(No Model.) 6 Sheets—Sheet 1.

C. SVENDSEN.

COMBINED HARROW AND SEEDER.

No. 373,159. Patented Nov. 15, 1887.

Fig. 1.

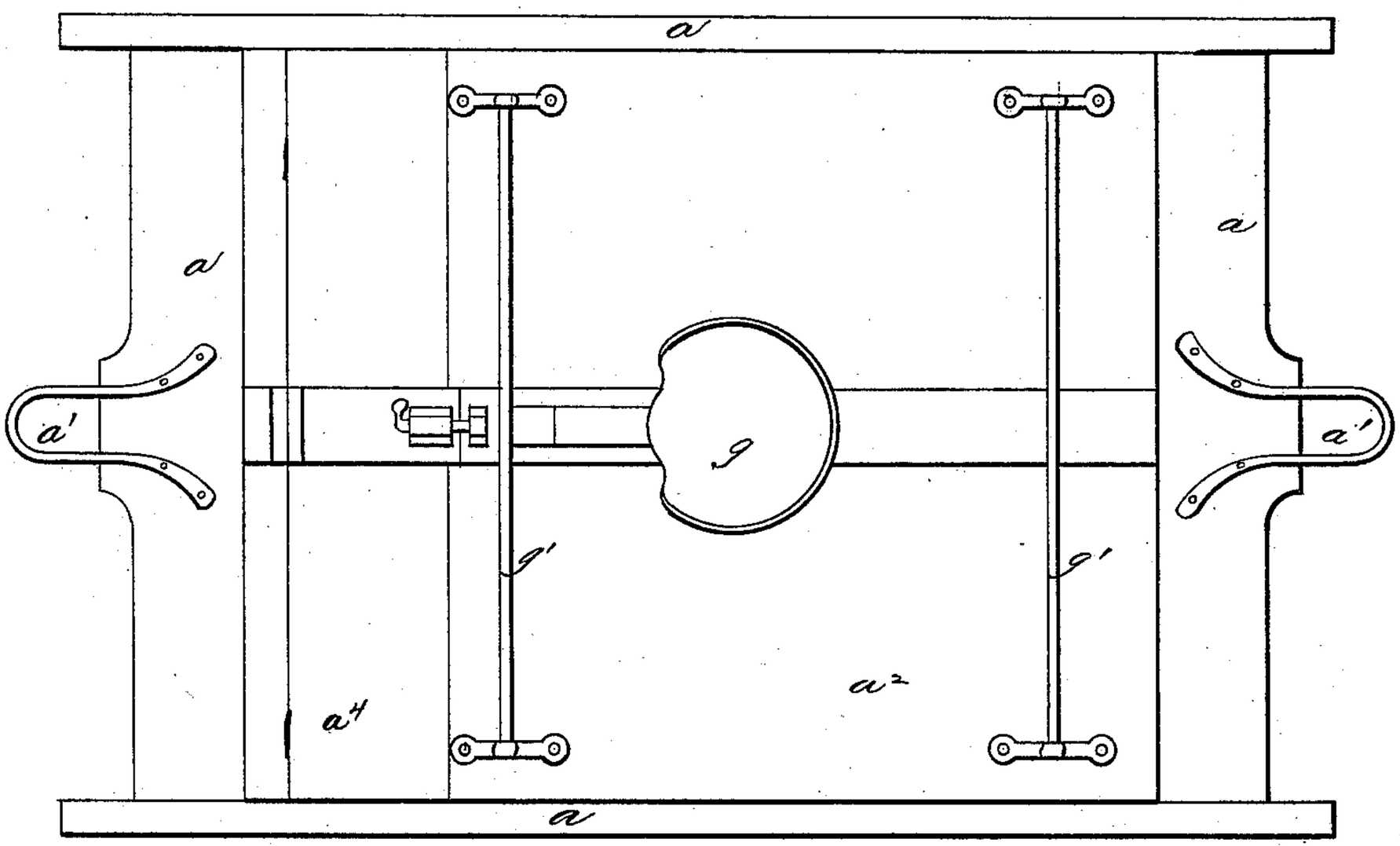
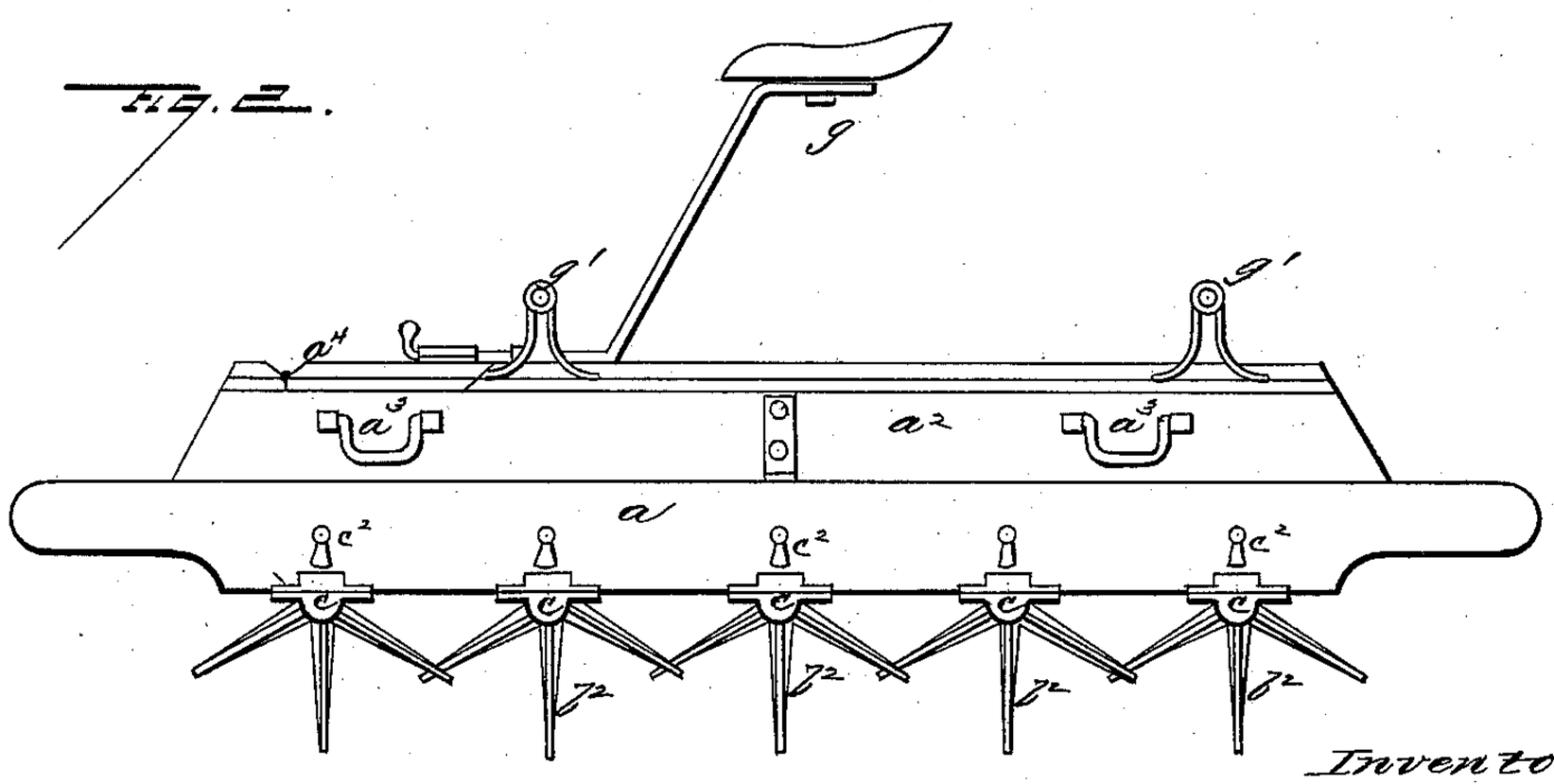


Fig. 2.



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(No Model.)

6 Sheets—Sheet 2.

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COMBINED HARROW AND SEEDER.

No. 373,159. Patented Nov. 15, 1887.

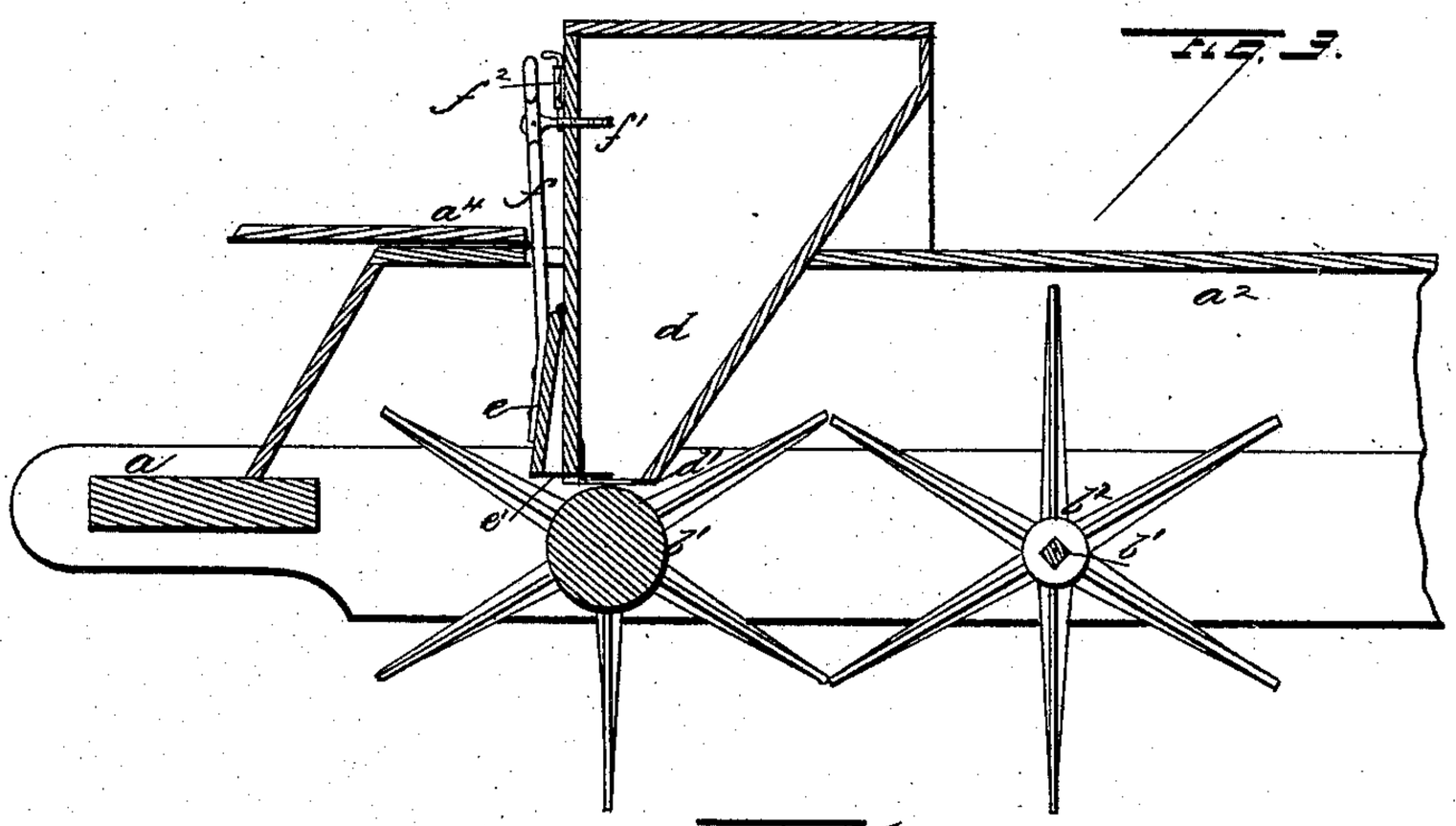
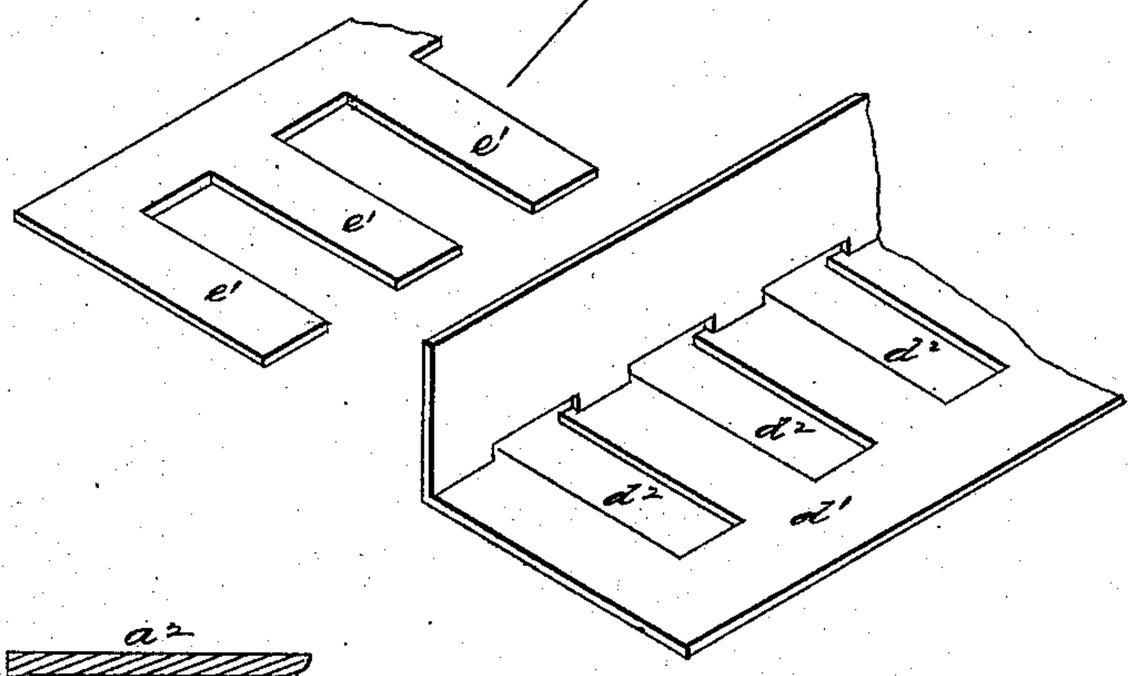


Fig. 4.



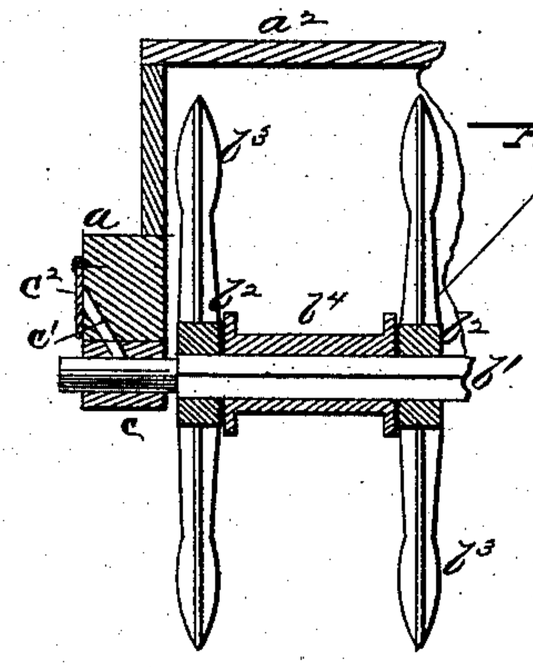
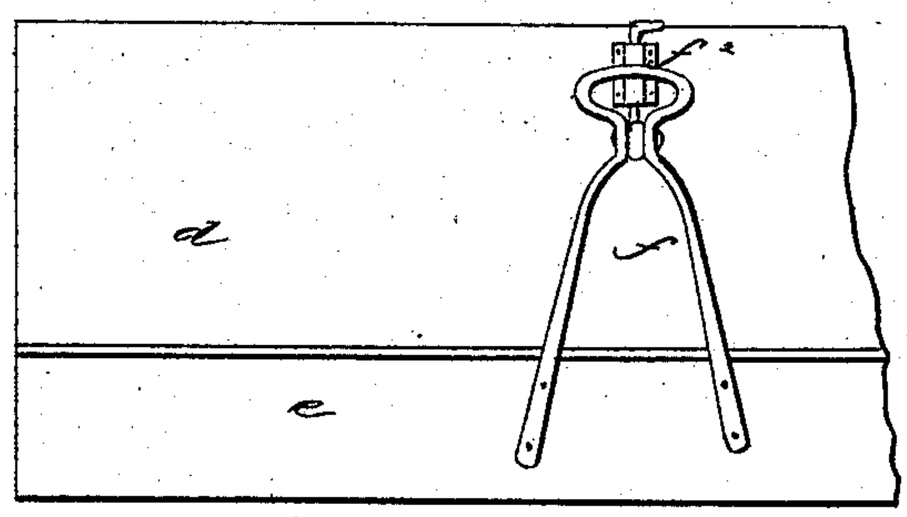


Fig. 5.

Fig. 6.



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(No Model.) 6 Sheets—Sheet 3.

C. SVENDSEN.

COMBINED HARROW AND SEEDER.

No. 373,159. Patented Nov. 15, 1887.

Fig. 1.

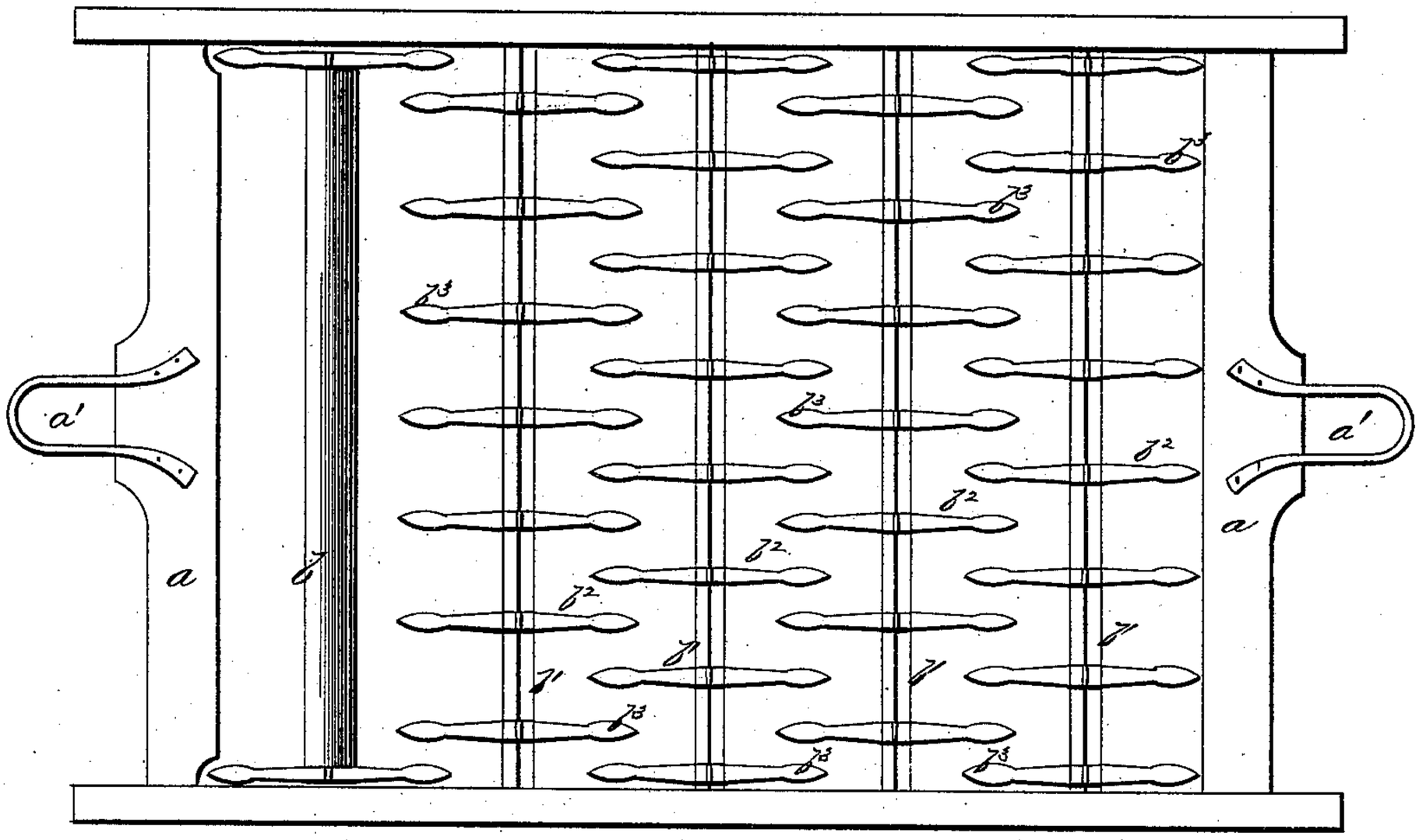


Fig. 3.

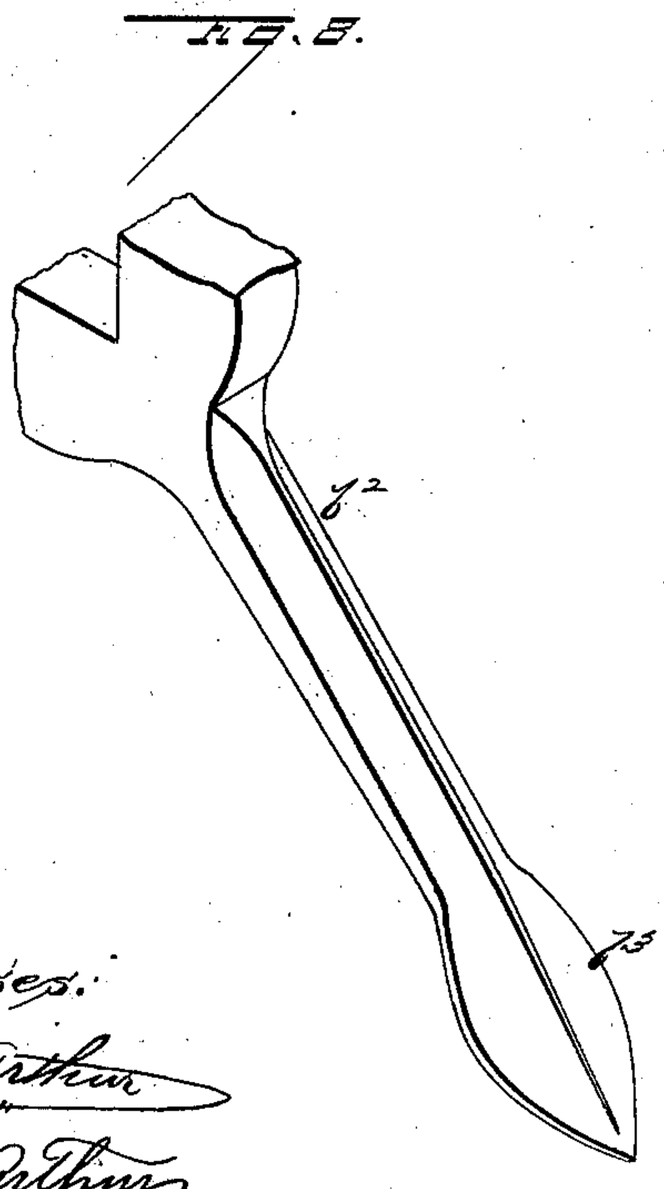
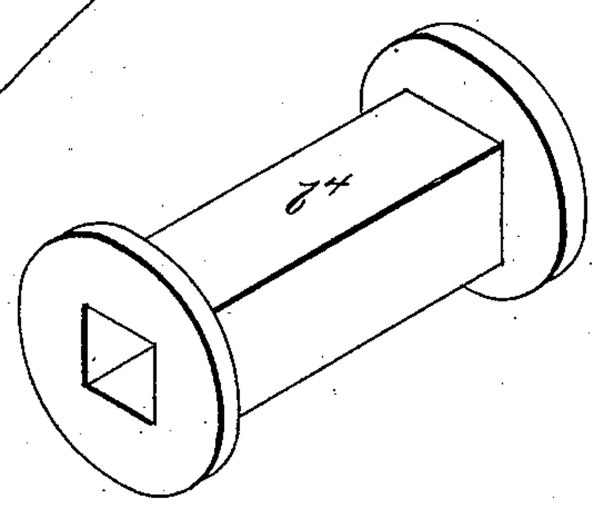


Fig. 2.



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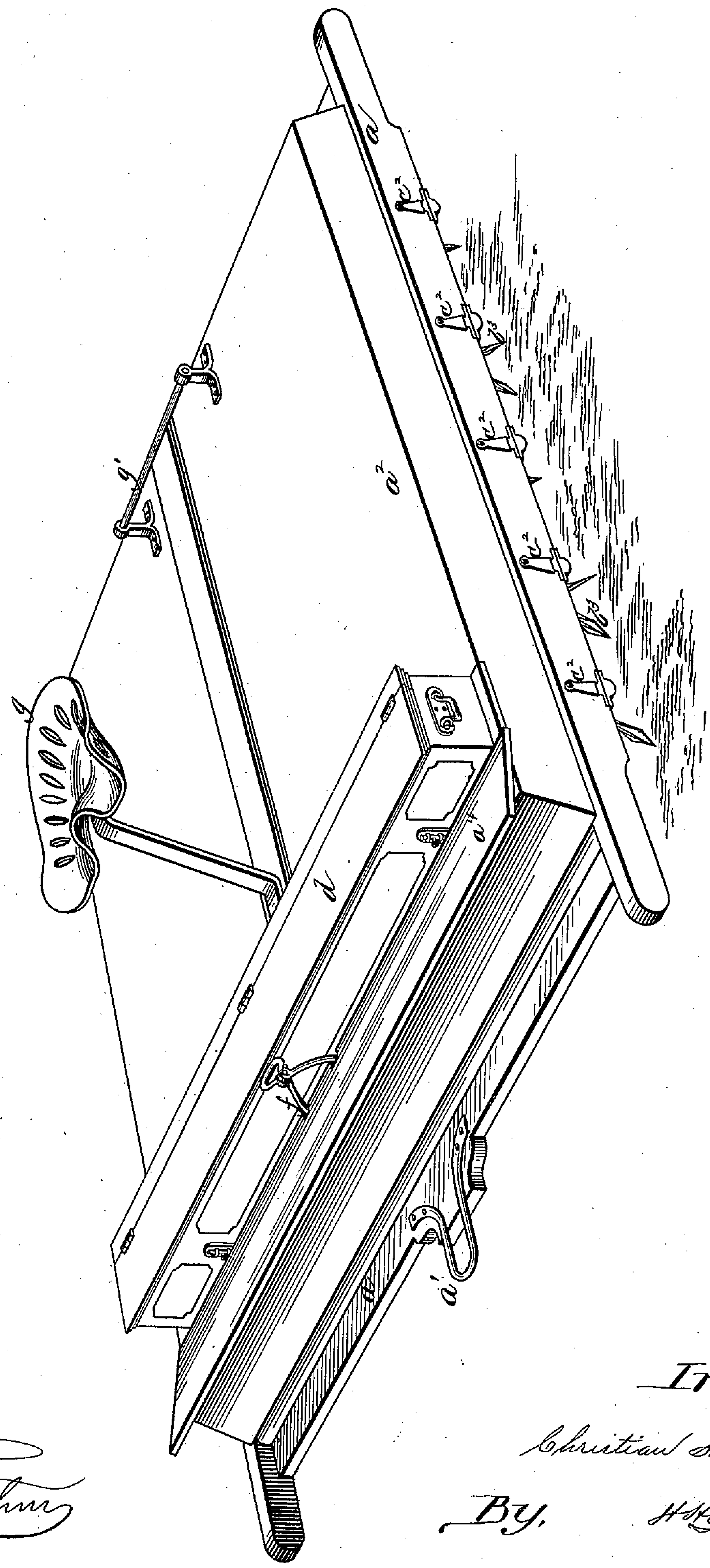
6 Sheets—Sheet 4.

C. SVENDSEN.

COMBINED HARROW AND SEEDER.

No. 373,159. Patented Nov. 15, 1887.

Fig. 10.



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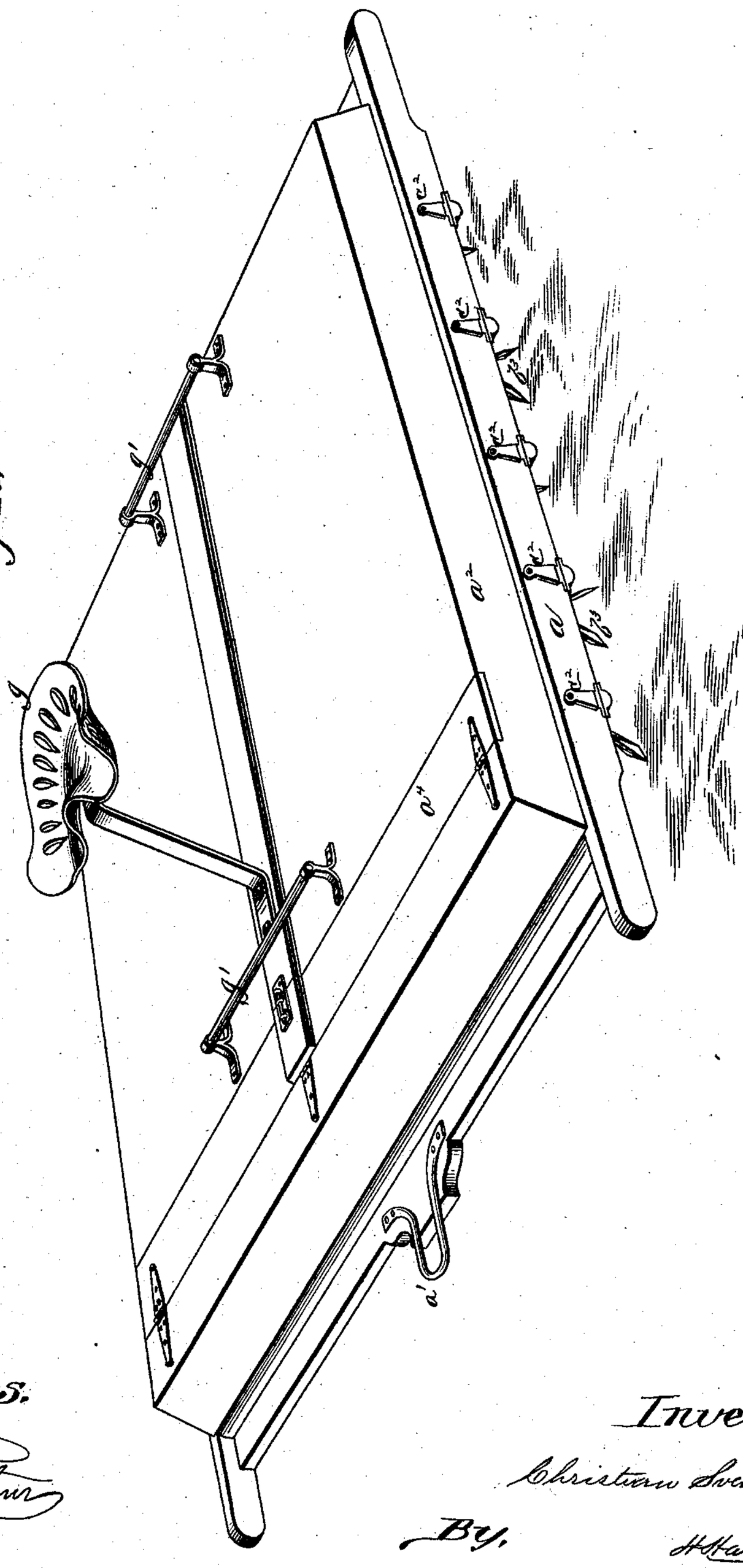
COMBINED HARROW AND SEEDER.

No. 373,159. Patented Nov. 15, 1887.

Fig. 11.



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(No Model.)

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C. SVENDSEN.

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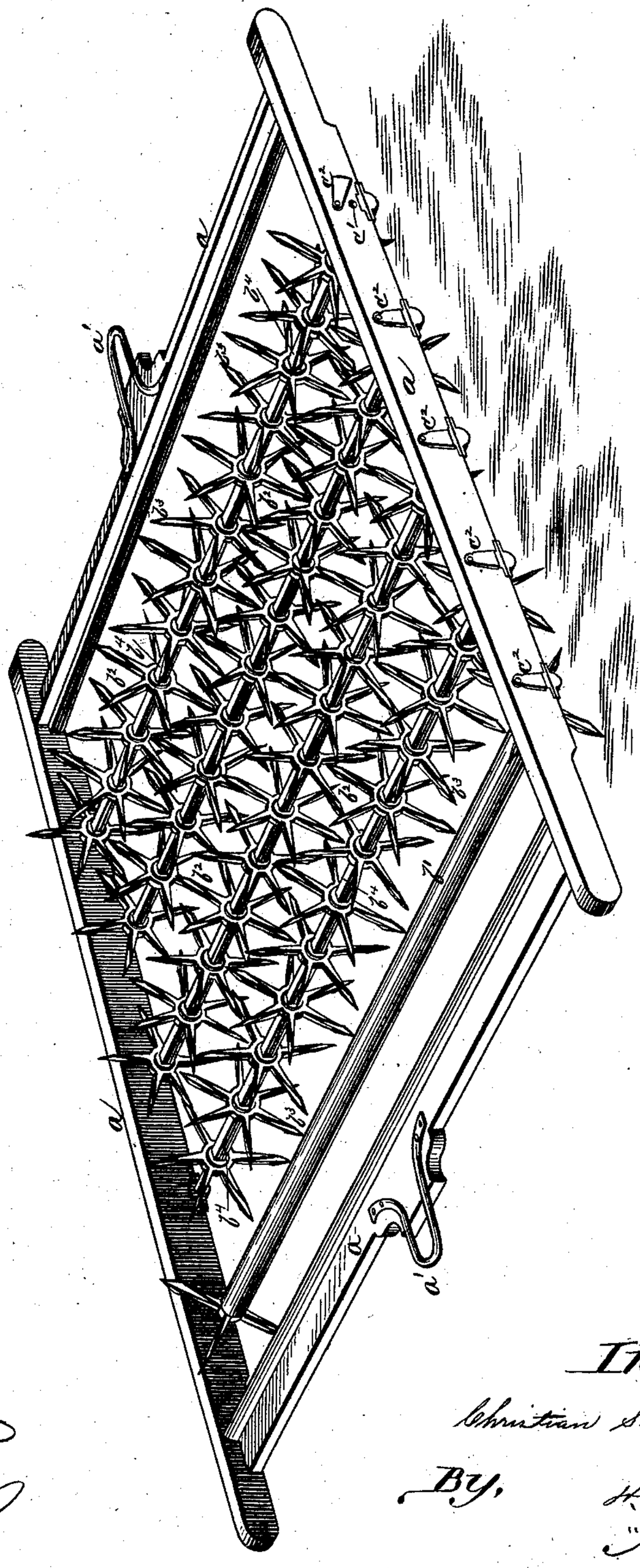

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UNITED STATES PATENT OFFICE.

CHRISTIAN SVENDSEN, OF CHICAGO, ILLINOIS.

COMBINED HARROW AND SEEDER.

SPECIFICATION forming part of Letters Patent No. 373,159, dated November 15, 1887.

Application filed May 18, 1887. Serial No. 238,657. (No model.)

To all whom it may concern:

Be it known that I, CHRISTIAN SVENDSEN, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Combined Harrows and Seeders, of which the following is a specification, to wit:

This invention relates to an improvement in combined harrows and seeders; and it consists in certain peculiarities of the construction and arrangement of the same, substantially as will be hereinafter more fully set forth and claimed.

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

Figure 1 is a plan view of my device; Fig. 2, a side elevation of the same; Fig. 3, a longitudinal vertical section of one end of the same; Fig. 4, a detail perspective view of a part of the metal seed-box bottom and its regulating cut-off. Fig. 5 is a sectional detail view of a part of one of the harrow-shafts and its toothed wheels, and Fig. 6 is a front view of a part of the seed-box. Fig. 7 is a top view with the cover off; Fig. 8, a detail of one of the spider-arms, and Fig. 9 a detail of the separating-sleeve. Fig. 10 is a perspective view of my device with the seed-box in place. Fig. 11 is a similar view with the seed-box removed, and Fig. 12 a similar view of the main frame with the cover removed to show the revolving teeth.

a represents the main frame of my machine, provided with a bail, *a'*, upon each end, in order that it may be drawn in either direction without being turned around. This frame is covered by a box-casing, a^2, which is at any time lifted off by means of the handles a^3, and one portion of this casing, near its front end, is hinged, as at a^4, so it may be turned back to admit the seed box or hopper to position.

In the forward end of the frame *a* is journaled a roller, *b*, and in rear of this a series of square or angular shafts, *b'*, on which are placed any desired number of toothed wheels or spiders b^2, the arms of which are formed at their ends with blades b^3 somewhat broader than the main body of the arms, as shown in Fig. 5. These spider-wheels are separated by short sleeves b^4 on the angular shafts, and both these shafts and the roller *b* are journaled in boxes *c*, having oil-leads *c'* formed upward through the frame and covered by small hinged guards c^2, as shown in Figs. 2 and 5.

The seed box or hopper *d* is of a rectangular form, and when in place its lower end rests just over the roller *b*. The bottom of the seed-box is covered by a metal plate, *d'*, formed with a series of seed-openings, d^2, which admit of the seed falling out of the box to the ground. Upon one side of the box is hinged a board or flap, *e*, on the lower end of which are a series of tongues, *e'*, which enter the seed-box and lie just over the openings d^2, and which partially or wholly close said openings, according as the flap *e* is operated. Upon the flap is a handle, *f*, provided with a perforated arm, *f'*, passing through the side of the box, and a small bolt, f^2, serves to secure this handle, and consequently the regulating-fingers, after adjustment.

In use as a harrow the device is drawn in either direction and perfectly pulverizes the ground as it is drawn along. When seeding is to be done, the box is placed in position and the openings uncovered to a greater or less extent, the seed falling upon the roller and being scattered as the latter revolves, and covered by the harrow-teeth following. This enables both the seeding and harrowing to be done at the same time, and the seed-box is removed at any time when not desired for use.

I have provided a pivoted seat, *g*, for the driver, which may be turned in either direction, and foot-rests *g'* upon each end of the machine, as in Fig. 1.

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

1. The combination, with the main frame formed with a hinged door or flap in its cover, and provided with a series of revolving toothed harrow-shafts, of a removable seed-box fitted over the opening covered by the hinged door, and having its bottom formed with a series of seed-openings, and a flap hinged on the forward side of the seed-box and provided with a series of fingers to wholly or partially cover

said openings, substantially as and for the purpose set forth.

2. The combination, with the box *d*, having the openings d^2 in its bottom, of the hinged flap *e*, tongues or fingers *e'*, handle *f*, arm *f'*, and bolt f^2, substantially as and for the purpose set forth.

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

CHRISTIAN SVENDSEN.

Witnesses:
W. C. McARTHUR,
W. S. McARTHUR.