J. EDMAN.

GUARD FOR CIRCULAR SAWS.

APPLICATION FILED FEB. 19, 1913.

1,135,168.

Patented Apr. 13, 1915.

2 SHEETS—SHEET 1.

Fig. 2

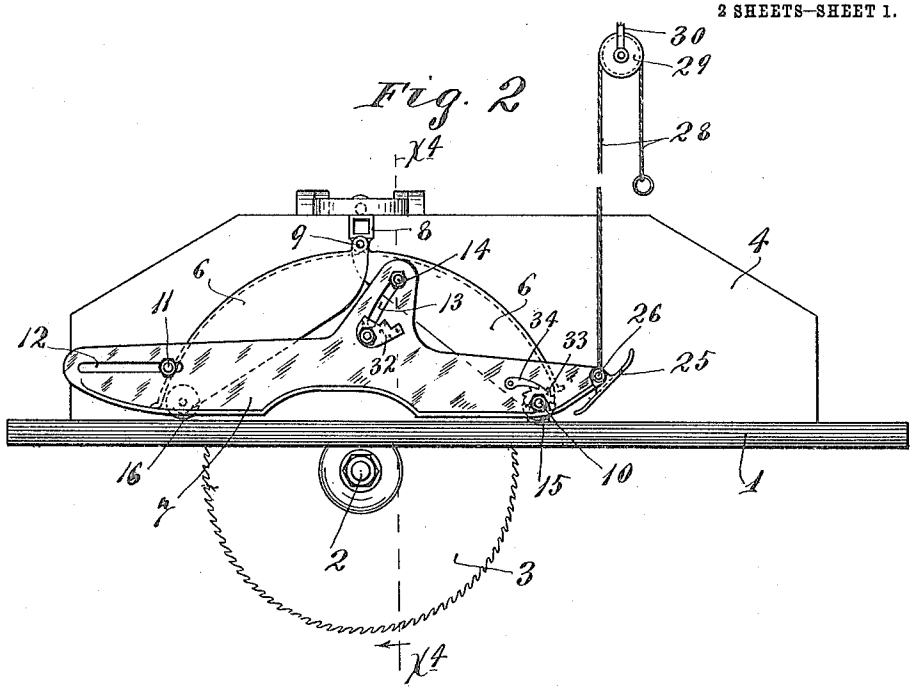
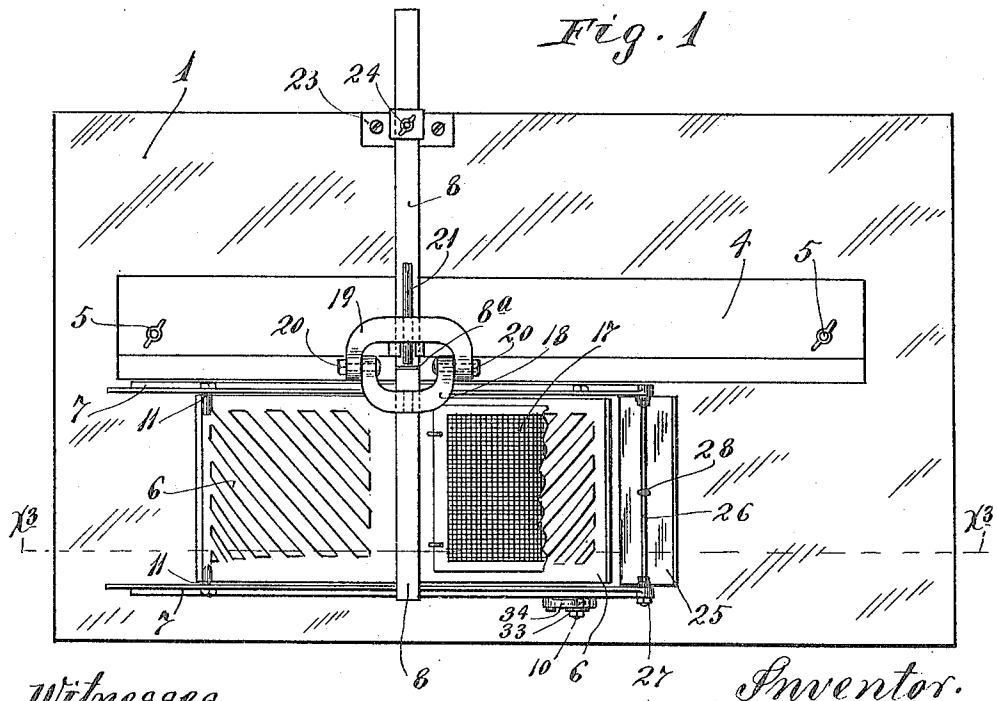


Fig. 1



Witnesses.
A. H. Opahl.
Geo. Knutson

Inventor.
John Edman
By his Attorneys.
Williamson Merchant

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

J. EDMAN.

GUARD FOR CIRCULAR SAWS.

APPLICATION FILED FEB. 19, 1913.

1,135,168.

Patented Apr. 13, 1915.

2 SHEETS—SHEET 2.

Fig. 3

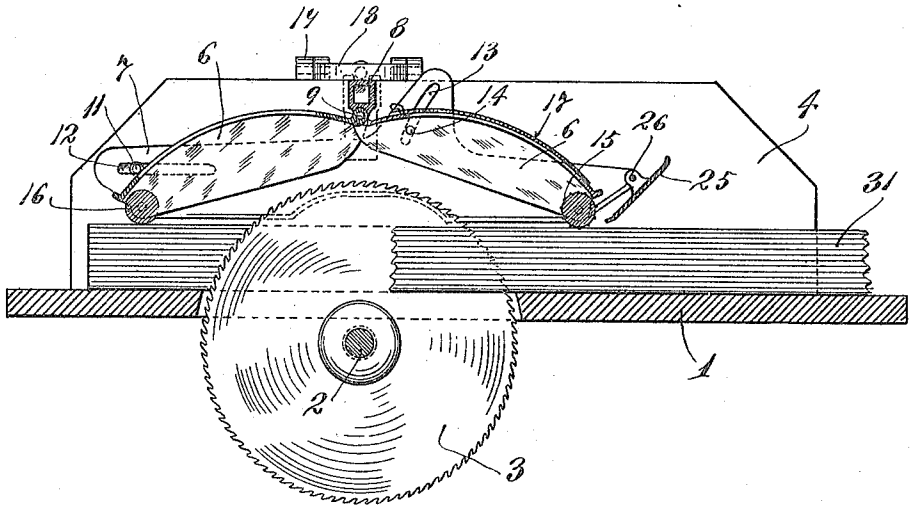
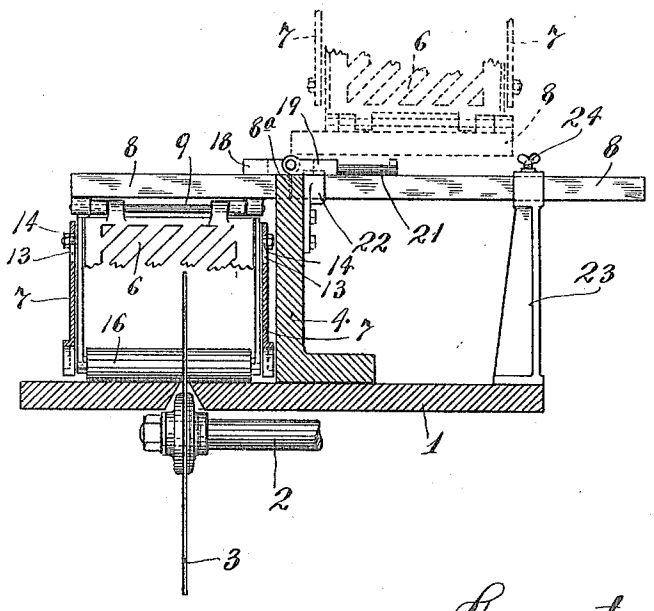


Fig. 4



Witnesses.
A. H. Opsahl.
Geo. Knutson

Inventor.
John Edman.
By his Attorneys
Williamson & Merchant

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

JOHN EDMAN, OF MINNEAPOLIS, MINNESOTA, ASSIGNOR OF ONE-HALF TO THE FIRM OF WILLIAMSON & MERCHANT, JAMES F. WILLIAMSON AND FRANK D. MERCHANT, OF MINNEAPOLIS, MINNESOTA, COPARTNERS.

GUARD FOR CIRCULAR SAWS.

1,135,168. Specification of Letters Patent. Patented Apr. 13, 1915.

Application filed February 19, 1913. Serial No. 749,379.

To all whom it may concern:

Be it known that I, JOHN EDMAN, a citizen of the United States, residing at Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Guards for Circular Saws; and I do hereby 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.

My invention has for its object to provide an improved guard especially adapted for use in connection with circular saws, but adapted also for use in connection with rotary cutting heads of various different kinds of wood working machines.

Generally stated, the invention consists of the novel devices and combinations of devices hereinafter described and defined in the claims.

In the accompanying drawings which illustrate the invention, like characters indicate like parts throughout the several views.

Referring to the drawings, Figure 1 is a plan view with some parts broken away showing the improved guard applied over a circular saw; Fig. 2 is a side elevation of the parts shown in Fig. 1; Fig. 3 is a vertical section taken on the line x^3—x^3 on Fig. 1; and Fig. 4 is a transverse section taken on the line x^4—x^4 on Fig. 2.

The numeral 1 indicates a work table, the numeral 2 a rotary power driven spindle and the numeral 3 an ordinary circular saw, which saw works upward through a slot in the said work table. The numeral 4 indicates a gage bracket adjustably secured on the work table in the customary way, by means of nut-equipped bolts 5, or otherwise, and provided with a working face that is parallel to the plane of the saw 3.

The guard, as preferably constructed, comprises a pair of pivotally connected cage segments 6 and laterally spaced side plates 7. The cage segments 6 are preferably pivotally connected to each other and to a supporting bar 8, by an engaging bolt 9, said cage segments being preferably formed at their ends with flanges to which the side plates 7 are adjustably connected, preferably by the following arrangement.

The numeral 10 indicates a rod which is passed through the front ends of the side plates 7 and through the flanges of the front cage segment 6 and serving to pivotally connect the said parts. The rear cage segment 6 has trunnions 11 that work in longitudinal slots 12 formed in the rear ends of the said side plates 7. Preferably, also, the side plates 7 are provided with upwardly extended intermediate portions having segmental slots 13 concentric to the axis of the rod 10, and the side flanges of the said front cage segment 6 are formed with trunnions 14 that work in the said slots. Preferably, the bolt 10 and the trunnions 11 and 14 are provided with nuts at their outer ends.

The above described connections permit the cage sections 6 to independently rise and fall carrying vertically with them the side plates 7. The side plates 7 and the flanges of the cage segments 6 prevent the fingers or hand from being accidentally moved into contact with the saw or cutter from the sides of the guard.

The free edges of the front and rear cage segment 6 are supported on rollers, the roller 15 in the former being journaled on the rod 10, while the roller 16 in the rear cage segment has trunnions directly journaled in the side flanges of the said rear cage segment.

The top or body sections of the cage segment 6 are preferably slatted so that the saw may be seen by the operator, but to prevent throwing of sawdust or small particles through the bars of the front cage segment 6, the latter is provided with an auxiliary hinged segment cover 17 in the form of a marginal frame and a wire screen panel.

The supporting bar 8 is preferably made in two sections separated at 8^a, the sections of the said bar having rigidly secured yoke-like hinge brackets 18 and 19 pivotally connected by hinge bolts 20. This joint permits the entire guard to be moved pivotally and turned upside down into an inoperative position shown by dotted lines in Fig. 4.

When the guard is in use, the supporting bar 8 should be made rigid or stiff and this may be conveniently done by a lock bolt 21 (see Figs. 1 and 4) slidably mounted on the main section of the said bar 8, and adapted to be slid so that it will overlap the other section of the said bar. The main section of the said bar 8 is slidably mounted, as shown, in a bearing 22 on the adjustable gage bracket 4, and in a bearing pedestal 23 rigidly secured on the rear edge of the work table 1. A set screw 24 applied to the said bearing pedestal serves to lock the bar 8 against endwise sliding movements.

An oblique lifting board or plate 25 is pivotally connected to the front ends of the side guard plate 7, as shown, by a rod 26 having nuts 27 at its ends which, when tightened, will rigidly hold the said lifting board in respect to the said side plate 7. This oblique lifting board 25 will serve to raise the front edge and roller of the front cage segment 6 when a board of ordinary thickness is forced endwise against the same. Sometimes, however, when a very thick plank or article is to be sawed or cut, it will be necessary to raise the front portion of the guard, and for this purpose, I preferably provide a lifting cable 28 centrally attached to the rod 26 and passed over a guide sheave 29 journaled to a suitable overhead support 30.

In Fig. 3, the numeral 31 indicates a plank or board which is being sawed and which has raised the sections of the guard and which is, while being sawed, pressed downward by the weight of the guard itself. When the roller 15 is raised, the round rear ends of the side plates 7 will be forced onto the rear portion of the table 1 and the rear roller 16 will be slightly raised, usually, so that it will run on the top of the board being sawed. If the board be extremely thick, it may, in some instances, strike the bottom of the inner side board 7, and thereby positively raise the rear cage segment. When the rear end of the board passes toward the saw beyond the front roller 15, the front cage section 6 will drop, thereby preventing the hand pushing the board or plank from following the same to the saw. The rear cage section will remain raised and pressed downward on the board until the rear end of the board is passed beyond the rear roller 16 whereupon this rear cage section will drop. In this way, the saw or cutting tool is kept caged, positively preventing the hand of the operator from being engaged with the saw or cutting tool, and furthermore, preventing chips, tool points, or other particles from being thrown from the saw or tool.

The numeral 32 indicates stepped stop devices pivotally connected to the side plates 7 at the lower extremities of the slots 13. These stop devices are frictionally held where set and are adapted to engage the nuts on the trunnions 14 to variably limit the upward movement of the front roller 15. For instance, when inch lumber is being sawed, the stops can be so set that a two inch plank cannot be forced under the roller 15 and to the saw.

There is a tendency for the saw to throw a board forward or backward under the front roller 15, and as a simple and efficient means for preventing this, and accidents which frequently result therefrom, I provide the shaft or rod 10 to which the front roller 15 is rigidly secured, with a ratchet wheel 33 that is engaged by a gravity-held dog 34 pivoted on the adjacent side plate 7. This pawl and ratchet device might be applied on the inner side of the casing if desired.

What I claim is:

1. A guard of the kind described, comprising a pair of pivotally connected cage sections, extending one in front and one in the rear of the tool, and a side plate mounted for bodily movement with said cage sections and permitting independent vertical movements thereof.

2. A guard of the kind described, comprising a pair of pivotally connected cage sections, extending one in front and one in the rear of the tool, and a side plate, pivotally connected to the forward end of said front cage section, for vertical swinging movement, and connected to said rear cage section for pivotal and sliding movements, with respect thereto.

3. A guard of the kind described, comprising a pair of pivotally connected cage sections, extending one in front and one in the rear of the tool, and a side plate, pivotally connected to the forward end of said front cage section, for vertical swinging movement, intermediately connected to the rear end portion thereof and to said rear cage section, for pivotal and sliding movements, with respect thereto.

4. A guard of the kind described, comprising a pair of pivotally connected cage sections, extending one in front and one in the rear of the tool, a side plate, pivotally connected to the forward end of said front cage section, for vertical swinging movement, intermediately connected to the rear end portion thereof and to said rear cage section, for pivotal and sliding movements, with respect thereto, and means for variably limiting the sliding movement of said side plate, with respect to said front cage section.

5. A guard of the kind described, comprising a pair of pivotally connected cage sections, extending one in front and one in the rear of the tool, a side plate, pivotally connected to the forward end of said front cage section, for vertical swinging move-

ment, intermediately connected to the rear end portion thereof and to said rear cage section, for pivotal and sliding movements, with respect thereto, and means including a stepped device for variably limiting the sliding movement of said side plate, with respect to said front cage section.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN EDMAN.

Witnesses:
HARRY D. KILGORE,
BERNICE G. WHEELER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."