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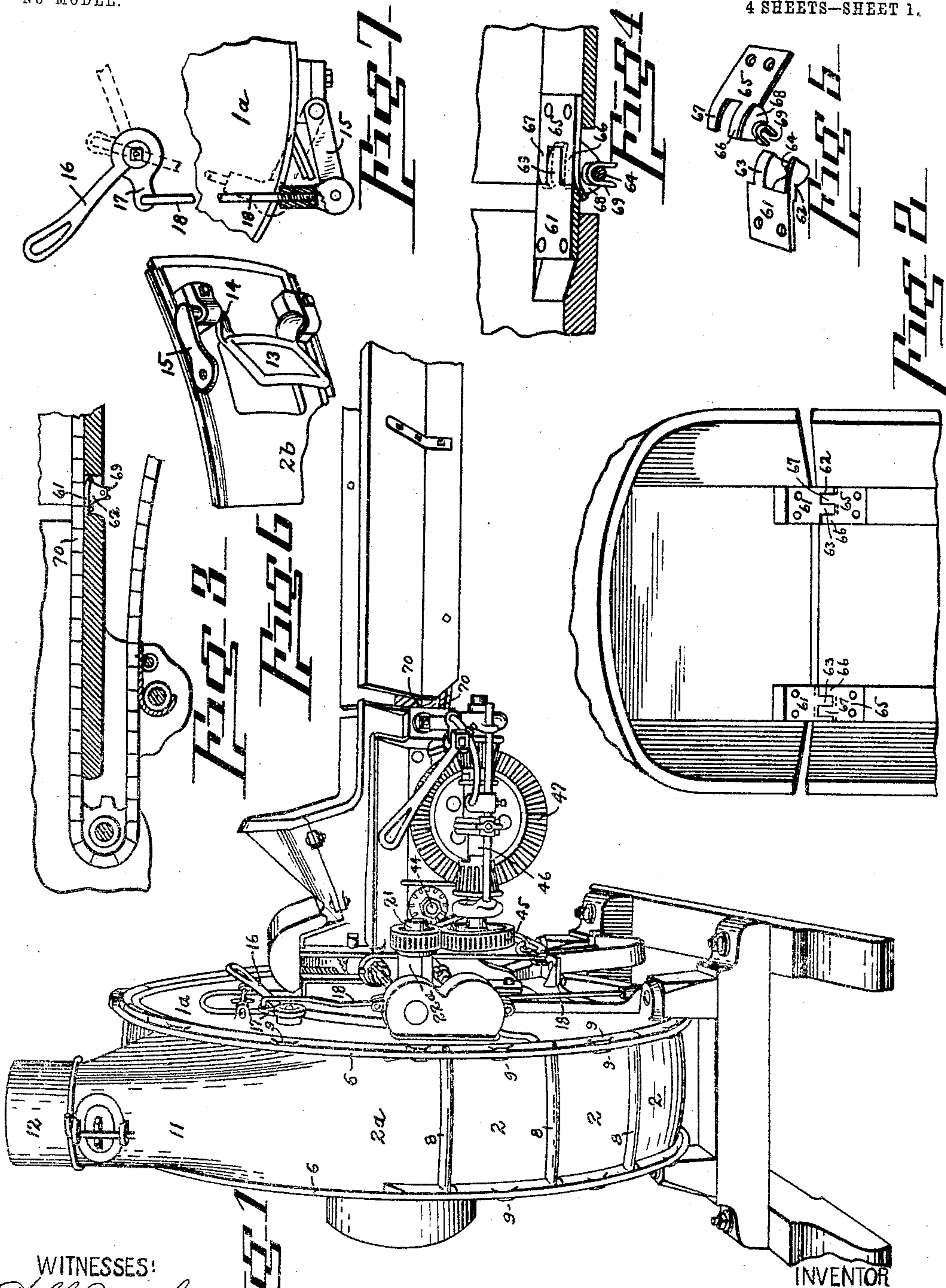
PATENTED SEPT. 27, 1904.

J. DICK.
FODDER CUTTER.

APPLICATION FILED NOV. 5, 1903.

NO MODEL.

4 SHEETS—SHEET 1.



WITNESSES:

W. H. Stough
Euphrosia Henry

INVENTOR

Joseph Dick

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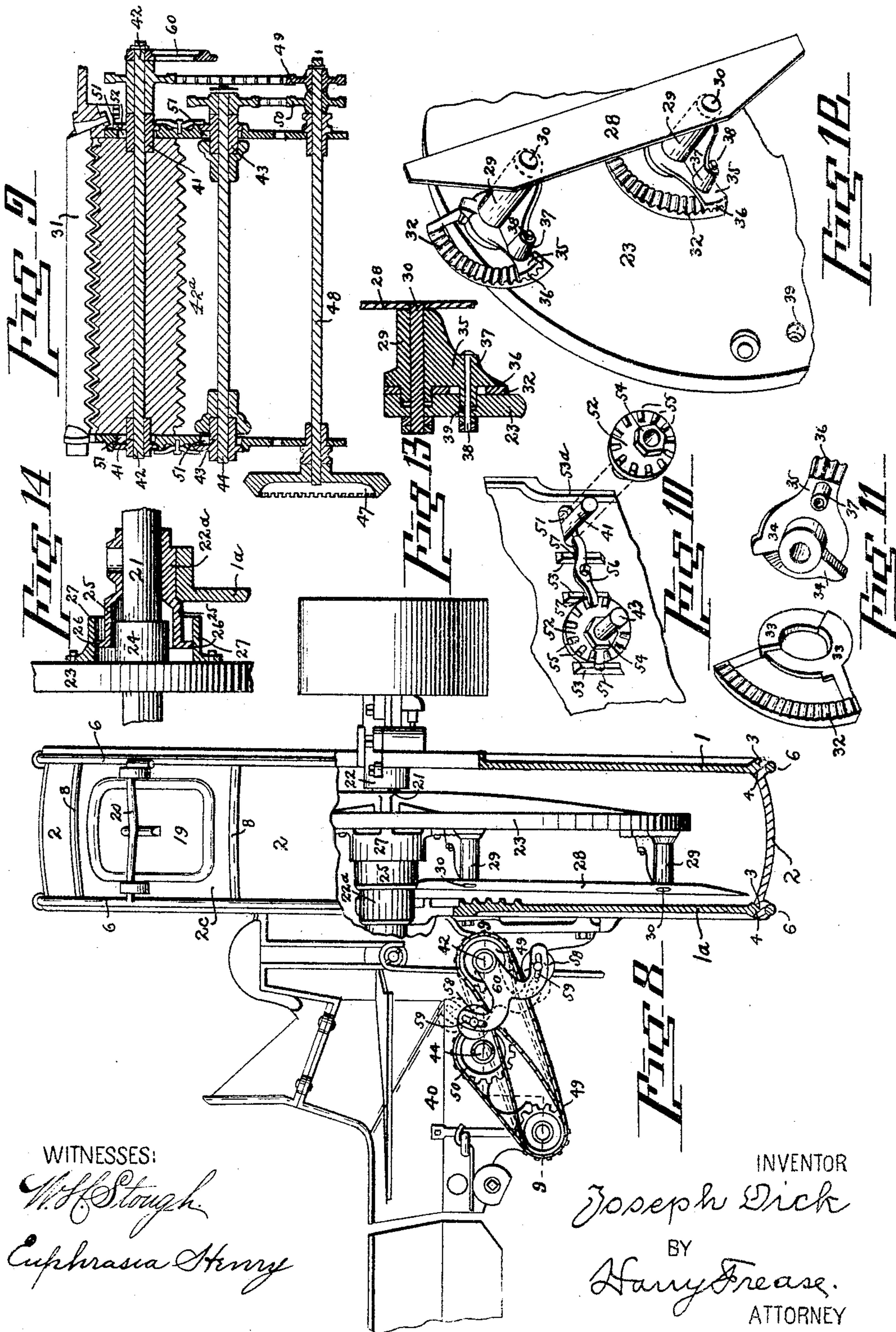
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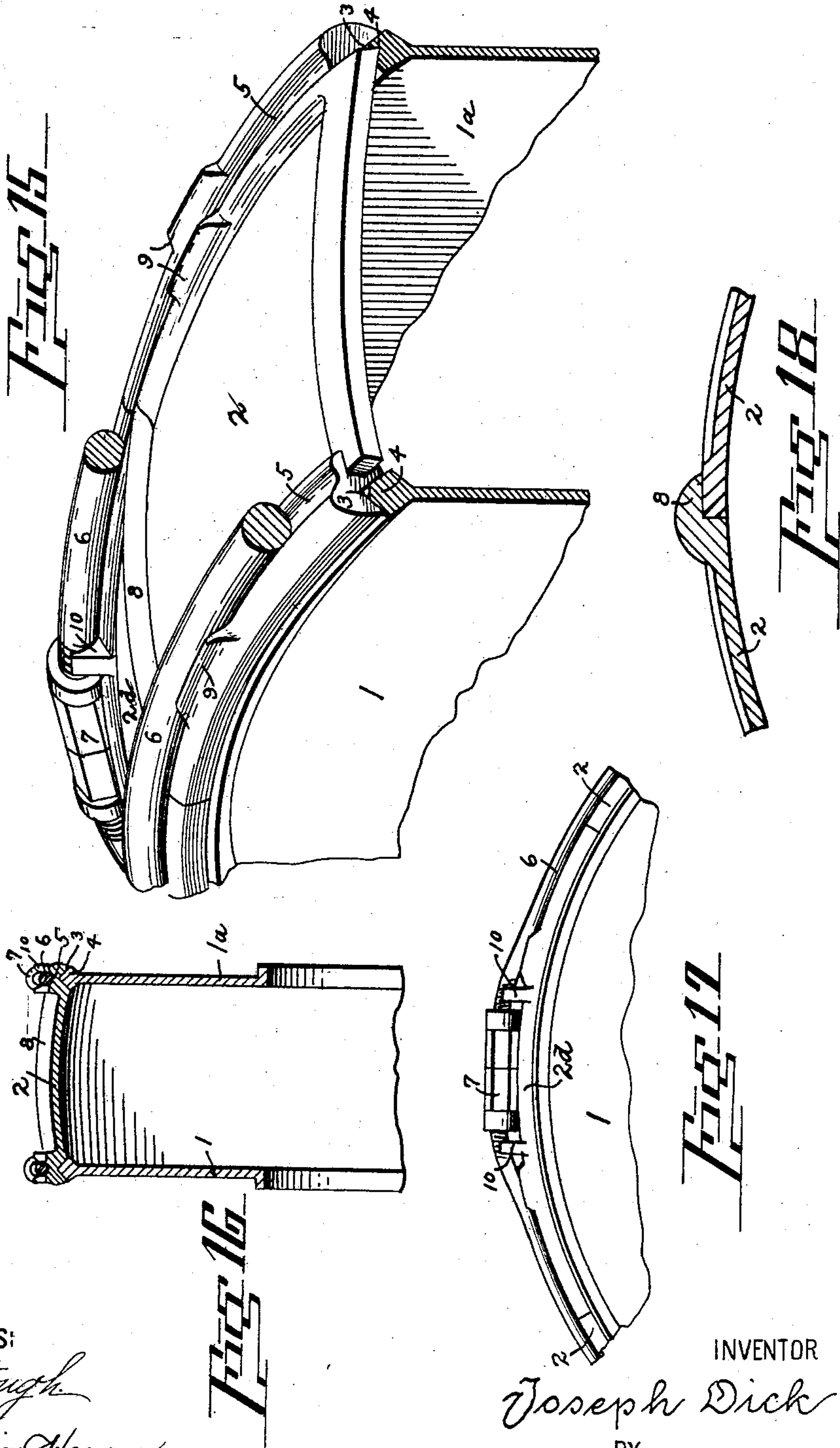
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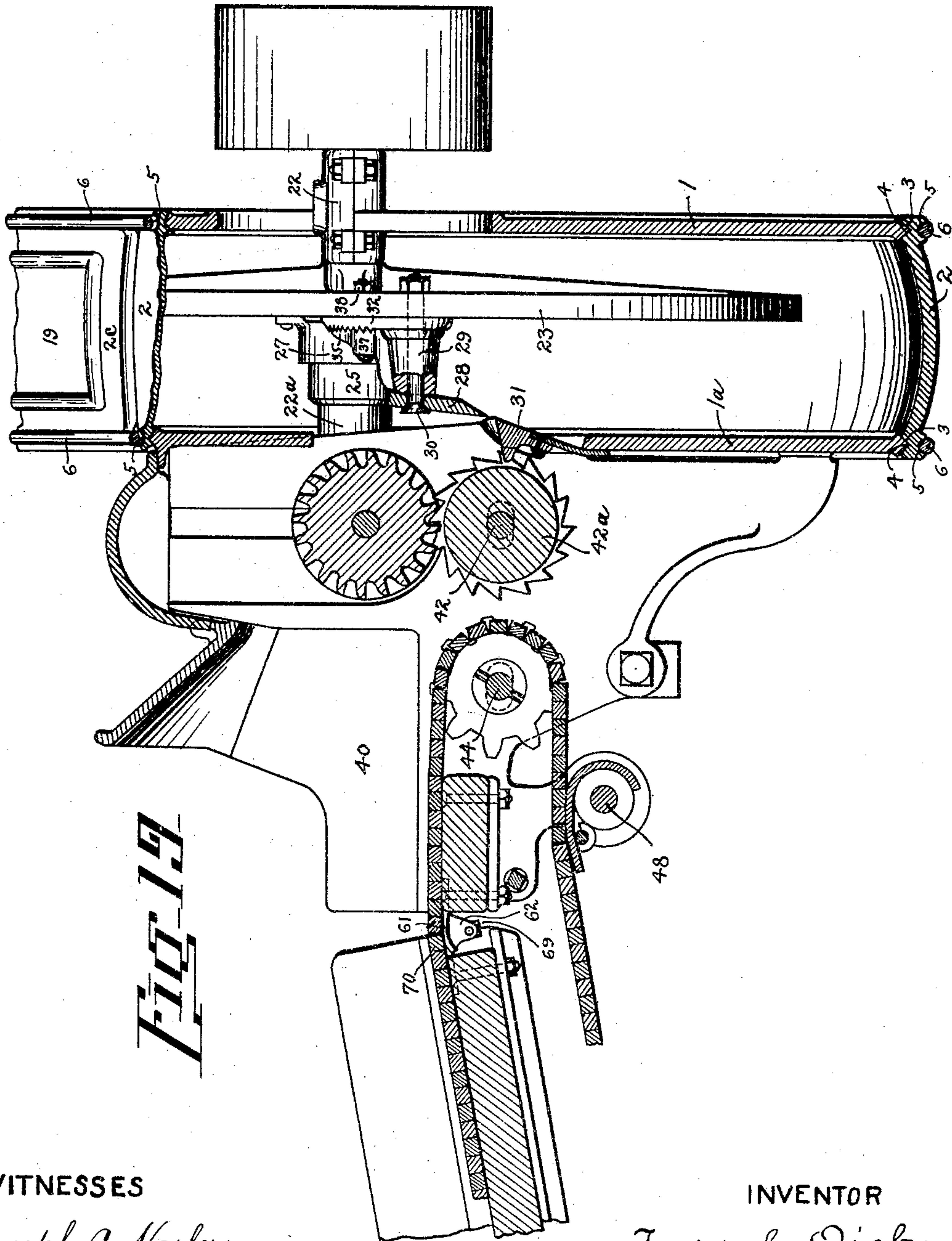


Fig. 19

WITNESSES

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JOSEPH DICK, OF CANTON, OHIO.

FODDER-CUTTER.

SPECIFICATION forming part of Letters Patent No. 771,047, dated September 27, 1904.

Application filed November 5, 1903. Serial No. 179,924. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH DICK, a citizen of the United States, residing at Canton, in the county of Stark and State of Ohio, have
5 invented certain new and useful Improvements in Fodder-Cutters, of which the following is a specification.

The invention relates to certain features in the construction of the casing, the shielding
10 of the main shaft and bearing, the attachment of the knife-blades, the adjustment of the feed-roller and conveyer-shaft bearings, the tightening of the feed-roller sprocket-gear, and the hinging of the feed-trough in a fodder-
15 cutter; and the objects of the improvements are to make the construction and manipulation of the machine more practical, effective, and convenient.

These objects are attained by the construction, arrangement, and mechanism illustrated
20 in the accompanying drawings, in which—

Figure 1 is a rear left side perspective view of the fodder-cutter, showing the general relation of the parts; Fig. 2, a plan view showing the feed-trough hinges; Fig. 3, a longitudinal section showing one hinge and the
25 conveyer-belt; Fig. 4, an enlarged perspective view showing one hinge; Fig. 5, a detached perspective view of the parts of the hinge; Fig. 6, an under perspective view showing the casing trap-door; Fig. 7, a fragmentary view showing the manner of operating the trap-door; Fig. 8, a right side elevation of the fodder-cutter, showing some parts in longitudinal section; Fig. 9, a longitudinal section
35 on line 9-9, Fig. 8, showing the lower feed-roller, conveyer, and transverse counter-shafts and bearings; Fig. 10, a detached perspective view illustrating the adjustable bearings; Fig. 11, a detached perspective view illustrating the knife-blade-adjusting cam faces and racks; Fig. 12, a detached perspective view showing a knife-blade attached on the knife-disk; Fig. 13, a sectional view illustrating the
40 attachment of a knife-blade on the disk; Fig. 14, a sectional view illustrating the main shaft and bearing-shield; Fig. 15, a perspective view illustrating the joining of the side plates, peripheral plates, and peripheral rods of the

casing; Fig. 16, a cross-section of the same; 50 Fig. 17, a side view of the same; Fig. 18, a sectional view showing the joining of the peripheral plates; and Fig. 19, a vertical section on the middle line of the hopper and trough, showing the feed-rollers and cutter-
55 bar and knife-blade in cross-section.

Similar numerals refer to similar parts throughout the drawings.

The casing is formed of the separate circular side plates 1 and 1^a and a series of interchangeable peripheral plates 2, 2^a, 2^b, 2^c, and 2^d, which peripheral plates are each provided with the grooves 3 on their concave face near the side edges, which grooves are adapted to receive the edges 4 of the side plates and to
60 form a neat joint therewith. These grooves and edges are preferably formed V-shaped, the edges being truncated, as illustrated, which form insures a tight fit of the joint. On the convex faces of the peripheral plates and near
65 the side edges are provided the grooves 5, which are preferably rounded, and these grooves form a channel on each side adapted to receive and retain the peripheral rods 6, which rods bind the various plates of the casing together. The peripheral rods are preferably fastened and adjusted by the turnbuckles
70 7, and each peripheral plate is preferably provided with a lip, as 8, on one end, which overlaps the adjoining end of the next plate, and the lugs 9 and 10 are also preferably provided on the sides of the rounded grooves to more
75 securely retain the peripheral rods.

The neck or spout 11 is formed in the peripheral plate 2^a, to which spout is joined the
80 discharge-pipe 12, and the angle of this spout is readily varied at will by changing one or more of the ordinary peripheral plates 2 to be above or below the spout-plate, and the trap-door 13 is provided in the peripheral plate 2^b,
85 preferably located on the lower side of the casing, which trap-door operates on the hinge-pivot 14, having the crank-arm 15. At a convenient place on the side of the casing is pivoted the hand-lever 16 with the locking-arm
90 17. The connecting-link 18 has its ends pivoted to the crank and locking-arms, and these parts are so proportioned and arranged that

the trap-door is tightly shut when the hand-lever is rotated to bring the link in line with the lever-pivot, as shown by broken lines in Fig. 7, after which the door is locked by turning the lever a little farther to carry the link past the dead-center. It will be understood that the locking-arm can be omitted and the link pivoted directly to the hand-lever or an extension thereof, according to the relative location of the door and hand-lever; but I prefer the construction illustrated when the parts are located as shown. The hand-hole door 19 is provided in the peripheral plate 2^c, preferably located on the upper side of the casing, which door is held in place by a suitable fastening, as 20. This construction and these devices greatly facilitate the assembling of the parts of the casing and of the mechanism within it and also the renewal or repair of the same and the substitution for a broken part of a relatively small piece, and various arrangements of the interchangeable peripheral plates can be readily made to accommodate varying conditions and uses.

The main shaft 21 is journaled in the bearings 22 and 22^a, which are attached to the side plates, and on this shaft inside the casing is securely mounted the knife-disk or fly-wheel 23, preferably by means of the hub 24. To prevent the fodder or cuttings from winding around the shaft or binding in the rear bearing, the forward side of this bearing is provided with the bell-shaped extension 25, which freely surrounds the disk-hub and terminates in the external rim-flange 26, and on the knife-disk is provided the flange-collar 27, which fits closely over the rim-flange of the bearing extension and completely shields the shaft and the bearing. The knife-blades 28 are attached on the knife by means of the intervening tube-posts 29 and the main bolts 30, and the blades are adjusted to the cutter-bar 31, which has a fixed position, by means of the segmental cam-racks 32, which are pivoted on the posts against the knife-disk. The hubs of the cam-racks are provided with the cam-faces 33, and on the bases of the tube-posts are provided the corresponding cam-faces 34 and the arms 35, having the segmental racks 36, adapted to mesh with the adjusting-racks 32. The tubular bosses 37 are formed in the post-arms, in which bosses are entered the subbolts 38, each of which extends through an aperture, as 39, in the knife-disk, by means of which subbolts the tube-posts are held against rotation and the posts and the adjusting-racks are held in proper place on the knife-disk in event the main bolts are withdrawn and the knife-blades removed for sharpening or other purposes.

The hopper 40 is formed or attached on the rear side plate 1^a, in the sides of which hopper are mounted the bearings 41 for the lower feed-roller shaft 42 and the bearings 43 for

the conveyer-shaft 44. Motion is imparted to these shafts from the main shaft by means of the gear 45, the longitudinal counter-shaft 46, the reversible bevel-gear 47, the transverse counter-shaft 48, and the sprocket-gears 49 and 50, which shafts and gears are suitably mounted on the sides of the hopper. The tubular body part of the roller-shaft and conveyer-shaft bearings are located in the horizontally-elongated slots 51 in the sides of the hopper, in which slots the bearings can be moved horizontally but not vertically. The eccentric disks 52 are formed or attached on the bearings and fit against the sides of the hopper between and in contact with the vertical lugs or flanges 53 and 53^a, formed on the hopper sides, and the outer ends 54 of the bearings are preferably formed angular, by means of which the bearings can be rotated by an ordinary wrench. The bosses 55 are formed near the edge on the faces of the eccentric disks, and the spring or button 56 is attached on the hopper side, the ends of which button are normally located in the notches 57 in the lugs 53 and are entered between the disk-bosses, whereby the bearings are held against rotation. To adjust a bearing endwise, it is only necessary to disengage the button from the disk-bosses and to rotate the bearing, whereby the body of the bearing is moved one way or another in the elongated slot by means of the rotation of the disk between the fixed vertical lugs or flanges, after which the bearing can be locked in the adjusted position by re-engaging the button between the disk-bosses. By thus adjusting the knife-blades to the cutter-bar on one side and the lower feed-roller 42^a to the cutter-bar on the other side the cutter-bar can be rigidly attached in the machine instead of fixing the feed-roller therein and then adjusting the cutter-bar to the feed-roller and then adjusting the knife-blades to the cutter-bar, which has been the practice heretofore.

The idle wheels 58 are adjustably mounted in the slotted apertures 59 in the arms of the T-bracket 60, the stem of which bracket is pivoted on the end of the feed-roller shaft. By adjusting these wheels so as to bear against the outer sides of the chain of the sprocket-gear 49 and to take up the looseness or slack therein these wheels act as tightening-idlers whichever way the machine is being operated. In this action that section of the chain which is transmitting the power is drawn straight, carrying with it the contiguous wheel, whereby the opposite wheel is drawn in and tightens the loose section of the chain, as shown by full and broken lines in Fig. 8. The need of these idle wheels arises from the adjustment of the feed-roller to the cutter-bar, which gives the roller a varying position with reference to the transverse counter-shaft.

The hinge-plates 61 are attached or formed on the rear ends of the hopper-bottom, and

these plates are each provided with the rearward-extending depending ears 62 and 63, which ears are preferably located one flush with the side and the other at an interval therefrom and also at an interval from the other side of the plate. The lower ends of these ears are connected by the transverse journal-bar 64, and the upper edges are curved concentric with this bar. The companion hinge-plates 65 are attached or formed on the forward end of the trough-bottom, and these plates are provided with the forward-extending tongues 66 and 67, which are located to correspond with the intervals at the sides of the ears of the hopper-plates. The depending ear 68 is formed on the tongue 66, and at the lower edge of this ear is formed the transverse bearing 69, which is adapted to rotate on the journal-bar 64 of the hopper-plate, and the trough-plate tongues are curved concentric with the transverse bearing and the parts so proportioned that when the bearing is placed on the journal-bar the tongues of the trough-plate will pass under the adjacent edges of the hopper-plate. The engagement of the hinge-plates is made by depressing the rear end of the trough so as to bring its hinge-plate in the relation to the hopper-plate as shown in Fig. 5, and after the engagement is made the rear end of the trough is raised to its normal position for use, as shown in Figs. 1 to 4, in which position the hinge is locked by the passing of the trough-plate tongues under the body of the hopper-plates, as shown especially in Fig. 4. The hinge-plates as thus engaged form a suitable surface on which to carry the conveyer sprocket-chains 70, as shown especially in Fig. 19. To disengage the hinges, these steps are merely reversed.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. A fodder-cutter casing comprising separate circular side plates, a series of interchangeable peripheral plates, and adjustable peripheral rods, the peripheral plates having grooves on their inner sides adapted to receive the edges of the side plates, and grooves on their outer sides adapted to receive the peripheral rods.

2. A fodder-cutter casing comprising separate circular plates, a series of interchangeable peripheral plates, and adjustable peripheral rods, one of the peripheral plates being formed as an outlet-spout, and all having grooves on their inner sides adapted to receive the edges of the side plates, and grooves on their outer sides adapted to receive the peripheral rods.

3. A fodder-cutter casing comprising separate circular plates, a series of interchangeable peripheral plates, and adjustable peripheral rods, one of the peripheral plates having a door therein, and all having grooves on their

inner sides adapted to receive the edges of the side plates, and grooves on their outer sides adapted to receive the peripheral rods. 65

4. A fodder-cutter casing comprising separate circular side plates, a series of interchangeable peripheral plates, and adjustable peripheral rods, one end of each peripheral plate having a lip thereon adapted to lap over the adjoining edge of the next plate. 70

5. In a fodder-cutter, the combination of a bearing, with a shaft journaled therein, a knife-disk securely mounted on the shaft having a flange-collar adjacent to the bearing, and a bell-shaped extension on the bearing having an external rim-flange entered in the disk-collar and neatly fitting the inside thereof. 75

6. In a fodder-cutter, the combination of a knife-disk, with an adjacent knife-blade, intervening tube-posts, with main bolts connecting these parts together, adjusting cam-racks pivoted on the post, arms on the posts having corresponding rack-segments, and sub-bolts connecting the post-arms with the knife-disk. 80 85

7. In a fodder-cutter, the combination of a side plate having a horizontal slot therein, with a bearing having a tubular body entered in the slot, an eccentric disk on the bearing adjoining the plate, there being bosses on the face near the edge of the disk, vertical flanges on the plate in contact with the side edges of the disk, and a fixed button on the plate entered between the disk-bosses. 90 95

8. In a fodder-cutter, the combination of a side plate having a horizontal slot therein, with a bearing having a tubular body entered in the slot, an eccentric disk on the bearing adjoining the plate, and vertical flanges on the plate in contact with the side edges of the disk. 100

9. In a fodder-cutter, a trough-hinge comprising a hopper-plate having adjacent ears extending and depending from its free edge, there being a transverse journal-bar connecting the lower ends of the ears and the upper edges thereof being curved concentric with the bar, a trough-plate having adjacent tongues extending from its free edge, there being a depending transverse bearing on one tongue adapted to enter between the ears of the hopper-plate and to rotate on the journal-bar, the tongues being curved concentric with the bearing and being adapted to pass under the free edge of the hopper-plate, and a conveyer sprocket-chain adapted to travel on the hopper and trough plates. 105 110 115

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOSEPH DICK.

Witnesses:

HARRY FREASE,
JOSEPH FREASE.