

(No Model.)

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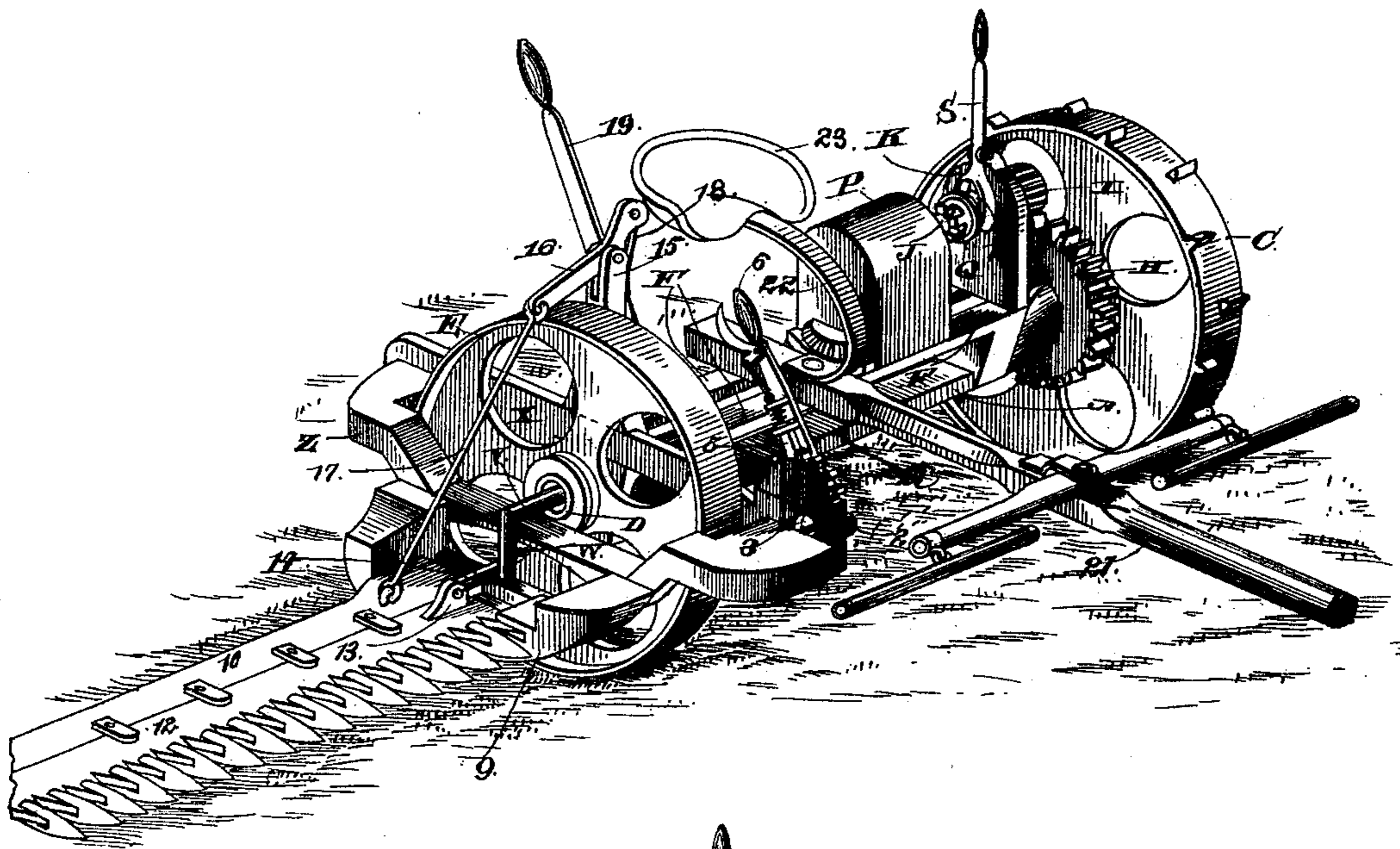
P. & L. P. LORENZ.

MOWING MACHINE.

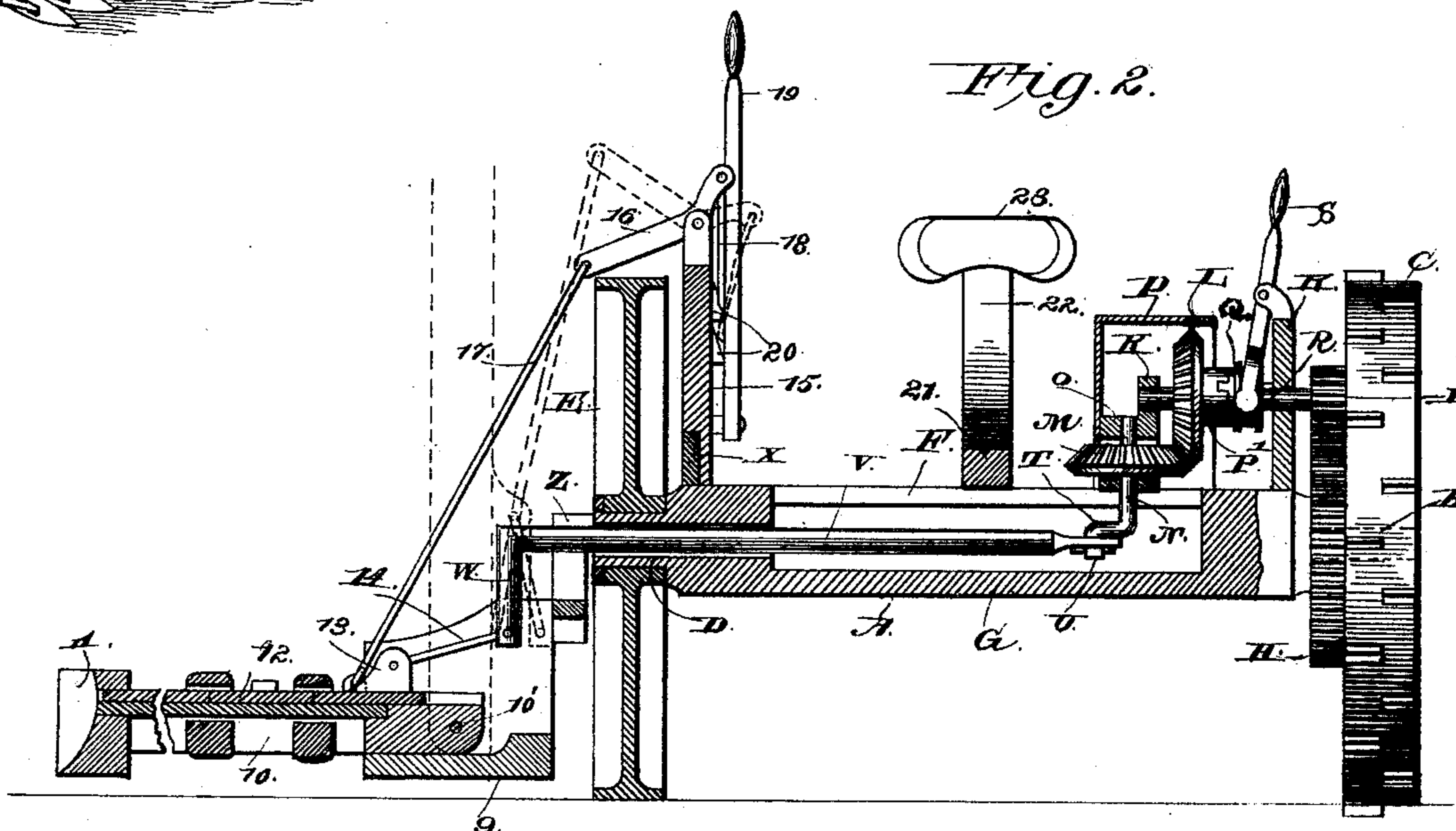
No. 414,063.

Patented Oct. 29, 1889.

*Fig. 1.*



*Fig. 2.*



Witnesses

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By ~~their~~ Attorneys,

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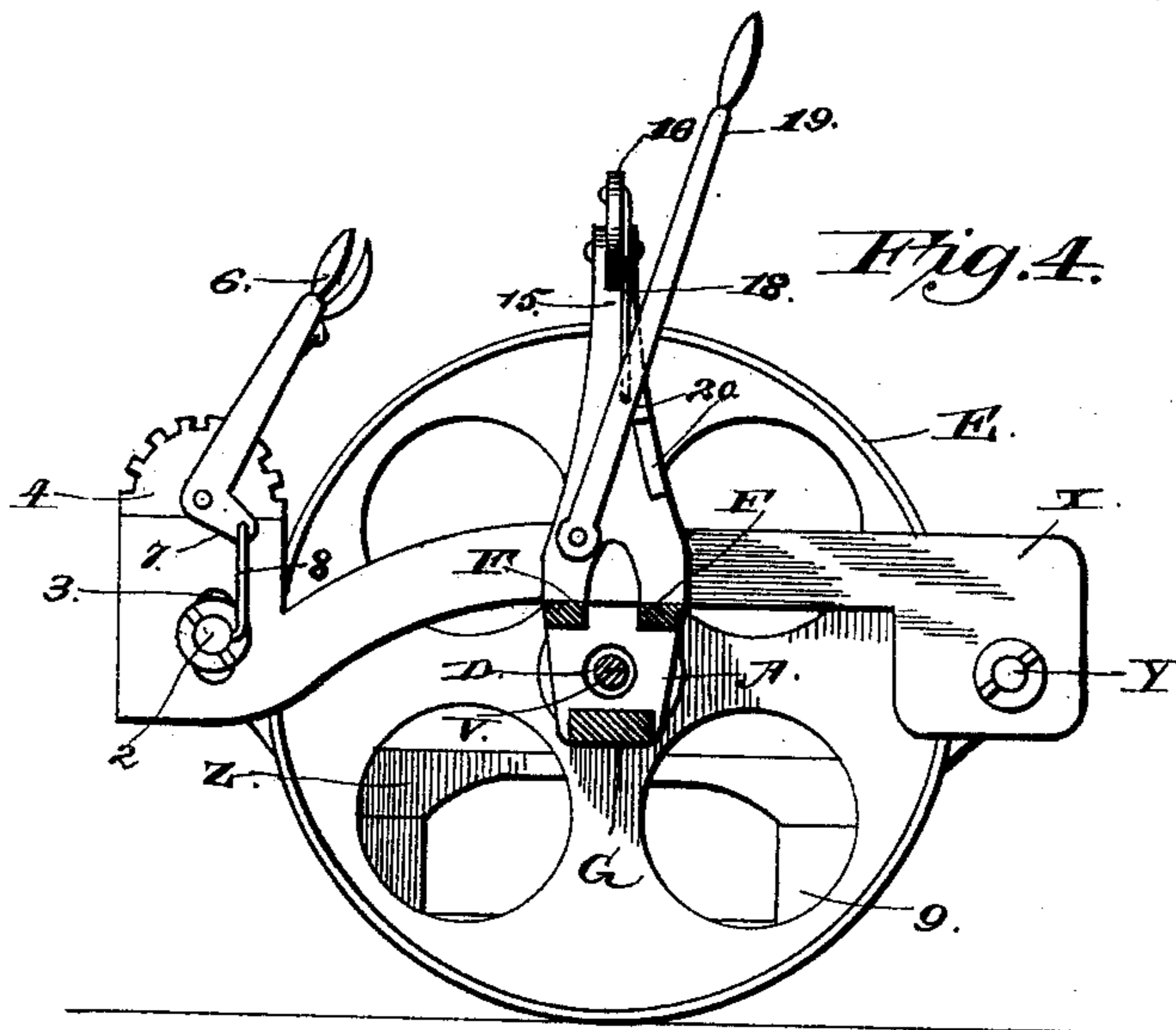
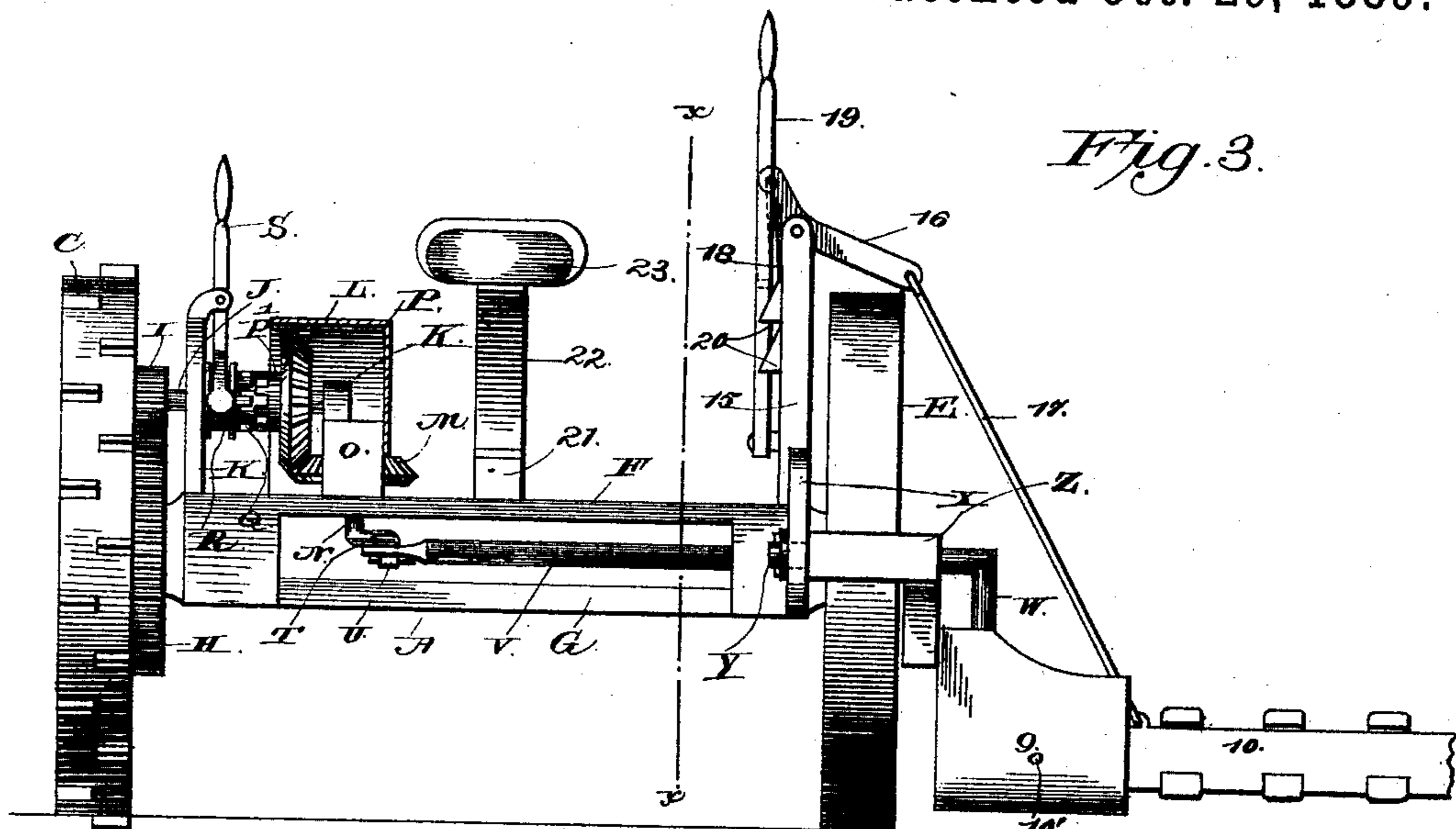
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# UNITED STATES PATENT OFFICE.

PHILIP LORENZ AND LEWIS P. LORENZ, OF RIMERSBURG, PENNSYLVANIA.

## MOWING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 414,063, dated October 29, 1889.

Application filed May 16, 1889. Serial No. 310,951. (No model.)

### *To all whom it may concern:*

Be it known that we, PHILIP LORENZ and LEWIS P. LORENZ, citizens of the United States, residing at Rimersburg, in the county of Clarion and State of Pennsylvania, have invented a new and useful Mowing-Machine, of which the following is a specification.

This invention relates to mowing-machines; and it has for its object to construct a machine of this class which shall be simple, inexpensive, and durable, and which may conveniently pass over stumps and other obstructions which may be encountered in the course of its passage over the fields.

The invention consists in the improved construction, arrangement, and combination of details, which will be hereinafter fully described, and particularly pointed out in the claims.

In the drawings, Figure 1 is a perspective view of a mowing-machine embodying our improvements. Fig. 2 is a transverse sectional view of the same, with dotted lines showing the cutter-bar raised to a vertical position. Fig. 3 is a rear elevation. Fig. 4 is a longitudinal sectional view taken on the line *x x* in Fig. 3.

The same letters refer to the same parts in all the figures.

The frame of our improved mowing-machine comprises the axle A, which is provided at one end with a spindle B for the drive-wheel C, and at its opposite end with a tubular spindle D, upon which is journaled a supporting-wheel E. The axle, which may be constructed of iron or steel, is composed of two upper bars F F and a lower brace or truss rod G, which together form a very strong and durable axle, and between which space is afforded for certain parts of the operating mechanism, as will be hereinafter more fully described.

The drive-wheel C is provided on its inner side with a driving-gear H, which meshes with a pinion I, mounted upon a shaft J, which is journaled in brackets or boxes K K, extending upwardly from the axle adjacent to the spindle B. The inner end of the shaft J carries a bevel-gear L, which meshes with a pinion M, mounted upon the outer end of a shaft N, which is journaled vertically in a bracket O, secured upon the upper side of

the axle. A cap P, suitably hinged to the rear side of the axle, serves to cover and protect the operating-gears when the machine is in motion. The bevel-gear L is mounted loosely upon the shaft J, and it is provided on its inner side with a clutch P', adapted to engage a clutch-collar Q, feathered and sliding loosely upon the shaft J. Said clutch-collar is provided with an annular groove R, engaging with the lower end of a forked lever S, which is pivoted to one of the brackets K, and by means of which the clutch-collar Q may be thrown into or out of engagement with the clutch P' upon the bevel-gear L, to which motion may thus be imparted from the driving-wheel at the will of the operator. Formed upon the lower end of the vertical shaft N is a crank T, having a wrist-pin U, which is connected pivotally with the transversely-reciprocating rod or pitman V, which extends through the tubular sleeve or spindle D at the opposite end of the axle, and is provided with a downwardly-extending arm W. The tubular sleeve or spindle is made sufficiently large to allow for the lateral movement of the pitman.

X designates a bracket, which is secured longitudinally, with respect to the line of motion, upon the end of the axle having the tubular spindle D, and provided at its rear end with a bearing for a spindle Y, extending laterally from the adjusting-frame Z, the front end of which is likewise provided with a spindle 2, extending laterally through a segmental slot or opening 3 in the front end of the bracket X. The latter is provided on its upper side with a segmental rack 4, adapted to be engaged by a spring bolt or latch 5, attached to a lever 6, which is mounted pivotally upon the inner side of the bracket X, and which is provided at its lower end with an arm 7, the outer end of which is connected by a pivoted rod 8 with the spindle 2. It will be seen that by this mechanism the front end of the adjusting-frame may be adjusted vertically and retained securely at any elevation to which it may be adjusted. The adjusting-frame is provided at its lower end with the shoe 9, in which the finger-bar 10 of the cutting apparatus is mounted pivotally upon a longitudinal pin or bolt 10'. The outer end of the said finger-bar is provided

with the shoe 11, which is of ordinary construction, and the said finger-bar is provided with suitable bearings for the transversely-reciprocating cutter-bar 12. The latter is  
5 provided at its inner end with a bracket 13, which is connected with the downwardly-extending arm W of the transversely-reciprocating rod V by means of a link or pitman 14.

15 is a standard rising vertically from the  
10 end of the axle adjacent to the tubular spindle D, and provided at its outer end with a bearing in which a bell-crank lever 16 is pivotally mounted. The outer arm of said bell-crank is connected with the finger-bar 10 by  
15 means of a link or pivoted connecting-rod 17, and the upper or vertical arm of said bell-crank is likewise connected, by means of a pivoted rod 18, with a hand-lever 19, which  
20 is connected pivotally to the side of the standard 15, and adapted to engage any one of a series of ratchets 20, formed upon the said standard. It will be seen that by manipulating the said hand-lever the finger-bar may  
25 be raised or elevated to and retained in an approximately vertical position, as shown in dotted lines in Fig. 2 of the drawings. When  
in this position, the entire weight of the cutting apparatus rests in the shoe 9 of the adjusting-frame Z, which latter may be elevated  
30 sufficiently to clear the ground by means of the adjusting mechanism herein described, thereby enabling the machine to be conveniently transported from place to place.

21 designates the tongue of our improved  
35 mowing-machine, which is bolted or otherwise suitably secured upon the upper side of the axle, and which is provided with suitable means for the attachment of the draft. Suitably mounted upon the said tongue is the  
40 seat-bar 22, the upper end of which carries the seat 23 for the driver and operator, who, it will be observed, is within convenient reach of the levers S, 6, and 19, by means of which the various parts of the machine are ad-  
45 justed for operation.

The operation and advantages of our improved mowing-machine will be readily understood from the foregoing description, taken  
50 in connection with the drawings hereto annexed. When the driving-wheel C rotates, the gear-wheel H upon its inner side meshes with the pinion I upon the shaft J, to which a rotary motion is thus transmitted, which  
may in turn be imparted to the loose pinion  
55 L by means of the clutch mechanism controlled by the lever S. From the pinion L motion is transmitted to the crank-shaft N, and from thence, through the transversely-reciprocating pitman V and link 14, to the trans-  
60 versely-reciprocating cutter-bar 12. It will be observed that by manipulating the lever S the cutting mechanism may be instantaneously thrown into or out of gear, as occasion may require. The height of the cutting  
65 apparatus from the ground may be regulated by properly adjusting the front end of the adjusting-frame Z, in which the cutting ap-

paratus is mounted, and this may be readily accomplished by means of the lever 6. When  
the machine is to be transported over the 70 roads, and when the cutting apparatus is not in use, it may be raised to and retained in a vertical position by means of the lever 19, such adjustment being made possible owing  
75 to the flexible or link connection between the reciprocating cutting-bar and the arm W of the pitman V. It will be observed that no part of the operating mechanism is located below the axle of the machine, and that by  
80 reason of this construction the machine is enabled to clear and pass freely over any obstructions—such as rocks and stumps—which may be encountered in its passage over the  
85 field. The herein-described construction of the axle within which the operating-pitman is located is also efficient in guarding and protecting the operating mechanism from injury. The general construction is simple and inex-  
90 pensive, and, the machine consisting of comparatively few parts, there is but little friction to overcome, and hence the draft of our improved machine will be found to be very  
light in proportion to its capacity.

While we have in the foregoing described the preferred construction of our improved  
95 mowing-machine, we reserve the right to any modifications which may be resorted to without departing from the spirit of our invention.

Having thus described our invention, we  
claim—

100 1. The combination of the axle having the tubular spindle, a bracket mounted longitudinally in the line of motion of the machine upon said axle, the adjusting-frame pivoted  
105 to the rear end of said bracket and having a shoe at its lower end, mechanism for adjusting the front end of said frame, the cutting apparatus hinged in said shoe, mechanism  
for raising said cutting apparatus and retaining it in an approximately horizontal posi- 110  
tion, and a pitman arranged in the tubular spindle and connected with the reciprocating  
cutter-bar, substantially as herein set forth.

2. In a mowing-machine, the combination  
115 of the axle having a tubular spindle at one end, the horizontal bracket mounted upon said axle, the adjusting-frame connected pivotally with the rear end of said bracket,  
means for adjusting the front end of said frame vertically, the cutting apparatus mounted 120  
pivotally in a shoe at the lower end of said adjusting-frame, mechanism for raising the  
said cutting apparatus to and retaining it in an approximately vertical position, a trans-  
125 versely-reciprocating pitman having a bearing in the tubular spindle of the axle, mechanism for transmitting motion to said pitman  
from the driving-wheel of the machine, and a link connecting the outer end of said pit-  
130 man with the transversely-reciprocating cutter-bar, substantially as and for the purpose herein set forth.

3. In a mowing-machine, the combination,  
with the axle having a tubular spindle, of the

longitudinal bracket mounted upon the said axle, the adjusting-frame connected pivotally to the rear end of said bracket and having at its front end an arm extending laterally 5 through a segmental slot in the front end of the said bracket, a lever connected pivotally to the inner side of the said bracket and having a spring-latch engaging with a segmental rack formed upon the said bracket, a link 10 connecting said lever pivotally with the arm extending from the adjusting-frame, a shoe formed at the lower end of the latter, the cutting apparatus mounted pivotally in the said shoe, and a link connecting the transversely-reciprocating cutter-bar with an arm extend- 15 ing downwardly from the outer end of a pitman arranged to reciprocate in the tubular spindle of the axle, and mechanism for transmitting motion to the said pitman from the driving-wheel of the machine, substantially 20 as and for the purpose set forth.

4. In a mowing-machine, the combination of the axle having a tubular spindle at one end, a bracket mounted longitudinally upon 25 the said axle, the adjusting-frame connected pivotally to the rear end of said bracket, mechanism for adjusting the front end of said frame

vertically, the cutting apparatus mounted pivotally in a shoe in the lower end of said adjusting-frame, a link connecting the cutter- 30 bar with a pitman arranged to reciprocate in the tubular spindle of the axle, means for transmitting motion to said pitman from the driving-wheel of the machine, a standard rising vertically from the axle, a bell-crank 35 lever at the upper end of said standard, a link connecting one arm of said bell-crank with the finger-bar of the cutting apparatus, a hand-lever connected pivotally to the standard and adapted to engage a series of teeth 40 or ratchets formed thereon, and a link connecting said hand-lever with the vertical arm of the said bell-crank, all constructed and operating substantially in the manner and for the purpose herein shown and specified. 45

In testimony that we claim the foregoing as our own we have hereto affixed our signatures in presence of two witnesses.

PHILIP LORENZ.  
LEWIS P. LORENZ.

Witnesses:

D. W. CRICK,  
D. M. FLICK.