

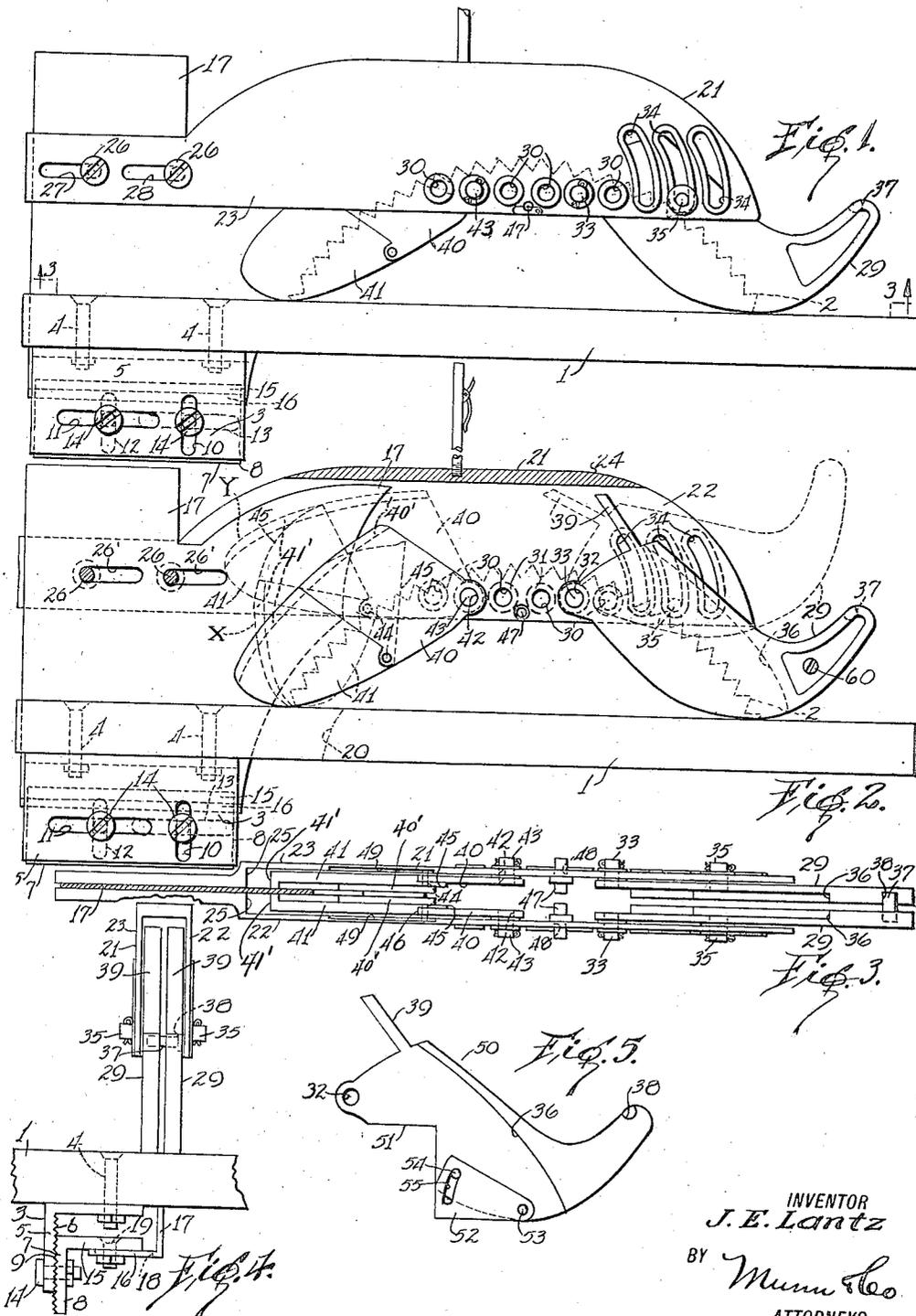
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AUTOMATIC SHIELD FOR CIRCULAR SAWS

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AUTOMATIC SHIELD FOR CIRCULAR SAWS.

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To all whom it may concern:

Be it known that I, JOSEPH EDWARD LANTZ, a citizen of the United States, and a resident of Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Automatic Shields for Circular Saws, of which the following is a full, clear, and exact description.

10 My invention relates to devices for guarding saw blades to prevent injury to an operator, and it consists in the combinations, constructions and arrangements herein described and claimed.

15 An object of my invention is to provide a device of the character described that can be arranged in a desired position with respect to a circular saw blade to keep the saw guarded at all times.

20 A further object of my invention is to provide a device of the character described that comprises relatively adjustable parts, whereby the device is suitable for use with saws of various sizes.

25 A further object of my invention is to provide an automatic shield for circular saws that can be applied to saw or work supporting means of ordinary construction without any extensive changes in the usual construction of the latter being required.

30 A further object of my invention is to provide an automatic shield for circular saws that is adapted to keep the saw blade in guarded condition when articles of various sizes are moved into engagement with the saw blade.

35 Other objects and advantages will appear in the following specification, and the novel features of the invention will be particularly pointed out in the appended claims.

My invention is illustrated in the accompanying drawings forming part of this application, in which—

45 Figure 1 is a side elevation of the device operatively applied to a saw supporting table,

50 Figure 2 is a vertical section through portions of the mechanism shown in Figure 1, other portions thereof being shown in elevation,

Figure 3 is a section along the line 3—3 of Figure 1,

Figure 4 is a front elevation of the mechanism shown in Figure 1, and

55 Figure 5 is a side elevation of a swinging guard member differing slightly in construction

from the corresponding swinging guard member embodied in the form of the device illustrated in Figure 1.

In carrying out my invention, I make use 60 of the usual work supporting table 1 which carries a circular saw 2. A part of the latter is arranged to protrude through the table 1 above the upper surface thereof in the usual manner. A bracket 3 is secured to the under 65 side of the table 1 by means of bolts 4 or the like and embodies a depending arm or side 5 provided with teeth or serrations 6 in its inner side. A right angular connector 7 has a vertical arm 8 provided with teeth 70 9 adapted to mesh with the teeth 6, whereby the connector 7 may be secured in adjusted position with respect to the arm 5. To this end, the arm 5 is formed with a vertical slot 10 and a horizontally extending slot 11. The 75 arm 8 is formed with a vertical slot 12 having a portion thereof registering with a portion of the slot 11 and with a horizontal slot 13 having a portion thereof registering with the vertical slot 10. Bolts 14 or the like are projected 80 through the registering slots to maintain the connector 7 in adjusted position with respect to the arm 5. The connector 7 has a horizontally extending arm 15 adapted to cooperate with a lateral portion 16 of a vertical 85 shield or housing supporting member 17. The portion 16 of the latter is provided with slots 18 and bolts 19 are projected through the arm 15 into engagement with the slots to maintain the shield supporting 90 member in a desired position.

The shield supporting member 17 has the form best seen in Figure 2 and is arranged to project through a slot 20 so that a portion thereof is positioned above the upper 95 surface of the table 1. A shield or housing is adjustably supported on the member 17 and comprises a body portion indicated generally at 21. The body portion 21 is formed to provide parallel spaced apart sides 22 and 100 23 joined by an integral cross member or web 24. The sides 22 and 23 are inwardly offset at 25—25 and arranged to straddle the vertical supporting member 17. In consequence, the body portion 21 will be supported and may be adjusted horizontally 105 when bolts 26 or the like are projected transversely through slot 26'—26' in the member 17 into engagement with slots 27—27 and 28—28 in the offset portions of the sides 110 22 and 23.

The body portion 21 which forms the pri-

mary guard member of the device is supplemented by pairs of swinging guard members arranged adjacent to opposite ends of the body portion in position to cover the portions of the blade 2 engaged successively by articles of different sizes. The secondary guard members at the forward end of the body portion 21 are indicated at 29—29 and each has the form best seen in Figure 2. Each of the side members 22 and 23 is provided with a series of openings 30 extending along its lower edge. Corresponding openings of the series in the sides 22—23 are alined and each has a flange 31 extending outwardly therefrom. The swinging guard members 29—29 are arranged with their upper portions disposed between the inner walls of the sides 22 and 23 so that an opening 32 in each guard member is alined with an opening 30 in the adjacent side. A pin 33 is then projected through registering openings in each guard member and in the adjacent side, whereby the former will be pivotally attached to the latter and will normally be swung downwardly by gravity to rest on the table 1. Each of the side members 22—23 has a series of guide slots 34 and a pin 35 carried by each of the guard members 29—29 projects into one of the guide slots 34 from the adjacent side of the body portion 29, thereby limiting the movement of the guide member about its pivot 33. It is to be observed that the guard members 29—29 are thickened inwardly adjacent to their forward extremities, as at 36—36. A pin 37 fast in the inner wall of one of the guard members 29 is arranged to enter a recess or socket 38 in the upper edge of the other guard member. Each of the guard members 29—29 has an integral inclined extension 39 at its upper end which is arranged to extend adjacent to the under side of the web 24.

Each of the pair of guard members positioned adjacent to the rearward end of the body portion 21 embodies two sections 40 and 41. Each section 40 is provided with an opening 42. A pin 43 is projected through the openings 42 and a selected opening 30 in the adjacent side of the body portion to pivotally attach the sections 40 to the latter. Each section 41 is pivotally attached, as at 44, to the cooperating section 40. The section 41 has a thickness greater than that of the section 40 and is provided with an extension 45 arranged to slidably contact the inner wall of the section 40 and defining a shoulder 46 against which the section 40 abuts when both sections are in the position indicated by the full lines in Figure 2.

From the foregoing description of the various parts of the device, the operation thereof may be readily understood. Since the shield supporting member 17 is attached

to the bracket 3 in the manner described, it is obvious that the former may be adjusted either vertically or horizontally. The body portion 21 may be adjusted horizontally. The body portion 21 may therefore be arranged in a desired position with respect to circular saw blades of various sizes. The guard members 29—29 and the sections 40—40 may be attached to the sides 22 and 23 to accommodate circular saw blades of different sizes. When the body portion 21 has been arranged in a desired position with respect to the saw blade 2, alined spacing members 47—47 will be placed in alined openings 48—48 through the sides 22—23, as shown in Figure 3, whereby engagement of the cutting edge of the saw blade 2 with the guard members 29—29 is prevented.

In practice, the work to be cut is placed on the table 1 and slidably moved toward the saw blade 2. The guard members 29—29 will be contacted before the work can be moved into engagement with the saw. Since these members are bent upwardly at their outer ends and the edges thereof nearest to the saw blade are curved as shown, it is apparent that the guard members 29—29 will be moved from the full line position indicated in Figure 2 toward the dotted line position as the work is moved into engagement with the cutting edge of the saw blade. It is important to observe that the curve of the lower edge of each guard member 29—29 is such that no portion of the cutting edge of the saw blade is exposed, no matter what the position of the guard member may be with respect to the body portion 21. The extensions 39 substantially close the space between the under side of the web 24, the inner sides of the walls 22—23, and the upper end of the guard members 29—29 and consequently the hand of the operator cannot be moved into contact with the cutting edge of the saw blade as the work is moved toward the rear end of the body portion 21. The work engaged will be moved along the table 1 into contact with the pair of swinging guard members attached to the body portion 21 adjacent to its rearward end. If the work engaged is of sufficient thickness, the sections 40 will be contacted first and the sections 40 and 41 will then be moved upwardly toward the dotted line position indicated at X in Figure 2. At this time, the sections 41 have their extremities contacting the table 1 and consequently the cutting edge of the saw blade 2 is guarded. In the event the work engaged is not sufficiently thick to contact the section 40 but contacts the section 41, the sections 40 and 41 will be moved upwardly as a unit toward the dotted line position indicated at Y in Figure 2 and in consequence the portion of the cutting edge of the saw blade not sheathed in the

work will be guarded. It will be observed that the guard members positioned at the rear of the body portion have integral inwardly extending flanges indicated at 40' and 41' along their upper edges and these flanges substantially fill the space between the supporting member 17 and the sections 40-40 and 41-41, i. e., they extend from the inner surface 40-40 and 41-41 and abut the sides of the member 17 (see Figures 2 and 3). Recesses 49-49 are provided in the inner walls of the side members 22-23 in position to receive the protruding portions of the pins 44.

In the event that a board of relatively great length is to be cut into shorter lengths, the guard member illustrated in Figure 5 and denoted generally at 50 is substituted for the right hand guard member 29 when facing the front of the device, i. e., the guard having the socket 38. The same reference numerals have been used to indicate like parts of the guard member 50 and the guard member 29 which it replaces, and consequently I shall confine my description of the modified form of the guard member to the parts thereof that differ from the guard member hereinbefore described. It will be observed that the guard member 50 is cut away as at 51 and is provided with an auxiliary work-engaging member 52. The latter is pivotally attached to the guard member 50, as at 53, and carries a pin 54 arranged to enter a guide slot 55.

The guard 50 is pivotally secured to the side 22 in place of the guard 29 which has the recess 38 therein, and cooperates with the guard 29 which carries the pin 37. It will therefore be observed that when the guard 50 is raised, it will raise the guard 29, but that the guard 50 may drop independently of the guard 29. The board to be cut into a number of small pieces is adjusted so as to dispose the long portion of the board on the side of the guard 29, and the short portion of the board, or the piece to be cut, adjacent to the guard 50. The board is then moved into engagement with the saw and in its movement, raises both the guards. The member 52 swings upwardly with respect to the guard 50 as the board passes therebeneath, and instantly drops into the position shown in Figure 5, as soon as the board passes. The long portion of the board may be now moved back in exactly the same path as taken when it was moved into engagement with the saw. The guard 29 will again raise, but the guard 50 and member 52 will stay in normal position and will prevent the severed piece from moving toward the operator. It will further be noted that the side of the saw disposed adjacent to the severed piece is protected by the guard 50.

It will be apparent that various sized

saws 2 can be used with the guard 21. In case the saw used is small, the movable members 29-29 and 41-41 are moved inwardly and are pivotally mounted in the openings 30 adjacent to the openings they were formerly in. The member 17 is also moved inwardly with respect to the guard 21 so that the curved surface of the former is concentric with and spaced slightly from the periphery of the saw 2.

It is sometimes necessary to have the members 29-29 work as a unit. To this end, I provide a screw 60 which is adapted to hold the members 29-29 rigidly together.

I claim:

1. The combination with a circular saw and a work supporting table, of a housing adapted to cover a portion of said saw, and two guards pivotally carried by said housing and adapted to cover the rear of said saw, each of said guards consisting of two members pivotally secured to each other at their ends, the free ends of one of the guards of each set being connected to said housing, the outer member of each set being adapted to cover the cutting edge of said saw until the work engages therewith.

2. A device of the type described comprising a housing adapted to receive a portion of a saw blade, and saw guards pivotally carried by said housing and adapted to cover a portion of the cutting edge of said blade, said guards having a curved under side, and one of the guards having an angular recess therein and carrying a pivoted plate adapted to form a contiguous side with one of the sides of the recess, whereby said plate acts as a stop plate against the reverse movement of the board being cut.

3. A device of the type described comprising a U-shaped housing adapted to cover a portion of a saw, two pairs of guards adapted to cover the front and back of the saw edge, said guards being adjustably secured to said housing, the pair of rear guards consisting of two members pivotally secured to each other, the rear member of each rear guard being adapted to cover the exposed portion of the saw when the other member thereof is disposed in said housing.

4. A device of the type described comprising a supporting surface, a U-shaped housing, two pairs of guards mounted in said housing and being adapted to cover the front of a saw, the under side of one of the guards being provided with a recess therein and carrying a pivotally mounted plate, said plate being adapted to drop by gravity so as to cause one side thereof to align with one side of said recess, this side extending to said supporting surface.

5. A device of the type described comprising a supporting surface, a U-shaped

housing, two pairs of guards mounted in said housing and being adapted to cover the front of a saw, said guards being adjustably secured to said housing, the under side of one of the guards being provided with a recess therein and carrying a pivotally mounted plate, said plate being adapted to drop by gravity so as to cause one side thereof to aline with one side of said recess, this side extending to said supporting surface.

6. A device of the type described comprising a U-shaped housing adapted to cover a portion of a saw, a pair of guards adapted to cover the back of the saw, the rear guards consisting of two members pivotally

secured to each other, the rear member of each guard being adapted to cover the exposed portion of the saw when the other member thereof is disposed in said housing. 20

7. A device of the type described comprising a U-shaped housing adapted to cover a portion of a saw, a pair of guards adapted to cover the back of the saw, said guards being adjustably secured to said housing, the rear guards consisting of two members pivotally secured to each other, the rear member of each guard being adapted to cover the exposed portion of the saw when the other member thereof is disposed in said housing. 25 30

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