

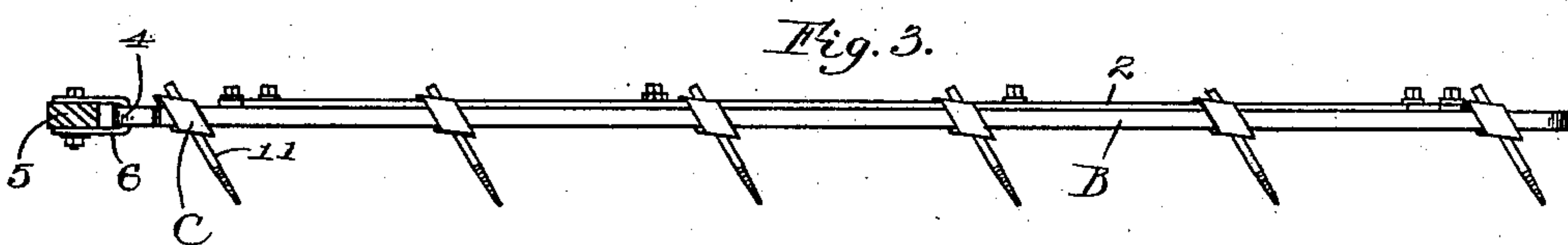
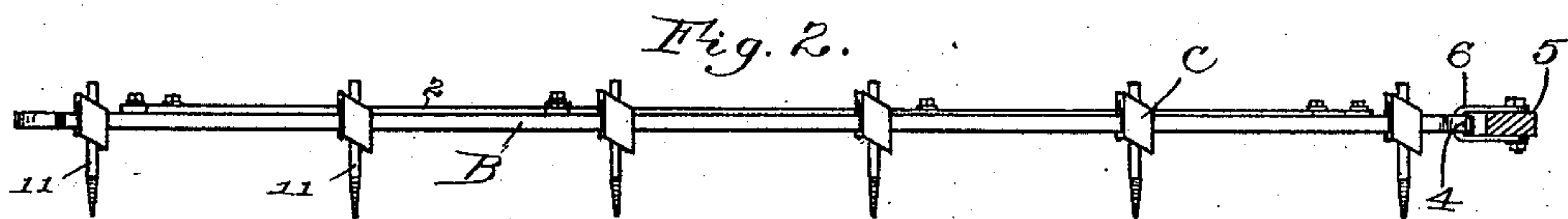
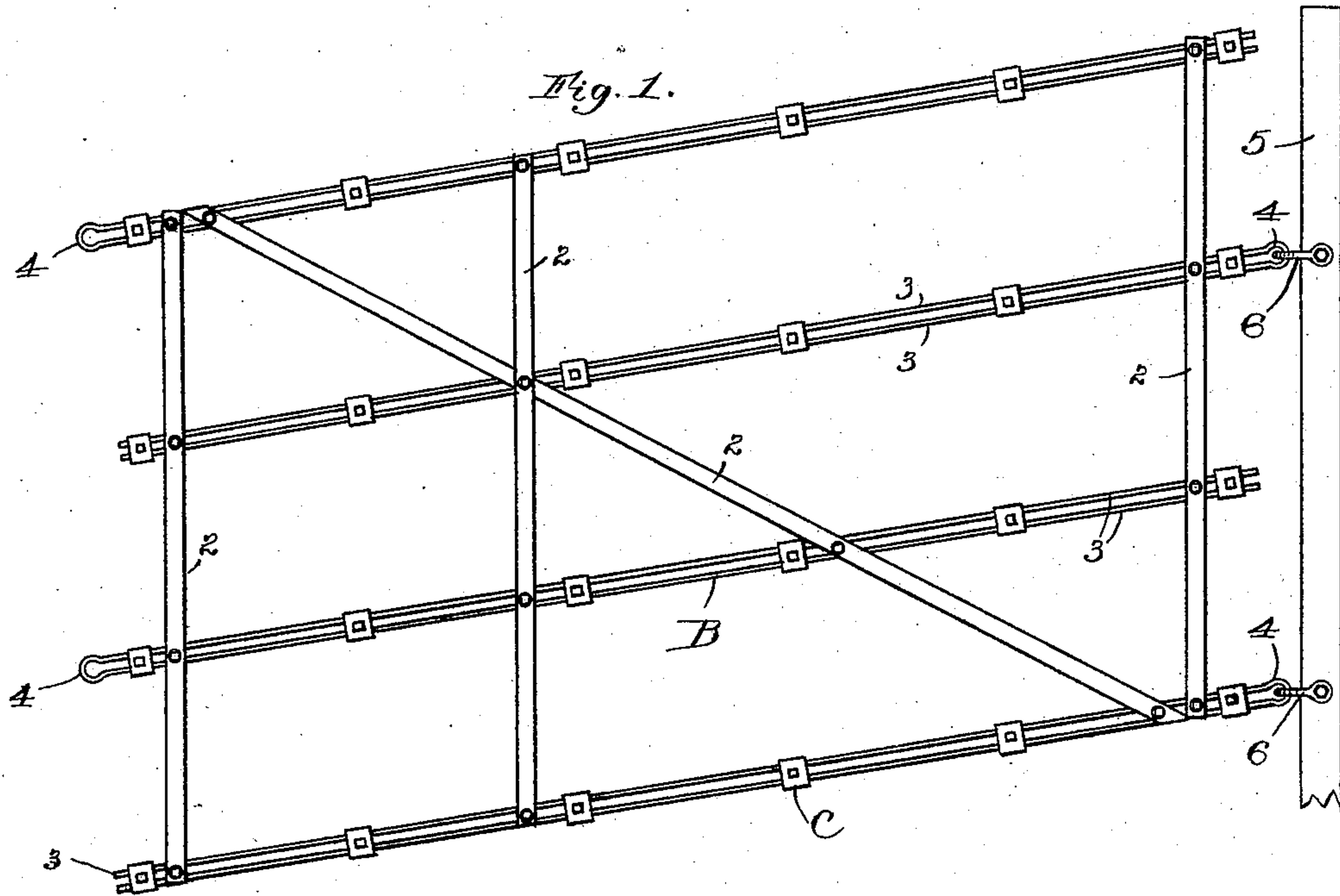
(No Model.)

2 Sheets—Sheet 1.

S. JOHNSON.
HARROW.

No. 577,038.

Patented Feb. 16, 1897.



Witnesses:

F. T. Broadbury
S. S. Johnson

Inventor:

Seymour Johnson.

per: T. D. Munroe
Attorney.

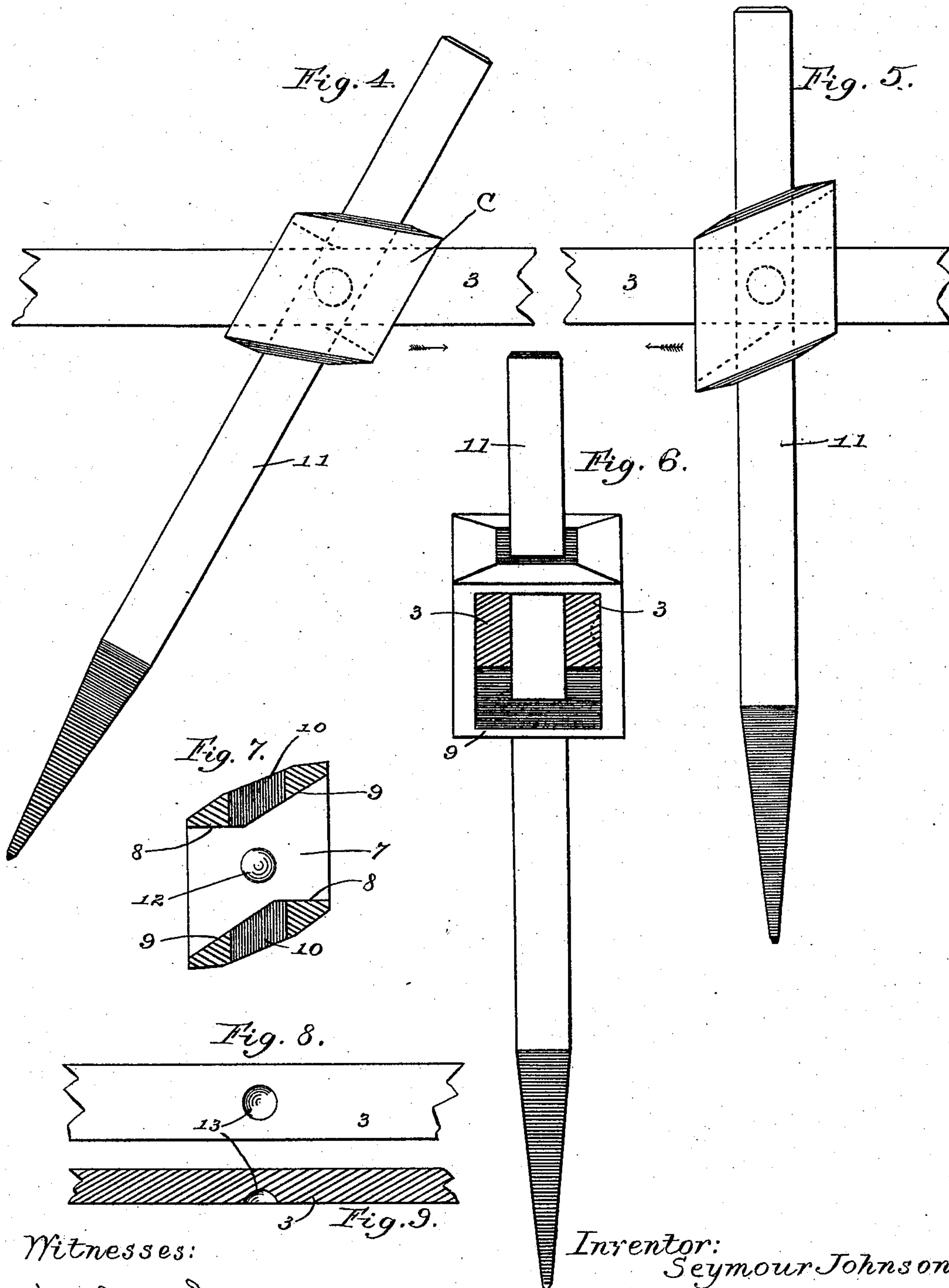
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2 Sheets—Sheet 2.

S. JOHNSON.
HARROW.

No. 577,038.

Patented Feb. 16, 1897.



Witnesses:

V. D. Spadbury
S. S. Johnson.

Inventor:

Seymour Johnson.

per: T. D. Merwin
Attorney.

UNITED STATES PATENT OFFICE.

SEYMOUR JOHNSON, OF AUSTIN, MINNESOTA, ASSIGNOR OF ONE-HALF TO
ALBERT M. SMITH, OF SAME PLACE.

HARROW.

SPECIFICATION forming part of Letters Patent No. 577,038, dated February 16, 1897.

Application filed January 16, 1896. Serial No. 575,724. (No model.)

To all whom it may concern:

Be it known that I, SEYMOUR JOHNSON, of Austin, Mower county, Minnesota, have invented certain Improvements in Harrows, of which the following is a specification.

My invention relates to improvements in harrows, its object being principally to provide an improved construction of harrow whereby the same can be converted at will from an ordinary vertical-tooth to a slanting-tooth or smoothing harrow.

To this end my invention consists in the improved construction and arrangement hereinafter particularly described and claimed.

In the accompanying drawings, forming part of this specification, Figure 1 is a plan view of my improved harrow. Fig. 2 is a side elevation of the same with the teeth standing in vertical position. Fig. 3 is a similar view with the teeth standing in slanting position. Figs. 4 and 5 are similar detail elevations of a portion of the harrow-beam and connected tooth, showing the relative positions the tooth assumes when the harrow is drawn as indicated in the drawings by the arrows. Fig. 6 is an end view of Fig. 5, looking from left to right. Fig. 7 is a vertical cross-section of the tooth-fastening or socket-band; and Figs. 8 and 9 are partial details of one of the harrow-beams, showing the depression to receive the boss on the socket-band.

In the drawings the harrow A is made up of a series of harrow-beams B, connected together by means of suitable cross braces or arms 2. The harrow-beams are formed of straight parallel bars 3, having at one end the loop 4. These beams are preferably arranged so that the loops at opposite ends of the harrow are upon alternate beams, the draft-bar or evener 5 being secured to the loops at one end by clevises 6.

Arranged at suitable distances apart upon the harrow-beam are my improved tooth-socket bands or fastenings C. These are preferably of the shape shown in Figs. 4 and 5, provided with the horizontal opening 7, through which passes the harrow-beam. The upper and lower walls of the opening 7 are both formed with the corresponding beveled faces 8 8 and 9 9, the faces 8 8 being in a plane at right angles with the vertical tooth-opening 10 and the faces 9 9 at an acute angle with reference to the opening. It will thus be evident that when the beam is bearing upon the

faces 8 8 the tooth 11, passing through the opening 10, will be in a vertical position, and when the beam bears upon the faces 9 9 the tooth will be in a slanting position, as shown in Fig. 4. Formed upon one of the side walls of the opening 7 is the boss or protuberance 12, adapted to fit into the depression 13 in the side of the harrow-beam, thus holding the socket-band from slipping and serving as a bearing for it to turn upon.

As will be evident, the socket-bands C may be easily slipped in place upon the harrow-beam by springing the bars of the beam toward each other until the boss upon the socket-band comes into contact with the depression in the beam, the socket-band when in place turning upon the boss as a bearing.

When it is desired to use my invention as an ordinary vertical-tooth harrow, the evener is attached as illustrated in Fig. 2, the pressure of the soil against the teeth holding them in vertical position. When it is desired to convert it into a smoothing-harrow, the evener is attached to the opposite end of the harrow, as shown in Fig. 3, so that the pressure of the soil will cause the teeth to turn to a slanting position, with the harrow-beam bearing upon the faces 9 9 of the opening 7. By having the looped ends of the harrow-beams arranged alternately upon opposite ends of the harrow the evener can be easily changed from one end to the other.

I claim—

In a harrow, the combination with the harrow-beam, composed of parallel bars, of the tooth-holder provided with a longitudinal opening to receive the beam, and a central vertical opening to receive the harrow-tooth, and the pivotal connection between said holder and beam, consisting of a boss or projection upon one engaging a socket in the other, said tooth when inserted in place between the parallel bars holding the same forced outward against the sides of the holder, and preventing slipping by reason of the pivotal connection, said bars being adapted to be sprung together when the tooth is removed to disengage the holder and beam.

In testimony whereof I affix my signature in presence of two witnesses.

SEYMOUR JOHNSON.

Witnesses:

T. D. MERWIN,
H. S. JOHNSON.