This invention is an improvement on the disclosure in my co-pending application for patent, Serial No. 243013, filed December 28, 1927, and it relates to a guard and work holder for planers.

An object of the invention is to facilitate adjustment of the pressure of the rollers upon the work.

Another object is to make provision for clamping the suspending arm of the bracket to the rod that supports the roller carrier.

Further objects and advantages will appear in the subjoined detailed description.

The accompanying drawings illustrate the invention:

Fig. 1 is a front view of a guard and work holder constructed in accordance with the provisions of this invention, a planer table being fragmentarily indicated by broken lines.

Fig. 2 is an elevation of Fig. 1 from the right thereof.

Fig. 3 is an enlarged plan view of the line indicated by 3—3, Fig. 1, portions being in section on said line, and portions of the clamping jaws being shown in section to disclose the spring that forces them apart.

Fig. 4 is an enlarged broken plan view from the line indicated by 4—4, Fig. 1, portions being in section on said line.

Fig. 5 is an enlarged fragmental elevation viewed from the line 5—5, Fig. 2.

Fig. 6 is an enlarged vertical section on the line indicated by 6—6, Fig. 3.

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 adjusts 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 passes through a vertical hole 21 in the arm 12. A means is provided to releasably clamp the arm 12 to the stem 20 so as to support the carrier at any desired elevation and this means, in this instance, is constructed as follows:

Embracing the stem 20 are clamping jaws 22 provided with semi-circular recesses 23 that, together, form an opening through which the stem 20 extends. Recesses 23 are faced or lined with friction material such, for example, as rubber, as indicated at 24, so that said friction faces will engage opposite sides of the stem 20 when the jaws 22 are forced toward each other. The elements 24, in this instance, are simply rubber bands that are slipped over the jaws 22. The jaws 22 are pivotally connected at 25 to a support 26, which may be in the form of a plate provided near its opposite ends with holes 27.
through which the stems 10 pass. The pivots 25 which, in this instance, are merely cap screws screwed into the plate 26, also pass through a plate 28, and projecting up from the plate 26 are abutments 29 adjacent to the outer sides of the jaws 22, so as to limit movements of said jaws away from each other.

The jaws 22 are opened and yieldingly held in open positions by a coil spring 30 which has its opposite ends seated in alined recesses 31 in the inner faces of the jaws 22. Thus, the expansive force of the spring 30 urges the jaws 22 away from each other, or, into the unclamped positions, so that the plate 26 can be slid up and down on the stems 10, 20. This sliding up and down of the plate 26 is accompanied by similar shifting of the arm 12, since said arm 12 is connected with the plate 26. In this instance, the means for connecting the arm 12 and plate 26 comprises studs 32, which may be in the form of bolts screwed into the arm 12 and projecting downwardly from said arm. The studs 32 pass through holes near the corners of the plate 26 and function as guides for movements of the plate 26 relative to the arm. The heads 34 and the studs 32 limit motion of the plate 26 away from the arm 12.

A latching means is provided to latch the jaws 22 in their closed positions or, in other words, in positions to effectively grip the stem 20 so as to prevent relative motion between the said stem and the jaws 22. In this instance, the latching means comprises a latch member 341 pivoted at 342 to one end of one of the jaws 22 and said latch member is provided with a slot 343 opening to the lower edge thereof so that when the latch member is substantially horizontal, as in Fig. 3, the slot 343 will be engaged by a shoulder 344 that, in this instance, is in the form of a stud projecting from one end or the other of said jaws. The slot 343 is cam-shaped so that when the latch member is forced downwardly from the position indicated by broken lines in Fig. 5 to the position shown in the solid lines, the jaws will be gradually forced toward each other.

Surrounding the studs 32 are coil springs 35, the pressure of which through the plate 26 and clamp jaws 22 is transmitted to the stem 20, thence to the roller carrier and, finally, to the rollers 6. The degree of compression of the springs 35 can be regulated by moving the plate 26 relative to the arm 12 and then clamping the plate 26 in the adjusted position. The means for moving the plate 26 against the pressure of the springs 35 may be of any suitable construction and, in this instance, comprises a rotatably mounted cam 36 working against followers 37 which are shoulders provided on pins 38 that are screwed to the plate 26 and project upwardly therefrom through holes 39 in the arm 12, and through holes 40 in a cross bar 41 positioned on the stem 20 above the cam 36. The pins 38 are provided above the cross-bar 41 with nuts 42. The stem 20 extends axially through the cam 36 and thus constitutes the axis upon which said cam turns, and the cam rests upon the upper face of the arm 12. The diametrically opposite cam faces that engage the shoulder 37 are indicated at 43. The head 44 on the upper end of the stem 20 is simply for the purpose of facilitating lifting of the guard when in the act of assembling it in place on the planer.

The lower end portions of the stems 10, 20 are fastened by any suitable means in the member 9 as, for example, by pins 45.

The standard 14, preferably, is adjustably mounted longitudinally along the table A and, for that reason, the lower end of the standard 14 is provided with a horizontally extending flange 46 in which are longitudinally extending slots 47. Through the slots 47 extend cap screws 48 which are secured in the table A. Preferably, the cap screws 48 are provided with washers 49 that lie on the upper face of the flange 46.

To use the invention, the parts will be mounted as shown in the drawings, so that the rollers 6 extend along the margins of the slot B, the flange 46 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, not shown, forwardly of the roller 6, and the axes of said rollers is slightly less than a right angle.

The material that is to be run through the planer will be placed on the table A, beneath the rollers 6, and the jaws 22 will be unlatched so as to free the stem 20 and permit the rollers to rest upon the work on the planer. At this time, the pressure of the rollers on the work is only equal to the weight of the rollers and parts supported thereby. If additional pressure of the rollers 6 on the work is desired, the cam 36 will be turned by the operator in a direction to effect raising of the plate 26 and consequent further compression of the springs 35. The further the cam is turned in this direction, the greater will be the compression of the springs 35. When the desired tension has been placed on the springs 35, the jaws 22 will be latched so as to firmly clamp them to the stem 20, thus making effective the expansion force of the springs 35 for producing additional pressure of the rollers 6 on the work.

The operator now removes the work from the planer, starts the same in operation, and then 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 planer guide not shown, so as to
plane the under face of said piece in a manner well understood in this art. It will be seen that it is impossible for any part of the operator's hands to accidentally come in contact with the planer knives, thus insuring against injury to the operator. The guard is always in a protective position whether or not work is being run through the planer and regardless of the thickness of the piece being operated upon. If pieces of materially different thickness than those being run through the planer are to be operated on, the rollers may be readjusted by first releasing the jaws 22, so as to have only the weight of the rollers and the parts supported thereby on the work, whereupon the desired additional pressure will be produced in the manner hereinbefore described.

It is preferable that the rear one of the rollers 6 be of slightly smaller diameter than the front roller, as seen in Fig. 2, 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 and provided with a horizontally projecting arm, a roller carrier beneath the arm shiftable connected therewith for vertical movement, a clamping means connected with the arm releasably holding the roller carrier against shifting, rollers mounted on the carrier to extend approximately parallel with the planer knives on opposite sides of said knives, and a means yieldingly pressing the carrier downwardly.

2. In an attachment for planers, a bracket attachable to the planer and provided with a horizontally projecting arm, a roller carrier beneath the arm, guide stems shiftable connecting the carrier with the arm, another stem projecting upwardly from the carrier, clamping jaws yieldingly connecting the last mentioned stem with the arm, and 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.

3. In an attachment for planers, a bracket attachable to the planer and provided with a horizontally projecting arm, a roller carrier beneath the arm, guide stems shiftable connecting the carrier with the arm, another stem projecting upwardly from the carrier, a clamping means to clamp the last named stem against movement, spring means yieldingly forcing the clamping means downwardly, and means to lift the clamping means relative to the arm to adjust the tension of the spring means, and rollers mounted on the carrier to extend approximately parallel with the planer knives on opposite sides of said knives.

4. In an attachment for planers, a bracket attachable to the planer and provided with a horizontally projecting arm, a roller carrier beneath the arm, guide stems shiftable connecting the carrier with the arm, another stem projecting upwardly from the carrier, a member shiftable connected with the arm, a clamping means mounted on said member and engageable with the last mentioned stem, spring means forcing said member away from the arm, a means to adjustably move said member toward said arm against the pressure of the spring means, and rollers mounted on the carrier to extend approximately parallel with the planer knives on opposite sides of said knives.

5. In an attachment for planers, a bracket attachable to the planer and provided with a horizontally projecting arm, a roller carrier beneath the arm, guide stems shiftable connecting the carrier with the arm, another stem projecting upwardly from the carrier, a member connected for vertical movement with the arm, a clamping means mounted on said member and engageable with the last mentioned stem, a spring means tending to move said member downwardly, a means to positively limit downward motion of said member, a means to move said member toward the arm to compress the spring means, and rollers mounted on the carrier to extend approximately parallel with the planer knives on opposite sides of said knives.

6. In an attachment for planers, an arm, a roller carrier beneath the arm, a guide means connecting the carrier with the arm, a stem projecting upwardly from the carrier, a member beneath the arm adjustably connected therewith, a spring means tending to move the arm and said member away from each other, jaws pivotally mounted on said member and engageable with the stem, a latch means to clamp the jaws on the stem, and rollers mounted on the carrier.

7. In an attachment for planers, an arm, a roller carrier beneath the arm, a guide means connecting the carrier with the arm, a stem projecting upwardly from the carrier, a member beneath the arm adjustably connected therewith, a means to raise said member relative to the arm when the jaws are released, jaws pivotally mounted on said member and engageable with the stem, a latch means to clamp the jaws on the stem, and rollers mounted on the carrier.

Signed at Los Angeles, California, this 18th day of January, 1929.

WILLIAM W. EDWARDS.