

No. 626,471.

Patented June 6, 1899.

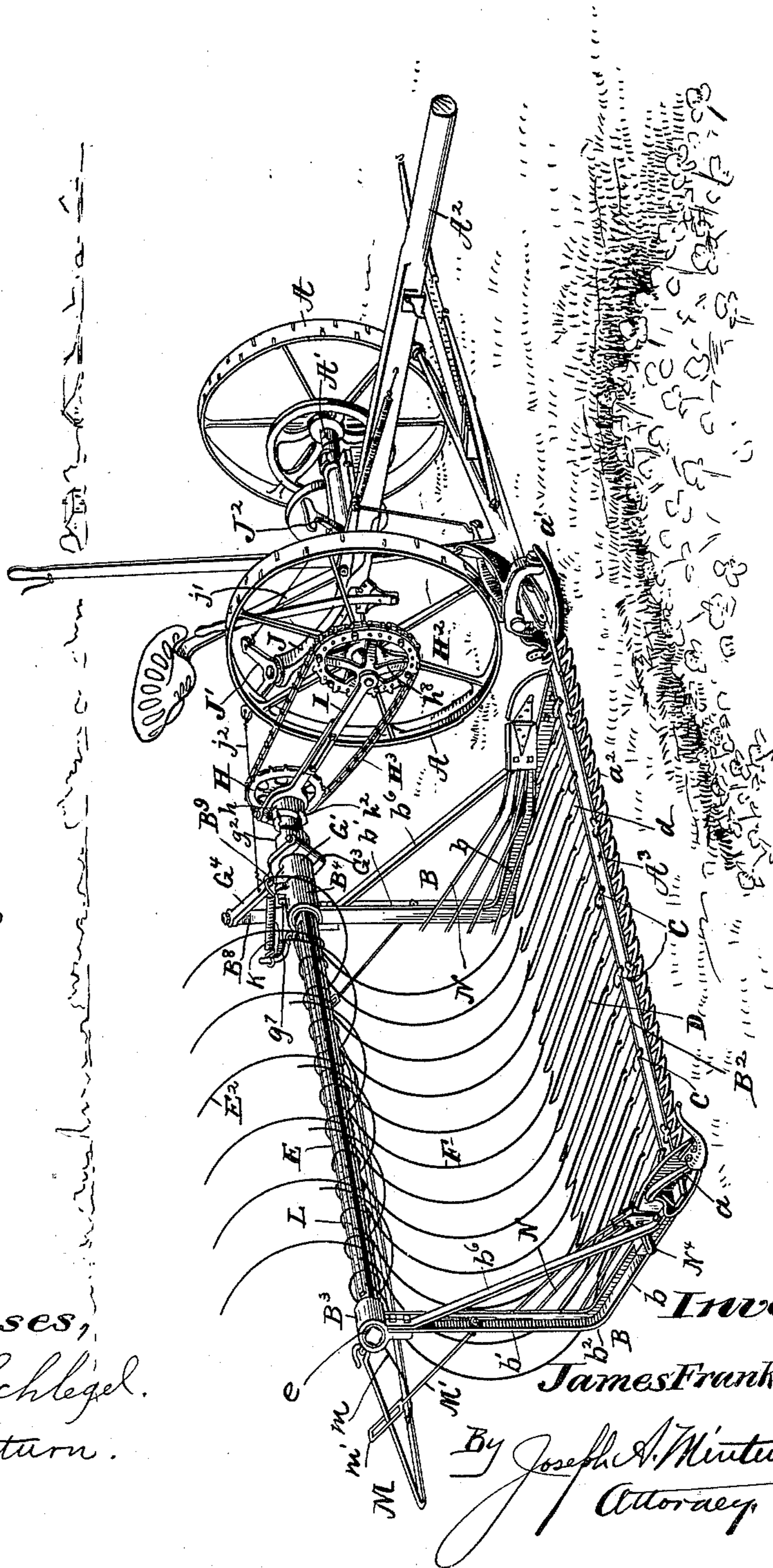
J. F. WHEELER.
CLOVER BUNCHER.

(Application filed Nov. 19, 1898.)

(No Model.)

3 Sheets—Sheet 1.

Fig. 1.



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Inventor,
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By Joseph A. McInturn
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No. 626,471.

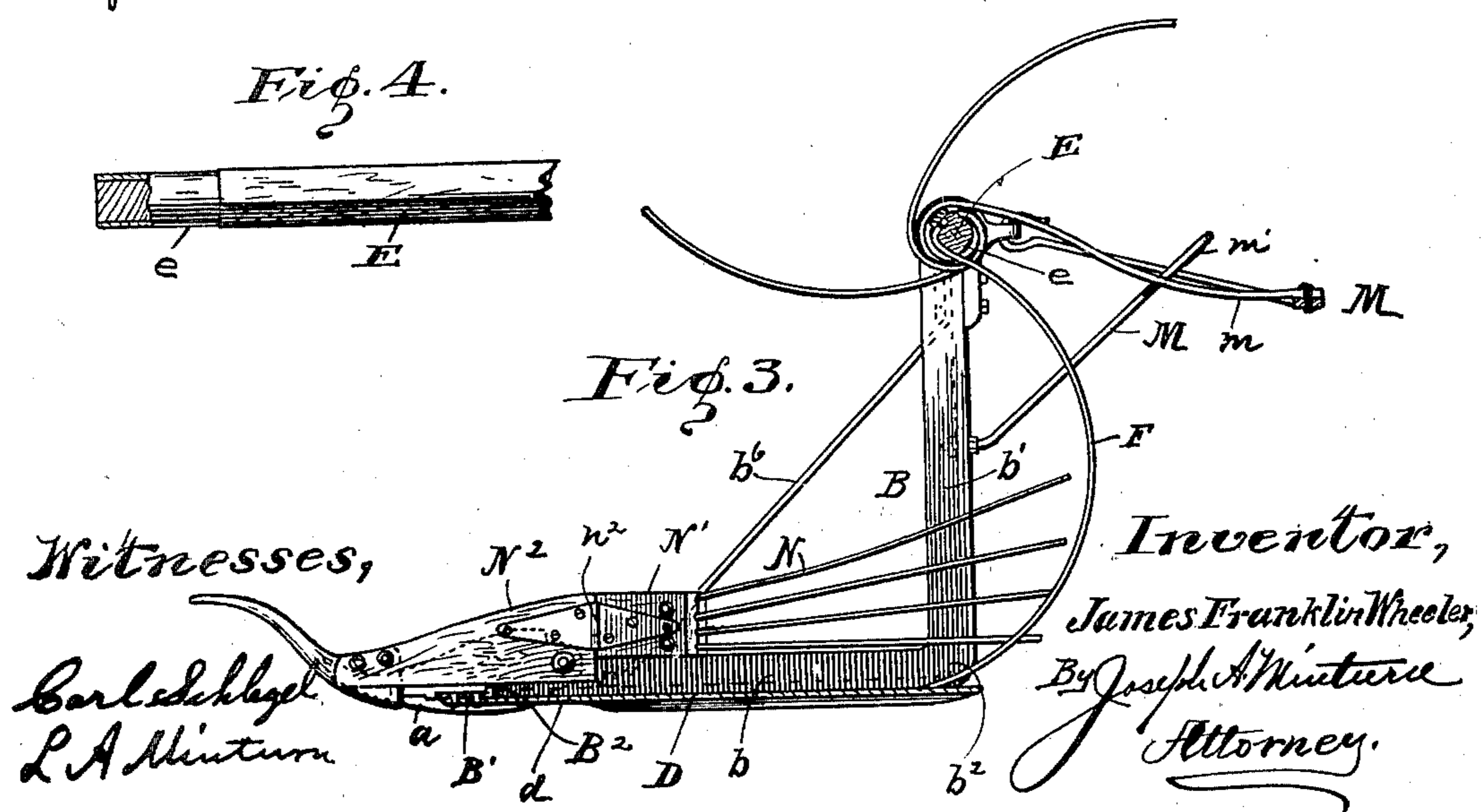
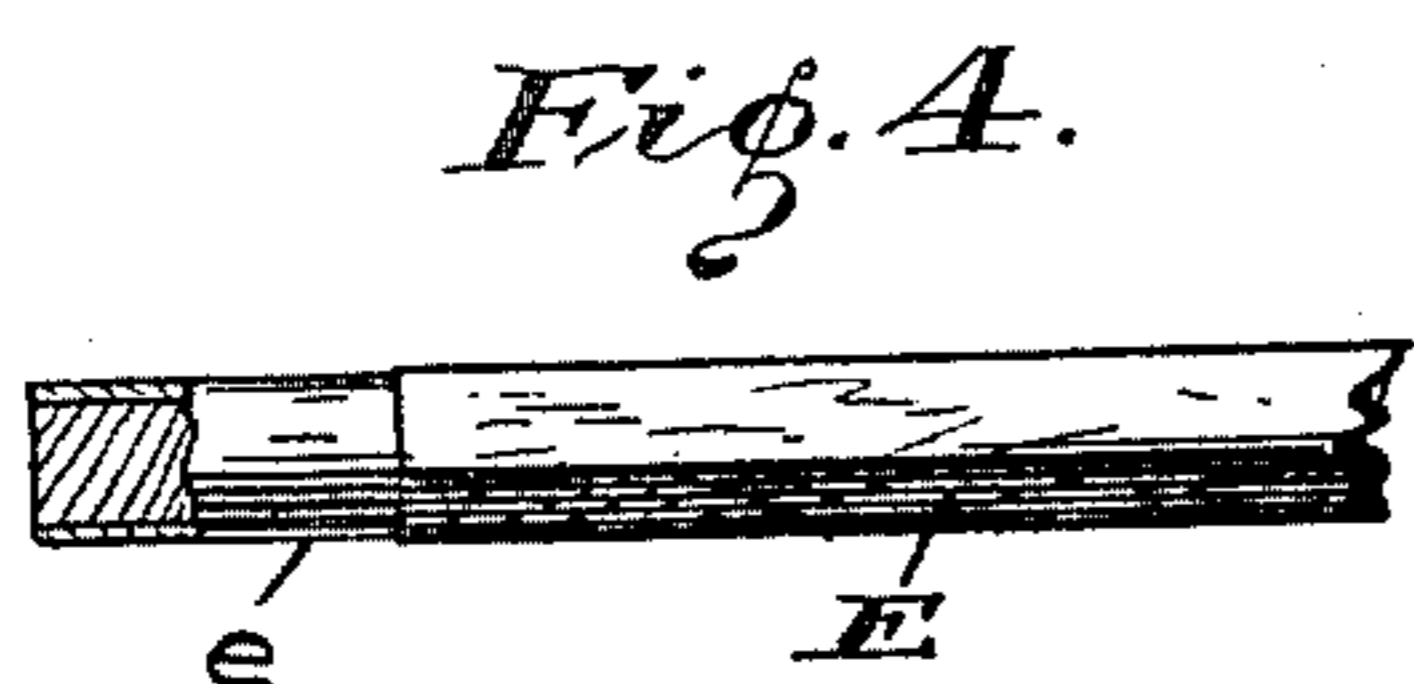
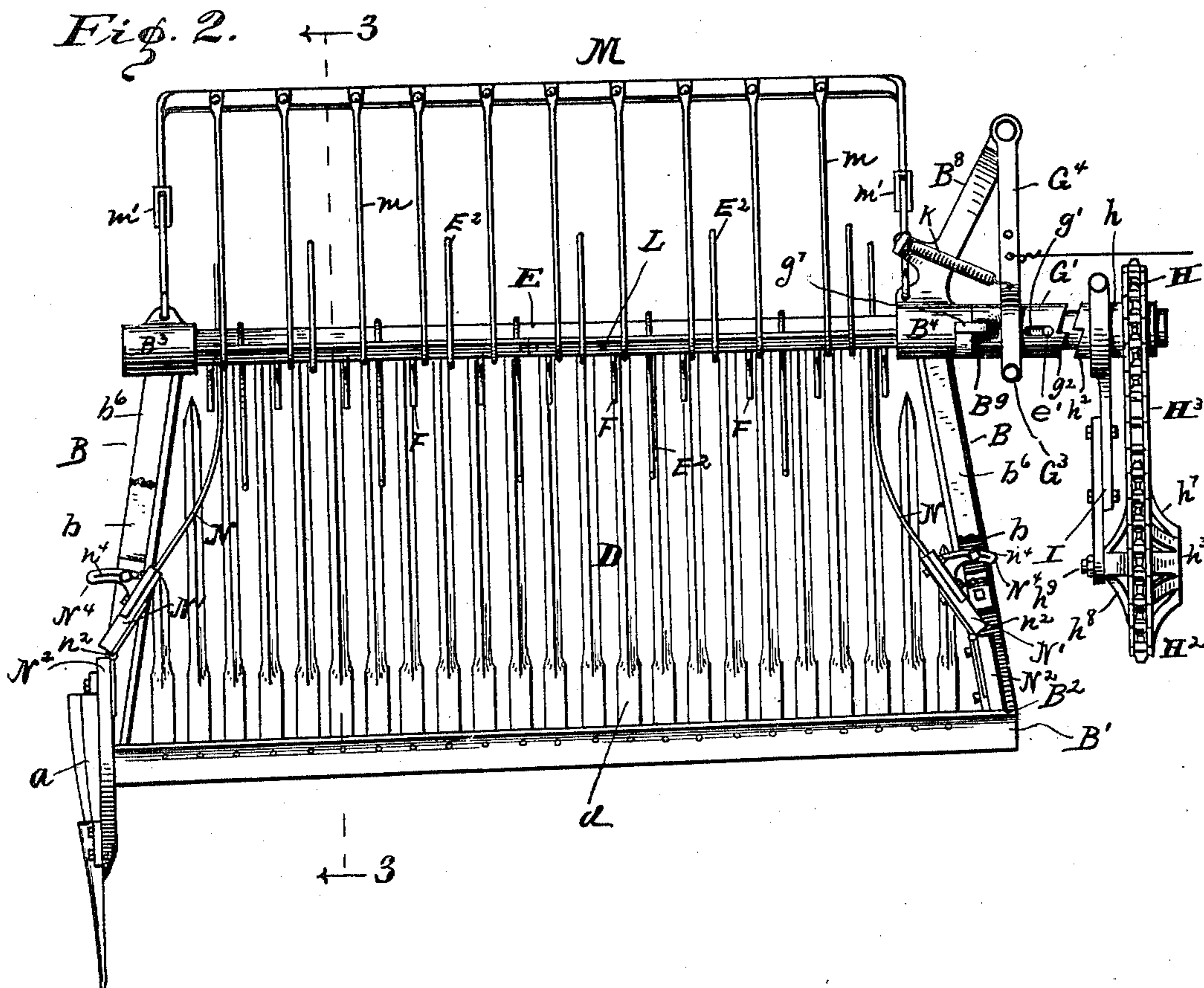
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3 Sheets—Sheet 2.



THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

No. 626,471.

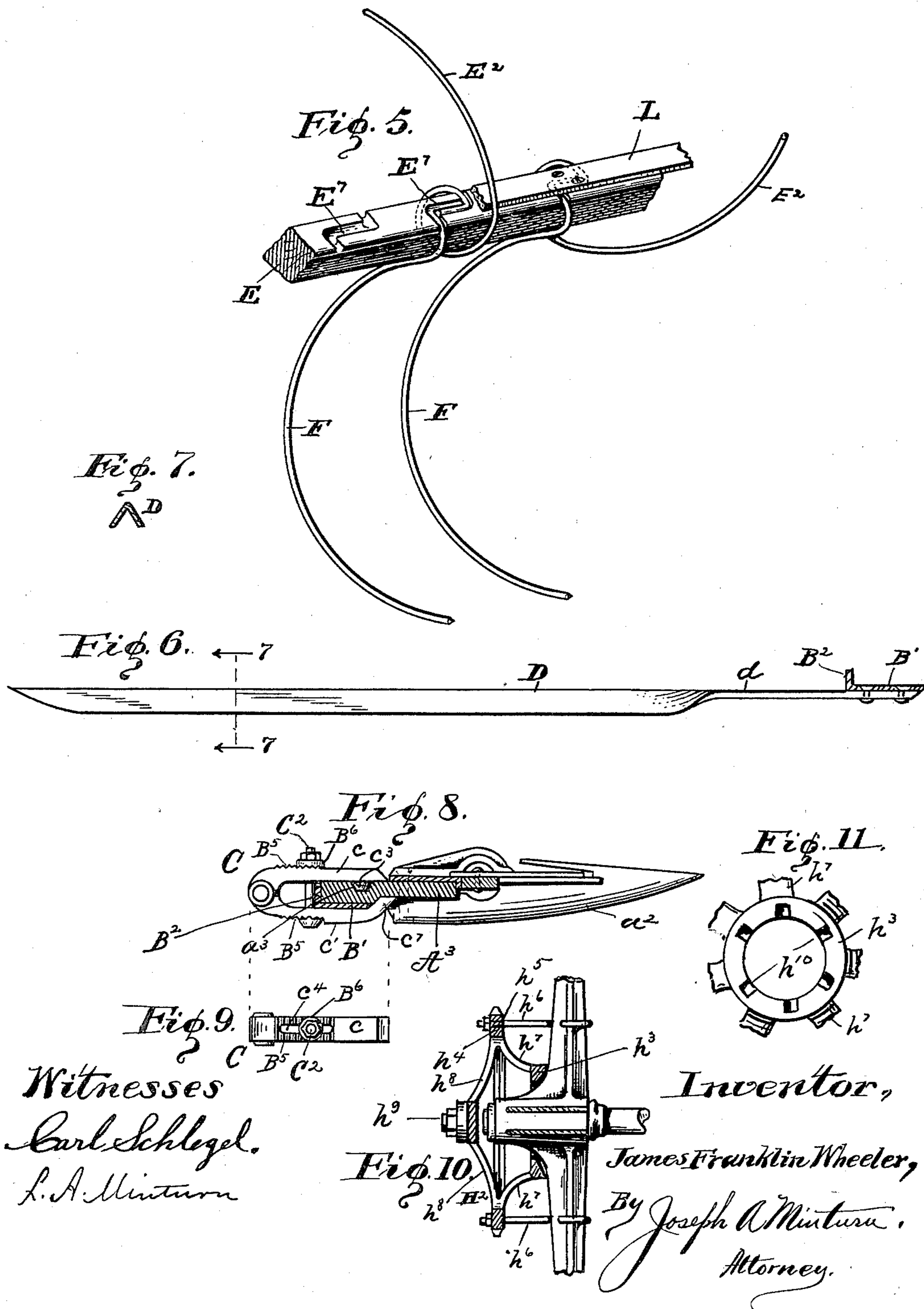
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3 Sheets—Sheet 3.



UNITED STATES PATENT OFFICE.

JAMES FRANKLIN WHEELER, OF STONE'S CROSSING, INDIANA, ASSIGNOR
OF ONE-HALF TO CHARLES T. BOYER, OF INDIANAPOLIS, INDIANA.

CLOVER-BUNCHER.

SPECIFICATION forming part of Letters Patent No. 626,471, dated June 6, 1899.

Application filed November 19, 1898. Serial No. 696,858. (No model.)

To all whom it may concern:

Be it known that I, JAMES FRANKLIN WHEELER, a citizen of the United States, residing at Stone's Crossing, in the county of Johnson and State of Indiana, have invented certain new and useful Improvements in Clover-Bunchers, of which the following is a specification.

The object of this invention is to provide an attachment for mowing-machines to be used in cutting clover, to gather up and save shorter growths than has been practicable heretofore, to render the mechanism which collects and dumps the clover-bunches more positive and thorough in its action and operative from the drive-wheel of the machine, to strengthen the buncher-frame and provide simple and effective means for attaching it to the finger-bar of the mower, and to simplify and improve the various details of construction in a manner as will be hereinafter fully described, and pointed out in the claims.

I accomplish the objects of the invention by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a view in perspective of my improved buncher attached to a mowing-machine; Fig. 2, a plan view of the bunching-machine removed from the mower; Fig. 3, a vertical section on the dotted line 33 of Fig. 2; Fig. 4, a detail, partially in section, of the end of the rake-shaft, showing the manner in which it is ironed with a cylindrical sleeve; Fig. 5, a detail of the rake-shaft with a number of teeth in place to show the manner of attachment of same; Fig. 6, a side elevation of one of the slats which constitute the platform of the buncher; Fig. 7, a section on the line 77 of Fig. 6; Fig. 8, a vertical transverse section of the finger-bar and adjacent bar of the buncher, showing the clamp by which the latter is fastened to the finger-bar; Fig. 9, a plan view of the clamp; Fig. 10, a vertical section through the sprocket-wheel on the driving-wheel of the mower; Fig. 11, a rear view of the hub of the sprocket-wheel to go on the mower-wheel.

Similar letters of reference indicate like

parts throughout the several views of the drawings.

Referring to the drawings, A represents the drive-wheels, A' the axle on which the wheels are mounted, A² the tongue, and A³ the finger-bar, having the outside shoe *a*, inside shoe *a'*, and intermediate guards *a*², all of which parts may be and are of any usual and well-known construction.

B are the end pieces of the frame of my improved clover-buncher. They will preferably be made from angle-iron bent to form the base or horizontal member *b* and the vertical standard *b'*, the formation having a rounded corner *b*², which acts like a sled-runner to ease the passage of the machine when pushed backward, which is sometimes a necessary movement. The horizontal and vertical members will be made rigid by the diagonal brace *b*⁶.

The lower front ends of the frame are connected by the plate B', which overlaps and is riveted to the said ends. This plate will preferably be made from angle-iron, whereby a back flange B² will be provided to contact with the back edge of the bar, to which the guards *a*² are fastened, and keep the finger-bar from sliding under or over the buncher-platform when the machine is backed. By securing the plate B' to this bar the buncher-frame will be connected up to the mower. This attachment is effected by means of a clamp C, which comprises a pair of arms *c* and *c'*, which are hinged together at one end and are brought together by a screw-bolt C², adjacent to the hinged end. The upper arm *c* has the under-side button or lug *c*³, which when the arm is in operative position drops into a countersink or detent *a*³ in the top face of the finger-bar A³. The lower arm *c'* has the hooked end *c*⁷, which catches in front of the shoulder formed by the usual thickened or reinforced back of the bar, or if the bar is of uniform thickness then against the lower front edge of the bar between the guards. Both of the arms *c* and *c'* have longitudinal vertical slots *c*⁴, through which the clamping-bolt C² is projected, the purpose of the slots being to permit of an adjustment of the bolt longitudinally of the clamp to accommo-

date finger-bar plates of varying widths and always enable the bolt to be placed in contact with the flange B^2 , thereby impinging the flange between the said bolts and the back of the finger-bar.

B^5 are transverse corrugations across the outside faces of the arms c and c' , and B^6 is a ribbed washer. The bolt-head also has a rib. These ribs engage the corrugations and prevent movement of the bolt in the slots.

It is obvious that the plate B' and its superimposed cutter-bar are embraced between the two arms of the clamp. The countersinks a^3 in the finger-bar are drilled specially for the attachment of my machine and can be put there readily with a hand-drill.

Riveted to the under side of the plate B' are the slats D , which extend rearwardly and form the platform onto which the cut clover is deposited. These slats are by preference originally flat metal strips placed with open spaces between them through which the stubble projects and by engagement with the cut clover holds the latter while the machine is drawn forward and the slats from in under it. This, in effect, causes the clover to move back from the finger-bar; but in order to rake it up into bunches for convenient handling it will be arrested by the rake-teeth F , which will be hereinafter fully described. In order to allow the stubble to project up between the slats a maximum distance, I bend the major portion of the slat to form an under-side groove. These grooves may be angular, as shown in the drawings, or half round, or otherwise to produce two sloping walls which will sink readily into the stubble to allow the stubble between two intermediate slats to rise higher between the slats and also provide a narrow line of contact along the ridge or comb of the slat. This gives the minimum friction against the cut clover and allows it to slide back to the rake with the greatest possible freedom. The portions d of the slats next to the bar to which they are fastened are flat to give the requisite resiliency to the latter in passing over uneven surfaces and the under sides of the slats at the rear are tapered or rounded off to permit the backing of the machine.

The standards b' terminate above with the journal-boxes B^3 and B^4 and in them is mounted the rake-shaft E . Preferably this shaft will be a wooden one, square in cross-section, except that the corners will be rounded slightly. The ends of the rake-shaft will be rounded and covered with metal sleeves e to give a cylindrical bearing in the journal-boxes.

The inner box B^4 has the top lug B^9 and the rearwardly-projected arm B^8 , to the outer end of which a lever G^4 is pivoted.

Mounted on the end of the rake-shaft next to the mower and adjacent to the box B^4 is a sleeve G' , which has longitudinal sliding movement on the shaft, but is constrained to

revolve with the shaft because of a pin e' from the latter, which is seated in the longitudinal slot g' of the sleeve G' . The end of the sleeve adjacent to the mower has the half-clutch formation g^2 , and intermediate of the ends of the sleeve is a circumferential groove in which the yoke G^3 of the lever is seated. By swinging the lever G^4 the clutch-sleeve will be moved longitudinally of its shaft. The adjacent end of the rake-shaft terminates with a sprocket-wheel H . The end of the hub next to the sleeve G' has the half-clutch formation h^2 , which mates with the half-clutch g^2 . The sprocket-wheel H is mounted loosely on its shaft, but is held from longitudinal movement thereon.

Secured to the driving-wheel of the mower is a sprocket-wheel H^2 , which rotates with said driving-wheel, and this sprocket H^2 is connected by the link belt H^3 with the sprocket-wheel H . The sprocket-wheel H^2 is of somewhat peculiar formation to adapt it to be attached to various makes of mowers and to provide the necessary clearance of the link belt past the rim of the driver and also to afford an attachment for the brace and tightener bar I .

Referring to Fig. 10, h^3 is a ring, the notched bore of which is large enough to slip over the mower-hub to bring the ring against the spokes of the wheel, and h^4 is the rim of the sprocket-wheel, which is thick enough to afford room for a number of holes h^5 , through which bolt-hooks h^6 are projected and after being caught around the spokes of the mower-wheel are tightened by screwing the taps in against the rim of the sprocket-wheel, whereby the sprocket-wheel will be bolted to the mower-wheel. The spokes h^7 , from the ring h^3 to the rim h^4 , are dished to throw the rim away from the mower-wheel to give clearance for the belt, and leading from the rim on the other side of the sprocket-wheel are the oppositely-dished spokes h^8 , which unite opposite the center of the sprocket-wheel to form a plate which has the axially-alined pin h^9 , to which one end of the tightener-brace I is fastened. The opposite end of this brace I has a yoke which enters a groove in the hub of the sprocket H . The brace will preferably be in two centrally-lapped parts, which parts are slotted longitudinally and bolted together to give an adjustment in the length of the brace. The yoke is closed at the back, and the construction, as shown and described, gives a direct pull from the mower to the rake-shaft, braces the construction at the top, and keeps the sprocket-wheels the requisite distance apart. Secured, preferably, to the rear end of the mower-tongue or to some other convenient part of the mower is the rearwardly-projected extension J , which has the bent lever J' , and pivotally secured to the tongue of the axle or other part of the mower within easy reach of the driver's foot is a foot-lever J^2 . This lever J^2 is connected

by the rod or cable j' with one arm of the cranked lever J' , and the opposite arm of the lever J' is connected by the cable or rod j^2 with the shifting-lever G^4 , and by the above-described mechanism a downward throw of the foot-lever J^2 will connect the two clutch-halves and start the rake-shaft rotating. When the foot-lever is released, a spring K , connected with the frame of the buncher at one end and with the lever G^4 , will disconnect the clutch, and a finger g^7 on the sleeve G^7 , by contacting with the lug B^9 on top of the box B^4 , will arrest the rotative movement of the rake-shaft at the right position of the latter and hold it from turning by the pressure of the accumulation against it until it is released by the foot-lever.

The rake-teeth F are bent wires or rods, which are secured at one end to the shaft E . This shaft is provided with a groove E^7 , (see Fig. 5,) into which the end of the tooth (previously bent at right angles) is deposited, and in the same central part of the groove, but with an exit in an opposite direction, is the similarly-bent end of a second shorter tooth E^2 , which I will call a "clearer" or "discharger," the function of which is to follow after the rake-tooth and push the bunch of clover collected by the rake-teeth and now liberated off of the platform. The clearers will stand in two series of rows about equal distance from each other and from the rake-teeth. They will be coiled around the rake-shaft with a half-turn or more, sufficient to give them a spring action. The ends of all of the teeth will be engaged and covered by the longitudinal plate L , which may be in one section or several transversely-divided sections, the latter being preferable on account of the greater convenience of removal for making repairs of teeth or replacing of teeth.

M is an adjustable frame which projects back from the boxes on the standards b' , to which they are hooked. The cross-bar of this frame has a plurality of rods m riveted to it, the upper ends of which rods are hooked over the rake-shaft to prevent displacement by upward pressure. These rods alternate with the rake-teeth, and the latter are drawn through them by the rotation of the rake. Their function is to clean the rake-teeth from any adhering clover that might otherwise follow around with the teeth. A limited vertical adjustment or play is secured by the elongated eye or loop m' at the ends of the supports M' , through which eyes the side rods of the frame are passed.

In order to clean a path for the mower-wheels, so that they will not run over the cut clover, and to allow of an adjustment for light and heavy grain, the cuttings will be drawn in at the edges of the swath by the hinged guards or dividers N . These comprise a number of fingers, which slope inwardly and to the rear until they reach the paths of the revolving rake-teeth and then run back between the planes of the desired pair of teeth.

As these guards must not conflict with the rake-teeth, it is important that means be provided for changing their positions relative to said rake-teeth. To accomplish this, I mount the fingers of each set on a board or plate N^1 and connect that plate by a vertical hinge n^2 with a second plate N^2 , which is rigidly secured to the buncher-frame or outside shoe, as the case may be. To hold the desired adjustment of the fingers, I provide the locking-plate N^4 , which has the slot n^4 , and bolt the plate to the frame of the buncher at the required point.

The ring h^3 of the sprocket-wheel H^2 will be notched around the bore, as shown at h^{10} , Fig. 11, to slip over a spoke of the mower-wheel in order thereby to lock the sprocket-wheel against independent rotation and to relieve the strain on the hook-bolts by which the sprocket is held to the mower-wheel.

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

1. In a clover-buncher, having a revolving rake-shaft, the combination of a sprocket-wheel on the outside of the drive-wheel of the mower, a rake-shaft a sprocket-wheel mounted on the rake-shaft, a belt connecting the two sprocket-wheels, and a brace and tightening bar between the hubs of the two sprocket-wheels, said bar being in two centrally-lapped parts which are removably connected by bolts to permit of adjustment in length of said bar, substantially as described.

2. In a clover-bunching machine an intermittently-rotating bar having a series of rake-teeth to arrest the cut clover, and having one or more additional rows of teeth to assist in discharging the clover bunches by pushing them off the platform of the machine after release by the rake-teeth, substantially as described and specified.

3. In a clover-bunching machine, an intermittently-rotating bar, a row of curved rake-teeth secured to the bar, and a double row of shorter teeth, said three rows being approximately equidistant from each other, substantially as described and specified.

4. In a clover-bunching machine, an intermittently-rotating bar having grooves, rake-teeth having short ends at right angles to the body of the teeth followed by a curve part way around the shaft and then a long reverse curve forming the body of the tooth, said bar also having shorter teeth with short ends similar to those on the rake-teeth at right angles to its body, said tooth passing thence into a curve in a direction opposite to the short curve of the rake-tooth and passing thence into a longer curve in the same direction to form the body of the teeth, the short right-angled end portions of all of the teeth being placed in the grooves of the rake-bar, and plates to cover the grooves and lock the teeth to the bar, all substantially as described and shown.

5. The combination with a buncher-frame

comprising a bar, reaching from one end of the buncher to the other and integral ends which are fastened to the buncher-frame, a buncher-frame having a revolving shaft with
 5 rake-teeth, a plurality of bars secured at one end to the cross-bar of the hinged frame and at the other end loosely to the revolving shaft, a hinged frame and diagonal supports from the buncher-frame, having elongated eyes
 10 through which the side rods of the hinged frame are projected to afford a limited vertical adjustment of the frame and its rods, substantially as described and specified.

6. A slat for clover-bunchers made from
 15 thin strips with an under-side longitudinal groove substantially as described.

7. A slat for clover-bunchers made from thin metal strips one end of said slat being flat but the remaining and major portion of
 20 the slat bent to form a longitudinal under-side groove, substantially as described and specified.

8. A slat for clover-bunchers having one end tapered, said slat being bent to form an
 25 under-side groove along the major portion of its length from the tapered end, and having the opposite end flat and the top face of the flat end approximately alined with the top line of the grooved portion, substantially as
 30 described.

9. A clamp for fastening an auxiliary frame or plate to the finger-bar of a mowing-machine, comprising a pair of arms hinged together at one end and slotted through both
 35 arms longitudinally of the arms near their hinged ends, said arms having projections on their adjacent inner sides near their free ends, for the purpose specified, and a screw-threaded bolt projected through the slots in the arms,
 40 and a threaded nut on said bolt, substantially as described.

10. A clamp for fastening an auxiliary frame or plate to the finger-bar of a mowing-machine, comprising a pair of arms hinged together at one end and slotted through both
 45 arms longitudinally of the arms near their hinged ends, said arms having exterior transverse corrugations coextensive with the slots, said arms having projections on their adjacent inner sides near their free ends for the
 50 purpose specified, and a screw-threaded bolt

projected through the slots in the arms, a ribbed washer to engage the corrugations on the arms and a threaded nut screwing on the threaded bolt, substantially as described. 55

11. The combination of the finger-bar of a mowing-machine having countersinks in its surface, a plate on which the finger-bar rests, having a flange to contact with the back of the finger-bar, and clamps to fasten the plate
 60 and finger-bar together, said clamps each comprising two arms hinged together, the upper arm having an under-side lug to enter one of the countersinks of the finger-bar, and a screw-bolt to draw the two arms together, 65 and means whereby the said bolt may be made to contact with the flanged edge of the plate substantially as described.

12. In a clover-buncher, a front plate forming a part of the frame of the buncher and
 70 having an upwardly-projecting flange along its back edge, the finger-bar of a mowing-machine resting on said plate with its back edge against the flange, and a clamp or clamps to press the flanged plate against the bottom of
 75 the finger-bar and the flange against the back edge of the finger-bar, substantially as described and specified.

13. In a clover-buncher, a front plate forming a part of the frame of the buncher and
 80 having an upwardly-projecting flange along its back edge, the finger-bar of a mowing-machine resting on said plate with its back edge against the flange, and a clamp or clamps to fasten the plate to the finger-bar each comprising a pair of arms hinged together at one
 85 end and slotted through both arms longitudinally of the arms near their hinged ends, said arms having projections on their adjacent inner sides near their free ends, for the purposes specified, and a screw-threaded bolt projected through the slots in the arms and bearing against the flange, and a threaded nut on
 90 said bolt, substantially as described.

In witness whereof I have hereunto set my
 95 hand and seal, at Indianapolis, Indiana, this 7th day of November, A. D. 1898.

JAMES FRANKLIN WHEELER. [L. s.]

Witnesses:

JOSEPH A. MINTURN,
 CARL SCHLEGEL.