Aug. 22, 1944. M. S. EVANS ET AL 2,356,451

FEEDING DEVICE

Filed Jan. 9, 1943 3 Sheets-Sheet 1

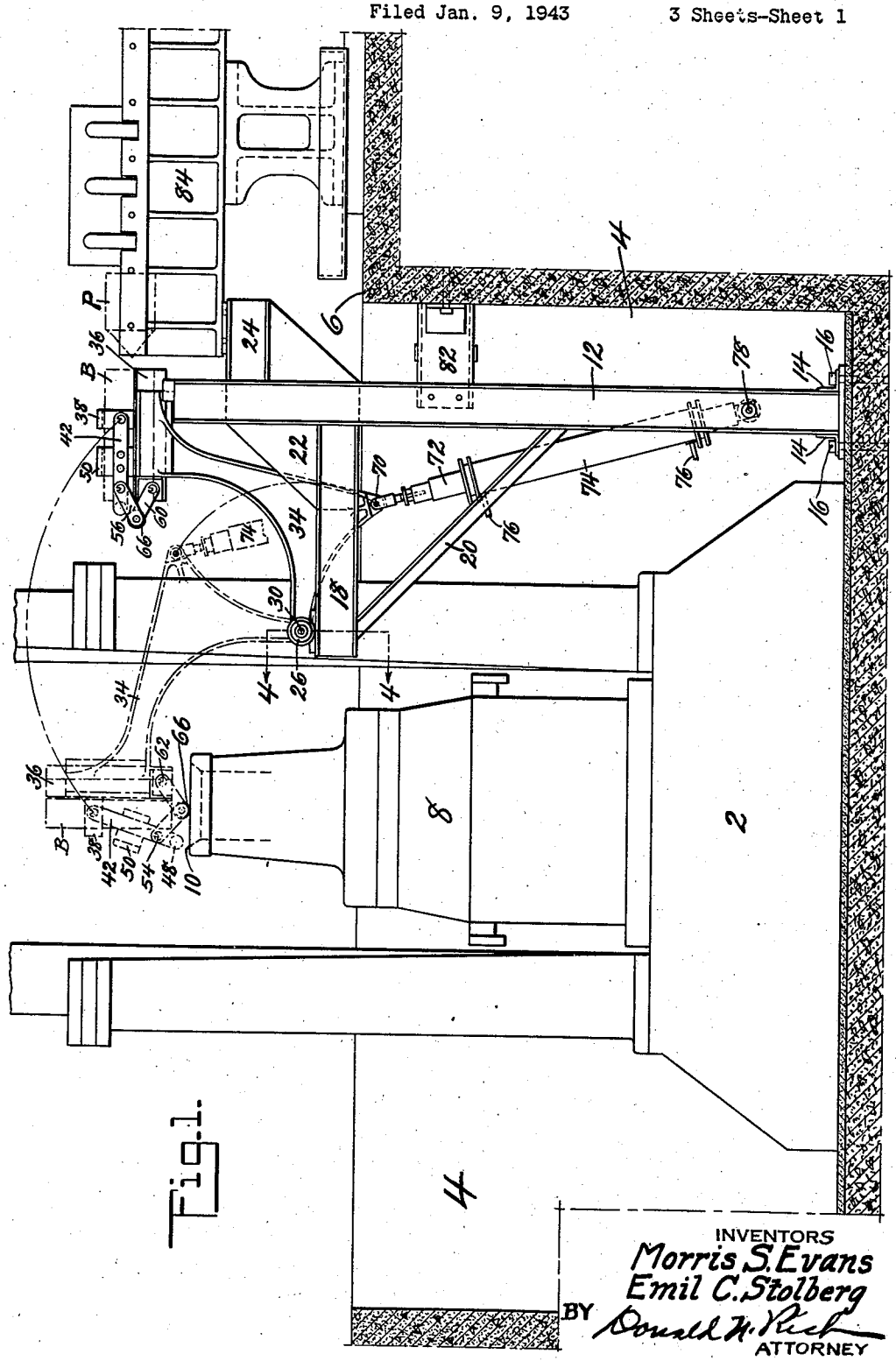


Fig. 1.

INVENTORS
Morris S. Evans
Emil C. Stolberg
BY Donald H. Rich
ATTORNEY

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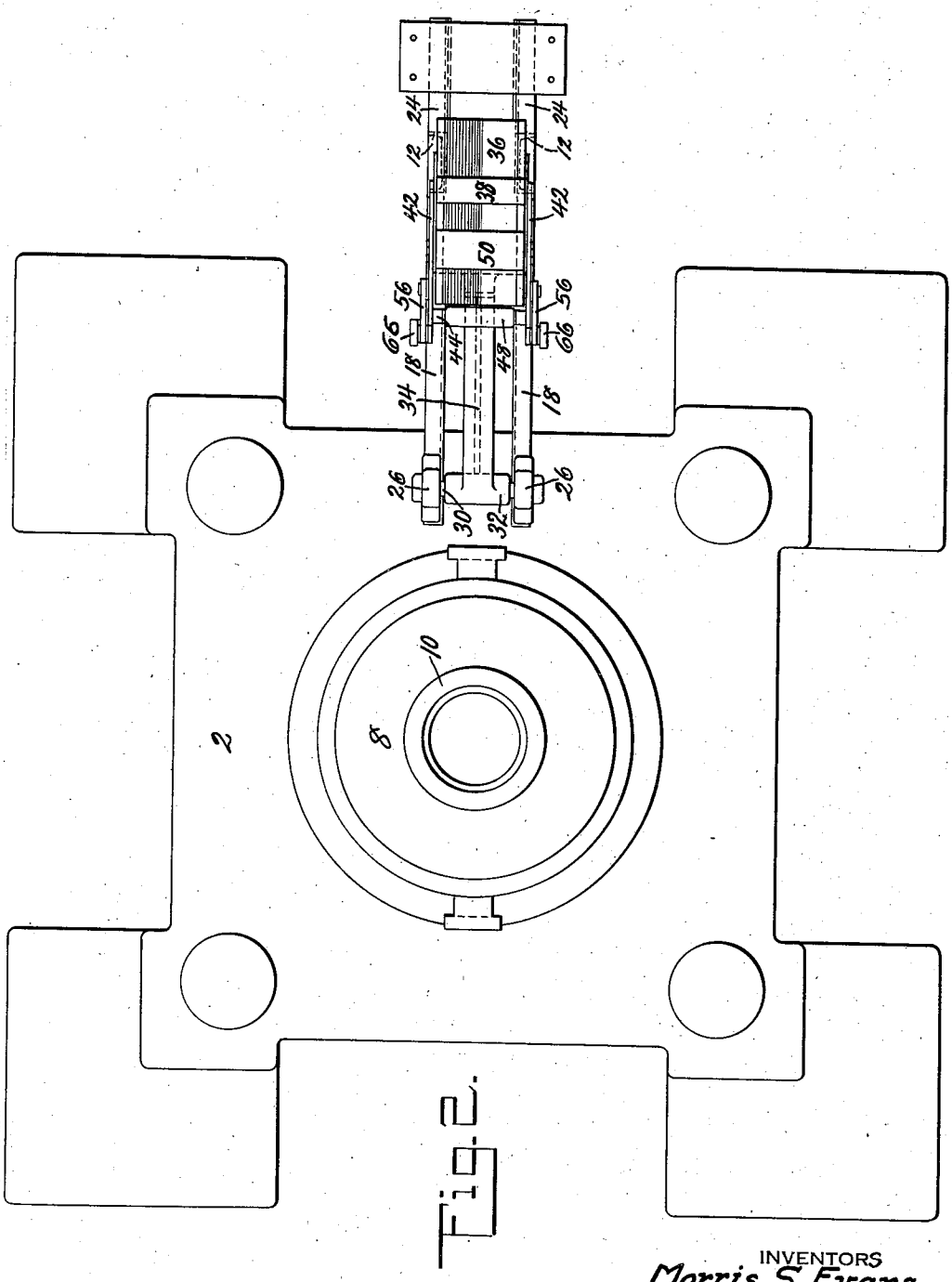


Fig. 2.

INVENTORS
Morris S. Evans
Emil C. Stolberg

BY Donald M. Rich ATTORNEY

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Fig. 6.

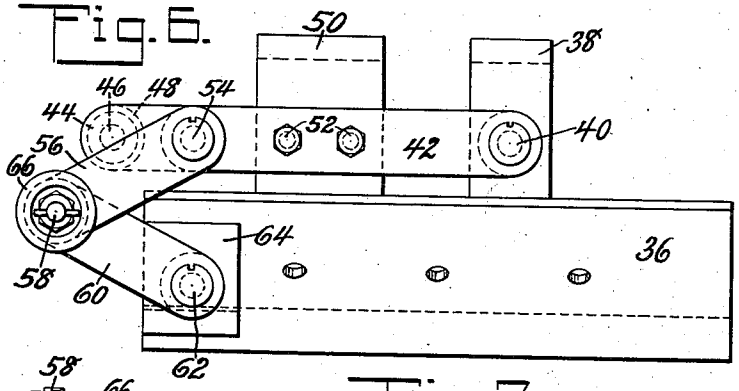


Fig. 7.

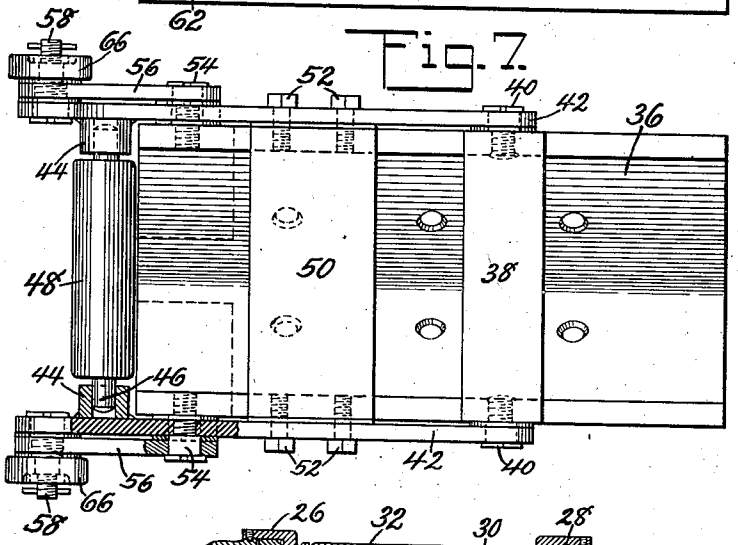


Fig. 4.

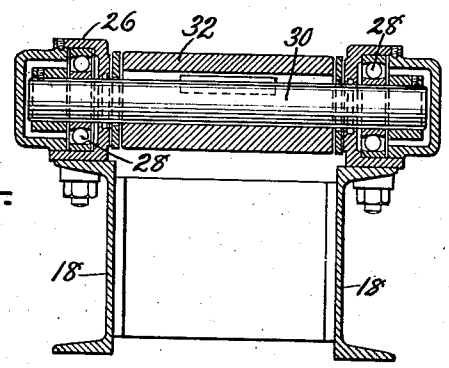


Fig. 5.

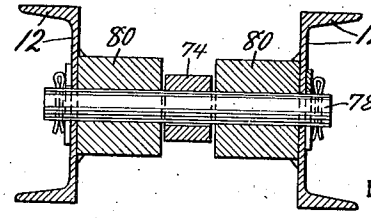
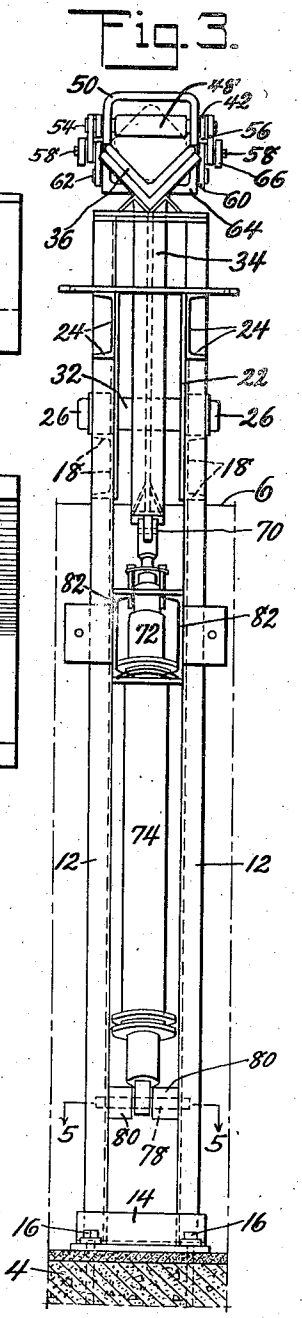


Fig. 3.



INVENTORS
Morris S. Evans
Emil C. Stolberg
BY Donald M. Rich
ATTORNEY

Patented Aug. 22, 1944 2,356,451

UNITED STATES PATENT OFFICE

2,356,451

FEEDING DEVICE

Morris S. Evans, Buffalo, N. Y., and Emil C. Stolberg, Glen Ridge, N. J., assignors to American Car and Foundry Company, New York, N. Y., a corporation of New Jersey

Application January 9, 1943, Serial No. 471,892

4 Claims. (Cl. 214—130)

This invention relates to feeding devices in general and in particular to a device for feeding hot billets from a conveyer to a die pot.

One object of the invention is the provision of a feeding device which will move the hot billet from the conveyer and discharge it into the die pot without any danger of injury to workmen.

A further object of the invention is the provision of a feeding device equipped with safety supports so arranged as to prevent accidental removal of the hot billet during transfer of the billet from the conveyer to the die pot.

A still further object of the invention is the provision of a billet feeder equipped with safety devices so arranged as to automatically discharge the billet into the die pot upon striking the die pot.

These and other objects of the invention will be apparent to persons skilled in the art from a study of the following description and accompanying drawings, in which

Figure 1 is an elevational view of the improved feeding device;

Fig. 2 is a plan view of the feeding device and associated conveyer and die pot;

Fig. 3 is an end view of the improved feeder as seen from adjacent the die pot;

Fig. 4 is a sectional view taken substantially on line 4—4 of Fig. 1;

Fig. 5 is a sectional view taken substantially on line 5—5 of Fig. 3;

Fig. 6 is an enlarged sectional view of the improved feeder head, and

Fig. 7 is a plan view of the improved feeder head.

Referring now to the drawings in detail, it will be seen that the press or other machine 2 is mounted in a pit 4 extending below the feeder floor 6. The press or other machine has mounted therein the die pot 8 having the upper lip 10 terminating above the level of the factory floor. Fastened in the pit are a pair of channels 12 joined together at their bottom ends by angles 14 which are adapted to receive bolts or other means 16 anchoring the channels to the floor of the pit. From one side of the channel form uprights comparatively long channels 18 project and these are braced by angle braces 20 as well as by gusset plates 22 extending continuously past the uprights and forming a brace for short channels 24 projecting from the opposite side of the uprights 12. The free ends of channels 18 have mounted thereon bearing blocks 26 (Fig. 4) adapted to receive roller bearings 28. These bearings support a cross shaft 30 which in turn passes through and supports an eye 32 of a swinging arm 34. As clearly shown, this swinging arm is of general Y formation having one end pivotally mounted upon shaft 30 as just described and another arm shaped to have secured thereto a billet receiving head 36. This billet receiving head is preferably formed of an angle with the apex directed downwardly, thus presenting a V cross section as clearly shown in Fig. 3. The top edges of the V shaped billet receiving head are joined together by an inverted U-shaped strap 38 welded or otherwise secured to the legs of the angle 36. The strap 38 is provided with openings to receive short pins 40 upon which are pivotally mounted links 42. The free ends of the links 42 are provided with cups 44 in which are mounted the ends of a shaft 46 carrying a roller cross tie 48. Intermediate portions of the links 42 are joined together by an inverted U shaped strap 50 secured to the links by any suitable means such as stud bolts 52. Other intermediate portions of the links 42 are adapted to receive short pins 54 upon which are pivotally mounted short links 56. These short links are in turn pivotally connected as at 58 to other short links 60 having their free ends pivotally mounted as at 62 on angle brackets 64 welded or otherwise secured to the angle form feeder head. The pivotal connection 58 is preferably extended and has mounted thereon rollers 66, which rollers are adapted to strike and move along the upper edge 10 of the die pot as clearly shown in line and dash of Fig. 1.

The third leg of the generally Y shaped arm 34 is pivotally connected as at 70 to the upper end of a piston 72 sliding in cylinder 74 under action of fluid pressure fed through pipes 76 (Fig. 1). The lower end of the cylinder 74 is pivotally mounted upon a shaft 78 carried by the upright channels 12 and by spacing blocks 80 (Figs. 3 and 5) welded or otherwise secured to the channels. Thus it will be seen that actuation of the piston will cause swinging of the arm 34 around its pivot shaft 30.

The uprights 12 are held in position by their bottom connection as well as by a pit wall brace 82 (Fig. 1) and by connection of short channels 24 to the conveyer structure 84 which in turn is supported on and connected to the factory floor. The conveyer may be of any desired form but is preferably of the roller type in which the billet B, indicated by line and dash in Fig. 1, is pushed into position in the feeder head by a pusher P, also indicated by line and dash.

In operation the parts will normally be in their full line position shown in Fig. 1, with the feeder head in substantially horizontal position and the links in the position shown with the cross tie roller **48** blocking the end of the feeder head. With the parts in this position the pusher P will feed a billet B into the feeder head which, together with strap **38**, will substantially encircle the billet. Application of power to the cylinder will cause swinging of the arm **34** to the line and dash positions of Fig. 1. During this swinging the strap **38** will prevent the billet being thrown out of the feeder head, while roller cross tie **48** will prevent the sliding of the billet out of the feeder head in a lengthwise direction. When the feeder head has reached a substantially vertical position the rollers **66** will strike upon the upper edge of the die pot and force the pivotal connection of links **56** and **60** upward, thereby moving the links and causing the pivot connections **54** and **62** to spread. Separation of these pivotal connecting points will swing links **42** about their pivots **40** and move the roller cross tie **48** out of contact with the end of the billet. As soon as the roller cross tie **48** clears the end of the billet it may immediately fall vertically into the die pot. Motive power may then be fed to the cylinder and the swinging arm with its billet receiving head returned from the line and dash position of Fig. 1 to the full line position in which it is ready to receive another billet. During return of the arm the links and connecting strap **50** will by gravity return to their billet blocking position as shown in Figs. 1 and 6. While the invention has been described more or less in detail, it will be obvious to persons skilled in the art that various modifications and rearrangements of parts other than those shown and described may be made and all such modifications and rearrangements of parts are contemplated as will fall within the scope of the appended claims defining our invention.

What is claimed is:

1. In a feeding device for transferring hot billets or like objects from a conveyer to a die pot, the combination of a swinging arm pivotally mounted adjacent the die pot, an object receiving head mounted on said arm and normally resting in a substantially horizontal position to receive objects from the conveyer and movable with said arm to a substantially vertical object discharging position, a strap secured to said head and together with the head encircling the object to prevent the object being thrown out of the head during swinging of the arm, links pivotally connected to said strap and head and projecting beyond one end of said head and joined together by a cross tie blocking movement of the object out of the head, said links being so constructed and arranged as to strike said die pot and move said cross tie out of object blocking position when said head is in substantially vertical position over the die pot.

2. In a feeding device for transferring hot billets from a conveyer to a die pot, the combination of a swinging arm pivotally mounted adjacent the die pot, an elongated V shaped billet receiving head mounted on said arm and normally resting in a substantially horizontal billet receiving position and swingable by said arm to a substantially vertical billet discharging position over the die pot, power means to swing said arm between said positions, an inverted U shaped strap secured to the legs of the V shaped head and preventing the billet being thrown out of the head during swinging of the arm, a plurality of links pivoted together and pivotally connected to said strap and V shaped head, and a roller cross tie joining certain of said links together and normally blocking the movement of the billet out of the head in a lengthwise direction, certain of said links projecting beyond said head and in position to strike said die pot and move the roller cross tie out of billet blocking position when said head is in said substantially vertical position over the die pot.

3. In a feeding device for transferring hot billets or like objects from a conveyer to a die pot, the combination of a swinging arm pivotally mounted adjacent the die pot, an object receiving head mounted on said arm and normally resting in a first position to receive objects from the conveyer and movable with said arm to a second object discharging position, links pivotally connected to said head and projecting beyond one end thereof, a cross tie connecting said links together adjacent their projecting ends and blocking movement of the object out of the head, and means connected to said links and head and adapted to strike said die pot and move said cross tie out of object blocking position when said head is in said second object discharging position over the die pot.

4. In a feeding device for transferring hot billets from a conveyer to a die pot, the combination of a swinging arm pivotally mounted adjacent the die pot, a billet receiving head mounted on said arm and normally resting in a first or billet receiving position to receive a billet from the conveyer and swingable by said arm to a second or billet discharging position over the die pot, power means to swing said arm between said positions, a strap secured to said receiving head and preventing the billet being thrown out of the head during swinging of the arm, a first pair of links pivotally mounted on said strap and having their free ends projecting beyond an end of said head, a roller cross tie carried by the free ends of said links and normally blocking the movement of the billet out of the head in a lengthwise direction, a second pair of links pivotally connected together and to said head and first pair of links, and antifriction means carried by said second pair of links adjacent their common pivotal connection, said antifriction means projecting beyond said head in postiion to strike said die pot and move all of said links whereby the roller cross tie is moved out of billet blocking position when said head is in the second or billet discharging position over the die pot.

MORRIS S. EVANS.
EMIL C. STOLBERG.