P. H. BARZ.

POLISHING MACHINE.

APPLICATION FILED JULY 2, 1908.

914,378.

Patented Mar. 9, 1909.

4 SHEETS—SHEET 1.

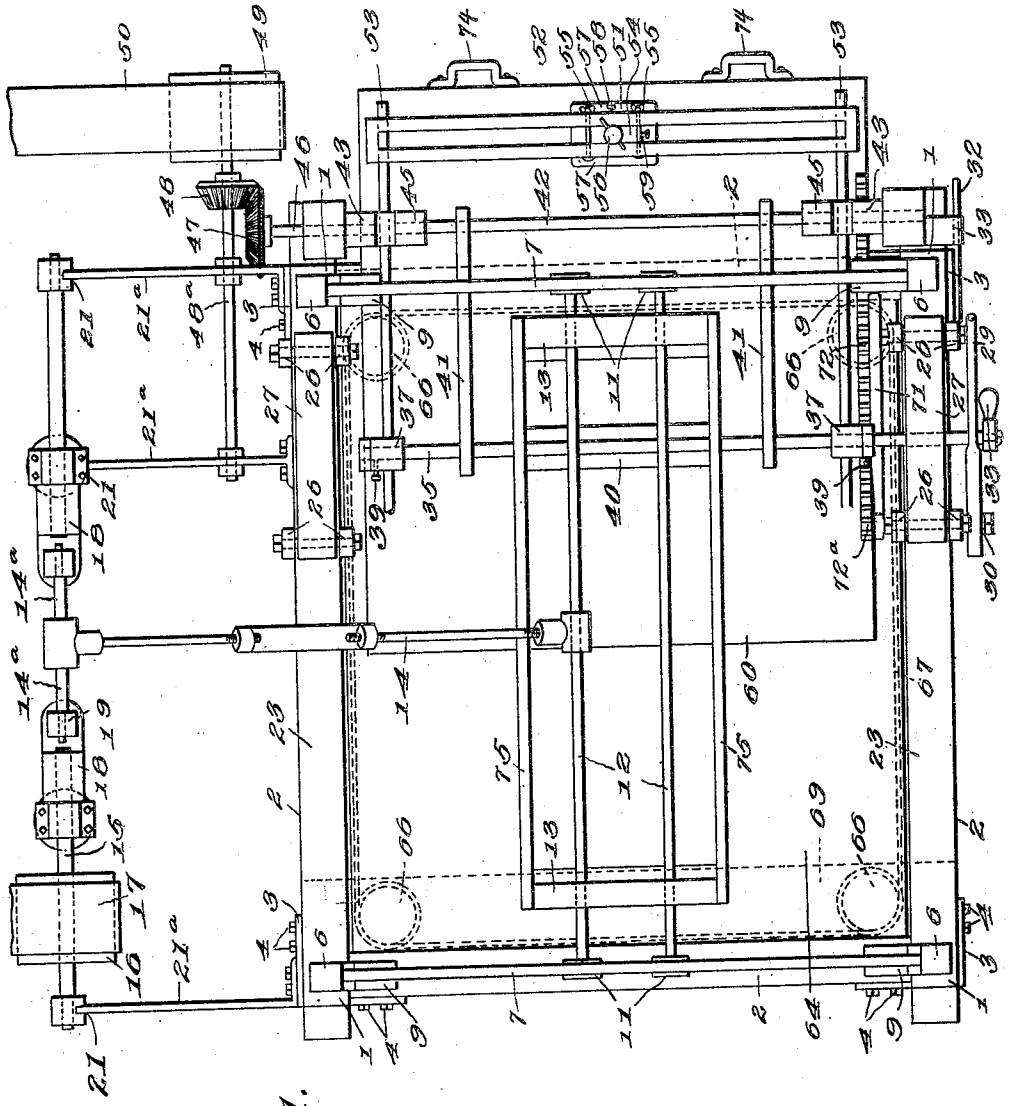


Fig. 1.

Witnesses

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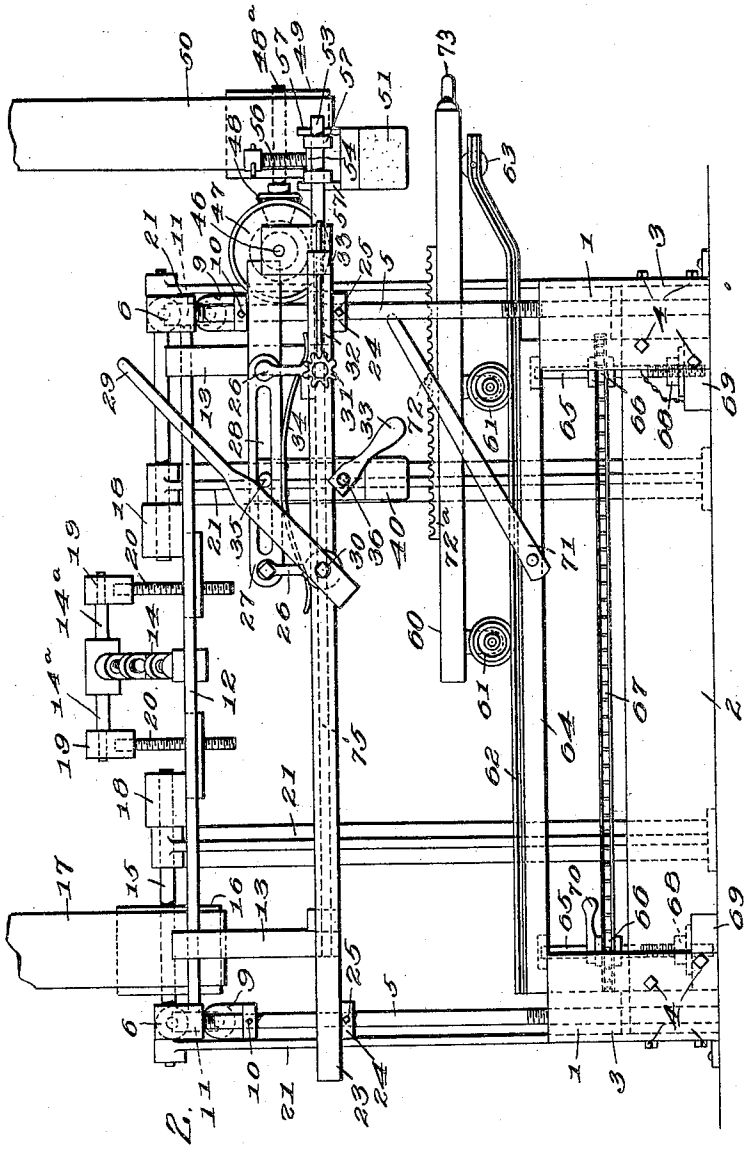


Fig 2.

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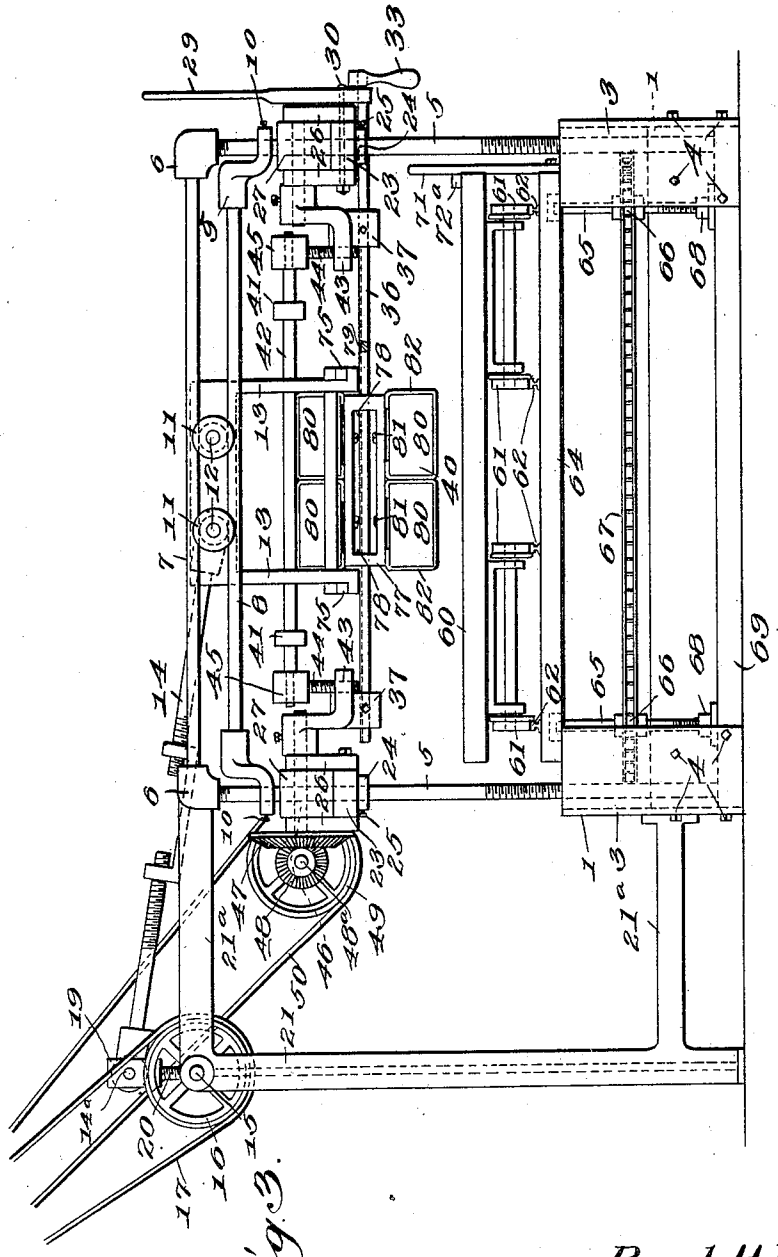


Fig. 3.

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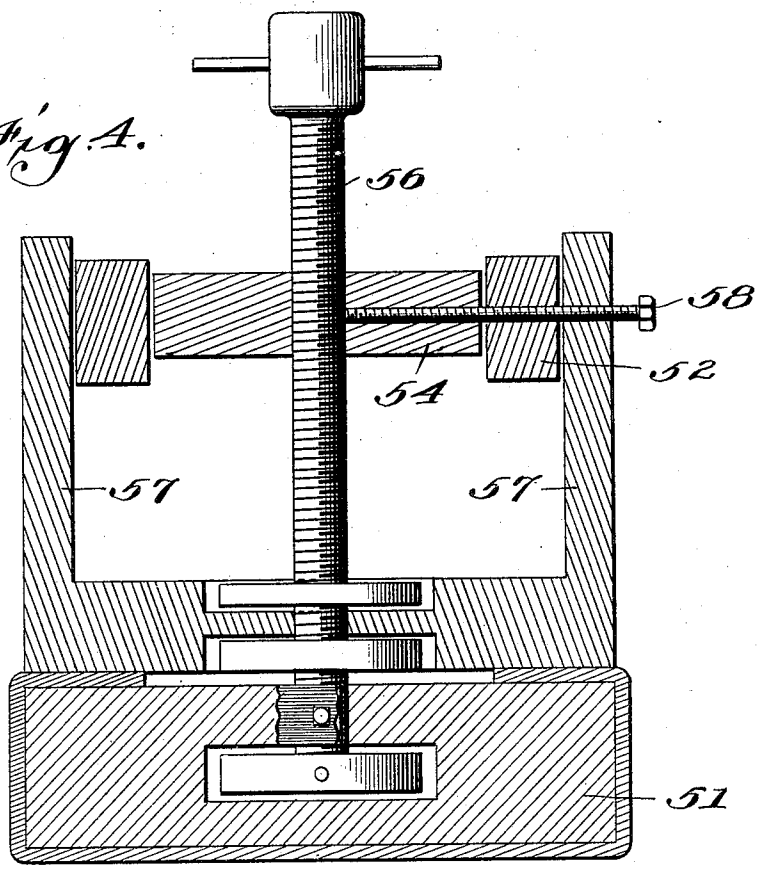
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4 SHEETS—SHEET 4.

Fig. 4.



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UNITED STATES PATENT OFFICE.

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POLISHING-MACHINE.

No. 914,378. Specification of Letters Patent. Patented March 9, 1909.

Application filed July 2, 1908. Serial No. 441,669.

To all whom it may concern:

Be it known that I, PAUL H. BARZ, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Polishing-Machines, of which the following is a specification.

This invention relates to polishing machines, particularly adapted and intended for polishing wood, and it has for its object to provide an improved machine characterized by novel means for supporting the work and for applying the rubbing block thereto.

In the accompanying drawing, Figure 1 is a plan view of the machine; Fig. 2 is a front elevation thereof; Fig. 3 is a side elevation; Fig. 4 is a section of one of the polishing blocks.

The base of the machine consists of a rectangular frame formed of four iron corner blocks 1, and of four timbers 2. The iron corner blocks 1, are provided with laps 3, to which the four timbers 2 are fastened by screws 4. The blocks are further provided with holes or taps to receive the four standards 5, which are screwed in the iron corner blocks 1. The upper end of the four standards 5 are also provided with screw threads, and screwed on the upper end of the standards are four elbows 6 which receive opposite horizontal bars 7. Lower horizontal bars 8 are screwed in elbows 9, which are fastened to the four standards 5 by set screws 10. Movable between each pair of the parallel horizontal bars 7 and 8 are a pair of grooved wheels 11. The opposite wheels 11 are connected by cross bars 12 extending across the machine. The distance between the wheels 11 and their bars 12 is kept by the rectangular frame 13 through the upper pieces of which the bars 12 pass, and the frames 13 are connected and spaced by cross bars 75. The carriage so formed is reciprocated by a pitman 14 and is operated by a crank connection with the sectional shaft 15 driven by pulley 16, and belt 17 in connection with any suitable motor, not shown in the drawing. The crank is formed by castings 18 which are fixed on shaft 15 and connected with the blocks 19 by screws 20, the end pieces of the pitman having lateral pins 14^a projecting into bearings in the blocks 19. The screws permit adjustment of the throw of the crank and consequently of the stroke of the pitman 14 and accordingly variation of the movement of the carriage. The arm 14 is also adjustable in length as it is made in sections connected by a screw yoke.

The main shaft section 15 with the driving pulley thereon is supported in bearings on iron pillars 21 which are screwed to the floor and the end pillars and also connected to iron blocks 1, and the heads 6 by braces 21^a.

The four standards 5 carry parallel cross timbers 23 which rest on collars 24, held in place on the standards by set screws 25. On each of the timbers 23 is pivotally mounted two pairs of rocker arms 26 which are connected to and carry the castings 27, which are provided with a slot 28. A handle 29 is fixed to the pivot pin 30, of one pair of the rockers, and by means of this handle 29 the slotted castings 27 can be raised or lowered by swinging the handles. To hold the slotted castings 27 in the position desired, one arm 26 is formed with a pinion 31, in which a sliding catch pin or stopper 32 engages when advanced for that purpose. The pin 32 slides in a block 33 secured to the timber 23. Under the slotted casting 27 is a flat spring 34 to keep the casting steady when set. As shown, there is a slotted casting 27 similarly mounted at opposite ends of the machine.

A bar 35 extends from front to rear of the machine and the ends of this bar rest in the slots 28, so that the bar is movable laterally the length of slots 28. Under this bar 35 is mounted another and parallel bar 36 by means of hangers 37, and the lower bar 36 is held in the lower end of hangers 37 by a set screw 39. The bar 36 guides the polishing block indicated as a whole at 40 and hereinafter more particularly described. Said block slides on bar 36 and it is carried by the bars 75 between the frames 13, when the motor is operating the carriage. The bars 35 and 36 are rigidly connected to each other by hangers 37, and the bar 35 is moved in the slots 28 by the links 41, which are connected to a longitudinal bar 42, the ends of which set in blocks 45 at the ends of screws 44 carried by angle castings 43, one of which is fast on the shaft 46. This forms, in effect, a wide crank of small throw, the bar 42 being eccentric to the shaft 46, so that when said shaft is rotated the bar 42, and consequently the bar 36, have a slight

lateral reciprocation, while the polishing block at the same time is longitudinally reciprocated by the carriage above described. The shaft 46 has a bevel gear 47 meshing with a bevel pinion 48 on a shaft 48ª having a pulley 49 and belt 50, which may be driven from the same shaft as the belt 17.

An extra polishing block 51, (see Figs. 1 and 2) is attached to a long frame 52. Two horizontal rods 53 fastened to the hangers 37 and in rigid connection with frame 52, will operate this polishing block 51 in the same manner as polishing block 40, but laterally only and not from front to rear, since it has no connection with the carriage. Polishing block 51 can be set at any point along the frame 52 and is held in place by clamping in middle part 54 with screws 55 between frame 52. An adjusting screw 56 works up and down in the block 54; it holds the side parts 57 and is fastened by set screw 58. The lower part, that is, the polishing block 51, is covered with felt or rubber stuff or sand paper if wanted—and can be lowered or raised by the screws 56, and is set by screw 59. In Fig. 3 the block 51 is not shown in order to avoid confusion. The extra block is useful in polishing off the end of the work.

The board, veneer, or other material to be polished, is laid on a table 60. This table rests on wheels 61 which run on tracks 62 from side to side of the machine. The end of the table runs on rollers 63, placed between the rails which are bent up as shown. The rails 62 are fastened to platform 64 which rests on vertical screws 65, which are provided with sprocket wheels 66, connected by sprocket chain 67. The screws 65 screw into nuts 68, fixed on cross timbers 69. By turning the sprocket wheels 66 with handle 70, the platform can be raised or lowered, the chain operating all the screws. A latch 71 with pin 72 is pivoted to platform 64 and will hold the table 60 in place by engaging the pin 72 in a rack 72ª on table 60. Fig. 2 shows the polishing blocks raised off the table, because the slotted castings 27 are at their highest point. When the castings 27 are lowered by handle 29, the polishing blocks will be lowered, and a certain pressure of the blocks on the material to be polished can be effected by pressing the handle down or raising the platform 64. The rigid relation of the rectangular bars 35, 42 and links 41 causes simultaneous and similar movements of the castings at both front and rear.

The block 40 consists of a middle wooden part 77, slipped on the shaft 36, and the upper and lower wooden parts 80 covered with felt or sandpaper or rubbing material. Shaft 36 has at its end a handle 33, by which the shaft 36 can be turned, and with it the block 40, its lower part up and upper part down. The polishing block is held against rotation on the rod 36 by keys 78 which fit in a lengthwise groove 79 in the rod.

If desired, the machine can be duplicated and polishing blocks can be arranged at both ends, and all four blocks can be worked at the same time. This will employ two end blocks 51 and two blocks 40; and the table 60 will have to be extended across to the other side. The table 60 can be cut in two, or made in two parts, as the purpose may require. 74 are handles to draw the table out. The parts 80 of the polishing block are secured by set screws 81 to the frame 77. The felt, sandpaper, or rubbing material 82 is held between frame 77 and block 80 by means of the set screws 81. The felt, etc. is wrapped around the blocks 80.

In operation, the block 40 fits between the bars 75, connecting the carriage frames 13. When the carriage is reciprocated, the block will also be reciprocated, sliding on the bar 36. At the same time, said bar is moved laterally by the crank bar 42 and connecting links 41. This produces a compound reciprocation or zigzag movement similar to that usually produced in hand polishing, and by shifting the table 60, all parts of ordinary work can be reached.

I claim:

1. In a polishing machine, means to produce compound movement of the rubbing block, comprising a carriage engaging the block and adapted to reciprocate in one direction, the block being slidable laterally in the carriage, a bar extending across under the carriage and on which the block is slidable parallel to the said direction of reciprocation, and means to reciprocate the bar laterally in a direction at a right angle to that of the carriage.

2. The combination with a table and a rubbing block, of means to produce a compound movement of the rubbing block, including a laterally reciprocable bar on which the block is slidable longitudinally, and supports at opposite ends of the bar adjustable up and down to raise or lower the block.

3. The combination with a table and a rubbing block, of means to produce a compound movement of the rubbing block, including a laterally reciprocable bar on which the block is slidable longitudinally, and supports at opposite ends of the bar adjustable up and down to raise or lower the block, said supports comprising members having slots into which the ends of the bar extend, and rocker arms sustaining said members.

4. In a polishing machine, the combination of a main frame, a reciprocating carriage mounted on the upper part thereof and having depending parts, a table under said carriage, a bar extending across between the table and the carriage parallel to the line of reciprocation of the carriage, a

rubbing block mounted on said bar and fitting between said depending parts, means to reciprocate the bar, and means to reciprocate the carriage.

5. In a polishing machine, the combination of a main frame having tracks in the upper part, a carriage mounted on the tracks and having cross bars depending therefrom, a table under the carriage, a guide rod between the table and the carriage, a polishing block slidable on the rod and fitting between said cross bars and capable of lateral movement therebetween, and means to reciprocate the carriage.

6. The combination with a frame, tracks mounted therein, and having projecting ends bent upwardly, a roller journaled on said ends, and a table mounted on wheels on the track and resting at one end on said roller.

7. The combination with a rubbing block and means to reciprocate the same in two directions simultaneously, of a second rubbing block connected to part of said means for reciprocation thereby in one of said directions only.

8. The combination with a double ended rubbing block and means to reciprocate the same, of a single rod on which the block slides, the rod being rotatable to turn either end of the block to the work.

9. In a polishing machine, the combination of a main frame having parallel tracks at the top, a carriage movable back and forth on said tracks, and having depending bars across the line of reciprocation, a guide rod extending parallel to said line and located under the bars, a rubbing block mounted to slide on said rod and projecting between the said bars, so that the block is moved with the carriage, a vertically adjustable bar having depending hangers connected to and supporting said guide rods, means to reciprocate the carriage, and means to vibrate the rod laterally with respect to the line of said reciprocation.

In testimony whereof I affix my signature in presence of two witnesses.

PAUL H. BARZ.

Witnesses:
WM. J. ROBINSON,
MARIE PERKINS.