Jan. 28, 1930. W. W. EDWARDS 1,744,875

GUARD AND WORKHOLDER FOR PLANERS

Filed Dec. 28, 1927

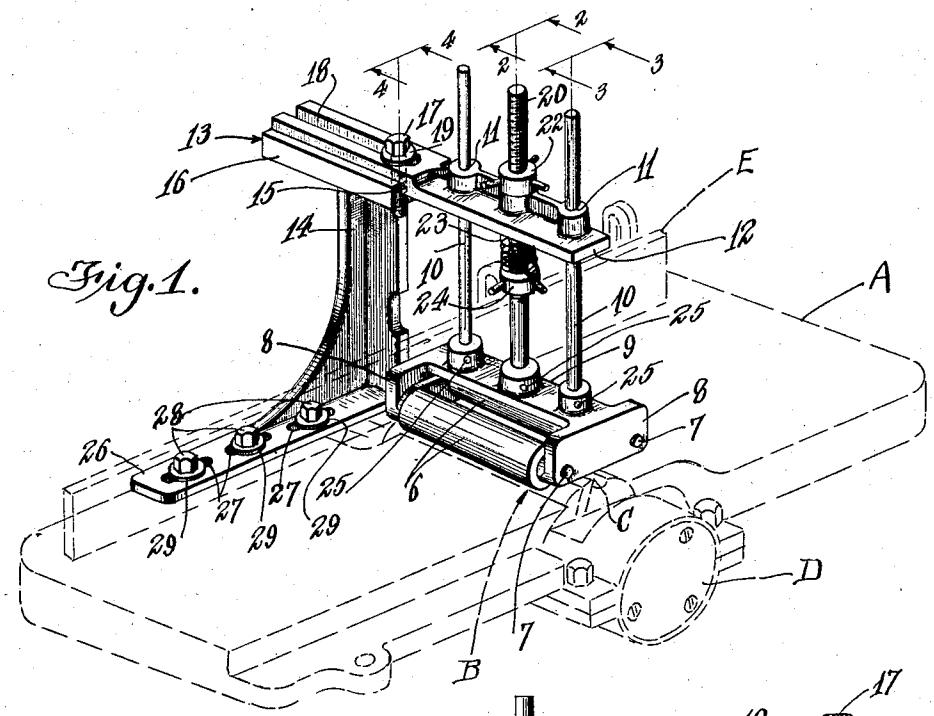

Fig. 1.

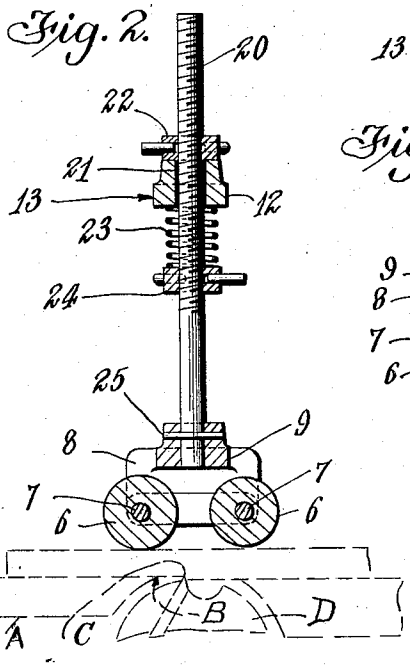

Fig. 2.

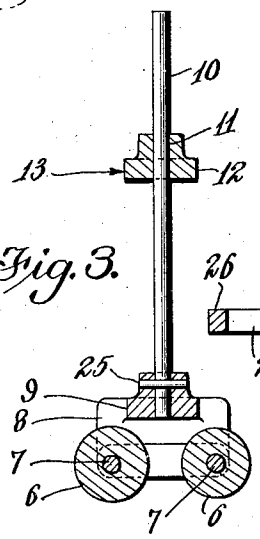

Fig. 3.

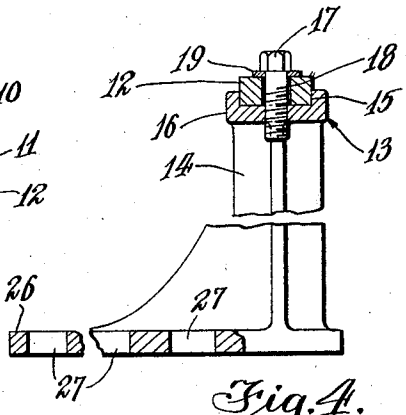

Fig. 4.

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UNITED STATES PATENT OFFICE

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GUARD AND WORKHOLDER FOR PLANERS

Application filed December 28, 1927. Serial No. 243,013.

This invention relates to guards and work holders for planers, and one of the principal objects of the invention is to prevent injury to the workman using the planer on which the attachment is placed.

Another object of the invention is to so construct and organize the parts that they serve to hold the work against the revolving knives, thus insuring the planing of a true surface and at the same time relieving the operator of a large amount of exertion.

Another object is to provide for adjustment of the rollers toward and from the planer knives, so as to accommodate boards of different thicknesses.

Another object is to make provision for adjustment of the tension of the spring member that yieldingly holds the rollers toward the knives.

Another object is to provide an attachment than can be readily attached to any planer.

Further objects and advantages will appear in the sub-joined detailed description.

The accompanying drawings illustrate the invention.

Figure 1 is a perspective view of a guard and work holder, constructed in accordance with the provisions of this invention, the same being shown attached to a planer, which is indicated in broken lines.

Figs. 2, 3 and 4 are vertical sections on the lines indicated by 2—2, 3—3, 4—4, respectively, Fig. 1.

Referring to the drawings, a planer table is indicated at A, and, as is usual, is provided with a transversely extending slot B and with rotary knives C which are fixed in a cylindrical driven member D. The foregoing described elements are familiar to those versed in the art relating to planers, and it is to be understood that, in this specification, the term "planers" defines not only planers but jointers and other machines similar in construction to planers.

Positioned along opposite margins of the slot B are rollers 6 which may be formed of any suitable material such as, for example, hard wood. The axes of the rollers 6 are indicated at 7, and are supported by end flanges 8 of a U-shaped member, which also comprises a horizontal member 9 connected at its ends to the flanges 8. The U-shaped member constitutes a carrier for the rollers 6, and projecting upwardly from the member 9 are guide stems 10, there being two in this instance. The guide stems 10 are slidably mounted in vertical holes 11 formed in a horizontally positioned arm 12 of a bracket which is indicated, in general, by the character 13. The bracket 13 comprises the arm 12 and, also, a standard 14 which adjustably supports the arm 12. The arm 12 is slidably mounted in a horizontal groove 15 formed in a horizontally extending head 16 of the standard 14. Thus, the arm 12 can be adjusted endwise in a horizontal plane and, when adjusted to the desired position, said arm may be secured by a suitable clamping means which may comprise a cap screw 17 screwed into the head 16 along the median line of said head. The cap screw 17 projects upwardly through a slot 18 that extends lengthwise of the arm 12. Beneath the head of the cap screw 17 is a washer 19 that bears upon the upper face of the arm 12 when the cap screw 17 is tightened.

The member 9 of the roller carrier is provided with a third upwardly projecting stem 20, which is positioned between the stems 10 and which passes through a vertical hole 21 in the arm 12. This stem 20, together with a nut 22 threaded onto said stem above the arm 12, constitutes a means to limit downward motion of the roller carrier 9, said nut 22 bearing upon the upper face of the arm 12.

A means is provided to yieldingly force the stem 20 downwardly when said stem is raised sufficiently to space the nut 22 from the arm 12, as, for example, when the rollers 6 are raised by thrusting the end of a board beneath said rollers, and this means comprises a coil spring 23 and a nut 24 screwed onto the stem 20 beneath the arm 12, said coil spring being interposed between said arm and the nut 24, thus yieldingly forcing said nut 24 downwardly when the nut 22 is not in contact with the arm 12. The resilient pressure of the spring 23 is transmitted through the nut 24, thence to the stem 20, thence to the U-shaped member, and finally

to the rollers 6, thus to exert pressure of the rollers 6 upon any board that may be positioned beneath the rollers 6. This pressure holds the board down upon the upper face of the table A while the rotating knives C plane the under face of said board.

The lower end portions of the stems 10, 20 are fastened by any suitable means in the member 9 as, for example, by pins 25.

The standard 14 is adjustably mounted for adjustment longtitudinally along the table A, and for that reason, the lower end of the standard 14 is provided with a horizontal flange 26 in which are longitudinally extending slots 27. Through the slots 27 extend cap screws 28, which are secured in the table A. Preferably, the cap screws 28 are provided with washers 29 that lie on the upper face of the flange 26.

To use the invention, the parts will be mounted as shown in Fig. 1, so that the rollers extend along the margins of the slot B, the flange 26 being adjusted longitudinally of the table A, and the arm 12 being adjusted transversely of said table so as to properly position the rollers. In practice, it is found of advantage to position the parts that support the rollers so that the angle between the planer edge guide E, forwardly of the rollers 6, and the axes of said rollers is slightly less than a right angle. The nut 22 will be adjusted to a position on the stem 20 that will space the rollers 6 a distance from the table A that is somewhat less than the required thickness of the board that is to be operated on. Also, the nut 24 will be adjusted to provide for sufficient pressure of the spring 23 to hold the work upon the table when engaged by the rotating knives C.

The operator now thrusts the piece to be planed beneath the rearmost roller 6 and forces said piece forwardly with one of its edges in contact with the guide E, and the under face of said piece will be planed in a manner well understood in this art. Because of the rollers 6 being positioned at the angle mentioned above, they constantly tend to force the board toward the guide E, thus insuring that the surface to be planed comes into contact with the knives as said piece feeds through the planer.

It will be seen that it is impossible for any part of the operator's hands to accidentally come in contact with the knives, thus insuring against injury to the operator. The guard is always in protective position whether work is being run through the planer or not and regardless of the thickness of the pieces being operated upon. The type of guard usually employed with this class of machines must be moved out of guarding position with at least a portion of the rotating knives when work is being fed through the machine, but that is not the case with this invention, since the spring 23 yields only as the work is forced beneath the rollers, and as soon as the work has passed beyond the rollers the spring immediately forces the rollers and the U-shaped roller carrier downwardly so as to completely cover the slot through which the knives project. Furthermore, when the work is being fed through the machine, it is impossible to accidentally move the hand into a position where the knives can cut it, for, to accomplish this, the hand would necessarily have to press the rollers 6 upwardly against the pressure of the spring 23.

It is preferable that the rear one of the rollers 6 be of somewhat smaller diameter than the front roller so that, when the piece to be planed reaches the front roller and raises said roller, the rear roller will be free from engagement with the piece being operated on. The front roller alone then holds the piece firmly down upon the table A while the rear roller simply functions as a guard for the knives.

I claim:—

1. In an attachment for planers, a bracket attachable to the planer provided with a horizontally projecting arm, a roller carrier beneath the arm, guide stems shiftably connecting the carrier with the arm, another stem projecting upwardly from the carrier, a means adjustably connecting the last mentioned stem with the arm, a means yieldingly forcing the last mentioned stem downwardly, and rollers mounted on the carrier to extend approximately parallel with the planer knives on opposite sides of said knives.

2. In an attachment for planers, a bracket attachable to the planer provided with a horizontally projecting arm, a roller carrier beneath the arm, a guide means shiftably connecting the carrier with the arm, a stem projecting upwardly from the carrier, a means adjustably connecting said stem with the arm, a means yieldingly forcing said stem downwardly, and rollers mounted on the carrier to extend approximately parallel with the planer knives on opposite sides of said knives.

Signed at Los Angeles, California, this 14 day of December, 1927.

WILLIAM W. EDWARDS.