No. 826,712. PATENTED JULY 24, 1906.

A. M. DAVIS.

HARROW.

APPLICATION FILED OCT. 12, 1905.

2 SHEETS—SHEET 1.

Fig. 1.

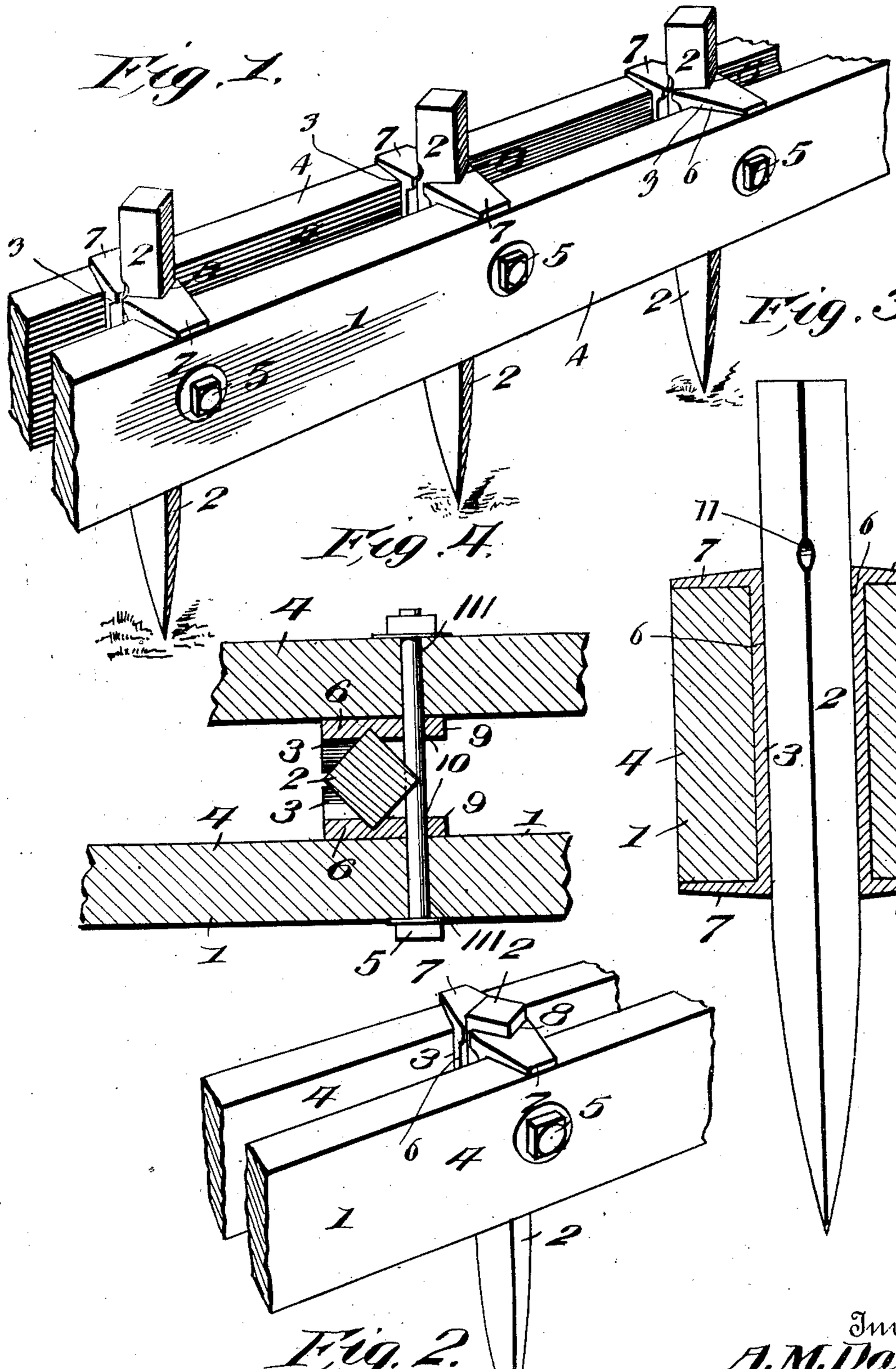

Fig. 3.

Fig. 4.

Fig. 2.

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2 SHEETS—SHEET 2.

Fig. 5.

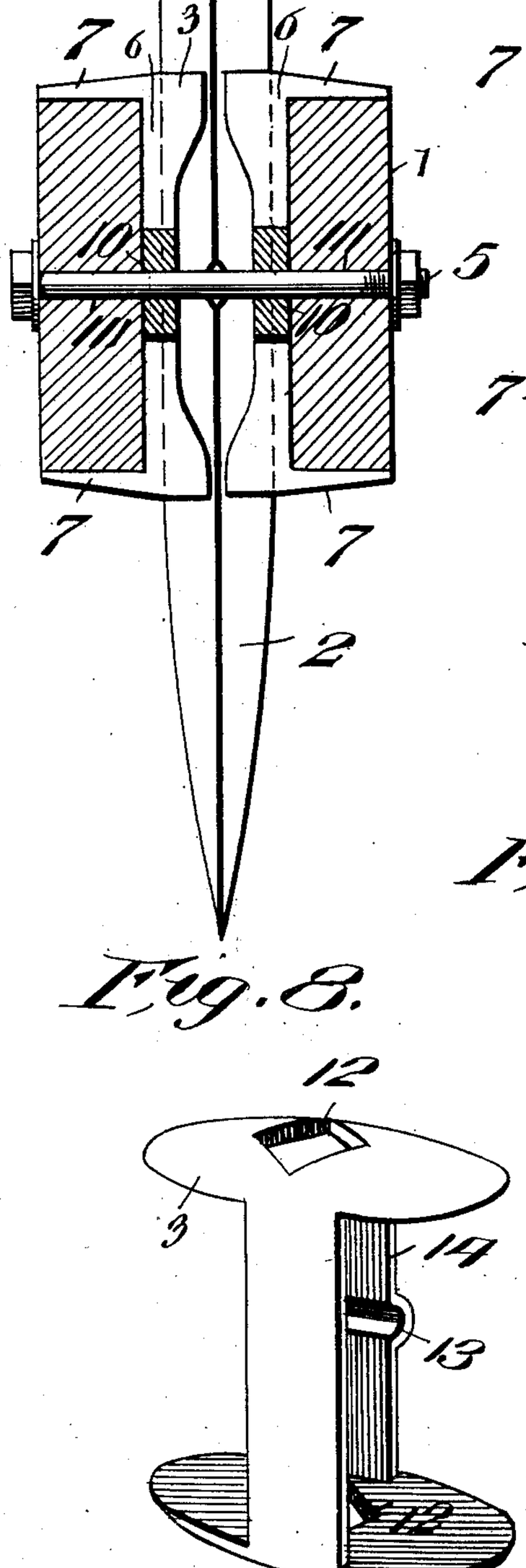


Fig. 7.

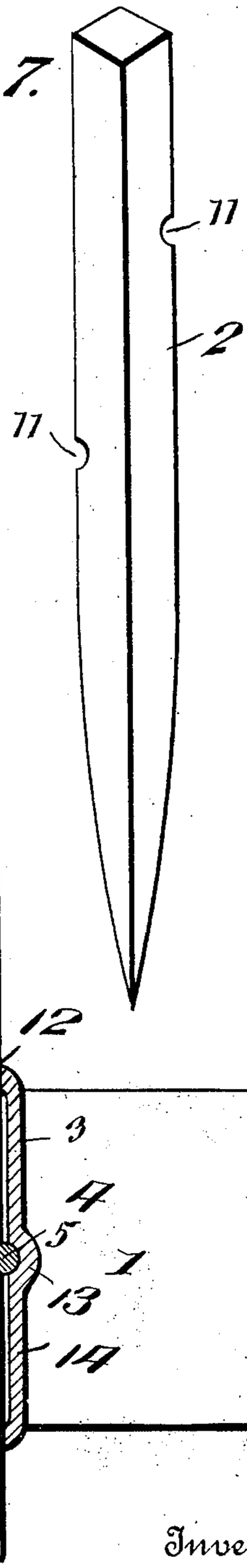


Fig. 8.

Fig. 6.

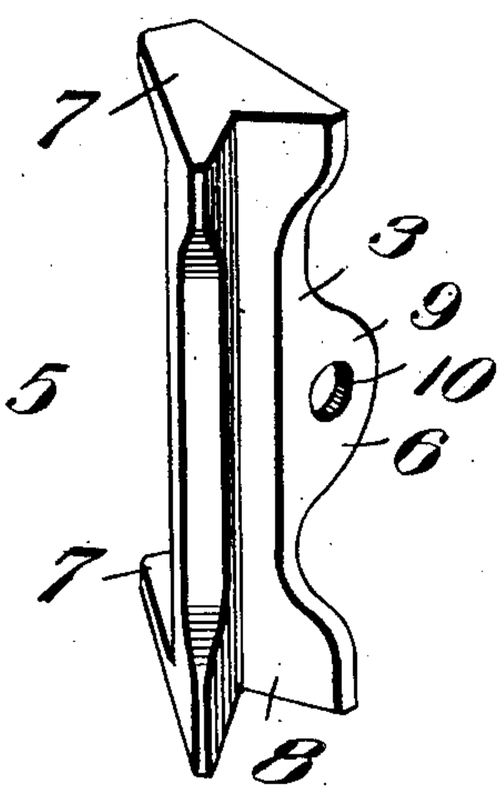
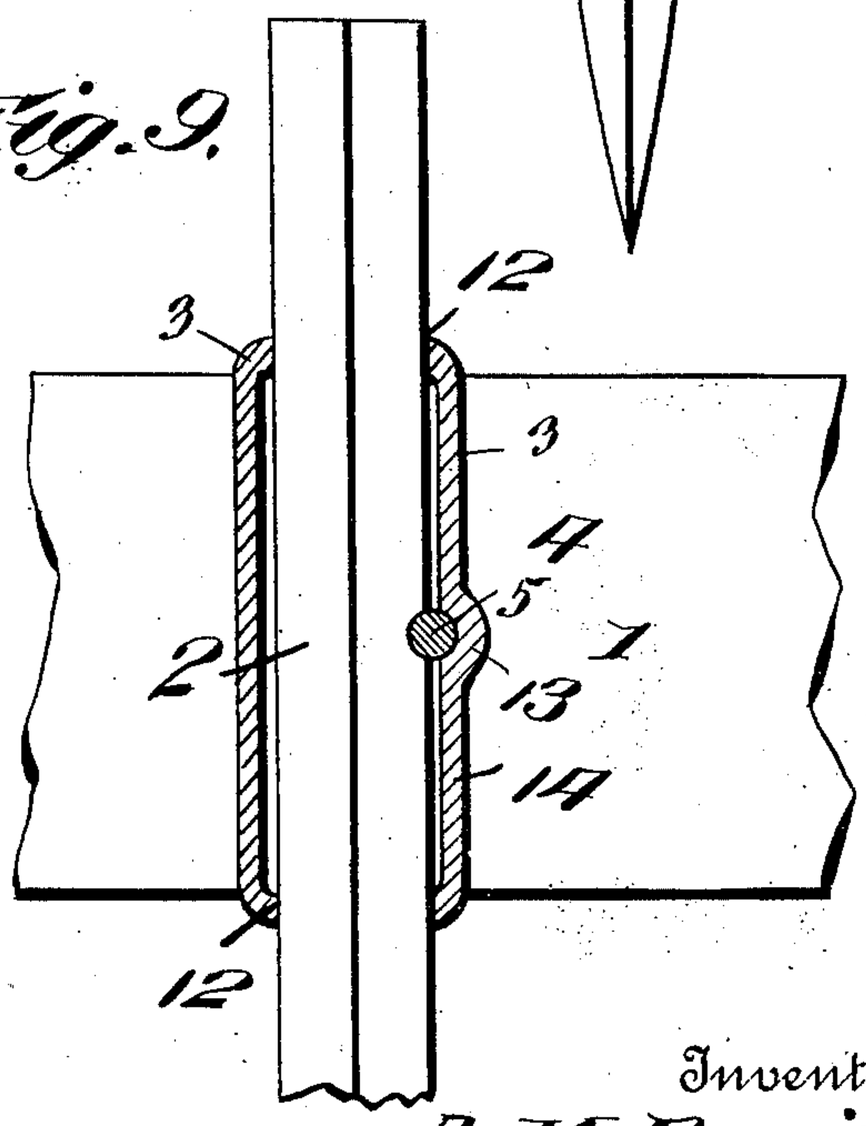


Fig. 9.



Witnesses

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UNITED STATES PATENT OFFICE.

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HARROW.

No. 826,712. Specification of Letters Patent. Patented July 24, 1906.

Application filed October 12, 1905. Serial No. 282,491.

To all whom it may concern:

Be it known that I, ALBERT M. DAVIS, a citizen of the United States, residing at Madison, in the county of Dane and State of Wisconsin, have invented certain new and useful Improvements in Harrows; 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.

My invention relates to improvements in harrows, and more particularly to the beams and bars thereof and the means for mounting the teeth in the latter.

One object of the invention is to provide a harrow-tooth bar of simple, inexpensive, light, and durable construction.

Another object of the invention is to provide a harrow-tooth bar upon which the teeth may be readily adjusted at different distances apart.

Another object is to provide a simple, inexpensive, and efficient means for mounting the teeth upon the harrow-tooth bars.

Another object of the invention is to provide a harrow-tooth-fastening means in which the teeth will be rigidly held and at the same time may be quickly and easily adjusted.

A further object of the invention is to improve and simplify the construction and operation of devices of this character, and thereby render the same more convenient, efficient, and durable in use and less expensive to manufacture.

With the above and other objects in view the invention consists of certain novel features of construction, combination, and arrangement of parts, as will be hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a perspective view of a harrow-tooth bar constructed in accordance with my invention. Fig. 2 is a perspective view of one end of said bar, showing the manner in which one of the harrow-teeth is adjusted when its point is worn away. Fig. 3 is a vertical transverse sectional view through the same. Fig. 4 is a detail horizontal sectional view. Fig. 5 is a detail vertical sectional view. Fig. 6 is a perspective view of one of the half-sections or members of one of the tooth clamps or holders. Fig. 7 is a perspective view of one of the harrow-teeth, showing the notches in its edges to permit of its longitudinal adjustment. Fig. 8 is a perspective view of a slightly-modified form of harrow-tooth holder or clamp, this form being made in one piece instead of in two pieces or sections; and Fig. 9 is a sectional view showing the manner in which the modified form of tooth clamp or holder is used.

Referring to the drawings by numeral, 1 denotes my improved tooth bar or beam for a harrow. 2 denotes harrow-teeth, and 3 denotes my improved clamps or holders for mounting the teeth upon the beam or bar. The latter consists of two similar parallel members 4, which are spaced apart by the clamps or holders 3 and connected together by bolts or similar fastenings 5, which also secure the harrow-teeth in said clamps or holders.

The tooth clamps or holders 3 may be made in one piece, as shown in Figs. 8 and 9 of the drawings, or in two pieces, as shown in the first seven figures of the drawings. In the latter case each consists of two similar members or half-sections 6, which have at the ends of their flat outer faces, which bear against the opposite inner faces of the bars or members 4 of the tooth-beam, projecting lips 7, adapted to engage the upper and lower edges of said bars 4. The opposite inner faces of the half-sections or members 6 of the clamp are formed with longitudinally-extending V-shaped grooves or channels 8 to receive the oppositely-disposed edges of the harrow-teeth 2, as clearly shown in Fig. 4 of the drawings. Each of the members or half-sections 6 of the clamps is formed on one side with an enlargement or lug 9, which is apertured, as at 10, to receive one of the bolts 5. The latter pass through the alining apertures 10 and through alining apertures 111, formed in the parallel bars or members 4. The apertures 10 are so disposed that the bolts 5 extend through notches or recesses 11, formed in the edges of the harrow-teeth 2, so that the latter are retained in the clamps or holders against longitudinal movement.

It will be noticed upon reference to Figs. 4 and 5 of the drawings that owing to the disposition of the central portion of the bolt in one of the notches 11 in the tooth the latter will be held against longitudinal movement. By arranging the notches 11 at different points upon the tooth the latter may be adjusted vertically in the holder or clamp, so that any desired portion of its lower end projects below the lower end of the latter, and that by arranging said notches upon different edges of the tooth it may be adjusted so that

when one of the edges is worn it may be turned to bring a fresh or sharp edge into a forward or working position. As shown in the drawings, the tooth 2 is provided with but two of the notches 11, which are arranged in opposite edges and at different distances from its ends, so that it may be adjusted in either of the two positions shown in Figs. 1 and 2 of the drawings. When the tooth is adjusted in the position shown in Fig. 1 and its point wears away, it may be adjusted to the position shown in Fig. 2 in order to prolong the life of the tooth. By mounting the tooth clamps or holders 3 upon one half of the bar 1 in the reverse direction to that in which the remaining half are mounted the teeth 2 may be so adjusted that any of their edges may be turned forwardly into the working position by transferring the teeth on one half of the bar to the other half of the bar as their edges wear away. This permits the user to have sharp forward cutting edges on the teeth at all times during its life and greatly increases the efficiency of the implement. When the bars 4 are made of wood, the holes in them through which the bolts 5 pass may be bored at any desired points, so that any desired number of teeth may be mounted upon the bar or beam 1 and at any distance apart.

Instead of making the clamps or holders 3 in two pieces they may be made in a single piece, as shown in Figs. 8 and 9 of the drawings. When this is done, they are substantially rectangular in form, with forwardly and rearwardly projecting lips at their upper and lower ends and with alining openings 12 in the latter, through which the teeth project and in which they are retained by the bolts, as shown. In this form of the invention the bolt passes through a semicircular recess or notch 13, formed in one of the sides 14 of the holder.

The construction, use, and advantages of the invention will be readily understood from the foregoing description, taken in connection with the accompanying drawings. When the members or bars 4 of the tooth-bars are made of wood, it will be much lighter than a solid beam and at the same time stronger and more durable and there will be less liability of the bars splitting. When the bars 4 are made of wood, any number of teeth may be mounted between them and at any distances apart, and this may be done as readily by the owner after he has purchased the implement as at the factory while it is being made. By mounting the teeth upon the bar or beam, as shown and described, they may be quickly adjusted as they wear away to cause their sharp edges to be turned forwardly and to permit the greatest amount of wear to be obtained from them. This construction is simple, light, and inexpensive and at the same time more durable, convenient, and efficient than any now on the market.

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

1. In a harrow, the combination of a bar having spaced members, a tooth-holder between said members, a tooth in said holder, and a securing device passing through the members of the bar, the tooth-holder, and engaging the tooth, said device securing both the tooth-holder and the tooth in place.

2. In a harrow, the combination with a tooth bar or beam having spaced members, a tooth-holder between said members, a notched tooth in said holder, and a bolt engaged with the notch in said tooth and passing through said members to clamp them upon said holder and to retain the tooth in the latter.

3. In a harrow, the combination with a tooth bar or beam having spaced members, a tooth-holder between said members, a notched tooth in said holder, and a clamping device passed through said holder, said members and the notch in said tooth, substantially as described and for the purpose set forth.

4. In a harrow, the combination of a tooth bar or beam consisting of two parallel members formed with alining openings, a two-part tooth-holder arranged between said members, each part of said holder being formed with a longitudinally-extending groove and an aperture, lips upon the ends of the parts of said holder to engage the edges of said members, a tooth having angular edges seated in the grooves in the two parts of said holder and provided in its edges with notches, and a bolt passed through the openings in said members and the parts of said holder, and one of the notches in said tooth, substantially as described and for the purpose set forth.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

ALBERT M. DAVIS.

Witnesses:
F. K. SHUTTLEWORTH,
W. L. GILLETTE.