No. 634,939. Patented Oct. 17, 1899.

R. M. DYER.

FODDER CUTTING MACHINE.

(Application filed Oct. 26, 1898.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1.

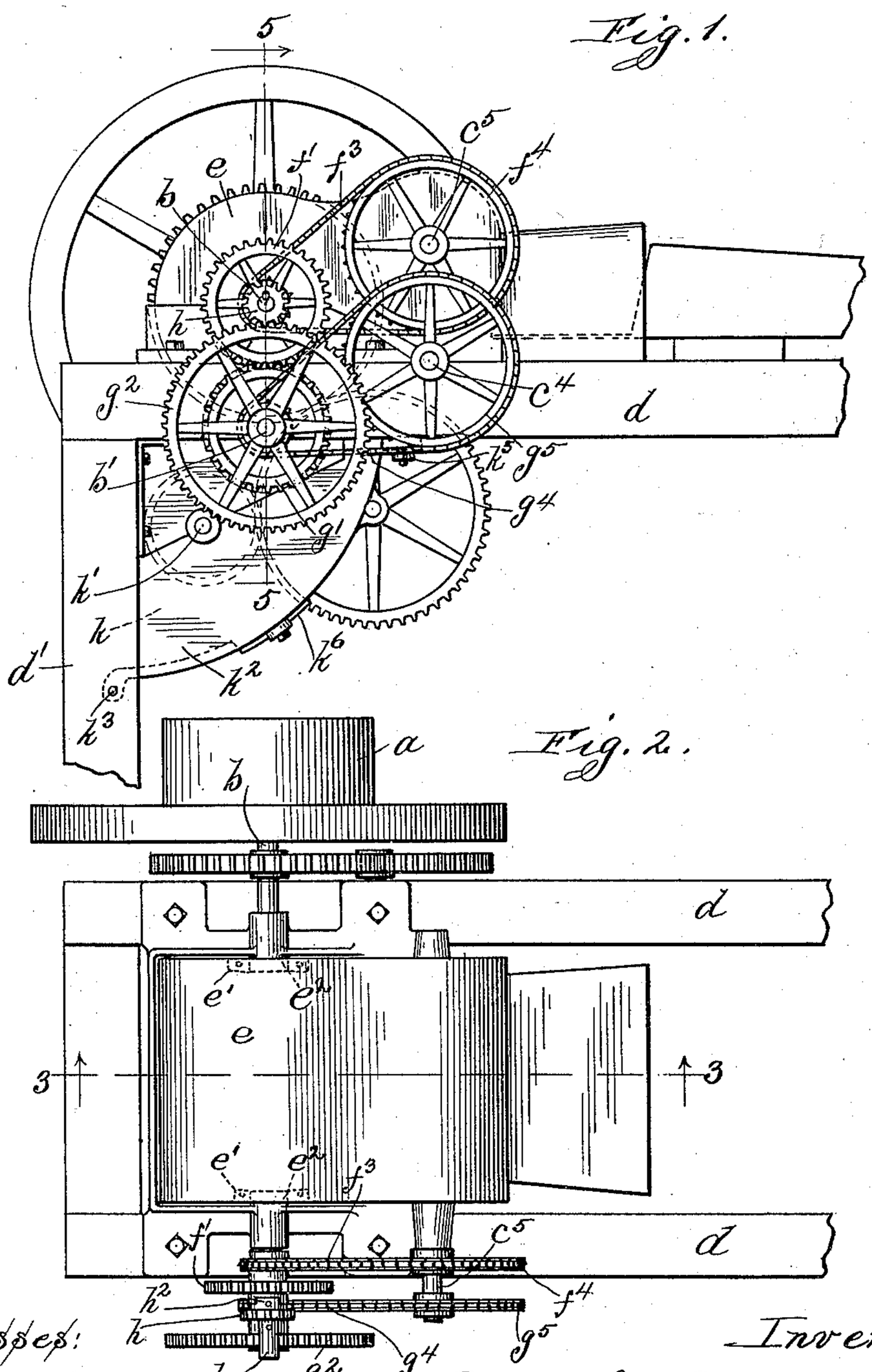

Fig. 2.

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Fig. 3.

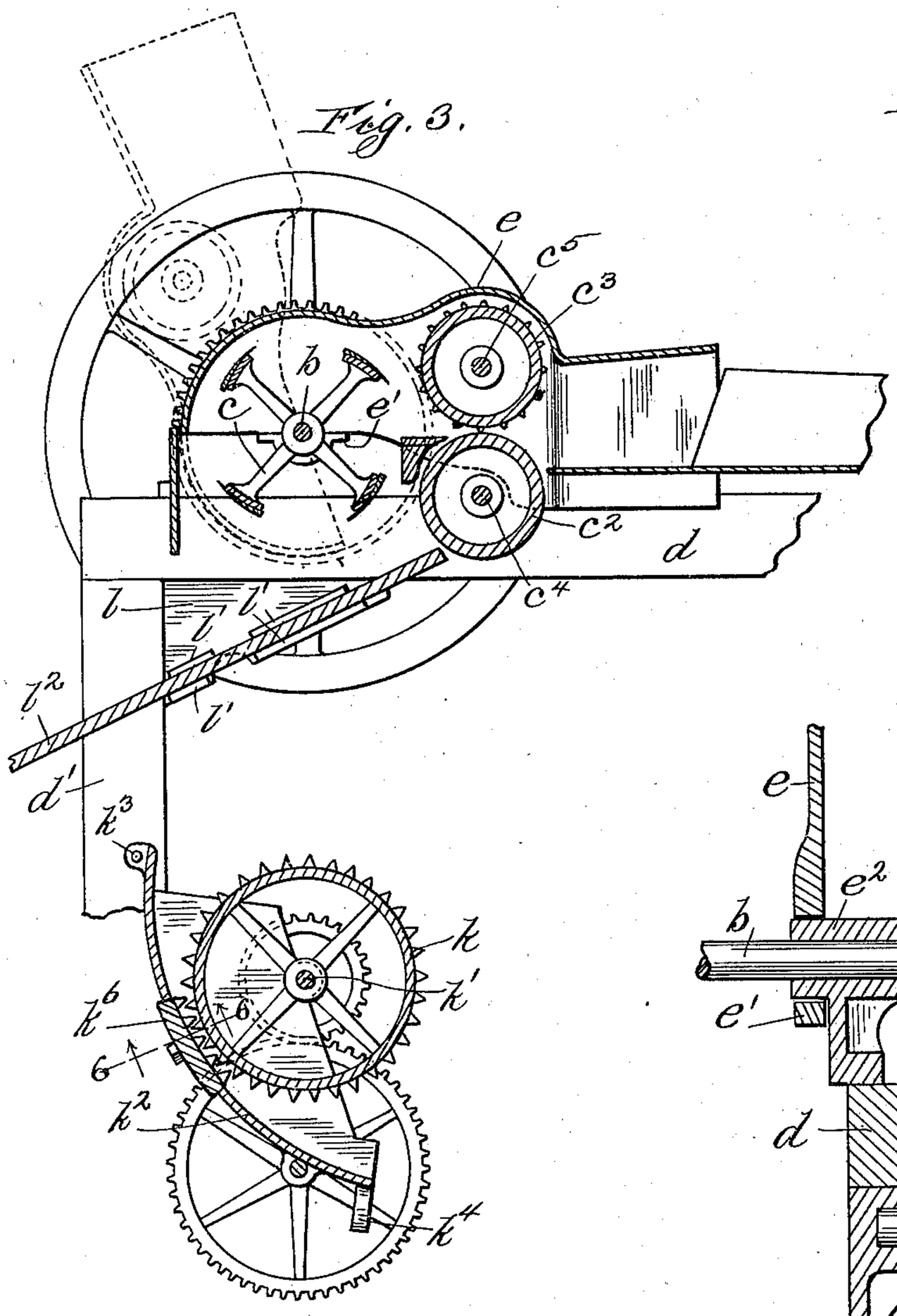

Fig. 4.

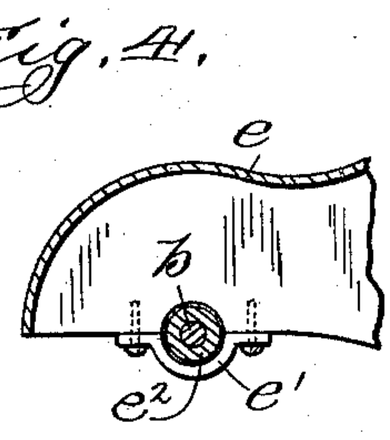

Fig. 5.

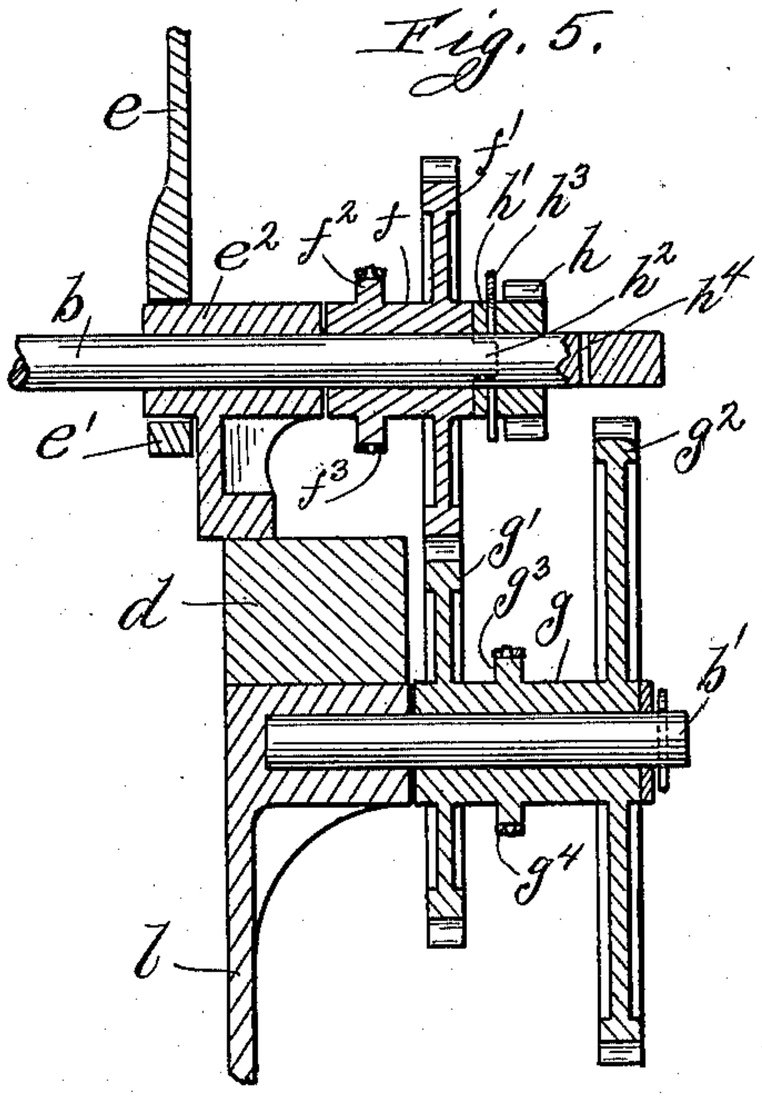

Fig. 6.

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UNITED STATES PATENT OFFICE.

ROBERT M. DYER, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE AERMOTOR COMPANY, OF SAME PLACE.

FODDER-CUTTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 634,939, dated October 17, 1899.

Application filed October 26, 1898. Serial No. 694,572. (No model.)

To all whom it may concern:

Be it known that I, ROBERT M. DYER, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Fodder-Cutting Machines, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to a fodder-cutting machine, my object being to provide an improved construction whereby the upper feeding rollers may be more conveniently made than heretofore and whereby the casing of the machine may be readily removable to gain access to the cutting-knife; furthermore, to provide a convenient means for changing the rate of feeding of the machine, and, further, to provide a construction which will permit the grinding-roller to be readily thrown into or out of service at will.

I have illustrated my invention in the accompanying drawings, in which—

Figure 1 is a view in elevation of the machine embodying my invention. Fig. 2 is a plan view thereof. Fig. 3 is a sectional view on line 3 3, Fig. 2. Fig. 4 is a detailed view of the mounting of the rotatable casing. Fig. 5 is a partial sectional view on line 5 5, Fig. 1. Fig. 6 is a view illustrating the manner in which the teeth upon the grinding-roller coact with a stationary set of teeth.

Like letters refer to like parts in the several figures.

The driving-pulley a is mounted upon a shaft b, upon which is mounted the rotary knife or cutter c. In front of the cutter c a pair of feed-rollers c^2 c^3 is provided, between which the fodder is adapted to pass and by which it is fed to the cutter c, the speed with which the rolls rotate determining the rate at which the fodder is conveyed to the cutter, and consequently the length of the pieces into which the rotary knife cuts the same. The roll c^2 is mounted upon a shaft c^4, mounted in bearings provided upon the frame d of the machine, while the roll c^3 is mounted upon a shaft c^5, mounted in bearings carried upon the casing e. The casing e incloses the roll c^3 and the cutter c and is provided with bearings journaled upon the inner ends of the bearing-sleeves e^2 e^2, Figs. 2 and 4, by means of brackets e', secured to the under edge of casing e, whereby the casing e may be rocked upon the shaft b into the vertical position indicated by dotted lines in Fig. 3. When in this position the cutter c is exposed and access may be gained for the purpose of adjustment or manipulation. Likewise when the casing is in the vertical position the rolls c^3 and c^2 are accessible.

Upon the shaft b is loosely mounted a hub f, carrying a gear-wheel f' and a sprocket wheel or pinion f^2. Upon the counter-shaft b', held at one end in the frame of the machine, is journaled a hub g, carrying gear-wheels g' g^2 and a sprocket-wheel g^3, the wheel g' meshing with wheel f'. The sprocket-wheel f^2 is geared by means of a chain f^3 with a sprocket-wheel f^4, mounted on the shaft c^5, carrying the upper feed-roll c^3, and the sprocket-wheel g^3 is by means of a chain g^4 geared with a sprocket-wheel g^5, carried on the shaft c^4, upon which is mounted the feed-roll c^2. Upon the shaft b is loosely mounted a pinion h, having upon its face projections h' h', adapted to interlock with projections h^2, carried on hub f, a pin h^3 being passed through holes in the hub of pinion h to lock the same to shaft b. When in this position, the rotation of the shaft b causes pinion h and hub f to rotate therewith, thus through the agency of sprocket-wheels f^2 and f^4 rotating the feed-roll c^3, and due to the meshing of gear-wheels f' and g' the hub g is rotated to drive the feed-roll c^2 through the agency of sprocket-wheels g^3 and g^5. When it is desired to alter the gear so as to reduce the speed at which the feed-rolls are driven, and thereby reduce the lengths of the pieces cut by the cutter c, the pin h^3 may be removed and the pinion h moved longitudinally upon the shaft b until the teeth thereof mesh with the gear-wheel g^2, the pin h^3 being passed through the hole h^4 to key the gear-wheel to the shaft b. When in this position, the rotation of shaft b rotates pinion h and gear-wheel g^2, and the hub f, which is loose on the shaft b, is rotated through the meshing of gear-wheels g' and f'. The sprocket-wheels g^3 and f^2 are thus driven at a lower speed. In the drawings gear-wheels

g^2 and pinion h bear the ratio of six to one, so that in the first position of the pinion h the feed-rolls are driven at six times the speed at which they are driven when the pinion is in the second of the two positions above described.

Beneath the above-described mechanism is mounted a grinding-roller k, the roller being mounted upon a shaft k', journaled in the walls of the casing k^2, which is pivoted at the lower end by means of a pivot k^3 to the uprights or posts d' of the table or support upon which the machine is mounted. The other end of the casing k^2 carries a flange k^4 at each end, through which bolts k^5 are adapted to pass to secure the casing to the under face of the stringers d of the table which supports the machine. The casing k^2 supports a plate k^6, having teeth upon the face thereof adapted to coact with the teeth upon the roller k to form a grinding-surface, which serves to grind the pieces of fodder severed by the cutter c. As the fodder is cut into short lengths by the cutter c it falls downward between the coacting sets of teeth and then passes from the machine.

It is frequently desirable to operate the machine for cutting the fodder into short lengths without grinding the same, in which case it is desirable to remove the grinding-roller from its operative position. In structures of the prior art it has been necessary to disassemble this portion of the machine for this purpose; but by the employment of the structure above described when it is desired to throw the grinding-roller out of operation the bolts k^5, securing the upper end of the casing to the stringers d, may be removed, and the casing may be rotated into the position shown in Fig. 3 to carry the roller k downward out of the way. Instead of attaching the upper end of the casing k^2 to the stringers d by means of bolts, as illustrated, any other form of attachment may be employed. At the juncture of the stringers d and posts d' a plate l is provided upon each side of the machine, the plate carrying upon its inner face ridges l' l', which leave between the same a channel extending obliquely upward. A board l^2 may be inserted into this channel to form a floor and guide to receive the cut fodder as it passes from the knife and direct it downward into any receptacle which may be provided for its reception.

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

1. In a cutting-machine, the combination with a shaft carrying a rotary cutter, of a casing or frame journaled to rotate about the axis of said cutter, feed-rollers situated in advance of the cutter, the upper roller being journaled upon said casing or frame and driving-gearing between the upper feed-roller and the shaft carrying the cutter arranged to permit the rocking of the casing without disengaging the gearing, substantially as described.

2. In a cutting-machine, the combination with the driving-shaft and the cutter driven thereby, of the grinding-roller placed beneath the cutter, a frame or casing upon which the grinding-roller is journaled pivoted at one end to permit the frame and the roller to be swung out of the operative position, and separable driving-gearing between the driving-shaft and the grinding-roller arranged to be separated when the grinding-roller is moved out of the operative position and to operatively engage when the grinding-roller is moved into the operative position, substantially as described.

3. In a cutting-machine, the combination with the driving-shaft and the cutter driven thereby, of the grinding-roller placed beneath the cutter, a frame or casing upon which the grinding-roller is journaled pivoted at one end to permit the frame and the roller to be swung out of the operative position, separable driving-gearing between the driving-shaft and the grinding-roller arranged to be separated when the grinding-roller is moved out of the operative position and to operatively engage when the grinding-roller is moved into the operative position, a guideway or floor, and supports for the same to hold said guideway in position beneath the cutter when the grinding-roller is moved out of the operative position, substantially as described.

In witness whereof I have hereunto subscribed my name in the presence of two witnesses.

ROBERT M. DYER.

Witnesses:
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W. CLYDE JONES.