Aug. 29, 1961 R. G. PATTERSON 2,998,040

POWER FEEDS FOR EDGE PLANERS

Filed May 1, 1959 2 Sheets-Sheet 1

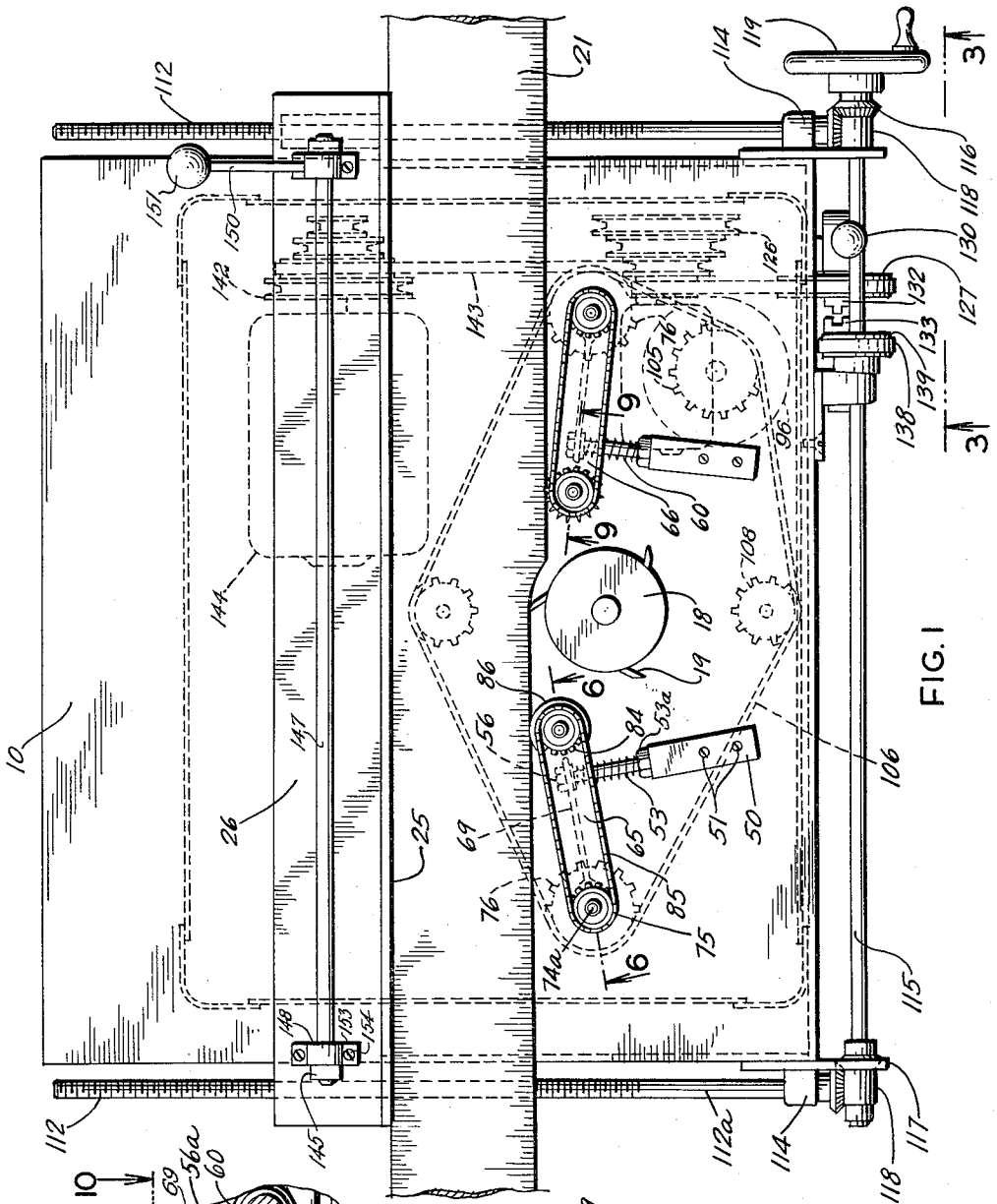


FIG. 1

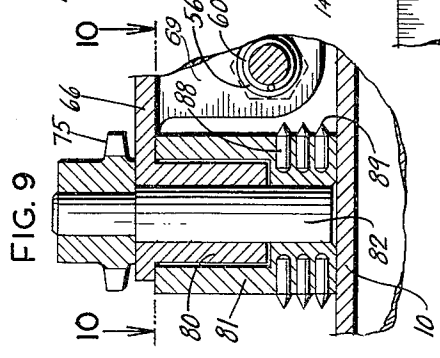


FIG. 9

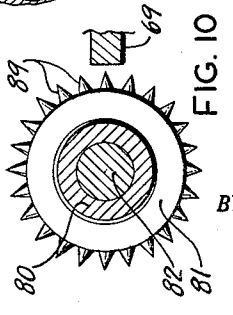


FIG. 10

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POWER FEEDS FOR EDGE PLANERS

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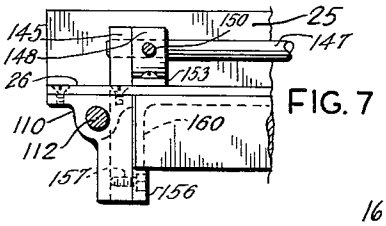


FIG. 7

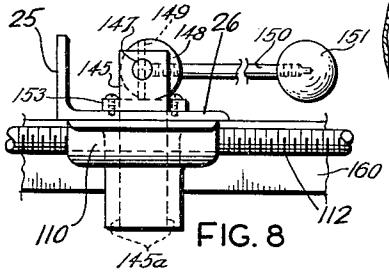


FIG. 8

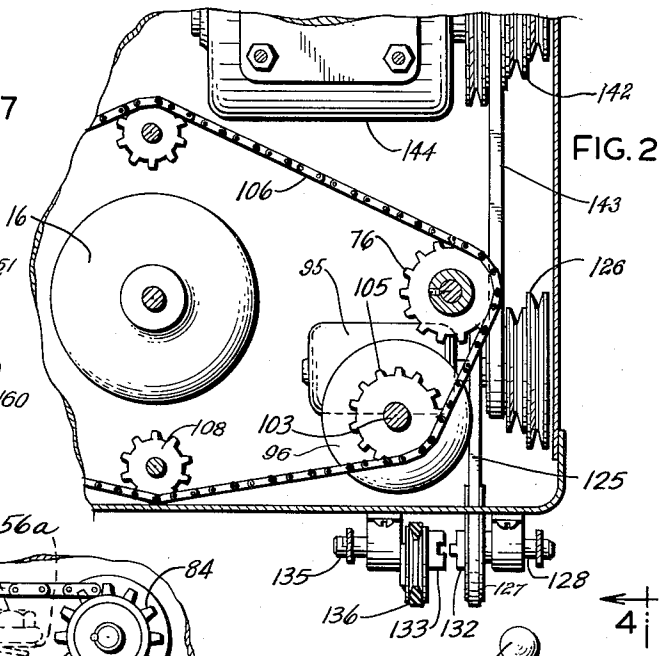


FIG. 2

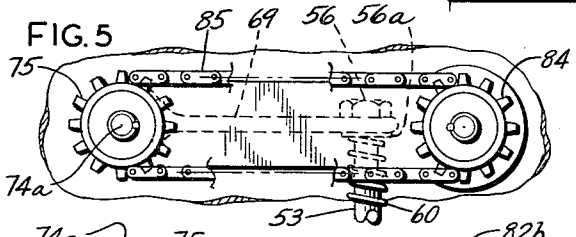


FIG. 5

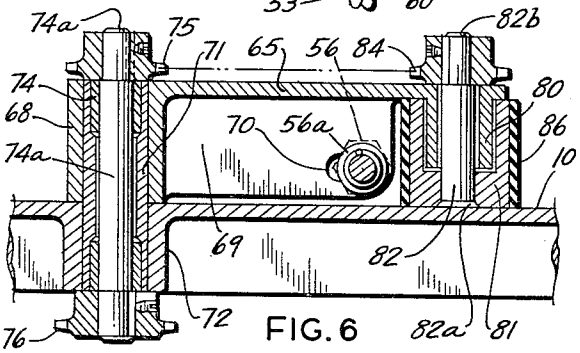


FIG. 6

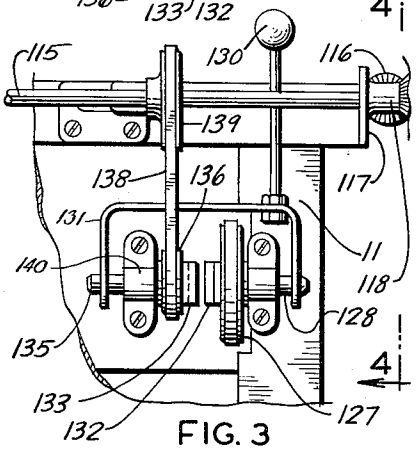


FIG. 3

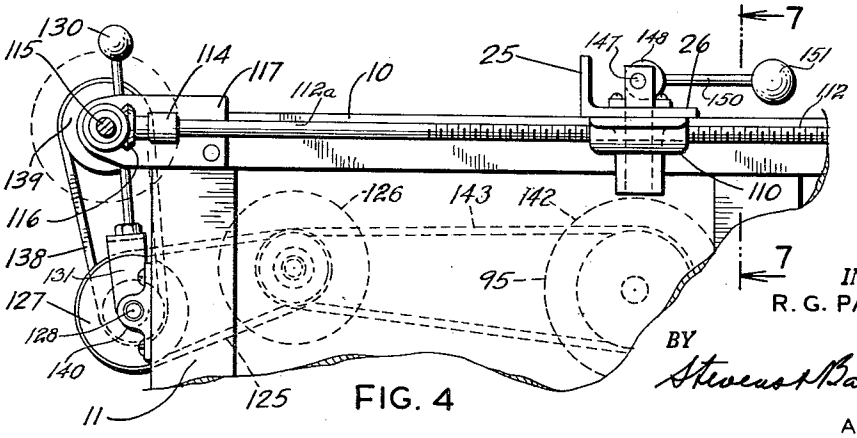


FIG. 4

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POWER FEEDS FOR EDGE PLANERS

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Filed May 1, 1959, Ser. No. 810,373
3 Claims. (Cl. 144—247)

This invention embodies improvements on the Edge Planer patented by me on March 5, 1957 under No. 2,783,796.

In the aforesaid patent a pair of rollers were in pressing engagement with the edge of the board being planed, in order to keep the board steady during its movement through the planer. This movement was accomplished by hand, and I have found that this method of feeding the board is often unsatisfactory. Thus, the hand feed may be uneven, causing the cut to vary in depth or texture; or, the feed may be too fast at times, causing roughness in the surface of the work. Also, the patented structure employed a backing guide or fence for the work which required the loosening of securing bolts every time the depth of the guide had to be adjusted, and the tightening of the bolts when a new setting of the guide was determined, these operations requiring effort and skill to make sure that the guide was parallel to the path of the work.

One object of the present invention is to impart an additional function to the pressing rollers by making them power operated.

A further object is to connect the work guide for movement in forward or rearward direction by power means, with a hand control added for operating the guide when only a short movement thereof is required.

Another object is to include power-transmission controls for operating convenience and safety.

A better understanding of the improvements may be gained by reference to the accompanying drawings, in which—

FIG. 1 is a top plan view of the planer, similar to FIG. 2 in the aforesaid patent;

FIG. 2 is a duplication of parts shown in the right-hand lower portion of FIG. 1 after the table of the planer has been removed;

FIG. 3 is a front elevation of a mechanism seen from the line 3—3 of FIG. 1;

FIG. 4 is a side elevation of the work guide feed as seen from the line 4—4 of FIG. 3;

FIG. 5 is an enlarged duplication of a roller drive seen in the left hand portion of FIG. 1;

FIG. 6 is an enlarged section of the roller drive, taken on the line 6—6 of FIG. 1;

FIG. 7 is a rear view of a work guide control; taken on the section line 7—7 of FIG. 4;

FIG. 8 is a side view of the said control enlarged from the showing in the right-hand portion of FIG. 4;

FIG. 9 (Sheet 1) is an enlarged section on the line 9—9 of FIG. 1; and

FIG. 10 is a section on the line 10—10 of FIG. 9.

The basic construction of the planer follows that of the one in my patent. Thus, specific reference to the accompanying drawings indicates the table of the planer at **10**, and a fragment of its supporting structure at **11**. The motor for operating the cutter **18** is shown at **16**, and the blades of the cutter are shown at **19**.

The board to be planed is shown at **21**, as in the patent, and the backing guide or fence **25** for the same is part of an angle rail **26** which is slidable between front and rear over the table **10**.

The assemblies of the rollers designed for pressing engagement with the edge of the board **21** are positioned similarly to those in the patent, but their specific nature has been changed. Thus, these rollers are supported by arms **65** and **66**, each arm having a hub **68** (FIG. 6)

at its outer end and a pendent web **69**. The hub is pivoted on a vertical sleeve **71** driven tightly into a boss **72** depending from the table **10**; and the sleeve carries roller bearings **74** for a vertical shaft **74***a* which carries a top sprocket **75** at its upper end and a bottom sprocket **76** at its lower end.

The inner end of each arm **65** and **66** carries a bearing **80** on which a cap-shaped roller **81** is rotatable. The roller is carried by an upright shaft **82** which is journaled in the bearing **80** and is headed at **82***a* to support the roller. The shaft is reduced at **82***b* above the arm **65** for the keyed mounting of a sprocket **84** which is connected to the sprocket **75** by a chain **85**. The roller **81** carried by the arm **65** has a rubber jacket **86**. However, the roller **81** carried by the arm **66** is fitted with a plurality of radial pins **88** near the bottom, these projecting in the form of barbs **89**, as seen in FIGS. 9 and 10.

Means similar to those in the aforesaid patent are provided for urging the rollers **81** against the work. Such means comprise the plates **50** (FIG. 1), secured to the table by screws **51** and forming bearings for screws **53** directed through the webs **69** of the arms **65** and **66**. Each screw **53** has a head **56** on the outer side of the arm and a washer **56***a* on the inner side thereof; and the compression spring **60** is coiled around the screw between the plate **50** and the web **69**, the screw being made fast to the plate by a lock nut **53***a*. Although the amount of swing of the arms **65** and **66** is quite short, as noticed in FIG. 1, it is preferable to widen the holes in the webs **69** through which the screws **53** pass—as indicated at **70** in FIG. 6—to avoid binding of the screws as the arms swing.

It is evident from FIG. 1 that the board **21** is fed from right to left in order to receive the cut indicated in its front edge. The machine imparts joint rotation to the shafts **74***a* in counter-clockwise direction as seen in FIG. 1, so that the roller **81** with the barbs **89** imparts a positive feed to the rough edge of the board **21**, while the roller **81** with the rubber jacket **86** continues the feed after the edge has been cut with a finished surface.

The source for operating the work-feeding roller **81** is a motor **95** (FIGURE 2) mounted beneath the table and connected to a speed reducer **96**. The output shaft **103** of the latter is vertical, and receives a drive sprocket **105**. A loop-shaped chain **106** transmits motion from the sprocket **105** to the roller sprocket **76** with the aid of idler sprockets **108** suitably journaled beneath the table **10**.

As indicated in FIGS. 7 and 8, the work guide or fence **25** has tapped bearings **110** near each end for a pair of feed screws **112**. These pass in shaft form **112***a* (FIGURES 1 and 4) through journals **114** at the front end of the machine to be connected for joint rotation by a frontal shaft **115** through the agency of bevel gears **116**. Brackets **117** from the table **10** carry the journals **114** and journals **118** for the frontal shaft, as seen in FIG. 1.

The shaft **115** carries a handwheel **119** at one end which is operated in case the work guide **25** is to be given a short movement. However, in case the work guide is to be moved a considerable distance, a power feed for the frontal shaft **115** is provided. FIG. 2 shows a belt take-off **125** from a variable speed pulley **126** to a driving pulley **127** on a jack shaft **128** below the table. The pulley **127** is movable by means of a hand lever **130** and frame **131** to engage a clutch component **132** on the jack shaft **128** with a clutch component **133** on a companion jack shaft **135**. A pulley **136** on the latter transmits a belt drive **138** to a pulley **139** on the frontal shaft **115**. The power drive for the work guide can thus be engaged by the shifting of the hand lever **130**. The jack shafts **128** and **135** are carried by frontal frame journals **140**. The pulley **126** receives motion from a companion

variable speed pulley **142** by way of a belt **143**; and the pulley **142** is operated by a motor **144**, these units being suitably secured in the frame of the planer.

As in the patented structure, a device is provided for locking the work guide at any point in its adjustment. Thus, FIGS. 7 and 8 show that the base **26** of the work guide **25** carries journals **145** near its ends for a long shaft **147**. The latter carries eccentrics **148**, one of them receiving a hand lever **150** headed by a ball **151**; and the eccentrics are pinned through the shaft as shown at **149**. They ride on wear pads **153** secured on the work guide base **126** by screws **154**. The journals **145** depend in the form of vertical slides **145***a*, which operate in the screw bearings **110** and receive bottom blocks **156** on their inner sides secured by screws **157**. The blocks are positioned just below side flanges **160** depending from the table **10**. When the hand lever is in the vertical position, the eccentrics are low at the bottom and maintain the slide blocks **156** clear of the table flanges **160**, so that the work guide is free to be moved forth and back. However, when the hand lever is swung down to the position shown in FIG. 8 after a desired placement of the work guide has been made, the eccentrics are high at the bottom and raise the blocks **156** into engagement with the table flanges **160**. The work guide is now locked against movement.

It will now be apparent that the improvements described above add power feed means for the work and the work guide. The progress of the work is thus rendered uniform and the edge cut even; and the power feed for the work guide saves time when the work guide is to be moved to a considerable extent. While these improvements make for greater efficiency in the operation and handling of the planer, they are quite simple in construction and should serve over a long period without appreciable attention or repair.

I claim:

1. In an edge planer having a table, the combination with a substantially vertical guide backing the work, and a substantially vertical-axised cutter above the table and applied to the front of the work; of a roller applied to the front of work at the feeding side of the cutter for engaging the work with the guide and feeding the work toward the cutter, a second roller applied to the front of the work at the side departing from the cutter for engaging the work with the guide, pressure means directed to the rollers from the front, sprockets carried by the rollers, drive sprockets located outwardly from the rollers, chain drives connecting the drive sprockets with the roller sprockets, and power drive means for said drive sprockets, said rollers and sprockets being located above the table, and said drive means being located beneath the same.

2. The structure of claim 1, said power drive means comprising shafts for the drive sprockets with lower end portions beneath the table, bottom sprockets carried by said lower end portions, a power unit, and a looped chain operated by the latter and trained along the outer sides of the bottom sprockets.

3. The structure of claim 1, said power drive means comprising shafts for the drive sprockets with lower end portions beneath the table, bottom sprockets carried by said lower end portions, a power unit, a looped chain operated by the latter and trained along the outer sides of the bottom sprockets, and front and rear idler sprockets applied to corresponding runs of the looped chain at points intermediate the bottom sprockets.

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