

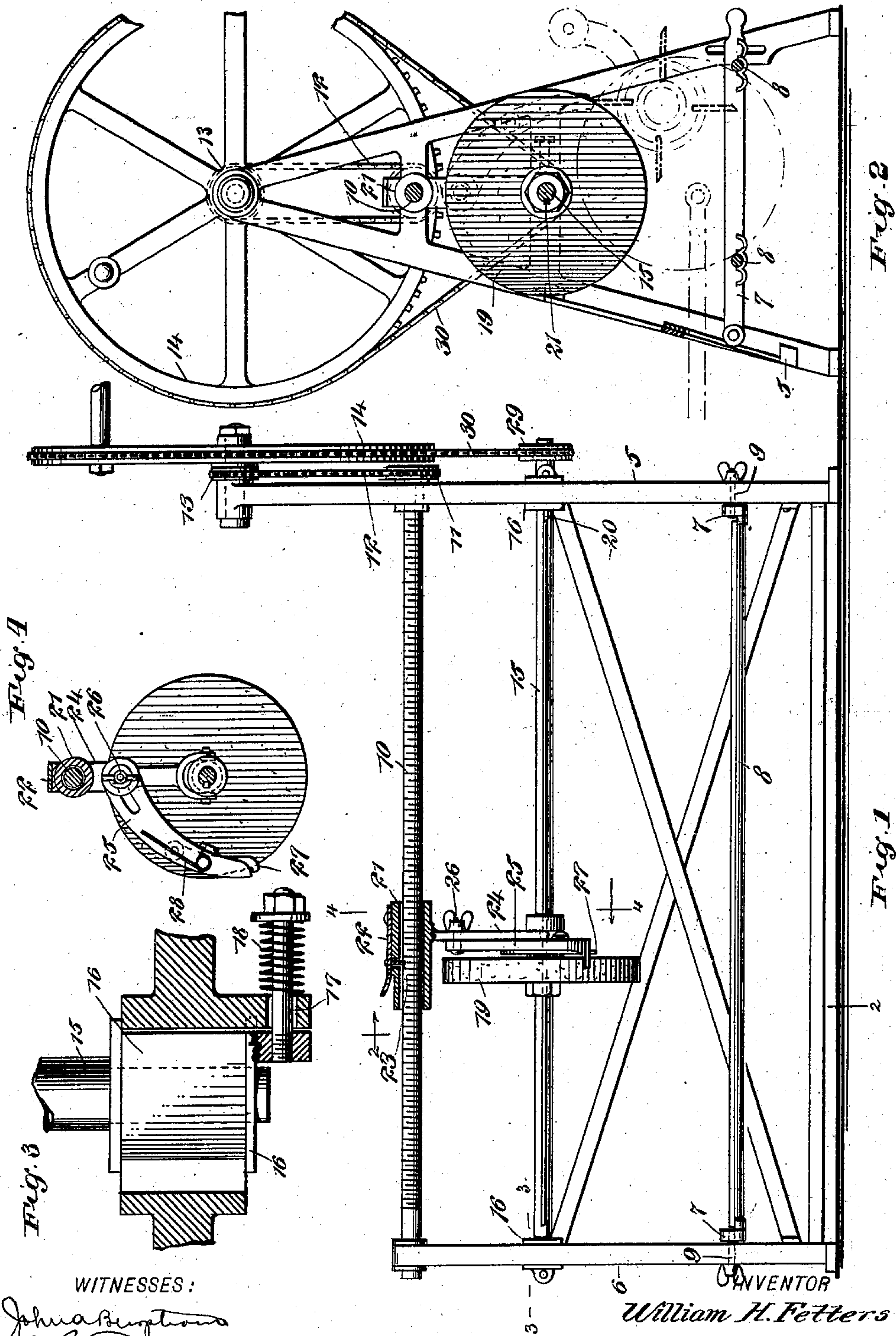
No. 702,785.

Patented June 17, 1902.

W. H. FETTERS.  
GRINDING MACHINE.

(Application filed Mar. 7, 1902.)

(No Model.)



WITNESSES:  
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# UNITED STATES PATENT OFFICE.

WILLIAM HENRY FETTERS, OF SYCAMORE, OHIO.

## GRINDING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 702,785, dated June 17, 1902.

Application filed March 7, 1902. Serial No. 97,090. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM HENRY FETTERS, a citizen of the United States, and a resident of Sycamore, in the county of Wy-

5 andot and State of Ohio, have invented a new and Improved Grinding-Machine, of which the following is a full, clear, and exact description.

This invention relates particularly to improvements in machines for grinding or sharpening lawn-mower blades; and the object is to provide a machine of simple construction by means of which the blades may be quickly and accurately ground without removing the same

15 from the mowing-machine.

I will describe a grinding-machine embodying my invention and then point out the novel features in the appended claims.

Reference is to be had to the accompanying

20 drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a front elevation of a grinding-machine embodying my invention. Fig. 2 is a section on the line 2 2 of Fig. 1. Fig. 3 is a section on the line 3 3 of Fig. 1, and Fig. 4 is a section on the line 4 4 of Fig. 1.

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The machine comprises end frames 5 6, in the lower portion of which is arranged a supporting-frame for a lawn-mower. This supporting-frame consists of the end pieces 7, connected by bars 8, and this frame is designed for vertical adjustment to bring the lower mower-knives into position for the

30 grinding. Therefore the rear ends of the end pieces 7 are pivotally connected to the end frames 5 6, and the front ends are provided with bolts 9, which pass through slots in the end frames and are provided with clamping-

40 nuts. A feeding-shaft 10 has bearings in the upper portion of the main frame. This feeding-shaft is screw-threaded, and upon one end thereof is a sprocket-wheel 11, from which a chain 12 extends to a sprocket-wheel 13 on the hub of a driving-wheel 14. Arranged below the feeding-shaft is the grinding-wheel-

45 carrying shaft 15, which has bearings in boxes 16, mounted to slide in the frame. To provide for a yielding sliding movement of these

50 boxes, bolts 17 are extended therefrom through openings in lugs on the frames 5 and 6, and on the outer ends of these bolts are

springs 18, which bear against the lugs of the frame at one end and at the other end against nuts on the bolts.

Mounted on the shaft 15 is the grinding-wheel, consisting of emery or other suitable material. This wheel 19 is designed to rotate with the shaft and to have a longitudinal movement thereon. Therefore the shaft

55 is provided with a longitudinal channel 20, in which a feather on the wheel-hub engages.

Operated by the shaft 10 is a device for moving the wheel 19 longitudinally of the shaft 20. This device consists of a sleeve 21,

60 to which is attached a spring 22, and from this spring a pin 23 extends through an opening in the sleeve and engages with the thread of the shaft 10. Extended downward from the sleeve 21 is an arm 24, which at its lower

70 end has connection with a ring arranged in an annular channel formed in the hub of the wheel 19. Carried by this arm 24 is a guide-arm 25 for engaging with the blade. This guide-arm 25 is adjustably connected to the

75 arm 24 by means of a set-bolt 26, which passes through a slot in the guide-arm and through an opening in the arm 24. The end of the arm 25 is designed to engage with one side

80 of a lawn-mower blade and arranged to engage with the opposite side thereof is a finger 27. This finger 27 is pivoted to the arm 25 and is pressed forward by means of a spring 28.

The shaft 15 has on one end a sprocket-pin-

85 ion 29, from which a chain 30 extends to the driving-wheel 14. It will be seen that the sprocket-wheels 11 and 13 are of the same size and that the sprocket-wheel 29 is much smaller than the driving-wheel 14. There-

90 fore the rotary motion of the shaft 15 will be much faster than the rotary motion of the shaft 10.

In operation the lawn-mower is to be supported on the adjustable frame, as indicated

95 by dotted lines in Fig. 2, and a blade arranged against the grinding-stone, which at this time will be at the left-hand end of the machine. As before stated, the end of the arm 25 will engage against one side of the blade while the

100 finger 27 engages against the other side. This will cause the blade to be held closely against the stone or grinding-wheel during the movements of the wheel lengthwise of the blade,



it being understood that the blades are spirally disposed. Upon turning the shafts the screw-shaft 10 will move the sleeve 21 lengthwise, and consequently will move the grinding-wheel 19 lengthwise of the shaft 15 during its rotary movement. Upon reaching the end the pin 23 may be moved out of engagement with the shaft 10, so that the sleeve 21 and the grinding-wheel may be quickly moved to the opposite end for grinding the next blade of the series.

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

1. A grinding-machine comprising a shaft, a grinding-wheel mounted to rotate with said shaft and to move longitudinally thereof, a feeding-shaft provided with a screw-thread, a sleeve movable on said feeding-shaft, a spring-pressed pin carried by the sleeve for engaging with the screw-thread, and a connection between said sleeve and the grinding-wheel, substantially as specified.

2. A grinding-machine comprising a shaft, a grinding-wheel mounted to rotate with said shaft and movable longitudinally thereof, a threaded feeding-shaft, a sleeve mounted on said feeding-shaft and operated by the thread thereof, a connection between said shaft and the grinding-wheel, an arm carried by said connection, and a spring-pressed finger pivoted to the arm, substantially as specified.

3. A grinding-machine comprising a main

frame, a shaft, spring-pressed boxes in said frame and in which the shaft has bearings, a grinding-wheel mounted to rotate with said shaft and having a longitudinal movement thereof, a screw-shaft having bearings in the frame, a sleeve on said screw-shaft, a spring-pressed pin carried by said sleeve and engaging with the thread of the screw-shaft, an arm extended from said sleeve and having engagement with the hub of the grinding-wheel, a guide carried by said arm, and an adjustable frame in the lower portion of the main frame, substantially as specified.

4. A grinding-machine comprising a main frame, a shaft having bearings in said main frame, a grinding-wheel mounted to rotate with said shaft and having a longitudinal movement thereof, a screw-shaft, a sleeve mounted on the screw-shaft and having connection with the grinding-wheel, a pin movable in the sleeve for engaging with the screw-shaft and means for driving the two shafts, the first-named shaft having a faster movement than the screw-shaft, substantially as specified.

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

WILLIAM HENRY FETTERS.

Witnesses:

OSCAR ZUCK,  
GEO. A. KLAHR.