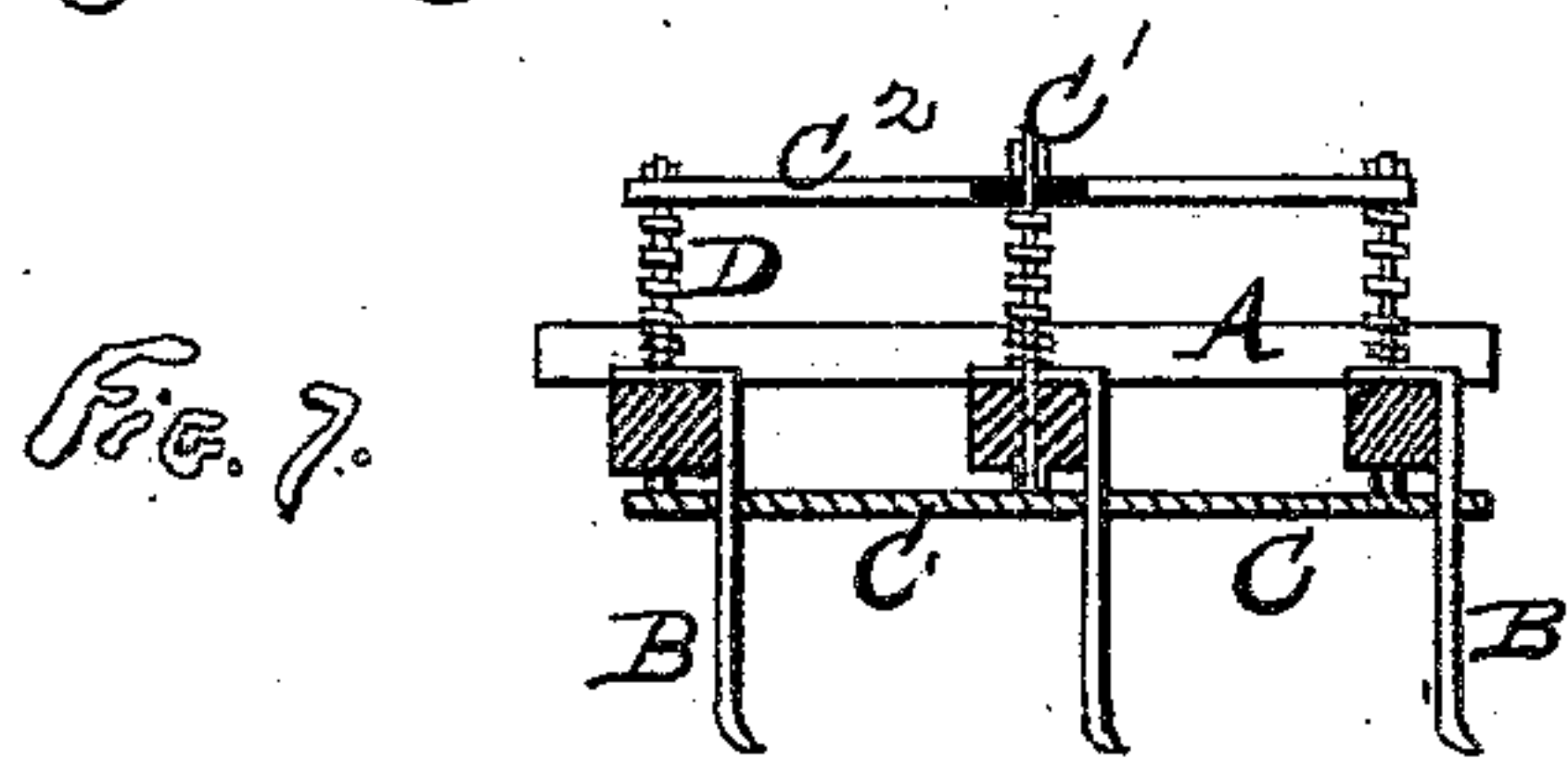
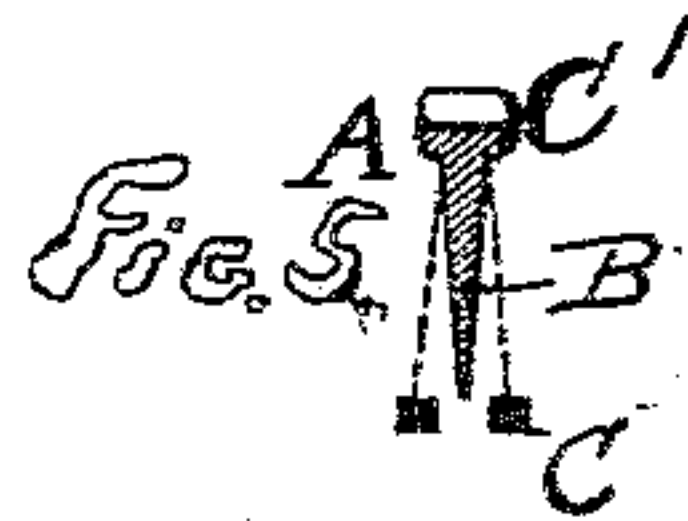
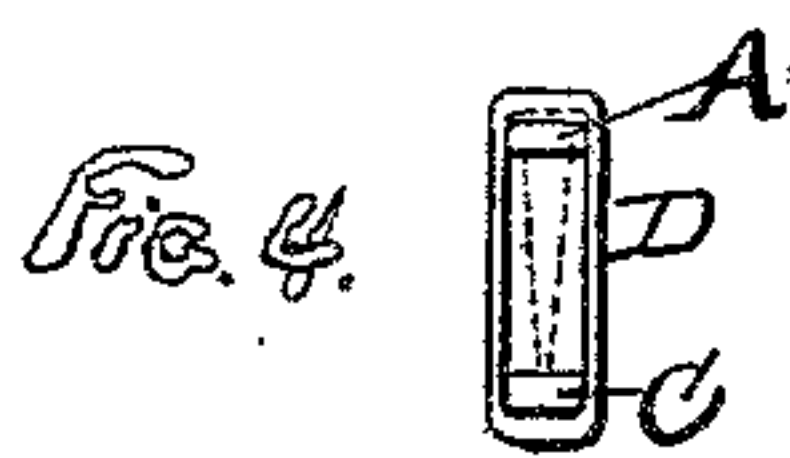
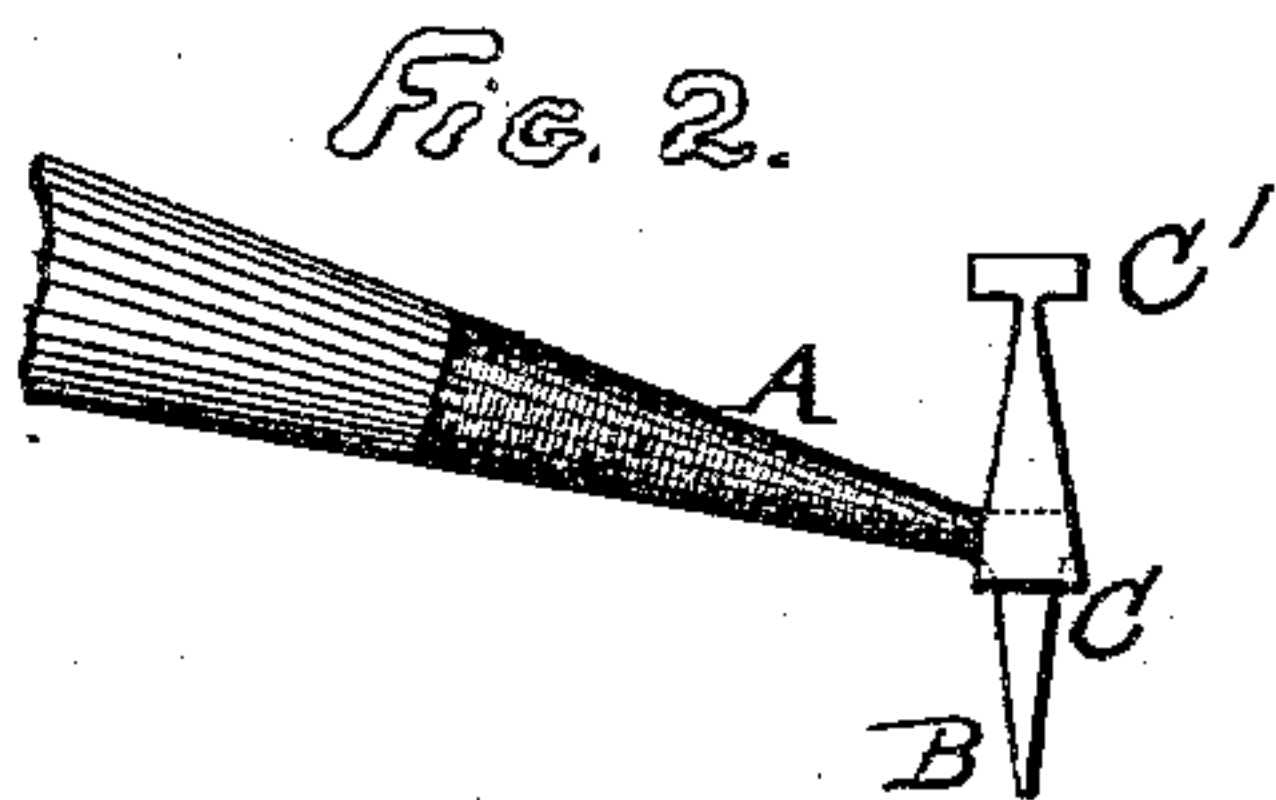
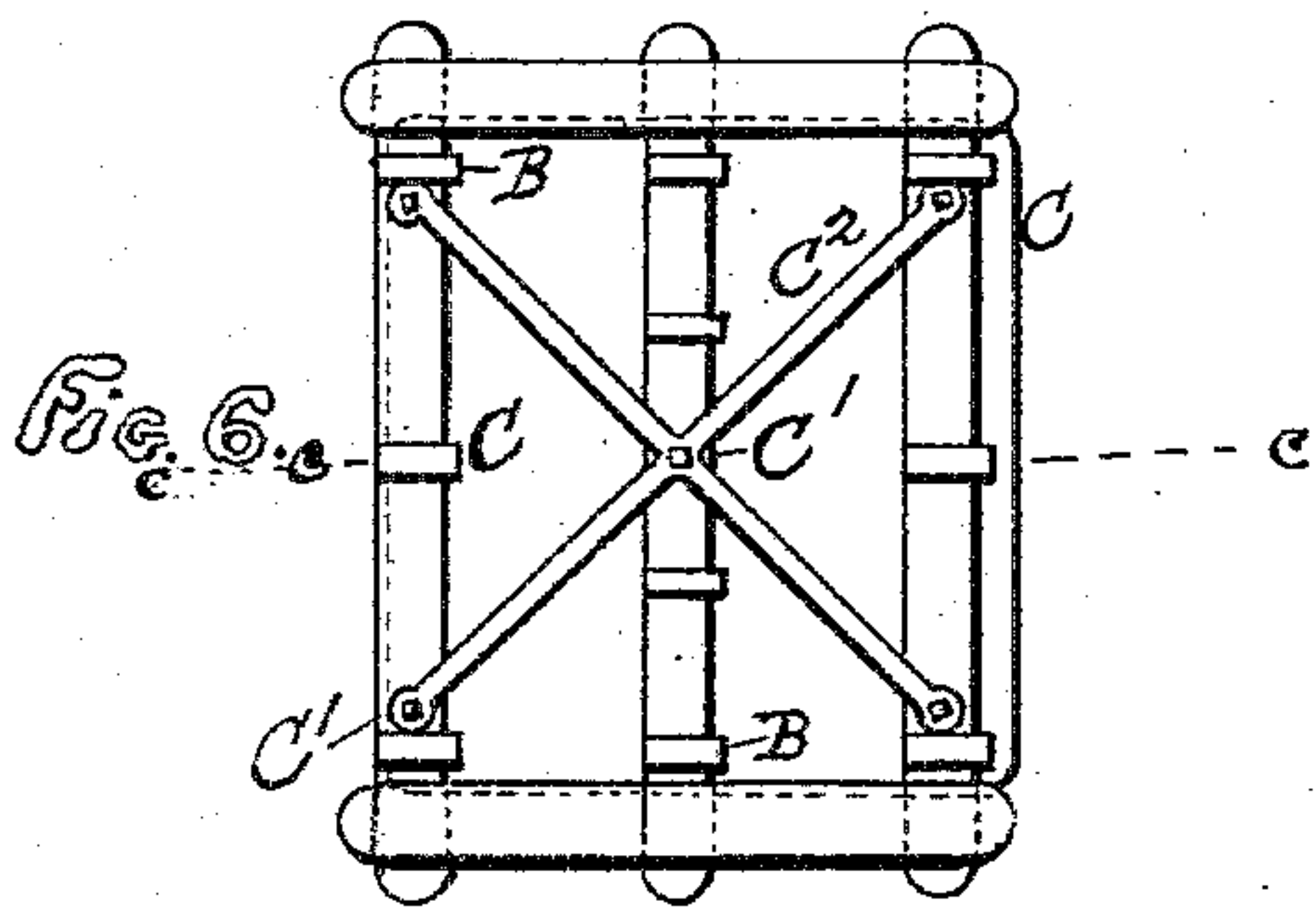
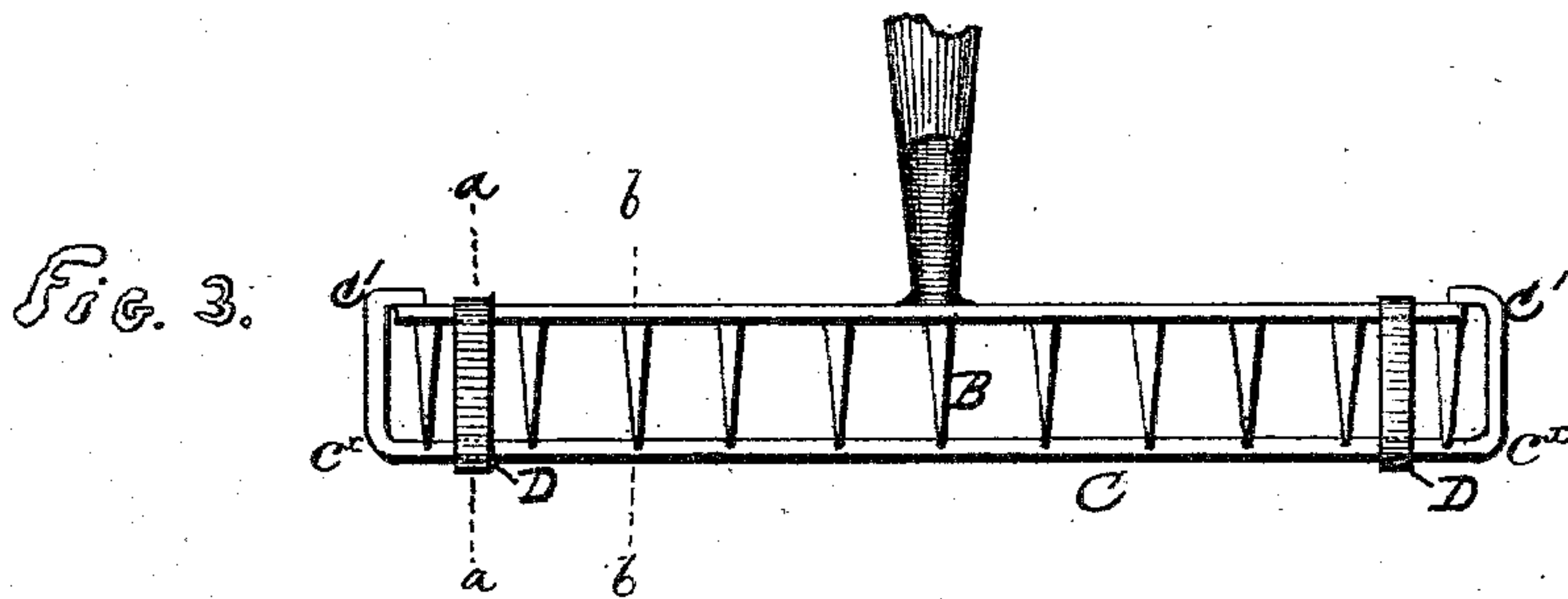
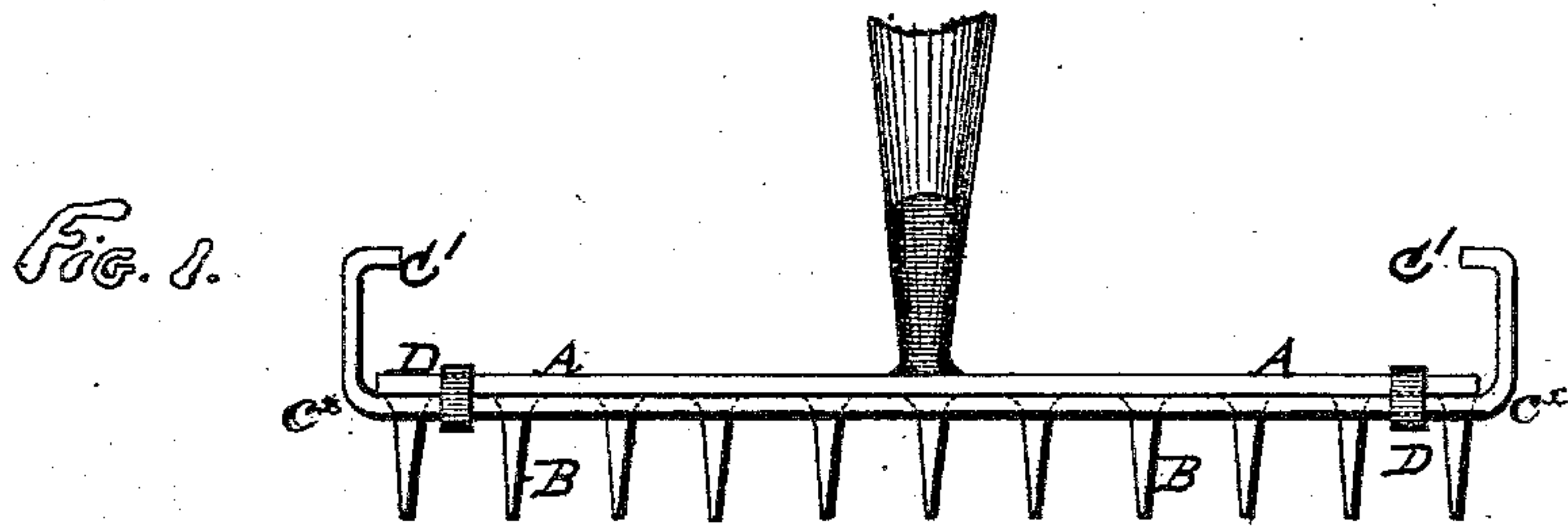


(No Model.)

A. HOLDEN.  
RAKE, HARROW, &c.

No. 303,160.

Patented Aug. 5, 1884.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

ALFRED HOLDEN, OF PENSURST, NEAR GRESFORD, NEW SOUTH WALES,  
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## RAKE, HARROW, &c.

SPECIFICATION forming part of Letters Patent No. 303,160, dated August 5, 1884.

Application filed August 17, 1883. (No model.) Patented in England September 3, 1883, No. 4,237.

*To all whom it may concern:*

Be it known that I, ALFRED HOLDEN, a subject of the Queen of Great Britain, residing at Penshurst, near Gresford, in the British colony of New South Wales, gentleman, have invented new and useful Improvements in the Construction of Toothed and Pronged Implements, such as Rakes, Harrows, and Combs of all Descriptions, of which the following is a specification.

My improvements in the construction of toothed and pronged implements, such as rakes, harrows, and combs of all descriptions, consist, mainly, in the addition thereto of a contrivance for cleaning or scraping the teeth of such implements as often as is found necessary. This contrivance I make in the form of a plate perforated with holes corresponding in number and size to the number and size of the teeth to be cleaned. When not in actual use this plate fits against the framing of the implement and the teeth project through the holes therein, and when in use said plate is forced down to the point of the teeth, removing all matters adhering to them, and then is brought back again to its original position. I prefer to so bring it back by means of an elastic connection, (which also forms a part of my invention,) the tension of which is overcome when the plate is pressed toward the point of the teeth for cleaning them, and the resilient action of which brings it back again to its normal position when relieved of such pressure.

Referring to my drawings, Figure 1 is a front view of a hand-rake constructed according to my invention and with the cleaner in its normal position. Fig. 2 is an end view of same. Fig. 3 is a similar view to Fig. 1, but with the cleaner forced down to the point of the teeth. Figs. 4 and 5 are sections on lines *a a* and *b b*, respectively, in Fig. 3.

A is the rake-frame, B the teeth or tines.

C represents the tooth-cleaning bar or plate. This bar is formed of metal of any suitable thickness, and has formed therein a series of holes, the number and size of which correspond with the number and size of the teeth of the implement to which said plate or bar is to be attached. The metal to form such bars or plates may be rolled or otherwise formed in lengths to suit the articles to which they are

to be applied, or they may be formed in greater lengths, and then perforated by any suitable means and cut to the desired lengths. Each section or length is then turned or bent at each end at a right angle with the remaining portion, as shown at *c'*, the extreme ends being returned so as to form lugs *C'*. The office of these lugs *C'* is twofold. When the bar C is applied to a toothed bar, as shown in Figs. 1 and 3 of the drawings, they serve as guards or stops to limit the downward movement of the tooth-cleaner bar and prevent its slipping off of the teeth B, as shown in Fig. 3 of the drawings, and when the cleaner-bar C is in the raised position shown in Fig. 1 said lugs *C'* serve to receive the impact of the ground when it is desired to force the bar along the teeth B for the purpose of cleaning the same, as hereinafter described. The elastic connection in this case consists of india-rubber rings or bands D, which embrace the frames A and plate C. These rings are put on over the lugs *C'* and stretched over the end teeth. When the teeth or tines become clogged, it is only necessary to turn over the rake and strike lugs *C'* upon the ground with sufficient force to drive the cleaner-plate to the point of the teeth, in the doing of which it will remove all weeds and earth, and then the elastic bands D will bring it back again to its normal position after the force of the blow has been expended. A similar arrangement to this would serve a comb of any description.

Fig. 6 is a plan of a common harrow, also constructed according to my invention, and Fig. 7 is a sectional elevation on line *c c* in Fig. 6, the cleaner being as before in its normal position. A is the frame, B the teeth or tines, and C the cleaner-plate, the elastic connection in this case consisting of spiral springs D. *C'* are bolts from the cleaner through the frame A to bars *C'*. The action in this case is similar to that before described, it being only necessary to turn the harrow on its back when its own weight will compress the springs D and force the cleaner-plate upward, removing the dirt and weeds adhering to the teeth. When this has been done, the harrow is turned over again and the springs D return the cleaner-plate to its normal position. It will be



noticed that the holes in this cleaner-plate are of a size just sufficient to allow the teeth to pass through, and so to admit of the plate resting against the frame, and that the plate is allowed to slide just so far that its outer side is clear of the points of the teeth, but no farther. Many other means of elastically connecting the cleaner to the frame will suggest themselves; but for small implements I prefer to use india-rubber bands and for larger ones one or more springs, as shown.

I do not broadly claim the attachment to a rake, harrow, or analogous implement of a spring teeth-cleaning device, as I am aware that a garden-rake has been constructed with a teeth-cleaning attachment consisting of a clearing-bar consisting of a bent wire or rod intertwined between the rake-teeth, and having an upwardly-extending frame attached by means of a spring to the rake-handle. In such device, however, the clearing-bar is intertwined between the teeth so as to slide along one side only of each tooth, and the implement must necessarily be provided with a handle, to which one end of the spring can be attached. In my construction the tooth-clearing bar has a series of perforations, within each of which perforations one of the teeth is received, so that when said clearing-bar is caused to slide along the teeth and scrape said teeth on all sides and remove therefrom the entire matter adhering to said teeth, a handle is not necessary in my arrangement, as the springs directly connect the sliding clearing-bar and the teeth head or frame. By such an arrangement my invention is capable of attachment to harrows and a variety of other implements, where no handle but simply the tooth-bar is employed, which is not possible with the device referred to. By my arrangement the perfect cleaning of each tooth over its en-

tire surface is assured, and no frame is needed for securing the elastic attachment to the apparatus.

Having thus particularly described and ascertained the nature of my invention and the manner in which it is to be performed, I would have it understood that I do not confine myself to any particular means of elastically connecting my cleaner-plate to the implement so long as the nature of my invention be retained; but

What I claim as my improvements in the construction of toothed and pronged implements, such as rakes, harrows, and combs of every description, is—

1. As an article of manufacture, the teeth-cleaning bar herein shown and described, adapted to be attached to the toothed bar of a toothed implement with capability of vertical reciprocation thereon, said bar consisting of a plate, C, having a series of perforations or holes to receive the teeth of the implement, right-angled ends  $c^x$ , and inturned ends or lugs  $C'$ , substantially as and for the purpose set forth.

2. The combination, with a toothed implement, of a tooth-cleaning bar, C, having a series of holes or perforations to receive the teeth, and upwardly-extending ends  $c^x$ , having inturned lugs or stops  $C'$ , for limiting the downward movement of said tooth-cleaning bar, and an elastic connection connecting the toothed bar A, and the perforated tooth-cleaning bar C, as and for the purpose set forth.

ALFRED HOLDEN.

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