

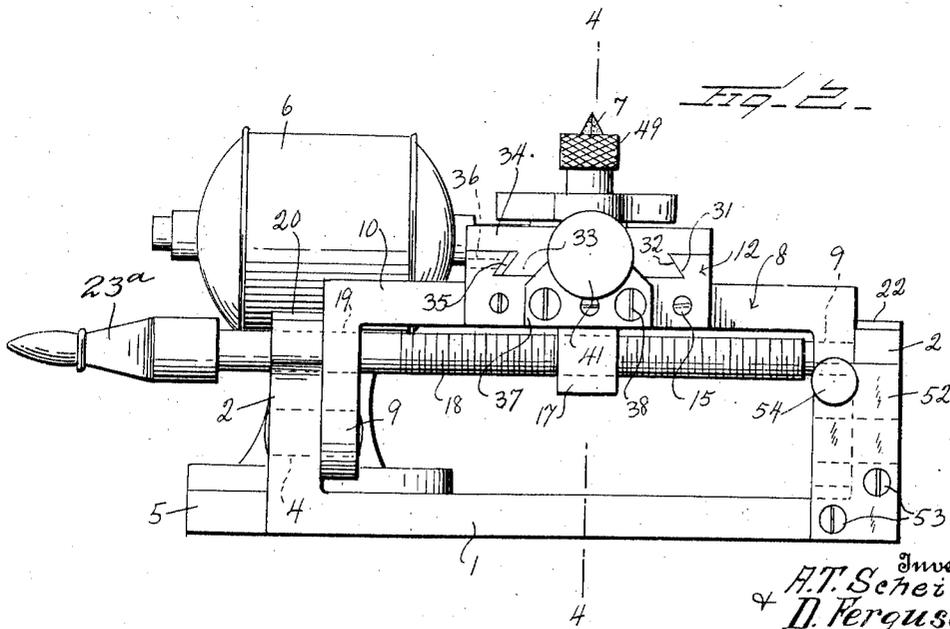
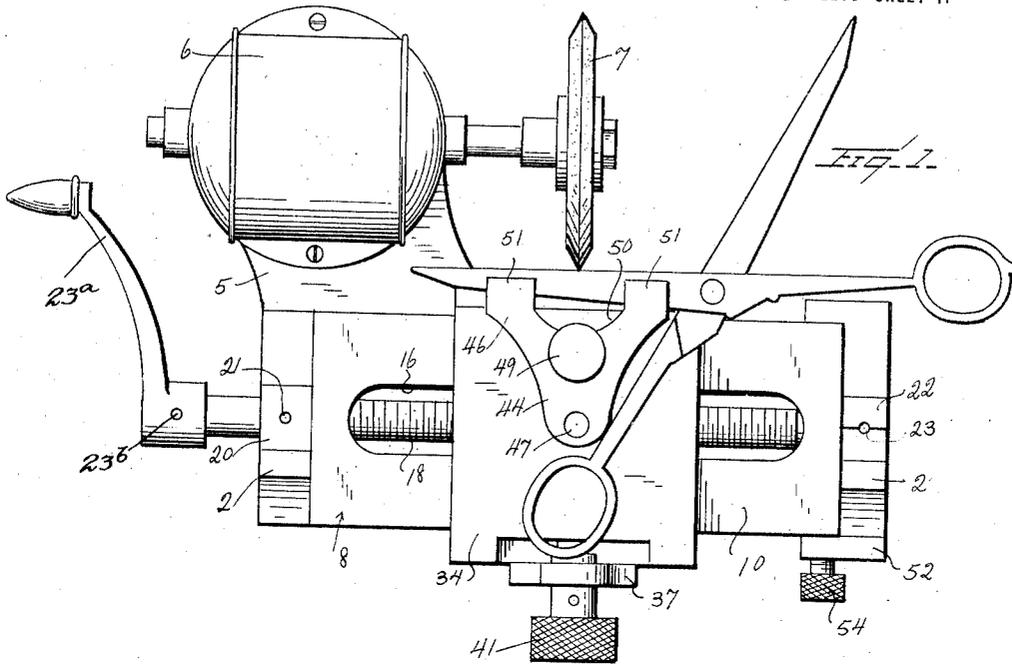
A. T. SCHEIWER AND D. FERGUSON,
SHEARS GRINDER.

1,390,726.

APPLICATION FILED OCT. 18, 1919.

Patented Sept. 13, 1921.

2 SHEETS—SHEET 1.



Inventors
A. T. Scheiwer
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By *Watson E. Coleman*
Attorney

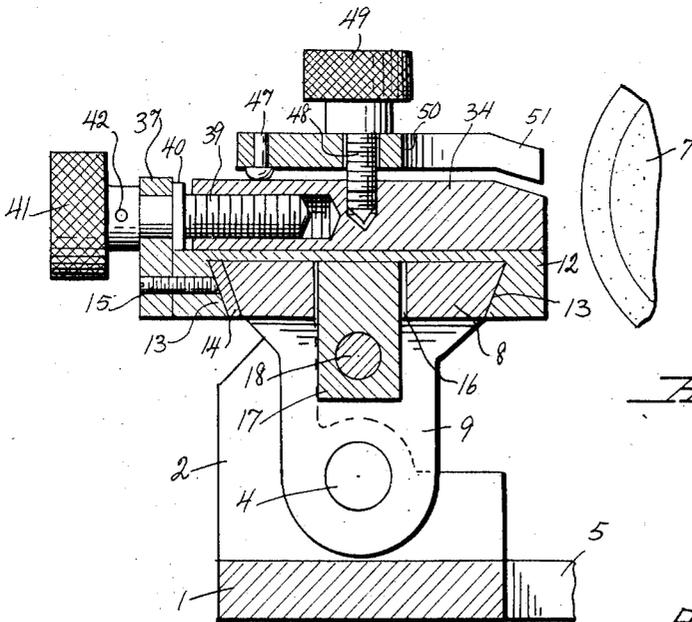
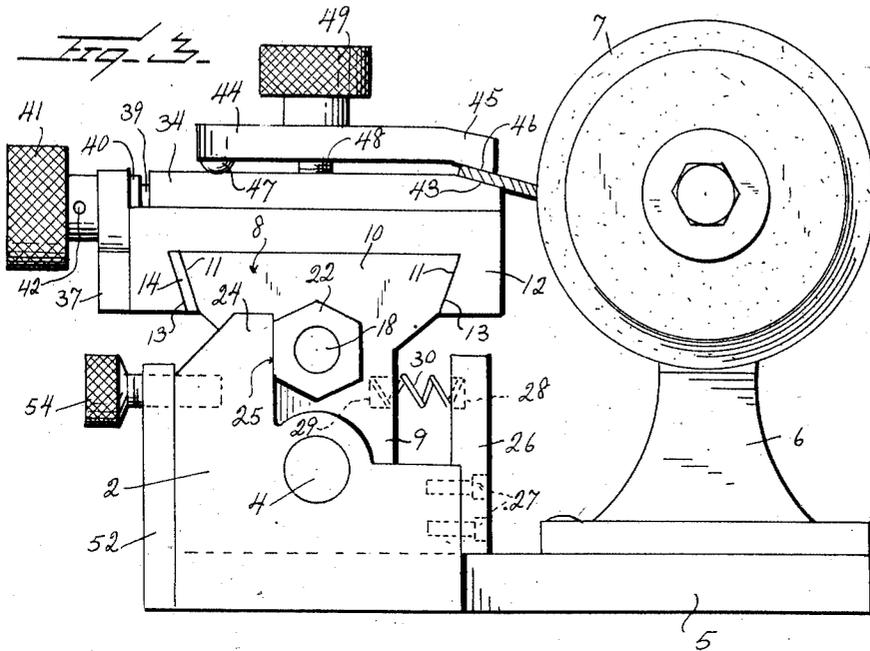
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UNITED STATES PATENT OFFICE.

ALBERT T. SCHEIWER AND DAVID FERGUSON, OF ERIE, PENNSYLVANIA.

SHEARS-GRINDER.

1,390,726.

Specification of Letters Patent. Patented Sept. 13, 1921.

Application filed October 18, 1919. Serial No. 331,613.

To all whom it may concern:

Be it known that we, ALBERT T. SCHEIWER and DAVID FERGUSON, citizens of the United States, residing at Erie, in the county of Erie and State of Pennsylvania, have invented certain new and useful improvements in Shears-Grinders, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to an improved shear grinder, and an object of the invention is to provide a device of this kind for sharpening the shear blades either with a corrugated cutting edge or a plain shearing cutting edge.

Another object of the invention is the provision of a grinding machine of this character wherein a pivoted frame is employed for supporting a carriage for the support of the shears, and means for manipulating the frame whereby the shear blades may be provided with a plain shearing cutting edge or a corrugated shearing cutting edge.

A further object of the invention is to provide a very simple, efficient and practical machine, which involves novel features of construction.

While the design and construction at present illustrated and set forth is deemed preferable, it is obvious that as a result of a reduction of the invention to a more practical form for commercial purposes the invention may be susceptible to changes, and the right to these changes is claimed, provided they are comprehended within the scope of what is claimed.

The invention comprises further features and combination of parts, as will be hereinafter set forth, shown in the drawings and claimed.

In the drawings:

Figure 1 is a plan view of the improved grinder constructed in accordance with the invention, showing a pair of shears supported upon the carriage;

Fig. 2 is a view in side elevation of a grinder;

Fig. 3 is an end view of the machine; and

Fig. 4 is a sectional view on the line 4—4 of Fig. 2.

Referring more especially to the drawings, 1 designates the base of the machine, and rising upwardly from its opposite ends are standards or uprights 2, which carry the pivot pins 4. The base 1 is formed with a laterally projecting portion 5, constituting

a base or support for a conventional form of motor 6, which may receive current from any suitable source of electrical supply. The shaft of the motor 6 has mounted thereon a grinding stone 7 of emery or any other suitable material.

Mounted upon the pivot pins 4 is a U-shaped oscillatory frame 8 through the depending arms 9 of which the pivot pins 4 extend. The upper elongated part 10 of the oscillatory frame 8 is provided with beveled edges 11 converging downwardly. A carriage 12 is mounted upon the elongated portion 10 of the oscillatory frame 8 and is provided with converging oppositely arranged beveled edges 13 cooperating with the edges 11 whereby a dominant carriage 12 may be guided upon the elongated part 10 of the frame 8. A gib 14 is interposed between certain of the beveled edges 11 and 13 in order to insure a proper fit of the carriage on the elongated part 10 of the frame 8. By means of suitable screws 15, the gib 14 may be adjusted, and held in position to prevent excessive binding, as the carriage is guided. The elongated part 10 of the frame 8 has an elongated guide slot 16 and extending downwardly through the slot is an arm 17, which is carried by and depends from a dominant carriage 12.

A screw 18 is mounted in bearings 19 of the depending parts of the pivoted frame 8, and threads through the depending arm 17 of the carriage 12. A collar 20 is secured by means of the pin 21 on one end of the screw 18 and cooperates with one of the depending parts of the frame 8 to prevent longitudinal movement of the screw in one direction. A hexagonal cam collar 22 is secured by means of a transverse pin 23 on the other end of the screw, and cooperates with the other depending part of the frame 8 to prevent axial movement of the screw in the opposite direction. In other words, the screw 18 is swivelly mounted on the depending parts of the oscillatory frame 8 and owing to it being threaded to the depending arm 17 of the dominant carriage 12 and as the carriage is guided on the frame 8, the screw when it is rotated, will impart a longitudinal movement of the carriage on the frame 8. A crank handle 23^a is secured by means of the pin 23^b on one end of the screw, whereby the screw may be manually rotated.

One of the upstanding parts or standards has a projection 24, with one edge 25 of

which the hexagonal cam collar 22 coöperates, in order to vibrate the frame 8 back and forth. A plate 26 is secured by screws 27 on one end of the upright at one end of the base, and is provided with a concavity 28. One of the depending parts 9 of the oscillatory frame 8 on one of its edges is provided with a concavity 29. Engaging the concavities 28 and 29 and interposed between one of the depending parts 9 of the frame 8 and the plate 26 is a coiled expansion spring 30, the action of which holds the oscillatory frame in such wise that the hexagonal cam collar 22 will at all times engage the edge 25 of the projection 24 of one of the uprights. It will be noted that when a rotating movement is imparted to the screw 18, by turning the crank handle, and owing to the hexagonal collar engaging the edge 25, and being held in such engagement by the spring 30, the frame 8 will be given an oscillatory vibrating movement, in order to insure that the shears to be sharpened will be supplied with a corrugated cutting edge.

The dominant carriage 12 is provided with upwardly converging beveled guides 31 which are engaged by the beveled edges 32 of the dove-tailed depending piece 33 of an auxiliary carriage 34. It will be noted that the carriage 12 moves longitudinally upon the frame 8 in a direction parallel with the screw, while the auxiliary carriage 34 moves in a horizontal direction at right angles to the movement of the dominant carriage 12. By these movements of the carriages, it is possible to move the shears in a direction at right angles to the grinding surface of the emery stone, and also move the cutting edge of a blade of the shears toward and from the grinding surface of the emery stone.

A gib 35 is arranged between certain of the coöperating beveled edges 31 and 32 in order to insure proper guiding of the auxiliary carriage, that is to say, in such wise as to prevent undue binding of the parts. By virtue of suitable screws 36 which are mounted in the dominant carriage 12, the gib 35 may be adjusted in position properly.

A plate 37 is secured by means of screws 38 on one of the edges of the dominant carriage 12, and swivelly mounted in an upwardly projecting portion of the plate is a screw 39. By means of a collar 40 and the head 41 (which is secured to the screw by the pin 42) of the screw, said screw is mounted swivelly in the projecting part of the plate 37. This screw has threaded engagement with the carriage 34, therefore it is obvious that when the screw is rotated in one direction or the other, the auxiliary carriage may be moved in a direction at right angles to the movement of the dominant

carriage 12. When the auxiliary carriage is moved in such a direction, the shears to be sharpened will be moved toward and from the grinding stone.

The upper face of the auxiliary carriage near one end edge thereof has a slight beveled portion or bearing 43, preferably constituting a clamping face, against which either one of the blades of a pair of shears may be clamped, as clearly shown in Figs. 1 and 3, by means of a clamp 44. The clamp 44 is in the form of a plate and a portion of this plate, adjacent one edge, is arranged at a very slight obtuse angle. This portion of the plate, designated by the numeral 45, forms a clamping face 46 in opposed relation to the clamping face 43, that is to say, in parallelism therewith so as to engage the opposite face of the shear blade. The plate or clamp 44 has a depending fulcrum lug 47 adjacent the edge opposite the bent portions 45 of the plate. This lug 47 bears upon the auxiliary carriage, as shown clearly in Fig. 3. A screw 48 is carried by the auxiliary carriage in any suitable manner, and passes upwardly through the clamp or plate 44 and is provided with a thumb nut 49. The opening of the plate 44 through which the screw 48 extends is slightly elongated so as to permit of a slight looseness or play of the plate, so that by means of the thumb nut 49 the clamping face 46 may be drawn tightly into engagement with the shear blade, thereby holding the shears firmly in position. The clamping plate 44 is cut away as indicated at 50, thereby forming the arms 51 which carry the clamping faces 46.

As the dominant carriage is moved longitudinally upon the frame 8 by rotating the screw 18, the frame and the carriage is given a vibrating movement, moving the cutting edge of the shear blade in a direction at right angles to the grinding stone. As the edge of the shear blade is being ground, it is obvious that the auxiliary carriage may be moved in a direction toward the grinding stone by rotating the screw 39.

A plate 52 is secured by screws 53 to the base 1 near one end and in an upstanding part of this plate 52, an adjusting and abutment screw 54 is threaded. This adjusting and abutment screw is mounted in the plate 52 relatively to one of the depending parts 9 of the frame 8 so that by adjusting the screw in one direction, it may be moved toward one edge of one of the depending parts 9 of the frame 8 in engagement therewith, so as to position the frame 8 in order to prevent contact of the hexagonal cam collar 22 with the edge 25. When the frame 8 is so positioned and under tension of the coiled expansion spring 30, the oscillatory frame 8 will be held firm and against a vibratory

movement. When the frame 8 is so held, a plain cutting edge will be formed on the shear blade instead of a corrugated cutting edge.

5 The invention having been set forth, what is claimed as new and useful is:—

1. In a grinding machine as set forth, the combination with a pivoted frame, of a supporting base frame therefor having a grinding member mounted thereon, a dominant carriage guided longitudinally upon the pivoted frame in a direction at right angles to the grinding edge of the member, a screw mounted in bearings of the pivoted frame and having operative connections with said dominant carriage, an auxiliary carriage guided upon the dominant carriage and movable in a direction at right angles to that of the dominant carriage and toward the grinding edge of the member, and means on the auxiliary carriage for clamping a shear blade with its cutting edge in position at right angles to the grinding edge of the member.

2. In a grinding machine as set forth, the combination with a pivoted frame, of a supporting base frame therefor having a grinding member mounted thereon, a dominant carriage guided longitudinally upon the pivoted frame in a direction at right angles to the grinding edge of the member, a screw mounted in bearings of the pivoted frame and having operative connections with said dominant carriage, an auxiliary carriage guided upon the dominant carriage and movable in a direction at right angles to that of the dominant carriage and toward the grinding edge of the member, means on the auxiliary carriage for clamping a shear blade with its cutting edge in position at right angles to the grinding edge of the member, and means for causing a vibrating movement of the pivoted frame as the screw is rotated.

3. In a grinding machine as set forth, the combination with a pivoted frame, of a supporting base frame therefor having a grinding member mounted thereon, a dominant carriage guided longitudinally upon the pivoted frame in a direction at right angles to the grinding edge of the member, a screw mounted in bearings of the pivoted frame and having operative connections with said dominant carriage, an auxiliary carriage guided upon the dominant carriage and movable in a direction at right angles to that of the dominant carriage and toward the grinding edge of the member, means on the auxiliary carriage for clamping a shear blade with its cutting edge in position at right angles to the grinding edge of the member, and means for causing a vibrating movement of the pivoted frame as the screw is rotated, said means comprising an abutment edge on the base frame, a polygonal

cam carried by the screw to cooperate with the abutment edge, and spring means for operating on a part of the pivoted frame to move the cam in engagement with said abutment edge whereby as the screw is rotated, the pivoted frame will receive a vibrating movement.

4. In a grinding machine as set forth, the combination with a pivoted frame, of a supporting base frame therefor having a grinding member mounted thereon, a dominant carriage guided longitudinally upon the pivoted frame in a direction at right angles to the grinding edge of the member, a screw mounted in bearings of the pivoted frame and having operative connections with said dominant carriage, an auxiliary carriage guided upon the dominant carriage and movable in a direction at right angles to that of the dominant carriage and toward the grinding edge of the member, means on the auxiliary carriage for clamping a shear blade with its cutting edge in position at right angles to the grinding edge of the member, means for causing a vibrating movement of the pivoted frame as the screw is rotated, said means comprising an abutment edge on the base frame, a polygonal cam carried by the screw to cooperate with the abutment edge, spring means operating on a part of the pivoted frame to move the cam in engagement with said abutment edge whereby as the screw is rotated, the pivoted frame will receive a vibrating movement, and means for adjusting the pivoted frame against the action of the spring means to hold the cam from engagement with said abutting edge to prevent a vibrating movement of the pivoted frame, whereby a plain shearing or cutting edge will be imparted to the shear blade.

5. In a grinding machine as set forth, the combination with a supporting base frame, of a second frame pivotally mounted on the base frame, means for operatively supporting a shears blade on the pivoted frame for movement in a direction at right angles to the grinder shaft and also for movement on the frame parallel to the grinder shaft, a mechanism operatively connected with said means for giving it said movement in a direction parallel to the grinder shaft, and means engaging the pivoted frame and cooperating with the base frame for vibrating the pivotally mounted frame, and a device to operatively engage with the pivoted frame to hold the pivoted frame out of contact with said last mentioned means to prevent the pivoted frame from vibrating.

6. In a grinding machine as set forth, a supporting base having a grinding member mounted thereon, a frame pivoted on the base, means operatively supporting a shears blade on the pivoted frame, whereby it may move in a direction at right angles to the

grinder shaft, a rotating element mounted in the pivoted frame and operatively connected to the means for moving the same in a direction parallel with the grinder shaft, means carried by the rotating element and adapted to operatively engage with a part of the base for vibrating the pivoted frame, whereby the grinding member may impart an undulated cutting edge to the shear blade, spring means operatively connecting with the pivoted frame to hold the means carried by the rotating element rotatably in contact with a part of the base.

7. In a grinding machine as set forth, a supporting base having a grinding member mounted thereon, a frame pivoted on the base, means operatively supporting a shears blade on the pivoted frame, whereby it may move in a direction at right angles to the grinder shaft, a rotating element mounted in the pivoted frame and operatively connected to the means for moving the same in a direction parallel with the grinder shaft, means carried by the rotating element and adapted to operatively engage with a part of the base for vibrating the pivoted frame, whereby the grinding member may impart an undulated cutting edge to the shears blade, spring means operatively connecting with the pivoted frame to hold the means carried by the rotating element rotatably in contact with a part of the base, and means mounted on the base to operatively engage the pivoted frame for disposing said frame to prevent the device from operatively engaging said base so as to hold the pivoted frame against vibration, whereby a straight cutting edge may be imparted to the shears blade.

8. In a grinding machine as set forth, a supporting base frame having abutments, a second frame pivoted on the base frame for pivotal movements in a direction transversely of the base frame, a rotating shaft mounted in bearings on the base frame to one side of and in parallelism with the pivoted frame and carrying a grinder, means for operatively supporting a shear blade on the pivoted frame for movement in a direction at right angles to the grinder, a screw swiveled in the pivoted frame for rotary movement and adapted to be manually operated, means operatively connecting said screw and the shear blade supporting

means, whereby the shear blade supporting means may be moved in a direction parallel with the grinder shaft, a cylindrical collar on one end of the screw engaging one of the abutments, a hexagon collar secured on the other end of the screw and having one of its faces bearing against the other abutment, a spring engaging between a part of the base frame and pivoted frame to hold one of the faces of the hexagon collar in engagement with its respective abutment, whereby as the screw is rotated the pivoted frame will vibrate and the shear blade supporting means will move parallel with the grinder shaft.

9. In a grinding machine as set forth, a supporting base frame having abutments, a second frame pivoted on the base frame for pivotal movements in a direction transversely of the base frame, a rotating shaft mounted in bearings on the base frame to one side of and in parallelism with the pivoted frame and carrying a grinder, means for operatively supporting a shear blade on the pivoted frame for movement in a direction at right-angles to the grinder, a screw swiveled in the pivoted frame for rotary movement and adapted to be manually operated, means operatively connecting said screw and the shear blade supporting means, whereby the shear blade supporting means may be moved in a direction parallel with the grinder shaft, a cylindrical collar on one end of the screw engaging one of the abutments, a hexagon collar secured on the other end of the screw and having one of its faces bearing against the other abutment, a spring engaging between a part of the base frame and pivoted frame to hold one of the faces of the hexagon collar in engagement with its respective abutment, whereby as the screw is rotated the pivoted frame will vibrate and the shear blade supporting means will move parallel with the grinder shaft, and adjustable means adapted to engage the pivoted frame for moving the same to disengage the collars from said abutments, whereby the shear blade supporting means may be moved without vibrating the pivoted frame.

In testimony whereof we hereunto affix our signatures.

ALBERT T. SCHEIWER.
DAVID FERGUSON.