(No Model.) 2 Sheets—Sheet 1.

M. G. MUELLER.

CLOVER HARVESTER.

No. 364,949. Patented June 14, 1887.

Fig. 1.

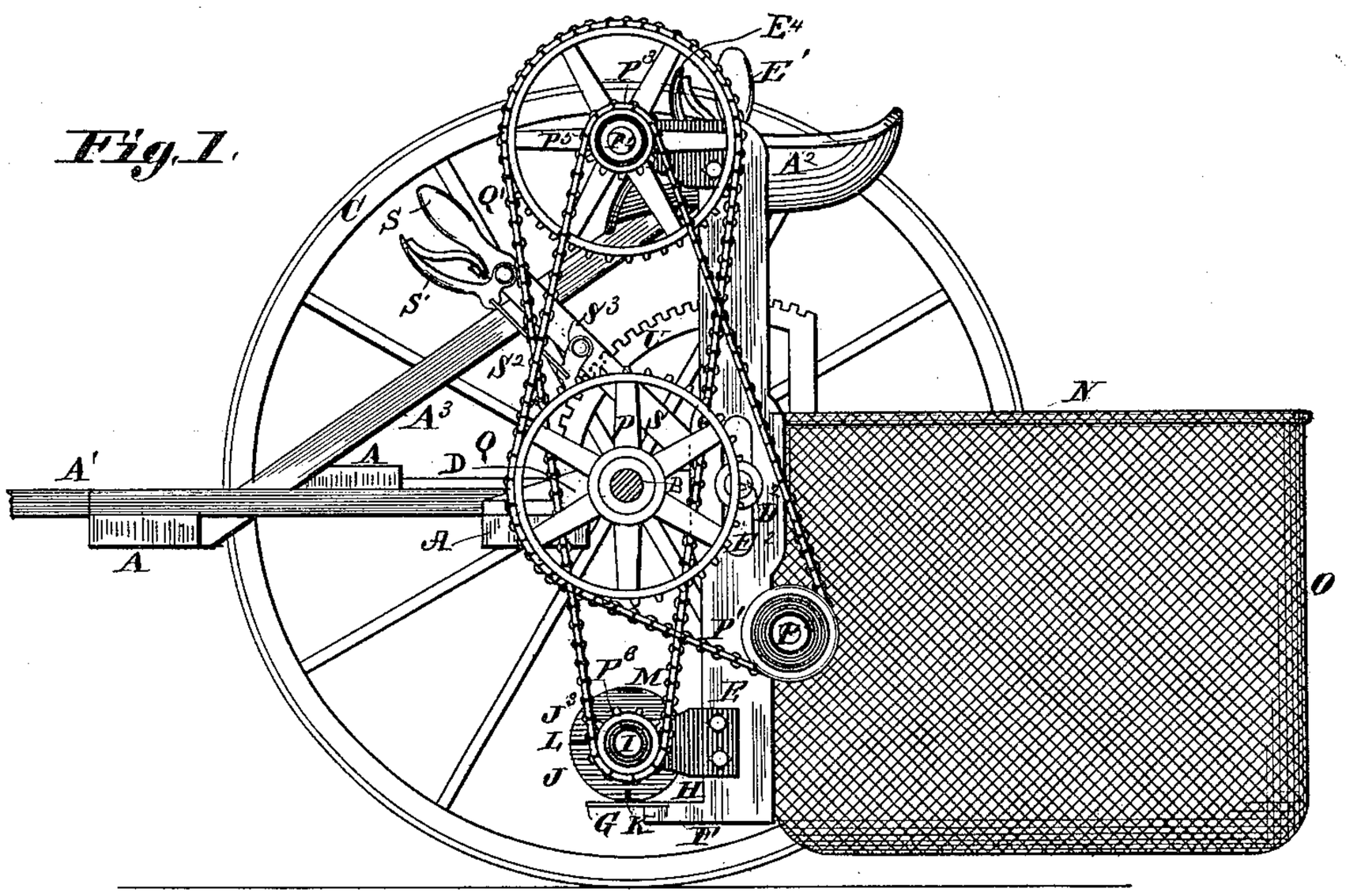
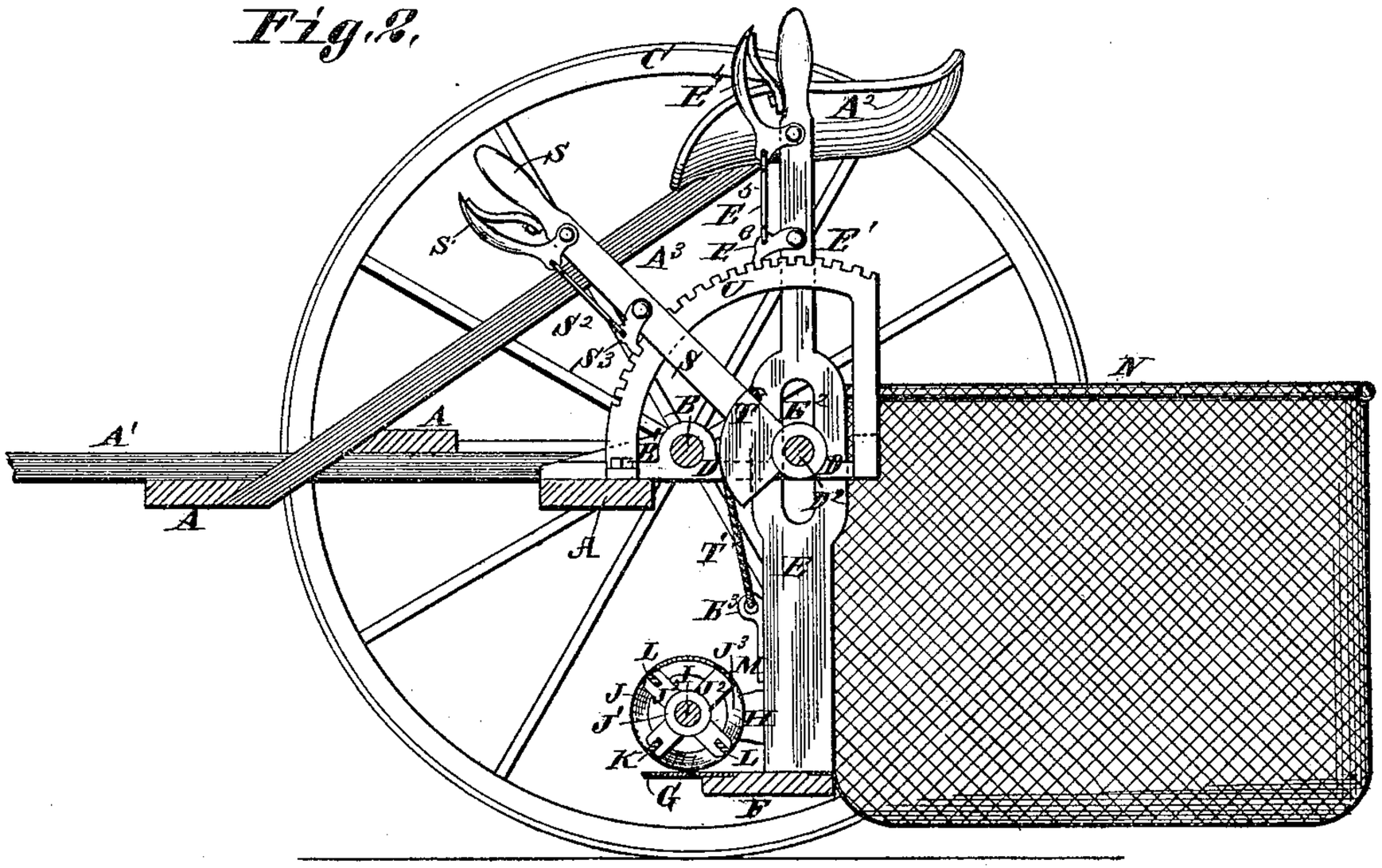


Fig. 2.



Attest;
Charles Pickles,
H. B. Knight.

Inventor;
Martin G. Mueller
By Knight Bros.
Atty's.

(No Model.) 2 Sheets—Sheet 2.

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Fig. 3.

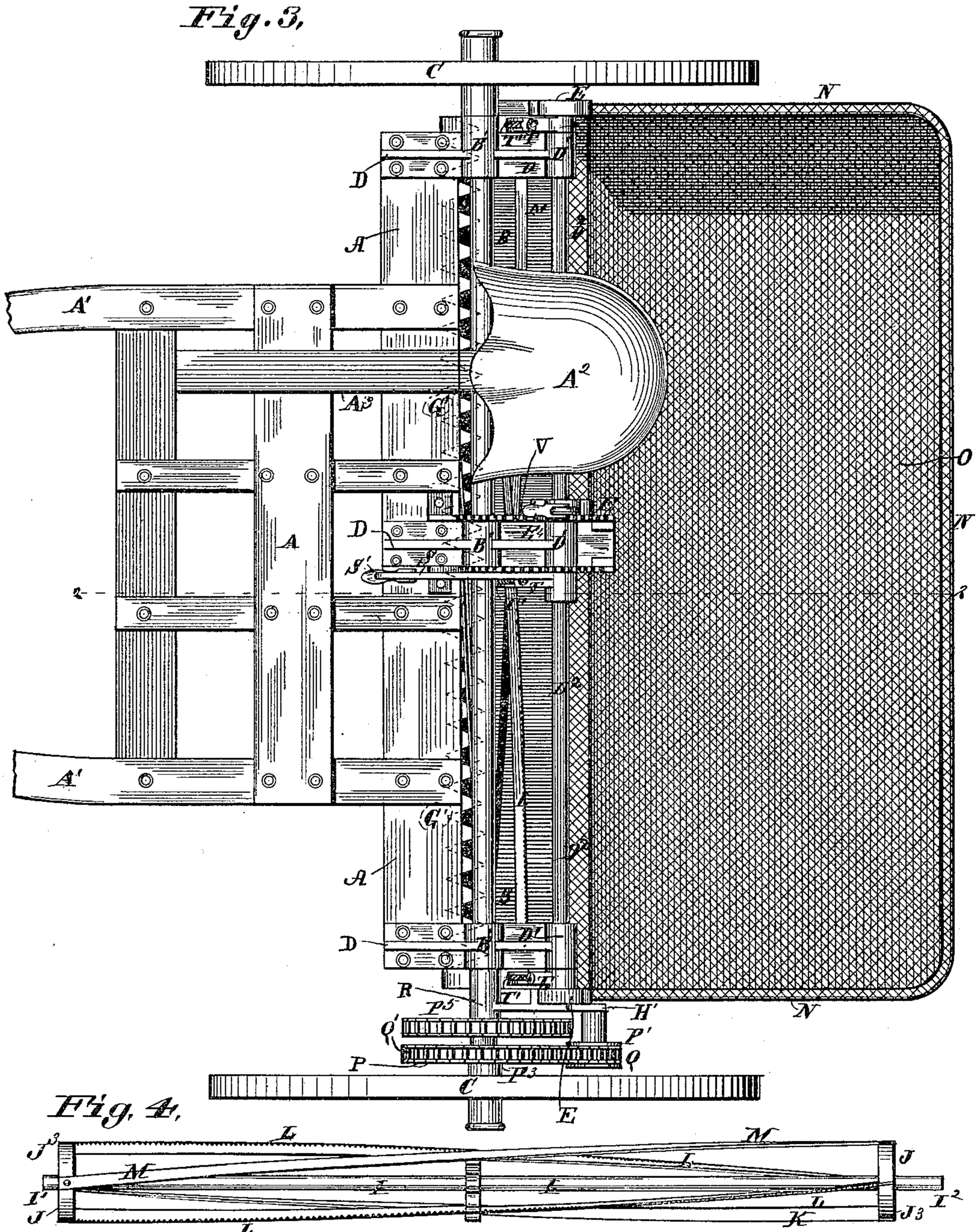

Fig. 4.

Attest;
Charles Pickles.
H. C. Knight.

Inventor;
Martin G. Mueller
By Knight Bros.
Atty's

UNITED STATES PATENT OFFICE.

MARTIN G. MUELLER, OF FROHNA, MISSOURI.

CLOVER-HARVESTER.

SPECIFICATION forming part of Letters Patent No. 364,949, dated June 14, 1887.

Application filed November 17, 1886. Serial No. 219,197. (No model.)

To all whom it may concern:

Be it known that I, MARTIN G. MUELLER, of Frohna, in the county of Perry and State of Missouri, have invented certain new and useful Improvements in Clover-Headers, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, and in which—

Figure 1 is a side elevation of the machine, one of the wheels and parts of the thills being omitted. Fig. 2 is a longitudinal section on the line 2 2, Fig. 3. Fig. 3 is a top view. Fig. 4 is a plan view of the reel.

Referring to the drawings, in which similar letters of reference indicate like parts, A represents the thill-frame of my machine, which is preferably made of wood; but I do not so confine myself, as it is evident that the transverse bars especially may suitably be constructed of metal.

A′ are portions of the thills, A^2 the seat, and A^3 the bar that supports the seat.

B represents the axle, B′ the axle journal-boxes, and C the draft-wheels. The axle journal-boxes are formed on and the thill-frame secured to the axle-frame castings D. Each axle-frame casting is also (in addition to the axle-journal box) provided with a journal-bearing box, D′, in which a transverse shaft, D^2, is journaled. Supported on the shaft are upright posts or bars E, formed with elongated slots E^2, within which the transverse bearing-shaft (on which the posts or bars are fulcrumed, vertically adjusted, and tilted) passes. The bottoms of the upright bars E are connected together by a finger-beam, F, to which a serrated finger-plate, G, is secured. The said finger-plate may be provided with serrations or fingers G′, integral with the plate, or said fingers may be made in sections and riveted to the plate.

At a suitable distance above the finger-beam brackets H are secured to the upright bars, and said brackets are provided with bearings in which the shaft I of the reel J is journaled. The disks of said reel J are composed of the hubs J′, which are secured to the rotary shaft I, the radial spokes or cross-bars J^2, and the rims or tires J^3 around the periphery of the disks. In the extremities of a pair of the cross-bars of this reel is secured a forwarding-blade, K. In the extremities of two pairs of the cross-pieces—one on each side of the blade—are two serrated stripper-blades, L, and on the ends of the remaining pair of cross-bars, in a circumferential position, is a sharp knife-blade, M. The forwarding and stripper blades I have shown inserted in the middle of the ends of their cross-bars; but, if preferred, they can be recessed into and bolted to the front sides of the bars, but always with the same radial position from the hub that the bars retain. The cutter-blade, on the contrary, lies flat on and is secured to the ends of the cross-bars, so that its front edge, which is sharpened, may effectually sever all the heads that the serrated stripper-blades have failed to detach. The blades are secured to the reel in a spiral position, so that both the strippers and cutting-blade have a slight longitudinal as well as rotary cutting tendency in the process of stripping. The journals of the reel-shaft I extend beyond the disks of the reel at I′ I^2, and have their journal-bearings in the brackets H. At I^2 the shaft extends sufficiently to key thereon, or otherwise secure a small sprocket-wheel, P^6, with the sprockets of which the driving-chain engages that operate the rotary reel. A bail or U-shaped bar, N, is secured by its ends to the outside posts and extends back from the rear of the frame-castings D, (in which the transverse bearing-shaft D^2 and the axle are journaled,) and suspended from said bail is a receptacle, O, tacked to the sides of the posts and to the finger-beam, and into which the clover-heads are driven by the reel. This receptacle carries the heads until a sufficient quantity has been collected, when the machine may be driven off with its load to the huller or any desired place for unloading; or it may be unloaded into the bed of an attendant wagon.

The means of operating the reel are as follows: A large sprocket-wheel, P, is rigidly secured to the rotary axle-shaft that carries the wheels, and revolves with the shaft as the wheels travel. A drive-chain, Q, that engages with said sprocket-wheel, passes around an idler, P′, whose shaft P^2 works in journal-bearing in a bar or bracket, H′, secured to the adjacent vertical bar E. The said chain passes

over and engages with a small sprocket-wheel, P^3, whose shaft P^4, to which it is rigidly secured, also carries, in rigid connection, a large sprocket-wheel, P^5. The last-named shaft has its journal-bearing in a bracket, R, that is attached to the adjacent vertical bar E. A second drive-chain, Q′, connects the large sprocket-wheel P^5 with the small one P^6, which is rigidly secured to and drives the shaft of the reel aforesaid. By this sprocket-wheel gearing I have attained twenty-four revolutions of the reel to one of the driving-wheel; but I do not confine myself to that speed, as the speed may be still further increased or decreased without any departure from the essential features of my invention. It may be of advantage to increase the speed when the clover is tough, from moisture or any other cause, and vice versa, when it is dry and brittle. In such cases by changing the relative sizes of the sprocket-wheels and the length of their drive-chains the speed is regulated to the condition of the material to be operated on. A lever, S, has rigidly secured to it a quadrant, T, that also rigidly connects with and gives rocking adjustment to the transverse bearing-shaft D^2. A cord, T′, secured to the upper peripheric corner of the quadrant, passes around its periphery, and is secured below through an eyelet-bracket, E^3, that is attached to the middle vertical bar, E, of which the lever E′ is an extension. Similar quadrants, connecting in the same manner with the transverse shaft, and by draft-cords and bracket attachments with the end vertical bars or posts of the frame, have of necessity through the shaft simultaneous action with the middle quadrant, when that is operated by the lever S. It is evident that by raising or lowering the lever S the vertical adjustment of the reel-frame is thus accomplished. The said lever is then held to its adjustment by a spring-latch, S^3, that connects by a link-rod, S^2, with a thumb-lever, S′. The latch engages in a quadrant-rack, U, that is secured to the thill-frame and central frame-casting, D, of the machine.

The device for the vertical adjustment of the tilting frame adapts the machine for operation in heavy or light crops, whether the growth is tall or short and the plant standing or lodged. The lever E′, being an extension of the middle upright post of the tilting frame, (when it is operated,) effects the tilt of the frame, finger-beam, and reel to the adjustment required by the condition of the crop to be gathered. A spring-latch, E^6, on the lever E′, connects by a rod-link, E^5, with a thumb-lever, E^4. The latch engages in the quadrant-rack V, also secured to the thill-frame and to the central frame-casting, D, and thus holds the lever E′ to any required adjustment.

The driver, while on his seat and without stopping the machine, has full control of it by the operation of the two levers to elevate, depress, or tilt the reel-frame as the condition of the crop changes in different parts of the field.

By the use of my reel I avoid gathering superfluous material, which is a fruitful cause of imperfect hulling and cleaning of the seed. The machine also leaves the stalk on the ground to enrich the future plant. This clover-header thus removes in a great measure the objections raised by farmers against the removal from the land of the second crop of clover-straw, which they prefer to remain for fertilizing the soil.

I claim as my invention—

1. The combination of the posts E, having vertical slots E^2, a lever-extension, E′, to one of the posts, the finger-beam F, secured to the posts, the finger-plate G, the axle, the frame-castings D, mounted on the axle having journal-boxes D′, the shaft D^2, mounted in the journal-boxes and extending through the slots in the posts, the reel, means by which the posts are supported on the shaft, and means for retaining the lever-extension to its adjusted position, substantially as described.

2. The combination of the axle, thill-frame, frame-castings D, having axle-boxes and shaft-boxes, the quadrant-rack U, shaft D^2, having a lever and quadrant, posts having vertical slots through which the shaft passes, provided with a bracket, cord or chain connecting the bracket with the upper corner of the quadrant, and a finger-beam secured to the post, substantially as described.

3. The combination of the posts E, having vertical slots E^2, finger-beam F, secured to the posts, plate G, the axle, the frame-castings D, mounted on the axle having journal-boxes D′, shaft D^2, mounted in the journal-boxes and extending through the slots in the posts, and having the lifting-lever, the reel, means by which the posts are supported on the shaft, means for retaining the lever to its adjustment, and the bail N, having a receptacle, O, substantially as described.

4. The combination of the posts E, having vertical slots E^2, a lever-extension, E′, to one of the posts for tilting, the finger-beam F, secured to the posts, finger-plate G, the axle, the frame-castings D, mounted on the axle having journal-boxes D′, the shaft D^2, mounted in the journal-boxes and extending through the slots in the posts, the reel, means by which the posts are supported on the shaft, means for retaining the tilting lever-extension to its adjusted position, and a bail, N, having a receptacle, O, substantially as described.

5. The combination of the axle B, wheels C, frame-castings D, having axle-boxes B′ and shaft-boxes D′, quadrant-racks U V, shaft D^2, posts E, having vertical slots E^2, through which the shaft passes, lifting-lever S, connected with the shaft, having a spring-latch, the lever-extension on one of the posts for tilting, having a spring-latch, the finger-beam secured to the posts, plate G, a reel, and means for supporting the posts on the shaft, substantially as described.

6. The combination of the axle B, wheels C, sprocket-wheels P P′ P^3 P^5 P^6, drive-chains Q Q′, frame-castings D, shaft D^2, posts E, rotary

reel, finger-beam, finger-plate, and means for supporting the posts on the shaft, substantially as described.

7. The combination of the axle B, frame-castings D, having axle-boxes B′ and shaft-boxes D′, thill-frame A, shaft D^2, having quadrants T, posts E, having brackets E^3, cords connecting the brackets to the quadrants for supporting the posts on the shaft, finger-beam F, finger-plate G, and rotary reel having journal-bearings on the posts, substantially as described.

In testimony of which invention I have hereunto subscribed my name this 16th day of October, 1886.

MARTIN G. MUELLER.

In presence of—
BENJN. A. KNIGHT,
SAML. KNIGHT.