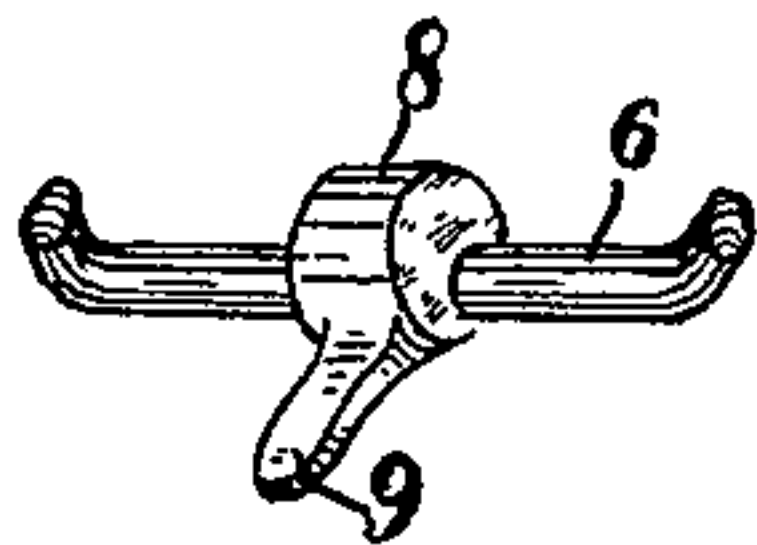
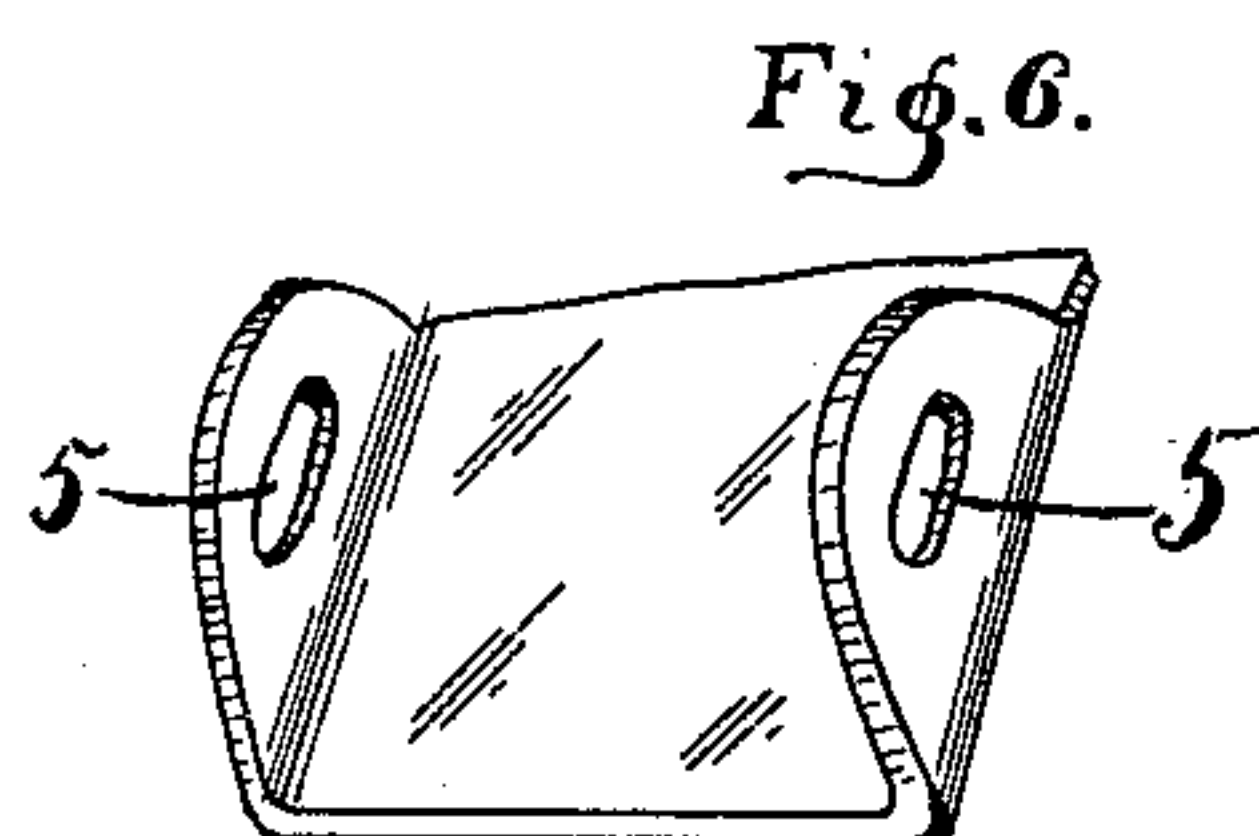
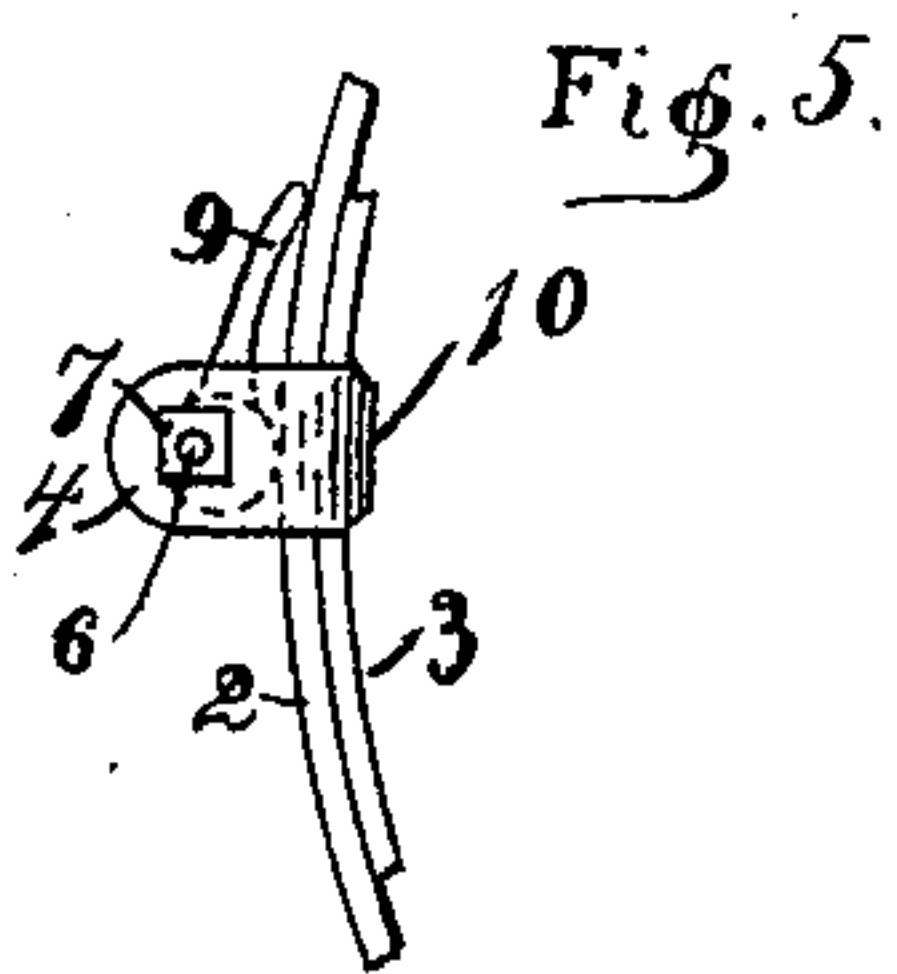
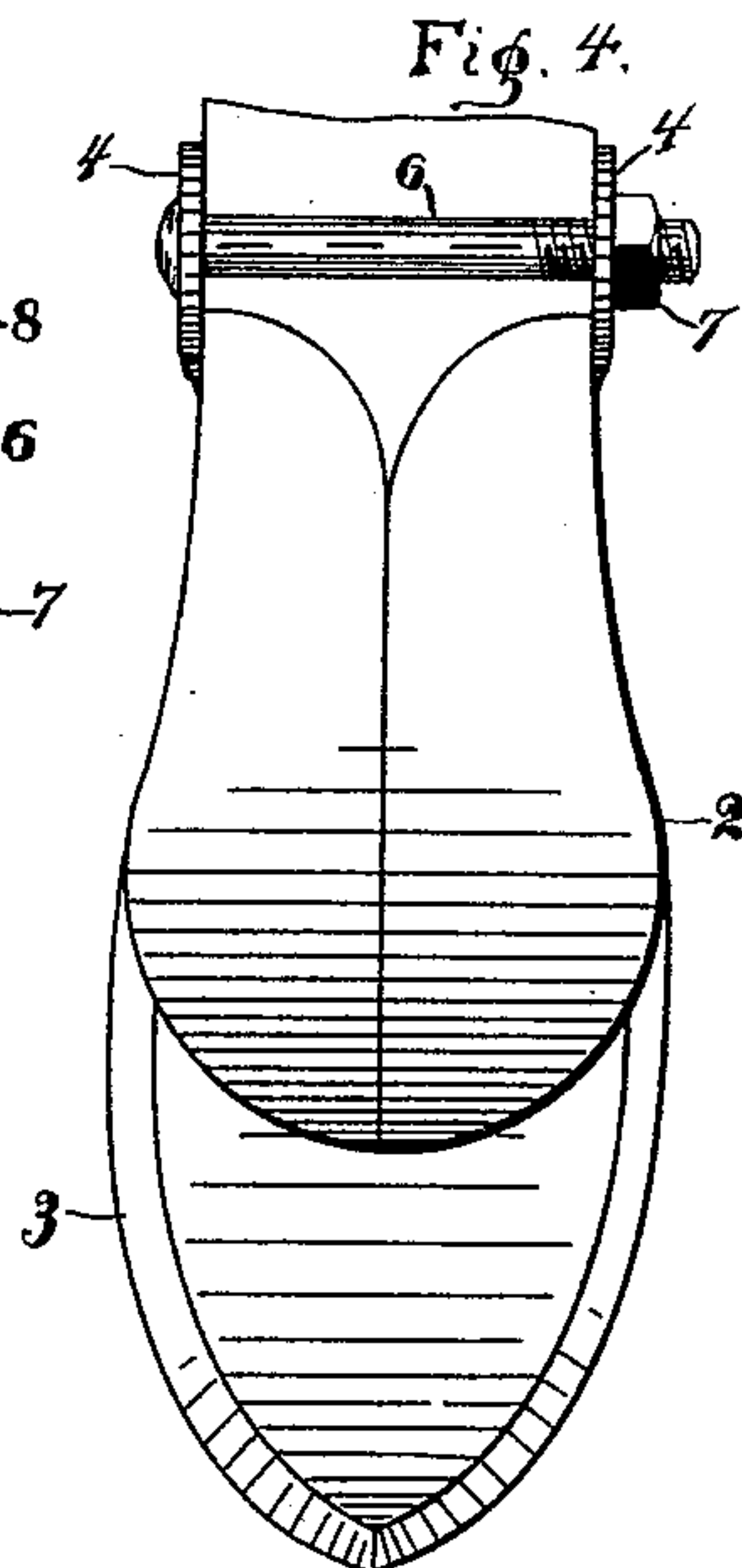
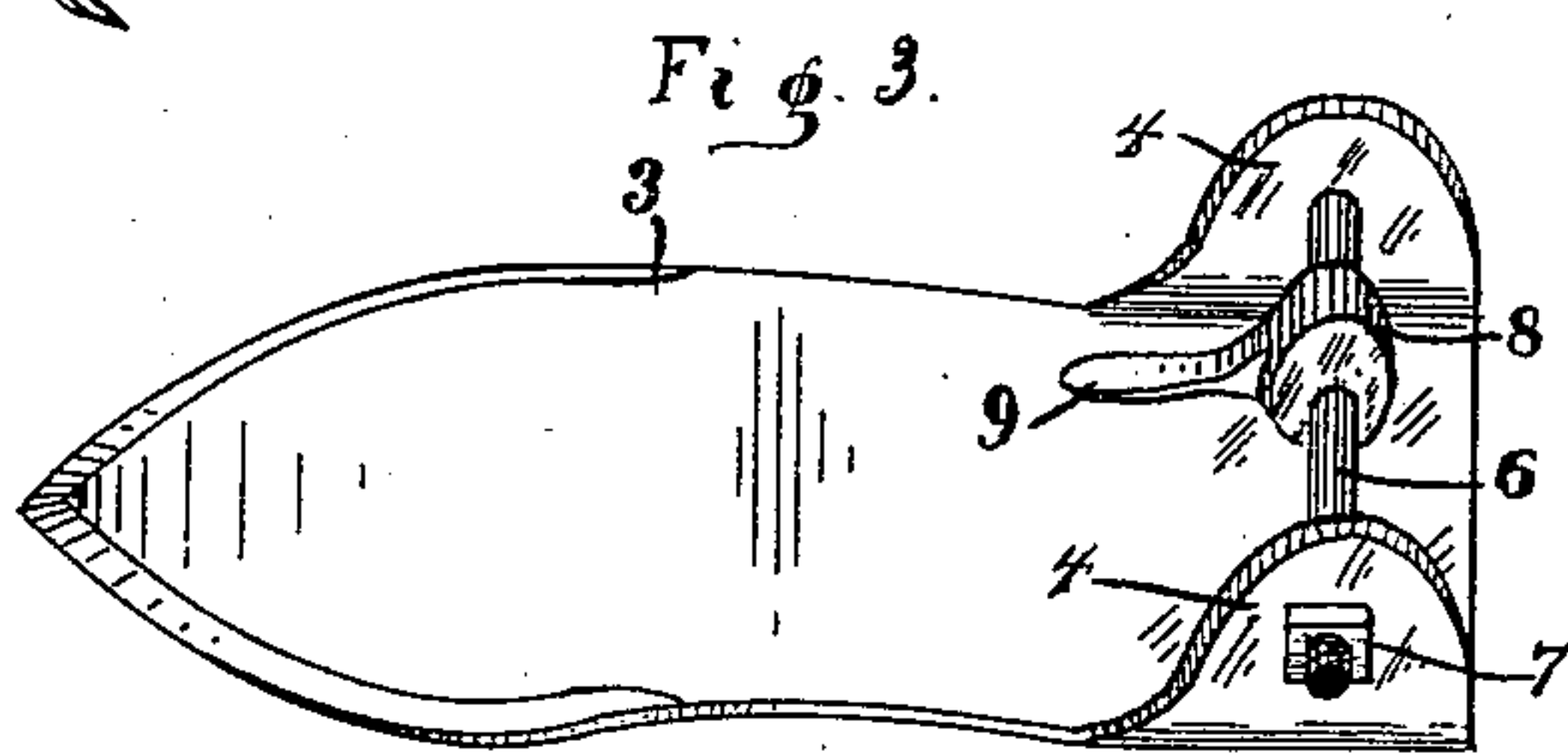
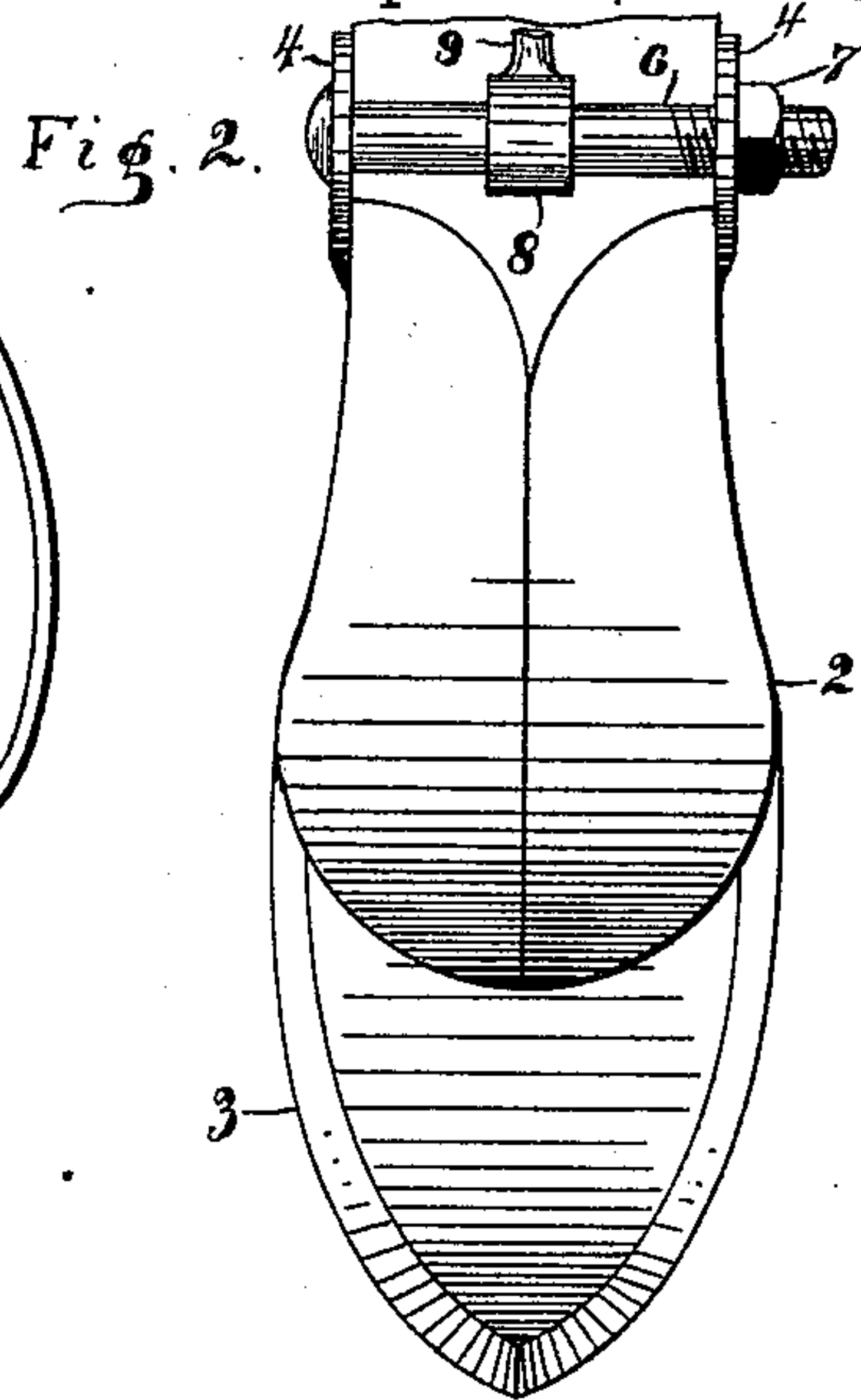
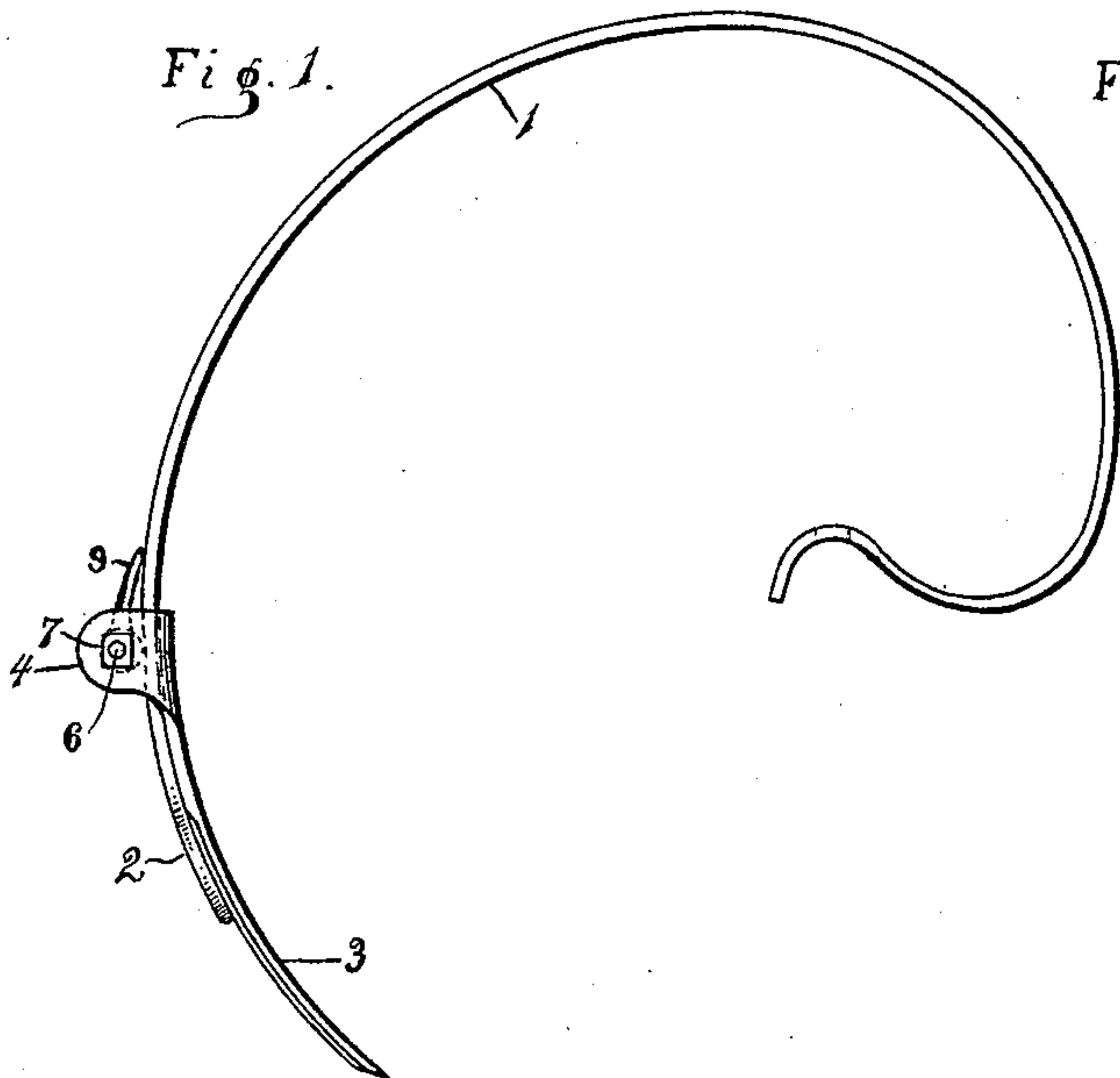


(No Model.)

E. E. WHIPPLE.
SPRING HARROW TOOTH.

No. 538,397.

Patented Apr. 30, 1895.



Witnesses:

Geo. C. Conner.
Lela Monroe.

Inventor.

Effinger E. Whipple.
By V. H. Lockwood
His Attorney.

UNITED STATES PATENT OFFICE.

EFFINGER E. WHIPPLE, OF ST. JOHN'S, MICHIGAN.

SPRING HARROW-TOOTH.

SPECIFICATION forming part of Letters Patent No. 538,397, dated April 30, 1895.

Application filed June 25, 1894. Serial No. 515,663. (No model.)

To all whom it may concern:

Be it known that I, EFFINGER E. WHIPPLE, of St. John's, county of Clinton, and State of Michigan, have invented certain new and useful Improvements in Spring Harrow-Teeth; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, in which like figures refer to like parts.

10 This invention relates to a convenient, simple, and economical means of effectually securing an independent point to a spring harrow tooth. The means may form a part of the point which is preferable or may be separate therefrom.

Independent harrow tooth points are needed to splice worn out teeth and in order that when dull they may be readily removed and sharpened or otherwise disposed of, or new ones readily substituted for the old ones instead of being compelled to throw away the whole spring tooth. Another advantage in using the point is to provide a means of ready adjustment of the points of all the teeth in the harrow that they may register with each other, that is, extend down the same distance from the frame. Old teeth which have worn considerable of their ends off must be thrown away unless they can be supplemented by independent points. Without independent points, spring harrow teeth will wear out irregularly. One tooth will have to be removed to be sharpened and when sharpened, it will be short. Some point fastening devices have been devised but they have been too complex, expensive, inconvenient or otherwise objectionable in use. As constructed the prior fastening devices required the harrow tooth to be taken off the frame and holes punched or drilled in them whereby the independent point could be bolted on.

The full nature of my invention will appear from the following description and the drawings forming a part hereof.

45 Figure 1 shows a spring harrow-tooth in side elevation with my point secured thereto. Fig. 2 is a rear view of the same, the top being broken away. Fig. 3 is a perspective of the rear of the point separate from the tooth, showing the fastening device. Fig. 4 shows the same as Fig. 2, with the eccentric fastener omitted. Fig. 5 shows a slightly-modified form wherein

the fastening device is separate from the point. Fig. 6 shows a slightly-modified form wherein the bolt is not provided with a head or nut and the ears have elongated holes.

The spring tooth 1 is made in the ordinary way being widened at the lower end 2 as shown in Figs. 2 and 4. This widened lower end is found in all standard spring harrow teeth, the end being sharpened by flattening as the teeth have worn away and is pointed like the independent point 3 but the form of tooth after it is worn is like that shown in the drawings. The independent point 3 is shaped like the lower end of spring harrow teeth when new. The upper end of the point is about the same width as the harrow tooth above its enlargement 2. I provide on the upper end of the point 3 two rearwardly extending ears 4 whose faces are smooth and fit snugly against either edge of the spring tooth as shown in the drawings. They are provided with holes at 5 through which passes a bolt 6 having a nut 7 thereon. The angle between the ear and the body of the point should be squarely made in order that the rear surface of the point may bear snugly against the front face of the lower end of the tooth. Then by tightening the nut 7 whereby the ears 4 are drawn toward each other the independent point will be securely fastened to the tooth. The independent point should be so placed on the tooth that the ears will be above the enlargement 2. The bolt 6 or any equivalent means of drawing the ears 4 toward each other is then put through the ears behind the tooth and the nut 7, if a screw bolt is used, is tightened to draw the ears toward each other and thus securely fasten the point to the tooth as well as cause the body of the point to bear against the face of the tooth. In order to increase the bearing between the faces of the independent point 3 and the tooth 1, I place on the bolt 6 an eccentric 8 provided with a handle or finger piece 9 as shown in the drawings. The eccentric is so formed that when the handle or finger piece is drawn upright as in Fig. 1 the widest part of the eccentric will extend against the face of the tooth 1 and tightly clamp the point and tooth together. This combined with the screw bolt makes a fastening device as secure as bolts through the tooth and point and yet is far

more convenient to operate and does not weaken the tooth by requiring holes bored in it. The eccentric is readily operated requiring no wrench or other device and in many cases the nut on the screw bolt need not be tightened, the eccentric being sufficient to bind and hold the two together, but on the other hand the screw bolt itself is often sufficient to accomplish the purpose desired.

10 If it be desired to have a fastening device independent of either the tooth or point it can be made after the principle of my invention as shown in Fig. 5 consisting of the strap 10 provided with the ears and other parts as 15 in my invention whereby the tooth and point may be clamped together either by clamping the edges with a screw bolt or the faces of the parts with an eccentric, or both together. When the strap 10 is used its edges in front 20 should be beveled preferably. If it be desired to dispense with the screw bolt the form shown in Fig. 6 may be adopted where the bolt 6 has bent ends adapted to enter the slot holes 5. When the eccentric is turned the 25 ends will bend forward so that they cannot escape and the eccentric will effectually secure the parts together, while the curved ends of the bolt will tend to draw the ears toward each other clamping them against the edges 30 of the tooth.

The essential feature of my invention however consists of the smooth faced ears formed integral with the point preferably but independent if desired so as to be placed on spring 35 harrow teeth in the form in which we find them without any inconvenience, with a bolt or equivalent means of drawing the ears toward each other whereby the point can be secured on the tooth quickly and at any time 40 or place or by any person. By this construc-

tion, a farmer can put on independent points when desired, can remove them readily and sharpen them and replace them and if the length of the teeth needs adjustment, he can effect that result by raising or lowering the 45 independent points.

I do not wish to confine myself to the specific device shown for pressing the ears of the point against the tooth as it can be done by other and equivalent means without departing from the true spirit of my invention. 50

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

1. A harrow tooth comprising the shank 1 widened at its lower end, the removable point 55 3 provided with rearwardly extending ears 4 far enough apart that they will fit snugly on each side of the shank above the widened end, and the bolt 6 extending through the ears and provided with a nut whereby the ears may be 60 drawn together to clamp the point on the shank securely, substantially as shown and described.

2. A spring harrow tooth comprising the shank 1, with its lower end somewhat widened, the point 3 provided with ears 4 adapted 65 to embrace the shank above its widened end, the bolt 6 extending through the ears and provided with a nut whereby the ears may be drawn toward each other and the cam piece 8 70 mounted on the bolt and adapted to clamp the face of the point to the face of the shank securely, substantially as shown and described.

In witness whereof I have hereunto set my 75 hand this 29th day of May, 1894.

EFFINGER E. WHIPPLE.

Witnesses:

M. MAUD WHIPPLE,
HANNAH M. WHIPPLE.