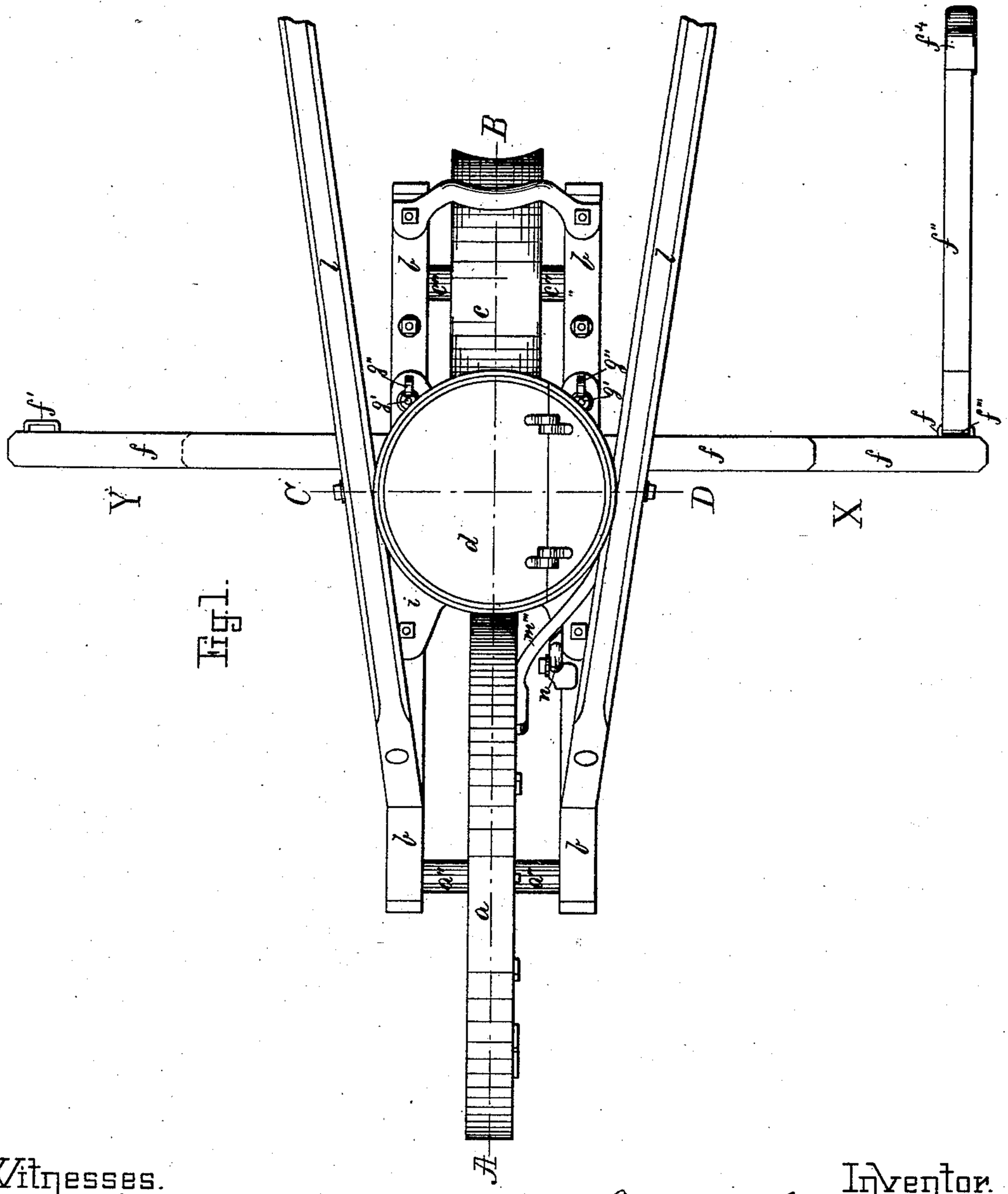
(No Model.) 4 Sheets—Sheet 1.

E. G. MATTHEWS.

SEED DRILL.

No. 266,960. Patented Oct. 31, 1882.



Witnesses.

Henry Chadbourn.

Sarah M. Goodrich

Inventor.

Elbridge G. Matthews

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his attys.

(No Model.) 4 Sheets—Sheet 2.

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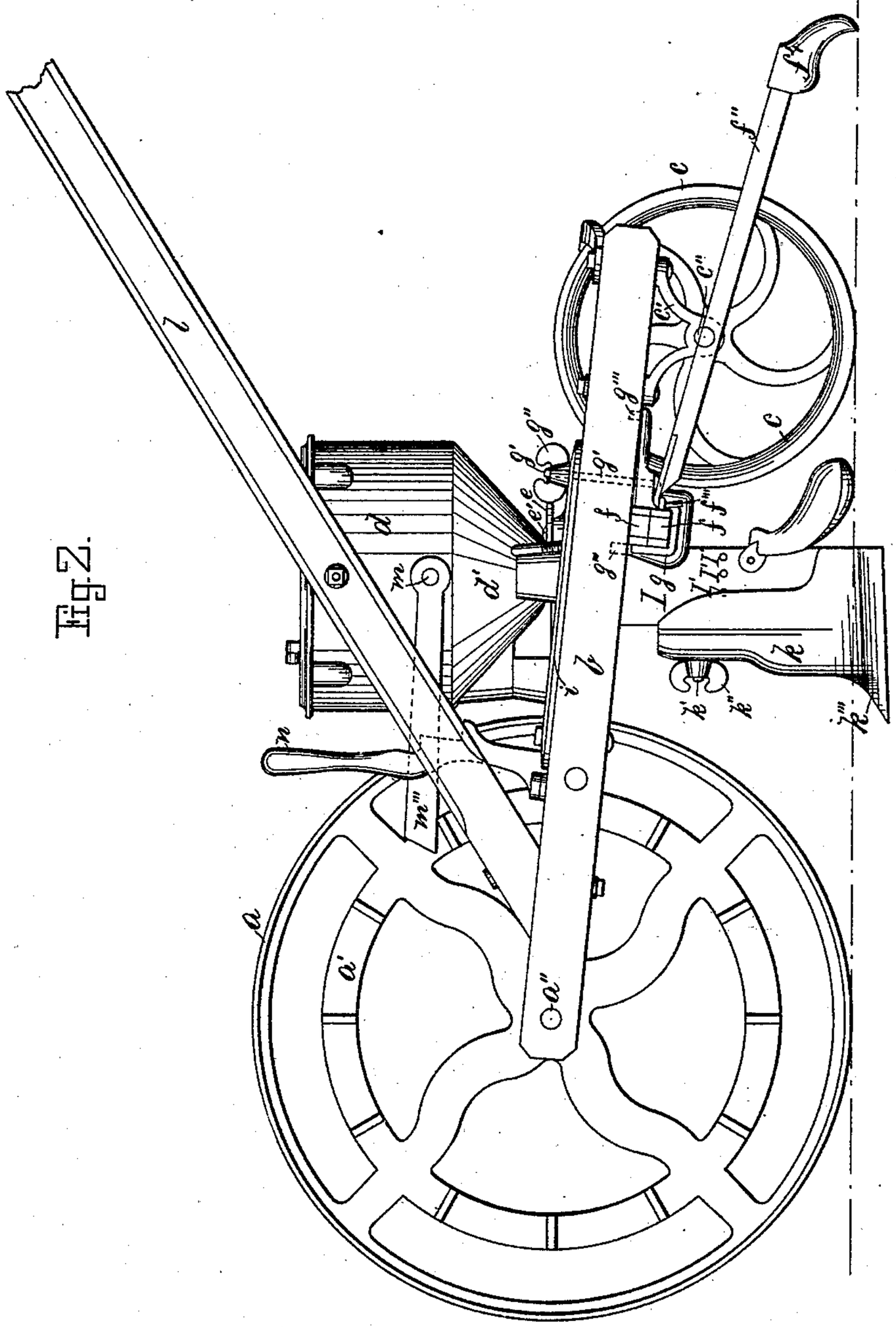
SEED DRILL.

No. 266,960. Patented Oct. 31, 1882.

Fig. 2.



Witnesses.

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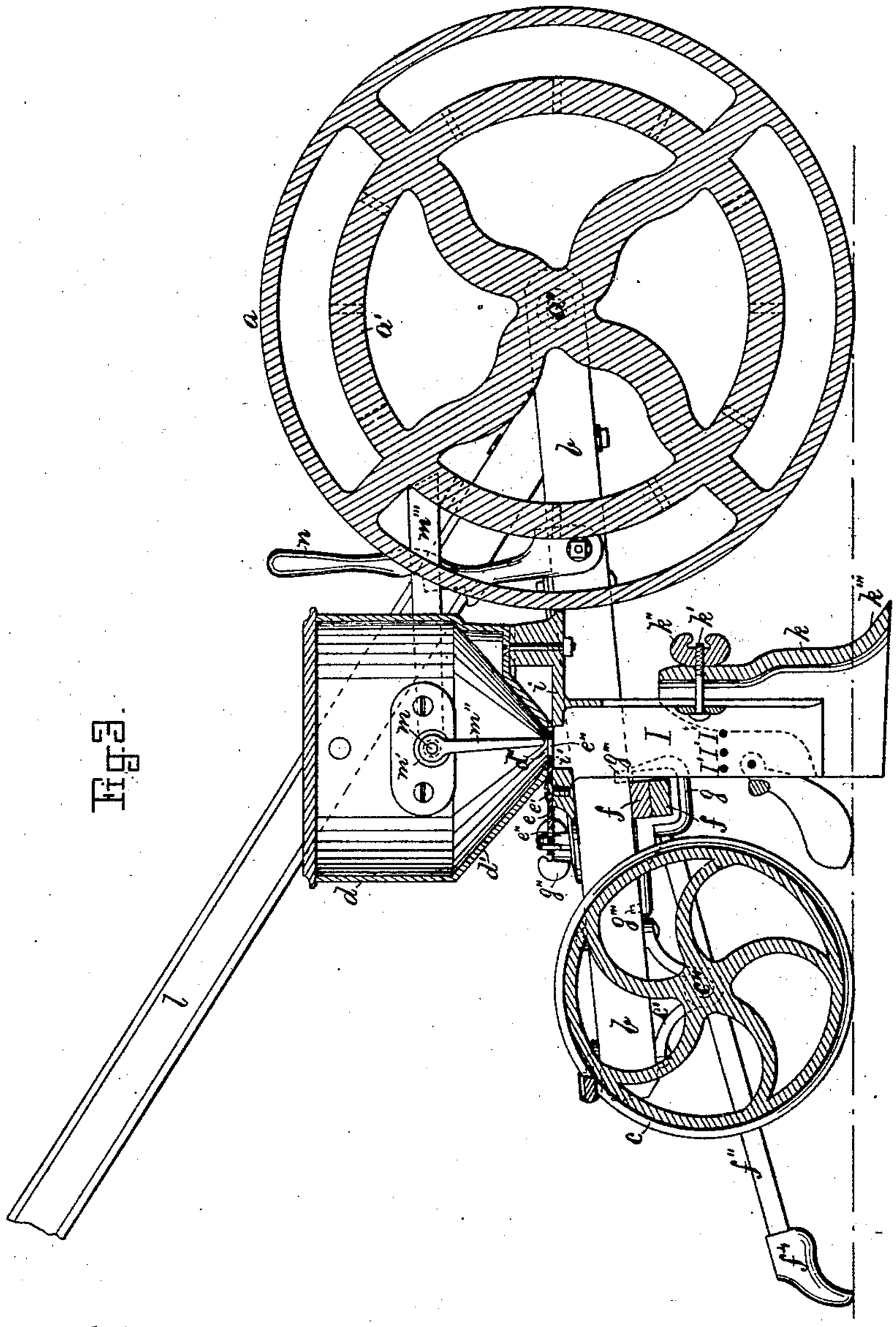
(No Model.) 4 Sheets—Sheet 3.

E. G. MATTHEWS.

SEED DRILL.

No. 266,960. Patented Oct. 31, 1882.

Fig 2.



Witnesses.
Henry Chadbourn.
Sarah M Goodrich

Inventor.
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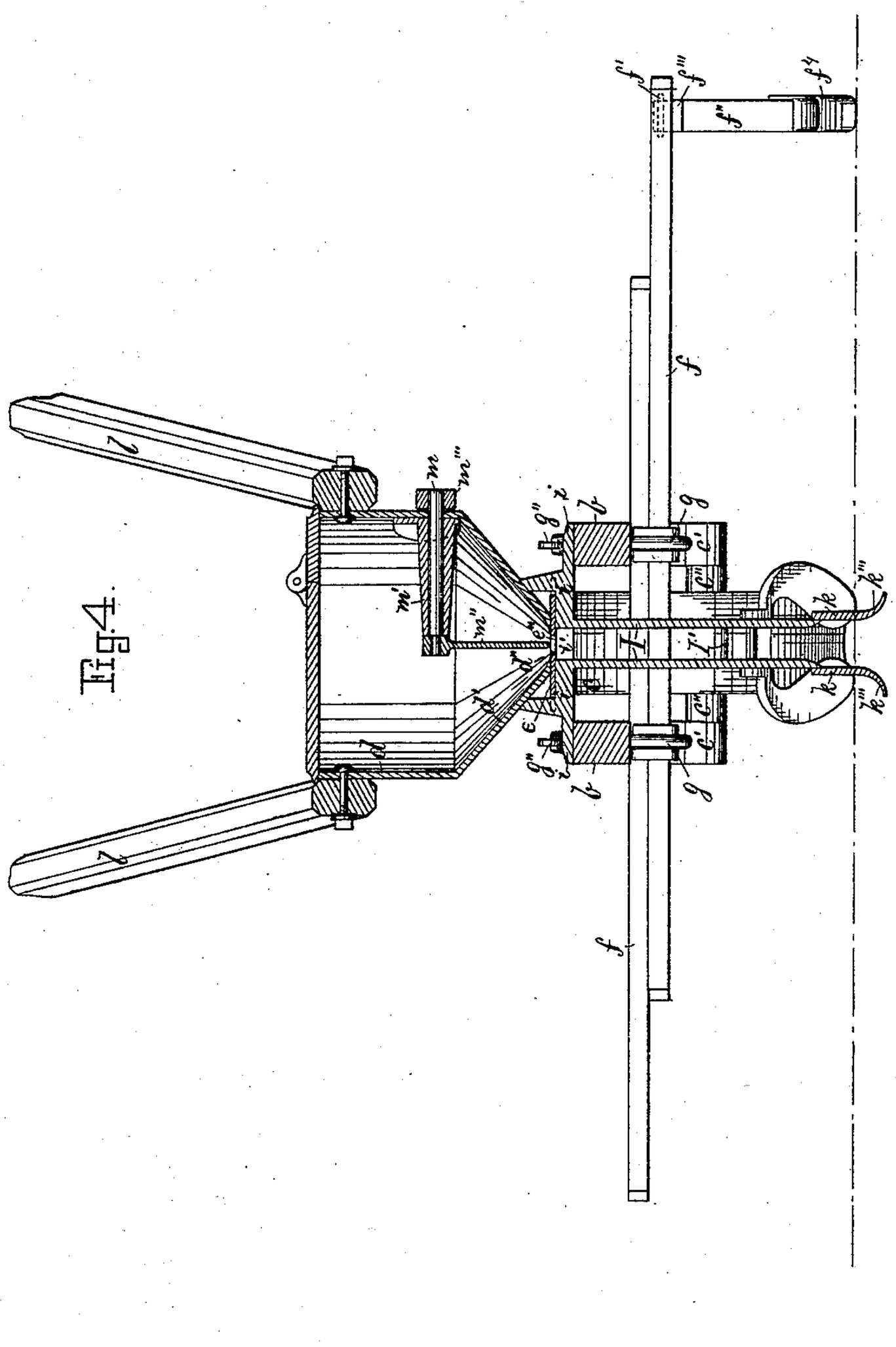
(No Model.) 4 Sheets—Sheet 4.

E. G. MATTHEWS.

SEED DRILL.

No. 266,960. Patented Oct. 31, 1882.



Witnesses

Henry Chadbourn.
Sarah M. Goodrich.

Inventor

Elbridge G. Matthews
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his attys.

UNITED STATES PATENT OFFICE.

ELBRIDGE G. MATTHEWS, OF OAKHAM, ASSIGNOR TO ELIJAH E. LUMMUS, OF BEVERLY, MASSACHUSETTS.

SEED-DRILL.

SPECIFICATION forming part of Letters Patent No. 266,960, dated October 31, 1882.

Application filed December 5, 1881. (No model.)

To all whom it may concern:

Be it known that I, ELBRIDGE G. MATTHEWS, a citizen of the United States, residing at Oakham, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Seed-Drills; and I do hereby declare that the same are fully described in the following specification and illustrated in the accompanying drawings.

This invention relates to improvements in seed-drills, and it is carried out as follows, reference being had to the accompanying drawings, in which—

Figure 1 represents a plan view of the invention. Fig. 2 represents a side elevation, seen from X in Fig. 1. Fig. 3 represents a longitudinal section on the line A B, seen from Y in Fig. 1; and Fig. 4 represents a cross-section on the line C D shown in Fig. 1.

Similar letters refer to similar parts wherever they occur on the different parts of the drawings.

a represents the driving-wheel, provided with a ratchet-ring, *a'*, for operating the agitator within the hopper, as usual.

a'' is the shaft for the driving-wheel *a*, which is free to rotate in a bearing in the forward end of the rigid frames *b b*, the rear ends of which have bearings *c' c'* attached for the support of the axle *c''* of the concave roller *c*, as shown. By arranging the axles for both the driving-wheel *a* and concave roller *c* in bearings in the rigid frames *b b* great strength, compactness, and durability of the machine is obtained.

The seed-box is composed of upper cylindrical part, *d*, combined with lower tapering part, *d'*, cast in one piece, the latter being made tapering externally as well as internally, as shown in the drawings, to enable the seed-delivery plate *e* to be exposed to view for the operator to admit of an easy change by turning the delivery-plate *e* around its central pivot, *e'*, as shown in Fig. 3.

Heretofore the seed-box on seed-drills has been made to cover and completely hide the delivery-plate from view, which arrangement has been objectionable, as it would not enable the operator to change the plate from a larger to a smaller delivery-opening, or vice versa, without trying the effect in running the machine; but by making the seed-box with a lower tapering exterior part, *d'*, more than one-half of the delivery-plate *e* is exposed to view for the operator, and an easy change of said plate *e* may therefore readily be accomplished at any time.

e'' e'' are perforations in the seed-delivery plate, as usual.

f f are a pair of laterally-adjustable marker-bars, located in bearings *g g*, secured to the under side of the rigid frames *b b* by means of the screw-bolts *g' g'* and adjustable thumb-nuts *g'' g''*, as shown in Fig. 2. Each bearing *g g* is provided with a pair of steady or guide pins, *g''' g'''*, projecting into recesses on the under side of each of the rigid frames *b b*, so as to prevent said bearings from getting detached from the frames *b b* during the lateral adjustment of the marker-bars *f f*. By arranging the marker-bars *f f* on the under side of the rigid frames *b b* the machine is prevented from tipping over sidewise when left to itself, and this is a great advantage, as heretofore when a seed-drill was not in use it was liable to tip over and spill the seeds on the ground if it was not otherwise propped up or steadied.

i is the bearing-plate, secured to and resting on the top of the rigid bars *b b*. The hopper or seed-receptacle *d d'* is secured to said bearing-plate, as is also the pivot *e'* for the perforated seed-delivery plate *e*. The bearing-plate *i* has a central perforation, *i'*, directly below the central perforation, *d''*, in the bottom of the hopper *d d'*, as shown in Fig. 3.

I is the seed-conductor, cast in one piece with the bearing-plate *i* and projecting downward from the latter, as shown in Fig. 3, and in this manner great strength and durability is obtained, and by casting such bearing-plate and seed-conductor together in one rigid piece no movement of one independent of the other is possible, as might occur by the getting loose of parts if the said two pieces were made independently of each other, and in this manner great accuracy in the delivery of the seeds is obtained.

I' I' I' are lateral scattering-bars in the lower

part of the seed-conductor I, as shown in Fig. 3, the object of which is to allow the seeds as they drop down the seed-conductor from the hopper to strike against the said bars I′ I′ I′, and the seeds in so doing are caused to scatter more or less in the furrow made by the plow and prevented from falling on the top of each other.

k is the vertically-adjustable plow projecting in front of and on the sides of the seed-conductor I, on which it is vertically adjustable by means of the screw-bolt *k′* and thumb-nut *k″* to regulate the depth of the furrow below the surface of the ground as may be desired. The lower end of the plow *k* is provided in front and at its sides with concave flaring edges *k‴ k‴ k‴* for the purpose of opening a wide furrow at the bottom for the reception of the scattered seeds.

Each marker-bar *f* is provided in its outer end with an eye or staple, *f′*, (shown in the upper part of Fig. 1,) into which is hooked the detachable marker *f″*, the latter having for this purpose a book, *f‴*, attached in its upper end, as shown in Fig. 2. The lower end of the marker *f″* is provided with a metallic shoe or scraper, f^4, to drag on the ground and make the required mark on the ground in which to guide the driving-wheel *a* at the proper distance and parallel with the first row of depositing the seed. Only one marker is required for each machine, and when the operator reaches the end of the field he has only to detach the marker from one of the marker-bars and hook it to the opposite one, and so on.

The seed-delivery plate *e* is nickel-plated, by which its surface is made hard and smooth and not so liable to wear out, and is preserved from the action of the weather and rust-deposit, which is very liable to clog up and close the smaller perforations in it, and thereby prevent the seeds from passing through such perforations, except by first scraping and cleaning the edges of such perforations.

l l are the handles of the machine, as usual secured in their forward ends to the frames *b b* and farther up to the sides of the hopper *d*, as shown.

m is the agitator-shaft, supported in the sleeve-bearing *m′*, secured to the inside of the hopper *d*.

m″ is the agitator-finger, secured to the inner end of the agitator-shaft *m*, the latter passing through one side of the hopper *d*, and having attached to its outer end a lever, *m‴*, the forward end of which is operated by the ratchet or toothed ring *a′*, so as to impart a reciprocating motion to the agitator-finger *m″* to expel the seeds from the hopper *d d′* down through the seed-conductor I.

n is a hinged shipper-lever, as usual for holding the lever *m‴* out of contact with the toothed ring *a′* in driving the machine over the ground without depositing the seeds, as may be required in rolling the machine to and from the field.

The object of making the sleeve-bearing *m′* inside of the hopper and attaching it to one side only of the latter is so as to obtain more space inside of the latter for the reception of the seeds, and also to get access with ease to the bottom perforations of the hopper if it should get clogged up by the seeds, which would be difficult to accomplish were the agitator-shaft to extend diametrically through the hopper with a separate bearing in each of the ends of said agitator-shaft.

What I wish to secure by Letters Patent, and claim, is—

1. The combination, with the bar *b* of hopper-frame and the marker-bar *f*, of the staple-shaped bar *g*, having an arm and provided with points or projections *g‴*, and the adjusting screw-bolt *g′* and nut *g″*, substantially as described.

2. The combination of the hopper *d d′*, plate *e*, base-plate *i*, cast with the seed-conductor I, having transverse bars I′ and a vertical slot, the plow *k*, adjustably connected to said conductor, the agitator-shaft *m*, having the lever *m‴* and stirrer *m″*, marker-bar *f*, detachably connected to the frame-bar *b*, and having hinged arm *f″*, provided with a shoe, f^4, and driving and transporting wheels *a c*, substantially as described.

3. In a seed-drill, the seed-box, as described, composed of upper cylindrical part, *d*, combined with lower tapering part, *d′*, and exposed seed-delivery plate *e*, as and for the purpose described.

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

ELBRIDGE G. MATTHEWS.

Witnesses:

LIZZIE N. FLINN,

ELIZABETH J. HUBBARD.