No. 869,799. PATENTED OCT. 29, 1907.

W. OSTER.

MOWING MACHINE.

APPLICATION FILED JUNE 14, 1907.

4 SHEETS—SHEET 1.

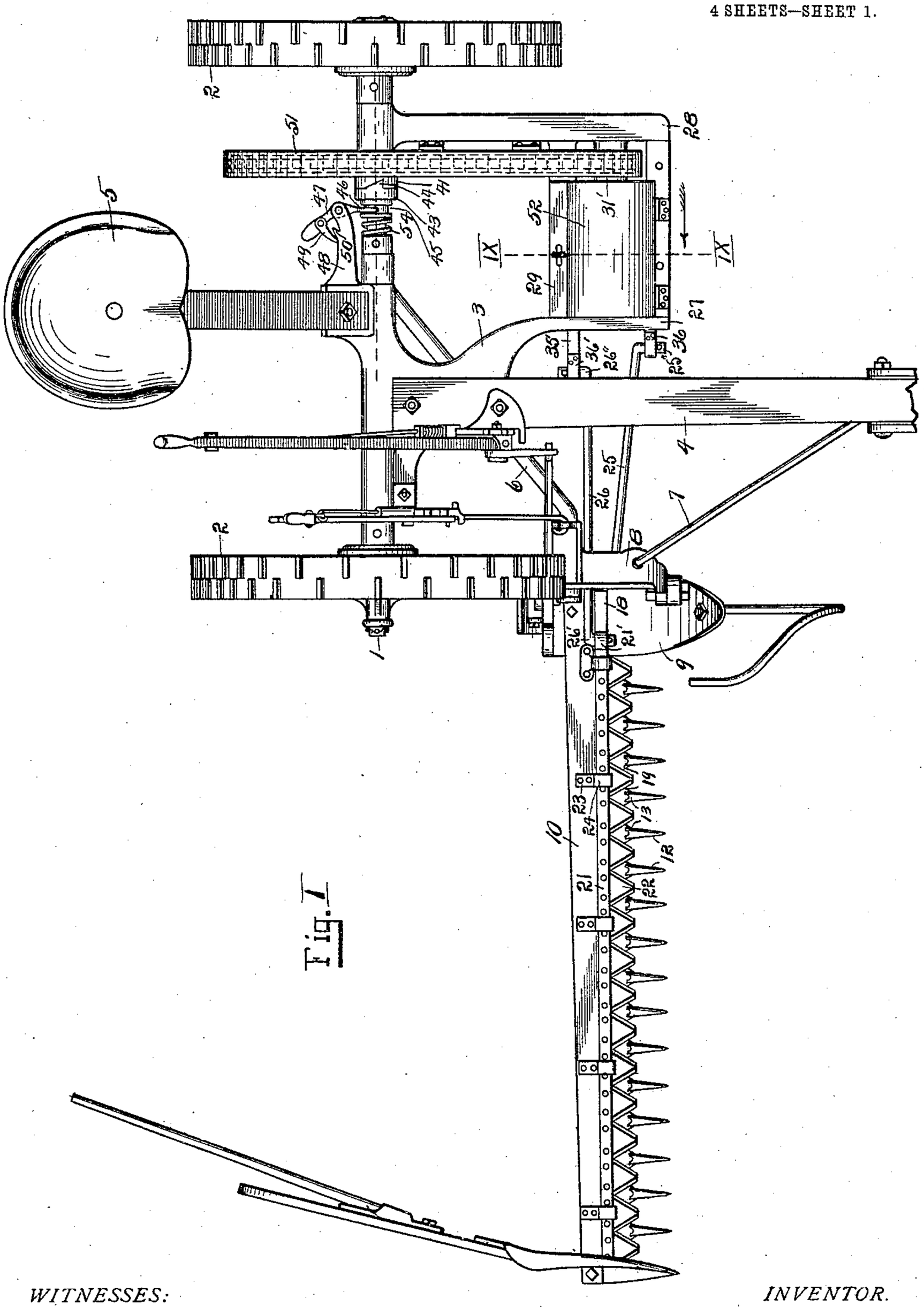

Fig. 1.

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4 SHEETS—SHEET 2.

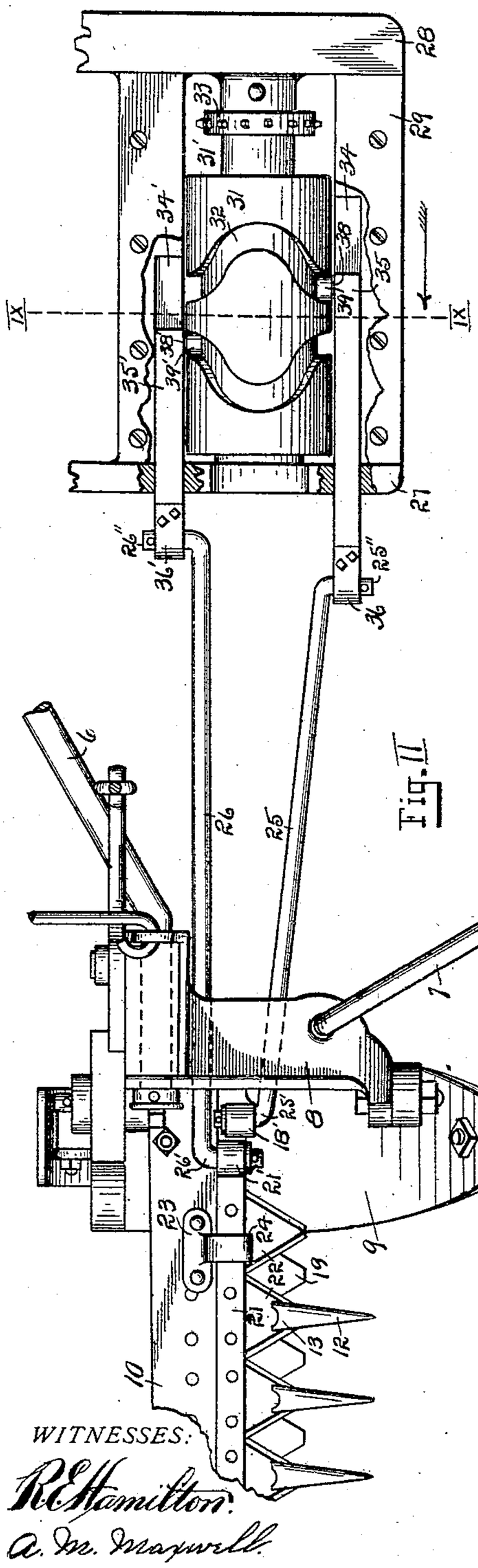

Fig. II

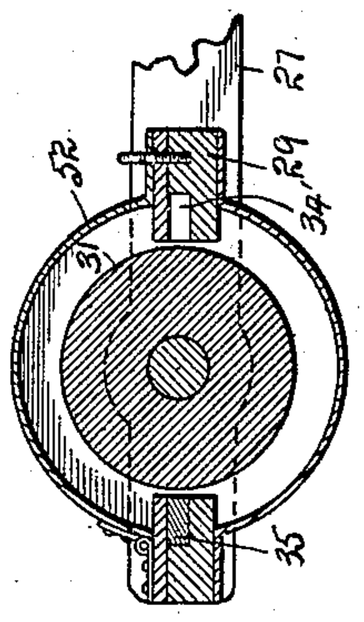

Fig. IX

Fig. III

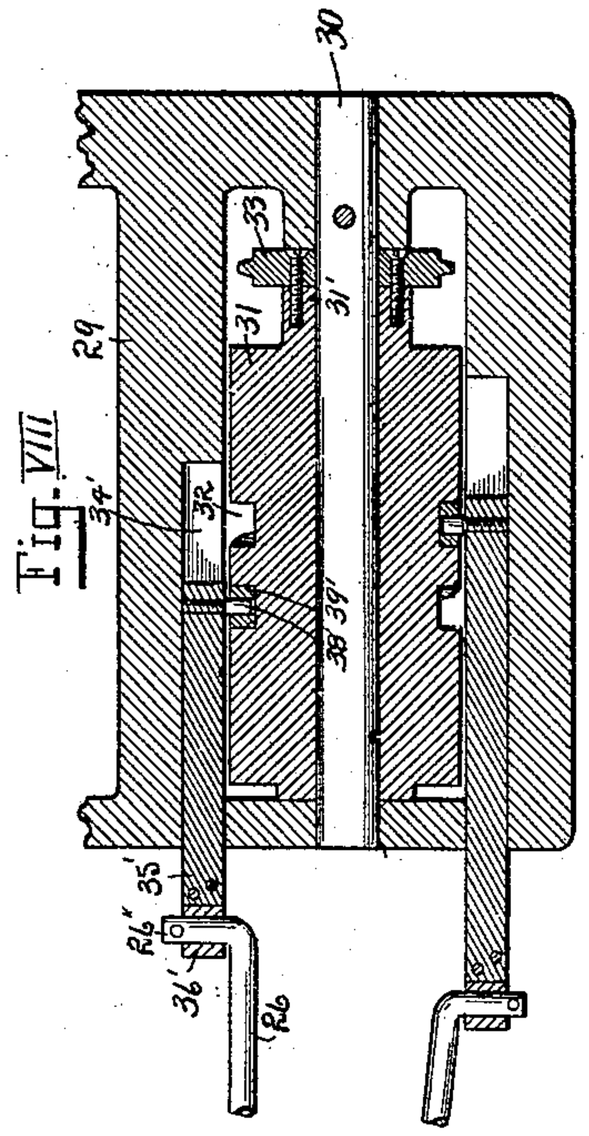

Fig. VIII

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4 SHEETS—SHEET 3.

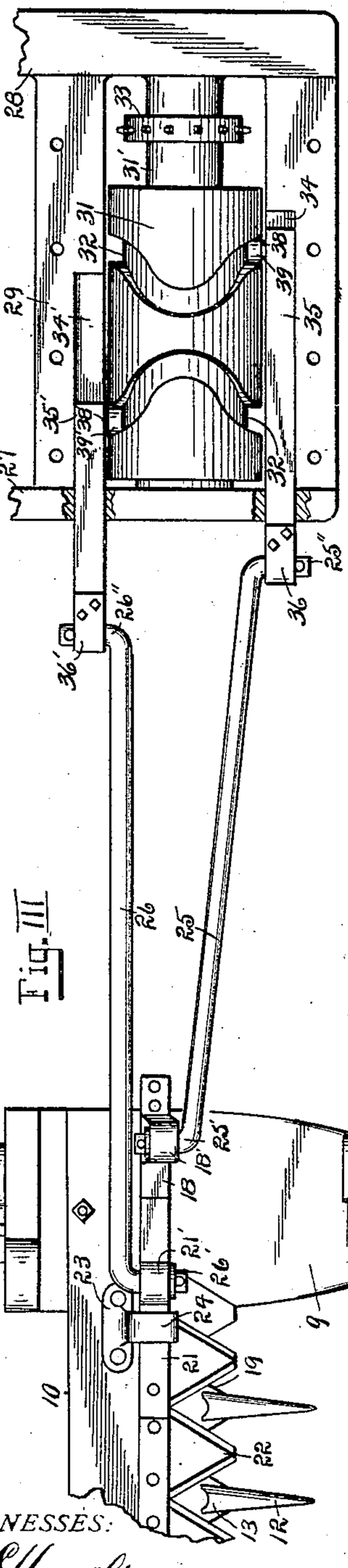

Fig. III

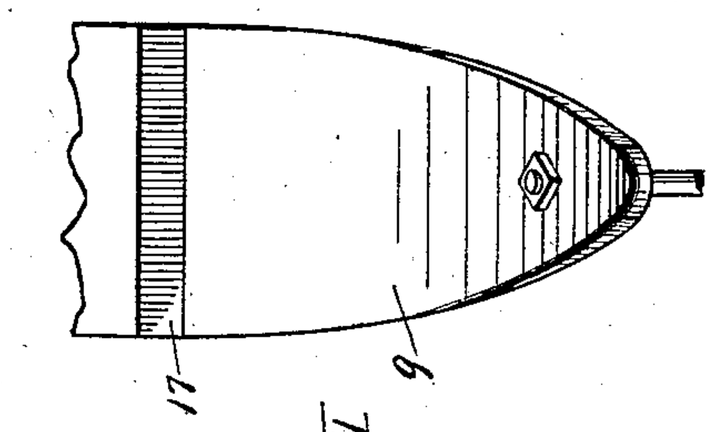

Fig. VI

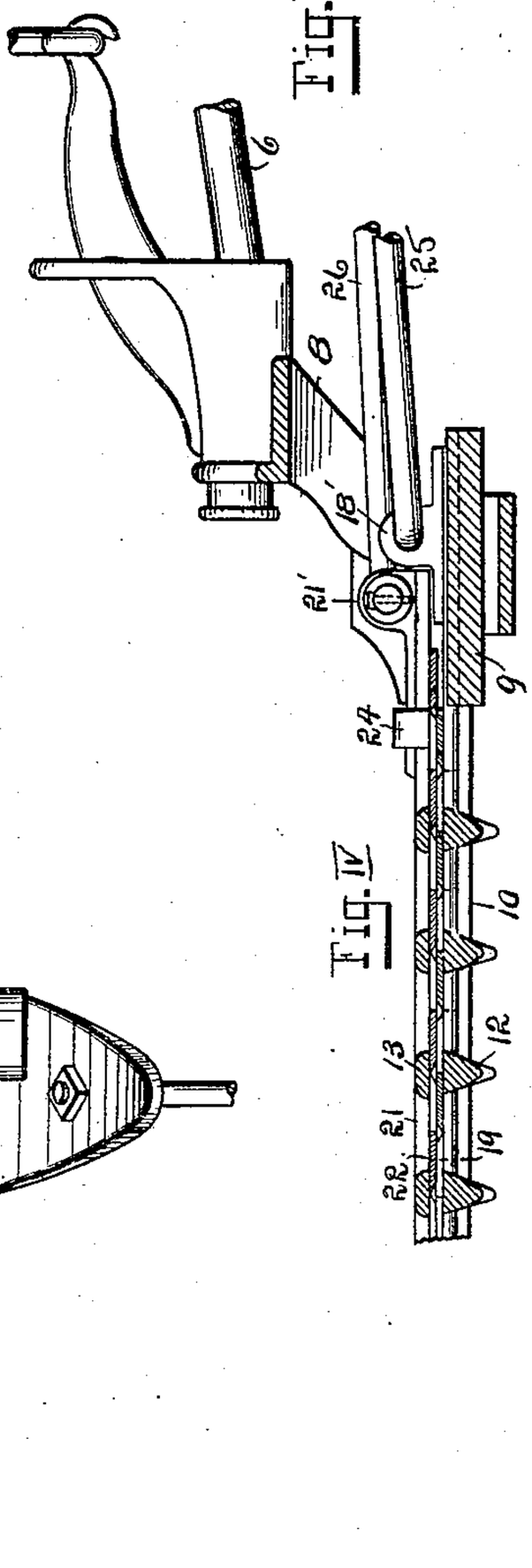

Fig. IV

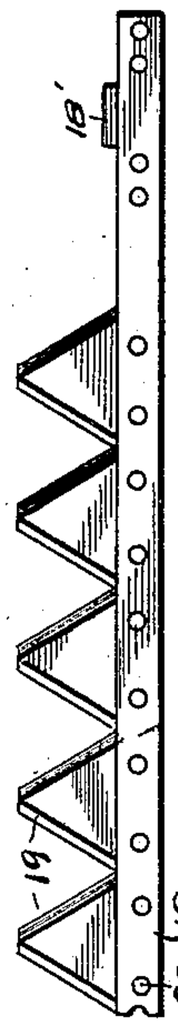

Fig. VII

Fig. V

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4 SHEETS—SHEET 4.

Fig. X

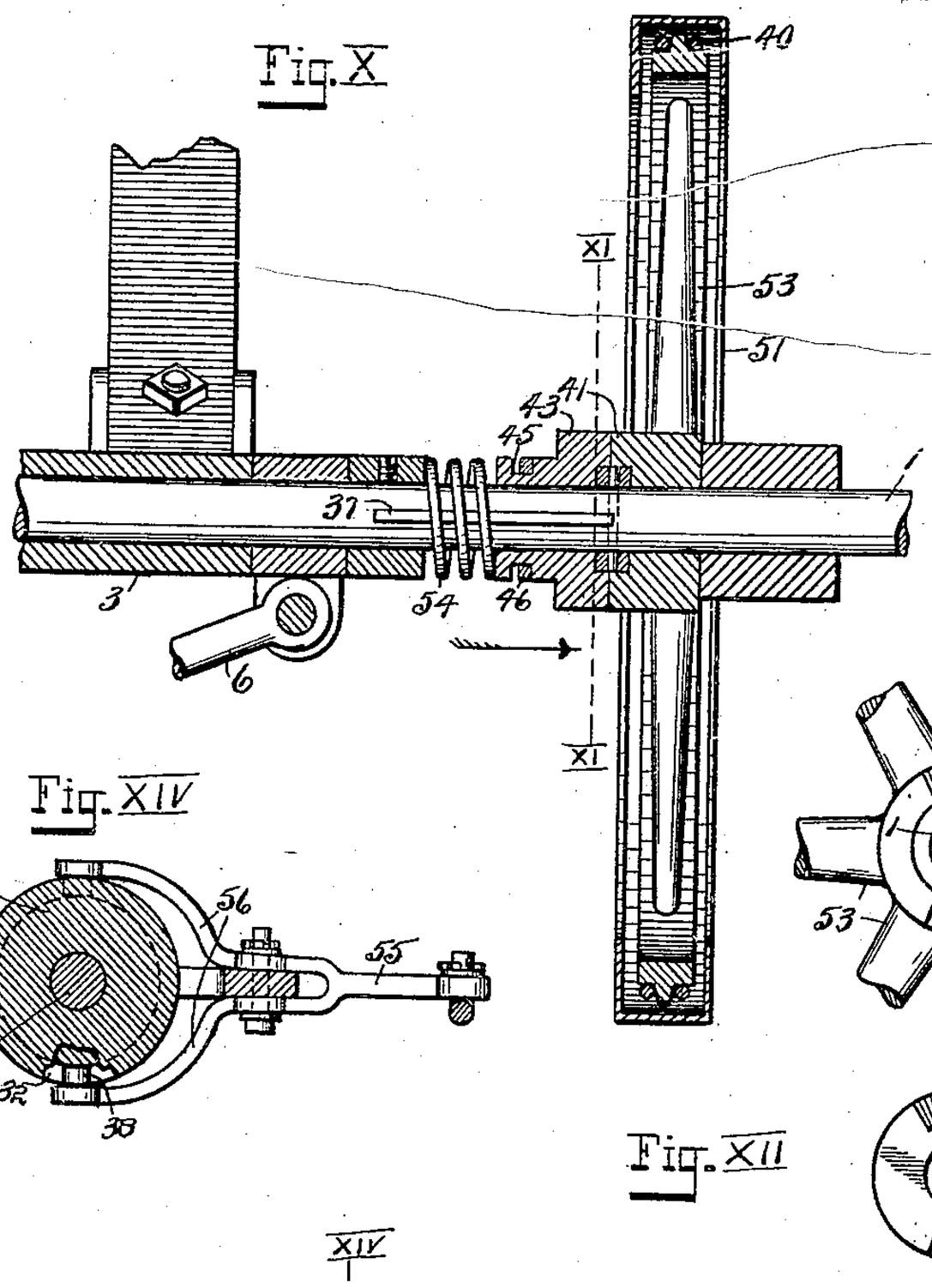


Fig. XI

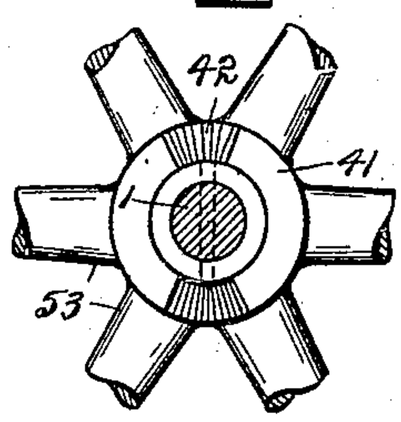


Fig. XIV

Fig. XII

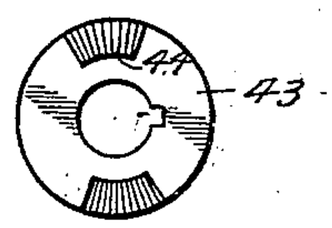
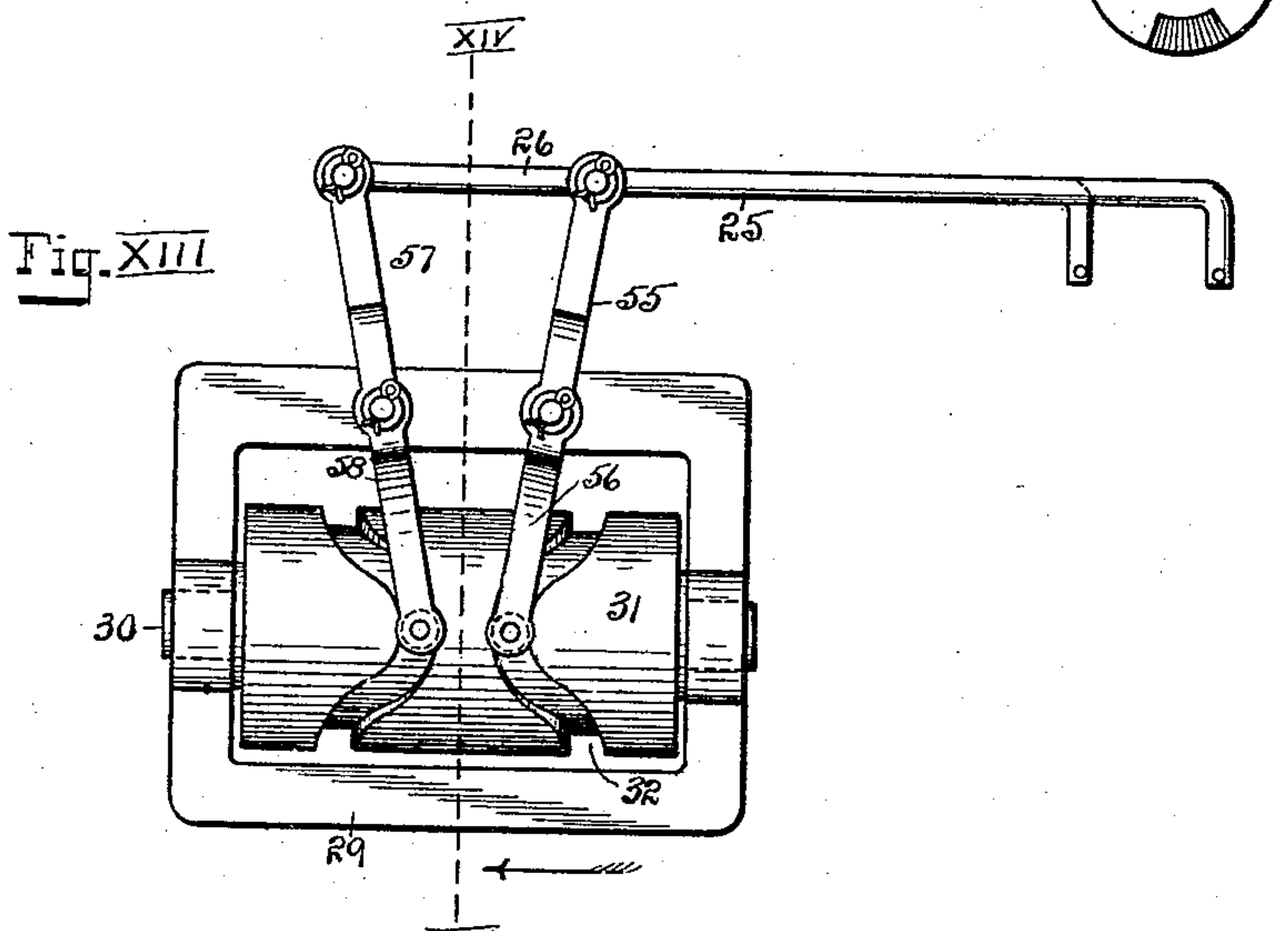


Fig. XIII



XIV

WITNESSES:

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UNITED STATES PATENT OFFICE.

WILLIAM OSTER, OF CALDWELL COUNTY, MISSOURI.

MOWING-MACHINE.

No. 869,799. Specification of Letters Patent. Patented Oct. 29, 1907.

Application filed June 14, 1907. Serial No. 378,913.

To all whom it may concern:

Be it known that I, WILLIAM OSTER, a citizen of the United States, residing in the county of Caldwell and State of Missouri, have invented certain new and useful Improvements in Mowing-Machines; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

My present invention relates to a mowing machine, and has for its object to provide a device of that class having a double sickle knife, an improved means for actuating said knife, and other improved details of structure which will presently be fully described and pointed out in the claims, reference being had to the accompanying drawings forming a part of this specification, in which like reference numerals refer to like parts throughout the several views, and in which,—

Figure I is a top plan view of a mowing machine constructed according to my invention. Fig. II is an enlarged detail view in top plan of a portion of the double sickle knife, and the knife actuating mechanism. Fig. III is a similar view with the shoe carrying parts removed. Fig. IV is a view in front elevation of a portion of the knife bar, and shoe, the knife guards being in vertical section to better illustrate the knife members. Fig. V is an enlarged detail view of one of the knife guards in side elevation, and a cross section of the double knife parts. Fig. VI is a top plan view of a portion of the knife shoe showing the channel in which the knife bar travels. Fig. VII is a top plan view of a portion of the knife bar. Fig. VIII is a central horizontal, sectional view of the driving cylinder and driving links. Fig. IX is a sectional view of the cylinder on the line IX—IX, Fig. I. Fig. X is an enlarged detail view in vertical section of the driving axle and clutch mechanism. Fig. XI is a detail view of the wheel hub on the line XI—XI, Fig. X. Fig. XII is a similar view of the clutch hub. Fig. XIII illustrates a modified form of the driving cylinder. Fig. XIV is a sectional view of same on the line XIV—XIV, Fig. XIII.

Referring more in detail to the parts,—1 represents the main axle, which carries the usual traction wheels 2, and the machine frame 3, upon which latter is mounted a tongue 4 and seat 5.

Supported by an arm 6, extending from frame 3 and a rod 7 on tongue 4 is a bracket 8, from which is pivotally supported the shoe 9.

Rigidly secured to, and projecting laterally from shoe 9 is a cutter bar 10, to the under side of which are secured the shanks 11 of the forwardly projecting guards 12, said guards being provided with the usual lips 13, which extend rearwardly over the knife sections, and between which and the body of the guard is a recess 14, through which the forward ends of said sections travel.

Each of guards 12 has a groove 15 extending for a short distance immediately in front of the cutter bar 10, and is provided with a lug 16 upon which my lower knife bar travels during its reciprocating movement as will be described.

Fitting within groove 15 in the guards 12, and within a groove 17 in shoe 9, and adapted for free reciprocal movement therein is a knife bar 18, and rigidly secured on the upper surface of said bar are the knife sections 19; the heads of the bolts 20, by means of which said sections are secured to the bar, being countersunk in the knives in order that the top surface formed by the surface of the abutting sections may form a smooth unbroken surface, upon which a second knife bar 21 may travel.

Bar 21 is of the same construction and size as bar 18, and has rigidly secured to its under surface the knife sections 22, which rest on and work in contact with the sections 19 on the lower bar, as will be described, the bolts securing section 22 to bar 21, being also countersunk to provide a smooth bearing surface on section 19.

23 are brackets carried by the cutter bar 10, and having the fingers 24, which extend over the top of bar 21 and depend in front of said bar, and serve as guides or keepers to retain bar 21 in its proper path, when the machine is in operation.

The knife sections 19 and 22 are of the customary construction, and arranged with their flat faces in contact with each other, and the edges beveled inwardly away from the meeting faces so that the proper cutting effect may be secured.

On the inner end of each of the knife bars is an eye-lug 18′—21′, and revolubly mounted in said lugs are the crank arms 25′—26′ of the pitman rods 25—26.

Supported between arms 27 and 28, or by other suitable means on frame 3 is a cylinder casing 29, and rigidly mounted in said casing is a shaft 30, which extends transversely to the machine and in line with the knife bars.

Revolubly mounted on shaft 30 is a cylinder 31 in which are sunk a pair of cam grooves 32, said grooves extending in irregular paths around the cylinder in substantially the lines shown in Figs. 2—3, with the cam swells of the separate grooves directly opposed to each other, as shown, and for the purpose presently set forth.

In frame 28, at each side of cylinder 31 are the grooves 34—34′, and adapted to travel in said grooves are the pitman links 35—35′, said links being provided at their outer ends with the eye-members 36—36′, within which are revolubly mounted the crank members 25″—26″ of pitmen 25—26.

On the inner ends of the links 35—35′ are pins 38—38′ on which are revolubly mounted the rollers 39—39′, which travel in the cam grooves 32 in cylinder 31.

Rigidly secured on cylinder 31 or a neck 31′, projecting from one end thereof, is a sprocket wheel 33, and extending over wheel 33, and over a sprocket wheel 53, revolubly mounted on the main axle 1, is a sprocket chain 40.

Wheel 53, as stated, is revolubly mounted on the main axle, but is provided with a hub 41, having clutch sockets 42 facing a sleeve 43 which is provided with the clutch pawls 44. Sleeve 43 is normally held in yielding engagement with the hub of wheel 53 by means of a spring 54 and is keyed against revolution on axle 1 by means of the longitudinally disposed rib 37 on said axle.

In sleeve 43 is a peripheral groove 45, and projecting into said groove, and straddling the body of the collar is a yoke 46, which forms one arm of a lever 47, which is pivoted on bracket 48, forming part of, or rigidly secured to the machine frame.

On the free end of lever 47 is a pawl 49, adapted to engage in the notch 50 in bracket 48 to retain the clutch sleeve 43 out of contact with the hub of wheel 53 to prevent the operation of the cylinder while the machine is in motion, if so desired.

51 is a guard covering the sprocket wheels and chain, and 52 is a removable cap for covering the driving cylinder.

The machine is provided with the usual shifting levers, and track clearer, which I have not specifically described, as they form no part of my invention, their use being well known, and the parts found on any machine of this class.

The modification of the cylinder drum and pitman links, shown in Figs. 13 and 14 show links 55 pivoted to the cylinder case, and having the yokes 56 extending on each side of the drum, and provided with the pins and rollers as in the main view.

When the machine is in operation the cutter bar is adjusted to the desired height by raising or lowering the shoe 9 in the usual manner, and the axle clutch thrown into engagement with the hub of the driving sprocket wheel as previously set out.

As the machine moves forward, the cam cylinder is revolved by means of chain 40, and the cylinder revolved on the shaft 30.

During the revolution of the cylinder the wheels on the pins 38—38′ of the pitman links travel in the cam grooves, and as the grooves are set in a tortuous course, the links are moved backward and forward as the wheels 39—39′ follow the cam paths, and owing to the cam swells being opposed to each other, the links are moved in opposite directions.

The backward and forward movements of the pitmen produce like reciprocating movements of the knife bars, the lower bar moving outwardly as the upper bar is retracted so that the opposite cutting edges of the sections on the separate bars approach each other at each inward and outward stroke.

With a machine equipped with a double moving knife, as described, the number of cutting strokes made during the travel for a certain distance is greater than with a machine having a single moving knife, so that the working capacity of the machine is increased and the strain on the parts reduced owing to the fact that a less quantity of hay or grain is cut at each stroke of the knives.

The improvements noted for increasing the working capacity are simple and economical both in construction and operation, and may be substituted if desired, for similar parts on old machines.

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

1. In a mowing machine the combination with a suitable truck and running gear; of a casing carried by said truck and provided with an interior chamber and recesses in said casing at the sides of and communicating with said chamber; a cylinder revolubly mounted in said casing with its axis parallel with said recesses and provided with peripheral cam grooves; knife bars; pitmen on said knife bars having slide bars adapted to travel in said casing recesses; and studs projecting from said slide bars into the cylinder cam grooves; substantially as and for the purpose set forth.

2. In a mowing machine, the combination with a suitable truck and running gear; of a revoluble cylinder having a pair of oppositely disposed cam grooves in its periphery; a casing inclosing said cylinder comprising a body portion having grooves parallel with said cylinder and opening through one of the body ends, and a cover adapted for inclosing said cylinder; a pair of knife bars; pitmen on said knife bars; slide bars connected with said pitmen and adapted for travel in the casing grooves; and roller bearings projecting from said slide bars into the cylinder cam groves; substantially as and for the purpose set forth.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM OSTER.

Witnesses:
J. W. GLICK,
A. E. STILLWELL.