Feb. 5, 1957 C. W. ALBRIGHT 2,780,033

OFFHAND SPOOL SANDING MACHINE

Filed Aug. 17, 1956 2 Sheets-Sheet 1

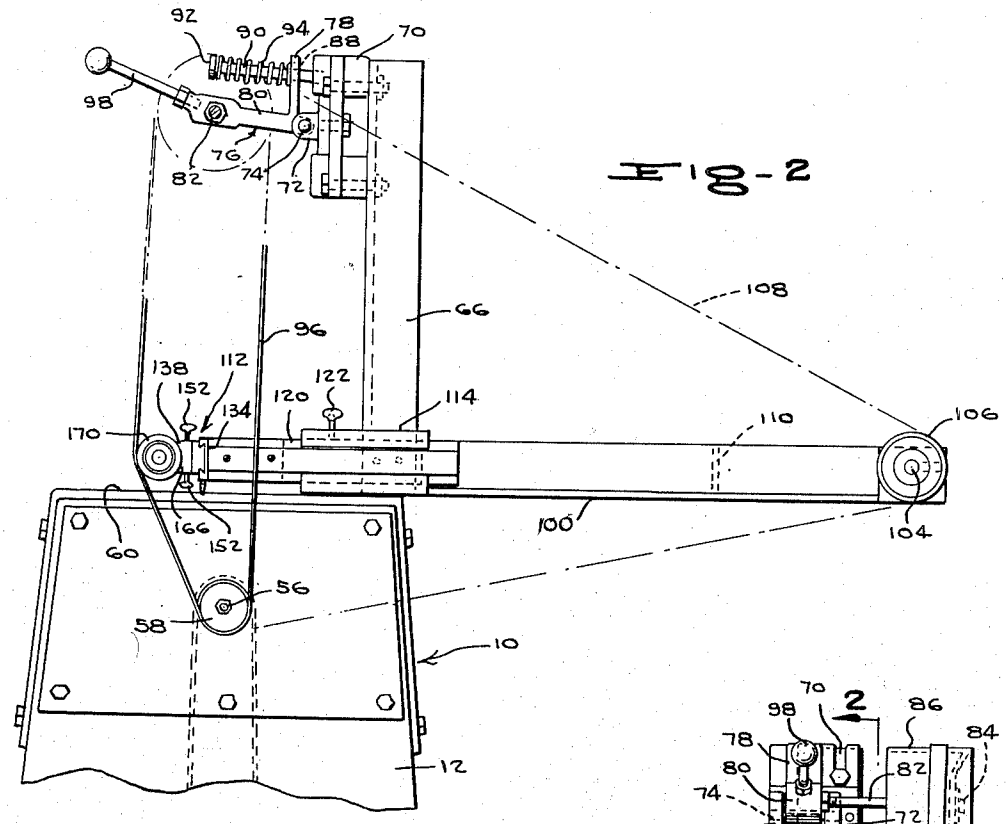


Fig-2

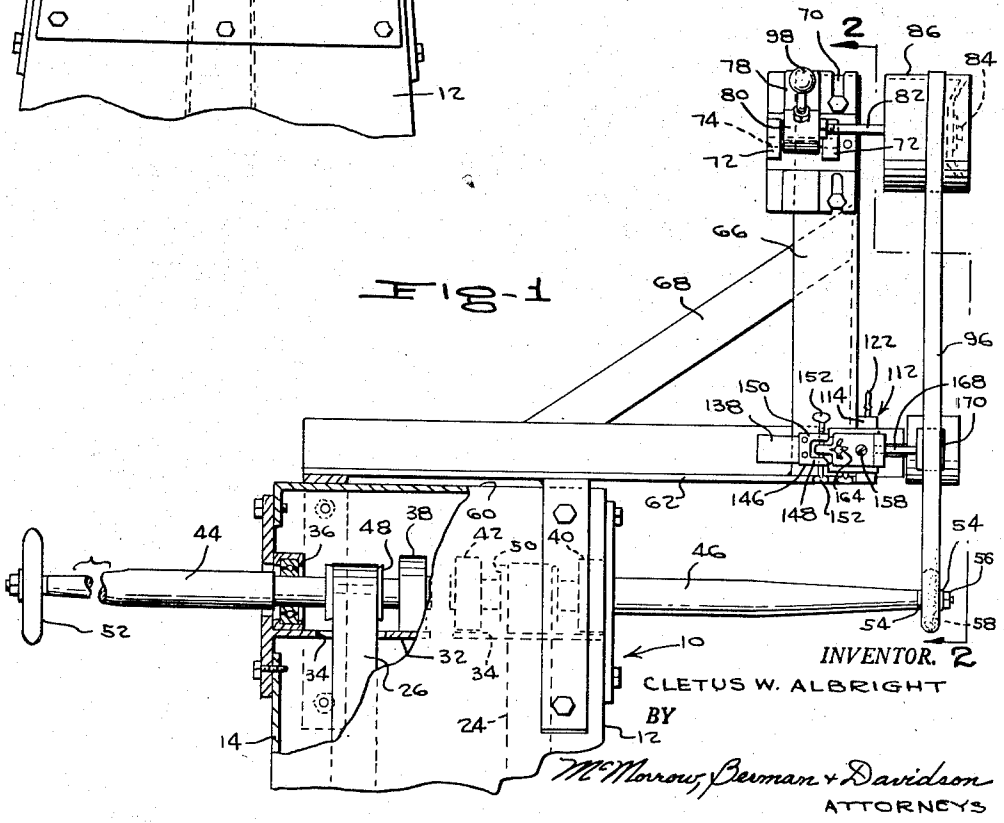


Fig-1

INVENTOR.
CLETUS W. ALBRIGHT
BY
McMorrow, Berman + Davidson
ATTORNEYS

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Fig-3

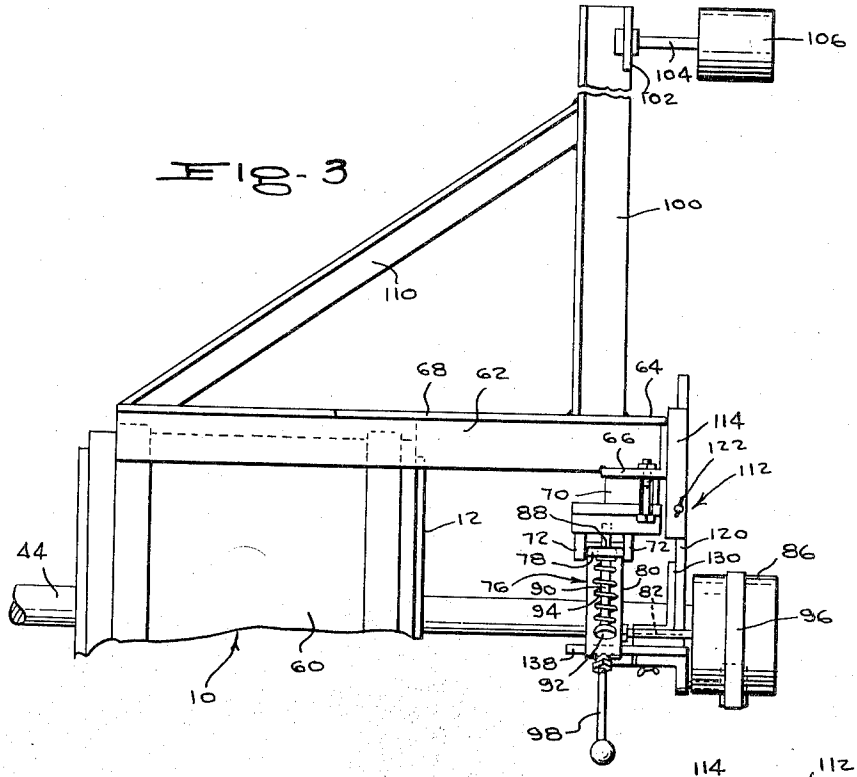


Fig-5

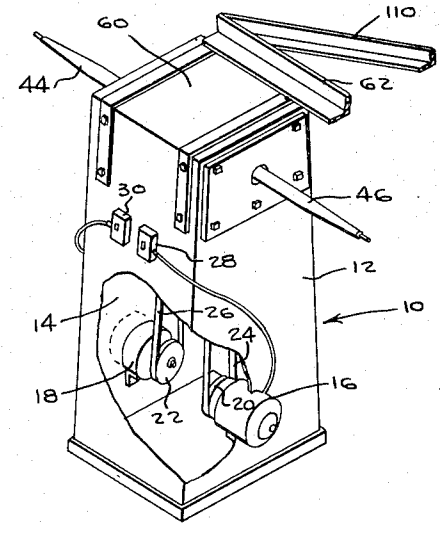
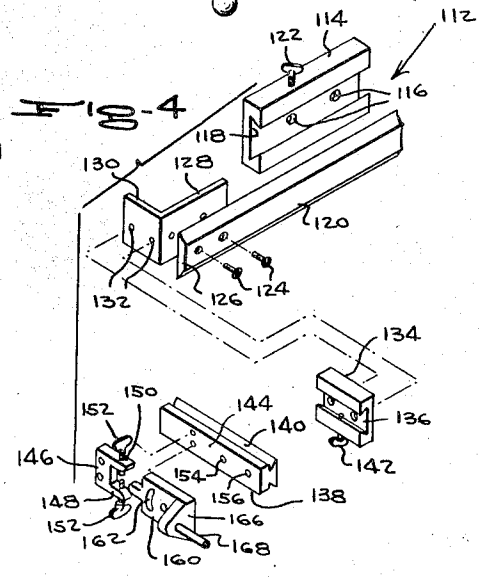


Fig-4



INVENTOR.

CLETUS W. ALBRIGHT

BY

McMorrow, Berman & Davidson

ATTORNEYS

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OFFHAND SPOOL SANDING MACHINE

Cletus W. Albright, Drexel, N. C.

Application August 17, 1956, Serial No. 604,634

5 Claims. (Cl. 51—3)

This invention relates generally to wood working machines and is more particularly concerned with a novel off-hand spool sanding machine facilitating the formation of contours on furniture or the like.

A primary object of invention is to provide a novel sanding machine for offhand sanding of work pieces in which a contour is to be formed, said sanding machine incorporating plural support shafts extending laterally in parallel relationship from a support pedestal and incorporating means for power driving the same, one of said shafts incorporating thereon a removable resilient forming spool, the outer periphery thereof being suitably conformed for sanding a specific contour in a work piece, another of said shafts incorporating thereon a pulley in substantial parallel alignment with the removable spool, an endless flexible sanding belt entrained over the pulley and spool and conforming to the outer periphery of said spool for sanding the outer surface of a work piece, and adjustable tracking means engageable with the inner periphery of the endless sanding belt for maintaining the same on the aforementioned spool and pulley, the spool of the machine being disposed with an uninterrupted work space therebeneath whereby a work piece may be readily manipulated during sanding of the same.

A further object of invention in conformance with that set forth is to provide a spring urged bracket in conjunction with the pulley member over which the endless sanding belt of the machine is entrained, said bracket urging the support shafts apart and applying a tension on the endless sanding belt and facilitating the removal and mounting of a new belt on the machine.

And yet a still further object of invention in conformance with that set forth is to provide in an offhand spool sanding machine of the character involved a laterally extending power driven support shaft which is independently operated, permitting the endless sanding belt to be utilized independently of said power shaft, the power shaft removably supporting thereon a sanding disc, thus facilitating the use of the machine by two different individuals, and permitting one or the other of the means for sanding to be utilized while the other is not operating.

And still another object of invention in conformance with that set forth is to provide a novel offhand spool sanding machine of the character involved which is readily and economically manufactured, easily used and maintained, and highly satisfactory, efficient and acceptable for the purpose intended.

These together with other objects and advantages which will subsequently become apparent reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawing forming a part hereof, wherein like numerals refer to like parts throughout, and in which:

Figure 1 is a fragmentary elevational view of the novel offhand spool sanding machine, portions being broken away and shown in section for clarity, showing the upper portion of the support pedestal for the machine;

Figure 2 is a sectional view taken substantially on line 2—2 of Figure 1, portions of the machine which have been removed being shown in phantom lines, and further showing by means of phantom lines the manner in which endless sanding belts of different sizes may be utilized on the machine;

Figure 3 is a fragmentary top plan view of the novel sanding machine, with portions being removed;

Figure 4 is an exploded perspective view of the adjustable support means for the tracking means for the endless sanding belt of the invention; and

Figure 5 is a perspective view, on a reduced scale, portions being broken away, showing the support pedestal for the novel sanding machine.

Referring to the drawing in detail, and especially Figure 5, a support pedestal for the sanding machine is indicated generally at 10 being substantially rectangular and hollow including in opposite side portions 12 and 14 horizontally disposed electric motors 16 and 18 including drive pulleys 20 and 22, respectively, over which are entrained endless drive belts 24 and 26, respectively, the motors being independent of each other and being controlled by independent switch assemblies 28 and 30, respectively. The support pedestal has extending transversely within an upper end portion thereof a support plate 32, see Figure 1, suitably apertured at 34 for receiving therethrough the upper end of the belts 24 and 26, and extending vertically on opposite sides of the apertures 34 are spaced aligned bearing assemblies 36 and 38, and 40 and 42, which have extending therethrough suitably supported shafts 44 and 46, respectively, which extend laterally from opposite sides of the support pedestal through suitable aperture portions in the upper end thereof, said shafts including on intermediate portions thereof integral pulley portions 48 and 50, respectively, over which the drive belts 26 and 24, respectively, pass. The shaft 44 removably receives on the outer end thereof a suitable sanding disc 52 which may be used independently of an endless sanding belt to subsequently be described in detail, said endless sanding belt being driven through the rotation of the shaft 46. The spindle 44 with the sanding disc 52 thereon may be operated independently of the spindle or support shaft 46, and accordingly two operators may utilize the sanding machine at one time, and when it is necessary to change a sanding disc 52 which becomes worn, it is not necessary to cease operation requiring the use of the endless sanding belt.

The shaft 46 has removably secured on the end portion thereof by means of suitable clamping washers and a retaining nut 54 and 56, respectively, a resilient spool 58, the outer periphery thereof being suitably conformed for forming the various contours on a work piece, such as the leg of French provincial furniture, for example.

Suitably secured on the upper surface 60 of the support pedestal is a horizontally disposed support bar 62, an angle member, for example, said bar 62 extending laterally beyond the side 12 of the support pedestal substantially parallel to the longitudinal axis of the shaft 46, see Figure 1, and having suitably secured on the end portion 64 thereof a vertically extending support member 66, also being constructed from an angle member, if desired, and being suitably braced by means of an angularly disposed strap or plate member 68 as seen for example in Figure 1. Extending forwardly from an upper end portion of the vertical support member 66 is a suitably secured support bracket 70 incorporating a pair of spaced apertured pivot ears 72, see Figure 1, receiving therethrough a pivot shaft 74 rotatably supporting a L-shaped vertically pivotal bracket member 76, including a vertically extending leg portion 78 and a horizontally or forwardly extending support leg portion

80. The leg portion 80 has extending laterally therefrom a horizontally disposed support shaft 82, which has suitably secured on its outer end portion 84 a pulley member 86 which is in substantial planar alignment with the resilient spool 58. The leg portion 78 has extending transversely therethrough a forwardly opening enlarged aperture portion 88 loosely receiving therethrough a forwardly extending support shaft 90 which is integral at its rear end portion with the support bracket, and terminating at its forward end in an enlarged abutment portion 92. Circumposed about the rod 90 between the abutment portion 92 and leg 78 is a compression spring 94 which biases the L-shaped lever in a clockwise direction about the pivot element or shaft 74, and accordingly will tend to urge the shaft 82 away from the shaft 46 upon which the spool 58 is supported. The pulley 86 has entrained thereover an elongated endless flexible sanding belt 96 which is conformable to the outer periphery of the spool 58, the outer surface thereof engaging a work piece disposed therebeneath when a contour is being formed therein, and by virtue of the appreciable length of the flexible sanding belt, those portions utilized for sanding will be cooled due to the movement away from a work piece being sanded and accordingly "burns" on the work piece will be reduced to a minimum, such cooling of the flexible sanding belt increasing the life thereof and keeping replacement at a minimum. The leg portion 80 has extending forwardly therefrom a suitably secured lever or handle 98 which when rotated in a counterclockwise direction about the pivot shaft 74 will overcome the compression spring 94 and permit the removal and replacement of the endless sanding belt 96.

Extending rearwardly from the support member 62 substantially normal thereto is a horizontally disposed support member 100, an angle member, if desired, having supported on an integral vertically extending plate 102 a laterally extending support shaft 104 substantially parallel to the previously mentioned support shafts 46 and 82, said shaft having journaled thereon substantially in the plane of rotation of the flexible sanding belt 96 an idler pulley 106 which may be utilized when an exceptionally long flexible sanding belt 108 is utilized on the sanding machine as shown by means of the phantom lines in Figure 2. A horizontally disposed angular brace member 110 is suitably secured at its opposite ends between the support member 100 and an end portion of the support member 62.

A support assembly indicated generally at 112 is provided to insure proper tracking of the endless sanding belt 96 or 108 over the aforementioned pulleys and shaping spool. The support assembly 112 includes a support block 114, rectangularly shaped as seen in Figure 4, for example, said block 114 being secured in horizontally disposed relationship transversely of the end 64 of the support member 62, in any suitable manner, by means of suitable rivets extending through transverse apertures 116 of the block 114. The block 114 has extending through one side and the opposite ends thereof a dovetail slot 118 reciprocably receiving therein a suitably conformed support bar 120, which is retained in adjusted longitudinal position relative to the block 114 by means of a suitable lock screw 122 extending through the edge of the block 114 and intersecting an underlying portion of the support bar 120. The support bar 120 has secured by means of rivet elements 124, for example, on the forward end 126 thereof a L-shaped bracket including a leg portion 128 secured in juxtaposition on the support bar 120, the other leg 130 thereof being suitably apertured at 132 and having juxtaposed thereon a rectangular block element 134 having extending through opposite ends at one side thereof a dovetail slot 136 reciprocably receiving therein an adjustable support bar 138 including on one side thereof a dovetail rib portion 140, and extending through one edge of the block 134 is a lock screw 142 engageable with the dovetail rib for retaining the same in varied positions of adjustment. Secured on the side portion 144 opposite the dovetail rib 140 of the support bar 138 is a C-shaped block element 146 spaced leg portions 148 and 150 of which including internally threaded aligned aperture portions which receive therein finger manipulable abutment or stop screws 152. The support bar 138 incorporates in longitudinally spaced relationship from the C-shaped element 146 spaced aperture portions 154 and 156, the aperture portion 156 having extending therein a suitable pivot shaft 158, see Figure 1, pivotally supporting a support element 160 which incorporates therethrough an arcuate slot portion 162 which is alignable with the aperture portion 154, said aperture portion 154 being internally threaded and receiving therein a suitable lock screw 164 extending through and engageable with the outer surface of the element 160 for retaining the same in various positions of adjustment about the pivot shaft 158. Thus by manipulating the screws 152 vertical pivotal adjustment is obtained on the support block element 160. The support block element 160 includes an angular flange portion 166 having extending laterally therefrom a support shaft 168 having journaled thereon an idler pulley 170 engageable with the inner periphery of the endless sanding belt 96 or 108, the shaft upon which the same is rotatably supported being adjustable in angular relationship relative to the plane of rotation of the sanding belts and accordingly controlling the tracking characteristics of the endless sanding belts urging the same toward the right or left as seen in Figure 1 in the event said sanding belts tend to run off of the pulley 86, spool 58, or the pulley 106.

Operation of the novel sanding machine is accordingly believed to be readily apparent in view of the foregoing description of the structure thereof, and accordingly further description of the operation thereof is believed to be unnecessary.

The foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly all suitable modifications and equivalents may be resorted to, falling within the scope of the appended claims.

What is claimed as new is as follows:

1. An off hand spool sanding machine for forming contours in a work piece comprising a vertical support pedestal, plural support shafts secured at one end in spaced laterally extending relationship from the support pedestal, power means connected to one of said shafts for positively driving the same, a pair of said plural shafts being vertically spaced, a resilient shaping spool removably secured on the end portion of the lowermost of said pair of shafts, an uninterrupted work area disposed beneath the shaping spool permitting manipulation of a work piece being sanded, the uppermost of said pair of shafts including an idler pulley thereon in substantial parallel alignment with the shaping spool, an endless flexible sanding belt conformable to the outer periphery of the shaping spool for rotation thereon, another of the plural shafts being disposed intermediate the pair of shafts and including an idler pulley on the end thereof engageable with the inner periphery of the flexible sanding belt, and adjustable support means for the last mentioned support shaft disposing the longitudinal axis thereof in angular relationship relative to the longitudinal axis of the pair of shafts, the outer periphery of the idler pulley on the last mentioned shafts being angularly engageable with the inner periphery of the flexible sanding belt for controlling the proper tracking of said belt over the pulley and shaping spool.

2. An off hand spool sanding machine for forming

contours in a work piece comprising a vertical support pedestal, plural support shafts secured at one end in spaced laterally extending relationship from the support pedestal, power means connected to one of said shafts for positively driving the same, a pair of said plural shafts being vertically spaced, a resilient shaping spool removably secured on the end portion of the lowermost of said pair of shafts, an uninterrupted work area disposed beneath the shaping spool permitting manipulation of a work piece being sanded, the uppermost of said pair of shafts including an idler pulley thereon in substantial parallel alignment with the shaping spool, an endless flexible sanding belt conformable to the outer periphery of the shaping spool for rotation thereon, another of the plural shafts being disposed intermediate the pair of shafts and including an idler pulley on the end thereof engageable with the inner periphery of the flexible sanding belt, and adjustable support means for the last mentioned support shaft disposing the longitudinal axis thereof in angular relationship relative to the longitudinal axis of the pair of shafts, the outer periphery of the idler pulley on the last mentioned shafts being angularly engageable with the inner periphery of the flexible sanding belt for controlling the proper tracking of said belt over the pulley and shaping spool, said support pedestal including a vertically pivotal support bracket upon which the upper shaft is supported, and spring means engaging said support bracket biasing the upper shaft away from the lower shaft and maintaining tension on the endless belt, means on said support bracket for pivoting the same and overcoming the biasing force to facilitate the replacement of the flexible sanding belt.

3. An off hand spool sanding machine for forming contours in a work piece comprising a vertical support pedestal, plural support shafts secured at one end in spaced laterally extending relationship from the support pedestal, power means connected to one of said shafts for positively driving the same, a pair of said plural shafts being vertically spaced, a resilient shaping spool removably secured on the end portion of the lowermost of said pair of shafts, an uninterrupted work area disposed beneath the shaping spool permitting manipulation of a work piece being sanded, the uppermost of said pair of shafts including an idler pulley thereon in substantial parallel alignment with the shaping spool, an endless flexible sanding belt conformable to the outer periphery of the shaping spool for rotation thereon, another of the plural shafts being disposed intermediate the pair of shafts and including an idler pulley on the end thereof engageable with the inner periphery of the flexible sanding belt, and adjustable support means for the last mentioned support shaft disposing the longitudinal axis thereof in angular relationship relative to the longitudinal axis of the pair of shafts, the outer periphery of the idler pulley on the last mentioned shafts being angularly engageable with the inner periphery of the flexible sanding belt for controlling the proper tracking of said belt over the pulley and shaping spool, said support pedestal including an independently driven power shaft extending therefrom opposite the shaft upon which the resilient shaping spool is mounted, and a removable sanding disc on said independently driven power shaft wherein the sanding machine may be utilized independently by two different operators.

4. An off hand spool sanding machine for forming

contours in a work piece comprising a vertical support pedestal, plural support shafts secured at one end in spaced laterally extending relationship from the support pedestal, power means connected to one of said shafts for positively driving the same, a pair of said plural shafts being vertically spaced, a resilient shaping spool removably secured on the end portion of the lowermost of said pair of shafts, an uninterrupted work area disposed beneath the shaping spool permitting manipulation of a work piece being sanded, the uppermost of said pair of shafts including an idler pulley thereon in substantial parallel alignment with the shaping spool, an endless flexible sanding belt conformable to the outer periphery of the shaping spool for rotation thereon, another of the plural shafts being disposed intermediate the pair of shafts and including an idler pulley on the end thereof engageable with the inner periphery of the flexible sanding belt, and adjustable support means for the last mentioned support shaft disposing the longitudinal axis thereof in angular relationship relative to the longitudinal axis of the pair of shafts, the outer periphery of the idler pulley on the last mentioned shafts being angularly engageable with the inner periphery of the flexible sanding belt for controlling the proper tracking of said belt over the pulley and shaping spool, another of the plural shafts being disposed rearwardly of the pair of shafts, an idler pulley on the last mentioned shaft over which the flexible endless sanding belt may be entrained facilitating the utilization of different lengths of endless sanding belts on the machine.

5. An off hand spool sanding machine for forming contours in a work piece comprising a vertical support pedestal, plural support shafts secured at one end in spaced laterally extending relationship from the support pedestal, power means connected to one of said shafts for positively driving the same, a pair of said plural shafts being vertically spaced, a resilient shaping spool removably secured on the end portion of the lowermost of said pair of shafts, an uninterrupted work area disposed beneath the shaping spool permitting manipulation of a work piece being sanded, the uppermost of said pair of shafts including an idler pulley thereon in substantial parallel alignment with the shaping spool, an endless flexible sanding belt conformable to the outer periphery of the shaping spool for rotation thereon, another of the plural shafts being disposed intermediate the pair of shafts and including an idler pulley on the end thereof engageable with the inner periphery of the flexible sanding belt, and adjustable support means for the last mentioned support shaft disposing the longitudinal axis thereof in angular relationship relative to the longitudinal axis of the pair of shafts, the outer periphery of the idler pulley on the last mentioned shafts being angularly engageable with the inner periphery of the flexible sanding belt for controlling the proper tracking of said belt over the pulley and shaping spool, the adjustable supporting means including extensible supports disposed in substantially right angles to each other, a vertically pivotal support element upon which the support shaft for the idler pulley is mounted, and adjustable stop elements positionable on opposite sides of the pivotal path of the support element for defining and retaining the angular adjustment of the support shaft of the idler pulley relative to the vertical plane through which the flexible endless sanding belt rotates.

No references cited.