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S. B. HAINES.

Harvester.

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Fig. 3.

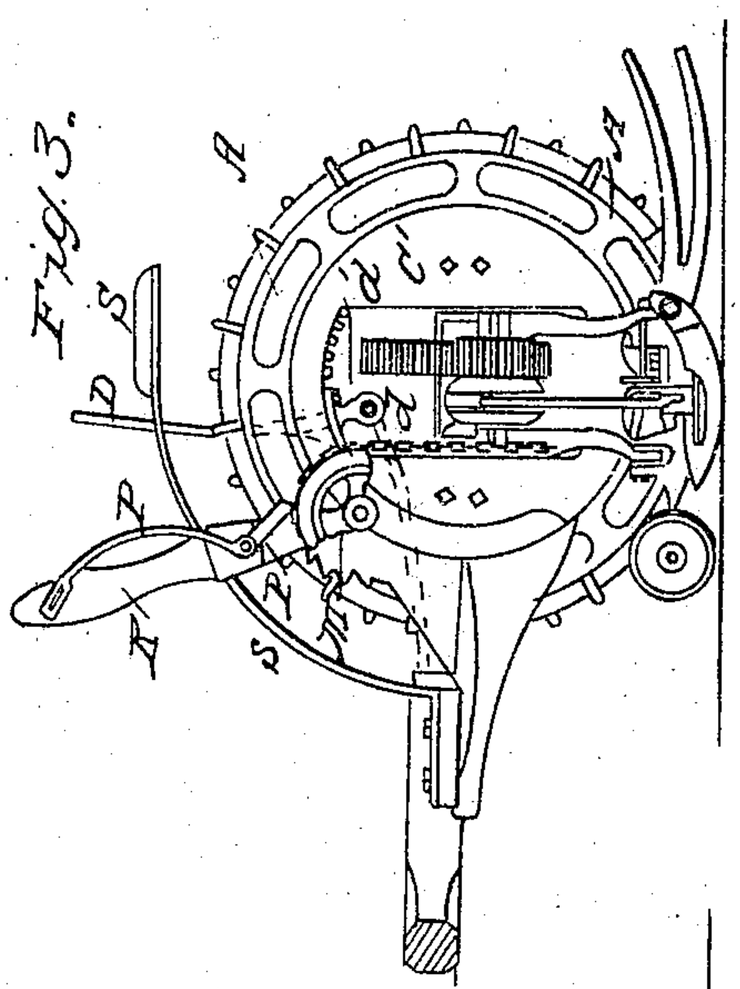


Fig. 4.

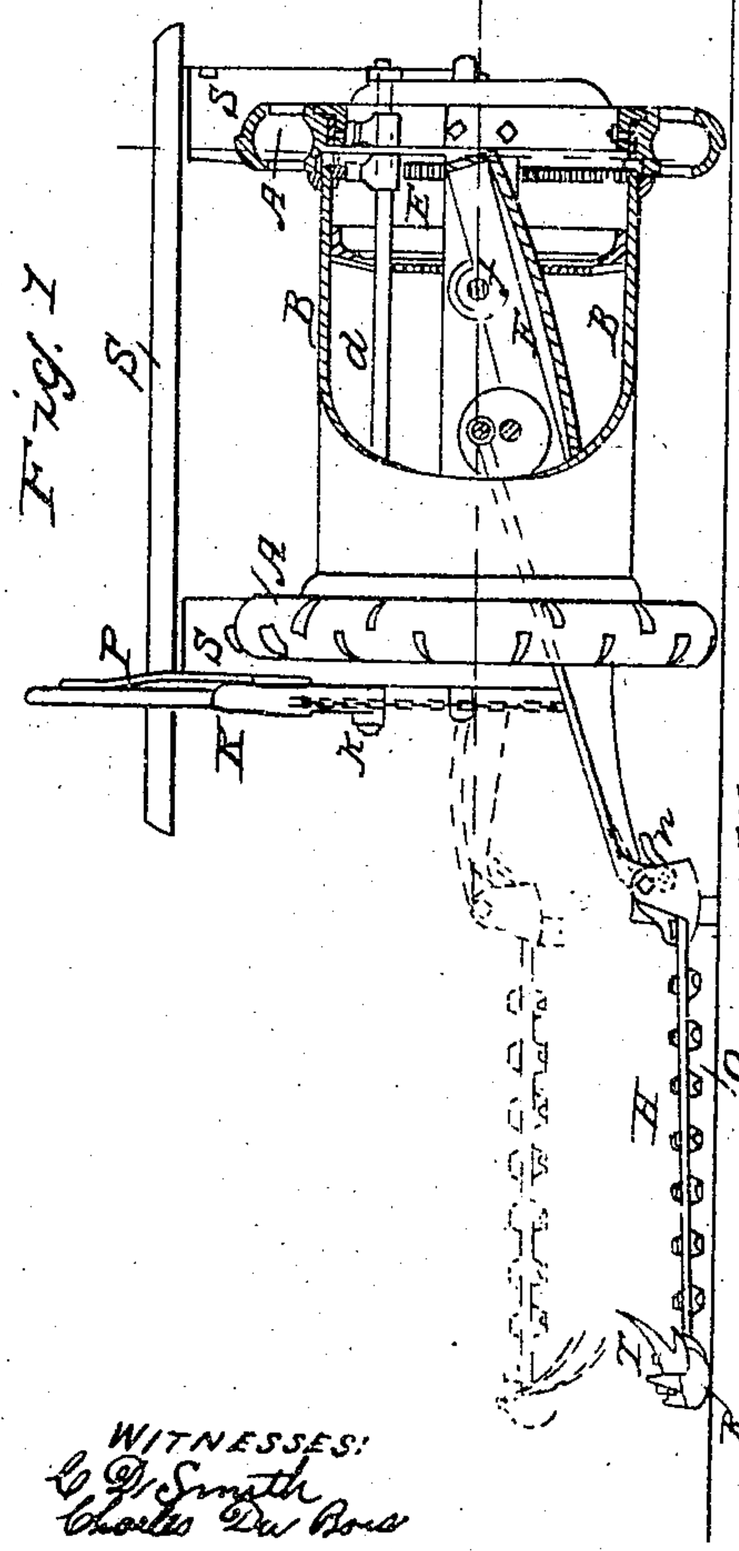


Fig. 5.

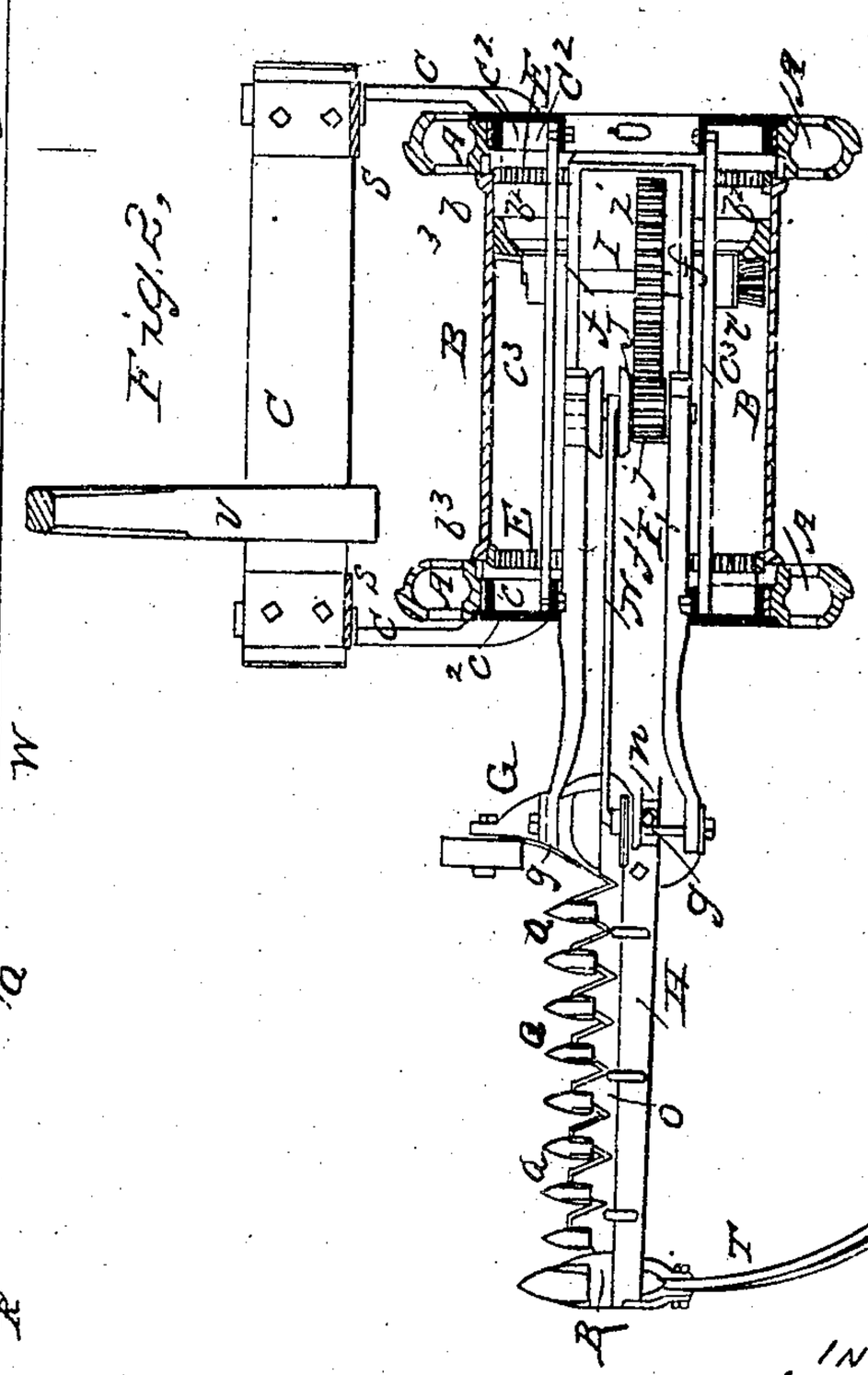


Fig. 6.

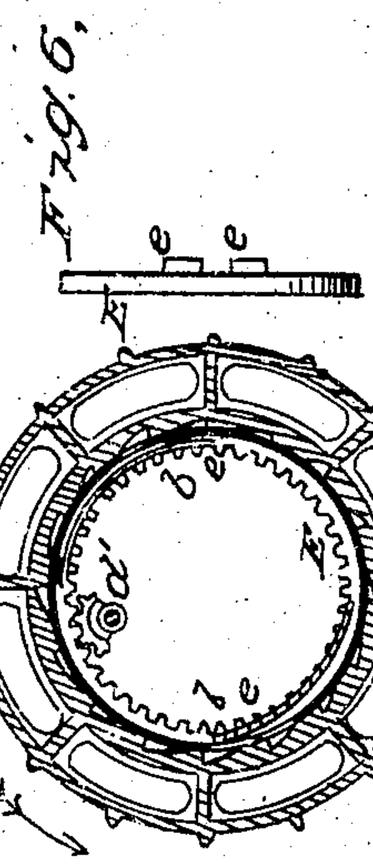
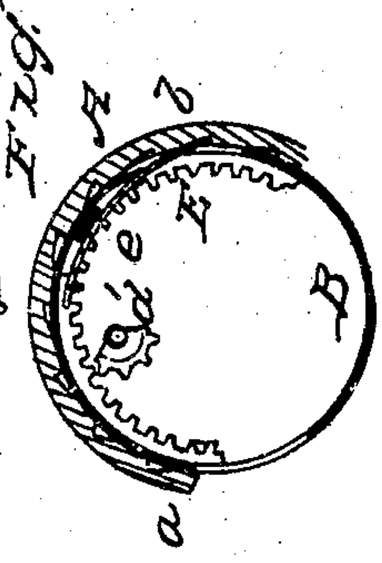


Fig. 7.

Fig. 8.



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2 Sheets—Sheet 2.

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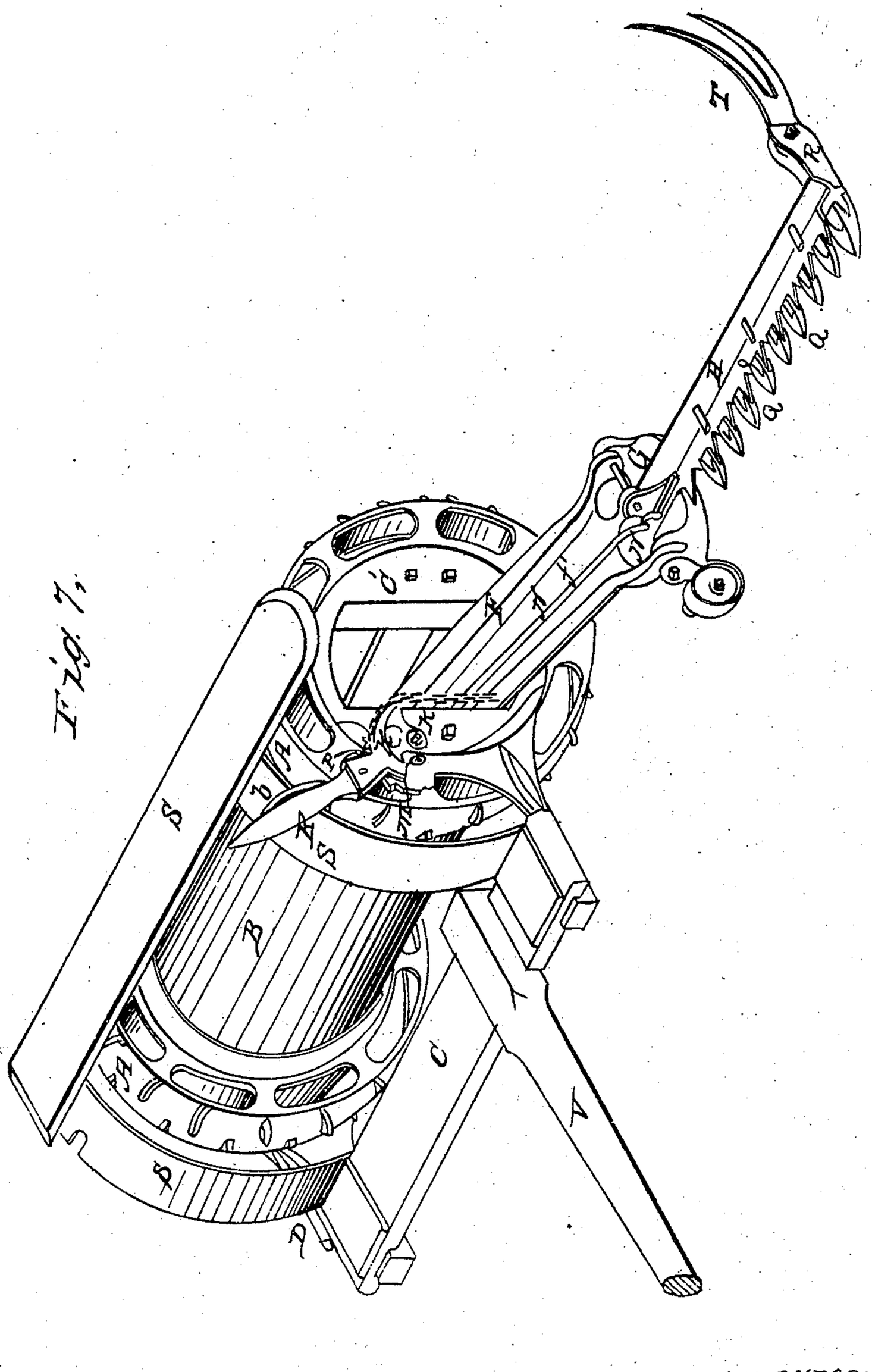
Fig. 1.



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UNITED STATES PATENT OFFICE.

SAMUEL B. HAINES, OF LEWISTOWN, PENNSYLVANIA.

IMPROVEMENT IN HARVESTERS.

Specification forming part of Letters Patent No. **41,842**, dated March 8, 1864.

To all whom it may concern:

Be it known that I, SAMUEL B. HAINES, of Lewistown, in the county of Mifflin and State of Pennsylvania, have invented certain new and useful Improvements in Harvesters; and I do hereby declare the following to be a full and exact description of the same, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a rear view of the machine with a part of the drum broken away to expose the interior gearing. Fig. 2 is a horizontal section at *x x*, Fig. 1. Fig. 3 is an end view. Fig. 4 is a vertical section at *y y*, Fig. 1, representing the machine out of gear. Fig. 5 is a fragmentary section in the same plane, showing the parts in gear. Fig. 6 is an edge view of the cogged rim, hereinafter described. Fig. 7 is a perspective view of the machine entire.

Similar letters of reference indicate corresponding parts in the several views.

The subject of my said invention is a machine in which the gearing is inclosed within a drum, which is rotated by driving-wheels or by direct contact with the ground, and through the medium of which motion is communicated to the working parts, in a manner hereinafter described.

In order that others skilled in the art to which my invention appertains may be enabled to fully understand and use the same, I will proceed to describe its construction and operation.

A A represent a pair of ground-wheels journaled loosely upon heads C′ C², connected by rigid bars, forming part of a main frame, C.

B is a hollow drum, fitted to turn loosely within the wheels A A, but receiving rotation therefrom while the machine is moving forward and in gear by means of elastic pawls *b*, attached to the interior of and projecting through the drum B, engaging in notches *a a* on the inner surfaces of the wheels, as represented in Fig. 5. To retract the pawls *b* within the drum, and thus permit the wheels A A to turn freely without moving the machinery, I employ a lever, D, mounted upon a shaft, *d*, to which are attached two cogged segments, *d′ d′*, gearing with loose cogged rims E, fitted within the ends of the drum and provided with lips *e*, projecting over the pawls *b b*, so that when the rims E are turned to the position shown in Fig. 4 the pawls *b b* will be drawn within the circumference of the drum, and thus permit the latter to remain at rest while the wheels A A rotate.

F represents a gear-frame pivoted at *f* to the main frame C, within the drum B, projecting outward through a large vertical slot or aperture in the head C′, and carrying at its outer end the shoe G, which is attached thereto by the customary horizontal joint, *g*, so as to permit the free vertical motion of either end of the finger-beam H. The aperture in the head C′, through which the pivoted gear-frame or arm F projects, is of such horizontal width as to brace the frame or arm F firmly against horizontal displacement, but, being of much greater vertical length, permits free motion to the said frame vertically.

K is a lever fulcrumed at *k* to the main frame, and provided with a segment, *k′*, over which is passed a chain, L, attached at its lower end to the frame F, so as to elevate the said frame to any desired height, where it may be retained by a spring-pawl, P, of peculiar construction, engaging in a segment-rack, M, on the main frame. The said pawl is fulcrumed to the lever K and provided with an elastic stock, *p*, slotted at its end for the reception of a pin or screw, by which it is confined against the lever K in such a way as to permit its motion endwise upon the said lever. By this means it is adapted to withdraw the pawl P from the rack M when pressed inward by the hand or thumb in grasping the lever K, and at other times holds the pawl in contact with the rack.

I is a shaft journaled concentrically within the trunnions *f″* of the frame F. The said shaft carries at one end a bevel-pinion, *i*, gearing with a bevel-cogged rim, *b²*, on the inside of the drum B, and in its central part a cog-wheel, *i′*, which gears with the pinion *j* of the crank-shaft J.

N represents the pitman, working in a cavity, *f′*, in the arm F, whereby it is protected from injury from contact with external bodies. This peculiar construction of the arm is useful also in giving it lightness, strength, and rigidity.

W represents an adjustable arm, pivoted upon or otherwise attached to the shoe G, and adapted, when placed in the position shown in the drawings, to support the finger-beam when the frame F is elevated, as illustrated by dotted lines in Fig. 1.

S represents the driver's seat, mounted on

spring-standards *s s*, attached to the main frame and projecting over the drum B.

The sickle O, guards Q, outer shoe, R, track-clearer T, tongue U, and other parts not herein particularly described may be constructed and arranged in any suitable manner.

The machine is here represented as adapted for mowing. By the substitution of a longer finger-beam and sickle and the addition of a suitable grain-platform, either with or without an automatic rake, the machine is adapted for harvesting grain.

The wheels A A and drum B may be confined upon the heads C′ C² by means of flanges c^2 c^2 of the heads and collars b^3 b^3 on the drum B, or the same object may be effected in any other suitable way.

In the illustration here given the finger-beam is adapted to be folded up at the end of or beneath the driver's seat. If preferred, it may by suitably proportioning the parts be made to fold completely over the seat.

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

1. The combination of the inclosing and rotary drum B and pivoted gear-frame F, arranged and operating substantially as described.

2. The combination, with the frame or arm F, constructed and arranged as described, of the slotted head C′, adapted to permit the vertical motion of the said frame and brace it horizontally, as explained.

3. In combination with the drum B, the gear frame or arm F, provided with the concavity in its upper surface, as represented, to receive the pitman and combine lightness, strength, and rigidity.

4. The main frame C C′ C² C³, constructed substantially as described, and attached to the wheels A A or drum B in any suitable manner.

5. The combination of the segments or pinions *d′*, cogged rims E, and lips *e* with the pawls *b b* and wheels A A, for throwing the parts in and out of gear, substantially in the manner explained.

6. The pawl P, constructed with an elastic shank, *p*, and operating in the manner and for the purposes specified.

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Witnesses:
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