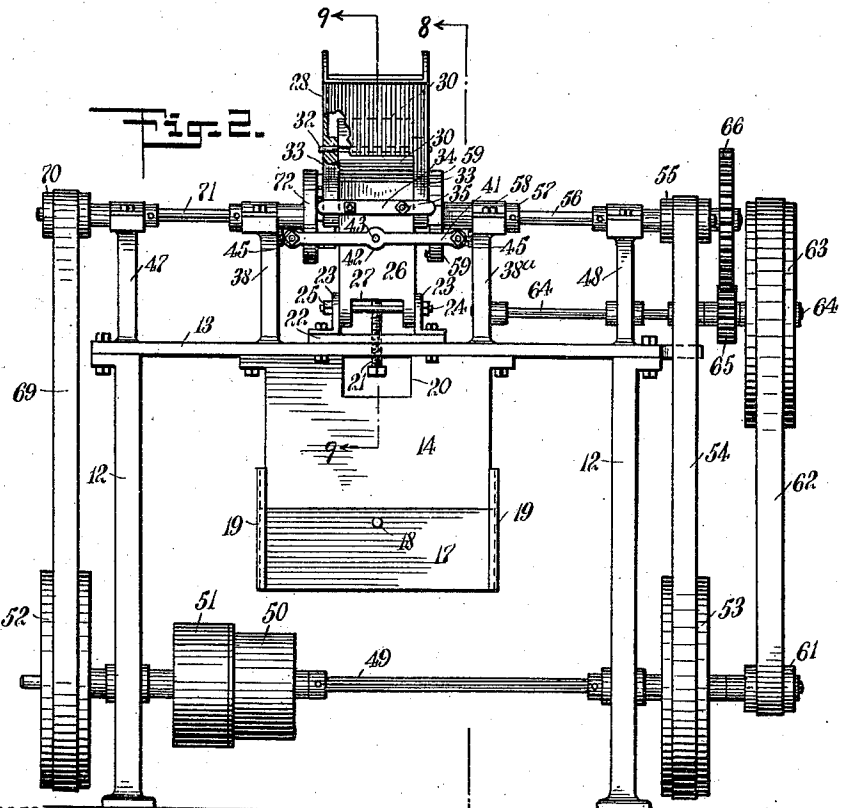
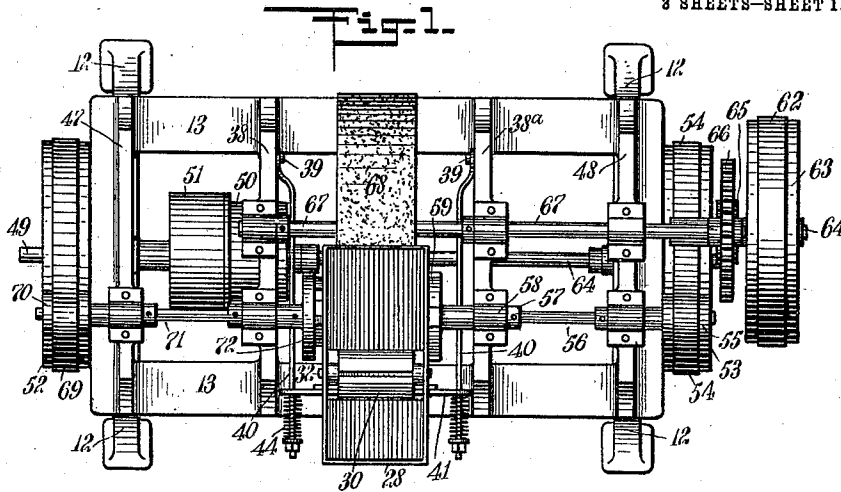


R. A. GROVER.
SKEWER MAKING MACHINE.
APPLICATION FILED JAN. 20, 1910.

977,948.

Patented Dec. 6, 1910.

3 SHEETS—SHEET 1.



WITNESSES:
F. J. Hachenberg.
Walton Harrison.

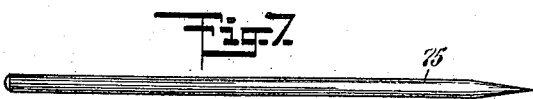
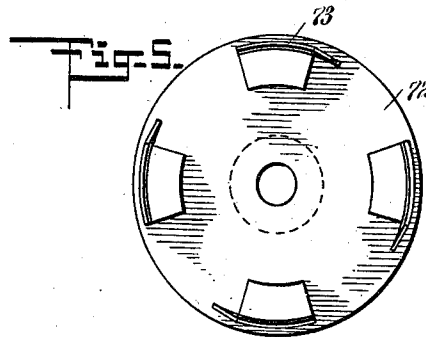
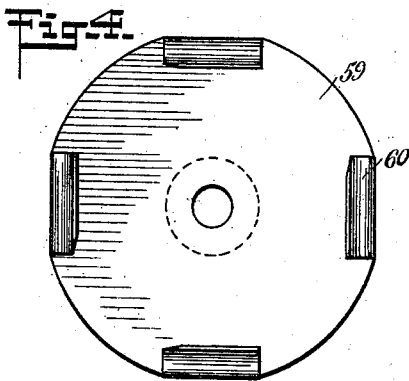
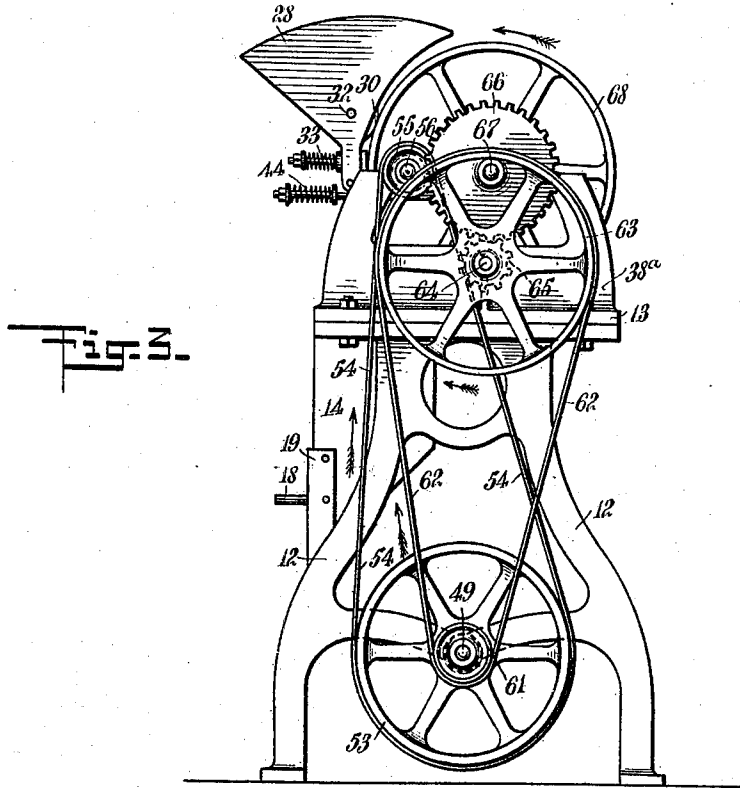
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3 SHEETS-SHEET 2.



WITNESSES:
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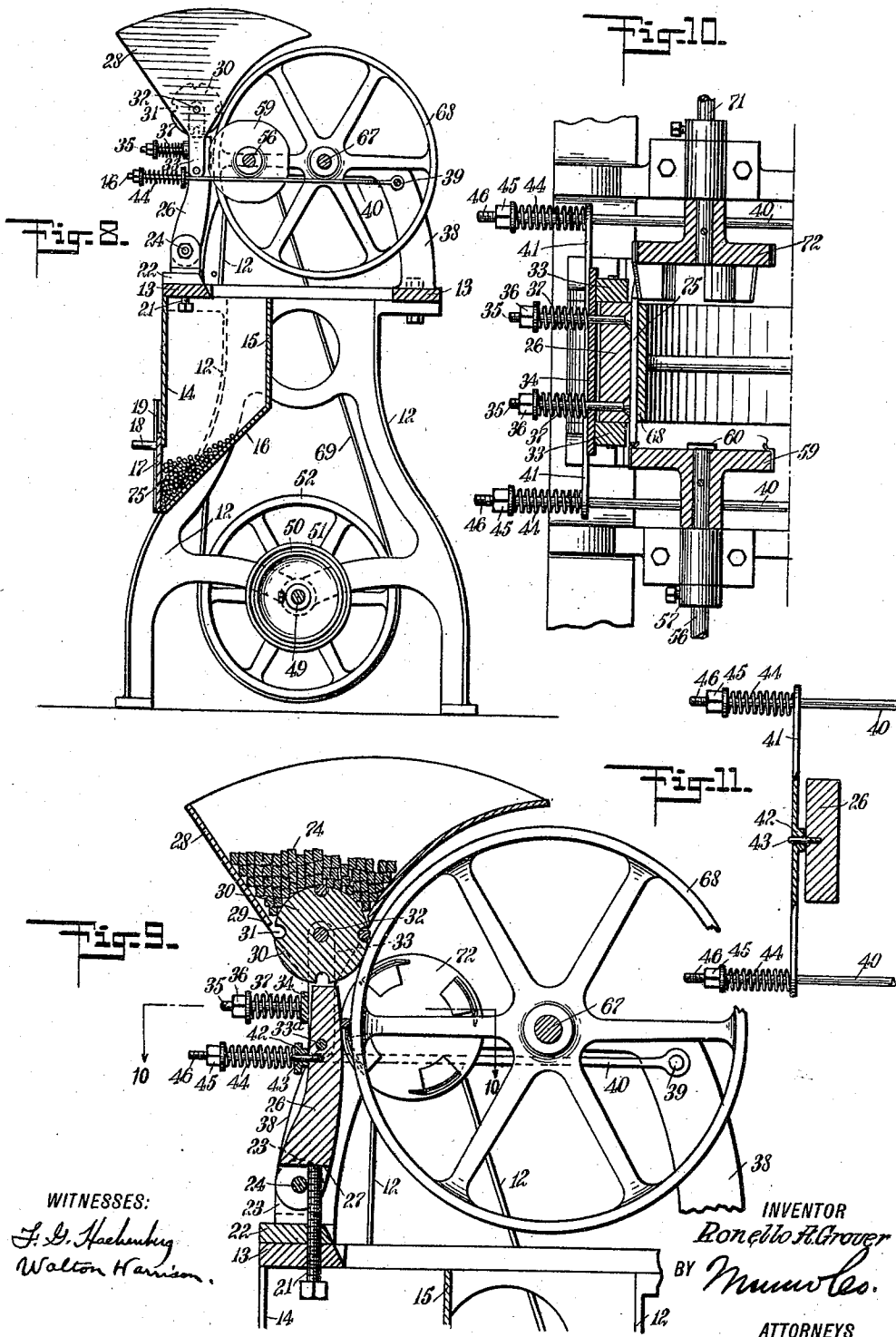
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3 SHEETS—SHEET 3.



UNITED STATES PATENT OFFICE.

RONELLO A. GROVER, OF ANDOVER, MAINE.

SKEWER-MAKING MACHINE.

977,948.

Specification of Letters Patent.

Patented Dec. 6, 1910.

Application filed January 20, 1910. Serial No. 539,062.

To all whom it may concern:

Be it known that I, RONELLO A. GROVER, a citizen of the United States, and a resident of Andover, in the county of Oxford and State of Maine, have invented a new and Improved Skewer-Making Machine, of which the following is a full, clear, and exact description.

My invention relates to skewer making machines—that is, to machines for making skewers or pins of wood for use in handling meats and in various other relations.

More particularly stated, my invention comprehends mechanism for turning small wooden rods having originally more or less imperfect shapes, into pins of cylindrical form, each pin when finished being neatly headed at one end and pointed at the other.

Briefly stated, my invention comprehends, among other things, a grinding wheel for rounding pins, a feed roller for bringing the blanks into contact with the grinding wheel, a friction plate for holding the partly finished blank loosely in contact with the grinding wheel, and cutting devices for shaping the head and point of the blank, thereby completing the skewer.

My mechanism also includes various adjustments for purposes hereinafter stated, and in addition comprehends various auxiliary parts for increasing the general efficiency of the machine.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a plan view of the machine complete; Fig. 2 is a front elevation of the same; Fig. 3 is a side elevation showing the machine as it would be seen from the right of Fig. 1; Fig. 4 is a detail showing the cutter used for finishing the heads of the skewers; Fig. 5 shows the cutter for finishing the points of the skewers; Fig. 6 is a plan view showing a blank to be formed into a skewer; Fig. 7 is a plan view showing a skewer complete; Fig. 8 is a section on the line 8—8 of Fig. 2, looking in the direction of the arrows; Fig. 9 is a fragmentary section on the line 9—9 of Fig. 2, looking in

the direction of the arrows, and showing various operative parts at work upon the blanks; Fig. 10 is a fragmentary section on the line 10—10 of Fig. 9, looking in the direction of the arrows; and Fig. 11 is a detail showing some of the spring connections for actuating the friction plate.

Mounted upon frame pieces 12 is an open table 13, and depending from the latter is a magazine 14 provided with a back wall 15 and a bottom wall 16, the latter being inclined. The magazine 14 is further provided with a door 17 having a handle 18 whereby it may be raised or lowered at will, as will be understood from Fig. 8. The door 17 works in a slideway 19 which is rigidly secured upon the magazine. The magazine 14 is provided at its top with an opening 20 (see Fig. 2) and inside of this opening is a screw bolt 21 which is adjustable by hand through the opening, as for a purpose hereinafter stated.

Mounted upon the table 13 is a plate 22 and secured rigidly upon the latter are bearing brackets 23. Extending through the latter is a stub shaft 24 held in position by aid of nuts 25. A friction plate 26 is journaled upon the shaft 24 and supported by the bearing brackets 23 so as to be able to swing in a vertical plane. The friction plate 26 is provided with a shoulder 27 (see Fig. 9) so arranged that it lodges against the upper end of the screw bolt 21 whenever the friction plate is moved to the right according to this figure. The screw bolt 21 thus serves as a limiting stop for the friction plate and may be adjusted for the purpose of affecting the movements and limits of travel of the latter.

At 28 is a hopper which is mounted rigidly upon two shanks 33, these shanks being thicker than the material of the hopper 28. The shanks 33 not only support the hopper, but extend slightly thereinto, as will be understood from the upper left-hand portion of Fig. 2 (see parts where broken away). Disposed within the bottom of the hopper 28 is a feed roller 30 provided with four peripheral slots 31 and mounted upon a shaft 32. This shaft extends directly through the lower portion of the hopper and through the

shanks 33. Owing to the thickness of the shanks 33 (see upper left-hand portion of Fig. 2) the ends of the feed roller 30 do not quite reach the adjacent inside surfaces of the
5 the hopper.

Mounted upon the friction plate 26 and supported by aid of two bolts 35 is a bar 34. The bolts 35 are mounted rigidly upon the friction plate and project directly outward therefrom. The bar 34 is provided with
10 holes which extend through it, the bar being simply slipped over the bolts. Spiral springs 37 encircle the bolts and engage the bar 34. Nuts 36 are adjustably mounted upon the
15 bolts 35, and by turning the nuts 36 the tension of the springs 37 against the bar 34 may be controlled at will.

Mounted upon the table 13 and integral with it are two pedestals 38, 38^a, and connected with the same by pins 39 are two rods
20 40 which extend toward the front of the machine. Slidably mounted upon these rods is a bar 41 having an eye 42 through its proximate center. Extending through this eye is
25 a pin 43 carried by the friction plate 26, as will be understood from Fig. 11. Encircling the two rods 40 are spiral springs 44 and engaging the latter are revoluble nuts 45 mounted upon the rods 40. For this pur-
30 pose the adjacent ends of the rods 40 are provided with threads 46. By turning the nuts 45 the tension of the springs 44 against the bar 41 may be controlled at will, and the pressure of this bar against the friction plate
35 26 is therefore controllable within reasonable limits.

Mounted adjacent to the ends of the table 13 and integral with the same are pedestals 47, 48, these pedestals being in most respects
40 similar to those numbered 38, 38^a. A shaft 49 is journaled upon the frame members 12 and is provided with loose and fixed pulleys 50, 51. Mounted upon the shaft 49 are driving pulleys 52, 53 and engaging the pulley
45 53 is a belt 54 which also engages a smaller pulley 55 carried by a revoluble shaft 56, this revoluble shaft being supported by the pedestals 38^a and 48. The shaft 56 is provided with a set collar 57 which engages a
50 bearing 58. The shaft 56 carries a cutter 59 rigidly relative to it and therefore revoluble with it. This cutter is used for shaping the heads or blunt ends of the skewers, and for this purpose is provided with knives 60 each
55 having a curved cutting edge.

A small pulley 61 is mounted upon the shaft 49, and engaging this pulley is a belt 62 which also engages a larger pulley 63 carried by a shaft 64. Mounted rigidly
60 upon the shaft 64 is a pinion 65 which meshes with a gear 66 carried by a shaft 67. Mounted rigidly upon this shaft is a grinding wheel 68 which may be of emery, or of

metal surfaced with emery or with any other suitable abrasive. A belt 69 engages the driving pulley 52 and also engages a smaller pulley 70, the latter being mounted upon a shaft 71 so as to turn the same. This shaft carries a revolving cutter 72 provided with knives 73. The cutter 72 is used for point-
70 ing the ends of the stock to be operated. The blanks are shown at 74 and the finished skewers at 75.

The operation of my device is as follows: The parts being connected as above described and power being applied to the shaft
75 49 by aid of the fixed pulley 51, motion is transmitted through the belts 54, 62 and 69 to the various revoluble shafts. The revoluble cutters 59, 72 are thus actuated. A
80 number of blanks 74 are now placed in the hopper. The grinding wheel 68 is turning and by its friction against the feed roller 30 causes the latter to turn. The blanks 74 lodge one at a time into the slots 31 and are
85 carried bodily around until they are engaged by the surface of the grinding wheel 68. Each blank upon being engaged by this grinding surface is turned bodily over and over without moving from its slot and at the
90 same time is shifted bodily downward as the feed roller turns slowly. In doing this the blank 74 is reduced to a cylindrical form. It now passes downwardly from the feed roller and is engaged by the friction plate
95 26. The latter being slightly rounded upon its surface adjacent to the grinding surface, as indicated in Fig. 9, simply presses the blank against the grinding wheel. The blank having now a cylindrical form tends
100 to roll upon the rounded surface of the friction plate, but as the cutters 72, 59 have a comparatively high speed, they effectively operate upon the ends of the blank before the latter has time to travel very far down-
105 wardly. The net result is that each partially finished blank by its rolling motion downwardly, caused by the rotation of the grinding wheel 68 and the drag of the friction plate 26, turns upon its own longitu-
110 dinal axis and its ends are effectively dressed by the cutter wheels 59, 72. Owing to the shape of the knives 60 upon the cutter wheel 59, the adjacent end of the blank is merely rounded as indicated at the left of Fig. 7.
115 The opposite end of the blank, however, is brought to a sharp point like a pencil point, this being due to the shapes of the cutting knives 73. The rotation of the grinding wheel 38 against the skewer which is now
120 finished, causes the latter to drop downwardly into the magazine 14. The finished skewers are removed by simply grasping the handle 18 and raising the door 17, the inclination of the bottom wall 16 of the maga-
125 zine causing the skewers to roll out.

It will be noted that as the hopper 28 is rigid relatively to the shanks 33 and as the latter are, by aid of the shaft 32, journaled upon the friction plate 26, the hopper 28 and the friction plate 26 are, within slight degrees, independent of each other in their movements. The hopper, for instance, may be moved slightly away from the grinding wheel 68 without causing the friction plate 26 to move correspondingly, and vice versa. Moreover, the pressure of the friction plate 26 as controllable by the tension of the springs 44, is to some extent independent of the pressure of the feed roller 30 against the grinding wheel 68, as this pressure is controllable by the tension of the springs 37. The operator, by adjusting either set of springs 44 or 37, may, to some extent, control the pressure exerted against the skewer blank by the friction plate 26, or by the feed roller 30. Again, by adjusting the bolts 21 the operator may limit the play of the friction plate 26, and in doing this may adjust at will the pressure of the feed roller 30 against the grinding wheel 68, so that if desired the pressure of the feed roller 30 may remain as it was before adjusting the play of the friction plate 26.

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

1. A device of the character described, comprising a grinding wheel, a friction plate movable relatively to said grinding wheel, means for pressing said friction plate toward said grinding wheel in order to hold a piece of stock against the latter, a feed roller mounted upon said friction plate and movable bodily therewith toward and from said grinding wheel, and mechanism controllable at will for limiting the bodily movement of said friction plate toward said grinding wheel.

2. The combination of a revoluble grinding member, a friction plate disposed adjacent to the same, a revoluble feed member carried by said friction plate for the purpose of pressing against said grinding member a piece of stock to be operated upon, means for limiting the movements of said friction plate relatively to said grinding member, and mechanism controllable at will for exerting a predetermined degree of pressure against said friction plate and toward said grinding member.

3. The combination of a feed roller provided with pockets for receiving pieces of stock to be operated upon, a revoluble grinding member disposed adjacent to said feed roller and adapted by its own friction against said feed roller to turn the same, mechanism for forcing said feed roller against said revoluble grinding member, and

means controllable at will for adjusting the pressure of said feed roller against said grinding member.

4. A device of the character described, comprising a revoluble grinding member, a feed roller disposed adjacent thereto, and actuated by friction directly therewith, said feed roller being provided with pockets for receiving stock to be operated upon and for discharging said stock, and a friction plate for pressing said stock one piece at a time against said revoluble grinding member as said stock is discharged one piece at a time from said pockets.

5. The combination of a revoluble grinding member, a feed roller disposed adjacent thereto and actuated by direct frictional contact therewith, said feed roller being provided with pockets for receiving stock to be operated upon and for discharging said stock, a friction plate for pressing said stock one piece at a time against said revoluble grinding member as said stock is discharged from said pockets, means controllable at will for adjusting the pressure of said friction plate toward said grinding wheel, and mechanism also controllable at will for adjusting the pressure of said feed roller toward said grinding member.

6. The combination of a grinding wheel, a friction plate disposed adjacent to the same and movable toward said grinding wheel, means for discharging pieces of stock one at a time between said friction plate and said grinding wheel in order to enable said grinding wheel to dress the bodies of said pieces of stock, and mechanism independent of said grinding wheel for dressing the ends of said pieces of stock as said pieces are operated upon by said grinding wheel.

7. The combination of a grinding wheel, a friction plate disposed adjacent to said grinding wheel and movable toward and from the same, a hopper disposed adjacent to said friction plate and said grinding wheel, a feed roller supported by said friction plate and provided with pockets for receiving from said hopper pieces of stock to be operated upon and for discharging said pieces of stock one at a time between said grinding wheel and said friction plate, and means for turning said grinding wheel.

8. The combination of a grinding wheel, a friction plate movable relatively to the same, a limiting stop for preventing undue travel of said friction plate toward said wheel, a hopper for holding pieces of stock to be operated upon, a feed wheel supported by aid of said friction plate and provided with means for receiving pieces of stock from said hopper and for discharging the same between said friction plate and said grinding wheel, and means for adjusting

the pressure of said feed wheel toward said grinding wheel.

9. The combination of a grinding wheel,
a friction plate movable relatively to the
5 same, a limiting stop for preventing undue
travel of said friction plate toward said
wheel, a hopper for holding pieces of stock
to be operated upon, a feed wheel supported
by aid of said friction plate and provided
10 with means for receiving pieces of stock
from said hopper and for discharging the

same between said friction plate and said
grinding wheel, and means controllable at
will for adjusting the pressure of said fric-
tion plate relatively to said grinding wheel. 15

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

RONELLO A. GROVER.

Witnesses:

CHAS. A. MERRILL,

CHAS. H. MORGAN.