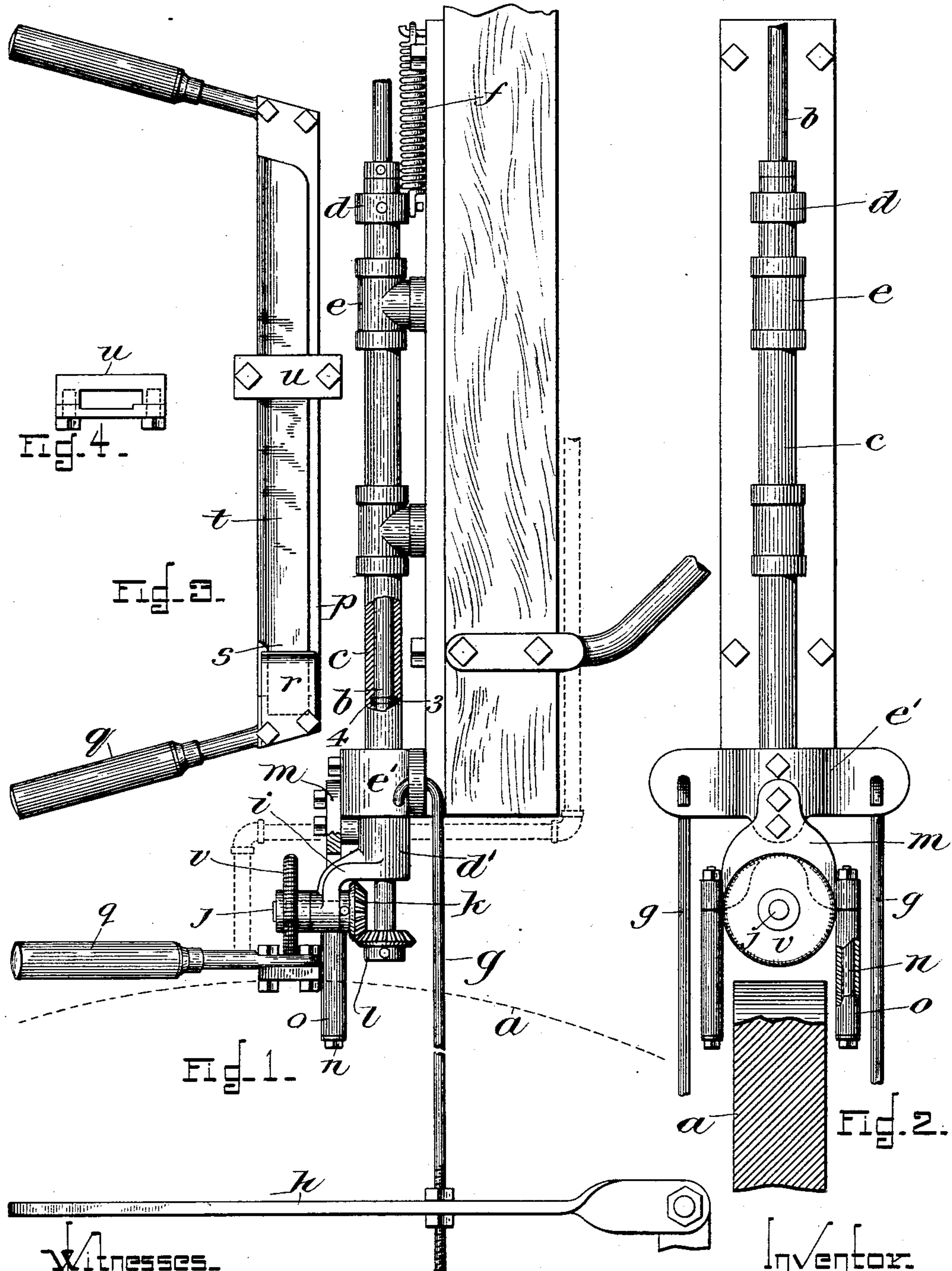


(No Model.)

E. D. WOODS.
GRINDING MACHINE.

No. 593,425.

Patented Nov. 9, 1897.



Witnesses.

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EDWARD D. WOODS, OF MANCHESTER, VERMONT.

GRINDING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 593,425, dated November 9, 1897.

Application filed March 5, 1897. Serial No. 625,945. (No model.)

To all whom it may concern:

Be it known that I, EDWARD D. WOODS, of Manchester, in the county of Bennington and State of Vermont, have invented certain new and useful Improvements in Grinding-Machines, of which the following is a description sufficiently full, clear, and exact to enable those skilled in the art to which it appertains or with which it is most nearly connected to make and use the same.

This invention has relation to machines for grinding cutlery and metal of any kind.

It is the object of the invention to produce such improvements in grinding-machines as will so enhance their usefulness and enlarge their scope of efficiency, make their effects uniform, and permit unskilled or ordinary labor to accomplish as rapid and as high-grade or good work as the most skilled and accomplished artisan of their class.

It is also the object of the invention to provide other improvements incidental to the foregoing which will overcome objections heretofore existing and gain advantages which it is desirable to secure, all as I will now proceed to describe in detail and subsequently point out with particularity in the appended claims.

Reference is to be had to the annexed drawings and to letters marked thereon, forming a part of this specification, the same letters designating the same parts or features, as the case may be, wherever they occur.

Of the drawings, Figure 1 is a side view, partially in section, of the essential features of my improved grinding-machine. Fig. 2 is a front view of the same, the holding device and another part shown in Fig. 1 being omitted. Fig. 3 is an inverted view of the holder with a blade to be ground in place therein. Fig. 4 is a side view of the slide-strap hereinafter more fully described.

In the drawings, *a* (shown by dotted lines in Fig. 1 and by full lines in Fig. 2) is a grinding or polishing wheel or grindstone of suitable character and size.

b is a vertical rotary shaft arranged in suitable bearings over the grinding-wheel and supported in a sleeve *c*, which is adapted to move longitudinally but not to turn in its bearings. The shaft *b* has a spline and annular groove connection with the sleeve, as

is shown in Fig. 1 at the point where the sleeve is broken away, so that it may rotate axially independent of the sleeve, but be moved longitudinally in unison with it.

The shaft *b* has operative connections (not shown) by which it is rotated alternately first in one and then in the other direction.

Collars *d d'*, arranged on the sleeve *c*, respectively outside of the bracket-bearings *e e'*, serve to limit the longitudinal movement of the sleeve and shaft. A spring *f*, connected with the sleeve and a stationary part, serves to hold the sleeve and shaft normally in raised position, and rods *g g*, connected with the sleeve and a treadle or lever *h*, serve as a means whereby the sleeve and rod may be depressed against the tension or stress of the spring.

Connected with the bearings *e'* is a bracket *i*, which supports and forms a bearing for a short horizontal shaft *j*, on the inner or rear end of which is secured a bevel wheel or pinion *k*, which is engaged by a similar wheel *l* on the lower end of shaft *b*. Also connected with the bearing *e'* is a bracket *m*, provided in the forward ends of branching arms with vertical rods or studs *n*, on which are sleeves or rollers *o*, the rods and sleeves extending down on opposite sides of the grinding-wheel *a*, as clearly shown in Fig. 2.

The holder for the blade or edge tool to be ground (supposing that that is the use to which the machine herein shown is adapted to be put) is represented in Fig. 3, wherein *p* is the supporting or holding bar and *q* the handles extending from the ends of the same. The bar *p* is provided at one end with a suitably-constructed spring holding-clip *r*, under which the shank *s* on one end of the blade *t* to be operated upon is placed and which the spring bears upon to hold it in place against movement by the grinding-wheel.

A slide-strap *u* is constructed to embrace the blade and holding-bar beyond the blade-shank and to slide along on the bar and blade as the latter is being sharpened or ground, as will presently more fully appear.

v is a friction-wheel arranged on the forward or outer end of the shaft *j* and to bear upon the holding-bar *p* in the operation of the machine, so as to feed or move the said bar and the blade held thereby from side to side

in the grinding operations as the shaft *b* is rotated in one direction or the other. All has been made so clear as to need no further detailed description.

5 With the parts constructed and arranged as described the operator, taking hold of the handles *q*, will simply bear upon and otherwise control the blade held by the bar *p* as it is fed back or forth by the wheel *v*, the strap *u* serving to keep the blade in place and the
10 roll-sleeves *o* performing the office of sliding the strap along on the bar or blade without allowing the same to come into contact with the grinding-wheel. The principal office of
15 the rotary sleeves *o* is to afford a rearward bearing for the holding-bar *p* and to allow the latter to be reciprocated longitudinally with ease and without undue friction. The operator, by bearing upon the treadle or lever *h*
20 with his foot or in other way, may cause the friction-wheel *v* to bear the blade held by the bar *p* upon the stone or grinding-wheel with the requisite force. Upon releasing pressure from the treadle or lever *h* the pressure of the
25 wheel *v* on the bar *p* will be released and the spring *f* will raise the same off the bar.

The form of the holding-bar *p*, clip *r*, and slide-strap *u* may be varied within the easy limits of mechanical skill to suit different
30 blades or articles to be acted upon, an article like a corn-knife blade being herein shown simply for the purpose of showing one use that may be made of my invention.

The advantages and mechanical virtues of
35 the improvement are many and most of them so obvious to those skilled in the art that a recitation of them at this point is considered unnecessary.

Having thus explained the nature of the
40 invention and described a way of constructing and using the same, though without attempting to set forth all of the forms in which it may be made or all of the modes of its use, it is declared that what is claimed is—

45 1. A grinding-machine comprising in its construction the grinding-wheel, a holding device, a presser and feed wheel adapted to bear upon the holder and gearing and operative connections to positively rotate the said
50 feed-wheel, and means for pressing the feed-wheel with greater or less force on the holder.

2. In a grinding-machine the combination, with the holder, of the presser and feed wheel

adapted to bear upon the holder and gearing and operative connections to positively rotate
55 the said feed-wheel, and rollers or rotary sleeves against which the holder may bear at its rear side.

3. In a grinding-machine the combination, with the holder, of the presser and feed wheel
60 adapted to bear upon the holder and to be rotated in opposite directions, means for supporting the feed-wheel and adapted to be raised and depressed, and rollers or rotary
65 sleeves, against which the holder may bear at its rear side, connected with the feed-wheel-supporting means.

4. The combination, with the longitudinally-movable sleeve *c* and its bearings and supports, of the shaft *b* within the sleeve and
70 longitudinally movable with it but adapted to be rotated independent thereof, and the presser and feed wheel *v* operatively connected with the shaft.

5. A bearing for the rear side or edge of a
75 holder in a grinding-machine, consisting of the rotary sleeves or rollers *o*, one extending down on each side of the grinding-wheel, as set forth.

6. The combination, with the depressible
80 sleeve, and the rotary shaft therein and its connections, of the bracket *m* connected with the sleeve, and the depending rotary sleeves connected with the bracket, as set forth.

7. A blade-holder for grinding-machines,
85 comprising in its construction the bar and its handles, means for holding the blade at one end, and the strap *u* adapted to embrace the bar and blade and to move longitudinally along the same.
90

8. The combination, with the blade-holding bar, of the strap *u* embracing and longitudinally movable along the same, as set forth.

9. The combination, with the bar *p*, of the
95 spring-clip *r* and the embracing-strap *u*, as set forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 2d day of Sep-
100 tember, A. D. 1896.

EDWARD D. WOODS.

Witnesses:

ARTHUR W. CROSSLEY,
ARTHUR F. RANDALL.