

W. H. NAUMAN & E. F. STODDARD.
Seeder and Cultivator.

No. 236,067.

Patented Dec. 28, 1880.

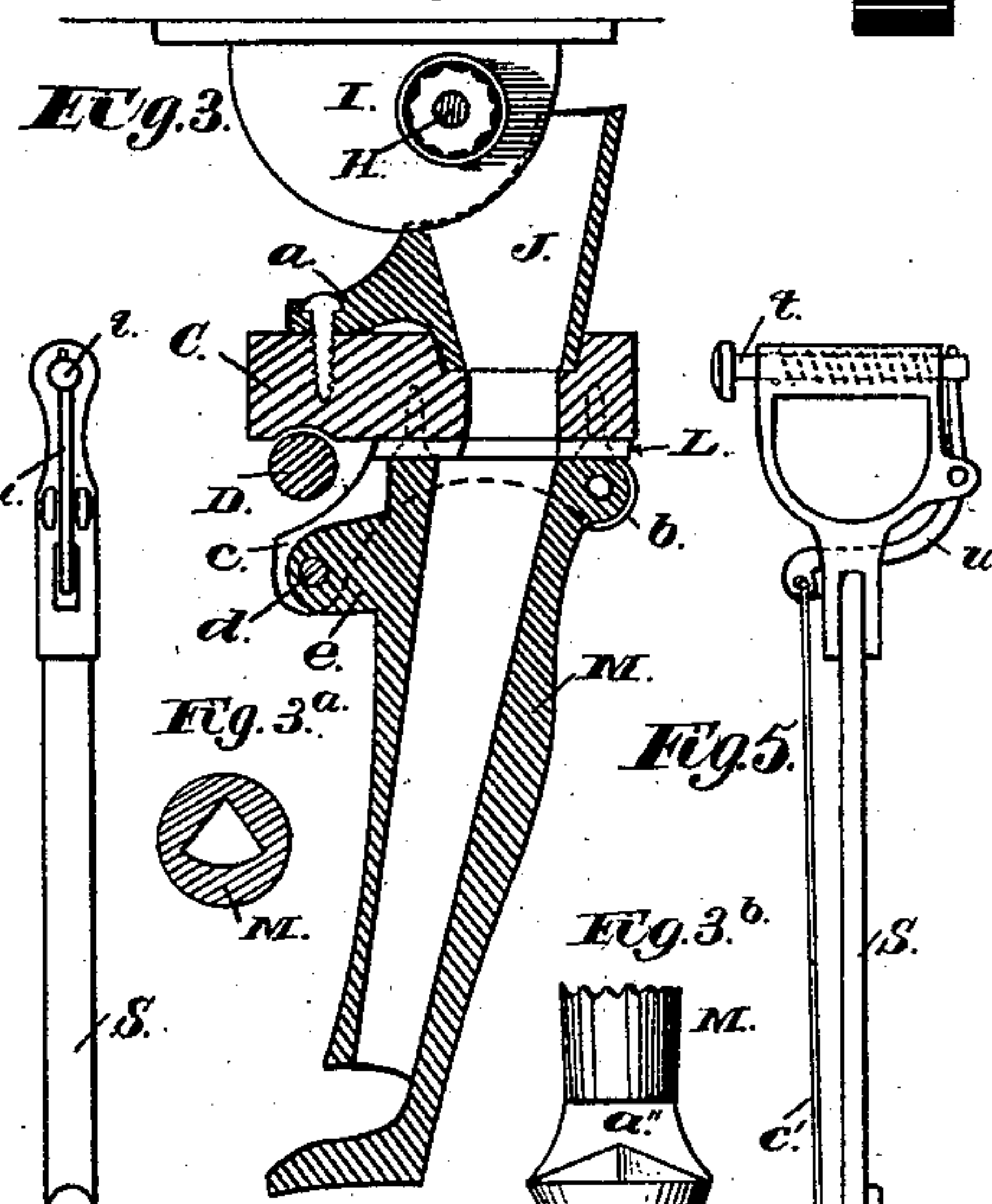
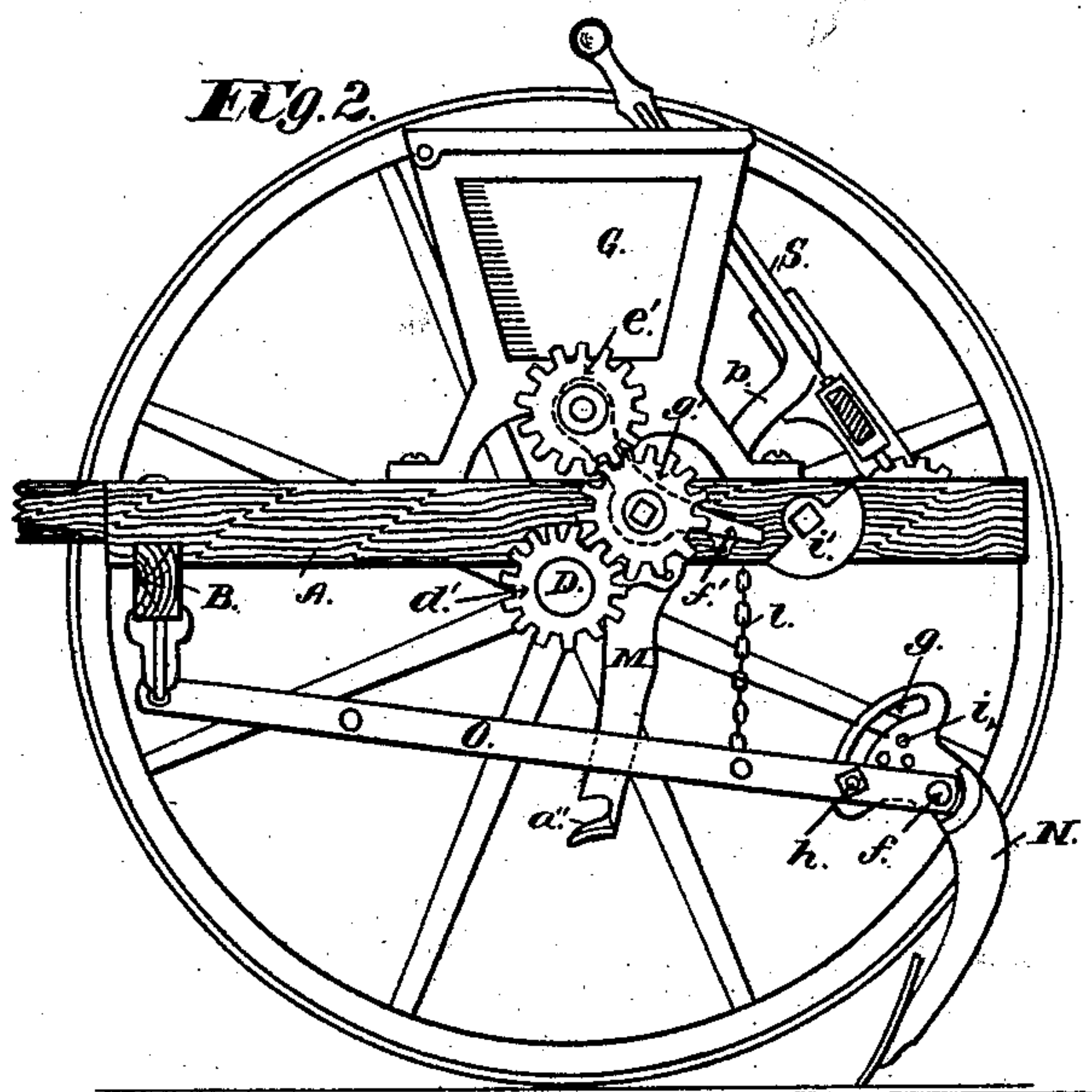
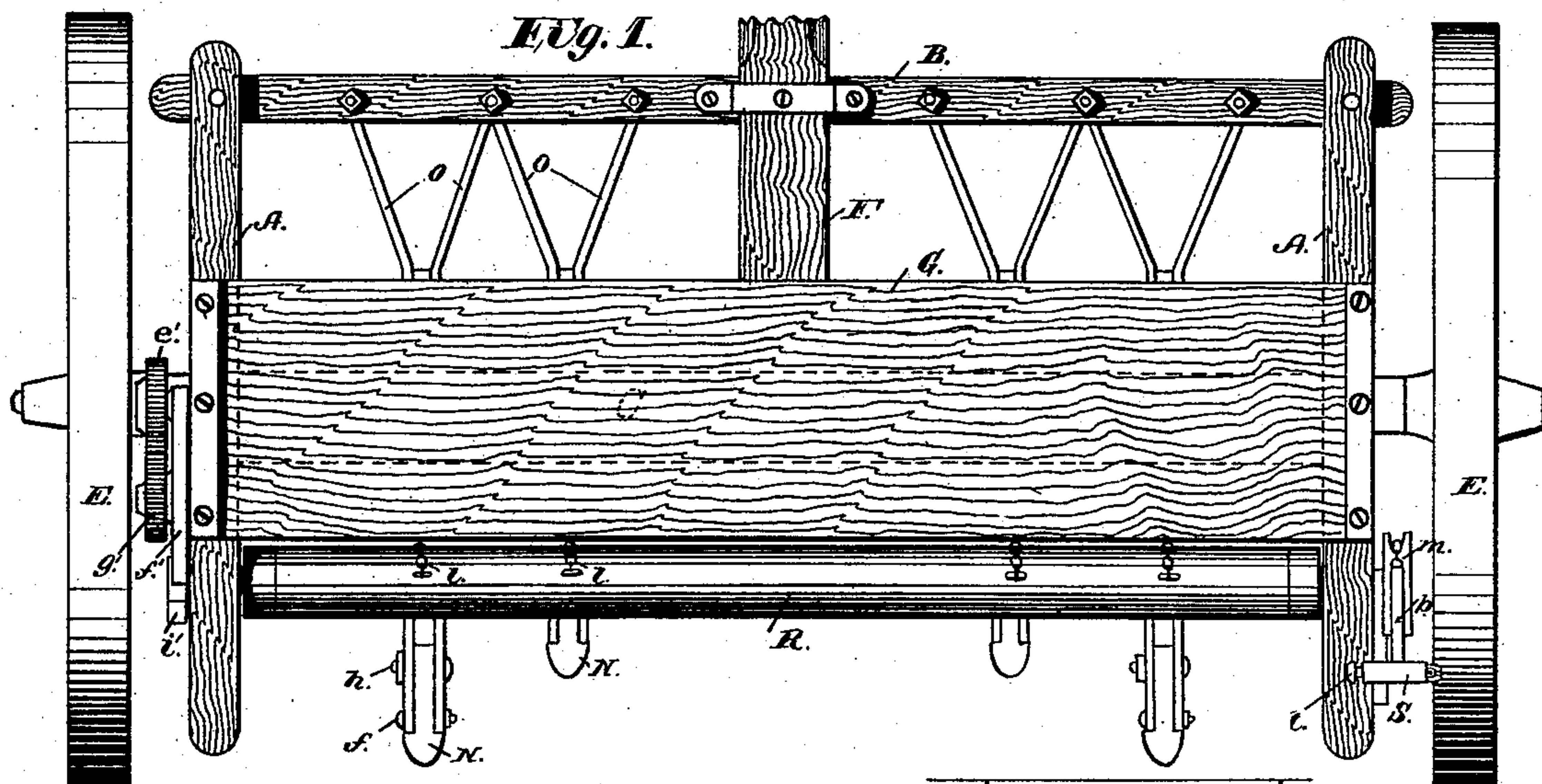
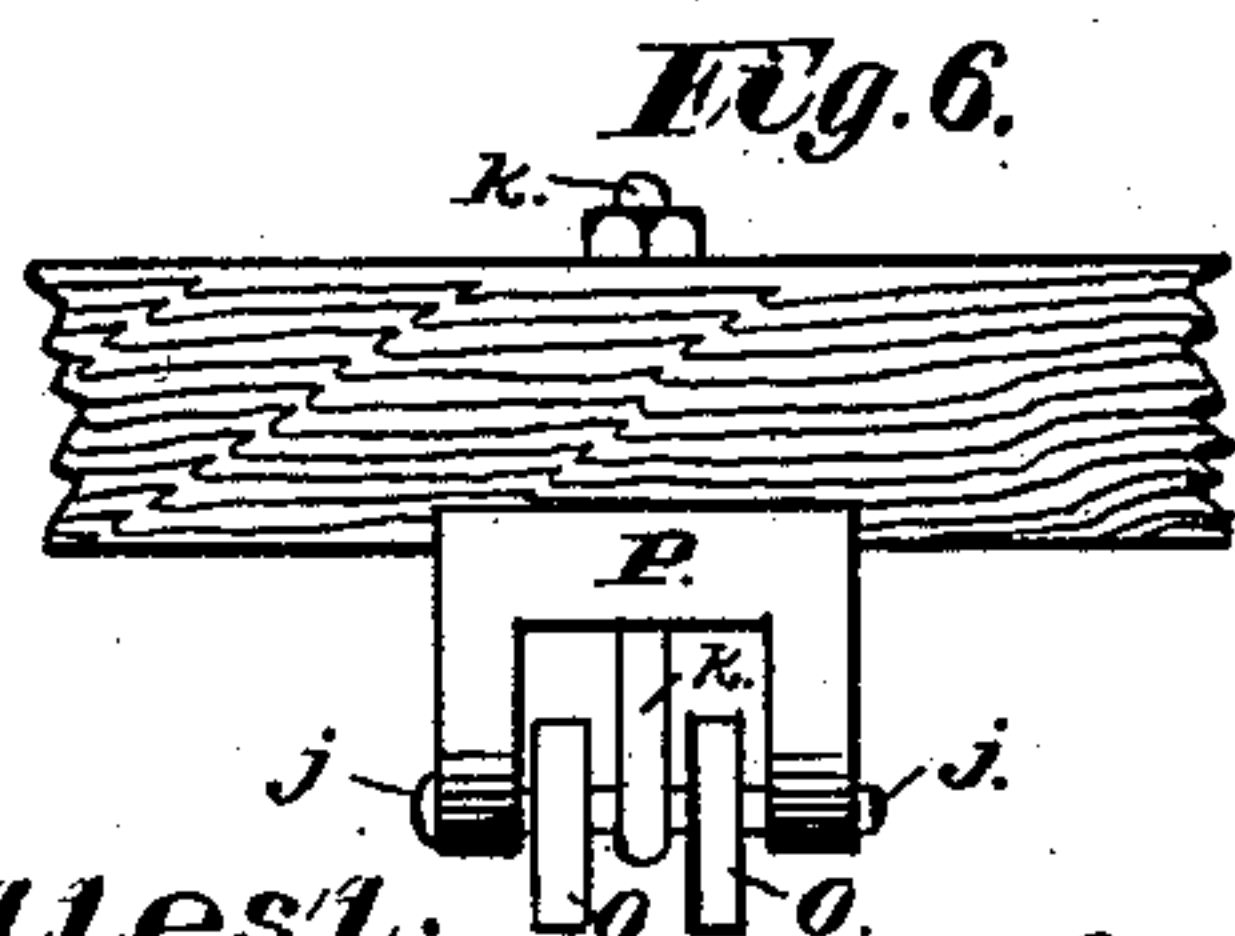
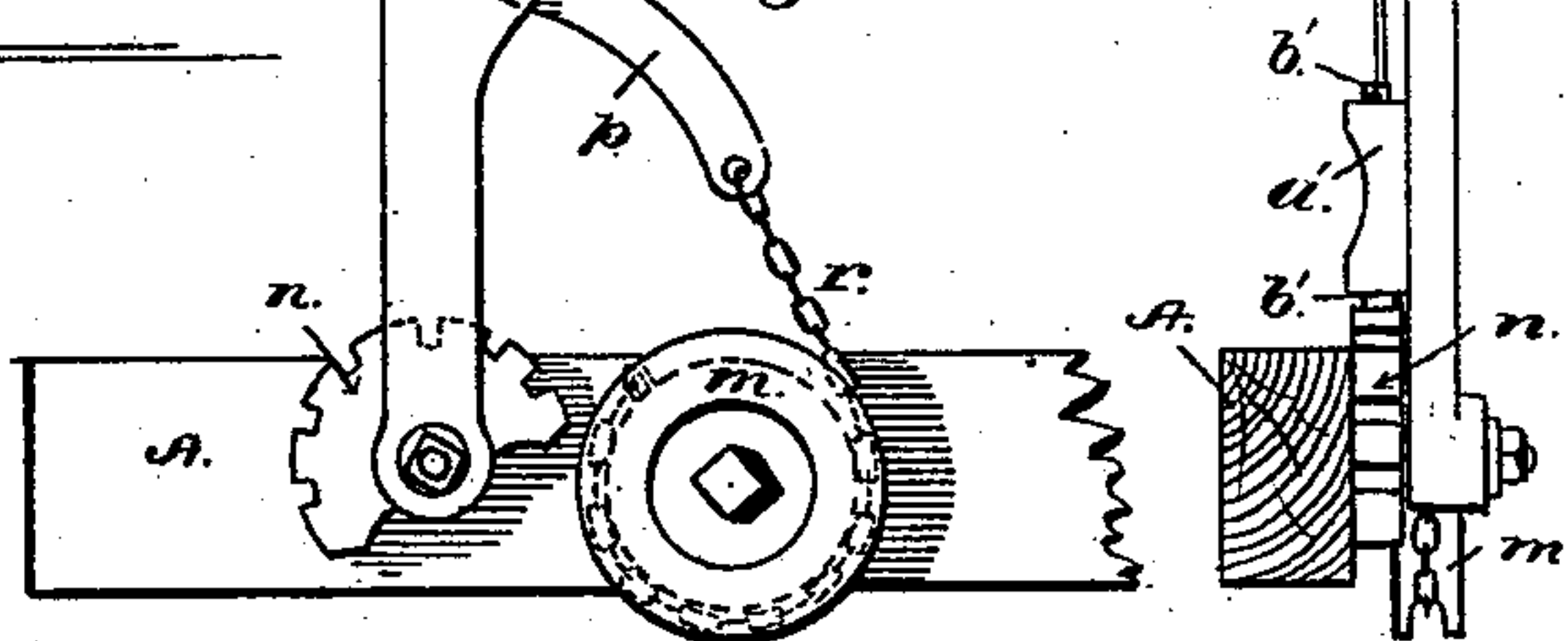


Fig. 5.



Fig. 4.



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UNITED STATES PATENT OFFICE.

WILLIAM H. NAUMAN AND E. FOWLER STODDARD, OF DAYTON, OHIO.

SEEDER AND CULTIVATOR.

SPECIFICATION forming part of Letters Patent No. 236,067, dated December 28, 1880.

Application filed April 26, 1879.

To all whom it may concern:

Be it known that we, WILLIAM H. NAUMAN and E. FOWLER STODDARD, of Dayton, in the county of Montgomery and State of Ohio, have
5 invented certain new and useful Improvements in Broadcast Seeders and Cultivators; and we do hereby declare the following to be a full, clear, and exact description of the same.

Our invention relates to an improvement
10 in that class of seeding-machines known as "broadcast seeders and cultivators," in which the seed is fed from the hopper through scattering-tubes to the ground, which is scored by cultivator-teeth following, in the rear of the
15 scattering-tubes.

Our improvements consist in the novel construction and combination of the parts composing our machine, as will be herewith set forth and specifically claimed.

20 In the accompanying drawings, Figure 1 is a plan view of our improved machine. Fig. 2 is a side elevation of the same with the carriage-wheel removed. Fig. 3 is an enlarged side elevation of our improved scatterer and
25 receiving-cup in central section. Fig. 4 is an enlarged side elevation of our improved lifting-bar lever and connections. Fig. 5 is an end view of the same. Fig. 6 is an end view of our improved drag-bar coupling enlarged.

30 Corresponding letters of reference indicate like parts in all the figures.

The main frame of the machine consists of two parallel side beams, A, connected at their forward ends by the cross-beam B, and at or
35 near their middle by an axle-beam, C, directly under which and through suitable bearings attached either to the under sides of the beams A or beam C, or both, the metal axle D passes. The supporting or carriage wheels E revolve
40 upon the ends of this non-rotating axle. By thus securing the metal shaft or axle D to the under side of the axle-rail C in suitable bearings or brackets, the frame-work of the machine is braced and strengthened in a simple
45 but efficient manner. The tongue F is attached to the rail C and beam B in the usual or any suitable manner.

G is the seed box or hopper, of the usual construction, supported upon the beams A in
50 the customary way, and located directly over the axle-rail C.

The feed-wheels, of any desired pattern, revolve upon a shaft, H, in cases I, attached to the under side of the hopper. They deliver the seed from the hopper into receiving-cups
55 J, Fig. 3, of the shape shown, which are set in mortises in the rail C, and secured thereto by bolts or screws passing through lugs a, as indicated.

Vertical apertures are formed through the
60 rail C, directly under each of the cups J, and opening from said cups, so as to permit of the passage of the seed from the cups through the rail. Covering each of these apertures on the inner side of the rail is attached a bracket-
65 plate, L, Fig. 3, having an orifice through it coincident with the grain-passage, and having on its rear edge pivotal bearing-ears b, and in front a pendent bifurcated lug, c.

The scattering-tube M, of ordinary external
70 shape, as shown, fits up close against the under side of the bracket L, to which it is pivoted in the rear through the lugs b, Fig. 3, and is secured in front by a break-pin, d, passed through the lug c, and an ear, e, upon the front
75 face of the tube, as shown. This fastening holds the scatterer in position while at work; but should an obstacle, such as a stone or tree-trunk, come in contact with the tube, the pin
80 d would break and permit the tube to swing back and pass the obstruction without damage. By resetting the tube and securing it with a new break-pin the machine would be ready to proceed.

An essential improvement in our scattering-
85 tube consists in making its bore with an angular gutter, as seen in Fig. 3^a, which represents a cross-section of the tube. This gutter extends from the top to the bottom of the rear inner side of the tube, and forms an angle of
90 from thirty degrees to one hundred and thirty-five degrees. An angle of eighty degrees, however, is the most practicable.

As seen in Fig. 3, the tube does not hang vertically, but is inclined forward. The object
95 of this angular gutter inclined forward is to always direct the stream of seed flowing down the tube upon the apex or ridge of the scattering-surface. (Shown in front elevation at a'', Fig. 3^b.)

100 In an ordinary tube having a cylindrical bore there is no particular guide to direct the

seed in a straight line and evenly upon the ridge of the scattering-surface, and should the machine be working upon a hillside the seed would flow down the inclined side of the tube and be directed on one side only of the scattering-surface. This would be clearly objectionable, and is prevented by our improved inclined tube with its angular gutter. In our machine, even while working upon a hillside, the seed would follow the gutter and be directed upon the ridge of the scattering-surface, and be evenly scattered on both sides.

For each scattering-tube we provide two cultivating-teeth arranged one on each side of and in the rear of said tube, as shown.

The tooth-standards N, Fig. 2, are of the shape indicated, and have their upper ends formed into a flat plate, against each side of which and to which the drag-bars O are pivoted, as at *f*. In the front portion of the plate, which lies between the drag-bars, is a segmental slot, *g*, the center of whose curve is the pivot *f*, and through this slot and the drag-bars a clamping-bolt, *h*, is passed. By means of this bolt the standard may be clamped to the drag-bars at any desired pitch or inclination, and at the same time what is known as a "slip-tooth" is provided.

In addition to the bolt *h* as a means of adjusting and holding the standard, we provide small apertures *i* in the plate, as seen, through which break-pins may be passed to hold the standard in position until an unyielding obstacle is met, when the pin will break and the standard slip and turn back upon its pivot, and thus pass the obstruction with safety.

The drag-bar coupling, for connecting the adjacent ends of each pair of divergent arms O, Fig. 1, to the beam B, consists of a metal block, P, Fig. 6, having pendent ears, between which the ends of the drag-bars lie, as seen. On the under end of each of these ears is a transverse slot, in which the bolt *j*, which passes through the end of the drag-bars, rests, and is supported by a vertical bolt, *k*, passing down through the beam B and block P, and having its lower end hooked to grasp the bolt *j*, as shown. By this means a simple and secure coupling is obtained.

R represents the lifting-bar, which, in this instance, is a cylindrical wooden beam. This bar occupies its customary position in the rear of the hopper and between the beams A. It is provided with axial trunnions upon its ends, which pass through the beams A, and it is connected to the drag-bars by the usual chains *l*.

Keyed upon the outer side of the beam A to one of the trunnions is a small pulley or sheave, *m*. Just in rear of this pulley upon the beam A is secured a segmental rack, *n*, to the center of which is pivoted an upwardly-projecting lever-arm, S, having an extension-piece, *p*, projecting over the pulley *m*, to which it is connected by a chain, *r*, coiled, as shown, and having one end fast to the pulley and the other attached to the extremity of the piece *p*. By grasping the upper end of the lever S and

drawing it back the chain *r* turns the pulley and rotates the bar R, which, as it turns, lifts the drag-bars and teeth. This same operation throws the seed-shaft out of gear with the driving mechanism, as will be presently explained.

To lock the bar R and lever S in any desired position, we form the upper end of the lever S into an ordinary shovel-handle shape, through the top grasping part of which a horizontal pressure-bar, *t*, passes, and is surrounded by a coiled spring, to keep it projected, as shown. Pivoted to the right-hand side of this handle is a link, *u*, the upper end of which passes through a slot in the bar *t*, while the lower curved end passes through and projects from the opposite side of a slot in the lever just below the handle, as indicated.

In a suitable bearing, *a'*, projecting from the inner side of the lever S just above the rack *n*, is a spring-latch, *b'*, whose upper end is connected to the lower end of the link *u* by a rod or wire, *c'*. The latch, by means of its spring, is held in engagement with the segmental rack, and thus holds the lever locked. When it is desired to shift the lever for the purpose of rotating the bar R it is only necessary to grasp the handle and press with the thumb upon the bar *t*, whereupon the latch *b'* is raised out of engagement with the rack, and the lever is free to be moved backward or forward. Upon releasing the pressure of the thumb upon the bar *t* the latch re-engages the rack *n*, and thus locks the lever at any desired point.

In Fig. 2, *d'* is the driving-pin, which revolves with the carriage-wheel, to which it is suitably attached.

e' is the pinion keyed upon the feed-wheel shaft. Hung loosely upon this shaft between the pinion *e'* and the hopper is a gravitating-arm, *f'*, upon which is pivoted a pinion, *g'*, which always engages with the pinion *e'*, and which, when the bar R is turned to lower the cultivators and drag-bars, engages, by gravity, also, with the driving-pin *d'*, so that motion is imparted to the feed-wheel shaft.

To stop the feeding of the machine when the cultivators are raised we secure upon the trunnion of the bar R, just outside of the beam A, a segment piece or cam, *v'*, of the shape shown. This segment is so arranged that as the bar is rotated, in the act of raising the cultivators, it comes in contact with the lower end of the arm *f'* and raises it and its pinion *g'* out of engagement with the driving-pin *d'*, and thus stops the rotation of the feed-shaft.

Having thus fully described our invention, we claim—

1. In a seeding-machine, the cultivator-standards having formed upon or attached to their upper ends bracket-plates held between the ends of the drag-bars, to which they are also pivoted by a clamping-bolt passed through said drag-bars, and also through a segmental slot in said plates, whereby a varying resistance may be given to the teeth in slipping to pass obstructions, as specified.

2. In a seeding-machine, the cultivator-standards having their upper ends formed into plates clamped with adjustable resistance between the ends of the drag-bars, to which they are also pivoted, and provided with apertures for the introduction of break-pins, substantially as and for the purpose specified.

3. In combination with the lifting-lever S and rack *n*, the locking device consisting of the bolt *b'*, rod *c'*, link *u*, and thumb-pressure bar *t*, constructed and united in the manner and for the purpose specified.

4. In a broadcast seeding-machine, a scat-

tering-tube having at its lower end a scattering-ledge, or equivalent device, and whose gutter is angular in section for directing the flow of the seed upon the ridge or apex of the scattering-surface, for the purpose specified.

Witness our hands this 21st day of April, A. D. 1879.

WILLIAM H. NAUMAN.
E. FOWLER STODDARD.

Witnesses:

PATRICK H. GUNCKEL,
CHAS. M. PECK.