

(No Model.)

W. E. SMITH.
SPRING TOOTH HARROW.

No. 486,796.

Patented Nov. 22, 1892.

Fig. 1.

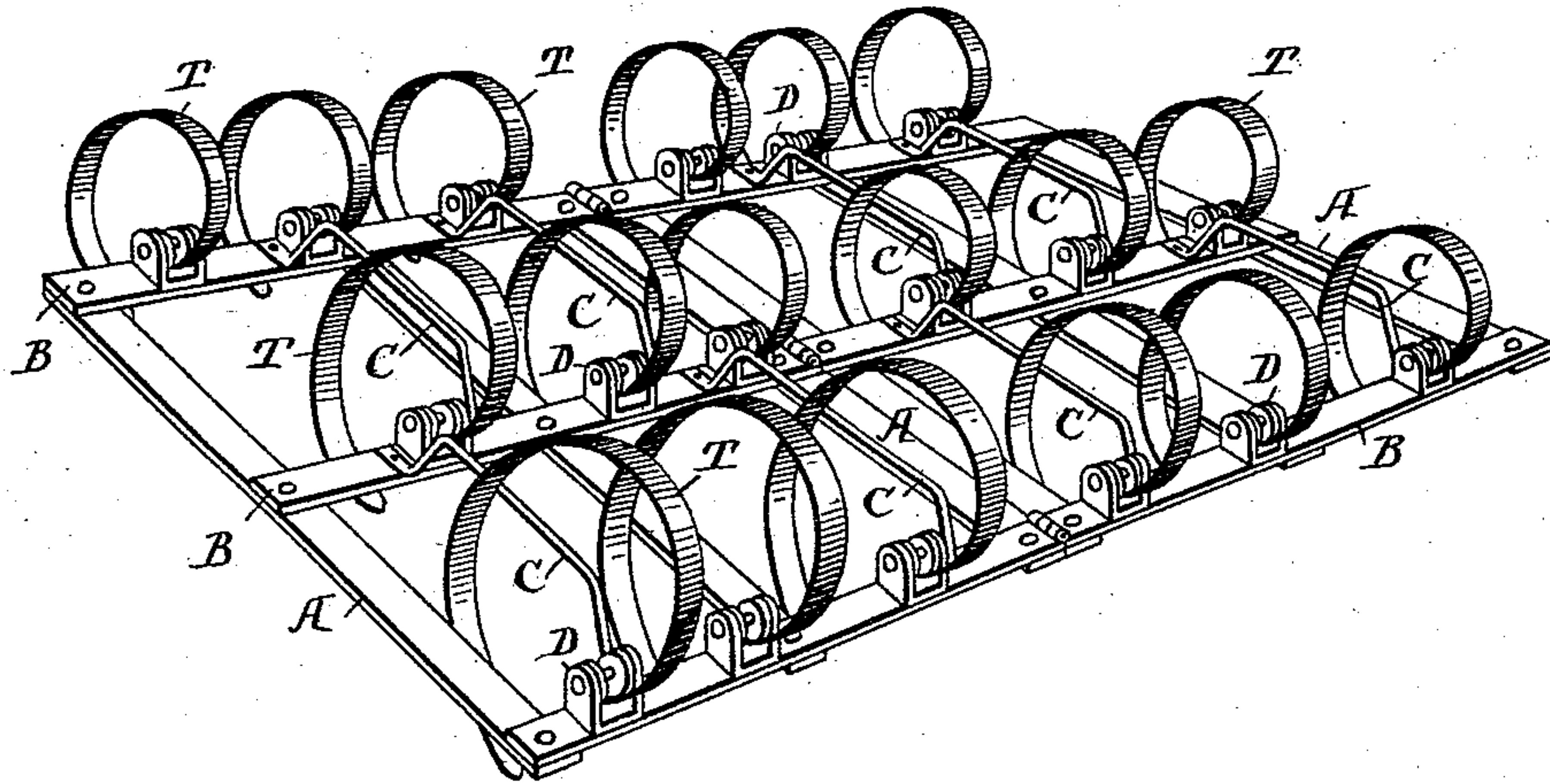


Fig. 2.

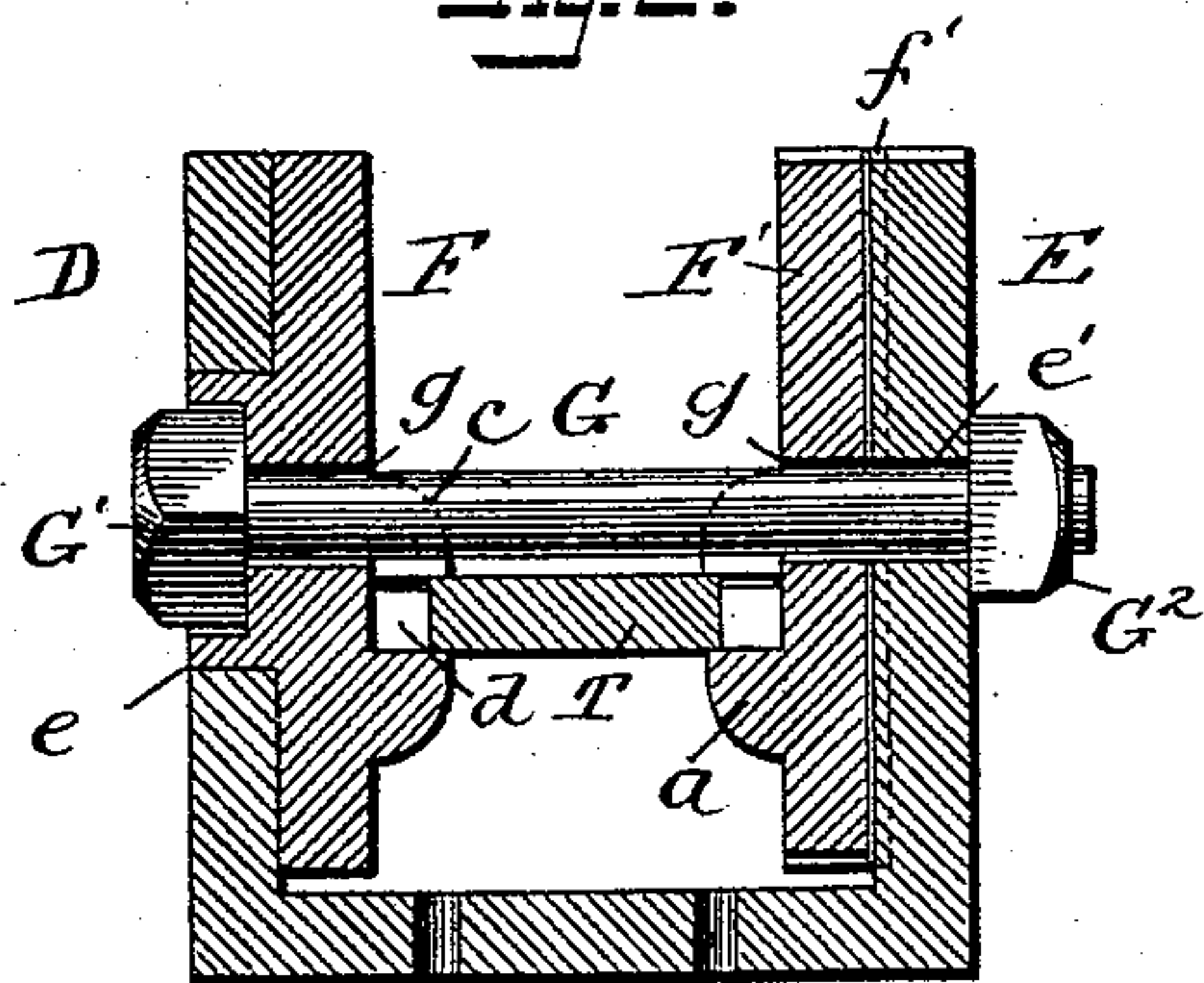


Fig. 3.

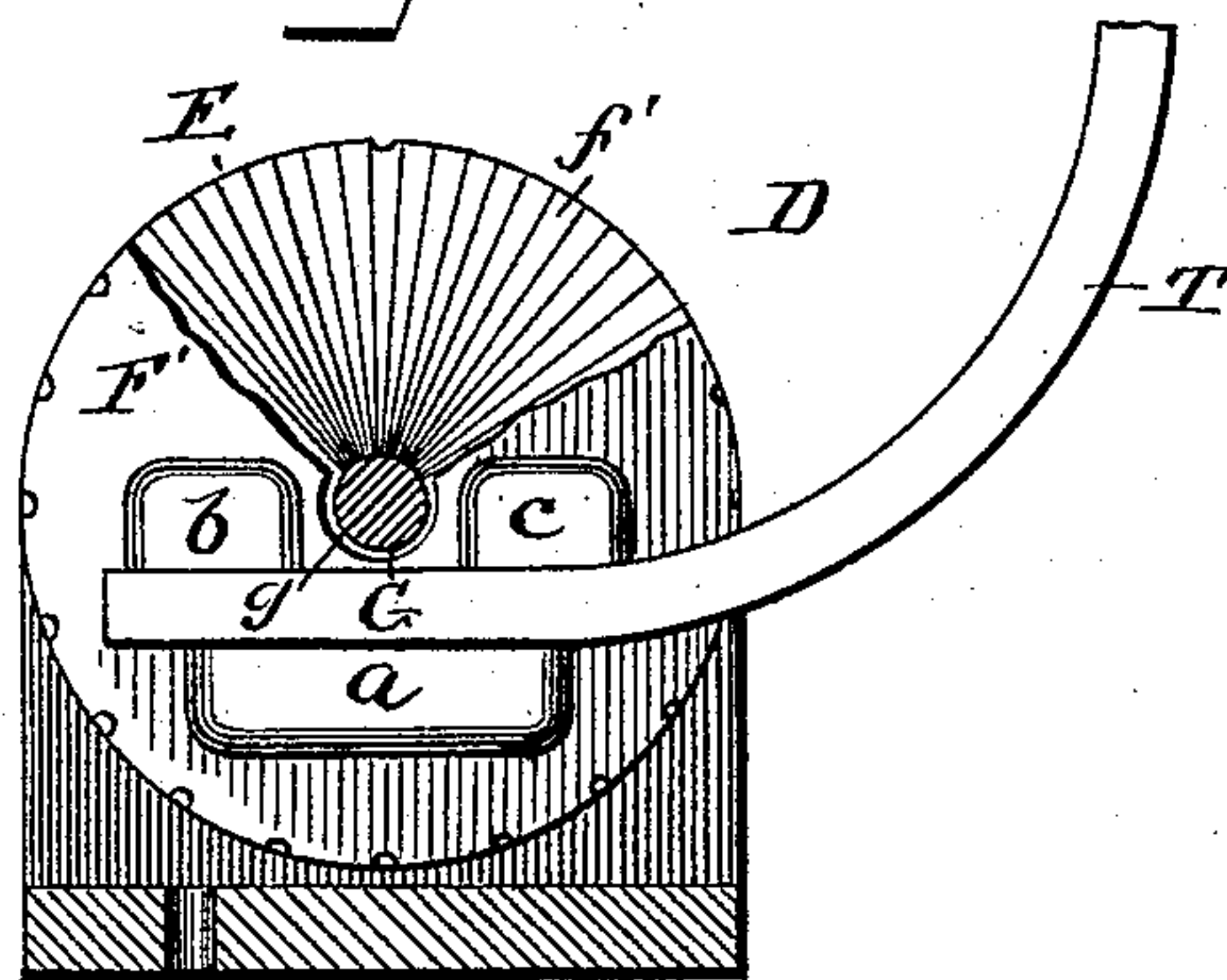
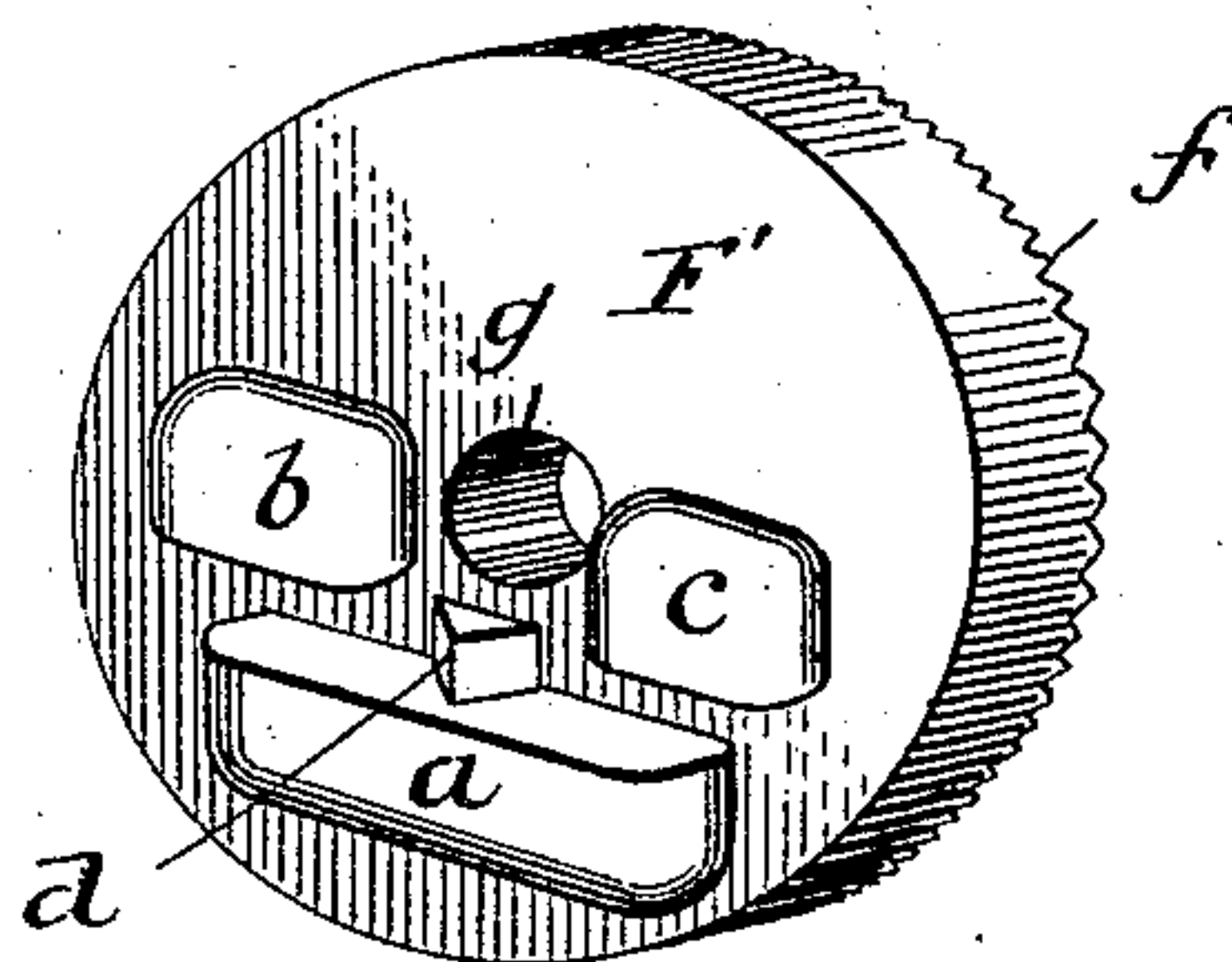


Fig. 4.



Witnesses
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UNITED STATES PATENT OFFICE.

WILLIAM E. SMITH, OF WATKINS, NEW YORK.

SPRING-TOOTH HARROW.

SPECIFICATION forming part of Letters Patent No. 486,796, dated November 22, 1892.

Application filed January 27, 1892. Serial No. 419,451. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM E. SMITH, a citizen of the United States, residing at Watkins, Schuyler county, New York, have invented certain Improvements in Spring-Tooth Harrows and Adjustable Ratchet-Fastenings to hold the Teeth to the Frame, and thereby Regulate the Depth of Cut, of which the following is a specification.

My invention relates to spring-tooth harrows, and has for its object to provide means for readily adjusting the spring-teeth and to furnish a cheap, simple, and effective harrow which is not liable to get out of order; and to these ends my invention consists in the various features of construction and arrangement of parts, substantially as hereinafter more particularly set forth.

Referring to the accompanying drawings, forming part of this specification, Figure 1 is a perspective view of a harrow embodying my invention. Fig. 2 is a longitudinal section of the tooth-holder or ratchet-gear. Fig. 3 is a transverse section of the same, and Fig. 4 is a perspective detail showing means for holding the tooth.

The harrow-frame is made in two parts hinged together, each part being composed of a number of bars of metal, preferably steel, secured together to form a rigid frame. Thus in the drawings I have shown three longitudinal bars A and three transverse bars B riveted together, and in order to further produce a rigid frame I provide a number of braces C, extending between the transverse bars, and of course there may be any desired number to render the harrow sufficiently rigid. Mounted on the transverse bars are the tooth-holders D, and these are secured in any suitable way to the frame, as by rivets. These tooth-holders consist of a chair or clip E, which may be of cast or malleable iron, or can be a bent steel bar. Mounted in this chair or clip are the tooth-holding plates F F'. These plates are provided with inwardly-projecting lugs in the form shown in Fig. 4. Thus there is a lug *a*, extending in the line of a chord across the face of the plate below its center, adapted to receive the under side of the tooth T, and above this, substantially in line with the central opening in the plate, are two smaller lugs *b c*, adapted to bear upon the upper surface

of the tooth, and in order to prevent longitudinal movement of a straight portion of the tooth I provide a projection *d*, (shown in the form of a triangle,) which takes into a recess corresponding in shape in the side of the tooth. It will thus be seen that when the tooth is placed between the plates F and F' and these plates are drawn together the tooth will be securely held in position against longitudinal or other movement.

In order to secure the teeth in the plates F, I provide a bolt G, passing through the bolt-holes *g* in the plates and the holes *e e'* in the sides of the clip. One of the plates, as F', is provided with an enlarged shoulder-bearing F, which fits in the enlarged opening *e* in one side of the clip and is recessed to receive the bolt-head G', while the screw-threaded end of the bolt passes through the other side of the clip and is secured by a nut G².

It will thus be seen that when the nut G² is tightened the plates F and F' will be drawn together, tightly clamping the tooth between their adjacent sides, and at the same time the plate F' will be held in close contact with the inner side of the clip E, so that the tooth will be rigidly supported. In order, however, to secure the tooth-holder against slipping, I provide the external face of the plate F' with ribs or ratchet-teeth *f*, and also provide the corresponding inner face of the clip E with similar ratchet-teeth *f'*, so that when the parts are brought together and secured by the bolt the tooth-holder cannot be turned. If, however, it is desired to adjust the tooth to regulate the depth of the cut or the projection of the tip end of the tooth, all that is necessary is to loosen the nut G² and turn the tooth-holder in the clip, so as to bring the tooth at the desired position, when it is again tightened, the ratchet-teeth securely holding it in its adjusted position. Thus it will be seen that any one or all of the harrow-teeth can be adjusted to have the same or different depths of cut, and if the teeth wear at their points they can be adjusted to compensate for such wear.

Having thus described my invention, what I claim is—

1. In a spring-tooth harrow, the combination, with the clip, of the plates for holding the tooth, one of the plates being provided with

a projection fitting an opening in the clip and having a recess for the head of the bolt, and a bolt passing through said plates and clip, and a nut outside the clip for securing
5 said bolt and clip, substantially as described.

2. In a spring-tooth harrow, the combination, with the clip provided with ratchet-teeth on the inner side of one of its faces, of the adjustable plates mounted in the clip, one of the
10 plates having a projection fitting an opening in the clip and the other plate having ratchet-

teeth on its outer side fitting the ratchet-teeth in the clip, and a bolt passing through the plates and secured to one side of the clip, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILLIAM E. SMITH.

Witnesses:

JOHN P. MELICK,
H. F. HOLLER.

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