July 13, 1926. 1,592,190

P. ERICKSON

SHAPER GUARD

Original Filed June 17, 1924 2 Sheets-Sheet 1

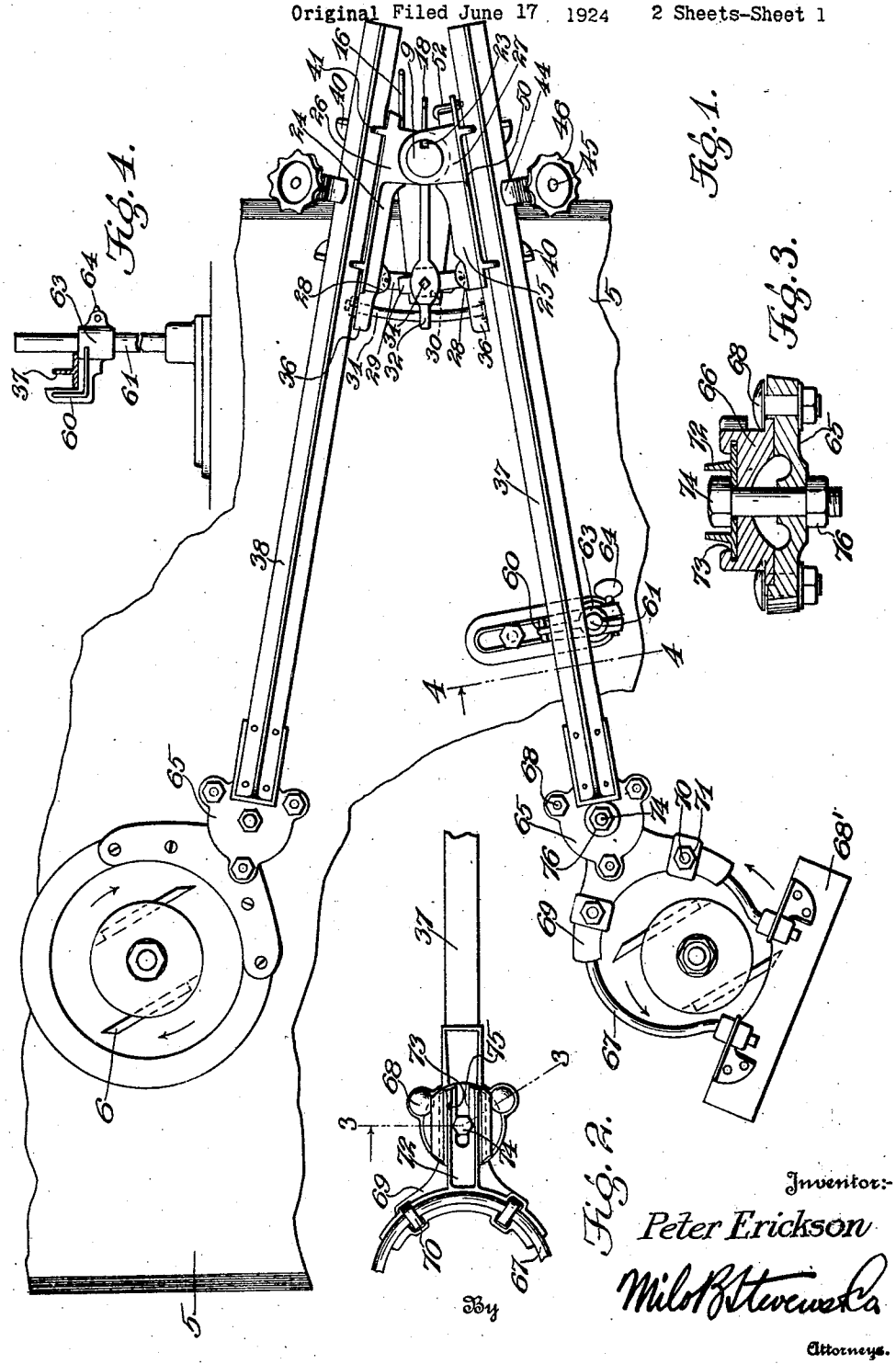


Fig. 1.

Fig. 2.

Fig. 3.

Fig. 4.

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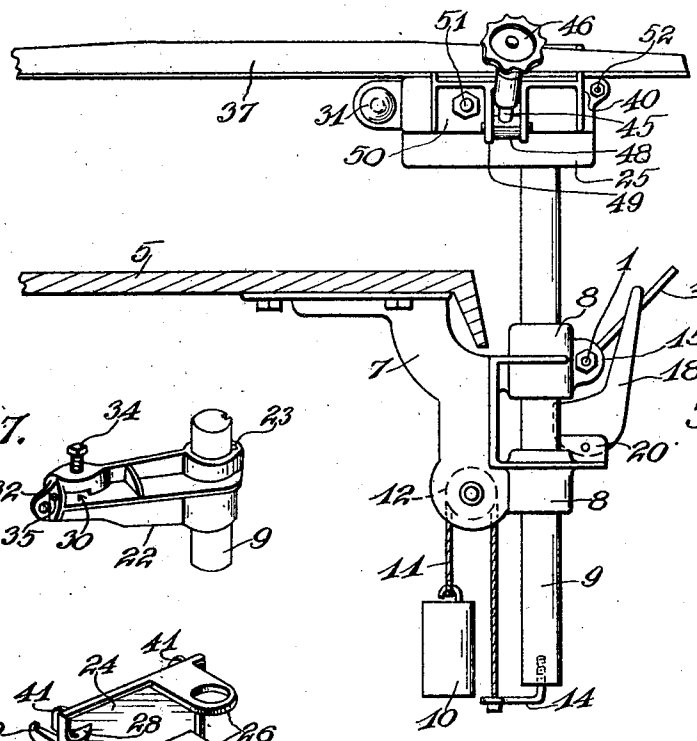


Fig. 5.

Fig. 7.

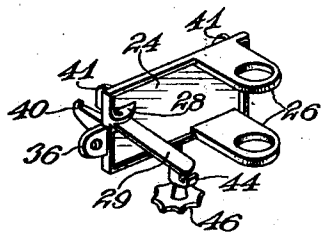


Fig. 8.

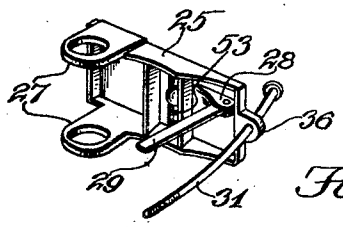
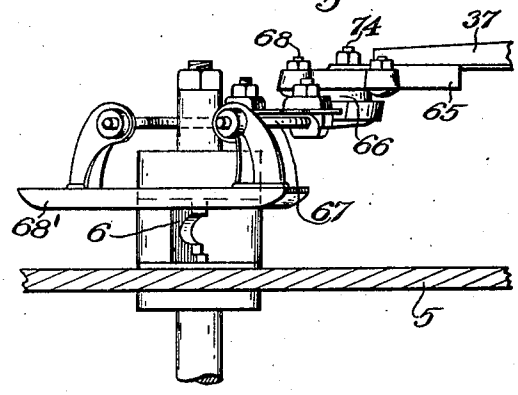


Fig. 9.

Fig. 6.



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UNITED STATES PATENT OFFICE.

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SHAPER GUARD.

Application filed June 17, 1924, Serial No. 720,711. Renewed June 7, 1926.

This invention relates to guards especially adapted for use on wood working machines.

The invention forming the subject matter of this application is an improvement on the construction illustrated in the United States Patents Nos. 1,122,487 and 1,240,430.

Generally speaking an important object is to provide a cutter guard capable of a rather wide range of adjustment and having means whereby the same may be conveniently positioned at a point adjacent the cutter to effectively protect the operator.

Other objects and advantages will be apparent during the course of the following description.

In the accompanying drawings forming a part of this application and in which like numerals are employed to designate like parts throughout,

Figure 1 is a plan view of the improved guard applied;

Fig. 2 is a fragmentary bottom plan view of the means to connect one of the guards to the supporting arm therefor;

Fig. 3 is a vertical transverse sectional view taken on line 3—3 of Fig. 2;

Fig. 4 is a sectional view taken on line 4—4 of Fig. 1, the view illustrating a standard for supporting the outer portion of one of the guard carrying arms;

Fig. 5 is a fragmentary side elevation of the improved guard applied, the view illustrating the means to connect the supporting arms to a standard;

Fig. 6 is a fragmentary side elevation of one of the guards surrounding a cutter;

Fig. 7 is a perspective of an attaching member embodied in the invention;

Fig. 8 is a perspective of an arm connecting member embodied in the invention;

Fig. 9 is a perspective of another arm connecting member embodied in the invention.

In the drawings wherein for the purpose of illustration is shown a preferred embodiment of the invention, the numeral 5 designates the work table upon which spaced cutters 6 of any suitable type are located. As clearly illustrated in Fig. 5 a bracket 7 is secured in any suitable manner to one side of the table 5 and is provided with a pair of alined bearings 8 for the reception of a main supporting shaft 9. The shaft 9 is counterbalanced by a weight 10 having a cable 11 trained over the pulley 12 and connected to the lower end of the shaft 9 by a suitable connecting arm 14. It will be seen that the shaft 9 is counterbalanced by the weight 10 and the shaft will therefore remain in a fixed position.

However a fastening bolt 1 is extended through ears 15 of one of the bearings 8 and is provided with a crank 16 by means of which the bearings 8 may be securely clamped in engagement with the shaft 9.

The shaft 9 may be held against rotation by means of a lever 18 having a lateral branch adapted to be received in a longitudinal groove or key way in the shaft 9. However the lever 18 may be swung on its fulcrum so that it is disengaged from the shaft 9. Fig. 5 illustrates that the lever 18 is fulcrumed to a pair of ears 20 formed on the upper portion of the lower bearing 8. Regardless of the vertical adjustment of the shaft 9 the lateral branch may be positioned in the longitudinal groove in the shaft 9 so as to hold the shaft against turning.

The upper portion of the shaft 9 is provided with a head secured to the shaft by means of a key 23 wedged into the longitudinal groove in the shaft. The key, of course, holds the head 22 against turning and also against vertical movement. A pair of attaching members 24 and 25 are arranged at opposite sides of the head 22 and are provided with ears 26 and 27 to receive the shaft 9. Fig. 1 illustrates that the ears 26 and 27 are adapted to be arranged at opposite ends of the head 22. That is to say the ears are arranged above and below the head 22.

The attaching members 24 and 25 extend along the sides of the head 22 and are provided on their inner sides with ears 28 to which connecting links 29 are pivoted. The connecting links extend through a transverse opening 30 in the inner portion of the head and a screw bolt 34 is threaded through the head and engages the upper link 29 so as to hold the links securely in position. This holds the attaching members 24 and 25 in the desired position. Fig. 7 illustrates that small set screws 35 are extended through the inner portion of the head 22 and engage the edges of the links 29 so as to cooperate with the screw bolt 34 in holding the parts securely in position.

A fastening bolt 31 is extended through ears 36 at the inner portions of the attaching members 24 and 25 and is also extended through an ear 32 at the inner portion of the head 22. When the longitudinally curved

fastening bolt 31 is tightly engaged by a nut as illustrated in Fig. 1 the parts are prevented from further separating and in this connection it will be observed that the curved bolt 31 cooperates with the fastening devices 34 and 35.

A pair of main guard supporting arms 37 and 38 are supported by the plate or attaching members 24 and 25 and rest upon laterally projecting brackets 40 carried by the outer sides of the attaching members. The arms 37 and 38 which are in the nature of T-beams have their upper portions engaged by laterally projecting lugs 41 on the outer sides of the attaching members 37 and 38 so as to cooperate with the brackets 40 in holding the arms 37 and 38 in place. When the arms 37 and 38 are positioned as illustrated in Fig. 1 locking lugs 44 positioned on the bolts 45 are engaged with the outer edges of the arms 37 and 38 and hand wheels 46 are tightened to bind the lugs 44 in place. Fig. 5 illustrates that the stems 45 are provided with transverse heads 48 pivoted to ears 49.

One of the arms and preferably the arm 37 may be braced by means of a standard 61 upon which a bracket 60 is mounted and the bracket which has a bearing or attaching portion 63 is split and a fastening device 64 is extended through the apertured ends of the bearing so that the bearing may be securely clamped in an adjusted position on the standard, all of which is illustrated in Fig. 4. It will be seen with reference to this figure that the outer portion of the bracket 60 is provided with an upwardly extending branch by means of which lateral movement of the arm 37 is prevented.

Figs. 1 and 2 also illustrate that the outer portion of each arm 37 and 38 are provided with a head 65 having connection with the head 66 of a guard member 67 by fastening bolts 68. Fig. 3 illustrates that the fastening bolts 68 extend through the edge portions of the head 65 and extend over and engage the flanged edges of the heads 66 so that the heads 66 are adjustably connected to the head 65. The guard ring 67 may if desired be in the nature of a complete annulus as shown at the upper portion of Fig. 1 or it may be in the nature of an arcuate body having a straight connecting bar 68'.

The guard ring is carried by a bracket 69, and adjustably secured thereto by hook-bolts 70 and nuts 71. The guard ring may therefore be shifted in a rotary direction to any desired position, and secured by screwing down the nuts 71. In order that the bracket may also be shiftable for the proper spacing of the guard ring from the cutter head, it is formed with a tongue 72 which is slidable in ways 73 formed from the lower head 66. A master bolt 74 passes through a slot 75 in the tongue 72 and both heads to receive a top nut 76. Loosening the latter slightly enables the guard unit to be moved forth or back, the bolt 74 at the same time acting as an axis about which the rotary adjustment afforded by the bolts 68 occurs.

It will be noted that, while the attaching member 24 directly carries the beam 38, the attaching member 25 does not do so with respect to the beam 37. The lugs 41 and accessory parts 44, 45 etc., in connection with the attaching member 25 are really carried by an outer plate 50, attached to the member 25 by a straight bolt 51 and a hook-bolt 52. As noted in Figure 9, the bolt 51 passes through a vertical slot 53 in the member 25. The plate 50, etc. are not shown in Figure 9, since the showing is clear at the upper part of Figure 5. Since the attaching member 25 is not vertically movable relative to its mate 24, it will be seen that the vertically-adjustable attachment of the plate 50 enables beam 37 to be raised or lowered relative to the beam 38.

The novel structure thus provides a guard apparatus which is not only simple in construction and form, but which also fills every need the situation may require. It is adjustable in any direction and at all points incident to the character of the work, and requires practically no skill or special tools in handling or adjusting to a position of greatest convenience and most safety.

Having thus described the invention, what is claimed is:

1. The combination with a vertical shaft having a longitudinal slotway, of a bracket having spaced bearings for receiving the shaft, a lever pivoted to one of the bearings and having a branch adapted to engage the shaft slotway, and means carried by the other bearing for causing the bearing to grip the shaft to hold the same in position against vertical movement.

2. The combination with a vertical shaft having a longitudinal slotway, of a bracket having spaced bearings for receiving the shaft, a lever pivoted to one of the bearings and having a branch adapted to engage in the shaft slotway, means carried by the other bearing for clamping the bearing on the shaft to hold the same in position against vertical movement, and guards supported by said shaft.

3. The combination with a vertical shaft, of a bracket having spaced bearings for receiving the shaft, a lever carried by one of the bearings and having a branch adapted to engage the shaft, means carried by the other bearing for causing the bearing to grip the shaft to hold the same in position, guards supported by said shaft, a pulley carried by said bracket, a counterbalancing weight and a cable connecting said weight and shaft over said pulley.

4. In a guard for cutting machines, the

combination of a shaft, of a head mounted on the shaft and having a transverse opening, attaching members arranged at opposite sides of the head and having attaching ears receiving the shaft and arranged above and below the head, and links extending through the transverse opening in said head and being connected to said attaching members.

5. In a guard for cutting machines, the combination of a shaft, of a head mounted on the shaft and having a transverse opening, attaching members arranged at opposite sides of the head and having attaching ears receiving the shaft and arranged above and below the head, and links extending through the transverse opening in said head and being connected to said attaching members, and a screw bolt carried by said head and adapted to engage one of said links.

6. In a guard for cutting machines, the combination of a shaft, of a head mounted on the shaft and having a transverse opening, attaching members arranged at opposite sides of the head and having attaching ears receiving the shaft and arranged above and below the head, and links extending through the transverse opening in said head and being connected to said attaching members, a screw bolt carried by said head and adapted to engage one of said links, and a longitudinally curved bolt extending through one end portion of said head and the inner portions of said attaching members.

7. In a guard for cutting machines, the combination of a shaft, of a head mounted on the shaft and having a transverse opening, attaching members arranged at opposite sides of the head and having attaching ears receiving the shaft and arranged above and below the head, and links extending through the transverse opening in said head and being connected to said attaching members, a screw bolt carried by said head and adapted to engage one of said links, a longitudinally curved bolt extending through one end portion of said head and the inner portions of said attaching members, and bolts pivoted to said attaching members and having lugs to engage the outer portions of the arms.

8. The combination with a bracket, of a shaft carried thereby, a head associated with the upper portion of said shaft and having a transverse opening, attaching members arranged on opposite sides of said head and having apertured ears receiving the shaft and arranged above and below said head, links pivotally carried by said attaching members and extending through the transverse opening in said head, means carried by said head to secure said links in position, the outer portions of said attaching members being provided with arms supporting means, and heads carried by the outer portions of said arms and having guards.

9. The combination with a bracket, of a shaft carried thereby, a head associated with the upper portion of said shaft and having a transverse opening, attaching members arranged on opposite sides of said head and having apertured ears receiving the shaft and arranged above and below said head, links pivotally carried by said attaching members and extending through the transverse opening in said head, means carried by said head to secure said links in position, the outer portions of said attaching members being provided with arms supporting means, heads carried by the outer portions of said arms and having guards, and a supporting standard for one of said arms.

10. In a guard of the character described, the combination of an arm having its outer portion provided with a head, a second head arranged in contact with the first named head and having a flanged edge, a pivot bolt extending through the first and second named heads, bolts carried in the edge portion of said first named head for engagement over the flanged edge of said second named head, and a guard carried by the second named head.

In testimony whereof I affix my signature.

PETER ERICKSON.