construct and arrange a machine for producing a fine and keen cutting-edge upon a spike-point that is easily operated and kept in repair and at the same time strong and durable.

My invention consists, first, in a vertically-reciprocating plunger provided on its lower portion with one or more cutters of a shape to conform to the shape of the cutting-edges required on the spike, and a stationary or anvil die having its upper face arranged to support the spike in a position oblique to the movement of the plunger, and having its front lower edge fitted to conform to the cutter or cutters on the plunger; and the invention consists, also, in providing the vertically-moving plunger, having on its lower portion cutting-edges for shearing the point of the spike into the required form, with a guide or stop extending below the said cutters for receiving the point of the spike and sustaining the spike against end-thrust during the cutting operation, when used in combination with an anvil-die provided with an inclined face for supporting the spike in a position oblique to the movement of the plunger; and the invention consists in the combination and arrangement of the several parts which enter into the construction of the machine, as I shall hereinafter definitely explain, and particularly point out in the claims.

In the accompanying drawings are illustrated the devices I employ to attain the objects before stated.

Figure 1 represents a vertical central section of the spike-pointing machine containing my invention and showing the parts in position before the pointing operation. Fig. 2 is the same and showing the position of the

parts after the pointing operation is performed. Fig. 3 is a section of Fig. 1 taken at $x x$. Fig. 4 is a section of Fig. 2 taken at $y y$. Fig. 5 is a front view of the lower portion of the plunger detached. Fig. 6 is a view in elevation of the inner side of the anvil detached.

The same letters of reference throughout the several views designate the same parts.
 10 a is a bed-piece or supporting-plate mounted upon suitable lugs or standards, (not herein shown,) and upon the front end portion of the bed-piece is placed a stationary anvil or die-block b , and the block is held in position and
 15 arranged to be adjusted in any required direction in any suitable manner, one means, as herein shown, being the adjusting-screws c for a front and rear, and the screws d for a lateral, adjustment. The upper side of the
 20 die-block is provided with a die-face e , having its surface sloping inwardly and downwardly, (as herein shown to about the angle of forty-five degrees,) as may be required to conform to the shape of the point to be pro-
 25 duced, and the inner or front vertical face f of the block is extended forward, and this portion f has its lateral sides g and h arranged to conform to the longitudinal contour of the edges designed to be produced upon the spike-
 30 point, and, as shown in the illustrations, the portion f is provided with the sides g and h diverging from the center in the form of a male **V**, while the upper surface i of the portion f is sloping and forms a continuation of
 35 the face e ; or the angle may be slightly changed to conform to the compressing-surface of the spike to be operated upon, and is provided on its lateral sides with the oblique edges j and k .

40 The lateral portions l and m of the die-block on each side of and projecting above the face e form guides for presenting and retaining the spike in a proper position in relation to the edges j and k .

45 Extending upwardly from the rear portion of the bed-piece a is a standard n , and upon the side supports o , which extend above the standard, is mounted the transverse shaft p , which carries a cam q , rigidly secured thereon
 50 between the side supports o . The standard n is provided in its upper portion with a vertical opening or slide r , while the front portion of the standard in rear of the die-block b is removed, the rear side of the slide r ,
 55 however, continuing below the block to the bed-piece. s is a plunger placed within and fitted to the slide r , to allow a vertically-reciprocating movement to be imparted thereto, and the front portion of the lower end of the
 60 plunger is removed, leaving the remaining portion t so located as to rest against or in close proximity to the **V**-edge of the portion f , and the front side of the plunger above the guide-stop t is provided with a longitudinal
 65 **V**-shaped groove u , conforming to the contour of the male **V**-projection f , over which it passes in the reciprocation of the plunger.

The lower end of the **V**-groove u is provided with the cutting-edges v , of any suitable form, being herein shown as sloping upward from
 70 the inner angle of the **V**-groove, as best adapted to making the form of point herein shown. The upper end of the plunger is provided with a projection or collar w , and z is a spring coiled around the plunger beneath
 75 the collar and resting upon the upper portion of the standard beneath the side supports o , and operates to lift the plunger to bear its upper end against the periphery of the cam q .

Suitable means are attached to the shaft p
 80 for imparting a rotary motion thereto and revolving the cam q in the direction of the arrow shown in Figs. 1 and 2, and the cam operating upon the upper end of the plunger forces it downward, while the spring z oper-
 85 ates to lift the plunger after the extended portion of the cam has passed the plunger, so that the plunger is moved slowly downward and lifted quickly upward to allow ample
 90 time to place the spike a' in position.

The spike a' , as herein shown as intended to be operated upon, is of the ordinary form, having a swaged chisel-point with an edge quite dull or thick, and is placed between the
 95 guides l and m , with the rear face of its point lying upon the anvil die-face i , and with its end or chisel-edge bearing against the guide-stop t , as shown in Fig. 1. The plunger then descends and causes the edges v to impinge
 100 upon the upper side of the spike-point and pass downward to shear off the metal, which projects laterally beyond the edges j and k , and produce on the lower or rear side of the
 105 spike cutters which have exceedingly sharp and clean edges, and at the same time making neat and smooth oblique bevels on the spike-point in front of the edges.

The machine as herein shown and described is adapted to produce oblique cutters located
 110 coincident with the rear compressing-bevel of the point, and of course forms a point of a **V** form; but I do not limit the invention to the precise form of the dies and cutters herein shown, as the form of the dies and
 115 cutters may be varied and changed so as to produce any form of cutter upon the spike-point that may be desired, and is as well adapted to form the cutters in a central loca-
 120 tion on the sides of the point, as the spike, having been operated upon as above described, is reversed, and with its opposite side lying upon the die i and the extreme point against the stop t the cutting operation is repeated, and the cutters are then formed in a
 125 central location, with the same oblique bevels in front and rear thereof.

One great advantage of the use of this device is, that it is not essential when heading and pointing a spike-blank to provide for a
 130 fine or uniform point, as the swaging of the point may be very imperfect so long as front and rear compressing-bevels are formed, and the spike-bevels then operated upon by my improved machine will be found provided

with as neat and uniform cutters as would be obtained by operating upon the most perfectly-swaged point, and this advantage is a great saving of expense and time in the manufacture, as a heavy expense is incurred in repairing and keeping in order the swaging-dies to form a uniform point.

Of course it is well known that metal bars formed by the rolling process are provided with a fiber or grain running lengthwise thereof, and as these rolled metal bars are used in the construction of the common forms of spikes, it will be observed that the cutting action of the edges *v* obtains almost lengthwise of the grain of the iron in the spike, and a much cleaner cut is made and finer and more perfect cutters are formed by shearing the point oblique to the grain of the spike than by making the cut transversely with the grain, as no breakage or cleavage of the fiber of the extreme edges or the oblique facets can take place with the cutters moving obliquely to the grain of the iron.

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

1. In a spike-pointing machine, the combination, with a reciprocating plunger provided on one end portion with one or more cutters, of an anvil-die having an inclined die-face for supporting the spike in a position oblique to the movement of the plunger, whereby the fiber of the rolled metal is divided obliquely in the direction of its length, substantially as set forth.

2. In a spike-pointing machine, the combination, with a reciprocating plunger provided on its lower portion with cutters, and having a gage-stop projecting below and in rear of the said cutters, with an anvil-die having an inclined face for supporting the spike with its end presented to the cutters and in a position oblique to the movement of the plunger, substantially as and for the purpose set forth.

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

WILLIAM GOLDIE.

Witnesses:

FRED. A. MCKAY,
JAS. E. THOMAS.