

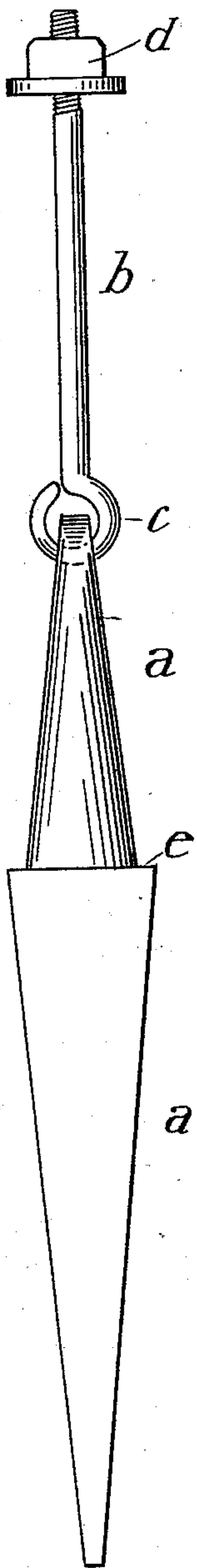
(No Model.)

J. T. CLARKSON.  
HARROW TOOTH.

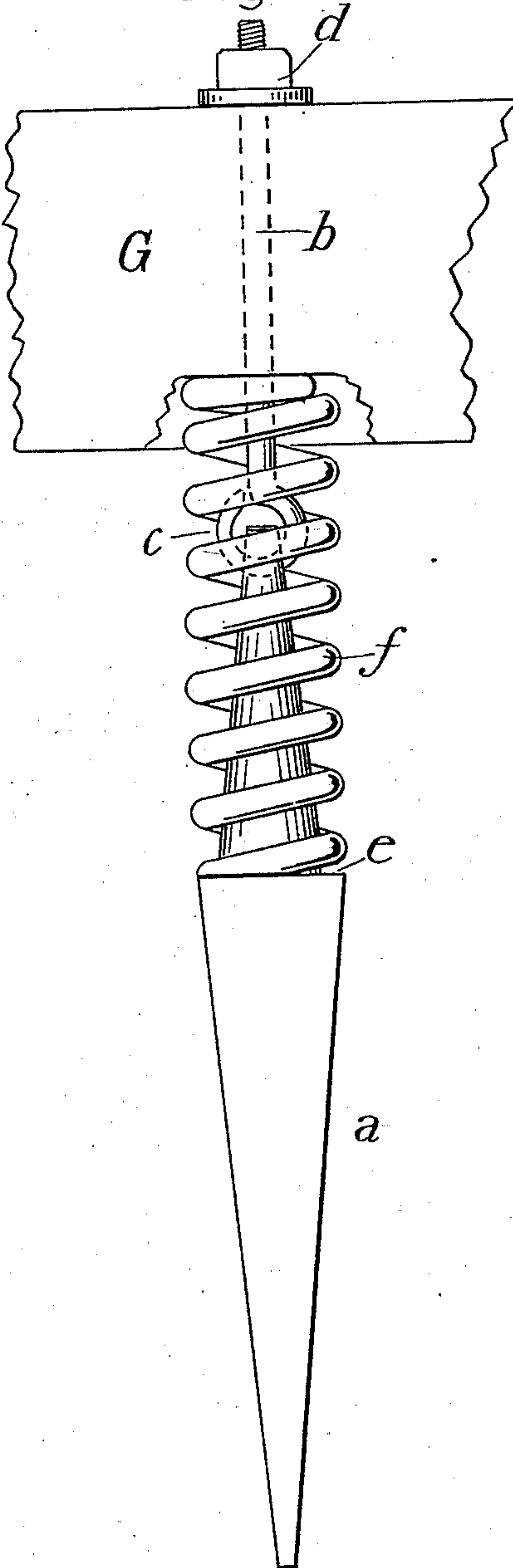
No. 282,054.

Patented July 31, 1883.

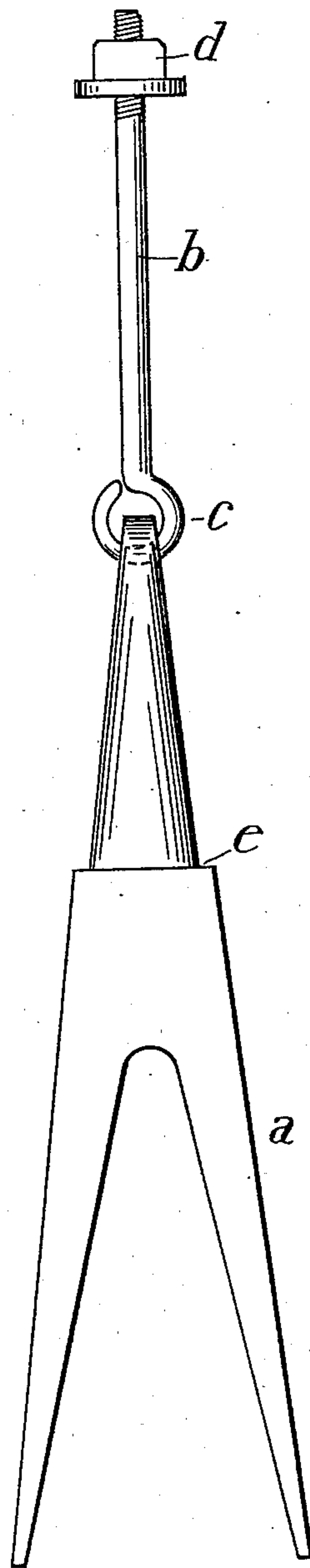
*Fig. 1.*



*Fig. 2.*



*Fig. 3.*



Witnesses:

Ralph E. Clarkson.  
C. S. Jones.

Inventor:

Joseph T. Clarkson

# UNITED STATES PATENT OFFICE.

JOSEPH T. CLARKSON, OF AMESBURY, MASSACHUSETTS.

## HARROW-TOOTH.

SPECIFICATION forming part of Letters Patent No. 282,054, dated July 31, 1883.

Application filed November 22, 1882. (No model.)

*To all whom it may concern:*

Be it known that I, JOSEPH T. CLARKSON, of Amesbury, in the county of Essex and State of Massachusetts, have invented a new and  
5 useful Improvement in Teeth for Harrows, of which the following is a specification.

The object of my invention is to furnish spring-teeth for harrows that will have a movement in any and all directions, and adapt them-  
10 selves by this motion to any obstructions with which they may come in contact, as well as to give them a greater soil-pulverizing power from the trembling motion of the teeth. This I accomplish by making a jointed tooth, which  
15 is attached to the frame-work of the harrow, and is held in a perpendicular position when at rest by a spiral spring resting upon a shoulder provided upon the lower portion or joint of the tooth and incasing the jointed part of  
20 the tooth, the upper end of this spiral spring being fastened to or let into the frame to which the upper joint of the tooth is bolted. The amount of resistance of the tooth can be regulated by shortening or lengthening the same.  
25 This compresses or loosens the spring, and is done by turning the nut on the upper or bolt end of the jointed tooth. These teeth may be made single pointed or forked at the lower end.

In the accompanying drawings, similar letters of reference indicate like parts.

Figure 1 is a side elevation of my invention. Fig. 2 is a side elevation of the same, showing it attached to the frame of the harrow. Fig. 3 is a side elevation of the jointed tooth, showing the lower end with forked points.  
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In Fig. 1, A is the lower portion of the tooth, and *b* the upper portion. The joint *c* gives it the required freedom of motion. The nut *d* holds the tooth in the frame G, and at the same time regulates the tension of the spring, giving greater or less ease to the movements of  
40 the lower end, A, of the tooth. *e* is the shoulder upon which the lower end of the spring rests.

Fig. 2 shows the spring *f* in position and the whole mechanism attached to the frame. Fig. 45 3 shows the jointed tooth, with the lower end thereof, A, forked.

What I claim is—

1. A jointed harrow-tooth having a thread and nut upon the upper end, whereby the tooth  
50 may be shortened or lengthened, substantially as and for the purposes hereinbefore set forth.

2. A jointed harrow-tooth, in combination with and partially incased by a spiral spring, substantially as and for the purposes hereinbefore  
55 set forth.

3. A jointed harrow-tooth, the lower part of which is movable in any direction, said movements being regulated by a spiral spring or its equivalent, substantially as and for the purposes  
60 hereinbefore set forth.

4. A jointed harrow-tooth having the lower part or points forked, substantially as and for the purposes hereinbefore set forth.

JOSEPH T. CLARKSON.

Witnesses:

RALPH E. CLARKSON,  
GEORGE M. BRIGGS.