

Sept. 18, 1928.

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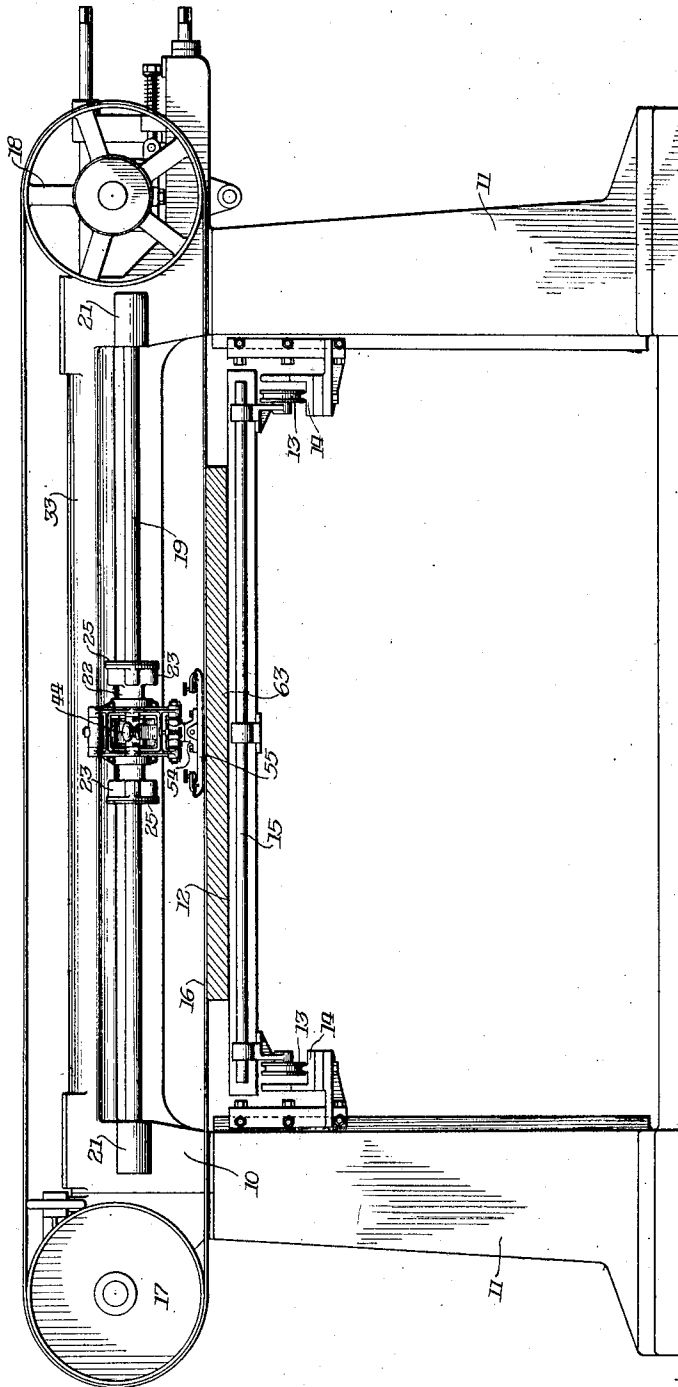
E. R. YOUNG

SANDING MACHINE

Filed June 20, 1927

3 Sheets-Sheet 1

Fig. 1.



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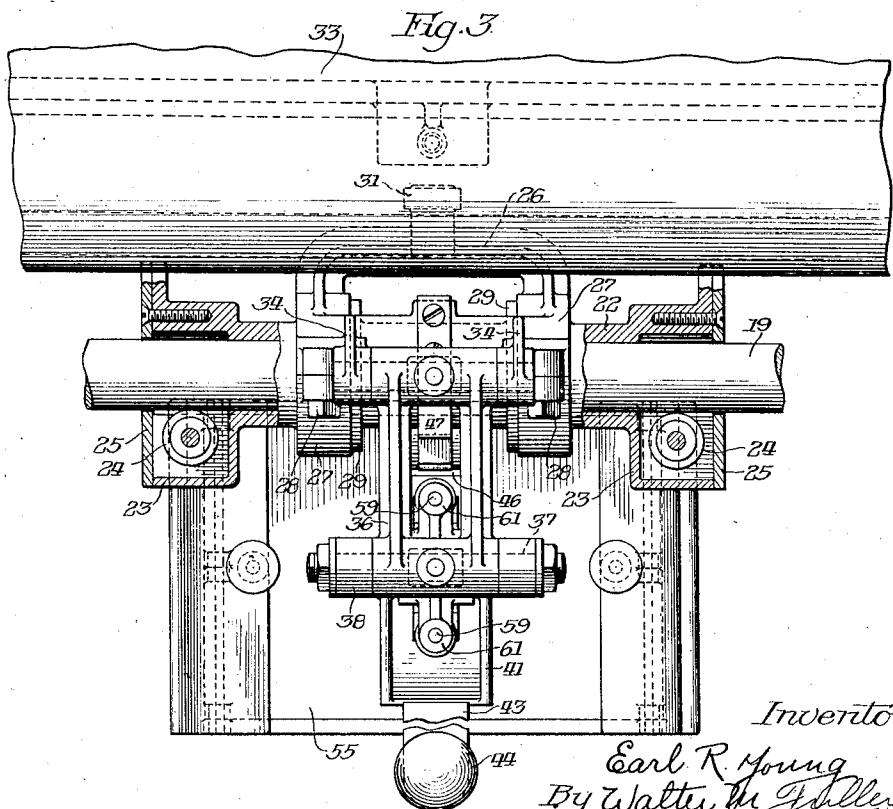
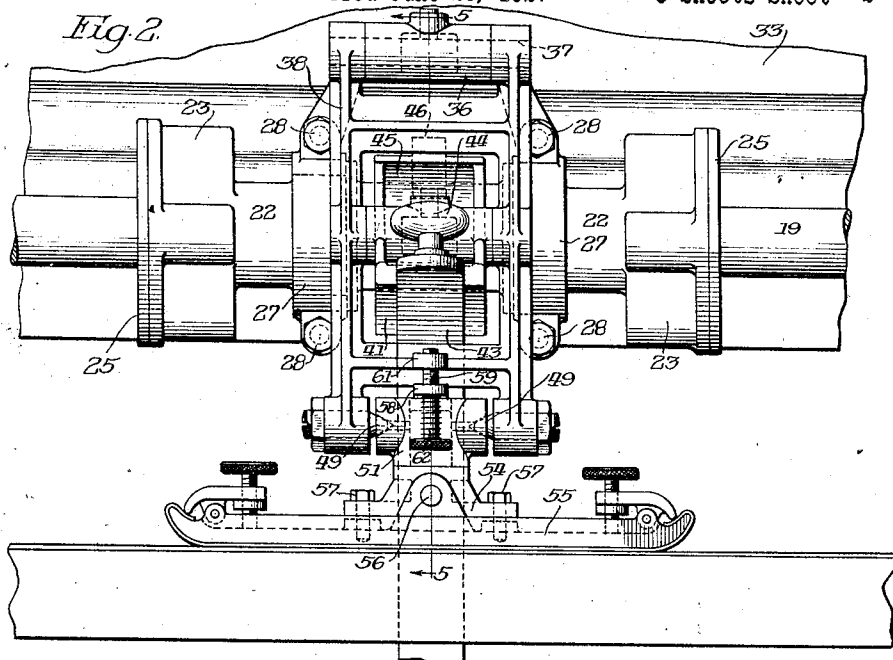
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Fig. 4.

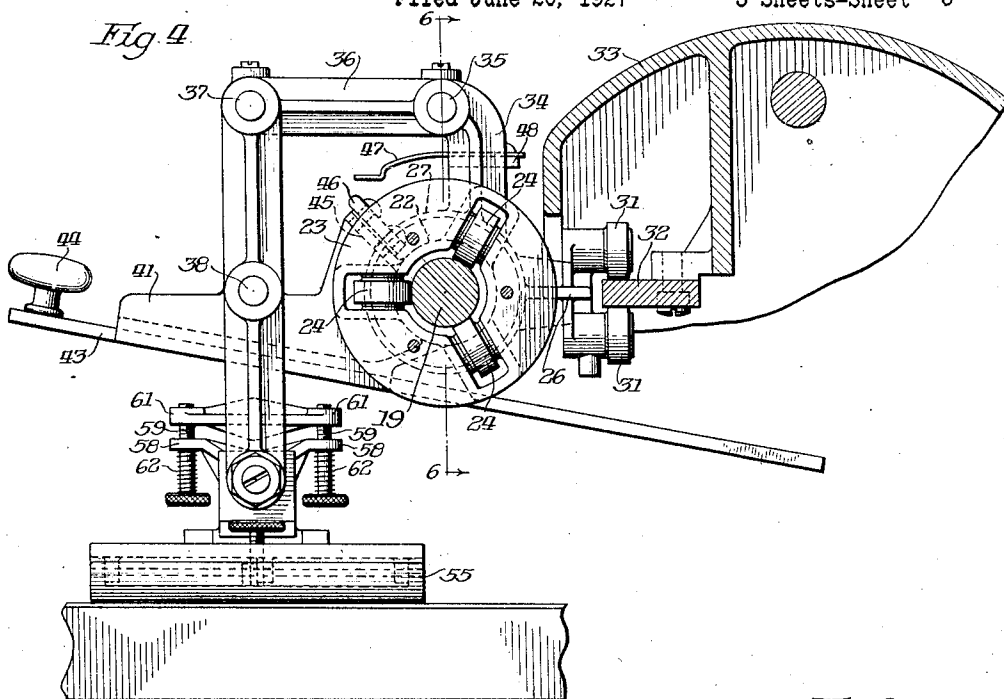


Fig. 5.

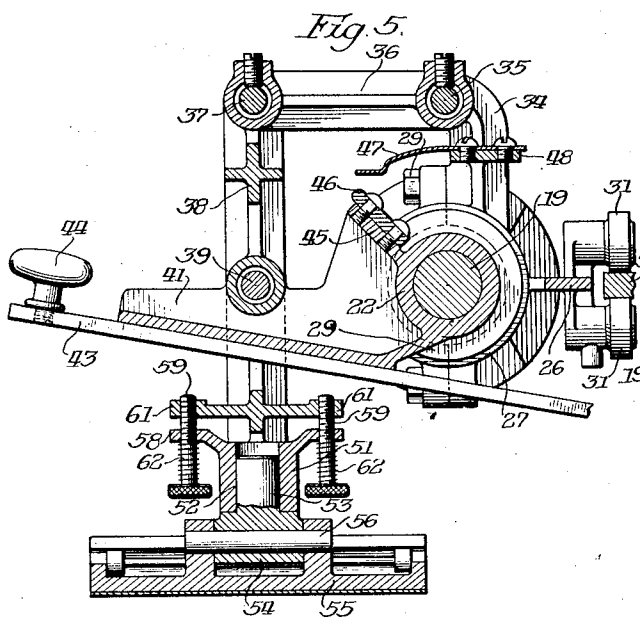
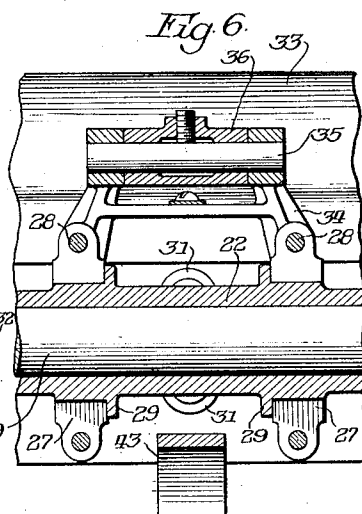


Fig. 6.



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UNITED STATES PATENT OFFICE.

EARL R. YOUNG, OF BELOIT, WISCONSIN, ASSIGNOR TO YATES-AMERICAN MACHINE COMPANY, OF BELOIT, WISCONSIN, A CORPORATION OF DELAWARE.

SANDING MACHINE.

Application filed June 20, 1927. Serial No. 199,876.

The invention forming the subject-matter of this patent concerns features of novelty and advantage in rubbing, polishing or sanding machines in which the work is performed by an endless sanding or abradant belt which is pressed against the surface to be operated upon by a suitable head or presser.

One of the leading objects of the invention is the provision of a simple and easily operated means for manually pressing the belt to its work, the structure being such that a high grade of product is comparatively readily produced with facility and without especial skill on the part of the operator.

Other desirable advantages, both structural and functional, resulting from the employment of the invention will be made clear to those skilled in this art from an understanding of a present preferred embodiment of the invention illustrated in the accompanying drawings forming a part of this specification and throughout the views of which like reference numerals have been used to designate the same structural elements.

In these drawings:

Figure 1 is a front elevation of the improved machine;

Figure 2 is an enlarged, fragmentary elevation of the central part of the appliance;

Figure 3 is a plan of the structure shown in Figure 2 with some parts broken away;

Figure 4 is an end elevation of the construction presented in Figures 2 and 3;

Figure 5 is a vertical cross-section on line 5—5 of Figure 2; and

Figure 6 is a lengthwise section on line 6—6 of Figure 4.

Referring to these drawings, it will be perceived that the new machine includes a suitable frame 10 between the spaced standards 11, 11 of which a work-table 12 is adapted to travel forwardly and rearwardly by means of carrying-wheels 13, 13 designed to roll on parallel tracks 14, 14 mounted vertically-adjustably in any approved manner on the inner surfaces of such standards, the table having a front hand-rail 15 by means of which it may be easily slid backward and forward to shift the work resting on the table into

different positions for local application of the sanding or smoothing action.

As is customary in constructions of this general character, the machine is fitted with an endless, horizontal sanding-belt or band 16 extending around widely-spaced drums or pulleys 17 and 18, one of which is power-rotated by means not shown and one of which is adjustable to permit the elimination of undue slack or looseness in the polishing belt.

The pressure head or shoe overlying the lower operative stretch of the sanding belt is supported and slidable lengthwise on a stationary round shaft 19 carried in bearings 21, 21 at opposite ends of the front of the main-frame, the carriage for such shoe comprising a tubular casting 22 through which the stationary shaft loosely extends, the two, enlarged end portions 23, 23 of the member 22 having chambers in which, at each end of the casting, three, anti-friction, pressure rollers 24, 24, 24 are mounted radially in a manner to contact with the shaft at points disposed 120 degrees apart, the opposite ends of the tubular element being closed by cover-plates 25, 25 centrally apertured to accommodate the shaft.

The bore of such sleeve 22 is slightly larger than the diameter of the shaft so that the sleeve is supported on the shaft solely by the rollers, which, because of their antifriction character, facilitate the bodily travel of the casting along the shaft, this result being effected manually, as will be explained hereinafter.

A yoke 26, having split or divided bearing ends 27, 27 with screws 28, 28 and revolvably accommodating the tubular member 22 and precluded from moving endwise of the casting by spaced, circular ribs 29, 29 integral with the member 22 and located just inside of the yoke ends 27, 27, has upper and lower anti-friction rollers 31, 31 mounted on its back part and bearing on the corresponding surfaces of a stationary flat bar 32 mounted on the inside of the longitudinal hollow part 33 of the main-frame connecting the standards together to the rear of

the abradant polishing or smoothing belt.

As thus joined together, the two members 22 and 26 constitute a unit readily reciprocable as a whole on the shaft 19, the tubular casting being capable of rocking movement around the axis of the shaft in its two bearings in the ends of the yoke.

Integral with such yoke ends are a pair of upstanding, forwardly-bent, spaced, supporting arms 34, 34, the tops of which are pivotally connected at 35 to an intervening frame-like, top link 36, the front end of which at 37 is pivotally joined to the upper part of a vertically-disposed frame 38, which, in turn, is hinged at 39 to a forwardly-extended arm 41 integral with the central part of the oscillatory sleeve or casting 22.

The lengths between the centers 35 and 37 and the axis of shafts 19 and 39 are equal, whereby this structure represents a parallel-motion mounting for the vertically-movable frame 38.

Arm 41 has a handle 43 adjustably mounted lengthwise thereon, such handle having a convenient operating knob 44 by which it may be easily manipulated, the sleeve 22 having an extension 45 carrying a catch-bar 46 adapted to coact with a leaf-spring latch 47 mounted on and projecting forwardly from a bar 48 constituting a part of the arms 34, so that, when the handle is elevated sufficiently to carry the bar 46 beneath the latch 47, the latter will hold the handle and associated elements in such raised relation until the handle is purposely pulled down to release it.

Frame 38, through which the handle 43 projects, as shown, at its lower end carries a pair of adjustable, opposed, spaced, conical centers 49, 49 rockingly supporting a bearing-block 51 having an upright bearing 52 for the trunnion or journal 53 of a member 54 to which the appropriately-shaped felt-covered pressure-shoe 55 is rockingly hinged at 56 with regulating screws 57, 57 on opposite sides of the hinge, whereby the angular position of the shoe with respect to the axis of such transverse hinge may be adjustably fixed.

Block 51 has opposite, outstanding, apertured, lateral ears 58, 58 loosely receiving a pair of screws 59, 59 threaded at their upper ends into tapped holes in registering projections 61, 61 of the frame 38, coiled springs 62 encircling the screws and bearing at their lower ends on the knurled heads of the screws and at their upper ends on the under sides of the ears 58, 58.

This improved appliance is operated practically as follows:—

The table or carriage 12 having been adjusted to the correct height and the work 63 having been placed thereon, the operator, by grasping the hand-rail 15 and moving the carriage back and forth as occasion requires, and by holding the knob 44 and thereby pushing the shoe 55 lengthwise along the shaft 19

and raising and lowering it, applying the needed degree of downward pressure thereon to secure the proper smoothing action of the abradant belt on the work, can finish or polish all parts or any portion of the top surface of the work in needed degree and with highly efficient results due in part to the parallel motion mounting of the pressure shoe and to the associated mechanical instrumentalities.

Although in this patent a single, present, preferred embodiment of the invention has been set forth in detail, those skilled in this art will readily understand that the invention is susceptible of other desirable embodiments and that many mechanical changes may be incorporated in the structure presented without departure from the heart and essence of the invention as defined by the appended claims and without the sacrifice of any of its material benefits and advantages.

Although this invention has been described and claimed in connection with a sanding machine, it is to be understood that it is equally applicable to other kinds of abrading and polishing appliances and the claims are intended to embrace such other equivalent machines.

I claim:

1. In a sanding-machine, the combination of a main-frame, a work-table reciprocatory thereon, a driven endless abradant-belt above said table, a stationary round shaft disposed lengthwise of said frame, a stationary bar arranged longitudinally of said frame, a sleeve slidable axially on said shaft and capable of turning around the axis of said shaft, a yoke in which said sleeve may turn, means to cause said sleeve and yoke to move lengthwise as a unit, means on said yoke cooperating with said bar preventing turning of the yoke but permitting its longitudinal travel, a standard on said yoke, a link hinged to said standard, an upright frame hinged to said link, an arm rigid with said sleeve hinged to said upright frame, an operating handle on said arm, and a pressure shoe mounted on the lower part of said upright frame, the mounting of said upright frame constituting a parallel-motion construction confining the position of said frame to a vertical relation.

2. In a sanding-machine, the combination of a main-frame, a work-table reciprocatory thereon, a driven endless abradant-belt above said table, a stationary round shaft disposed lengthwise of said frame, a stationary bar arranged longitudinally of said frame, a sleeve slidable axially on said shaft and capable of turning around the axis of said shaft, a plurality of radially-arranged rollers in said sleeve contacting with said shaft at equally-spaced angular points, a yoke in which said sleeve may turn, means to cause said sleeve and yoke to move lengthwise as a unit, rollers on said yoke cooperating with the upper and lower surfaces of said bar preventing turning

of the yoke but permitting its longitudinal travel, a standard on said yoke, a link hinged to said standard, an upright frame hinged to said link, an arm rigid with said sleeve and
5 hinged to said upright frame, an operating-handle on said arm, and a pressure-shoe mounted on the lower part of said upright-frame, the mounting of said upright-frame constituting a parallel-motion construction confining the position of said frame to a ver- 10 tical relation.

In witness whereof I have hereunto set my hand.

EARL R. YOUNG.