

May 29, 1945.

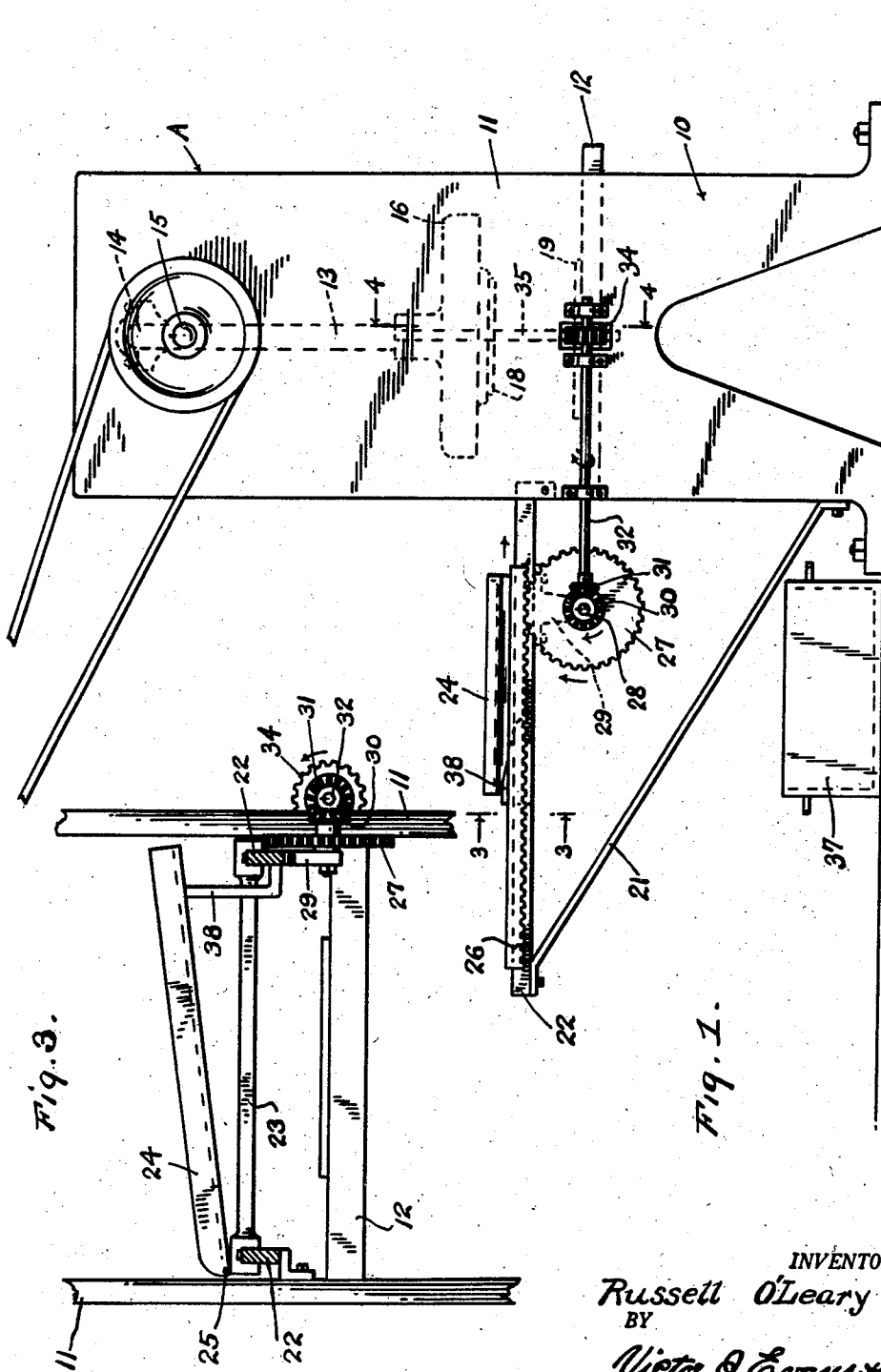
R. O'LEARY

2,377,262

AUTOMATIC BLANKING PRESS DEVICE

Filed Sept. 5, 1944

3 Sheets-Sheet 1



INVENTOR.
Russell O'Leary
BY
Victor J. Evans & Co.
ATTORNEYS

May 29, 1945.

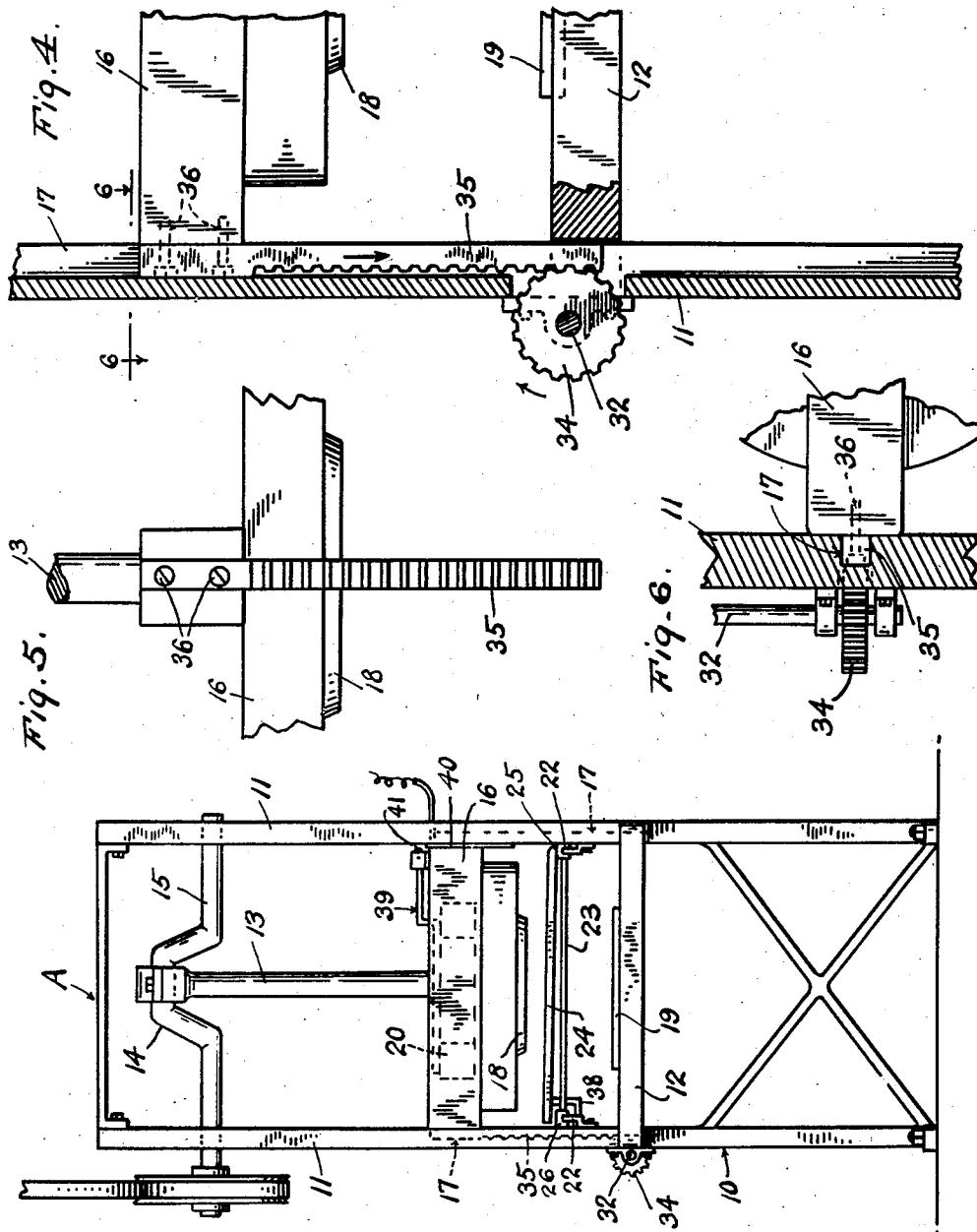
R. O'LEARY

2,377,262

AUTOMATIC BLANKING PRESS DEVICE

Filed Sept. 5, 1944

3 Sheets-Sheet 2



INVENTOR.
Russell O'Leary
BY
Victor J. Evans & Co.
ATTORNEYS

May 29, 1945.

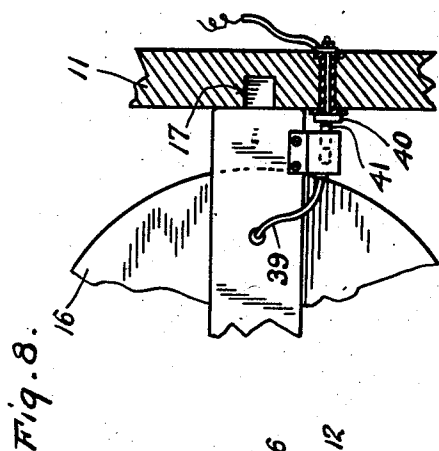
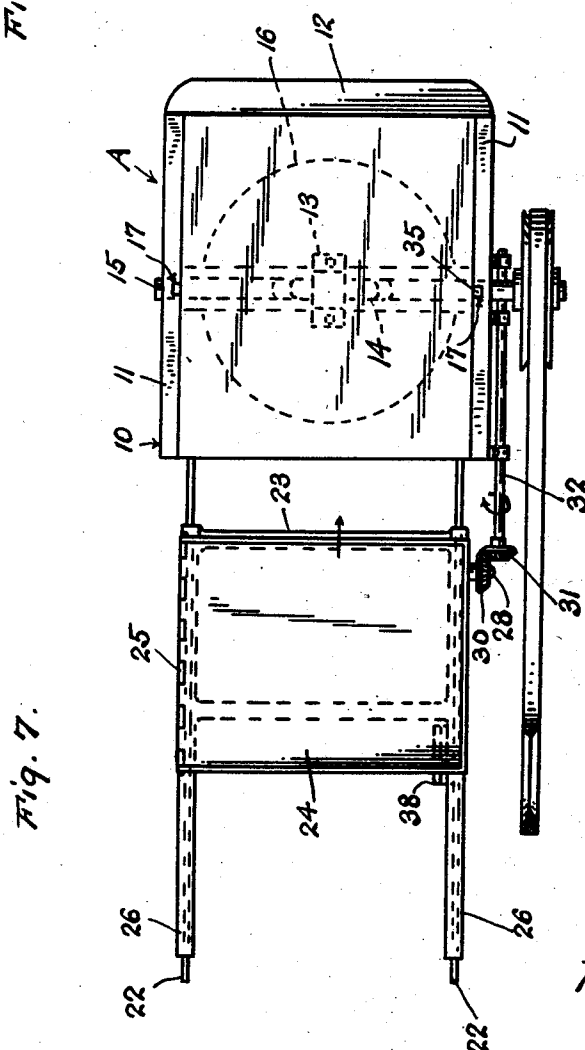
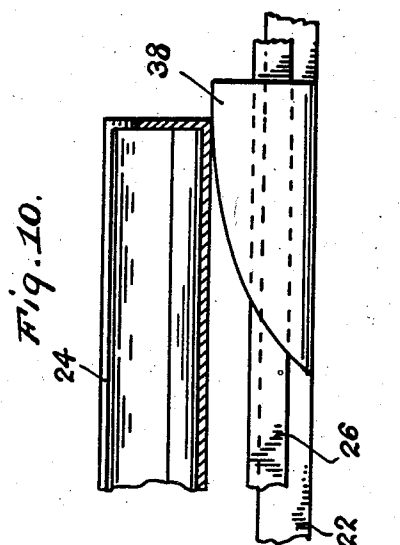
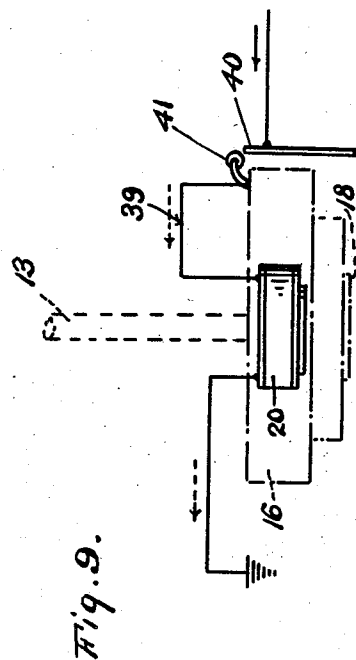
R. O'LEARY

2,377,262

AUTOMATIC BLANKING PRESS DEVICE

Filed Sept. 5, 1944

3 Sheets-Sheet 3



INVENTOR.
Russell O'Leary
BY
Victor J. Evans & Co.

UNITED STATES PATENT OFFICE

2,377,262

AUTOMATIC BLANKING PRESS DEVICE

Russell O'Leary, Wheeling, W. Va.

Application September 5, 1944, Serial No. 552,809

5 Claims. (Cl. 164—21)

The invention relates to a blanking die press, and more especially to a magnetic head and to a work removing tray for blanking presses.

The primary object of the invention is the provision of mechanism of this character, wherein its magnetic head lifts the metal blank automatically, so as to permit the tray to come into position between the dies of the press, for receiving the blank and discharging it from the press, the tray being automatically controlled, thereby eliminating the manual handling of such blanked work for its removal, the mechanism being usable for the handling of coiled or flat stock.

Another object of the invention is the provision of mechanism of this character, wherein the same is built into a blanking press, so that the blanked pieces of work will be automatically handled for the discharging thereof from the said press with dispatch, thereby eliminating manual labor in this direction, and without any interruptions in the operation of the said press.

A further object of the invention is the provision of mechanism of this character, wherein the electro-magnetic head for lifting the work operated upon by the blanking press controls automatically the tray for receiving the work and transporting thereof to a point of discharge from the said press, the mechanism being of novel construction and being unique in the assembly thereof in association with the press.

A still further object of the invention is the provision of mechanism of this character, which is simple in construction, thoroughly reliable and efficient in operation, strong, durable, entirely automatic in the working thereof.

With these and other objects in view, the invention consists in the features of construction, combination and arrangement of parts as will be hereinafter more fully described, illustrated in the accompanying drawings, which show the preferred embodiment of the invention, and pointed out in the claims hereunto appended.

In the accompanying drawings:

Figure 1 is an elevation of a blanking press showing the mechanism constructed in accordance with the invention applied thereto.

Figure 2 is a front view thereof.

Figure 3 is a sectional view taken on the line 3—3 of Figure 1 looking in the direction of the arrows.

Figure 4 is a sectional view taken on the line 4—4 of Figure 1 looking in the direction of the arrows.

Figure 5 is a fragmentary side view of the magnetic head showing the rack carried thereby.

Figure 6 is a sectional view taken on the line 6—6 of Figure 4 looking in the direction of the arrows.

Figure 7 is a top plan view of the press and mechanism associated therewith.

Figure 8 is a fragmentary horizontal section view through the frame of the press just above the magnetic head, showing in detail the electric contact plate and roller contact therefor.

Figure 9 is a diagrammatic view showing the electric circuit arrangement of the mechanism.

Figure 10 is a fragmentary enlarged side view of the tray and associate tilter therefor with relation to the tray carriage of the said mechanism.

Similar reference characters indicate corresponding parts throughout the several views in the drawings.

Referring to the drawings in detail, A designates generally a blanking press of conventional type, having a main frame 10, vertically disposed, with spaced upstanding side sections 11, having built therebetween a work bed 12 in the lower portion of such frame. This bed 12 is horizontally disposed and above the same is arranged a reciprocating ram involving a plunger 13, which at its upper end is connected to a crank 14 in a power shaft 15 suitably journaled in the sections 11 at the upper portion of the frame 10. The plunger 13 at its lower end carries an electro-magnetic head 16, which is slidably interfitted with the sections 11 at diametrically opposite points thereof, as at 17, the said head being equipped with a male-die 18, for cooperation with a female-die 19 supported by the bed 12, for blanking purposes. The electro-magnets 20 may be built in the ram or inside the male-die 18 itself, this being optional.

Laterally projected from the frame 10 in a horizontal plane slightly above the bed 12 is a trestle-work 21 supporting spaced parallel track-rails 22 on which travels a tray carrier 23 which is adapted to move between the dies 18 and 19, when separated from each other, and also is movable away from between said dies. The carriage 23 supports a work receiving tray 24 which is connected thereto at one end by hinges 25 so that such tray may tilt to one side of the trestle-work 21, as will be hereinafter described.

The carrier 23 which is in form of a carriage moves over the rails 22 under the influence of a toothed rack 26 carried at one side thereof, and this rack meshes with a rack gear 27, its stud axle 28 being journaled in a bearing 29 fixed to and depending from the trestle-work 21. The axle 28 also has fixed thereto a beveled pinion 30 which meshes with a companion gear 31 on an actuated shaft 32, which is journaled in bearings 33 mounted on one section 11 of the frame 10 of the press A. This shaft 32 has fixed thereto a gear 34, which meshes with a vertically disposed toothed rack bar 35, having its upper end secured at 36 to the ram at the magnetic head

16 of its plunger 13, so that when the ram is operated, motion therefrom will be transmitted to the carriage 23 to move the tray 24 between the dies 18 and 19, when the head 16 is raised, and on the lowering of the latter such carriage is shifted from between the dies to a point on the trestle-work 21 for the discharge of its load within the tray 24 into a receptacle 37 at one side of the said trestle work, the receptacle 37 being a depository for the finished blanked work from the press A.

Built in the trestle-work 21 in the path of the tray 24 next to the discharge point for the work is a vertically disposed tray tilting cam member 38 which tilts the tray 24 to discharge the load into a receptacle 37, and when the tray rides onto this member, the tray will be tilted for the discharge of the load therein for delivery into the receptacle 37.

The electro-magnets 20 are arranged within an electric circuit 39 which is opened and closed by a switch involving an adjustable contact plate 40 and a wiping brush or roller 41, the latter being engageable with the said plate for closing the circuit, and on disengagement therefrom the said circuit is opened, and in this manner the magnets 20 are energized and de-energized. The plate 40 is adjustably fitted to the frame 10 of the press A, while the wiping brush or roller 41 is carried on the ram at the head plunger 13 thereof, their being present in the electrical set-up the necessary insulation thereto to prevent short circuiting in the operation of the mechanism.

In the operation of the press A when the male die 18 is lifted by the ram after blanking a piece of work, on the magnets 20 becoming energized by the closing of the switch, the magnetic head 16 will attract and raise the blanked piece, and the tray 24 will be automatically brought between the dies 18 and 19, which are then separated, whereupon on the opening of the switch, this being effected on the full upward movement of the ram, the magnets 20 become de-energized, releasing the blanked piece. This released piece of work is caught in the tray 24 and when the ram travels downwardly the latter moves from between the dies 18 and 19, passing on to the trestle-work, where the tray will be tilted, for the discharge of its load, and the delivery of the latter into the receptacle 37. The material to be blanked is manually fed to the press A, or otherwise, the tilting of the tray 24 being best shown in Figure 3 of the drawings, while the position of the said tray between the dies 18 and 19 is shown in Figure 2.

The ram is operated by the power shaft 15 actuated by a pulley and belt arrangement powered in any suitable manner. The mechanism constituting the present invention is electro-mechanically controlled and is entirely automatic in the working thereof in association with the press A.

What is claimed is:

1. In mechanism for a blanking press having a ram provided with a magnetic head, of a trestle-work leading to and from beneath the head, a carriage movable over the trestle-work, an electric circuit for said magnetic head, a switch controlling the circuit and opened and closed on movement of the ram, a work receiving tray on the carriage, and means controlled by the ram for moving the carriage to bring the tray into a work receiving position and also to a position for discharging the work from the press the mag-

netic head when energized lifting the work and on deenergizing dropping the said work in the tray.

2. In mechanism for a blanking press having a ram provided with a magnetic head, of a trestle-work leading to and from beneath the head, a carriage movable over the trestle-work, an electric circuit for said magnetic head, a switch controlling the circuit and opened and closed on movement of the ram, a work receiving tray on the carriage, means controlled by the ram for moving the carriage to bring the tray into a work receiving position and also to a position for discharging the work from the press and means on the trestle-work and in the path of the tray for tilting the same to a discharging position the magnetic head when energized lifting the work and on deenergizing dropping the said work in the tray.

3. In mechanism for a blanking press having a ram provided with a magnetic head, of a trestle-work leading to and from beneath the head, a carriage movable over the trestle-work, an electric circuit for said magnetic head, a switch controlling the circuit and opened and closed on movement of the ram, a work receiving tray on the carriage, means controlled by the ram for moving the carriage to bring the tray into a work receiving position and also to a position for discharging the work from the press, means on the trestle-work and in the path of the tray for tilting the same to a discharging position and a receptacle for receiving the work from the tray when in discharging position the magnetic head when energized lifting the work and on deenergizing dropping the said work in the tray.

4. In mechanism for a blanking press having a ram provided with a magnetic head, of a trestle-work leading to and from beneath the head, a carriage movable over the trestle-work, an electric circuit for said magnetic head, a switch controlling the circuit and opened and closed on movement of the ram, a work receiving tray on the carriage, means controlled by the ram for moving the carriage to bring the tray into a work receiving position and also to a position for discharging the work from the press, means on the trestle-work and in the path of the tray for tilting the same to a discharging position and a depository for receiving the work from the tray when in discharging position, the magnetic head when energized lifting the work and on de-energizing thereof dropping the said work into the tray.

5. In mechanism for a blanking press having a ram provided with a magnetic head, of a trestle-work leading to and from beneath the head, a carriage movable over the trestle-work, an electric circuit for said magnetic head, a switch controlling the circuit and opened and closed on movement of the ram, a work receiving tray on the carriage, means controlled by the ram for moving the carriage to bring the tray into a work receiving position and also to a position for discharging the work from the press, means on the trestle-work and in the path of the tray for tilting the same to a discharging position, a depository for receiving the work from the tray when in discharging position and means connecting the tray with the carriage for the tilting movement of such tray the magnetic head when energized lifting the work and on deenergizing dropping the said work in the tray.

RUSSELL O'LEARY.