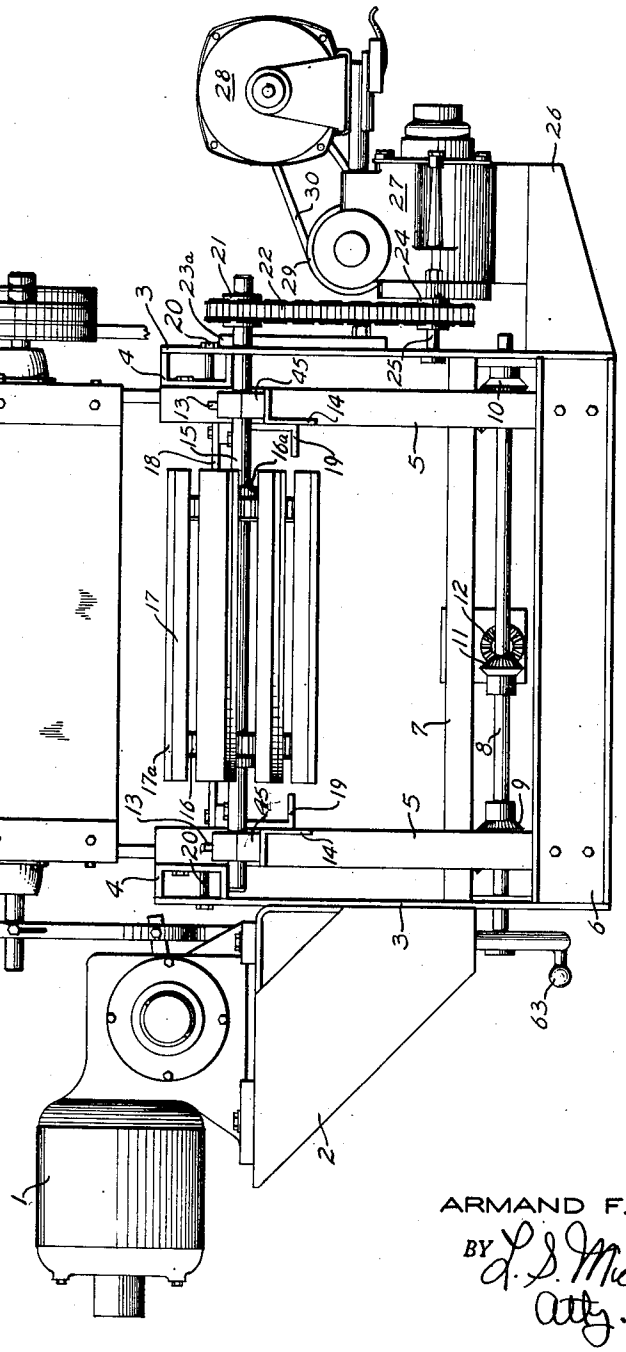
Sept. 3, 1957 A. F. SWEENEY 2,804,723

OSCILLATING SANDING MACHINES

Filed Nov. 2, 1955 7 Sheets-Sheet 1

FIG. 1.



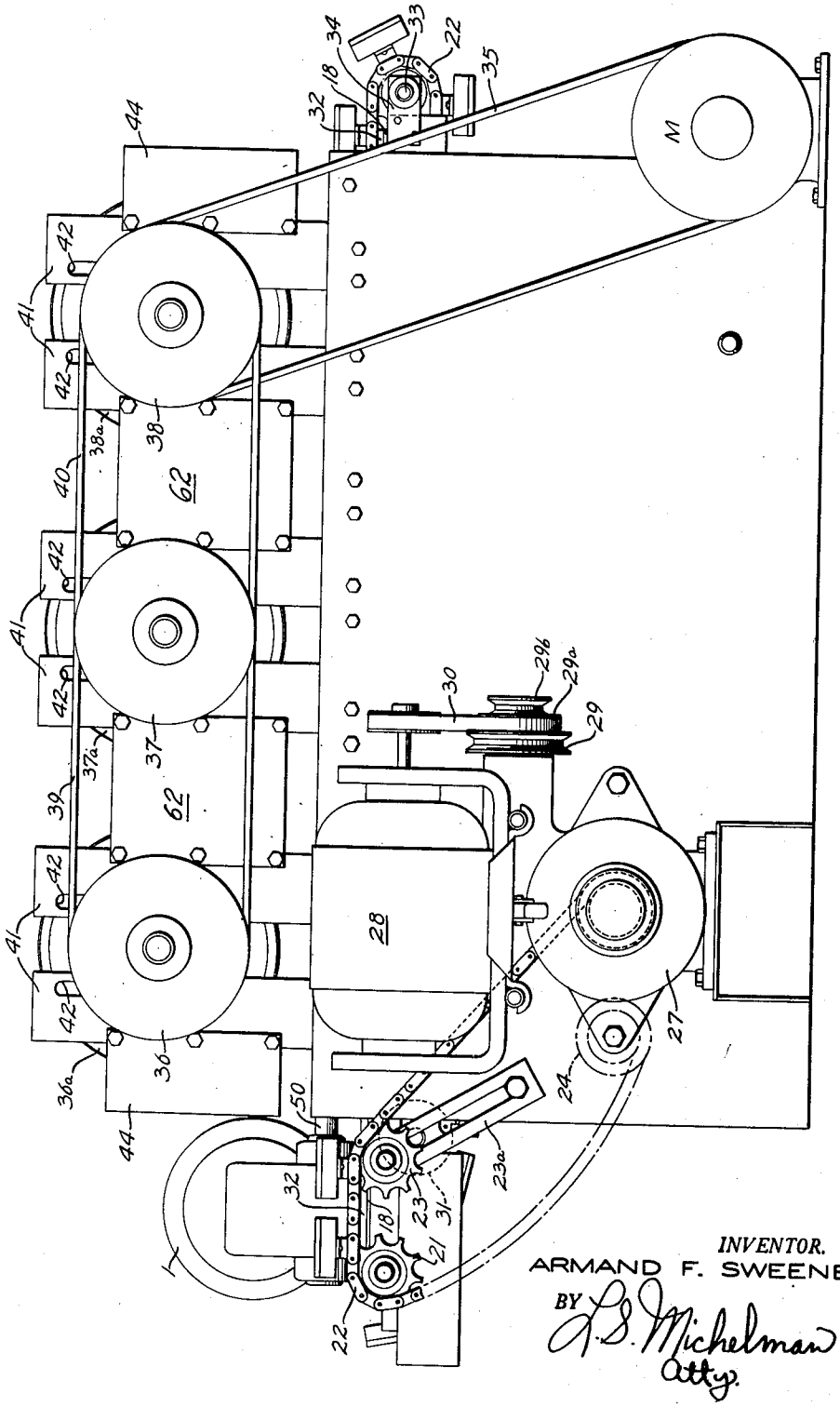
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OSCILLATING SANDING MACHINES

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FIG. 2.



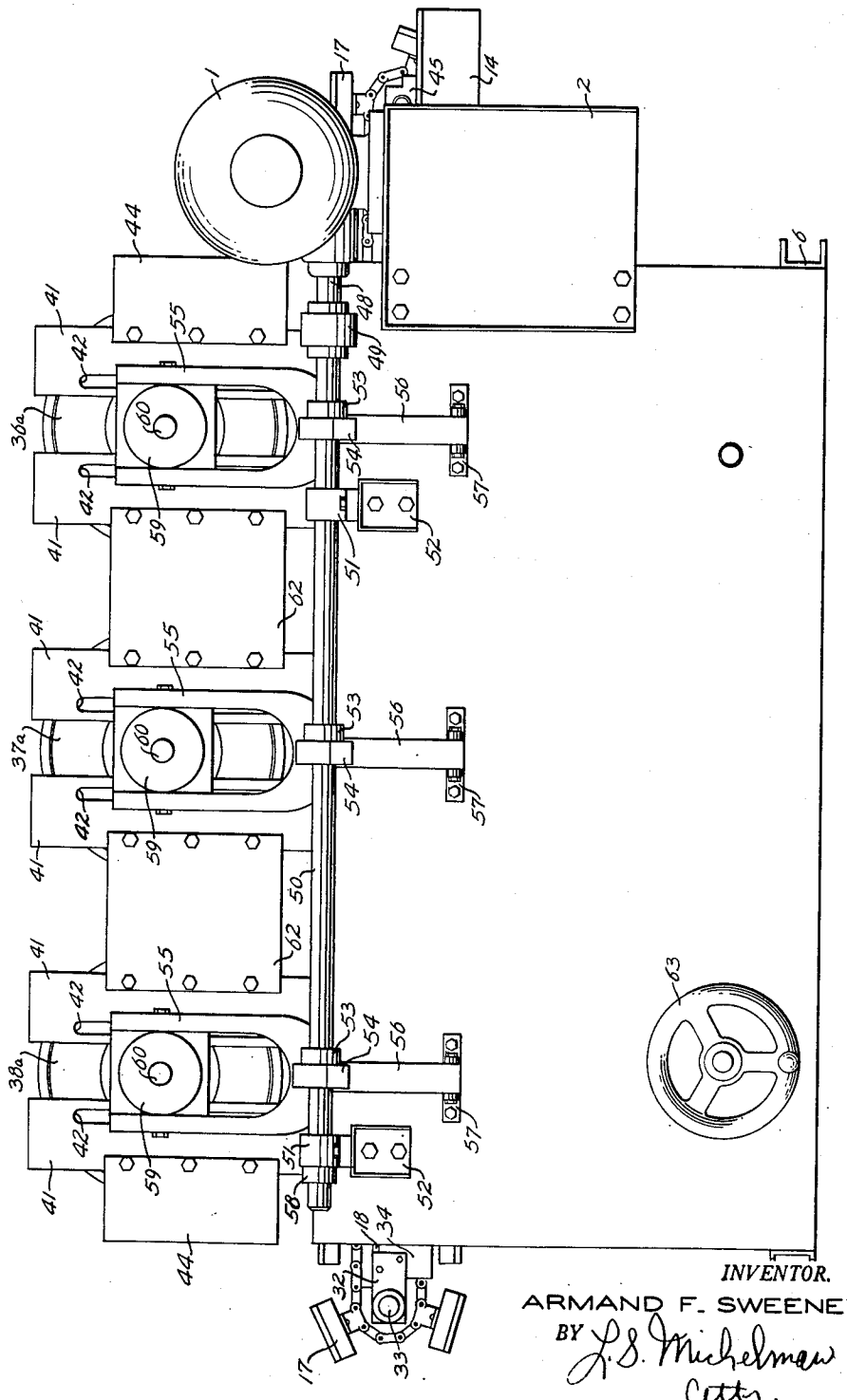
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OSCILLATING SANDING MACHINES

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FIG. 3.



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OSCILLATING SANDING MACHINES

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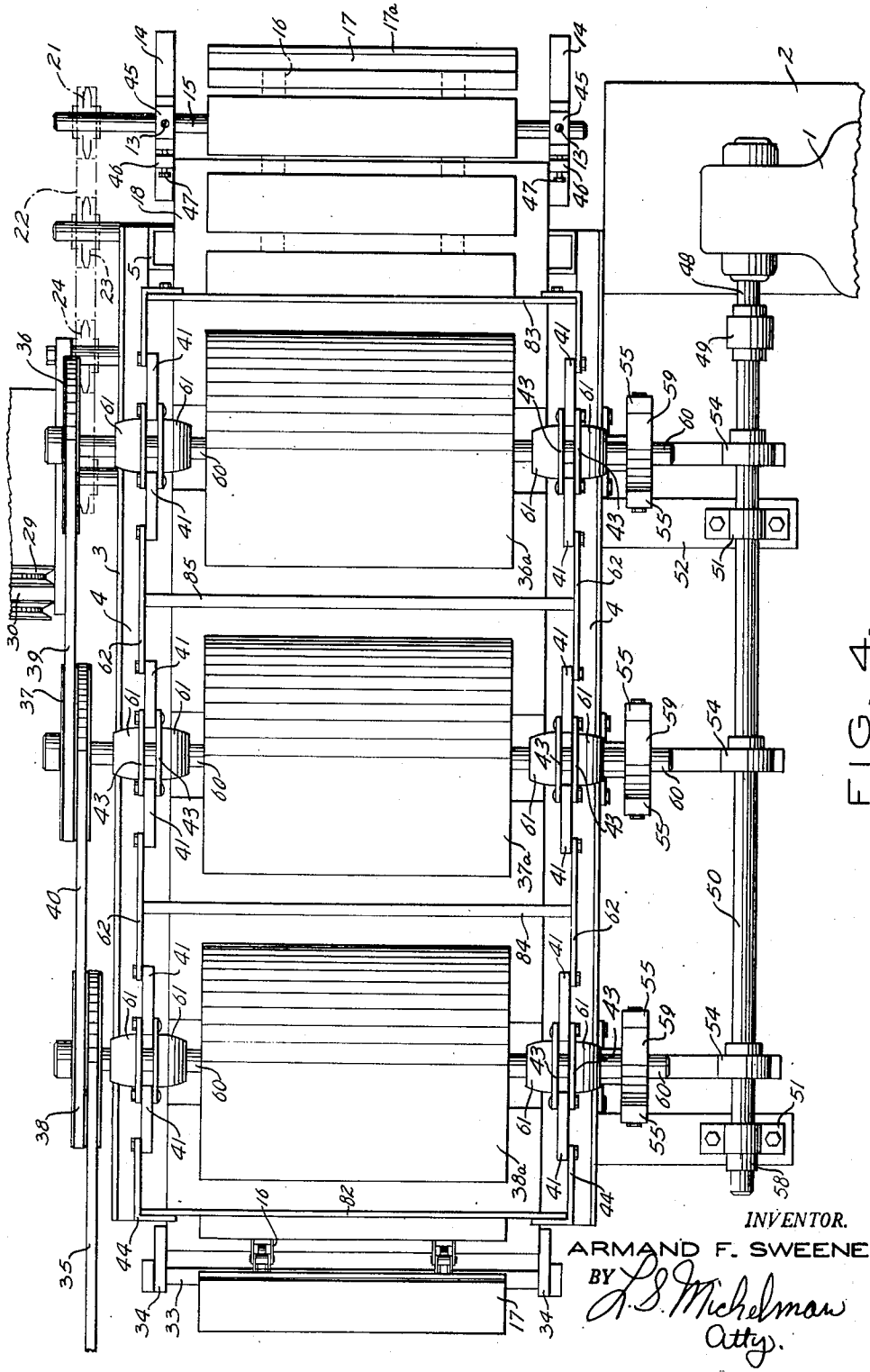


FIG. 4.

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OSCILLATING SANDING MACHINES

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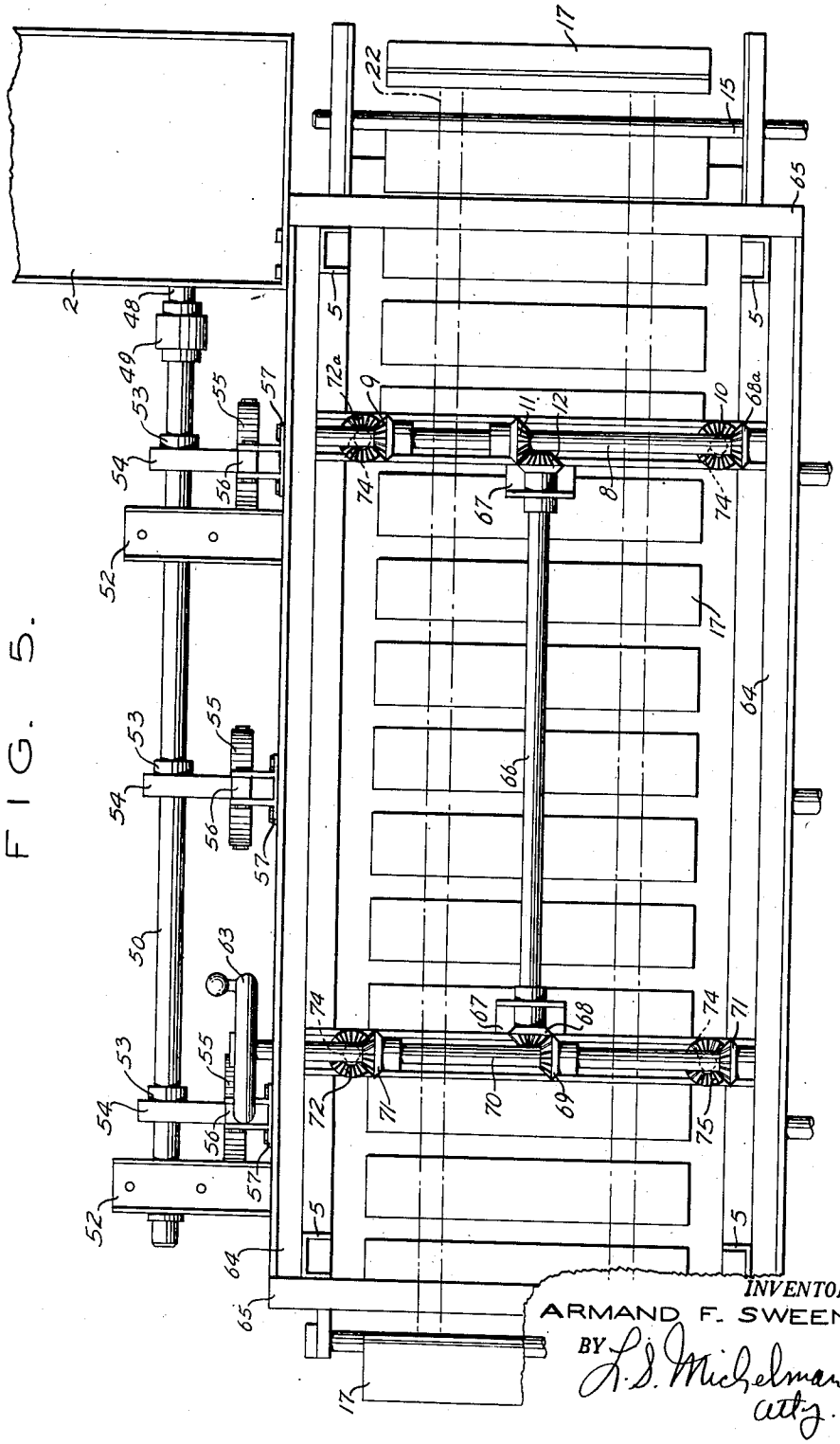


FIG. 5.

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OSCILLATING SANDING MACHINES

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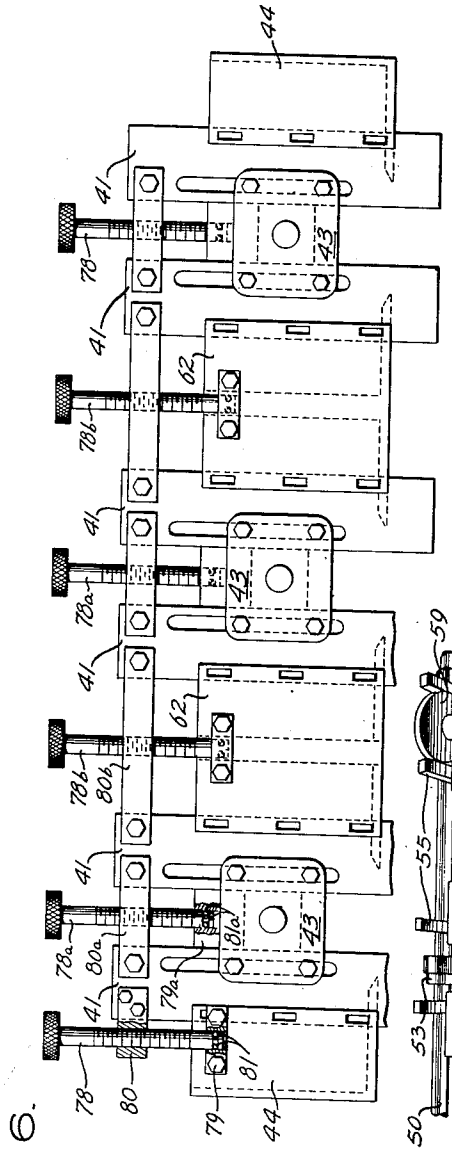


FIG. 6.

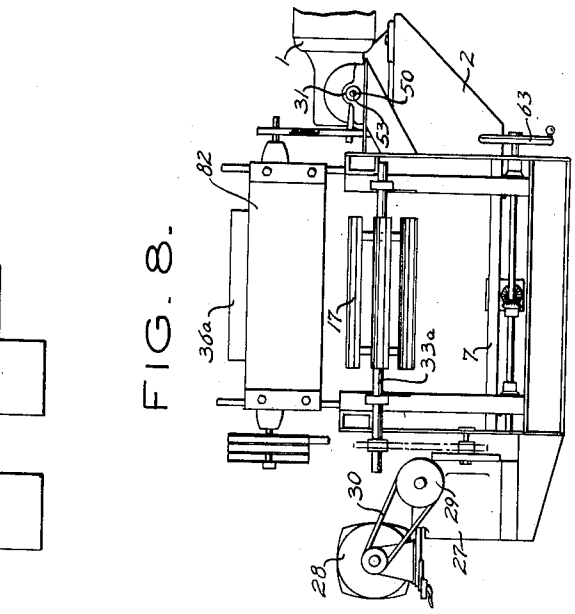


FIG. 8.

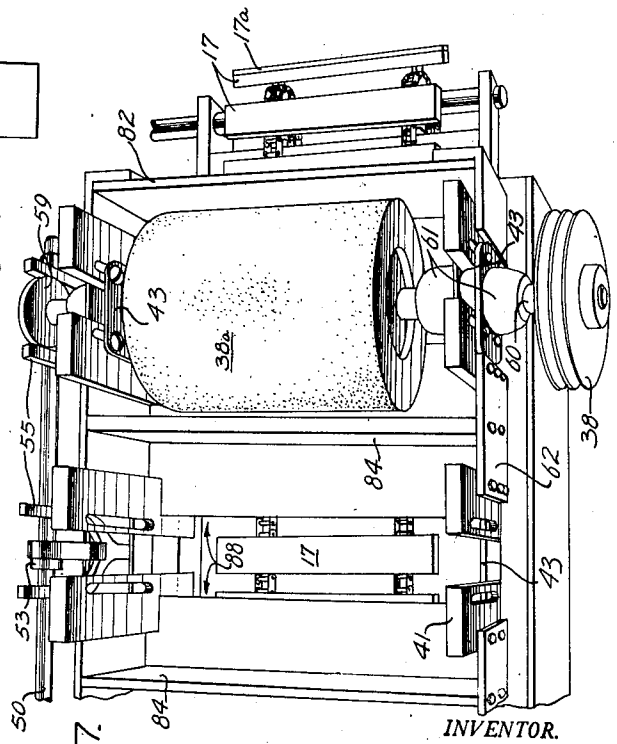


FIG. 7.

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OSCILLATING SANDING MACHINES

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FIG. 9.

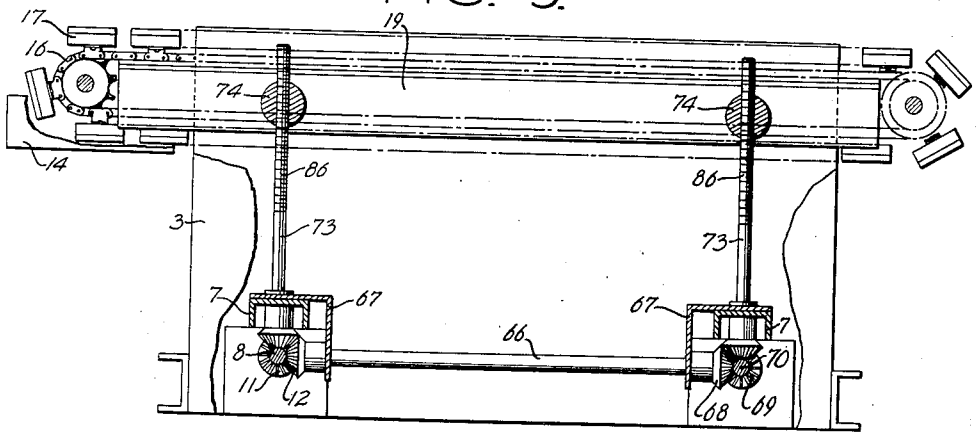
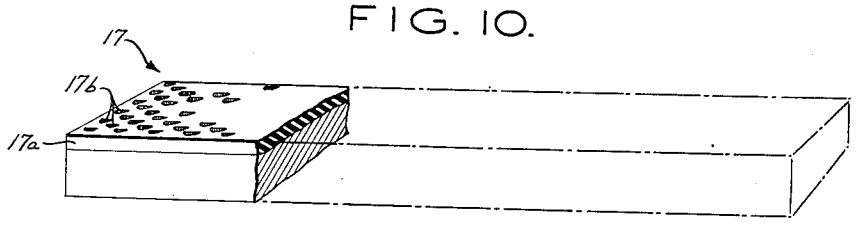


FIG. 10.



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United States Patent Office 2,804,723 Patented Sept. 3, 1957

2,804,723

OSCILLATING SANDING MACHINES

Armand F. Sweeney, Chicopee Falls, Mass.

Application November 2, 1955, Serial No. 544,499

6 Claims. (Cl. 51—38)

This invention is concerned with sanding machines, particularly of the oscillating type.

Heretofore there have appeared on the market many types of sanding machines which have not had the proper adjustments to perform the necessary operation of sanding. The sanding machine herein to be described has many features which will enable the woodworker to cut down many man hours of labor in putting a finish on the wood product that he is making.

It is an object of this invention to provide a sanding machine that will finish the wood or object to be polished completely in one operation on one surface.

It is yet another object of the within invention to provide a sanding machine that is simple to manufacture and inexpensive in the costs of operation.

It is another object of the invention herein to provide sanding drums that oscillate over the surface of the wood being polished.

It is yet another object of the within invention to provide a self contained endless bed for feeding the wood through the operating surfaces.

It is another object of the within invention to provide means for adjusting both the distance between the sanding drums and the endless bed as well as the distances between the bottom of the drum and the top of the wood being polished.

It is still another object of the within invention to eliminate the jamming and slipping of the wood to be polished.

And another object of the invention is to provide a sanding machine that conserves the sandpaper in use.

A series of sanding drums are mounted within pressure bars which are sufficiently spaced apart to allow the surfaces of the sanding drums to protrude over an endless bed that feeds the stock. The pressure bars each have a fine adjustment for positioning the surfaces of the sanding drums at various levels with respect to the pressure bars. Because of this feature of a micrometric adjustment, it is possible to adjust the sanding drums to a predetermined level so as to remove from the object to be polished a predetermined amount of stock. This adjustment is figured independent of the speed of the sanding drums and the type of sanding paper in use which are essentially constants. There are individual motor drives for moving the endless beds and for moving the sanding drums in an oscillating motion back and forth laterally over the wood being polished. This oscillating action removes snake marks from the wood. The endless bed ties have rubber surfaces with indentions therein that prevent the slipping of the wood as it passes beneath the sanding drums. This arrangement enables stock as short as 4 inches to be sanded and polished efficiently.

These and many other objects may be better understood by reference to the following detailed description of the device in which:

Figure 1 is an end view of the machine.

Figure 2 is a side view of the machine looking toward the right of Figure 1.

Figure 3 is the other side view of the machine looking toward the left of Figure 1.

Figure 4 is a top view of the device looking down on Figure 1, but with the pulley system to the left.

Figure 5 is a bottom view of the device looking up into the machine shown in Figure 1.

Figure 6 is a side elevational view of the super structure that houses the sanding drums, showing in detail the adjustments that can be made.

Figure 7 is a top perspective view of the superstructure of Figure 6 showing the features within the sanding drum housing.

Figure 8 is the end view of the device opposite from Figure 1.

Figure 9 is a side view of the machine showing the endless bed raising and lowering mechanism.

Figure 10 is a perspective view of an endless bed tie.

For a better understanding and a more coherent disclosure, because of the many details of the machine, it will be more expeditious to explain the various component parts in each figure separately.

FIGURE 1

Figure 1, which is an end view, discloses at the left hand side an oscillating motor which is mounted on the oscillator motor support **2**. The motor **1** does not itself oscillate but causes its load to oscillate as will be hereinafter explained. For the sake of clarity it will be referred to as the oscillating motor. A side panel which is only shown in end view is designated as **3**. At the top of the side panel **3** is a horizontal rail **4**. This rail is substantially U-shaped in section, and runs down the length of the device. Rail **4** is on both sides of the machine as is the side panel **3**. There is also a vertical rail **5** which is secured to the horizontal rail **4**. The vertical rail **5** is also on each side of the machine.

At the bottom of the machine is a lower end horizontal rail **6** which is also U-shaped in section with the open portion facing the viewer. Mounted crossways from the side panel **3** is a table raising and lowering bar support designated as **7**. A transmission shaft **8** runs below the bar support **7**. This shaft **8** is known as the table raising and lowering transmission shaft. Mounted on this shaft **8** is a left pinion or bevel gear **9** and at the other end a right pinion gear **10**. In the middle of the shaft is a transmission shaft pinion gear **11** which meshes with a transmission pinion gear **12**. At each end of the vertical rail **5** are mounted bearing supports **14**. Atop these bearing supports **14** are the adjustable bearing supports **45**. Inside of the adjustable bearing supports **45** are the set screws for locking the adjustable bearing supports indicated as **13**. Interconnected with the bearing support **45** is an endless bed drive shaft **15**. Mounted on the endless bed drive shaft are the sprockets **16***a* about which the endless bed chain **16** moves. Mounted on the endless bed chain **16** are the endless bed ties **17**, which comprise a rubber portion **17***a*. An endless bed frame member **19** is mounted along the vertical rail **5**. Mounted atop the endless bed frame member is the endless bed panel indicated as **18**. Rail **19** is secured longitudinally from each of the vertical rails **5**. The bolt **20** secures the side panel **3** to the horizontal rail **4**.

On the right side of Figure 1 is the driving assembly for the endless bed. A drive shaft sprocket **21** is mounted on the endless bed drive shaft **15**. An endless bed drive pulley chain **22** is mounted on top of the drive shaft sprocket **21**. It also is mounted on top of the take-up sprocket **23** which is supported on the take-up support bar **23***a*. At the bottom of the pulley chain **22** is an idler sprocket **24** which is mounted on the idler sprocket bar **25**. For a more complete understanding of the drive shaft

arrangement reference is made to the description of Figure 2.

On the right side of Figure 1 is a motor support **26**. Mounted on this motor support **26** is a ratio motor **27**. It is to be noted that the motor support **26** is mounted on the side panel **3**.

The motor **28**, which is referred to as the drive motor, can be seen on the right side of Figure 1. A belt **30** from the motor **28** circumscribes a three step pulley **29** (see Figure 2).

FIGURE 2

Reference is now made to the side view indicated as Figure 2 which is a view looking toward the right side of Figure 1. The numerical designations in Figure 2 are, of course, similar to those in Figure 1. In addition to those elements already noted, a vibration take-up for the endless bed is indicated as the sprocket wheel **31**. This is to prevent slack in the endless bed so that the endless bed will run smoothly. A rail guide for the endless bed chain **22** is designated by the numeral **32** and is located just below the endless bed chain.

As stated before, the pulley **29** comprises three different sections indicated as **29**, **29***a* and **29***b*. The belt **30** is mounted on the middle section **29***a* in the drawing. These various size pulleys obviously control the speed of motion of the endless bed. On the far right side of Figure 2 at the far end of the endless bed is an endless bed bearing **33**. This bearing **33** is mounted in front of the endless bed bearing support **34**.

A motor is designated by the letter "M." Mounted on the drive pulley of this motor is a belt **35**. This belt **35** circumscribes a pulley **38** which is mounted on a sanding drum. (See Figure 4.) Connected to pulley **38** which comprises two sections is a belt **40** which circumscribes a pulley **37**. Pulley **37** is also in two sections and mounted on its other section is a belt **39** which circumscribes the pulley **36**. Hereafter belt **40** shall be referred to as the middle drum belt, belt **39** as the rear drum belt, and belt **35** as the drum driving belt. The pulleys **36**, **37**, and **38** are mounted between the pressure bar supports **41**. In these pressure bar supports **41** are the elongated slots **42**. Mounted within these elongated slots **42** by means of bolt assemblies are the adjustable bars **43** (see Figure 7). At each end of the superstructure containing the pulleys **36**, **37** and **38** are the side pressure support members **44**.

FIGURE 3

Reference is now made to Figure 3 which is a view looking at the left side of Figure 1.

The oscillator motor assembly **1** has a drive shaft **48** extending to the left of it in Figure 3. This oscillator motor shaft **48** enters a shaft coupling **49** which is connected to a shaft **50** that runs almost the complete length of the machine. A bearing shaft support **51** is mounted on a support bracket **52**. Within this bearing shaft support **51** passes the shaft **50**. The dimensions of the bearing shaft support **51** are such that the shaft **50** will rotate within it. Mounted on the shaft **50** are the eccentrics **53** which are part of the oscillating circuit. These eccentrics **53** are within the eccentric bearings **54**. Eccentric bearings **54** are connected to the forks **56**. These forks **56** have the bifurcated arms **55**. Mounted within the bifurcated arms **55** are the sanding drum shafts **60**. The forks **56** are mounted on the member support brackets **57**.

The fork **56** has in its arms **55** an elongated slot **90** through which the bolt **91** passes. Bolts **91** support the thrust collars **59**. The elongated slot **90** is for vertical adjustment of the sanding drums and enables the height of the collars **59** to be raised or lowered by the setting of the bolt **91**.

At the extreme left end in Figure 3 of the shaft **50** is a collar **58** which prevents longitudinal motion of the shaft **50**.

Mounted on the sanding drum shaft **60** and between the bifurcated arms **55** of the fork **56** are the oscillating thrust collars **59**. At the lower left side of Figure 3 can be seen a circular shaped crank **63** which controls the adjustments of the endless bed as will be explained hereinafter.

FIGURE 4

Reference is now made to Figure 4 which is a view looking down on the top of Figure 3 and Figure 2.

In addition to those elements already disclosed in the previous figures, certain features that were hidden behind the other views can now be explained.

The endless bed shaft bearing **45** is seen in this view in detail. It comprises the adjustment for the endless bed chain **46** and the rotatable bolt or set screw **47**.

Mounted on the sanding drum shaft **60** are bearings **61** for the drum shafts **60**. The bearings **61** maintain the drums **36***a*, **37***a*, and **38***a* in a fixed position on the shafts **60**. The pressure bar adjustment plates are also in view for the first time and are indicated as **43**. The pressure bars **62** interconnect the pressure bar supports **41**. The end pressure bar **82** can be seen in more detail in Figure 7 and will be explained under that heading. The pressure bars **84** press the work down onto the endless bed as later explained.

FIGURE 5

Reference is now made to Figure 5 which is a bottom view looking up into the device. It is a view looking up into the bottom of Figure 4. The longitudinal bottom frame members **64** are connected to the bottom latitudinal frame members **65**. Connected to the table bed adjusting wheel **63** is a drive shaft **70**. Mounted on this drive shaft **70** is a pinion, or beveled gear **71**, hereinafter called the drive shaft pinion gear **71**. This drive shaft pinion gear **71** meshes with a drive shaft pinion gear **72** which is connected to and rotates the elevational shaft **73** (see Figure 9). The numeral **74** is employed to indicate a threaded stud which engages the endless bed table raising screw **86** as will be explained in the description under the heading of Figure 9.

Also mounted on the drive shaft **70** is another pinion gear **69** which is also a drive shaft pinion gear. This gear **69** meshes with the transmission shaft pinion gear **68**. The transmission pinion gear **68** is at the end of the table bed longitudinal drive shaft **66**. This drive shaft **66** is mounted a short distance from the pinion gear **69** by a shaft transmission support **67**. It is also mounted at its far end (right side) by another shaft transmission support **67**. At its far end (right side) transmission shaft **66** has mounted a transmission shaft pinion gear **12**, which was referred to in the explanation of Figure 1. Meshing with pinion gear **12** is a pinion gear **11** which is mounted on shaft **8**. Also mounted on shaft **8** are the pinion gears **9** and **10**. These pinion gears **9** and **10** rotate gears **72***a* and **10** which are mounted on elevational shafts that are similar to shaft **73** but cannot be seen in this view.

A better understanding of these transmission members may be had by reference to the description of Figure 9, and the operation of the table raising and lowering mechanism.

FIGURE 6

Reference is now made to Figure 6 which is a view of the superstructure shown in the side views of Figures 2 and 3. That is to say, it is the structure in detail that contains the sanding drums. Essentially Figure 6 is an exploded view to show the details of adjustment that can be made to control the position of the drums **36***a*, **37***a*, and **38***a*. A fine thread adjustment screw **78** is mounted in a threaded upper support **80**. At the bottom of this screw are lock pins **81**. These lock pins **81** extend into the bottom support **79**. Lock pins **81** retain the screw **78** within the bottom support **79**.

It is to be noted that the other elements have already

been discussed and the detailed explanations of Figures 2 and 3 and the details of structure are more clearly brought out here in Figure 6.

The fine thread adjustment screws **78***a* are mounted in the upper support member **80***a* which are bridged between the pressure bar supports **41** above the sanding drums **36***a*, **37***a*, and **38***a*. The adjustment screws **78***a* extend into a bottom support **79***a*, for the screw **78***a*, which is also bridged between the pressure bar supports **43** below **80***a*. Lock pins **81***a* retain screw **78***a* within the bottom support **79***a*.

The fine thread adjustment screw **78***b* is mounted in an upper support bracket **80***b* which is bridged between the two pressure bar support members **62**. The bottom of the screw **78***b* is journaled in a lower bracket **79***b* similarly to the way screw **78** is set within bracket **79**. That is to say that a pin **81***b* locks the screw **78***b* within the bracket **79***b* and yet allows it to be rotated as will be explained hereinafter. The pins **81**, **81***a*, and **81***b* swivelly connect the screws **78**, **78***a*, and **78***b*, respectively, to the brackets **79**, **79***a*, and **79***b*, respectively.

The brackets **79** may be bolted or welded to the adjustment plate **44**. The bracket **79***a* is similarly secured to the pressure bar adjustment plate **43**. The bracket **79***b* is also similarly secured to the pressure bar adjustment plate **62**. The explanation under the heading "Setting the machine for operation" will bring out the exact function of the micrometer thread adjustment screw **78**.

FIGURE 7

Figure 7, which is the top view looking down into the superstructure of Figure 6, shows one of the sanding drums removed. It can be easily seen that the end pressure bars **82** are L-shaped. The middle pressure bars **84** are also L-shaped. That is to say that they have flat horizontal surfaces at right angles to their vertical surfaces. Between the bottom of the pressure bars are openings **88** which enable the lower portion of the sanding drums **36***a*, **37***a*, and **38***a* to contact the surface of the wood to be polished.

FIGURE 8

The view of Figure 8 is the opposite end from the view of Figure 1. Each of the component parts shown in this view have been described in the discussion of the other figures.

FIGURE 9

Because of the inability to teach the details of the endless bed lowering and raising mechanism from the bottom view of Figure 5, it was felt that Figure 9 showing the actual engagement of the moving parts of the transmission system with the endless bed chassis would more expeditiously teach this important feature of the invention. The elevational shafts **73** have at their bottoms, the elevational shaft pinion gears **72** and **72***a*. It is to be noted that the elevational shafts **73** have the threads **86** which engage the studs **74**. The studs **74** are mounted in the endless bed rail **19**. The drive shaft **70** shown in Figure 5 having at one of its ends a pinion gear **71** is mounted in a bracket **87**. There is a similar bracket **87** for each of the drive shafts, **70** and **8**.

FIGURE 10

The ties **17** of the endless bed have a rubber pad surface **17***a* which have half moon shapes **17***b*. These half moons **17***b* are indentations and are for creating a suction so that the wood which is setting on the rubber surface **17***a* will not slip as the endless bed moves beneath the sanding drums. The bottom portion of the tie **17** is made of an alloyed truss steel.

Setting the machine for operation

ADJUSTMENT OF THE SANDING DRUMS

The first step is to adjust the sanding drums **36***a*, **37***a* and **38***a* to the proper levels in the space **88** (see Figure 7) between pressure bars **82** and **84** as described in Figures 6 and 7.

The rotation of the adjustment screw **78** will lift or lower the pressure bar **44**. The pressure bar **44** has secured to it the bracket **79**. The inside of the upper bracket **80** is threaded. With respect to bracket **80**, the pressure bar **44** may be moved closer or further away as adjustment screw **78** is turned. Assuming that the drum **38***a* has been properly positioned, the lowering or raising of the pressure bar **44** will determine in part the amount of stock that will be removed from the wood by the sanding paper on drum **38***a*.

The sanding drum **38***a* has an adjustment plate **43** to which is affixed the lower bracket **79***a*. The lowering or raising of the adjustment plate **43** will control the height of the drum **38**a. In other words, the turning of the adjustment screw **78***a* will force the adjustment plate to go up or down in the slots **42** bringing with it the sanding drum **38***a*. The adjustment of the height of the sanding drum **38***a* will also partially determine the amount of stock to be removed from the wood by the sanding paper on drum **38***a*.

There is a certain amount of resiliency because of the rubber **17***a* on the ties **17** of the endless bed. The height of the pressure bars **84** and **82** as well as the height of the sanding drums **36***a*, **37***a* and **38***a* in the openings (see **88** in Figure 7) exert a pressure on the wood travelling on the ties **17***a*. The surface of the ties **17***a*, being of rubber and creating a suction with the lower surface of the wood, prevent the wood from slipping as the drums **36***a*, **37***a* and **38***a* rotate over its upper surface.

The adjustments for each of the sanding drums **36***a*, **37***a* and **38***a* are performed in the same manner although the heights of the respective pressure bars **82** and **84** proximate the respective drums, are varied since the thickness of the wood is less after it has passed beneath a drum.

THE RAISING AND LOWERING OF THE ENDLESS BED

In order to follow this portion of the specification, reference is made principally to Figure 9 along with Figures 1, 5 and 8.

Because the wood to be sanded and polished may vary in size, it was necessary to design the machine so that wood of both small and large sizes can pass over the endless bed.

A wheel **63** is integral and mounted on a shaft **70**. Also on shaft **70** are the pinion types gears **69** and **71**. Upon the operator rotating wheel **63**, shaft **70** rotates causing the gears **69** and **71** to rotate. Meshing with the gears **71** are the separate gears **72** and **75**, respectively. Both of these gears rotate causing the shafts **73** and **76**, respectively, on which they are mounted to rotate. The upper portion of the shafts **73** and **76** are threaded as indicated by the numeral **86**. The endless bed rail **19** has at its bottom flange a threaded opening **74** into which the threaded portion **86** of the shafts **73** and **76** are threaded. As the shafts **73** and **76** rotate, the rail **19** moves upon or down depending on the direction of rotation. Since the entire endless bed assembly is mounted about the rails **19**, as rail **19** moves so will the endless bed assembly, which, of course, comprises the chain **16**, sprocket **16***a* as well as the ties **17**.

The gear **69** causes the gear **68** (Figure 5) to rotate. Shaft **66** on which gear **68** is mounted rotates with gear **66**. Gear **12** which is mounted on shaft **66** rotates and meshes with gear **11** which is mounted on shaft **8**. Shaft **8** rotates its gears **9** and **10**. Gears **68***a* and **72***a* mesh with gears **10** and **9** respectively and rotate when **10** and **9** rotate. Gear **72***a* is mounted on shaft **73***a* and **73***a* rotates with **72***a*. Like shaft **73**, shaft **73***a* is threaded at **86** and is within an opening **74** in the rail **19**.

Gear **68***a* is mounted on shaft **76***a* and **76***a* rotates with **68***a*. Like shaft **73** shaft **76***a* is threaded at **86** and is within an opening **74** in the rail **19**.

When shafts **76***a* and **73***a* rotate, the rail **19** will move

up or down depending upon the direction of rotation of the shafts 76*a* and 73*a*. Thus, when the operator turns the wheel 63, the four shafts 73, 73*a*, 68 and 68*a* rotate in the manner just described and the rails 19 on which the endless bed assembly is mounted are raised or lowered. Since the wood to be polished rides on the endless bed, the operation of the wheel 63 controls the distance between the endless bed and the lower portion of the sanding drums 36*a*, 37*a*, and 38*a*.

THE POLISHING OF ONE WOOD PIECE

Once the machine has been set up so that the endless bed is at the proper level for the size of the wood to be polished and once the sanding drums have been properly leveled to remove the amount of stock desired, the various motors 1, M, and 28 may be energized.

THE OSCILLATING MOTION

The motor 1, which is the oscillating motor (see Figures 3 and 4), rotates the oscillating motor shaft 48. The shaft 48 is coupled to the shaft 50 by the coupling 49. Shaft 50 rotates with shaft 48. The shaft 50 passes through the eccentrics 53 and the eccentric bearings 54. As shaft 50 rotates, it causes the eccentrics 53 to actuate the bifurcated arms 55 and fork 56 and they (55 and 56) move back and forth toward the sanding drums in an oscillating motion. The shafts 60 of the sanding drums 36*a*, 37*a* and 38*a* are connected with the oscillating fork thrust bearings 59 which are mounted between the arms 55. Accordingly, shafts 60 are moved back and forth with the forks 56 causing the drums 36*a*, 37*a* and 38*a* to move back and forth in an oscillating motion. It is to be noted that the motor 1 used in the embodiment herein is of the ratio type for reducing the speed of rotation.

A mechanical advantage system of the proper size that slows down the speed of rotation and increases the power would be within the spirit of this invention. It is important to appreciate that on some types of wood the speed of oscillation should be increased and others decreased. The gears in the ratio motor may be used for controlling this speed of oscillation. The better practice is to change the size of the pulleys. As stated previously, this oscillating motion removes the snake marks from the wood.

ROTATION OF SANDING DRUMS

In Figures 2 and 4, there is shown the best views for understanding the operation of the sanding drums 36*a*, 37*a* and 38*a*.

A motor M has connected to its drive shaft (not shown) a belt 35. This belt 35 is connected with one section of the pulley 38. The other section of pulley 38 has a belt 40 circumscribing it. The belt 40 is connected to one section of the pulley 37. Pulley 37 has circumscribing it a belt 39 which is connected to pulley 36. When the motor M is energized, the pulleys are operated by the respective belts that impart rotation thereto. Since the drums 36*a*, 37*a*, and 38*a* are mounted on the shafts 60 which are connected to the pulleys 36, 37 and 38, the drums 36*a*, 37*a*, and 38*a* also rotate with the rotation of the pulleys. The bearings 61 maintain the drum shafts 60 steady and firm in the pressure bar supports 41.

OPERATION OF ENDLESS BED

The endless bed which comprises the ties 17 and the chains 16 is operated under the energy taken from the motor 28 which drives the ratio motor or mechanical advantage system 27 by means of the drive belt 30 which is mounted on a triple section pulley 29. (In Figure 2 it is on the middle section 29*a*.)

The chain 22 is connected to a sprocket driven by the ratio motor 28. This sprocket is not shown in the drawings, but is connected to the drive shaft of the ratio motor 27. The chain 22 passes over a take up sprocket 23 which is mounted in the side panel 3, over the endless bed drive shaft sprocket 21, which is mounted on the endless bed drive shaft 15. Chain 22 also passes over the idler sprocket 24 which is also mounted on the side panel 3.

When the chain 22 moves, it rotates the endless bed drive shaft 15. Mounted on 15 are the sprockets 16*a* for the endless bed. As 15 rotates so also do the sprockets 16*a*. The chains 16 of the endless bed assembly rotate moving along the ties 17 which are mounted thereon. Thus the endless bed rotates.

At the right end of Figure 2 and Figure 8 can be seen the front endless bed bearing 33 which retains the shaft 33*a* at this end of the endless bed. On shaft 33*a* are the sprockets 16*b* which are rotated by the chains 16.

The piece of wood to be sanded is passed beneath the drums 36*a*, 37*a*, and 38*a* on top of the ties 17 of the endless bed assembly. The drums have sanding paper or abrasive surfaces of various textures usually coarse, medium and fine in that order. This abrasive surface is rotated over the wood by the drums 36*a*, 37*a*, and 38*a* and is also passed laterally back and forth in an oscillating motion. The speed of the endless bed, the velocity of oscillation and rotation of the drums, the height of the endless bed with respect to the surface of the drums, all being variable, enable the operator of the machine to completely finish and polish one surface of the wood as it passes on the endless bed from one end of the machine to the other.

The fact that there are so many variables makes it easy for the operator to adjust the machine to get the best performance. The speeds of all the moving parts may be altered or varied. The speed of the motor 28 whose energy is used to drive the endless bed assembly is varied by changing pulleys. The oscillating speed is similarly controlled by changing the pulley (not shown) of the motor 1. The speed of the rotating drums 36*a*, 37*a*, and 38*a* may be similarly controlled by the change of pulleys (not shown).

The dust from the wood that is being sanded is retained in a housing covering the superstructure of Figure 6. It is connected to a suction system and is carried away.

I claim:

1. A sanding machine comprising at least two sanding drums having abrasive material covering their surfaces, a fine adjustment means for controlling the abrading action of said sanding drums, said adjustment consisting of a fine thread adjusting screw, a separate threaded upper support located above and near the ends of each of said drums, a separate said thread adjusting screw mounted in each of said supports, a separate lower support beneath each of said screws, said screws being engaged therein, pressure bars proximate the drums, each of said lower supports integral with a separate said pressure bar, whereby a rotational movement of said screw transmits a vertical movement to said pressure bar, an endless bed assembly beneath said sanding drums, said endless bed assembly having a pair of parallel chains connected to each other by a plurality of ties, said chains and ties mounted at each end by sprockets, said sprockets integral with shafts at each of said ends, a chassis for the endless bed assembly, said shafts supported by said chassis, a system of transmission shafts and gears for raising and lowering the said chassis, means connected to one of said sprocket shafts for imparting motion thereto whereby said endless bed moves continuously about said sprockets.

2. A sanding machine comprising a plurality of abrading drums, fine means for controlling and positioning the elevation of said drums, a movable endless bed, a chassis for said endless bed, a plurality of vertical shafts adjustably engaging said chassis, gears at the lower ends of each of said shafts, a separate gear on a horizontal shaft meshing with each of said first mentioned gears, a transmission system for synchronously rotating said horizontal shafts whereby the said chassis is raised and lowered, means for rotating said drums, means for oscillating said drums and means for moving said endless bed.

3. A sanding machine comprising at least two sanding

drums having abrasive material covering their surfaces, a fine thread adjusting screw, a separate threaded upper support above and to the side of each of said drums, a separate said thread adjusting screw mounted in each of said supports, a separate lower support beneath each of said screws, said screws being engaged therein, pressure bars proximate the drums, each of said lower supports integral with a separate pressure bar, whereby a rotational movement of said screw transmits a vertical movement to said pressure bar, means for rotating the drums, a movable endless bed beneath the said drums, an oscillating means, means for transmitting oscillations from the said oscillating means causing said sanding drums to move back and forth laterally over the endless bed, and means for raising and lowering the endless bed.

4. A sanding machine comprising a plurality of rotating drums, said drums having secured thereto abrasive surfaces, vertical support members on each side of said drums, drum shafts secured to said support member and passing within the said drums, fork means mounted on one side adjacent to each of said drums, a thrust bearing interconnecting said fork means and said shaft, a separate longitudinal shaft connected with each of said fork means, means for oscillating said shafts whereby said drums oscillate back and forth in the direction of the said drum shafts, a plurality of fine thread adjusting screws, a separate threaded upper support above and to the side of each of said drums, a separate said thread adjusting screw mounted in each of said supports, a separate lower support beneath each of said screws, said screws engaged therein, pressure bars proximate the drums, each of said lower supports integral with a separate pressure bar, whereby a rotational movement of said screw transmits a vertical movement to said pressure bar.

5. A sanding machine comprising a plurality of rotating drums having abrasive surfaces, fine adjustable means for raising and lowering said drums, said means consisting of a plurality of a fine thread adjusting screw, a separate threaded upper support above and to the side of each of said drums, a separate said thread adjusting screw

mounted in each of said supports, a separate lower support beneath each of said screws, said screws engaged therein, pressure bars proximate the drums, each of said lower supports integral with a separate pressure bar, whereby a rotational fine movement of said screw transmits a vertical fine movement to said pressure bar, a shaft within each of said drums, fork means having bifurcated arms, thrust collars on said shafts interconnected with said fork arms, and means for transmitting oscillating motion to said drum shafts, consisting of a motor, eccentrics, a transmission shaft for imparting rotary motion from said motor to said eccentrics, a separate eccentric interconnecting said drive shaft and a separate fork causing said shafts within the drums to oscillate longitudinally as said shaft rotates.

6. A sanding machine as recited in claim 5 including an endless bed located beneath said drums, a chassis for supporting said endless bed, a raising and lowering wheel for said chassis, a rotatable transmission shaft connected to said wheel, three pinion gears mounted on said shaft, two of said gears meshing with pinion gears on vertical shafts, the other of said gears meshing with a gear on a longitudinal shaft, said vertical shafts adjustably connected with said chassis, said longitudinal shaft interconnected with a shaft substantially parallel to said first mentioned transmission shaft, this latter shaft having two pinion gears mounted thereon and meshing with pinion gears on other vertical shafts adjustably connected to said chassis whereby when wheel is rotated the vertical shafts are rotated causing said endless bed to be raised or lowered.

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