March 20, 1928. 1,663,114

O. B. CLEMENS

FODDER CUTTER AND THE LIKE

Filed Jan. 15, 1927

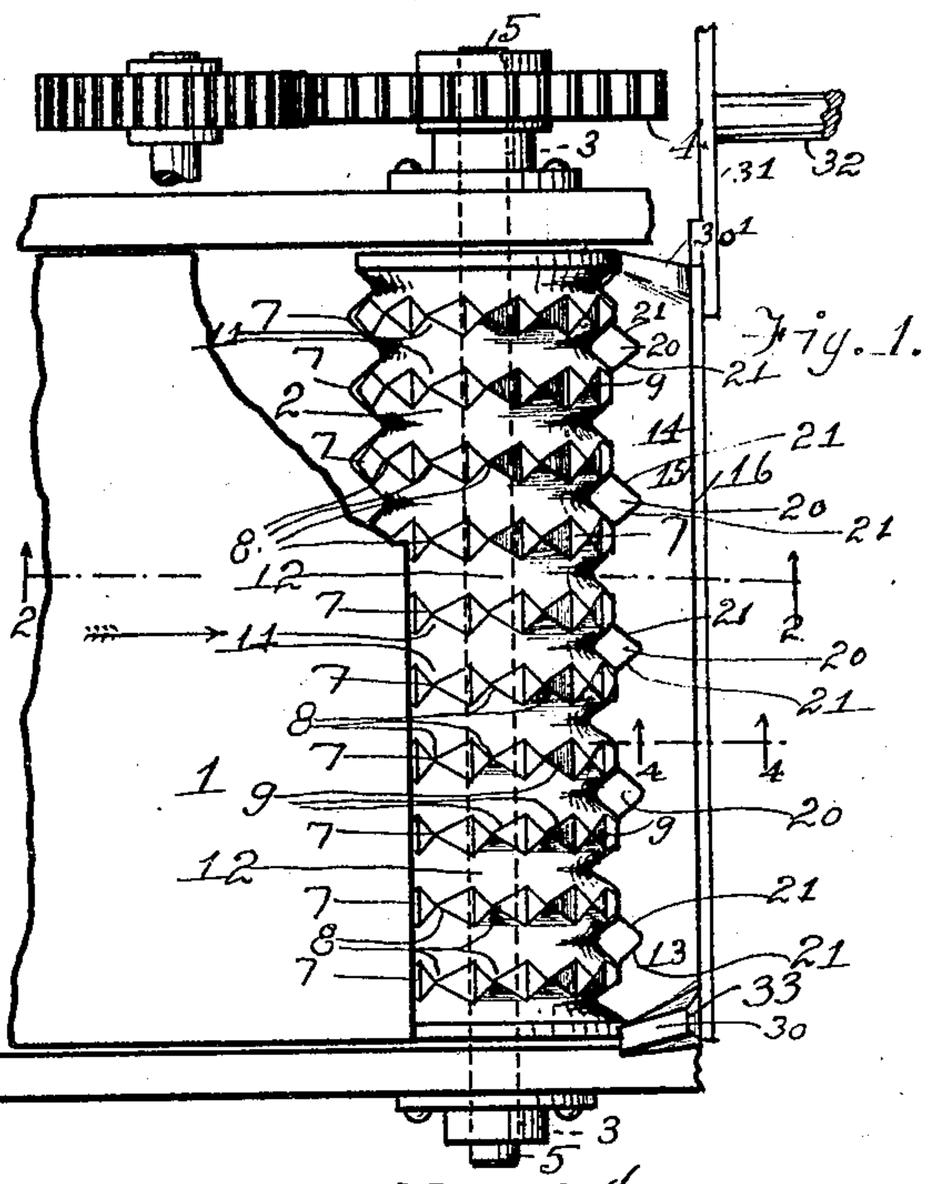


Fig. 1.

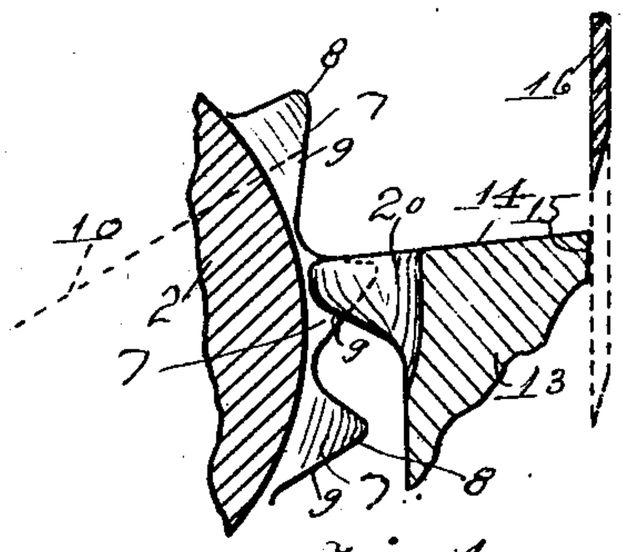


Fig. 4.

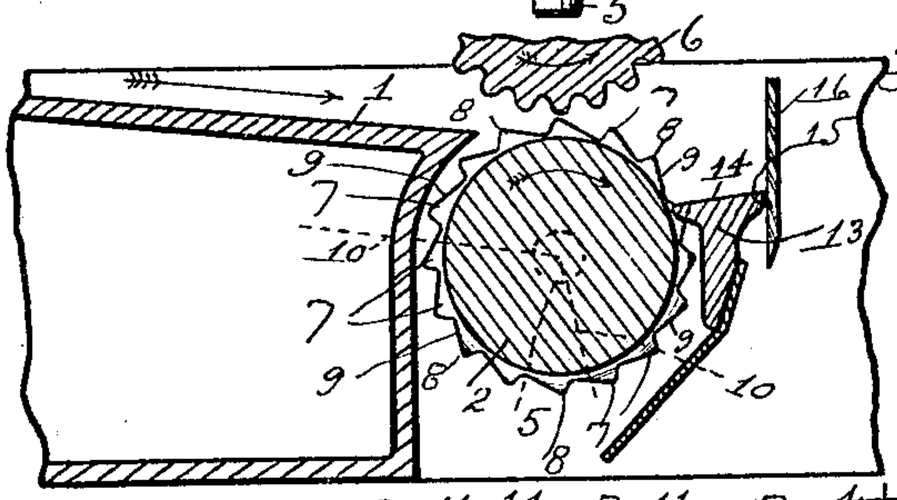


Fig. 2.

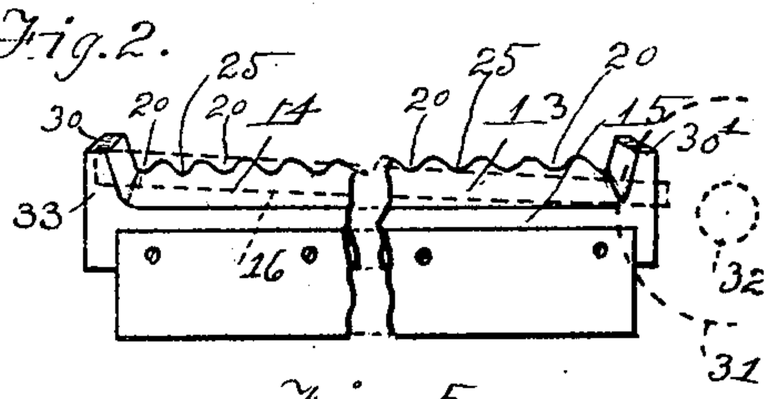


Fig. 5.

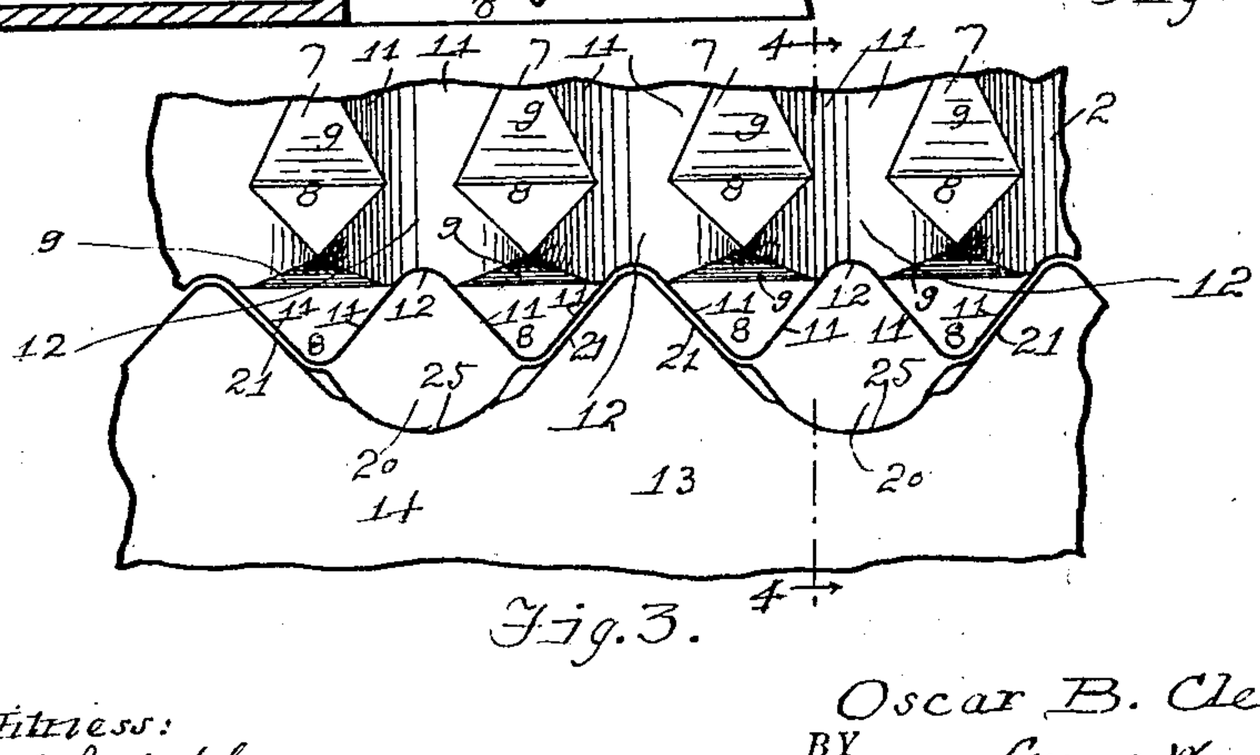


Fig. 3.

Witness:
Geo. L. Chapel

INVENTOR
Oscar B. Clemens
BY Cyrus W. Rice
ATTORNEY

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UNITED STATES PATENT OFFICE.

OSCAR B. CLEMENS, OF GRAND RAPIDS, MICHIGAN.

FODDER CUTTER AND THE LIKE.

Application filed January 15, 1927. Serial No. 161,266.

The present invention relates to fodder cutters and the like; and its object is to provide improved means for feeding the work to the cutting devices; and particularly, to provide such means whereby the work being thus fed may be somewhat compressed to better effect the cutting thereof; and further, to provide such an improved feeding means wherein the work may not clog or engage in such manner as to stop or hinder the feeding thereof.

These and any further objects hereinafter appearing are attained by, and the invention finds preferable embodiment in, the mechanism hereinafter particularly described in the body of this specification and illustrated by the accompanying drawings, in which:—

Figure 1 is a top plan view of a portion of a fodder cutting machine;

Figure 2 is a longitudinal sectional view thereof, and a transverse sectional view of a cooperating feeding roll, taken on a vertical plane corresponding to line 2—2 of Figure 1;

Figure 3 is a top plan view (enlarged) of portions of the said machine;

Figure 4 is a sectional view (also enlarged) of portions of some of the parts taken on a vertical plane corresponding to line 4—4 of Figures 1 and 3; and

Figure 5 is a rear view of the stationary blade of the cutting means of such a machine, and of connected parts.

In fodder-cutting machines and the like, the work is fed to the cutting devices usually by feeding rolls having projecting members or teeth moving by the roll's rotation through correspondingly shaped recesses in a stationary element or bar, so that the fodder, while being thus fed, is somewhat compressed to better effect the cutting thereof.

In such hitherto-known machines, the fodder is liable to clog or be so wedged between the roll's teeth and the sides of said recesses as to stop or at least delay or hinder the feeding of the work and the operation of the machine. The object of the present invention is to obviate this difficulty.

In the machine illustrated by the accompanying drawings, the fodder on the approximately horizontal platform 1 is moved into feeding engagement with the feeding element, the roll 2, which is rotated in its bearings 3 by any suitable means as the gear 4 carried by the shaft 5 of said element, and is feedingly engaged between this element 2 and a suitable cooperating roll 6. The feeding element or roll 2 has a plurality of series 7 of work-engaging members or teeth 8. The several series 7 are axially spaced apart, side by side, about the periphery of the roll 2; and the teeth or work-engaging members 8 composing each of the said series are angularly spaced apart, the forward faces 9 of these members 8 extending outwardly (i. e. from the axis of the roll 2) in a direction inclined relatively to the radii 10 which intersect said surfaces respectively; and the adjacent sides 11, 11 of adjacent series 7, 7 of these teeth or members 8 are inclined outwardly from each other; or, in other words, there is an annular groove 12, whose opposite sides (11, 11) incline outwardly from each other, between adjacent series 7, 7. A stationary element 13 having an approximately horizontal upper face 14 receives the fed work from the rolls 2, 6, and has at its rear the stationary cutting edge or blade 15 with which cooperates the movable cutting blade 16 to sever the fodder into lengths or separate pieces. This element 13 has its opposite or forward edge, adjacent the feeding element or roll 2, provided with a serration comprising recesses 20 whose sides 21 are inclined from each other toward said forward edge.

The work is somewhat compressed in its feeding movement, between the forward faces 9 of the teeth or members 8 of the roll 2 and the upper surface of the bar or element 13, and in such compressed or compacted condition is more effectively operated on by the cutting means 15 and 16.

In order to prevent the work in its feeding and compacting movement from being pressed down and wedging between the sides 11 of the teeth or members 8 and the adjacent sides 21 of the recesses 20 (thus clogging or stopping the operation of the machine), the recesses 20 comprise not only the sides 21 (with which compressingly cooperate the forward faces 9 of the teeth 8 at their sides 11) but comprise also another or farther portion spaced away from the teeth 8 sufficiently that the work cannot wedge between such portion and said teeth, but will be pushed by the feeding roll 2 along the upper surface 14 of the bar or element 13. Such space is provided, in the con-

struction shown, by forming the recesses 20 wide enough to receive two series 7 of the teeth 8 so that the groove 12 between said two series, particularly when taken in conjunction with the concave bottom 25 of the recess 20 affords such a sufficient space between the bar 13 and the teeth 8, as will cause the fed work (although sufficiently compacted at the sides 21 of the recesses) to be pushed along on the upper surface 14 of the bar 13.

In fodder cutting machines hitherto known, both sides 11 of the teeth 8 pass in the rotation of the roll 2 so near the inclined sides 21 of recesses in the bar 13, and the outer extremities of these teeth pass so near the bottom of the recesses (such recesses receiving only one series of teeth), that the compressing action of the teeth on the work occurs at both sides of the teeth's forward faces and at their outer extremities, thus (there being no relief from such compressing action at any point along the edge of the recesses) the result follows that the work frequently wedges between the compressing agents—the teeth 8 and the edge of the recesses in the bar 13.

Upwardly extending side flanges 30, 30′ guide and retain the work against sidewise displacement. Inasmuch as the blades 16 are preferably carried by a head 31 on the rotatable shaft 32 and extend in such approximately radial direction (indicated in dotted lines in Figure 5) as to exert a shearing action on the work between the blades 15, 16, the tendency of the blade 16 to push the work laterally toward the flange 30 and thus wedge the same between the blade 16 and the rear end 33 of said flange is resisted by said flange 30.

The invention being intended to be pointed out in the following claims, is not to be limited to or by details of construction of any particular embodiment thereof illustrated by the accompanying drawings or hereinbefore described.

I claim:

1. In mechanism of the character described: a rotatable feeding element having a plurality of axially spaced series of angularly spaced radially extending work-engaging members, the adjacent sides of adjacent series being outwardly inclined from each other and the forward surfaces of said members being outwardly and rearwardly inclined relatively to the intersecting radii respectively of said element; an element having an edge adjacent said feeding element provided with a serration comprising recesses having sides inclined from each other toward said edge and cooperating with the non-adjacent sides of a pair of said series to compress between said elements the work in its feeding movement.

2. In mechanism of the character described: a rotatable feeding element having a plurality of axially spaced series of angularly spaced radially extending work-engaging members, the adjacent sides of adjacent series being outwardly inclined from each other and the forward surfaces of said members being outwardly and rearwardly inclined relatively to the intersecting radii respectively of said element; an element having an edge adjacent said feeding element provided with a serration comprising recesses having sides inclined from each other toward said edge and cooperating with the sides of said series to compress between said elements the work in its feeding movement, the recesses having bottoms spaced farther from the outer extremities of said members cooperating therewith than the sides of said members are spaced from the adjacent sides of the recesses.

3. In mechanism of the character described: a rotatable feeding element having a plurality of axially spaced series of angularly spaced radially extending work-engaging members, the adjacent sides of adjacent series being outwardly inclined from each other and the forward surfaces of said members being outwardly and rearwardly inclined relatively to the intersecting radii respectively of said element; an element having an edge adjacent said feeding element provided with a serration comprising recesses having sides inclined from each other toward said edge and cooperating with the sides of said series to compress between said elements the work in its feeding movement, the recesses having concave bottoms spaced farther from the outer extremities of said members cooperating therewith than the sides of said members are spaced from the adjacent sides of the recesses.

4. In mechanism of the character described: a rotatable feeding element having angularly spaced radially extending work-engaging members; an element having a recess through which said members pass in the feeding element's rotation, the recess having sides cooperating with said members to compress the work in its feeding movement and having also a bottom portion spaced farther from the outer extremities of said members cooperating therewith than the sides of said members are spaced from the adjacent sides of the recess.

In testimony whereof I have hereunto set my hand at Grand Rapids, Michigan, this 11th day of January, 1927.

OSCAR B. CLEMENS.