

B. L. HUMPHREY.  
SAW SHARPENING MACHINE.  
APPLICATION FILED AUG. 31, 1904.

2 SHEETS—SHEET 1

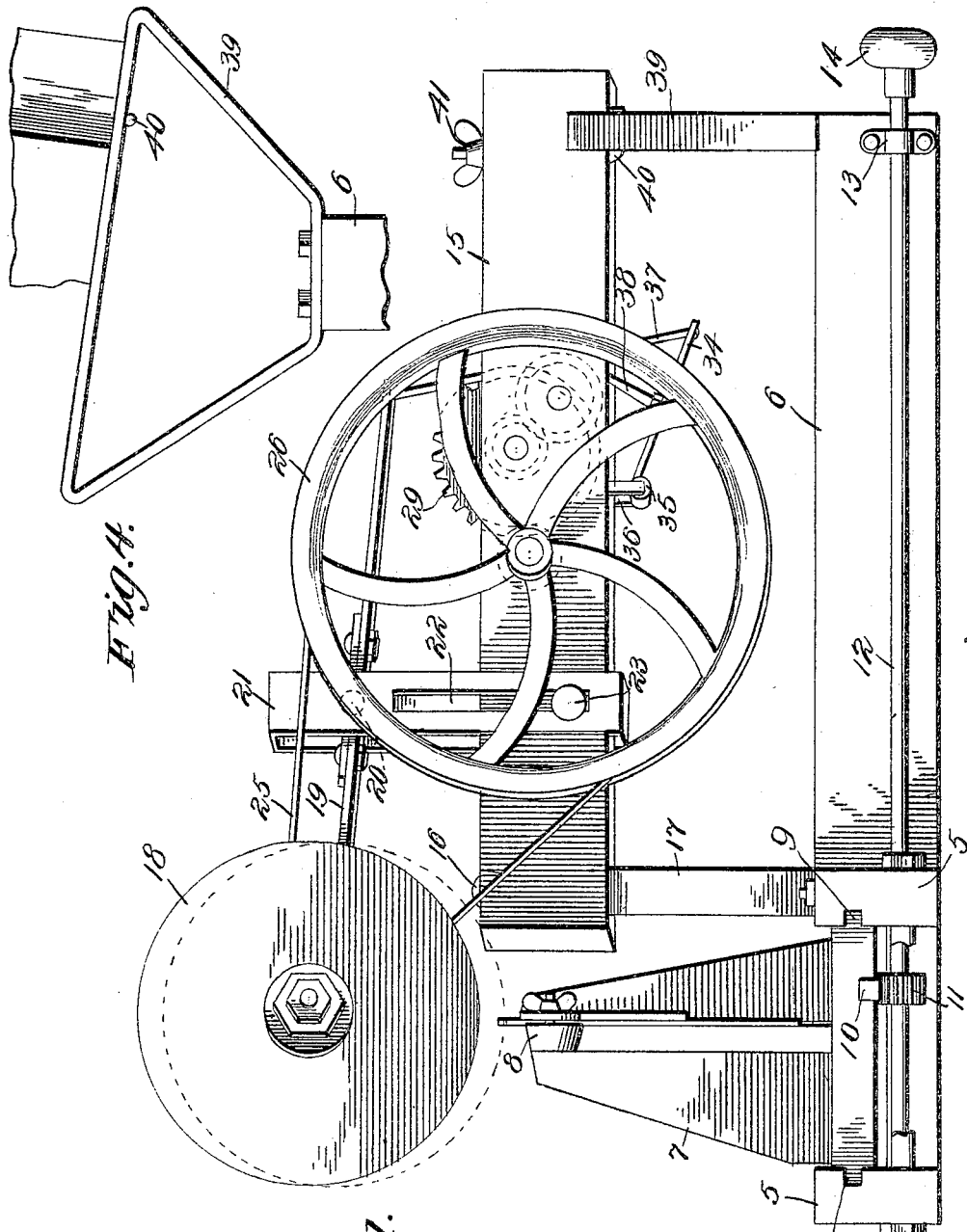


FIG. 4.

FIG. 1.

Witness  
*H. F. Kne.*  
*M. Schmidt.*

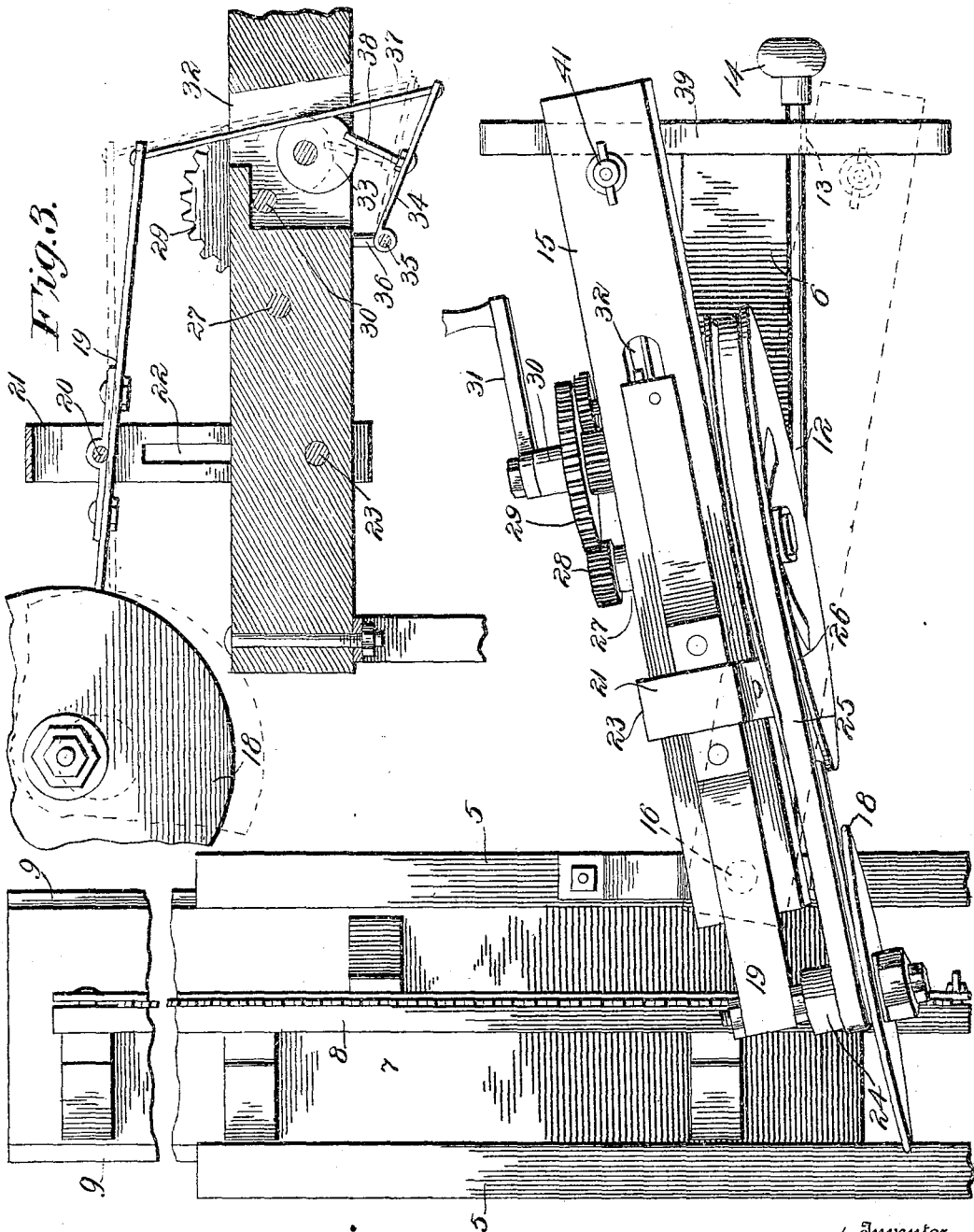
Inventor  
*Banister L. Humphrey,*  
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 Attorneys.

No. 801,084.

PATENTED OCT. 3, 1905.

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SAW SHARPENING MACHINE  
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2 SHEETS—SHEET 2.



Witnesses  
*H. F. Kagle*  
*M. A. Schmidt*

*Fig. 2.*

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# UNITED STATES PATENT OFFICE.

BANISTER LESTER HUMPHREY, OF MAYSVILLE, NORTH CAROLINA.

## SAW-SHARPENING MACHINE.

No. 801,084.

Specification of Letters Patent.

Patented Oct. 3, 1905.

Application filed August 31, 1904. Serial No. 222,858.

*To all whom it may concern:*

Be it known that I, BANISTER LESTER HUMPHREY, a citizen of the United States, residing at Maysville, in the county of Jones and State of North Carolina, have invented new and useful Improvements in Saw-Sharpening Machines, of which the following is a specification.

My invention relates to a saw-sharpening machine; and it consists in a grinding-wheel which is mounted in such a manner that it can be presented to the work at various angles in order to accurately sharpen the teeth and impart the proper bevel to the edges thereof.

Improved details in the construction and arrangement of the various parts of the invention will be apparent from the detailed description hereinafter when read in connection with the appended claims, reference being had to the drawings hereto annexed, in which—

Figure 1 is a side elevation of the machine. Fig. 2 is a plan view thereof. Fig. 3 is a detail in section showing the means for rocking the arm which carries the grinding-wheel. Fig. 4 is an end view of the standard which supports the end of the beam on which the operating mechanism is mounted.

Referring specifically to the drawings, the base of the machine comprises two spaced beams 5 and a beam 6, which extends rearwardly therefrom. The beams 5 support the reciprocating carriage 7, on which the saw-clamp 8 is mounted. The carriage has the usual guide-ribs 9, which fit in grooves in the beams 5, and on its under side it has a rack 10. The carriage is reciprocated by turning a pinion 11, which is in mesh with the rack. The pinion-shaft 12 is journaled in suitable bearings 13, fastened to the beam 6, and has at its end a suitable hand-wheel 14 for turning it.

At 15 is indicated a beam which extends at an angle to the saw-clamp and is pivoted at its front end, as at 16, to a standard 17, extending from the base. This beam carries the operating mechanism and swings in a horizontal plane to enable the grinding-wheel to be presented at different angles to the saw-teeth to impart the proper bevel to the edges thereof. The grinding-wheel 18 is journaled on an oscillating arm 19, which is pivoted, as at 20, to a standard 21, extending from the beam 15. This standard is slotted, as at 22, through which slots the bolt 23, whereby the standard is fastened to the beam, passes,

whereby it can be vertically adjusted. This adjustment permits the use of different-sized grinding-wheels. The grinding-wheel shaft has a pulley 24, whereby motion is imparted to the wheel by a belt 25, running from a pulley 26. The shaft 27 of the last-mentioned pulley extends through the beam 15 and has on its end a pinion 28, which is in mesh with the spur-wheel 29 on the driving-shaft 30. The latter shaft is journaled in the beam 15 and has a suitable crank 31 for turning it.

The beam 15 is slotted, as at 32, to receive an eccentric disk 33, which is mounted on the driving-shaft 30. A lever 34 is pivoted at one end, as at 35, to a bracket 36, extending from the bottom of the beam 15, the other end of the lever being joined to the outer end of the beam 19 by a connecting-rod 37. Between its respective ends the lever 34 has a branch 38, which extends upwardly against the rim of the disk 33, the end of said branch being slotted, in which slot the disk fits. When the driving-shaft is rotated, the arm 19, through the connections just described, will rise and fall, as shown by dotted lines in Fig. 3, whereby the grinding-wheel will be thrown into contact with the teeth and out of contact therewith alternately.

The rear end of the beam 15 rests on a support 39, extending from the rear end of the beam 6, being clamped thereto by a hooked bolt 40. Upon loosening the nut 41 on said bolt the beam can be shifted to the opposite side of the support, as shown by dotted lines in Fig. 2. The top of the support is made inclined, as shown in Fig. 4, so that the beam 15 will be inclined from a vertical plane or lean to one side, whereby the grinding-wheel will be uniformly presented at the proper angle to the saw-teeth when the beam is shifted to either side. The pivot 16 will be sufficiently loose to permit this movement of the beam.

The pivot-bolt 16 fits tightly in the beam 15, but extends loosely through the standard 17. This arrangement permits the beam to be shifted on the support 39, although the top of said support is made slanting, while the top of the standard 17 is horizontal. Only one of the lower corners of the beam 15 will rest on the standard 17; but on tightening up the bolt 40 the beam will be held sufficiently rigid for the practical operation of the machine. When the beam is shifted on the support 39, the grinding-disk is also raised and lowered, which necessitates a readjustment of the disk, so that

it will not cut too deep or too shallow. This adjustment is readily made by raising or lowering the standard 21 or readjusting the saw in the clamp.

5 In use the saw will be placed in the saw-clamp and the standard 21 adjusted vertically, according to the size of the grinding-wheel, the latter being a thin disk of emery or other abrasive material. The beam 15 is thrown to  
10 one end of the standard 37. The crank 31 is then turned, causing the grinding-wheel to rotate and at the same time to rise and fall. When the wheel rises, it clears the teeth and enables the saw-clamp carriage to be moved  
15 forwardly by turning the hand-wheel 14. Every other tooth will first be sharpened, after which the beam 15 is swung around to the other end of the support 39 and the remaining teeth then sharpened.

20 The machine does its work accurately and rapidly. It can be easily operated, the operator using one hand to turn the crank 31 and the other hand to turn the hand-wheel 14 for moving the saw-clamp carriage.

25 What I claim as new, and desire to secure by Letters Patent, is—

1. In a saw-sharpening machine, a saw-clamp, a beam adjustable to extend at different  
30 angles to the saw-clamp, a vertically-adjustable standard extending from the beam, a vertically-oscillating arm pivoted to the standard, a revoluble grinding-wheel mounted on the arm, and means for rotating the grinding-wheel and oscillating the arm simultaneously.

35 2. In a saw-sharpening machine, a saw-

clamp, a pivoted beam adjustable to extend at different angles to the saw-clamp, an inclined support for the free end of the beam, a vertically-oscillating arm carried by the beam, a  
40 revoluble grinding-wheel mounted on the arm, and means for rotating the grinding-wheel and oscillating the arm simultaneously.

3. In a saw-sharpening machine, a saw-clamp, a pivoted beam adjustable to extend at  
45 different angles to the saw-clamp, an inclined support for the free end of the beam, a vertically-adjustable standard extending from the beam, a vertically-oscillating arm pivoted to said standard, a revoluble grinding-wheel  
50 mounted on the arm, and means for rotating the wheel and oscillating the arm simultaneously.

4. In a saw-sharpening machine, a saw-clamp, a beam adjustable to extend at different  
55 angles thereto, a vertically-oscillating arm carried by the beam, a revoluble grinding-wheel mounted on the beam, a driving-shaft journaled in the beam, an eccentric disk on the shaft, a pivoted lever having a branch engag-  
60 ing the rim of the disk, and a connection between the lever and the free end of the oscillating arm for actuating the same.

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

BANISTER LESTER HUMPHREY.

Witnesses:

E. L. MATTOCKS,

B. L. MATTOCKS.