

(No Model.)

G. MILNER.  
SPIKE.

No. 563,050.

Patented June 30, 1896.

Fig. 5.

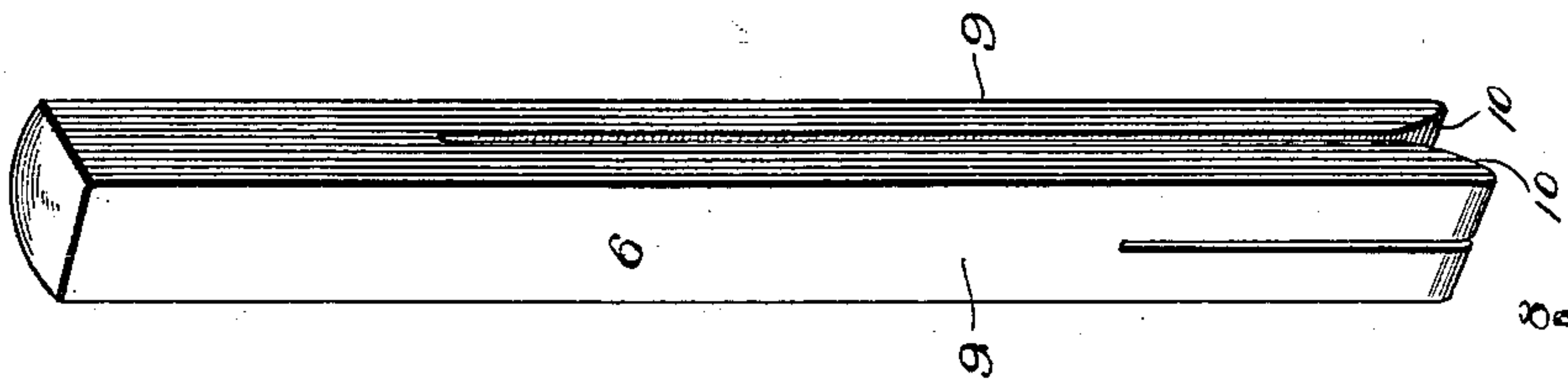


Fig. 4.

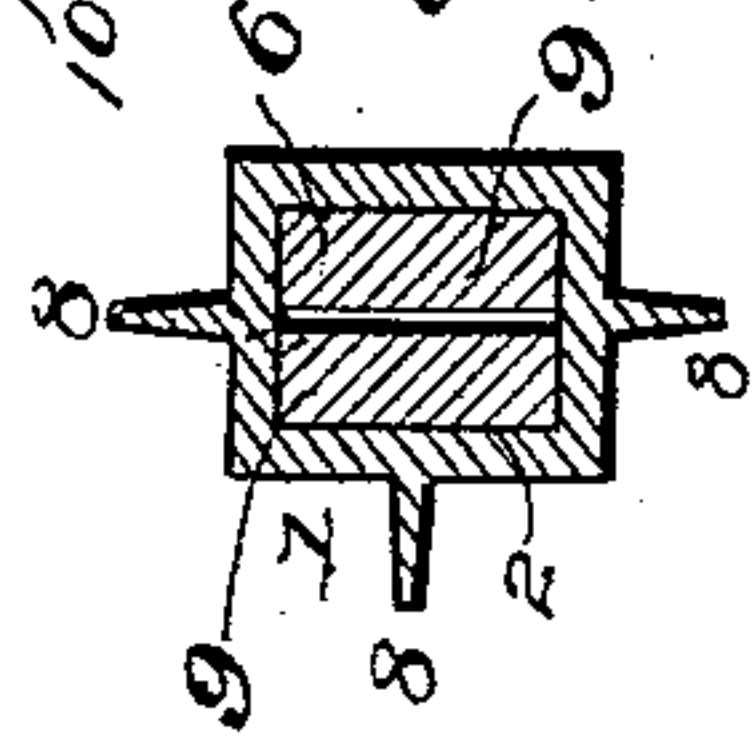


Fig. 3.

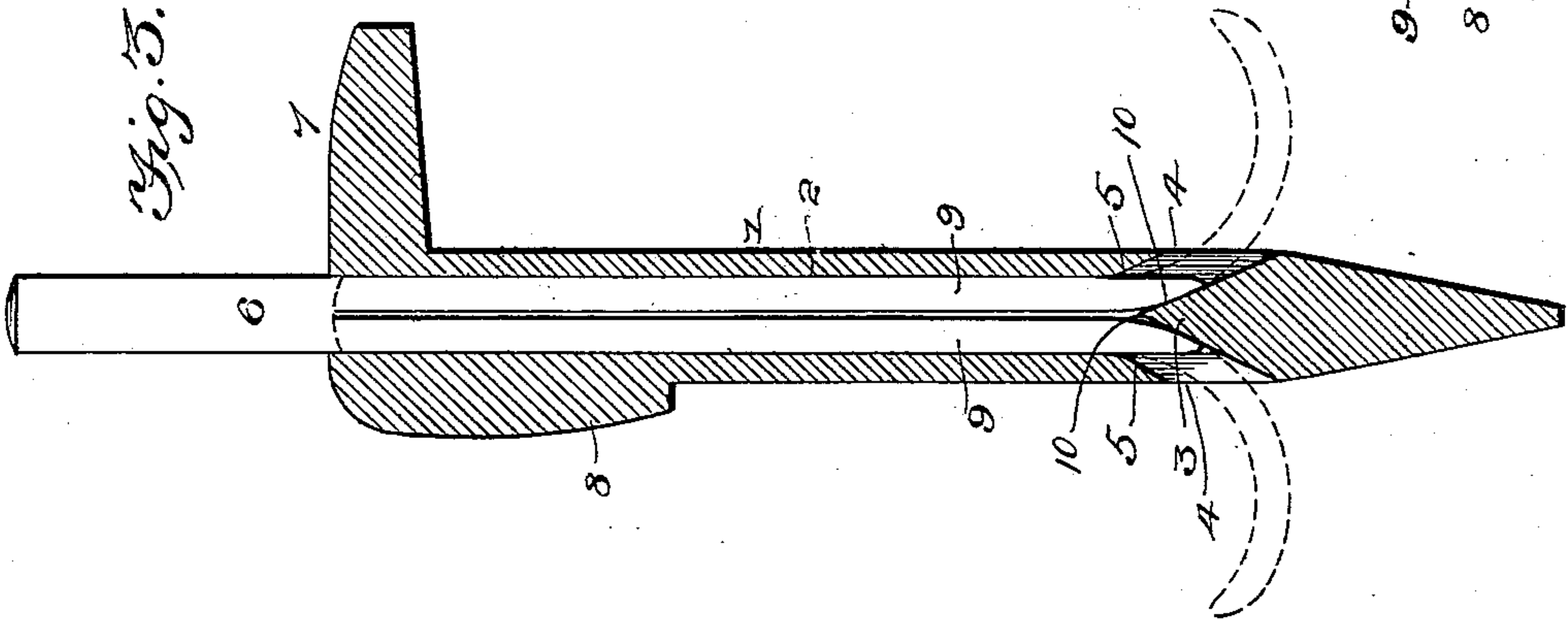


Fig. 2.

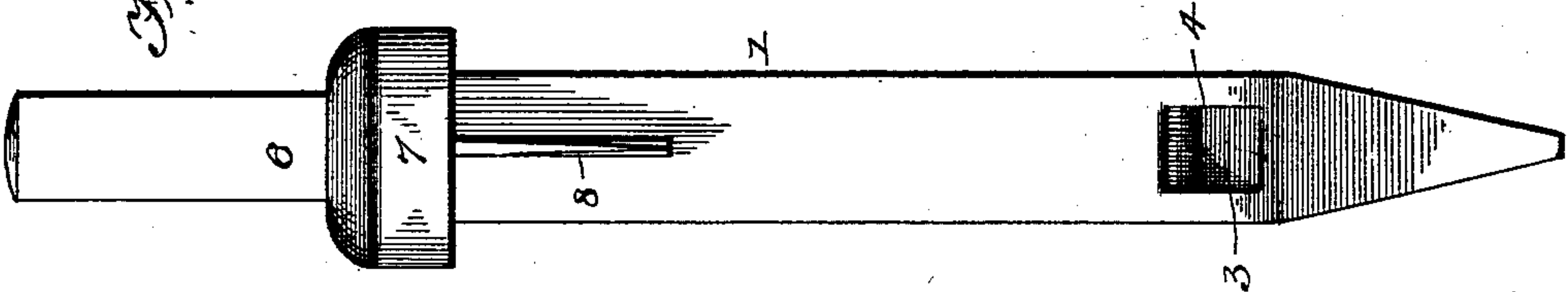
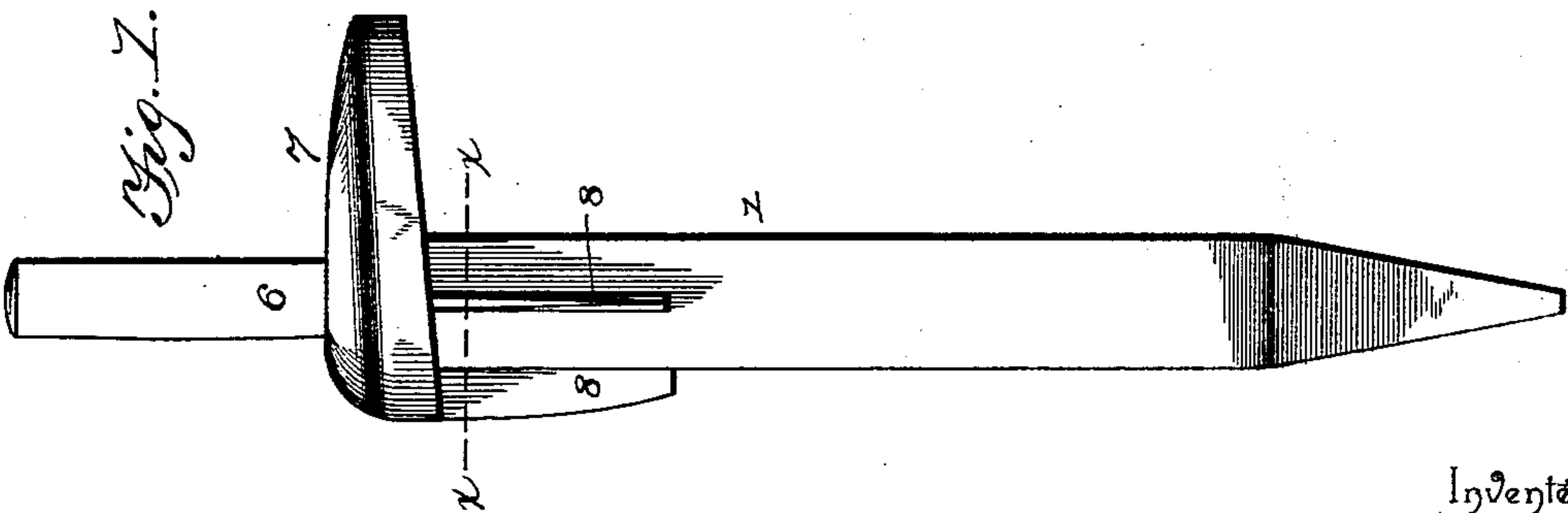


Fig. 1.



Inventor

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Witnesses

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# UNITED STATES PATENT OFFICE.

GEORGE MILNER, OF BROOKLYN, NEW YORK, ASSIGNOR TO W. E. CONWAY, OF SAME PLACE, AND BENJ. F. PALMER, OF SOUND BEACH, CONNECTICUT.

## SPIKE.

SPECIFICATION forming part of Letters Patent No. 563,050, dated June 30, 1896.

Application filed May 31, 1895. Serial No. 551,249. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE MILNER, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented a new and useful Spike, of which the following is a specification.

This invention relates to that class of spikes which are provided with clenchers or keys by means of which they are securely anchored after being driven home into the timber, railway-tie, or other structure with which the spike is used.

The object of the present invention is the construction of a tubular or longitudinally-bored spike having a solid driving-point which terminates at its upper end in a wedge-shaped projection which extends a short distance into the bore of the spike, the latter having openings in diametrically opposite sides in register and which are separated by means of the wedge-shaped projection of the driving-point.

A further object of the invention is the combination, with a tubular spike of the aforesaid construction, of a key to be driven into the spike and comprising parallel members which are oppositely beveled at their penetrating ends, and which are adapted to engage with the beveled sides of the wedge-shaped projection and be deflected outwardly through the openings in the sides of the spike, so as to retain the latter in position against any possible accidental withdrawal.

A still further purpose of the invention is the provision of a spike of the character aforesaid which can be commercially manufactured so as to place it within reach of builders and constructors, and which will be compact and capable of being driven into a timber the same as the ordinary spike without requiring boring of the said timber for the reception of the spike.

Spikes have been constructed having a wedge-shaped projection on one side near the penetrating end, but practice has demonstrated that such spikes cannot be successfully used because the fiber of the wood closes over the said projection as the spike is driven home, thereby rendering it exceedingly difficult to properly position the clencher or key. The present spike, being tubular or longi-

tudinally bored, entirely obviates this objection, as an unobstructed passage is provided for the key when it is required to insert it in the bore of the spike to anchor or fasten the latter by driving the said key into the spike in the manner aforesaid.

The improvement consists of the novel features which hereinafter will be more fully set forth and claimed, and which are shown in the accompanying drawings, in which—

Figure 1 is a side elevation of a spike constructed in accordance with the principles of the present invention, a portion being broken away near the point or penetrating end. Fig. 2 is a front elevation thereof. Fig. 3 is a longitudinal section showing the position of the key by full lines after being inserted in the spike and prior to the spreading of its separated ends, and showing by dotted lines the relative disposition of the key after it has been driven flush with the head of the spike and its separated ends spread. Fig. 4 is a cross-section of the spike on the line X X of Fig. 1. Fig. 5 is a detail perspective view of a modified form of key.

Similar reference-numerals designate corresponding parts in the various views.

The numeral 1 represents a spike which in general appearance resembles the ordinary railroad-spike, but which is tubular or provided with a longitudinal bore 2, and this bore extends to within a short distance of the point or penetrating end, which is solid and which is formed on its upper side with a wedge-shaped projection 3 extending a short distance into the bore 2. Openings 4 are provided in the opposite sides of the spike in transverse alinement, so as to register, and are separated by the wedge-shaped projection 3, which occurs midway between the said openings and which terminates a short distance above a line passing through the upper edges of the said openings 4. The upper edges of the openings 4 are beveled outwardly, as shown at 5, and the lower edges are correspondingly beveled and form a continuation of the inclined sides of the wedge-shaped projection 3. The bore 2 may have any desired form in cross-section, and is preferably oblong, so as to insure the correct positioning of the key 6 when it is required to insert it in



the bore of the spike. The head 7 of the spike is of the usual form and projects at one side so as to extend over the foot of a rail. Obviously the said head 7 may have any required form according to the nature of the work for which the spike is especially constructed. Fins or ribs 8 are disposed at the driving end of the spike and extend longitudinally thereof for a short distance from the head 7, and are adapted to strengthen and brace the walls and head of the spike at the driving end and at the same time assist materially in preventing the spike from turning in the timber after it has been driven home. These fins or ribs 8 are shown disposed on three sides of the spike, the side of the spike designed to come opposite the rail being straight, so as to admit of the head 7 extending over the foot of the rail and obtaining a firm purchase thereon, and these fins or ribs taper slightly in their length and are wedge-shaped in cross-section, so as to enable them the more readily to penetrate the timber.

The key 6 is split at one end, so as to provide two members 9, which have their penetrating ends oppositely beveled, as shown at 10, so as to engage with and ride upon the inclined sides of the wedge-shaped projection 3 and be deflected outwardly through the openings 4 when driving the key into the body of the spike. In some instances it may be found desirable to split the penetrating ends of the members 9, and such a construction is shown in Fig. 5, thereby forming a group of four members which in the driving home of the key are adapted to separate and spread in as many directions, thereby securing a better anchorage and fastening for the spike.

The spike is designed to be used in the ordinary manner, and is driven home into the timber by raining blows upon its head 7 by means of a sledge or similar tool, and after the spike has been driven home the key 6 is inserted in the bore 2, so that its members 9 will come upon opposite sides of the wedge-shaped projection 3, and is driven into the said bore until its end comes flush with the head 7. As the key advances under the influence of the blows of the hammer or tool its members 9 will be deflected outwardly through the openings 4 into the body of the timber adjacent to the spike, and said members curving will form a secure anchorage and fastening for the spike, as will be readily understood.

When driving the spike and in order to obviate injury thereto or a closing of the outer end of the bore 2, it has been found advantageous to insert a plug of suitable form into

the outer end of the bore 2, and this plug may be of any style and shape which will readily suggest itself to the skilled mechanic. This plug forms no part of the invention, and is simply referred to as showing how the spike may be driven without working injury thereto. The wedge-shaped projection 3 may be properly termed a "spreader," and this spreader may be provided in a variety of ways and have any desired form in cross-sectional area to suit the make and pattern of the spike.

The style and form of the spike will depend upon the nature of the work and will vary accordingly as the spike is designed for the construction of railroads, ships, houses, or for other purposes. Therefore it is to be understood that various changes in the form, proportion, and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention.

Having thus described the invention, what is claimed as new is—

A spike formed substantially as herein set forth, having a longitudinal bore extending from its head to within a short distance of its penetrating end, and having an integral driving-point formed on its upper or inner end with a wedge-shaped projection, and having registering openings in its sides directly opposite the wedge-shaped projection, and having a head which extends laterally beyond the three sides of the body of the spike for a short distance and beyond the fourth side for a greater distance to engage with the foot of a rail, and having longitudinal ribs on the three sides corresponding with the three short lateral extensions of the head and touching the latter at their upper ends and bracing and strengthening the head and the walls of the spike, the lower ends of the ribs tapering to penetrate the wood, in combination with a key split for a short distance from its lower end to form parallel members which are oppositely beveled at their ends, and which is adapted to fit snugly within and be driven into the longitudinal bore of the spike to bring the beveled ends thereof into forcible contact with the sides of the wedge-shaped projection, whereby its end portions are oppositely deflected, substantially as set forth for the purpose described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

GEORGE MILNER. [L. S.]

Witnesses:

CLARENCE B. ENSLEY,  
W. E. CONWAY.