

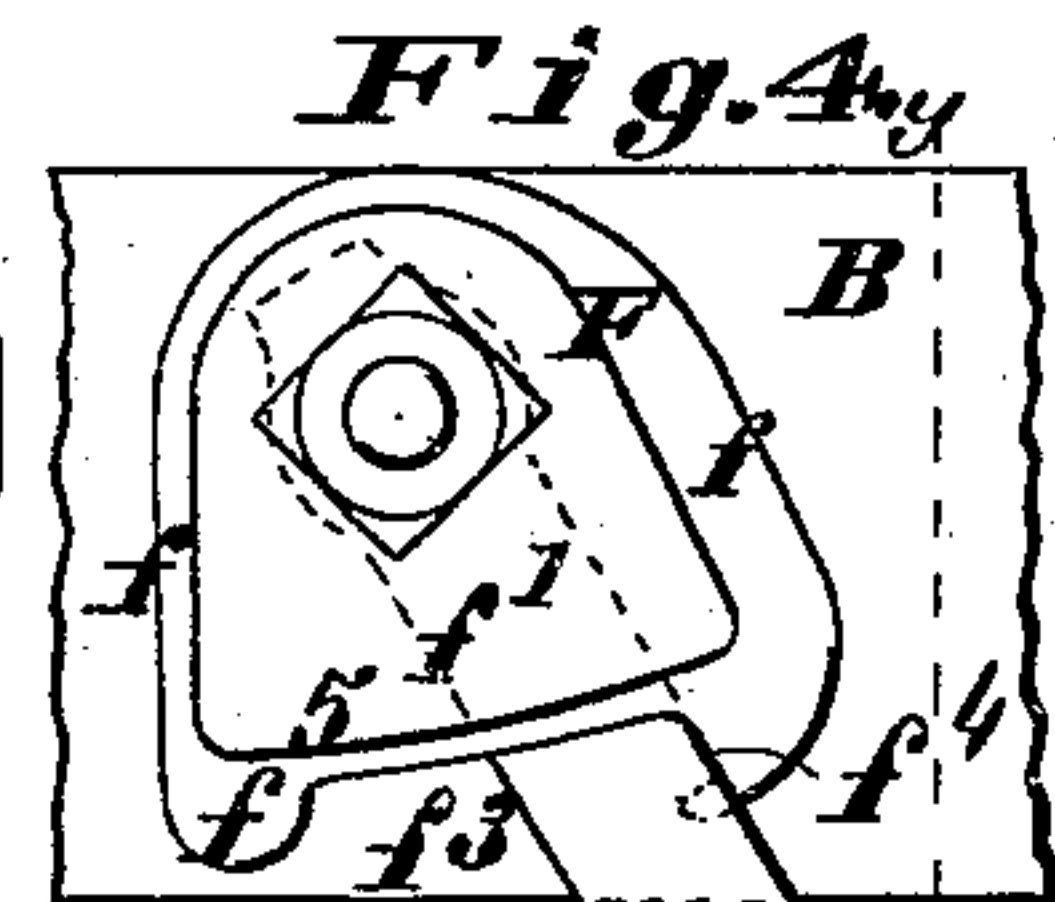
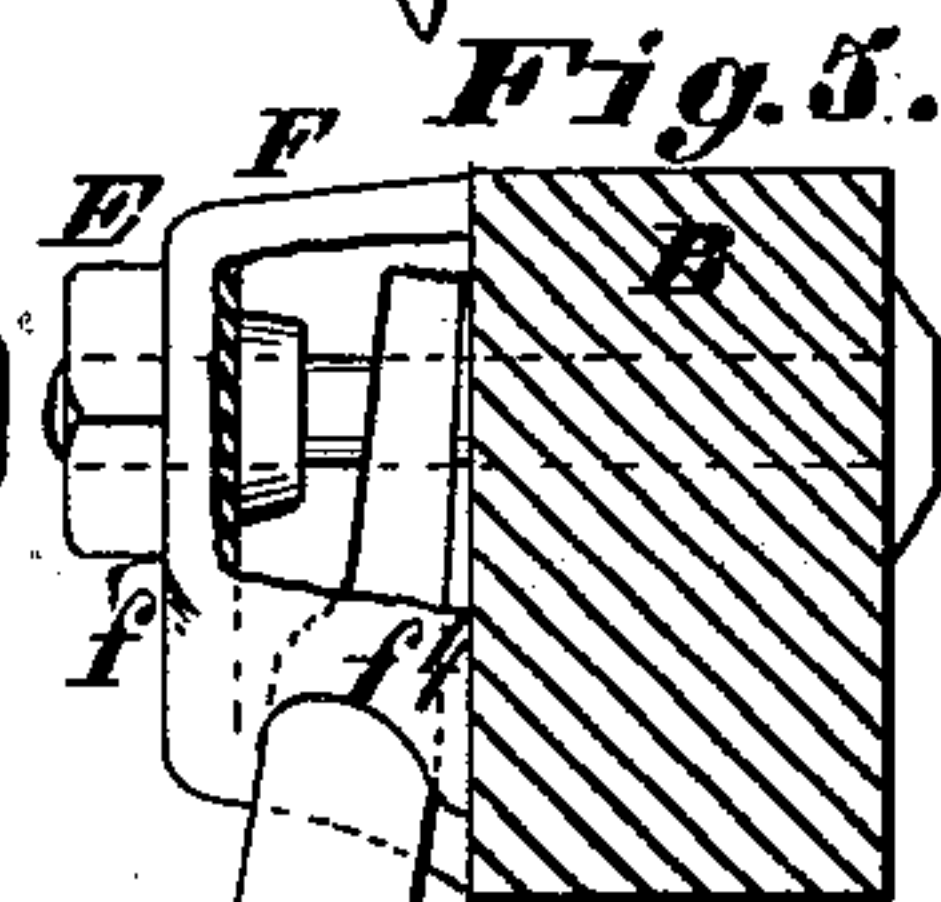
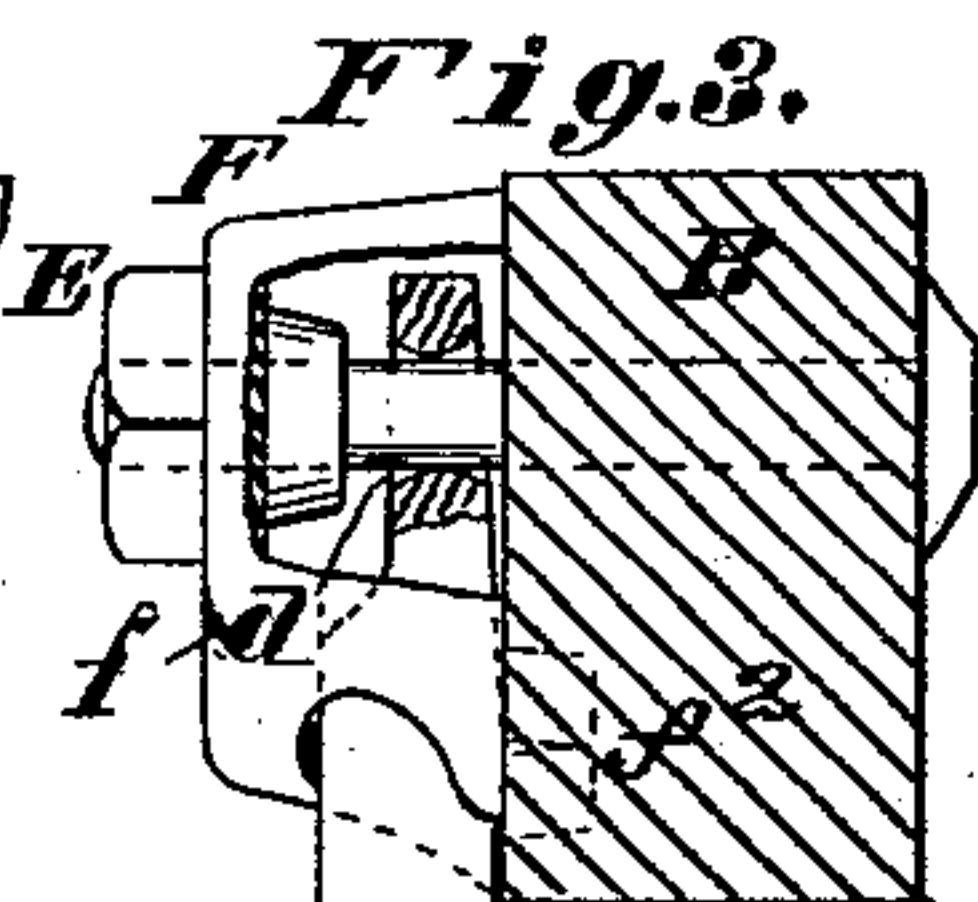
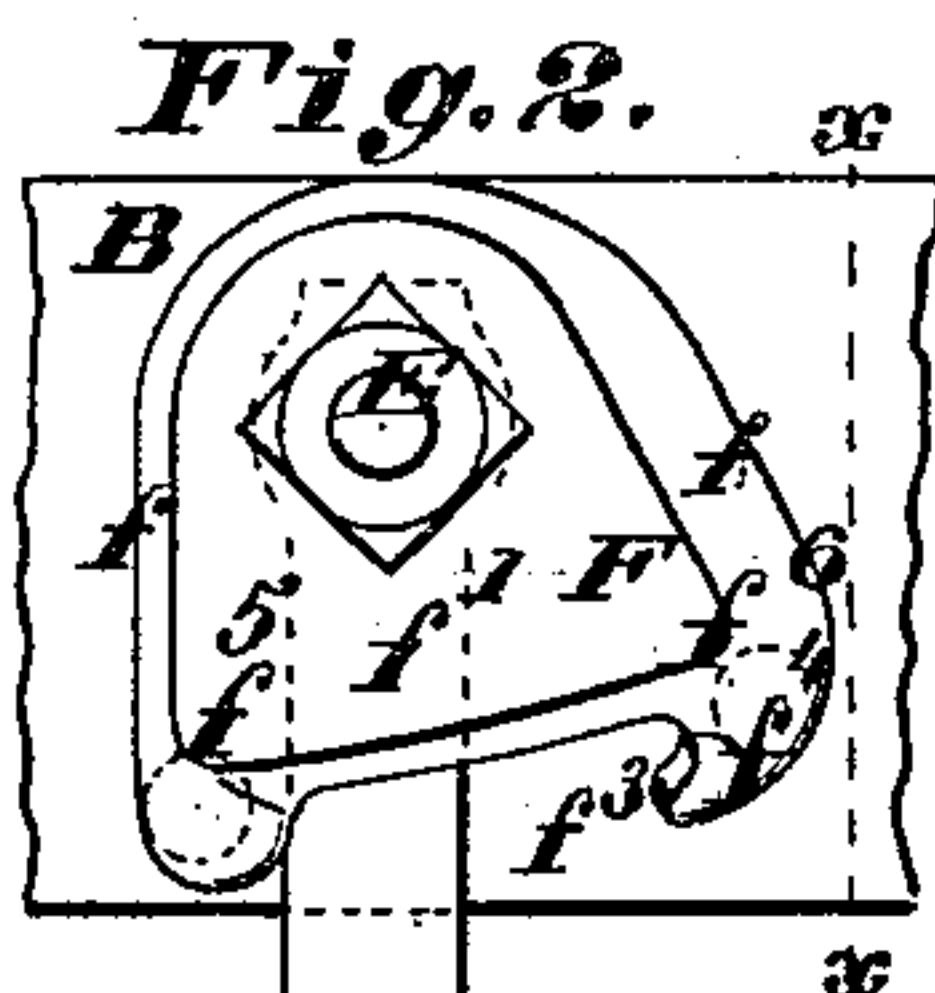
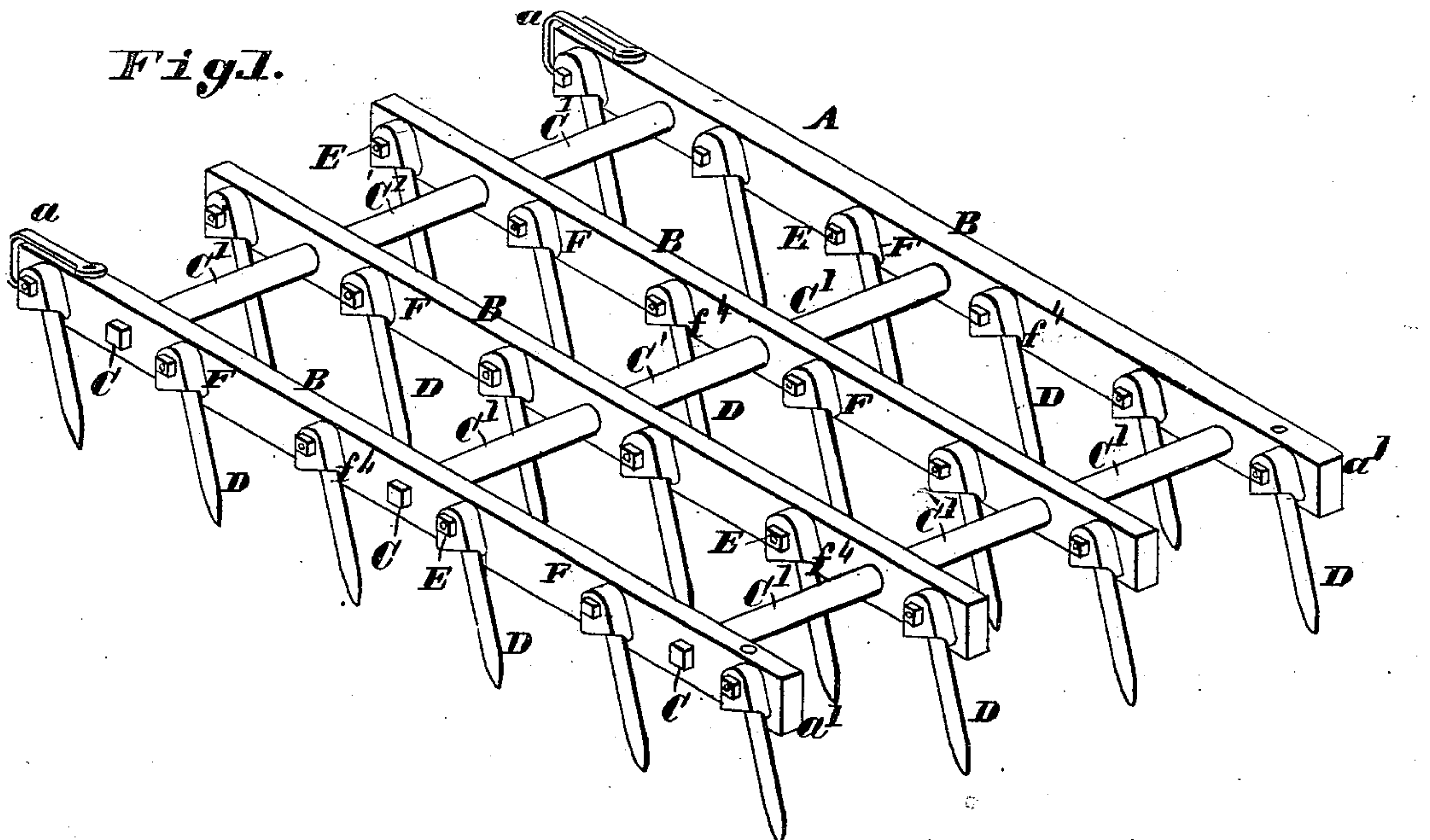
(Model.)

C. O. NASON.

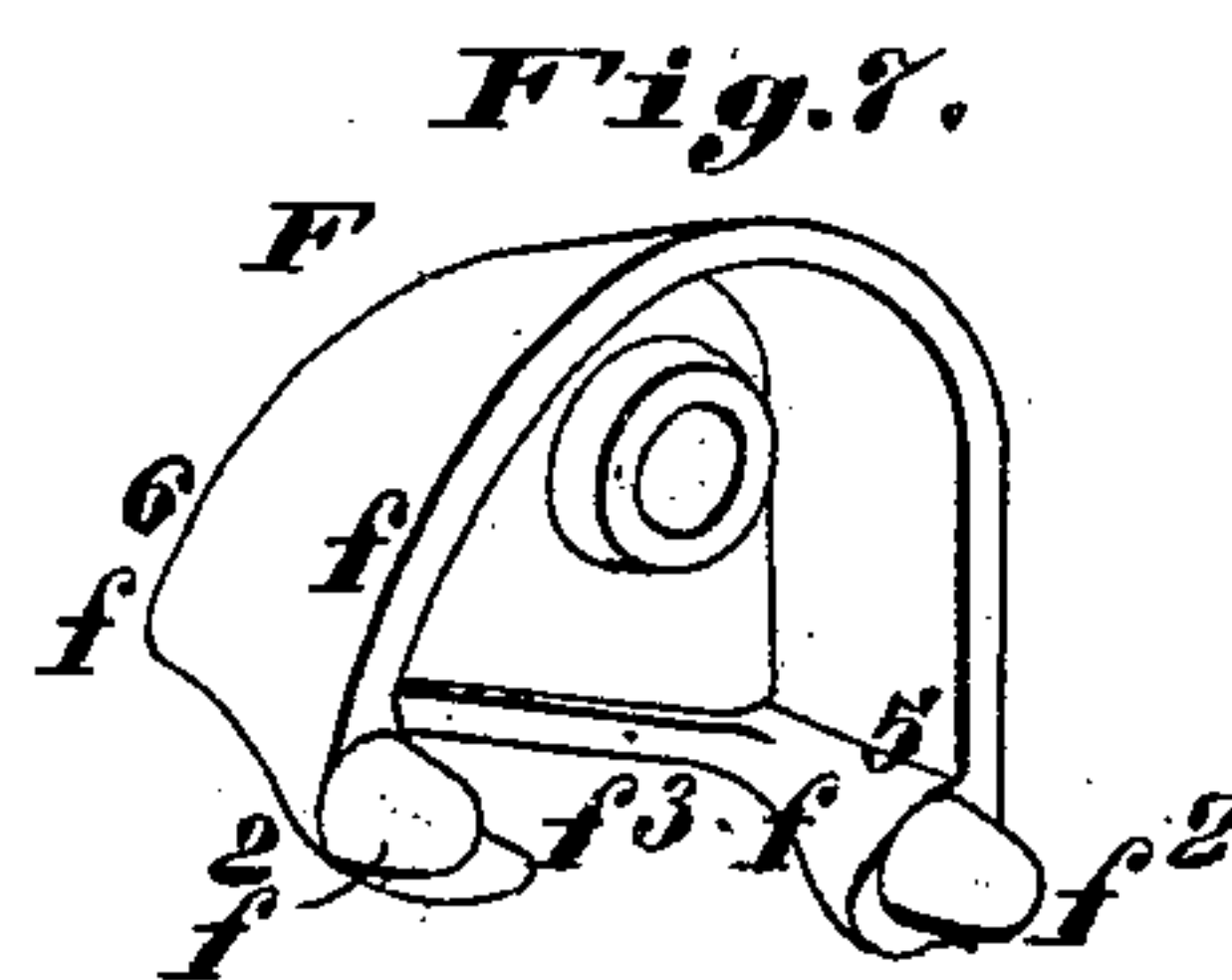
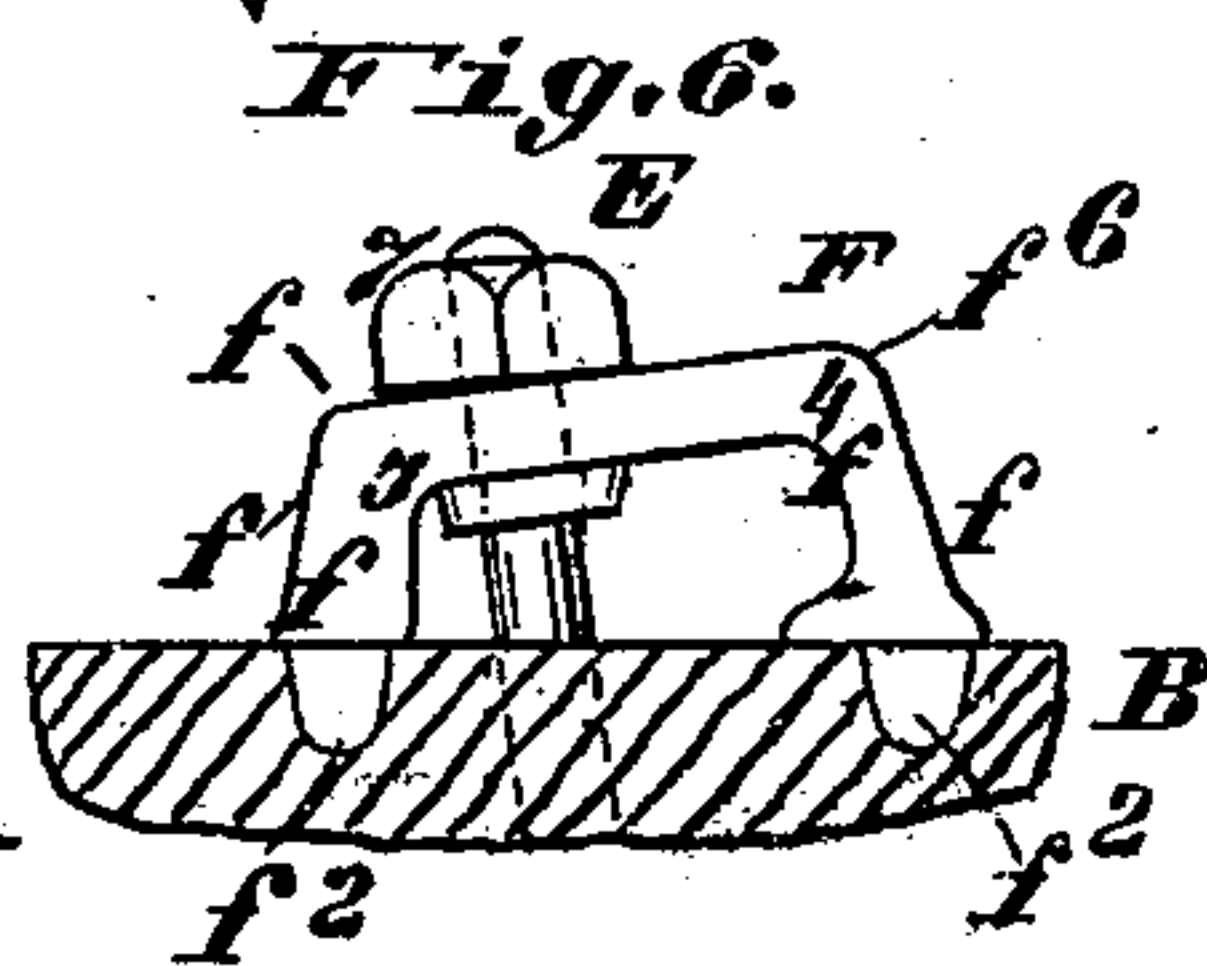
HARROW.

No. 246,333.

Patented Aug. 30, 1881.



Attest:
Charles Pickles
Smth. S. Royce



Inventor:
Charles O. Nason
by C. P. Moody
atty.

UNITED STATES PATENT OFFICE.

CHARLES O. NASON, OF MOLINE, ILLINOIS, ASSIGNOR TO DEERE & CO., OF
SAME PLACE.

HARROW.

SPECIFICATION forming part of Letters Patent No. 246,333, dated August 30, 1881.

Application filed May 3, 1881. (Model.)

To all whom it may concern:

Be it known that I, CHARLES O. NASON, of Moline, Illinois, have made a new and useful Improvement in Harrows, of which the following is a full, clear, and exact description, reference being had to the annexed drawings, making part of this specification, in which—

Figure 1 is a view in perspective of a harrow having the improvement; Fig. 2, a detail, being a side elevation of one of the harrow-teeth attached to the bar, and as when the tooth is in an upright position; Fig. 3, a cross-section on the line *x x* of Fig. 2, a portion of the plate being broken away to show the upper end of the tooth; Fig. 4, a side elevation of the parts shown in Fig. 2, but as when the tooth is inclined; Fig. 5, a cross-section on the line *y y* of Fig. 4, a portion of the plate being broken away to show the upper end of the tooth; Fig. 6, a detail, being a view, looking upward, of one of the plates and bolts used in attaching the tooth to the bar, and showing the latter in section in the line of the dowels of the plate; and Fig. 7 a view in perspective, looking toward the inner side, of one of the plates.

The same letters denote the same parts.

The present invention is an improvement in that class of harrows wherein the teeth can be set slanting or straight, according to the kind of harrowing to be done.

It consists, mainly, in the construction of the teeth and the mode of attaching them to the harrow-bars.

Referring to the drawings, A represents a harrow, or a section of a harrow, having the improvement in question.

B B represent the harrow-bars, joined in the usual manner, as by the rod C and thimbles C', to form the frame of the implement.

D D represent the harrow-teeth. They are attached to the bars B B by means of the bolts E E and plates F F, and more particularly described as follows: The teeth at their upper ends are perforated to hang and swing on the bolts E E, the latter at their inner ends being secured in or to the bars B B, and their projecting ends passing through the perforations *d d* in the teeth, and held or secured in or to the plates F F, in practice the head of the bolt coming against the opposite side of the bar to that on which the tooth is hung, and the outer end of the bolt passing through the

plate and provided with a nut, which, when screwed up, bears against the plate and forces it against the bar. The bolt passes through the upper end of the plate, that portion of the bolt between the plate and the bar constituting the bearing for the tooth to swing on. The plate F, in addition to holding the outer end of the bolt E and keeping the tooth D upon the bolt, serves to confine the tooth suitably in a lateral direction to the bar, and also to limit the vibration of the tooth as it is swung upon the bolt, and support it at the side at a point below its connection with the bolt. To this end the plate is made to stand out from the bar sufficiently to provide room between it and the bar for the tooth to be held loosely on the bolt, and at or toward its lower end, below the level of the bolt, it is secured to the bar, so as not to yield when the tooth is drawn against it, the various purposes being conveniently accomplished by furnishing the plate F with a flange, *f*, which bears against the bar B, holding the body *f'* of the plate suitably away from the bar, and with the lugs or dowels *f² f²*, which are embedded or made to engage in or with the bar B, and thereby keep the plate from turning on the bolt. The flange *f* is omitted at the bottom of the plate, forming an opening, *f³*, for the tooth to swing in.

The special advantage of the improvement consists in its furnishing a simple and convenient means by which the harrow can be readily changed from a breaking-harrow to a smoothing one, the only thing needed to be done in effecting such change being to change the hitch from one end of the harrow to the other end, as follows: When it is desired to use the harrow for smoothing, the hitch is made to the harrow at the end *a*, whereupon the teeth assume the slanting position shown in Figs. 1, 4, 5—that is, the teeth swing on the bolts until they encounter the plates F F at *f⁴*, in which position the teeth ride upon the ground; but when it is desired to employ the harrow in breaking, the hitch is made to the harrow at the end *a'*. The teeth then swing upon the bolts in the opposite direction and into a vertical position, as shown in Figs. 2, 3, the teeth at the side now being supported by the shoulders *f⁵* of the plates F. The teeth when in the last-named position are held parallel to the bar F; but when the teeth are slanted for smoothing

they are held at angle to the bar, as indicated in Fig. 5, to enable the teeth to be in the line of the draft, which is usually out of line with the harrow-bars. To accomplish this the body
5 f' of the plate F is made to stand out from the side of the bar B farther at the end f^6 than at the end f^7 , as shown in Fig. 6. The plate F is usually made as a casting, Fig. 7.

I am aware that heretofore several devices
10 have been used to accomplish the same general ends. I have now in view, and therefore do not broadly claim the present invention in all its parts, an absolutely original novelty; but I do assert that my device differs from all
15 others in its details, is stronger and more efficient, and more easily applied than any before known.

I claim—

1. As a new manufacture, the plate F, of tri-

angular outline, perforated at its upper end to
20 receive the bolt E, and having the lugs $f^2 f^2$ at the lower corners, respectively, and the flange f deeper at the end f^6 than at the end f^7 , and having the shoulders $f^4 f^5$, substan-
tially as described. 25

2. The combination of the bar B, bolt E,
tooth D, and plate F, perforated at its upper
end to receive the bolt E, which bolt fastens
the plate to the bar and supports the tooth,
and having the body f' , the lugs $f^2 f^2$, and the
30 flange f , deeper at one end than at the other,
and having the shoulders $f^4 f^5$, substantially
as described.

CHARLES O. NASON.

Witnesses:

STEPHEN H. VELIE,
GILPIN MOORE.