Sept. 19, 1939. C. B. TIMMONS 2,173,772

ADJUSTABLE CHIP DEFLECTOR

Filed Feb. 7, 1938

Fig. 1.

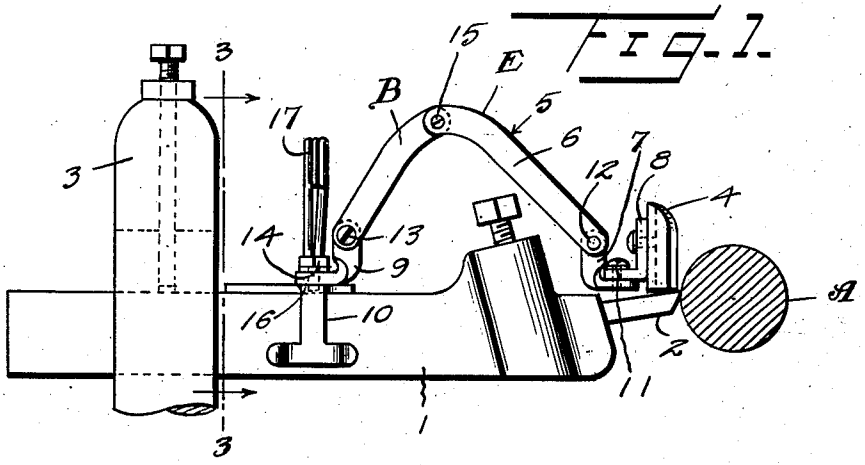


Fig. 2.

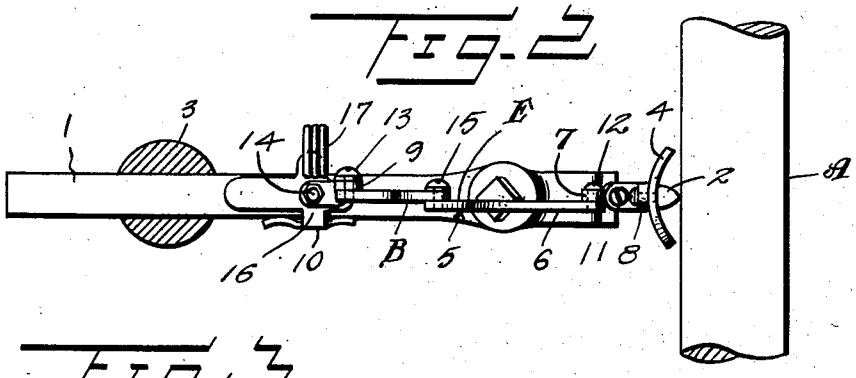


Fig. 3.

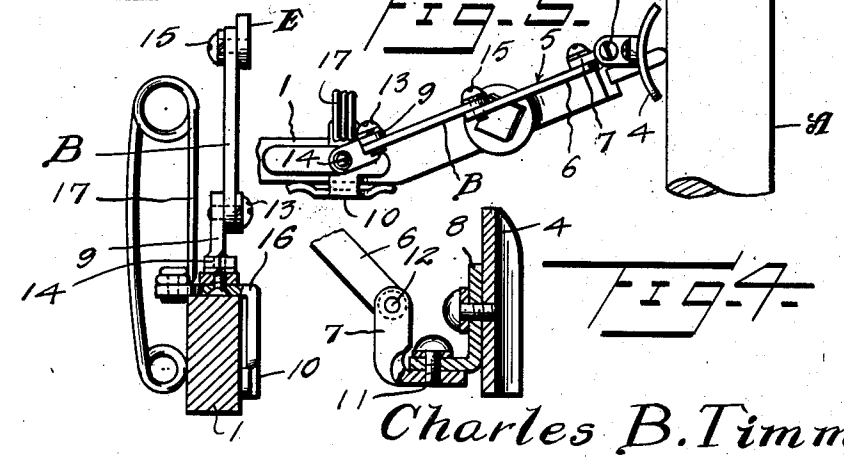


Fig. 5.

Fig. 4.

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ADJUSTABLE CHIP DEFLECTOR

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Application February 7, 1938, Serial No. 189,209

4 Claims. (Cl. 29—96)

This invention relates to a chip deflector for machines of various types for turning or otherwise cutting metals or other materials that throw off chips when cut and has for its primary object the provision of a safety device which may be easily and quickly adjusted and will efficiently intercept flying chips from the cutter and direct them into the usual collecting box obviating any possibility of flying chips injurying the operator or the eyesight of said operator and materially preventing waste of metal by the flying chips being uncontrolled and scattering over a large area, the device being so constructed that it may be used close to the cutting end of the tool to be directly in the path of the cuttings as they leave the work and the cutting end of the tool and will permit the operator to have clear view of the cutting operation with danger of injury eliminated.

With these and other objects in view, this invention consists in certain novel features of construction, combination and arrangement of parts to be hereinafter more fully described and claimed.

For a complete understanding of my invention, reference is to be had to the following description and accompanying drawing, in which—

Figure 1 is a side elevation, partly in section, showing a chip deflector adapted to a cutting tool and constructed in accordance with the present invention.

Figure 2 is a top plan view, partly in section, illustrating the same.

Figure 3 is a sectional view taken on line 3—3 of Figure 1.

Figure 4 is a detail sectional view showing an adjustable bracket provided between the deflector and its supporting medium.

Figure 5 is a top plan view showing the deflector in one of its adjusted positions with respect to a cutting tool and the work.

Referring in detail to the drawing, the numeral 1 indicates a tool holder of a conventional construction, 2 a cutting tool and 3 the stock for the support of the holder. This construction is common in turning or cutting machines and is merely selected to show the use of the present invention. It is to be clearly understood that the present invention is adaptable through minor alterations to various types of cutting machines for the purpose of deflecting in a downward direction and away from the operator of the machine flying chips or cuttings from the work, indicated by the character A, acted on by the cutting tool 2.

The present invention consists of a deflector 4 and a supporting medium 5 to arrange the deflector in close proximity to the cutting end of the tool 2 and in the path of the cuttings from the work so that said cuttings will be deflected downwardly and not permitted to scatter over a large area. The deflector 4 is in the form of a plate arcuately curved with the curvature extending from one vertical side edge to the opposite side edge and having its upper edge rounded, as shown in Figure 1. A deflector constructed as described will present only a minimum amount of obstruction to the vision of the operator watching and controlling the cutting action of the tool on the work A. The supporting medium 5 may be of a construction which will permit vertical adjustment of the deflector relative to the cutting tool and the work and also adjustment in a horizontal plane towards and from the work and the cutting end of the tool and laterally of the cutting end of the tool. The supporting medium 5 includes an arm 6, brackets 7, 8 and 9 and an attaching medium 10. The brackets 7 and 8 are substantially L-shaped and are pivotally connected, as shown at 11. The bracket 7 is pivotally connected to one end of the arm 6, as shown at 12. The other end of the arm is pivotally connected to the bracket 9, as shown at 13. The bracket 9 is pivotally mounted on the attaching medium 10, as shown at 14. The arm 6 includes sections B and E pivotally connected, as shown at 15. The pivotal connections 11, 12 and 13 and 14 and 15 are of the frictional type wherein the parts connected by said pivots may be moved and will retain any of their adjusted positions.

The attaching medium 10 includes an angle iron plate 16 to rest on the tool holder and engage one side thereof. A spring clamp 17 is carried by the plate 16 and engages an opposite side of the tool holder and thereby cooperates with the plate 6 in detachably and adjustably mounting the device on the tool holder. Other forms or means may be employed to secure the arm or the bracket 9 thereof on the tool holder or some other part of the machine.

The deflector 4 may be adjusted about a vertical axis, the pivot 11 permitting such adjustment. The deflector thus adjustable permits its vertical edges to be varied relative to the work. The pivots 12, 13 and 15 permit the deflector to be adjusted toward and from the work and the tool in a horizontal plane and also to be adjusted vertically in relation to said tool and the work. Further, the deflector and the arm may swing laterally in either direction or be adjusted in said

latter-named directions by the pivot 14. These adjustments as described permit the operator to position the deflector to meet with varying kinds of work and on various types of machines and to adjust the deflector extremely close to the cutting end of the tool and the work without unduly obstructing the vision of the operator. A device as described and shown in the drawing is inexpensive to manufacture, easily adapted to a machine and will be extremely serviceable as a safety guard to prevent injury to the operator with obscurity to the cutting operation reduced to a minimum due to its simplicity and compactness in construction and the various adjustments permitted to the deflector 4 and its supporting means. Also, these various adjustments permit the use of the device on right and left hand cutting machines and thereby provides a device universally adaptable to various types of machines.

What is claimed is:

1. A device of the character described, comprising, a chip deflecting element, an arm associated with said element and adapted for detachable connection to a tool holder whereby to dispose said element in chip deflecting position adjacent a work-piece operably associated with a tool carried by said holder and in proximity to said tool, and a bracket adjustably pivoted to said arm and fixed to said element whereby to permit adjustment of the latter relative to said arm and said work-piece.

2. A device of the character described, comprising, a chip deflecting element, an arm associated with said element and adapted for detachable connection to a tool holder whereby to dispose said element in chip deflecting position adjacent a work-piece operably associated with a tool carried by said holder and in proximity to said tool, and a bracket having pivoted portions pivoted to said arm and fixed to said element respectively whereby to permit adjustment of said element on one of said portions relative to the other of said portions and said arm and adjustment of said element and all of said portions relative to said arm.

3. A device of the character described, comprising, a chip deflecting element, a sectional pivoted arm associated with said element, a clip pivoted to one of the sections of said arm and adapted for detachable connection to a tool holder whereby to dispose said element in chip deflecting position adjacent a work-piece operably associated with a tool carried by said holder and in proximity to said tool, and a bracket adjustably pivoted to another section of said arm and fixed to said element whereby to permit adjustment of the latter relative to said arm and said work-piece.

4. A device of the character described, comprising, a chip deflecting element, a sectional pivoted arm associated with said element, a clip pivoted to one of the sections of said arm and adapted for detachable connection to a tool holder whereby to dispose said element in chip deflecting position adjacent a work-piece operably associated with a tool carried by said holder and in proximity to said tool, and a bracket having pivoted portions pivoted to another section of said arm and fixed to said element respectively whereby to permit adjustment of said element on one of said portions relative to the other of said portions and said arm and adjustment of said element and all of said portions relative to said arm.

CHARLES B. TIMMONS.