Nov. 8, 1955 P. W. LUDWIG 2,722,956

VERTICAL PLANER

Filed July 6, 1954 2 Sheets-Sheet 1

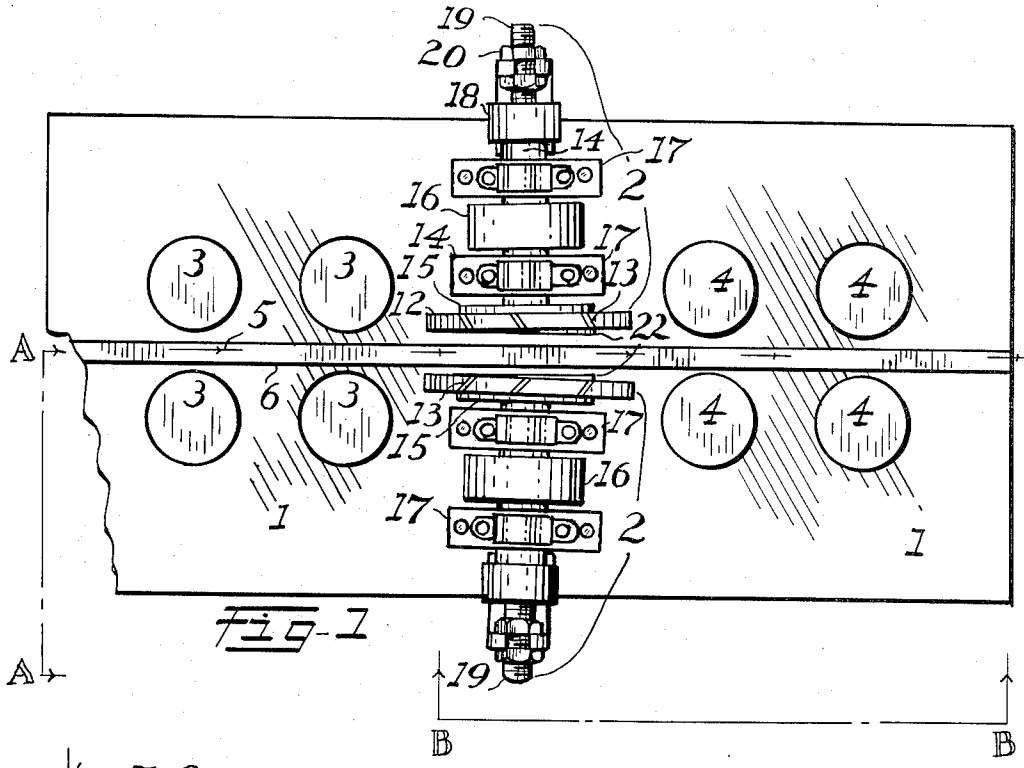


Fig-1

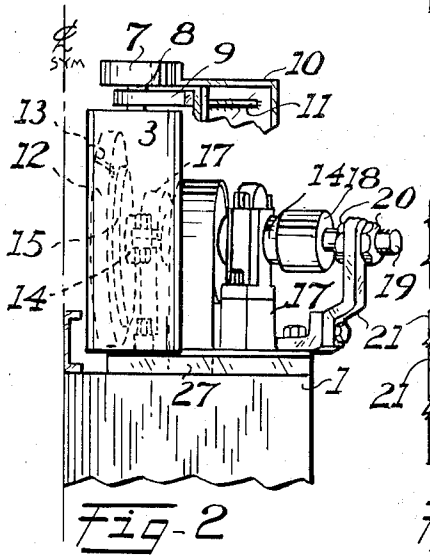


Fig-2

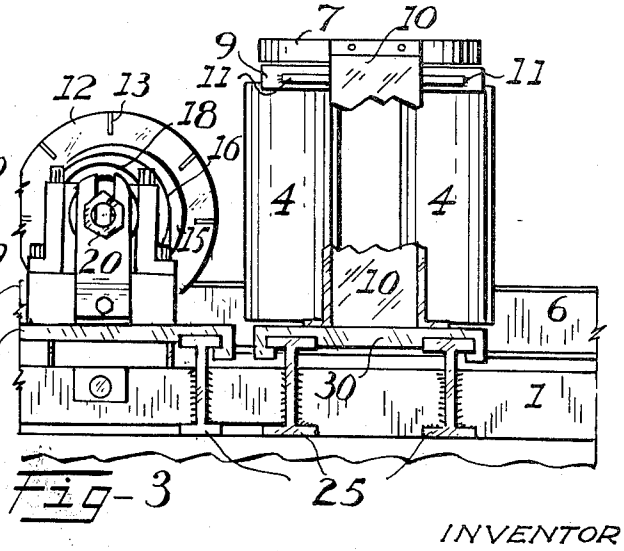


Fig-3

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VERTICAL PLANER

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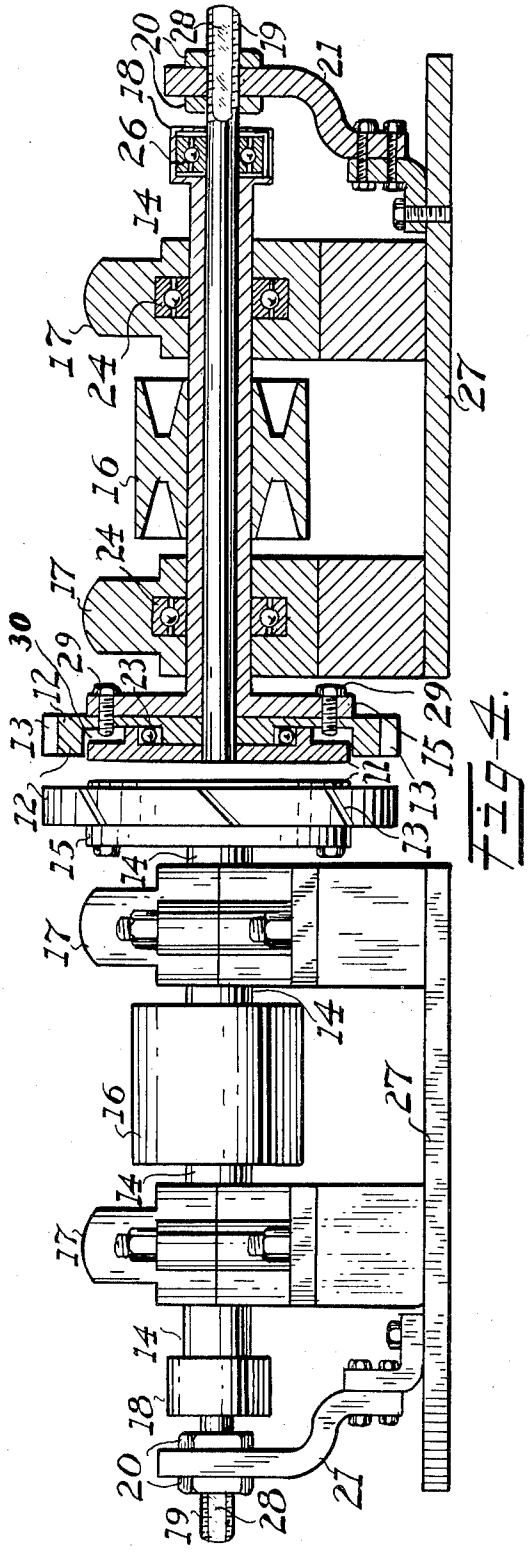


Fig-4.

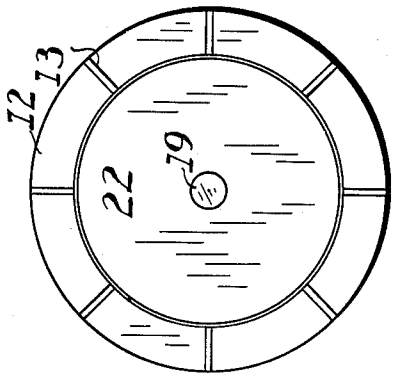


Fig-6.

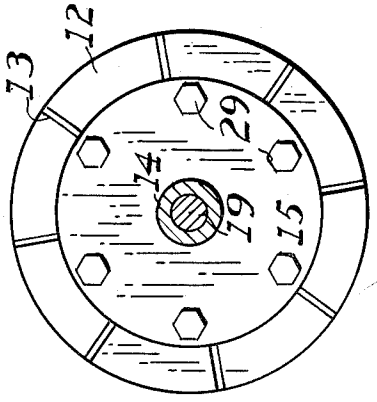


Fig-5.

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2,722,956

VERTICAL PLANER

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Application July 6, 1954, Serial No. 441,346

2 Claims. (Cl. 144—118)

This device relates generally to wood planers and more particularly to an improved vertical planer in which the planer knives rotate in substantially vertical planes.

Up to the present time there have been a large variety of planing devices developed, the majority of these devices being adapted to operate in the horizontal plane to plane off both sides of a wooden board simultaneously or plane off one side after the other. In these devices it is necessary to apply a considerable degree of pressure to prevent vibration of the work and to achieve a satisfactory planing cut.

It is therefore the principal object of my invention to provide a planing device that does not require that any pressure be exerted on the part being planed.

An additional object is to provide a device wherein the vibration of the work is eliminated.

A still further object is to provide a planing device through which work may be passed with no danger of binding as it clears the planer knives.

Additional objects and advantages of my improved construction will become obvious to those skilled in the art when the following specification is read in the light of the attached drawings. Obviously the information disclosed therein is for purposes of example and illustration only and is not in any way intended as a limitation. The prior art and the terms of the claims appended will be the only limitations to the present device.

In the drawings illustrating one preferred embodiment of my idea,

Figure 1 is a plan view of the essential elements of my planer device, those elements not contributing to a clear demonstration of the invention have been omitted purposely in the interest of clarity.

Figure 2 is a view taken approximately along the eye line A—A in Figure 1.

Figure 3 is a projected view taken at the line B—B in Figure 1.

Figure 4 is a detail of the mandrel assembly the left-hand side thereof, in elevation and the right-hand side thereof, in section.

Figure 5 is a view of one of the planer heads as seen from the rear thereof.

Figure 6 is a view of the same planer head as seen from the front thereof.

Broadly speaking my device comprises opposed planer heads adapted to be rotated about opposed nonrotating adapter plates, which act to prevent any vibration of the surface being planed.

Specifically and with reference to the drawings there will be seen the framework **1** which is of standard construction well known in the art and need not be given further detail. Mounted on the framework **1** are the planer mandrels referred to generally by the numerals **2—2**, which are mounted between the vertical feeder rollers **3** and discharge rollers **4**. Running longitudinally on the framework **1** between the rollers **3**, the mandrels **2** and the rollers **4** is the runner **6** which serves as a support for work being fed into the planer mandrels, this work being fed in the direction of the arrows designated by the numeral **5**. It will be noted further from Figure 1 in the drawings that the long axes of the mandrels **2** do not lie in a line at right angles to the long axis of the framework **1** or the runner **6**. However it should be noted that the angular displacement illustrated in Figure 1 in the drawings is greatly exaggerated for purposes of illustration. The actual displacement would be within thousandths of an inch.

The driving and mounting mechanisms for the feed rollers **3** and discharge rollers **4** has been omitted entirely from the apparatus illustrated in Figure 1 in the interest of clarity and will be seen on reference to Figures 2 and 3 in the drawings. The housing for the drive mechanisms interconnecting the front and rear rollers in each pair of feed and discharge rollers has been designated by the numeral **7** while the axles of the rollers have been designated by the numeral **8** and the upper roller bearing by the numeral **9**. All of this mechanism is supported by the bracket **10** which is provided with suitable stiffening gussets **11**. In this description there has been shown only one of the rollers **3** and two of the rollers **4** together with the respective housing **7**, axles **8**, upper bearings, supporting frames and stiffening gussets. Obviously there would be identical mechanism for the remaining feed rollers **3** and discharge rollers **4**.

The planer mandrels **2** are two in number and since they are identical in construction, a description of one will be sufficient. The description of this mandrel will be made with particular reference to Figure 4 in the drawings which illustrates the complete mandrel assembly in side elevation and also in section. The planer mandrels comprise the fixed non-rotating shaft **19** which has mounted at its forward end the adapter plate **22** and is fixed at its rearward end by means of the flat sides **28** fitted into the bifurcated bracket **21** and held therein by means of the locking nuts **20**. The knife plate **12** coacting with the adapter plate **22** is bolted securely by means of the bolts **29** to the flange **15** at the forward end of the sleeve shaft **14**. The sleeve shaft **14** is adapted to rotate within the pillow blocks **17—17** on the ball races **24—24** and has fixed thereto the drive pulley **16** which would be connected to a suitable source of power by means of belts or the like.

The sleeve shaft **14** is adapted for rotation on the fixed shaft **19** by means of the ball races **26** adjacent the rearward end thereof and the ball race **23** which is contained between the adapted plate **22** and knife plate **12**. It will be noted that the knife plate **12** is recessed at **31** to permit the almost complete inclusion of the adapter plate **22**.

The knife plate **12** is provided with a plurality of planer knives which are not shown but would be secured in the plurality of recesses **13**. The recesses **13** are disposed radially at intervals of 45 degrees around the knife plate **12** and at the same angle of 45 degrees with respect to the axis of rotation of the mandrel.

Lateral movement of the mandrels **2**, feed rollers **3** and discharge rollers **4**, with respect to work passing longitudinally therebetween, is achieved by means of the I beams **25** which may best be seen on reference to Figure 3 in the drawings. It will be seen that the mandrel supporting framework or base **27** is adapted to fit over the beams **25** as is the base **30** of the discharge rollers **4**. Obviously the feed rollers **3** and the mandrel on opposite sides of the machine would be similarly equipped to permit lateral adjustment as is required.

What I claim as my invention is:

1. In a planing device having opposed substantially vertical planer heads arranged to plane simultaneously opposite sides of a work surface passing therebetween,

the planer head construction comprising a knife plate having a plurality of peripheral knives, an annular recess in the knife plate, a rotatably mounted sleeve shaft fixed at one end to the knife plate and having means thereon for connecting the shaft to a suitable power source, a non-rotating shaft mounted in the sleeve shaft and fixed rigidly at one of its ends, an adapter plate fixed at the opposite end of the nonrotating shaft and located in the said annular recess in the knife plate.

2. The construction as claimed in claim 1 wherein the knife plates and the adapter plates are arranged to lie in angularly displaced planes.

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