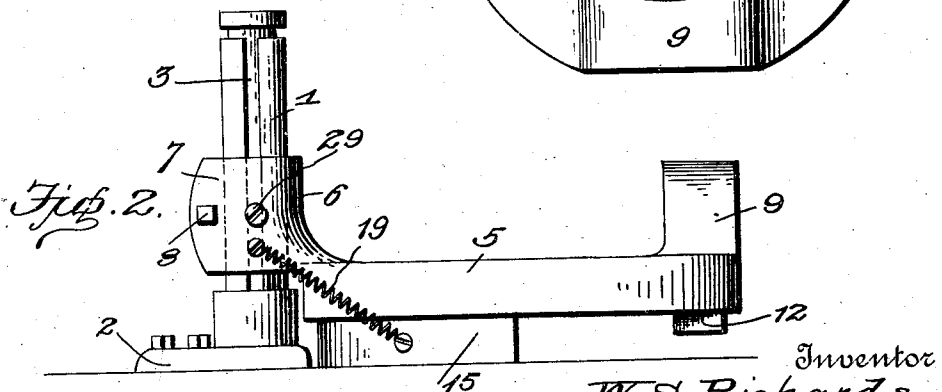
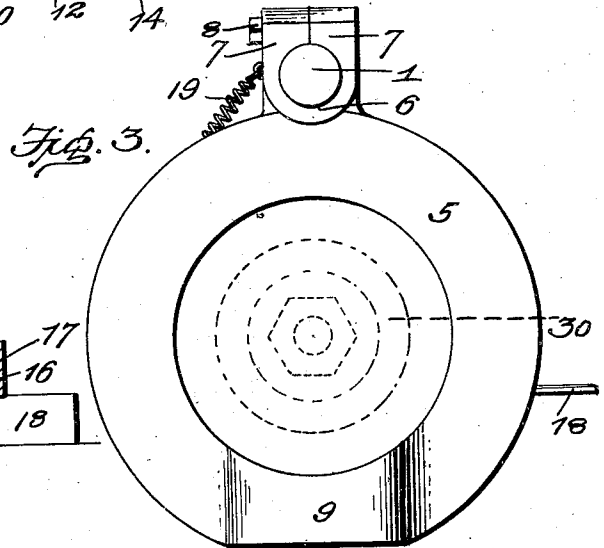
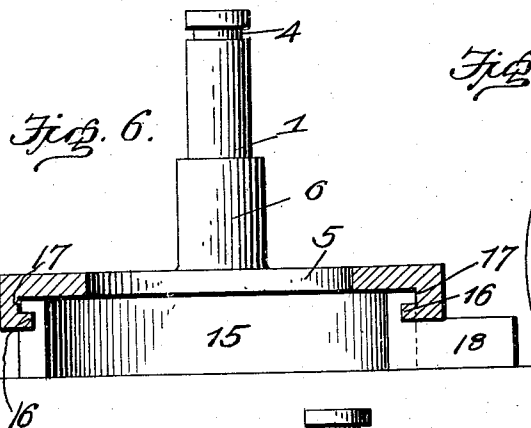
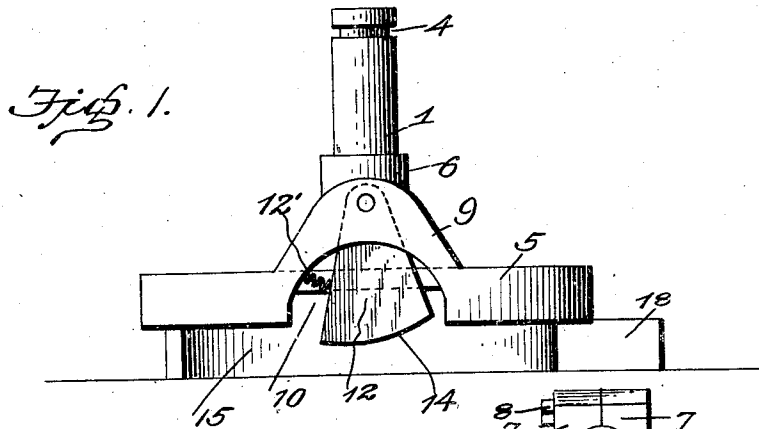


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 APPLICATION FILED APR. 19, 1909.

938,273.

Patented Oct. 26, 1909.
 2 SHEETS—SHEET 1.



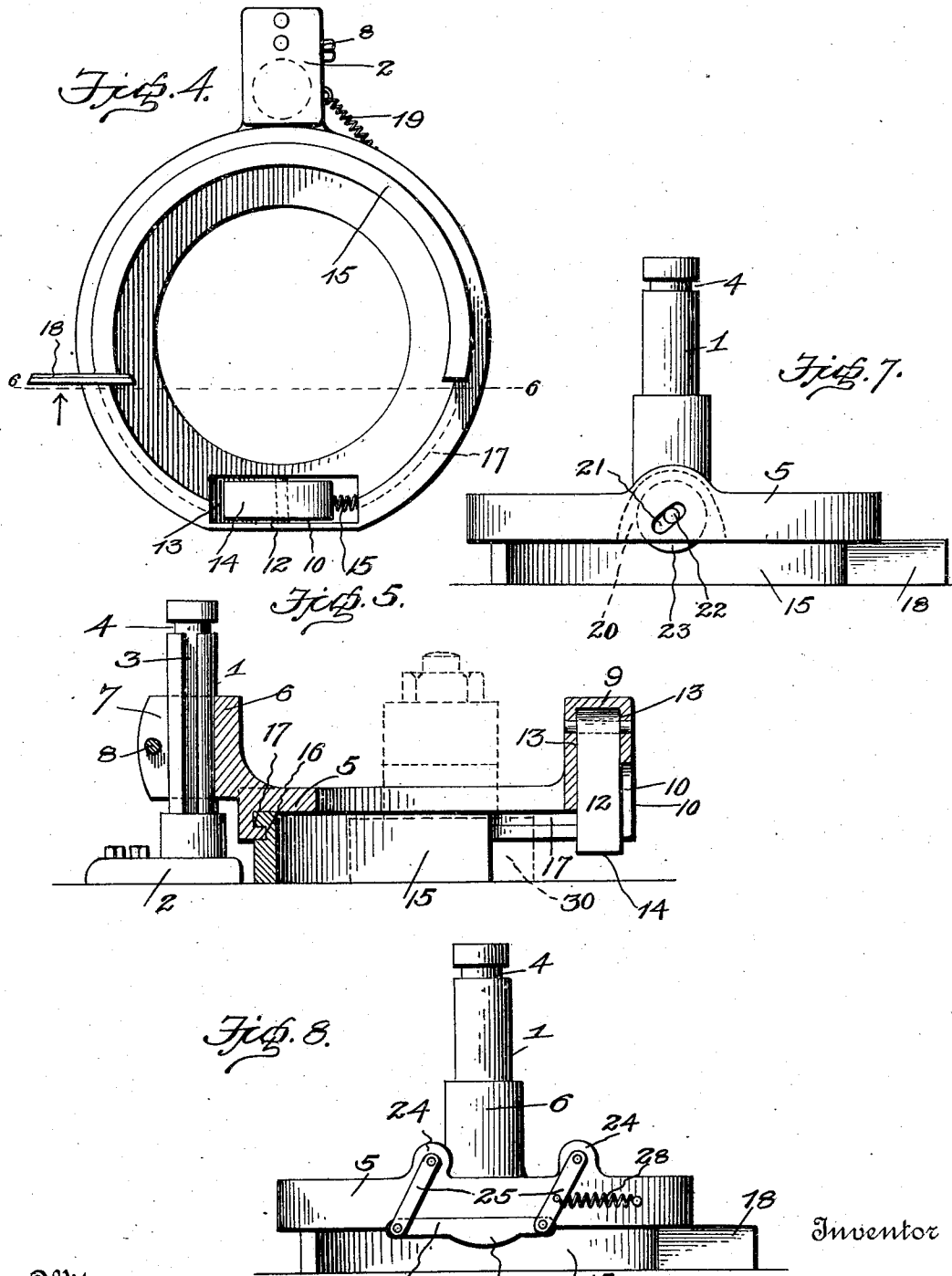
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UNITED STATES PATENT OFFICE.

WILLIAM S. RICHARDS, OF ALBANY, OREGON.

COMBINED GUARD AND CHIP-BREAKER FOR SHAPING-MACHINES.

938,273.

Specification of Letters Patent.

Patented Oct. 26, 1909.

Application filed April 19, 1909. Serial No. 490,880.

To all whom it may concern:

Be it known that I, WILLIAM S. RICHARDS, a citizen of the United States, residing at Albany, in the county of Linn and State of Oregon, have invented certain new and useful Improvements in Combined Guard and Chip-Breaker for Shaping-Machines; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in combined guard and chip breakers for shaping machines.

The object of the invention is to provide a device of this character having means whereby the work will be held down and automatically clamped and secured against being thrown back by the cutters, thus preventing injury to the operator or to the work.

Another object is to provide a guard having chip breaker which will automatically adjust itself to the work and prevent the cutters from tearing off the slivers or chips.

A further object is to provide an improved supporting post for the guard whereby the same is held in operative position on the table and having means whereby the guard, when raised, may be swung around on the post and supported in an out of the way position.

With the foregoing and other objects in view, the invention consists of certain novel features of construction, combination and arrangement of parts, as will be more fully described and particularly pointed out in the appended claims.

In the accompanying drawings, Figure 1 is a front view of a combined guard and chip breaker constructed in accordance with the invention; Fig. 2 is a side view; Fig. 3 is a top plan view; Fig. 4 is a bottom plan view; Fig. 5 is a transverse vertical sectional view; Fig. 6, is a similar view, taken at right-angles to Fig. 5, on the line 6—6, of Fig. 4. Fig. 7 is a front view of a guard showing a modified form of clamping device; and Fig. 8 is a similar view showing another modified form of clamping device.

Referring more particularly to Figs. 1 to 6 of the drawings, 1 denotes a guard supporting post having on its lower end a base or attaching flange 2 which may be bolted or otherwise secured to the work bench or table. In the post is formed a vertical key-

way or groove 3 which communicates at its upper end with an annular groove 4.

Slidably mounted on the post 1 is a guard 5 which is in the form of an open circular flange or ring on the rear side of which is an outwardly projecting post engaging head 6. The outer portion of the head 6 is split or divided to form post clamping members 7 by means of which the guard is clamped in position on the post. The clamping members 7 are provided with a clamping screw 8 by means of which they are drawn into engagement with the sides of the post. On the outer side of the guard 5 opposite to the head 6 is formed an upwardly projecting off-set portion 9 and in the lower edge of the guard below the off-set 9 is formed a recess 10, in which is arranged a work clamping member 12, the upper end of which is pivotally mounted in a vertically disposed slot 13 formed in the off-set portion 9. The clamping member 12 is shown as being in the form of a substantially triangular block having a curved lower edge 14 which forms a cam bearing surface to engage the work which is being shaped. The clamping member 12 is provided with a spring 12' which normally holds the same in operative position to permit the work to slide freely beneath the same when pushed along in the proper direction. Should the work, however, be caught and thrown back by the cutters, the clamping member will immediately act automatically to clamp and hold the work down on the bench or table, thus preventing the same from injuring the operator or being itself injured by the cutters.

In addition to the clamping member 12, the guard is provided with a chip breaker 15 which is in the form of a semi-circular bar or plate having in its outer side adjacent to its upper edge a groove 16 which is adapted to engage a groove 17 formed in the underside of the guard thereby slidably connecting the breaker with the guard. On one end of the breaker 15 is formed a right angularly projecting work engaging plate 18 which is automatically engaged and held in contact with the work by a coil spring 19 which is secured at one end to the outer side of the opposite end of the breaker bar and at its opposite end the spring is secured to the head 6 of the guard, as shown. When thus connected to the chip breaker, the pressure of the spring is exerted to force the breaker plate 15 around in the groove 17

and to hold the plate 18 into operative engagement with the side of the work upon which the cutters are operating, thus preventing the cutters from tearing off large splinters or chips.

In Fig. 7 of the drawings, is shown a slightly modified form of the guard, the latter being shown in this instance as provided in its front side with a recess 20 which opens through the lower side of the guard. In the opposite side walls of the recess 20 are formed diagonally arranged or inclined bearing slots 21 in which are loosely mounted the trunnions 22 of a clamping wheel or roller 23 which is thus revolvably mounted in the recess 20 of the guard. By thus arranging the clamping wheel 23, the same will roll loosely over the work which is being passed beneath the same and into engagement with the cutters but should the work be thrown back from any cause, the trunnions of the clamping wheel will immediately be forced down toward the lower end of the slots 21 thus causing the wheel to tightly clamp the work down into engagement with the table or bench.

In Fig. 6 of the drawings, is shown another modified form of the device, the guard 5 being illustrated in this instance as provided with upwardly projecting ears or lugs 24 to which are pivotally connected the upper ends of links 25, the lower ends of which are pivotally connected to a clamping bar 26 having on its lower edge a cam projection 27. When the work is being pushed forward to be operated on by the cutters, the cam 27 on the clamping bar 26 will slide loosely on the material or work and will be held in yielding engagement therewith by a coil spring 28. Should the work be caught and thrown back by the cutters, the cam 27 and clamping bar 26 will be forced downwardly and rearwardly thereby clamping the work into engagement with the bench or table, thus securely holding the same.

The chip breaker 15 and the supporting or holding mechanism for the guards shown in Figs. 7 and 8 is the same as that shown in connection with the first figures of the drawings. In the heads of the guards is arranged a set screw 29 which is adapted to be screwed into engagement with the groove or key-way 3 in the post 1 thereby preventing the guard from turning on the post. By providing the annular groove 4, near the top of the post and in communication with the key-way 3, the guard may be moved upwardly on the post until the end of the set screw engages the groove 4 at which time the guard may be swung around in either direction to an out of the way position, in

which position it will be supported by the screw, thus giving access to the cutter 30 to permit the insertion or removal of the cutting bits.

From the foregoing description, taken in connection with the accompanying drawings, the construction and operation of the invention will be readily understood without requiring a more extended explanation.

Various changes in the form, proportion and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of the invention, as defined in the appended claims.

Having thus described my invention, what I claim is:

1. In a device of the character described, a supporting post having formed therein a vertical groove and near its upper end an annular groove communicating with said vertical groove, a guard having on one side a head to slidably engage said post, means in said head to engage the vertical groove in said post whereby the guard is held against turning on the latter and to engage said annular groove when the guard is moved up on the post, thereby permitting the guard to be swung around and supported in an inoperative position, and an automatically operating work clamping member carried by said guard.

2. In a device of the character described, a suitably mounted guard, a work clamping member carried by said guard, a chip breaker slidably mounted on the guard, a work engaging plate on said chip breaker, and a spring to automatically engage said chip breaker with the work and to hold the same into engagement therewith.

3. In a device of the character described, a suitably mounted guard having in one side a slotted and recessed projection, a cam work clamping member pivotally mounted in said slot and projecting into said recess, a spring to hold said member in engagement with the work whereby should the latter be thrown back, said clamping member will automatically clamp and hold the same, and a chip breaker operatively mounted on the underside of said guard, and means to automatically project and hold said chip breaker in operative engagement with the work.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

WILLIAM S. RICHARDS.

Witnesses:

J. C. CHRISTY,
R. A. B. VEAL.