May 5, 1931. L. WILLIAMS 1,803,580

SCRAP CUTTER

Filed Nov. 30, 1925

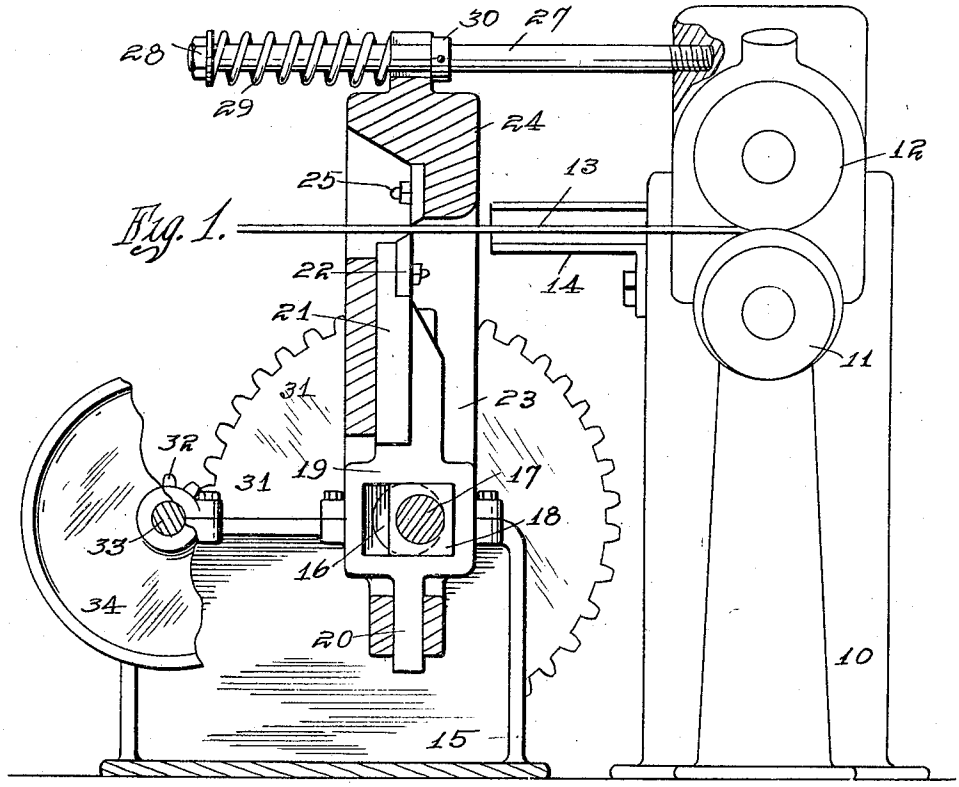


Fig. 1.

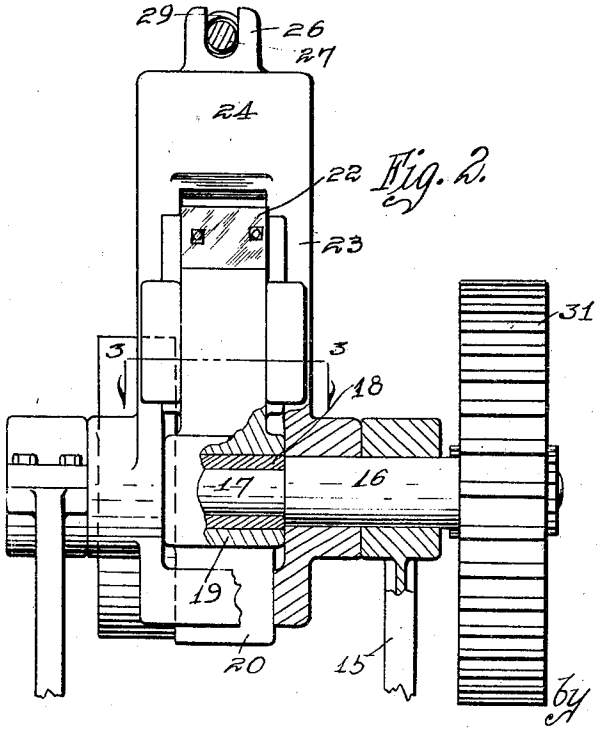


Fig. 2.

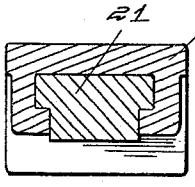


Fig. 3.

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UNITED STATES PATENT OFFICE

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SCRAP CUTTER

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This invention relates to a mechanism for cutting scrap material, which has been delivered from what is commonly known as rotary bevel shears, into short sections, said shears being used to bevel the edges of sheet metal plates, the scrap delivered by said shear being triangular in cross section and is sometimes of considerable length, usually curling and twisting as it leaves the machine and is inconvenient and dangerous to handle on account of its stiffness and sharp and rough edges.

It is, therefore, the object of my invention to provide a mechanism, which may be mounted adjacent to one side of the rotary shear, to receive the scrap therefrom and to sever it into short sections which may then be delivered to a suitable container.

A further object is to provide in a scrap cutting shear of that type having a reciprocating cutter working in conjunction with a stationary cutter, improved means whereby the cutters may be made to travel with a continuously moving strip of stock or scrap as the cutting operation takes place.

My invention consists in the construction, arrangement and combination of the various parts of the device, whereby the objects contemplated are attained, as hereinafter more fully set forth, pointed out in my claims, and illustrated in the accompanying drawings, in which:

Figure 1 is a side elevation of a rotary shear showing the manner in which my improved device is mounted relative thereto, my improved device being shown in vertical central section.

Figure 2 is an end elevation of my improved mechanism, a portion of the base being broken away.

Figure 3 is a detail sectional view taken on the line 3—3 of Figure 2.

The numeral 10 indicates the base of a rotary shear which is of the ordinary construction, said shear comprising a pair of rotary cutting members 11 and 12. The numeral 13 indicates a strip of scrap which is being delivered horizontally from said cutters. A guide 14 is secured to one side of the frame 10 for maintaining the said scrap 13 in a substantially horizontal position.

My improved device comprises a base 15 in which is rotatively mounted a shaft 16. The central portion 17 of the shaft 16 is turned eccentric with the main body of the shaft to form a crank. Said member 17 is rotatively mounted in a slide block 18 slidably mounted in a guide frame 19. The lower side of said frame is provided with a downwardly projecting guide member 20. The upper side of the frame 19 is provided with an upwardly projecting cutter support 21 having a horizontally arranged cutter blade 22 at its upper end, said blade being detachably connected by means of suitable bolts. The member 21 is slidably mounted in a rocker frame 23, the lower end of which is pivotally mounted on the shaft 16, as clearly shown in Figure 2.

The frame 23 comprises a pair of side members and a top member 24, said top member being provided with a cutter member 25 which is also detachably mounted therein. The upper edge of the member 24 is provided with a pair of upwardly projecting lugs 26 which are designed to slidably receive a horizontal rod 27, one end of which is secured to the frame of the rotary shear 10. The other end of the shaft 27 is provided with a nut 28 and a coil spring 29. One end of the spring rests against the outer faces of the members 26, while the inner faces of the members 26 are designed to normally rest against a collar 30 secured to the shaft 27. This provides means whereby the upper end of the frame member 23 is free to swing outwardly against the action of the spring 29, for the purpose hereinafter made clear.

One end of the shaft 17 is provided with a gear 31 in mesh with a pinion 32 mounted on the shaft 33. The other end of the shaft 33 is provided with a belt wheel 34 which provides means for imparting rotary movement of the shaft 17 through the gearing mechanism just described.

The practical operation of my device is as follows:

Assume that the stock 13 is being fed hori-

zontally and continuously from the rotary shears 11 and 12 through the guide 14 and between the cutter blades 22 and 25. The shaft 17 being rotated will cause a reciprocating movement to be imparted to the member 21 through the slide block 18, which will cause the cutter member 22 to engage the stock and to sever it into short sections, the length of which is determined by the speed of the cutter members and the speed of the stock. It will be seen that as the cutter member 22 engages the stock, the upper end of the frame 23 will be moved outwardly by the stock against the pressure of the spring 29, relieving the stock 13 of any buckling, which would otherwise be produced, due to the fact that it is moving continuously outwardly.

Thus it will be seen that I have provided a mechanism which is adapted to be moved adjacent to a rotary shear of that type which is already in commercial use, and when so mounted is capable of receiving the delivered scrap from said shear and severing it into short sections of predetermined lengths, said sections may be delivered to a chute not shown in the drawings, and in turn delivered to a suitable container or bin. The device is applied without in any way altering the shear, any other than providing the guide 14 and anchoring the horizontal rod 27.

I claim as my invention:

1. In combination, means for severing a continuously moving strip of stock into short sections, said means comprising a supporting base, a shaft rotatively mounted in said base, an upright yoke pivotally mounted on said shaft, a cutter blade rigidly secured in said yoke, a cutter support slidably mounted in said yoke, a cutter blade carried by said support designed to coact with the first said cutter, said cutter support being provided with guide members, a block slidably mounted in said guide members, a crank member for said block, said crank being a part of said shaft, means for guiding stock transversely between said cutter members, and means for yieldably engaging the upper end of said yoke so as to permit said cutter members to travel longitudinally with said stock while the said cutter members are in action.

2. In a device of the class described, a supporting frame, a shaft rotatively mounted therein, said shaft being provided with a crank portion, a speed reducing gearing mechanism for imparting rotary movement to said shaft, a yoke pivotally mounted on said shaft, a stationary cutter member carried by said yoke, a slidable support, a cutter member carried by said slidable support designed to coact with the first said cutter member, means for imparting reciprocating movement from said shaft to said slidable support, a guide rod for the free end of said yoke, a collar for limiting the movement of said yoke relative to said rod in one direction, a spring for returning said yoke to its normal position of movement, and means for guiding stock transversely between said cutter members.

3. In a device of the class described, a supporting frame, a shaft rotatively mounted in said frame having a crank, an upright yoke pivotally mounted on said shaft, a cutter blade rigidly secured to said yoke, a cutter support slidably mounted in said yoke, a cutter blade carried by said cutter support and designed to coact with the first said cutter, said cutter suport being provided with guide members on opposite sides of said crank, said crank having a block slidably mounted in said guides for operating said cutter support.

4. In a device of the class described, a supporting frame, a shaft rotatively mounted in said frame having a crank, an upright yoke pivotally mounted on said shaft, a cutter blade rigidly secured to said yoke, a cutter support slidably mounted in said yoke, a cutter blade carried by said cutter support and designed to coact with the first said cutter, said cutter support being provided with guide members on opposite sides of said crank, said crank having a block slidably mounted in said guides for operating said cutter support, and speed reducing gearing mechanism for imparting rotary movement to said shaft.

5. In a device of the class described, a supporting frame, a shaft rotatively mounted therein, said shaft being provided with a crank portion, a yoke pivotally mounted on said shaft, a stationary cutter member carried by said yoke, a slidable support carried by said yoke, a cutter member carried by said slidable support designed to coact with the first said cutter member, means for imparting reciprocating movement from said shaft to said slidable support, a guide rod for the free end of said yoke, a collar for limiting the movement of said yoke relative to said rod in one direction, and a spring for returning said yoke to its normal position of movement.

Des Moines, Iowa, November 6, 1925.

LESTER WILLIAMS.