

April 24, 1956

L. FROSTAD

2,742,741

TRACKING MECHANISM FOR BELT SANDER

Filed June 18, 1954

2 Sheets-Sheet 2

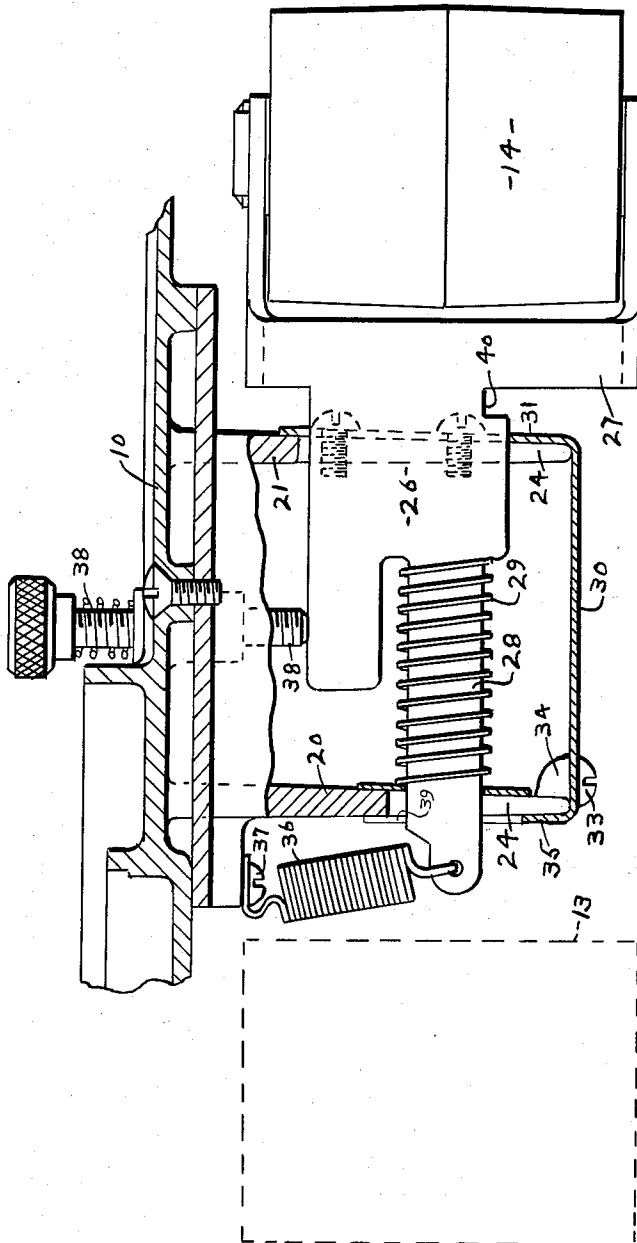


Fig. 3

INVENTOR.

Lars Frostad

BY

Demmitt Thompson
ATTORNEY.

1

2,742,741

TRACKING MECHANISM FOR BELT SANDER

Lars Frostad, Syracuse, N. Y., assignor to The Porter-Cable Machine Company, Syracuse, N. Y., a corporation of New York

Application June 18, 1954. Serial No. 437,687

3 Claims. (Cl. 51—170)

This invention relates to portable power operated sanding machines of the type employing an endless belt. In machines of this type, a driving pulley is journaled in the frame of the machine at the rear end thereof and an idler pulley is journaled in the forward end of the machine. The endless abrasive belt is trained over the two pulleys, and a pressure pad is located between the pulleys to provide a flat platen to maintain the lower run of the belt against the work being sanded. Due to variations in belt structure, it is necessary to have the forward idler pulley mounted so that its axis may be shifted out of parallelism with the axis of the rear drive pulley in order to track the belt to make it run properly.

This invention relates more particularly to a tracking structure for supporting and shifting the axis of the idler pulley, and has as an object a tracking structure embodying an arrangement that is particularly economical to manufacture and assemble, and which may be conveniently adjusted.

The invention consists in the novel features and in the combinations and constructions hereinafter set forth and claimed.

In describing this invention, reference is had to the accompanying drawings in which like characters designate corresponding parts in all the views.

In the drawings—

Figure 1 is a side elevational view of a sanding machine embodying my invention.

Figure 2 is a sectional view of the frame of the machine taken on line 2—2, Figure 1.

Figure 3 is a top plan view of the tracking structure showing contiguous portions of the frame in section.

The sanding machine shown consists of a frame having a vertically arranged side wall 10, a top wall 11, and a bottom wall 12, the top and bottom walls 11, 12, extend laterally from the upper and lower edges of the side wall 10 to form a frame substantially U-shaped in cross section, see Figure 2.

The bottom wall 12 is positioned between the driving roll 13 and the idler roll 14 to provide the platen for the lower run 15 of the belt. The driving roll 13 is journaled in the side wall 10 of the frame and is operatively connected to a driving motor 16 mounted on the top wall of the frame, the machine being manually manipulated by a handle 17 and a knob 18 mounted on the motor.

The structure for supporting and tracking the idler roll 14 consists of a pair of intermediate walls 20, 21, extending laterally from the side wall 10 and having a vertical dimension somewhat less than the side wall 10, to provide a space to accommodate the upper run 23 of the sanding belt. The rear intermediate wall 20 is positioned in proximity to the drive pulley 13 and both of the walls are formed with slots 24 extending inwardly from their outer ends toward the side wall 10 of the frame. A plate 26 is slidably mounted in the slots 24, the forward portion of the plate being formed with a yoke 27, and the idler roll 14 is journaled between the arms of the yoke. The

2

plate 26 is formed with a rear or tail portion 28 which is positioned in the slot 24 of the rear intermediate wall 20, see Figure 3. This portion of the plate is encircled by a helical compression spring 29 to yieldingly urge the plate forwardly to maintain the abrasive belt taut.

The plate 26 is maintained in the slots of the intermediate wall by a U-shaped cover or closure member 30 having an end wall or flange 31 overlying the major portion of the forward side of the intermediate wall 21 and being detachably secured thereto as by screws 32. The cover is also attached by a screw 33 threading into the boss 34 located at the outer end of the rear intermediate wall 24 at its joinder with the bottom wall 12.

The flange 31 is provided with a slot arranged in register with the slot 24 of the wall 21, the slot being coextensive in length with the width of the plate 26. The rear flange 35 of the cover member is formed with an open ended slot 39 to receive the tail portion 28 of the plate. This arrangement permits movement of the rear portion of the plate 26 laterally, the sides of the plate, and the ends of the slot in the flange 31, providing the pivot points for such movement. Proper clearance for this movement is provided by the narrowed tail portion 28 of the plate being positioned in slot 39 of the rear flange 35 of the cover member. The plate 26 is yieldingly urged toward the side wall 10 of the frame by a tension spring 36 secured to the rear end of the tail portion 28 of the plate, and at its opposite end to the frame by a screw 37, Figure 3. Lateral movement of the plate toward the side wall of the frame is limited by a screw 38 threading through the frame and engaging the inner side edge of the plate. The screw is restrained against rotation by a spring positioned between the head of the screw and the side wall 10 of the frame. It will be apparent that the axis of the roller 14 can be shifted by adjustment of screw 38.

The forward portion of the plate 26 next to the yoke 27 is formed at one edge with a notch 40. To remove the belt, preparatory to replacing it with a new one, the plate, and idler roll 14 carried thereby, are moved rearwardly and then outwardly, whereby the notch 40 engages the outer end of the slot in flange 31 of the cover member, the idler roll being thus held in retracted position for convenient removal and replacement of the belt.

In production, the plate 26 is in the form of a simple sheet metal stamping, the arms of the yoke 27 being folded to provide for the support of the idler roll. The cover or closure 30 also consists of a simple sheet metal stamping whereby the idler roll supporting and tracking structure is extremely economical to manufacture and it will be apparent that the structure is simple to assemble.

What I claim is:

1. A portable belt sanding machine comprising a frame having a vertical side wall, top and bottom walls extending laterally from the upper and lower edges respectively of the side wall, an abrasive belt driving pulley journaled for rotation in the side wall at the rear end of the frame and extending laterally from the side wall between said top and bottom walls, intermediate forward and rear vertically arranged wall members extending in parallel spaced relation from said side wall medial of its ends, said intermediate wall members being formed with aligned slots extending inwardly from their outer edges toward the side wall of the frame, a plate positioned in the slot of said forward wall member, said plate extending forwardly and being formed with a yoke, an idler roll journaled in said yoke, said plate having a tail portion positioned in the slot of the rear intermediate wall for movement transversely of the frame, said tail portion extending rearwardly and spring means connected to said tail portion and urging the same toward the side wall of the frame, adjustable stop means carried by the side wall of the frame for

3

limiting movement of the tail portion toward said side wall, means carried by said front intermediate wall to limit lateral movement of the plate therein, whereby said plate is free to pivot in said front wall for shifting the axis of the idler roll relative to the axis of the driving roll, a spring mounted on said tail portion of the plate and operable to yieldingly urge said plate forwardly.

2. A portable belt sanding machine comprising an elongated frame substantially U-shaped in cross section having a vertically arranged side wall with top and bottom walls extending laterally from the top and bottom edges of said side wall, a motor driven abrasive belt pulley journaled in the side wall at the rear end of the frame and extending laterally from said side wall between said top and bottom walls, an idler roll support and tracking structure comprising intermediate forward and rear vertically arranged spaced apart walls extending laterally between the top and bottom walls from said side wall of the frame at the medial portion thereof, a plate mounted in said intermediate walls for sliding movement lengthwise of the frame, said plate extending forwardly of said forward wall and being formed with a yoke, an idler roll journaled in said yoke, said plate having limited lateral movement in said forward wall, the rear portion of said plate also being movable laterally in said rear wall, spring means yieldingly urging said plate forwardly, a second spring means yieldingly urging the rear portion of said plate laterally toward the side wall of the frame, stop means carried by the side wall of the frame and adjustable for limiting movement of the rear portion of the plate toward the side wall of the frame, the forward portion of said plate being formed with a notch in one side edge thereof whereby, upon rearward movement of said plate against said first-mentioned spring means, and subsequent lateral movement of the forward portion of the plate, said notch is moved into interlocking engagement with said forward wall.

3. A portable belt sanding machine comprising an elongated frame substantially U-shaped in cross section having a vertically arranged side wall with top and bottom walls

4

extending laterally from the top and bottom edges of said side wall, a motor driven abrasive belt pulley journaled in the side wall at the rear end of the frame and extending laterally from said side wall between said top and bottom walls, an idler roll support and tracking structure comprising intermediate forward and rear vertically arranged spaced apart walls extending laterally between the top and bottom edges from said side wall of the frame at the medial portion thereof, said intermediate walls being formed with alined slots extending inwardly from their outer edges toward the side wall of the frame, a plate mounted in said slots for sliding movement lengthwise of the frame, said plate extending forwardly of said forward roll and being formed with a yoke, an idler roll journaled in said yoke, a U-shaped cover member adapted to be positioned upon the outer ends of said intermediate walls and having an end flange portion overlying the forward side of said forward intermediate wall, said leg portion being formed with a closed slot arranged in register with the slot in said forward wall and having a length substantially equal to the width of the plate, the forward portion of said plate being formed with a slot in one edge adjacent to said yoke, the rear portion of said plate being movable laterally in the slot of said rear wall, spring means yieldingly urging said plate forwardly, and a second spring means yieldingly urging the rear portion of the plate toward the side wall of the frame, stop means carried by the frame and adjustable to limit lateral movement of the rear portion of the plate toward said side wall, said notch being movable into engagement with the leg portion of said cover member when said plate is moved rearwardly and laterally.

References Cited in the file of this patent

UNITED STATES PATENTS

1,920,364	Degen	Aug. 1, 1933
1,968,257	Myers	July 31, 1934
2,686,392	Moore	Aug. 17, 1954