

J. P. GAGE.
Harrow.

No. 223,334.

Patented Jan. 6, 1880.

Fig. 1.

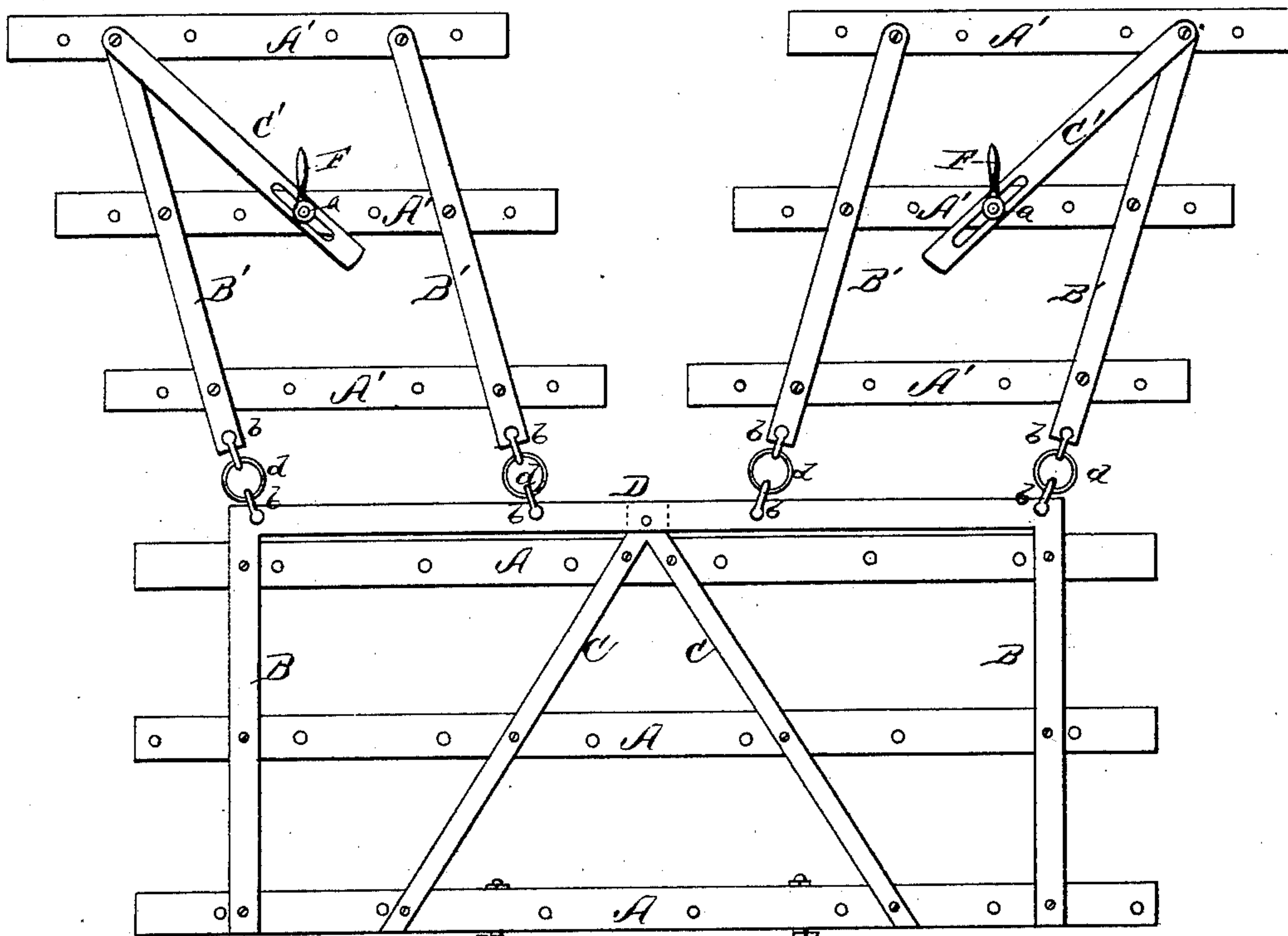


Fig. 2.

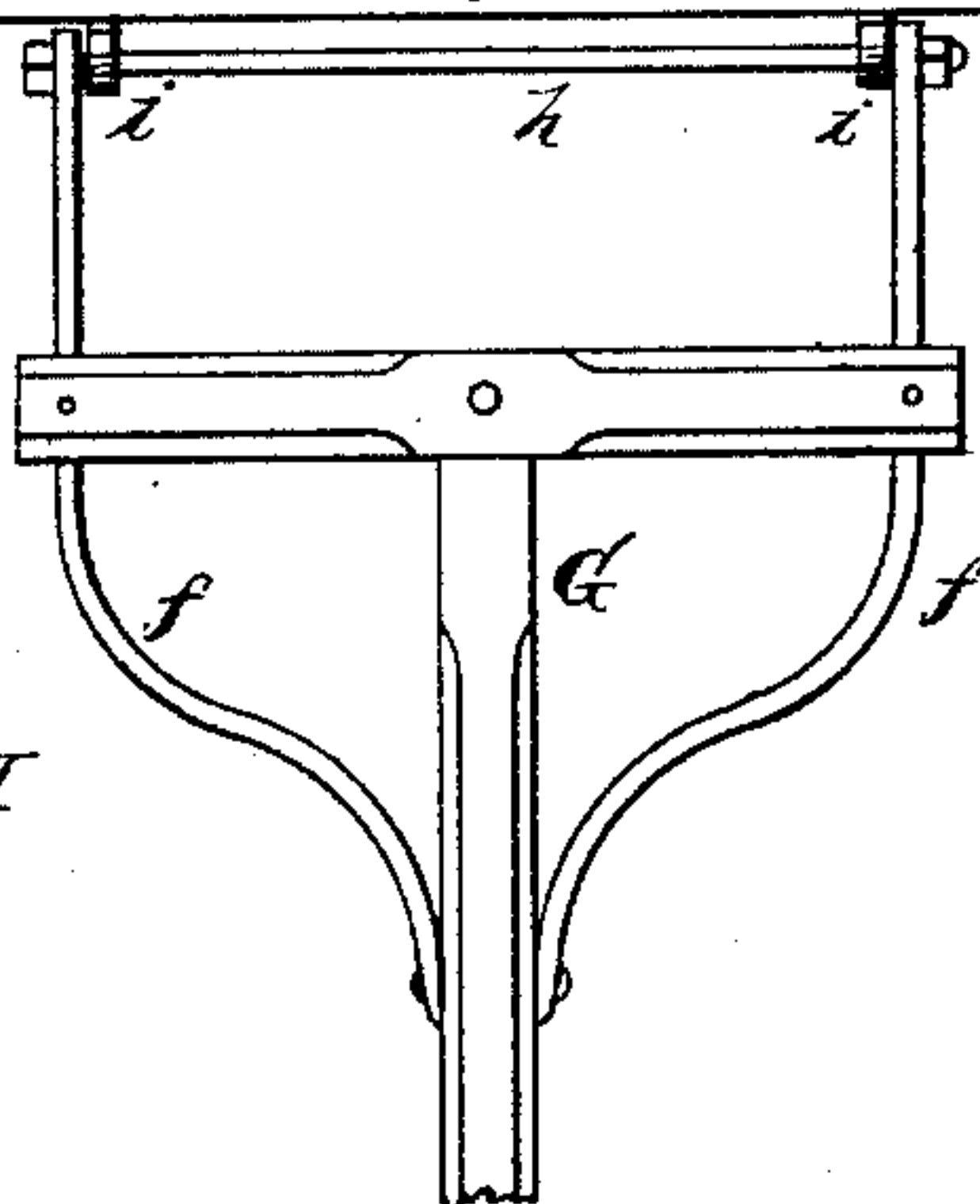
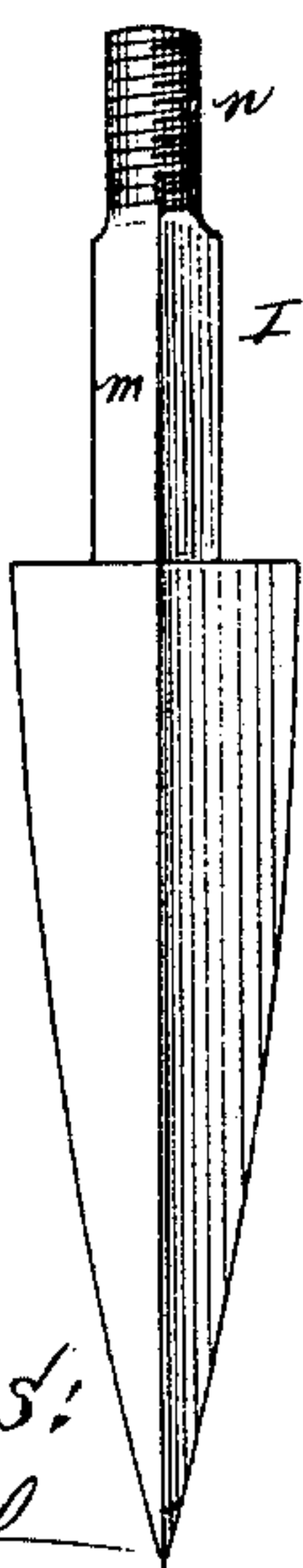


Fig. 3.



Witnesses:
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UNITED STATES PATENT OFFICE.

JAMES P. GAGE, OF TRAER, IOWA.

HARROW.

SPECIFICATION forming part of Letters Patent No. 223,334, dated January 6, 1880.

Application filed November 10, 1879.

To all whom it may concern:

Be it known that I, JAMES P. GAGE, of Traer, in the county of Tama and State of Iowa, have invented certain new and useful
5 Improvements in Harrows; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form
10 part of this specification.

The nature of my invention consists in the construction and arrangement of a harrow as will be hereinafter more fully set forth.

In order to enable others skilled in the art
15 to which my invention appertains to make and use the same, I will now proceed to describe its construction and operation, referring to the annexed drawings, in which—

Figure 1 is a plan view of the harrow; Fig.
20 2, a detail side view of one of the teeth; and Fig. 3, a cross-section of the same.

My harrow is made in three sections, as shown. The front or main section consists of three or more parallel bars, A A, held rigidly
25 together by means of metal straps or bars B B and C C. The metal straps B B run near the ends at right angles to the bars A A, and their rear ends are connected by a metal bar, D, running in rear of and parallel with the
30 bars A. The straps or braces C C run diagonally, and have their rear ends united together and to the center of the bar D. In rear of the main harrow-section thus formed are two adjustable side sections, which are each com-
35 posed of three or more parallel bars, A' A', connected together by metal bars B' B'. These are not united rigidly, but so that the harrow-section can be spread outward when desired. It is then held rigid by means of a slotted
40 brace, C', pivoted to one bar and passing over a bolt, *a*, in another bar, and a thumb-nut, F, screwed thereon. The two rear sections are connected to the bar D of the front section by means of clevises *b* and links *d*, substantially
45 as shown.

This harrow is particularly adapted to harrowing corn, as it is adjustable to any ground,

and also adjustable sidewise by loosening the thumb-nuts F and moving the back sections outward to the various widths of marking, so
50 that the entire ground between the rows can be cultivated without disturbing the hills in any way.

To the front section of the harrow is connected a tongue, G, by means of the side arms, *f f*, bearings *i i*, and rod *h*. This tongue is
55 very essential in the working of the harrow, as it obviates any liability of the horses getting back on the harrow, and at the same time it guides the harrow so that no two teeth run in
60 the same track.

I represent the harrow-teeth, made of smooth polished steel, tapering all the way down, so that no rubbish can accumulate on them, thus making them self-cleaning. The
65 teeth are made in diamond form, having the diameter greater one way than the other, thus making them capable of being adjusted to a perfect standing cutter for sod or a cultivator by changing their position in the harrow.
70

Each tooth is formed with a shank, I', the lower part of which is square or diamond-shaped, as shown at *m*, so that it cannot turn accidentally in the harrow. The upper part,
75 *n*, of the shank is made round and threaded, to receive a nut for fastening the tooth in the harrow.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is —
80

The combination of the front or main section, composed of the bars A, metal straps B C, and bar D, and the adjustable rear sections, composed of the bars A', straps B', and slot-
85 ted adjusting-braces C', with bolts *a* and thumb-nuts F, substantially as and for the purposes herein set forth.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

JAMES PIKE GAGE.

Witnesses:

J. BERRY,
S. SUNDAY.