April 21, 1942. F. H. MORRIS 2,280,498

SANDING MACHINE

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Fig. 2

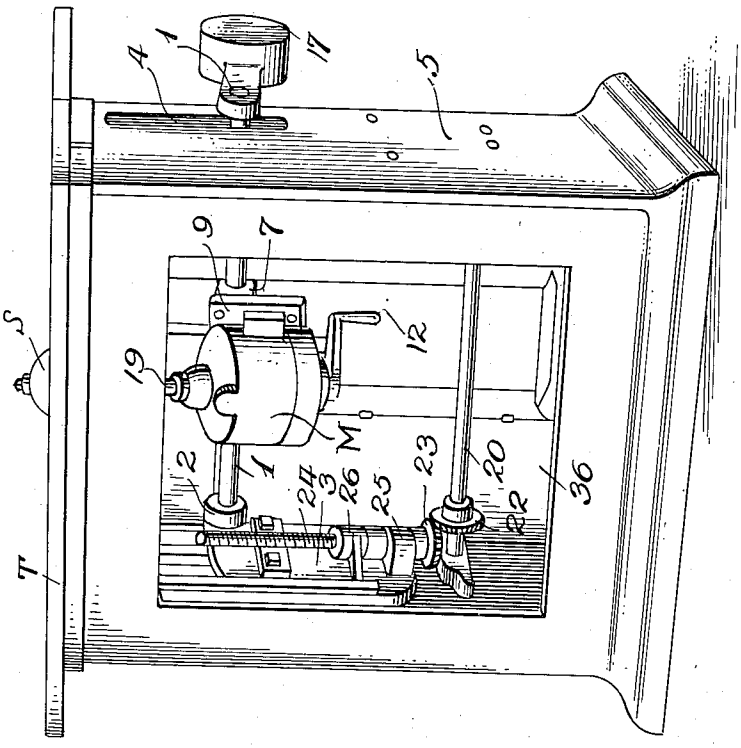
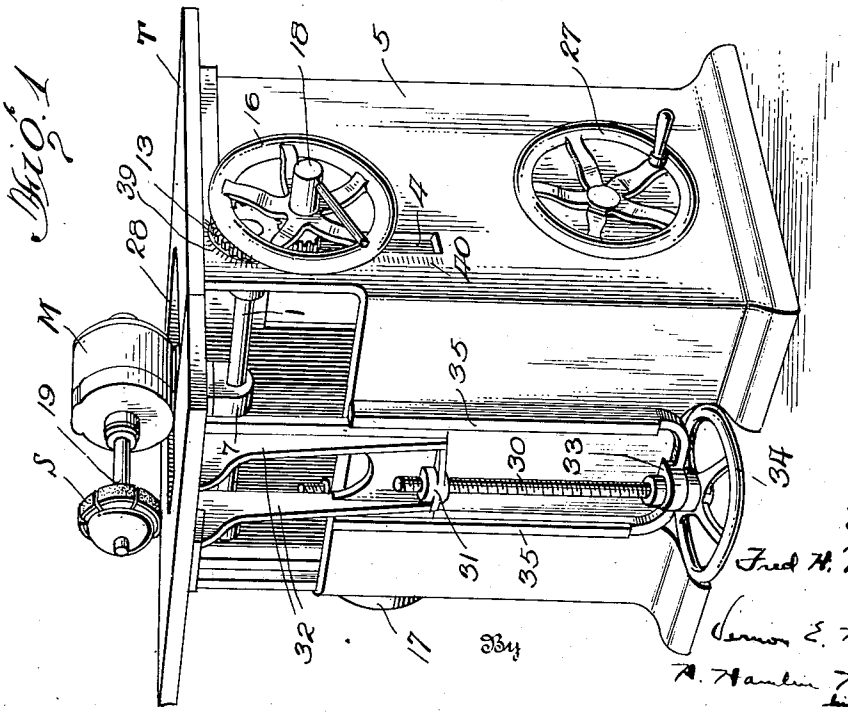


Fig. 1



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Fig. 3

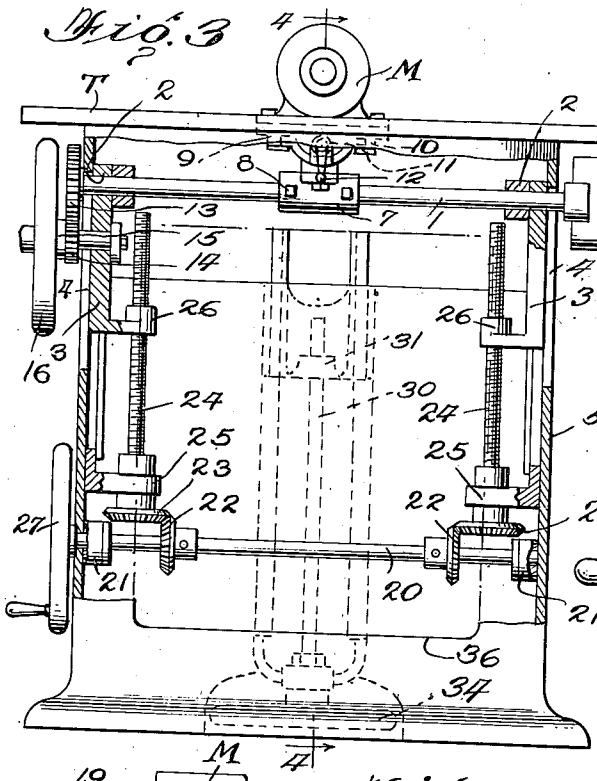


Fig. 5

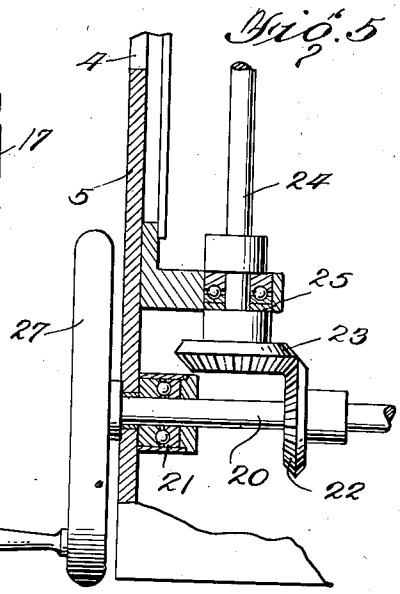


Fig. 4

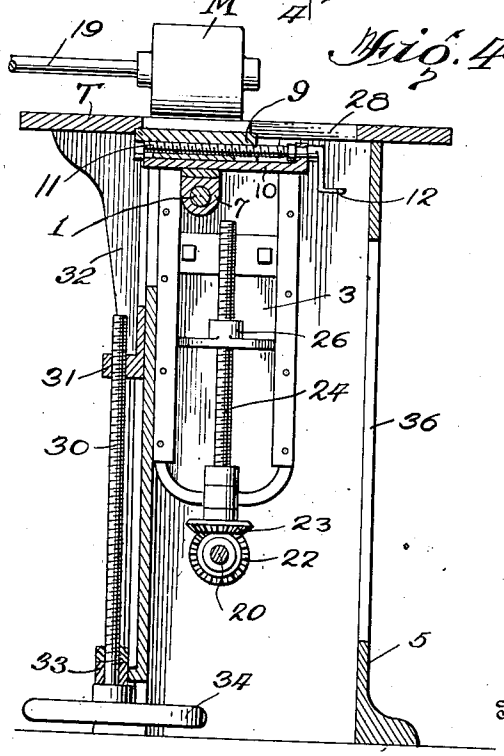
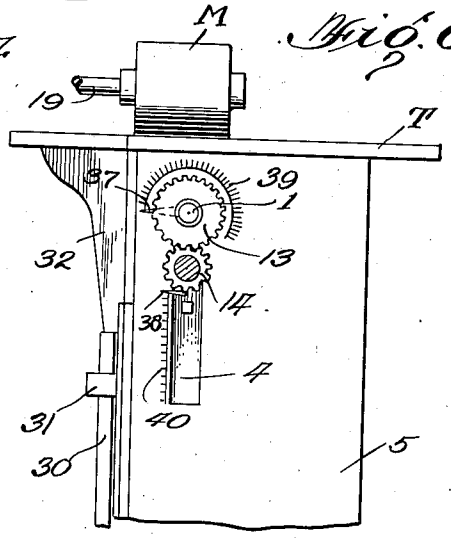


Fig. 6



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UNITED STATES PATENT OFFICE

2,280,498

SANDING MACHINE

Fred H. Morris, High Point, N. C.

Application August 29, 1940, Serial No. 354,753

14 Claims. (Cl. 51—72)

This invention relates to an improvement in sanding machines.

The object is to provide a rugged and adjustable means for supporting and raising a sanding-head and motor for operating the same, from a point below the top of a table, through a clearance opening in the top provided therefor, with means for adjustment of the sanding-head with relation to the work to be done, and means for lowering the sanding-head and motor down through the opening in the table top to a point within the framework of the machine where it is housed when not in use.

With the foregoing primary and other secondary objects in view, this invention consists in a floating shaft adjustably supported and held within a suitable framework, and which shaft carries a sanding-head and motor, and is capable of being rocked to bring the sanding-head to the desired angle for effective operation at a point above the surface of the operating table.

In the accompanying drawings:

Fig. 1 is a view in perspective taken from the front of the machine;

Fig. 2 is a perspective view from the rear;

Fig. 3 is a vertical longitudinal sectional view;

Fig. 4 is a transverse vertical sectional view on the line 4—4 of Fig. 3, looking in the direction of the arrows;

Fig. 5 is an enlarged detail, partly in vertical section; and

Fig. 6 is a fragmentary view of the end shown in Fig. 1, to show the transmission gears back to the hand-wheel.

The main floating shaft, 1, is mounted to turn in bearings 2 at the upper ends of the vertically slidable runners 3. The outer ends of this shaft 1 extend through the vertically disposed slots 4 in the opposite ends of the framework or housing 5 of the machine to afford guides and clearance space for the shaft 1 in its vertical adjustments.

A motor supporting block 7 is held fast to the shaft 1 by a screw or key or equivalent fastening means, as shown in Fig. 3; and a motor M is slidably and adjustably connected with this block 7 by means of the base plate 9, secured to the motor, the edges of which plate embrace and are slidably and adjustably connected with the outwardly extending flanges 10 of the block.

A screw 11 is provided for adjusting the motor forward and backward upon this block 7, and the screw has a crank-handle 12 by which it is turned to provide for this adjustment.

The floating shaft 1 has a gear-wheel 13 on one end, preferably just outside of the framework or housing 5, and the teeth of a pinion 14 on the stub-shaft 15 are geared to the teeth of the gear-wheel 13. The hand-wheel 16 on the outer end of the stub-shaft 15 is provided for turning this pinion 14, and through it, the floating shaft 1, thus affording a simple and convenient means for swinging the motor supported on the shaft 1 to the required position.

A counterweight 17 may be attached to the opposite end of the floating shaft 1 to counterbalance the weight of the motor M.

When the motor M is brought into the proper position by turning the floating shaft 1, it is locked in that position by means of the nut 18 on the outer end of the stub-shaft 15, as shown in Fig. 1.

A sanding-head S, or any other rotary device, is secured to the outer end of the shaft 19, driven by the motor M.

The floating shaft 1, with the motor M and rotary head S, is adapted to be raised and lowered vertically, within the framework 5 of the machine, and while this might be accomplished by any approved mechanism, the following has been devised as being simple, satisfactory and effective for this purpose: A shaft 20 extends lengthwise of the lower end of the machine, with its ends supported in journals 21 in the ends of the framework of the machine, as shown in Figs. 3 and 5. This shaft has beveled gears 22, keyed at its opposite ends, which are geared to the bevel gears 23 keyed to the lower ends of the screws 24. These screws are swiveled in the brackets 25 at their lower ends, and their upper threaded ends turn in threads in the bosses 26 extending from the vertically slidable runners 3, which runners in turn carry the floating shaft 1, the motor M, the stub-shaft 15, hand-wheel 16, and counterweight 17.

The hand-wheel 27 on one end of shaft 20 is provided for turning the latter to the right or left for raising or lowering the floating shaft and its connecting parts as a unit.

The table T is provided with an opening 28, which forms clearance space, through which the motor M and sanding-head S are raised and lowered.

The table is preferably made in two sections, one of which is stationary, and the other adjustable up and down, and this adjustable section is raised and lowered by the screw 30 which turns in the threaded boss 31 at the lower ends of the bracket 32 on the under side of the adjustable section of the table top. This screw is swiveled in the bearing 33 at the lower end and the screw

is turned by the wheel **34** at the bottom. The brackets **32** are slidable in the guides **35**.

An opening **36** is provided in the front of the machine, through which access may be had to the mechanism within the framework **5** of the machine.

Gauges **37** and **38** with scales **39** and **40** are provided on an end of the machine for the convenience of the operator in adjusting the angle of the motor M and head S.

To review, briefly, the operation which has already been fairly well explained, the operator adjusts the position of the motor through the base plate **9** by turning the crank-handle **12**. To bring the motor and head S into operative position above the table top, the hand-wheel **27** is turned with its shaft **20** to move the floating shaft **1** to the upper ends of the slots **4**, thereby lifting the motor up through the opening **28** in the table top. The inclination of the head S is regulated by rocking the floating shaft **1**, through the hand-wheel **16** and gears **13** and **14**. The motor M may be moved on its support to the desired position by turning crank **12**.

To lower the floating shaft **1** and the entire unit including the motor M, head S, and their connected parts, the hand-wheel **27** and the shaft **20** are reversed, and the above-mentioned parts are lowered through the slot **28** in the table top to a position below the table, where they are housed within the framework or housing.

I claim:

1. The combination of a framework or housing having vertically disposed slots in its opposite ends, a floating shaft having its opposite ends located in and guided by said slots, a motor and rotary head carried by the shaft, runners slidably mounted within the ends of the framework or housing, and having bearings in which the opposite ends of the floating shaft are mounted to turn, means for raising and lowering said shaft, and means for turning the shaft axially whereby to swing the motor and head into and out of operative position.

2. The combination of a framework or housing having vertically disposed slots in its opposite ends, a rotatably supported floating shaft having its opposite ends located in and guided by said slots, a motor and rotary head carried by the shaft, runners slidably mounted within the ends of the framework or housing, and having bearings in which the opposite ends of the floating shaft are mounted to turn, means for raising and lowering said bearings and the floating shaft, said means constituted by screws, threaded to and rotatably connected with the runners, a shaft geared to said screws, and means for turning said shaft.

3. The combination of a framework or housing having vertically disposed slots in its opposite ends, a rotatably supported floating shaft having its opposite ends located in and guided by said slots, a motor and rotary head carried by the shaft, runners slidably mounted within the ends of the framework or housing, and having bearings in which the opposite ends of the floating shaft are mounted to turn, means for raising and lowering said bearings and the floating shaft, transversely said means constituted by screws, threaded to and rotatably connected with the runners, a shaft geared to said screws, means for turning said shaft, and means for turning the floating shaft on its axis.

4. The combination of a framework or housing, a top comprising a stationary and a movable section, one section having an opening therethrough, a motor, a rotary head driven thereby, means for raising and lowering the motor and head through said opening, means for raising and lowering the movable section of the top consisting in a slidably mounted bracket, a screw, a boss connected with the bracket and internally threaded to receive the threads of the screw, and means for turning the screw whereby to raise and lower the movable section of the table top.

5. The combination of a framework or housing having vertically disposed slots in its opposite ends, a floating shaft, the opposite ends of which protrude through said slots, a motor secured to the floating shaft, the top of the framework or housing having an opening through which the motor may be moved, means for moving the floating shaft laterally and the motor in or out through said opening, one end of the floating shaft having a gear-wheel, a stub-shaft having a pinion geared thereto, and means for turning said gears, whereby to turn the floating shaft, together with the motor carried thereby.

6. The combination of a framework or housing having vertically disposed slots in its opposite ends, a laterally movable floating shaft, the ends of which are located and slidable in said slots, vertically slidable runners having bearings in which the floating shaft turns, the runners each having a bracket and an internally screw-threaded boss, screws swiveled in the brackets and adapted to engage and turn in the internal threads of the bosses, a shaft geared to said screws, and means for turning the shaft whereby to raise or lower the runners and the floating shaft.

7. The combination of a framework or housing having vertically disposed slots in its opposite ends, a floating shaft, the ends of which are located and slidable in said slots, vertically slidable runners having bearings in which the floating shaft turns, the runners each having a bracket and an internally screw-threaded boss, screws swiveled in the brackets and adapted to engage and turn in the internal threads of the bosses, a shaft geared to said screws, means for turning the shaft whereby to raise or lower the runners and the floating shaft, a table at the top of the framework or housing having an opening therethrough, and a motor mounted and adjustable on the floating shaft beneath said opening in position to be raised or lowered through the opening, with the upward or downward movement of the floating shaft.

8. The combination of a framework or housing having vertically disposed slots in its opposite ends, a floating shaft, the ends of which are located and slidable in said slots, vertically slidable runners having bearings in which the floating shaft turns, the runners each having a bracket and an internally screw-threaded boss, screws swiveled in the brackets and adapted to engage and turn in the internal threads of the bosses, a shaft geared to said screws, means for turning the shaft whereby to raise or lower the runners and the floating shaft, a table at the top of the framework or housing having an opening therethrough, a motor mounted and adjustable on the floating shaft beneath said opening in position to be raised or lowered through the opening, with the upward or downward movement of the floating shaft, and means connected with the floating shaft for turning the latter

axially and independently of its upward or downward movement.

9. The combination of a framework or housing having vertically disposed slots in its opposite ends, a floating shaft, the ends of which are located and slidable in said slots, vertically slidable runners having bearings in which the floating shaft turns, the runners each having a bracket and an internally screw-threaded boss, screws swiveled in the brackets and adapted to engage and turn in the internal threads of the bosses, a shaft geared to said screws, means for turning the shaft whereby to raise or lower the runners and the floating shaft, a table at the top of the framework or housing having an opening therethrough, a motor mounted and adjustable on the floating shaft beneath said opening in position to be raised or lowered through the opening, with the upward or downward movement of the floating shaft, means connected with the floating shaft for turning the latter axially and independently of its upward or downward movement, a stub-shaft supported on the frame or housing geared to the floating shaft as a means for turning the latter on its axis, and means for adjusting the position of the motor on the floating shaft.

10. The combination of a framework or housing, a top over the latter comprising a stationary and a movable section, one section having an opening therethrough, a motor, a rotary head driven thereby, means for raising and lowering the motor and rotary head through said opening, means for raising and lowering the movable section of the top consisting of a bracket connected therewith and slidably connected with the framework or housing, and means for sliding and adjusting the position of the movable section and bracket.

11. The combination of a framework or housing having a top in the form of a table, the top having an opening therethrough, a floating shaft beneath said top, a rotary head carried by said floating shaft, means located at opposite ends of the shaft for supporting and moving it laterally, whereby to raise or lower the rotary head through the opening in the top, and means for turning the floating shaft axially whereby to swing the head in and out of operative position above the top.

12. The combination of a framework or housing having a top in the form of a table, the top having an opening therethrough, a floating shaft beneath said top, a rotary head carried by said floating shaft, means located at opposite ends of the shaft for supporting and moving it laterally, whereby to raise or lower the rotary head through the opening in the top, means for turning the floating shaft axially whereby to swing the head in and out of operative position above the top, and means for adjusting the position of the rotary head with respect to the floating shaft.

13. The combination of a framework or housing, a top over the latter in the form of a table, the table having an opening therethrough, a motor, a rotary head driven by the latter, a floating shaft movable transversely with respect to the framework or housing and affording a support for the motor and head, means for moving the shaft whereby to carry the head through the opening in the top, and means for turning the floating shaft axially whereby to swing the head into operative position over the top.

14. The combination of a framework or housing, a top over the latter in the form of a table which latter comprises a stationary and a movable section, one section having an opening therethrough, a motor, a rotary head driven by the latter, a floating shaft movable transversely with respect to the framework or housing and affording a support for the motor and head, means for moving the shaft whereby to carry the head through the opening in the top, and means for turning the floating shaft axially whereby to swing the head into operative position over the top.

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