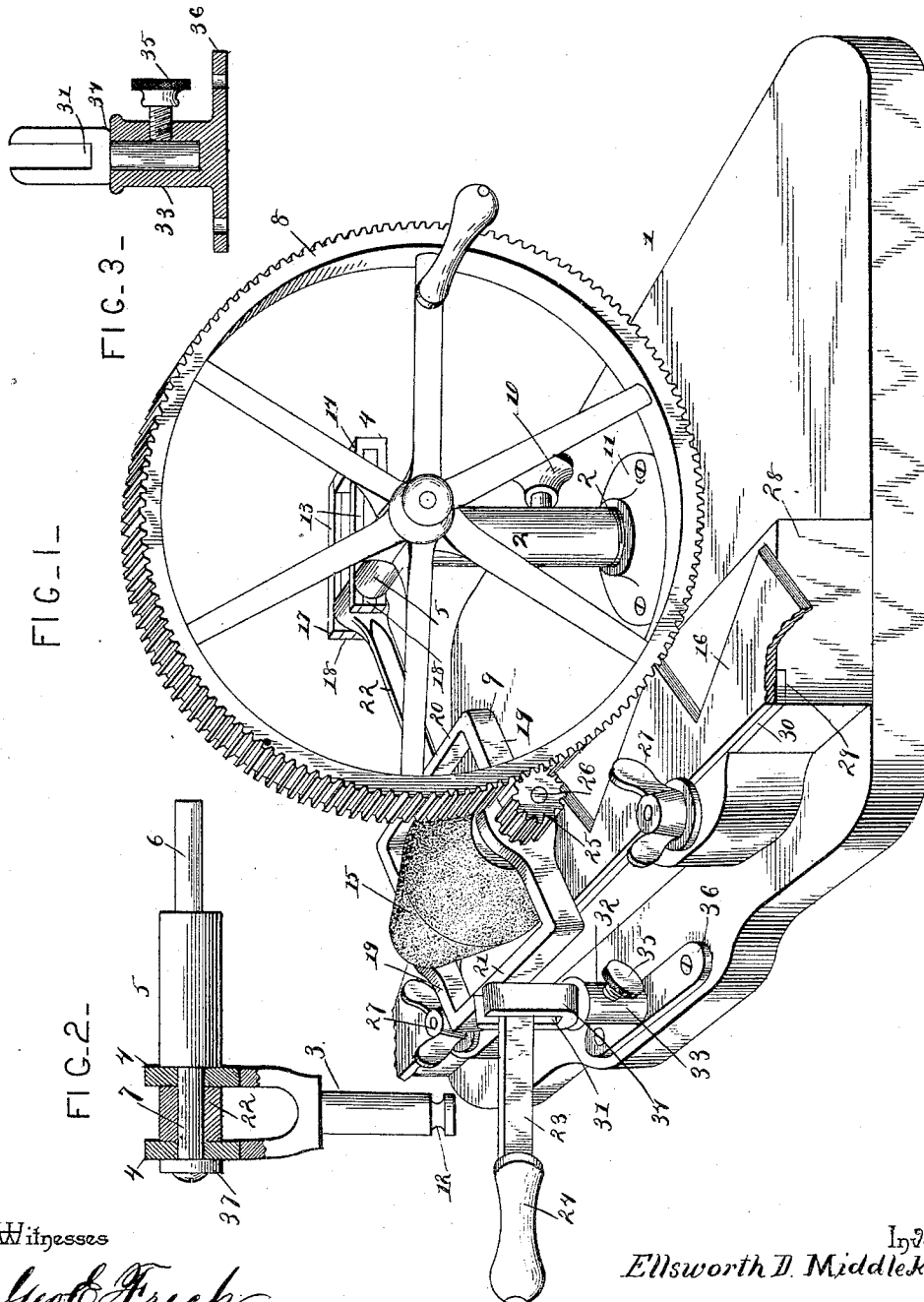


(No Model.)

E. D. MIDDLEKAUFF.
SICKLE GRINDER.

No. 460,212.

Patented Sept. 29, 1891.



Witnesses

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H. J. Remy

Inventor

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UNITED STATES PATENT OFFICE.

ELLSWORTH DOUGLASS MIDDLEKAUFF, OF STOCKTON, CALIFORNIA.

SICKLE-GRINDER.

SPECIFICATION forming part of Letters Patent No. 460,212, dated September 29, 1891.

Application filed March 14, 1891. Serial No. 385,092. (No model.)

To all whom it may concern:

Be it known that I, ELLSWORTH DOUGLASS MIDDLEKAUFF, a citizen of the United States, residing at Stockton, in the county of San Joaquin and State of California, have invented a new and useful Sickle-Grinder, of which the following is a specification.

The invention relates to improvements in grinding-machines.

10 The object of the present invention is to simplify and improve the construction of grinding-machines and enable the grinding-roller to be under complete control of the operator.

15 The invention consists of the construction and novel combination and arrangement of parts hereinafter fully described, illustrated in the accompanying drawings, and pointed out in the claims hereto appended.

20 In the drawings, Figure 1 is a perspective view of a grinding-machine embodying the invention. Fig. 2 is a detail sectional view of the stem and the driving-shaft. Fig. 3 is a similar view of the handle-rest.

25 Referring to the accompanying drawings, 1 designates a bed having secured to it the lower end of a hollow standard 2, in which is arranged a vertically-adjustable stem 3, carrying a guide-frame 4, and journaled in the 30 guide-frame is a driving-shaft 5, which has its ends 6 and 7 reduced, the former of which receives a cog-wheel 8, and the latter is arranged in the ways of the guide-frame 4, and has connected to it one end of the stone-carrying or grinding frame 9. The hollow standard 2 is provided with a set-screw 10, adapted to engage the stem 3 and secure the same at any desired elevation, and the lower end of the standard 2 is threaded and engages a 35 threaded opening of a circular plate 11, which is screwed or otherwise secured to the base 1. The stem has its upper end bifurcated, and is provided near its lower end with an annular groove 12, which is arranged to be engaged 40 by the set-screw 10, and the stem is adapted to be vertically adjusted and held stationary or be swiveled and turn in the standard. The guide-frame 4, which is mounted on the upper end of the stem, is approximately U-shaped, and consists of parallel side bars 13 50 and an end bar 14, connecting the side bars at one end of the frame, and a pair of the

bars 13 is arranged at each side of the frame and form ways in which the driving-shaft slides to enable a grinding roller or stone 15, 55 which is mounted in the frame 9, to operate on the entire cutting-edge of a sickle-bar 16. The side bars 13 have arranged between their ends 17, blocks 18, which close the ways at this end of the frame and prevent the driving-shaft leaving the ways. 60

The frame 9 extends radially from the driving-shaft, and consists of a rectangular portion having sides 19 and ends 20 and 21, an arm 22, extending from the end 20 and provided at its outer end with an eye to receive the reduced portion 7 of the shaft 5, and an operating-bar 23, extending outward from the end 21 of the rectangular portion and provided at its outer end with a handle 24, by 65 which the machine is guided during operation. 70

The cog-wheel 8 meshes with the pinion 25, mounted on one end of a mandrel 26, which is journaled in suitable bearings of the sides 75 19 of the rectangular portion, and carries the grinding-roller 15.

The sickle-bar is secured by thumb-screws 27 to a block 28, which is arranged on the bed 1 and is provided with a groove 29 to receive 80 the bar 30, secured to the lower face of the sickle-bar to enable the latter to lie flat upon the face of the block.

By means of the handle 24 the grinding-roller may be guided along the edge of the 85 sickle-bar, and the grinding-roller is capable of a reciprocating and a vertically and laterally swinging movement, which latter is due to the stem 3 being mounted in the hollow standard 2, and the grinding-frame 9 may be 90 arranged vertically when it is desired to sharpen edged tools, and when it is desired to have the grinding-frame move backward and forward without liability of lateral movement, the operating-bar 23, which is rectangular in cross-section, is placed in a vertical 95 guide-slot 31 of a rest 32, which permits the frame to reciprocate longitudinally, but prevents any lateral movement.

The rest 32 consists of a hollow standard 100 33 and a vertically-adjustable stem 34, which has its upper end bifurcated to form the guide-slot 31, and its lower portion is round and fits in the hollow standard and is engaged

by a set-screw 35, which holds the stem rigid. The lower end of the hollow standard 33 is formed integral with a plate 36, which is secured to the bed 1 by screws.

5 The cog-wheel 8 is provided with a handle and is keyed or similarly secured to the end 6 of the driving-shaft, and the other end of the latter is secured in the ways of the guide-frame 4 by a washer or disk 37.

10 What I claim is—

1. In a grinding-machine, the combination of the hollow standard, the stem arranged in the standard, the guide-frame secured to the upper end of the stem and provided with parallel side bars forming ways and having blocks arranged between the ends of the side bars to close the ways, the driving-shaft journaled in the ways, the grinding-frame comprising the rectangular portion, the arm 22, provided at its outer end with an eye to receive the shaft, and the operating-bar 23, the grinding-roller mounted in the grinding-frame, and means for rotating the grinding-roller, substantially as described.

25 2. In a grinding-machine, the combination

of the standard, the driving-shaft, the grinding-frame extending radially from the shaft and provided with the rectangular operating-bar 23, and the rest 32, having a vertical guide-slot to receive the operating-bar, whereby the grinding-frame is prevented moving laterally, substantially as described.

3. In a grinding-frame, the combination of the standard, the driving-shaft, the grinding-frame extending laterally from the shaft and provided with the rectangular operating-bar 23, and the rest 32, comprising the hollow standard provided with the set-screw, the plate formed integral with the standard, and the stem arranged in the standard and having its upper end bifurcated and adapted to receive the operating-bar, substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

ELLSWORTH DOUGLASS MIDDLEKAUFF.

Witnesses:

C. H. STONE,

G. W. BEEBE.