Sept. 12, 1939. F. J. MINKEL 2,173,077

STACKING FIXTURE FOR PRESSES

Filed May 24, 1938 2 Sheets-Sheet 1

Fig. 1

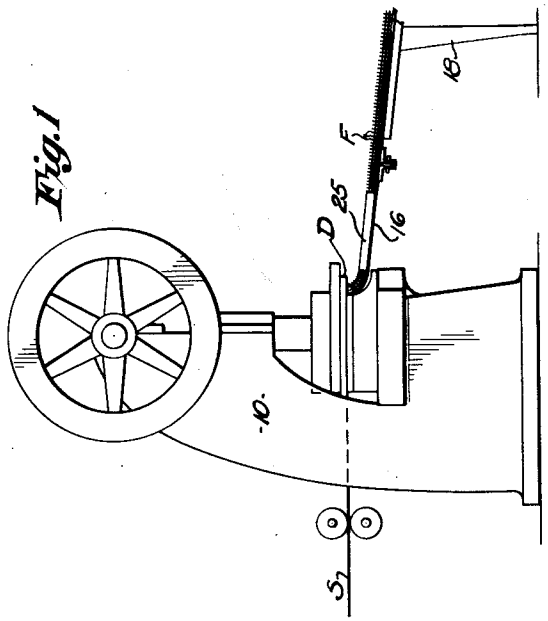


Fig. 6

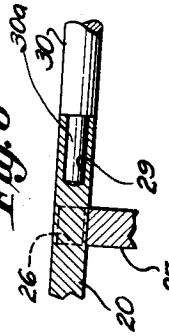


Fig. 5

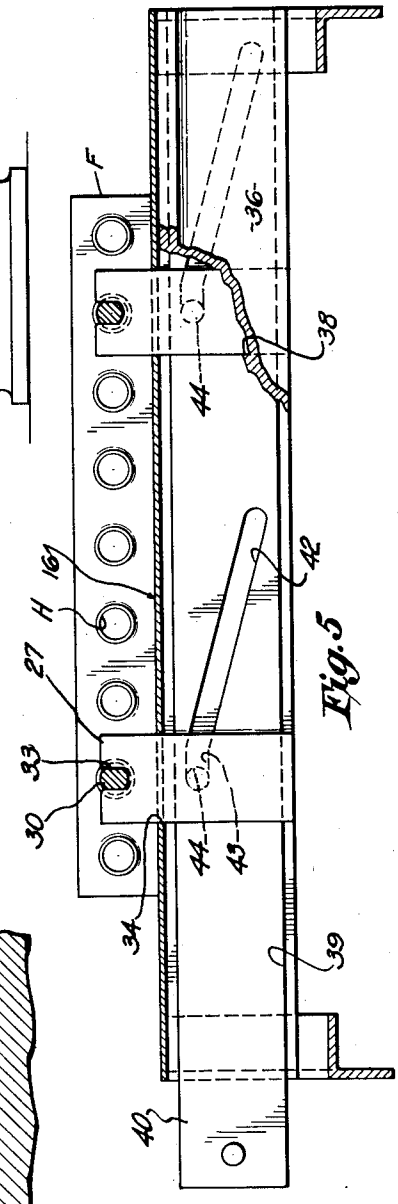
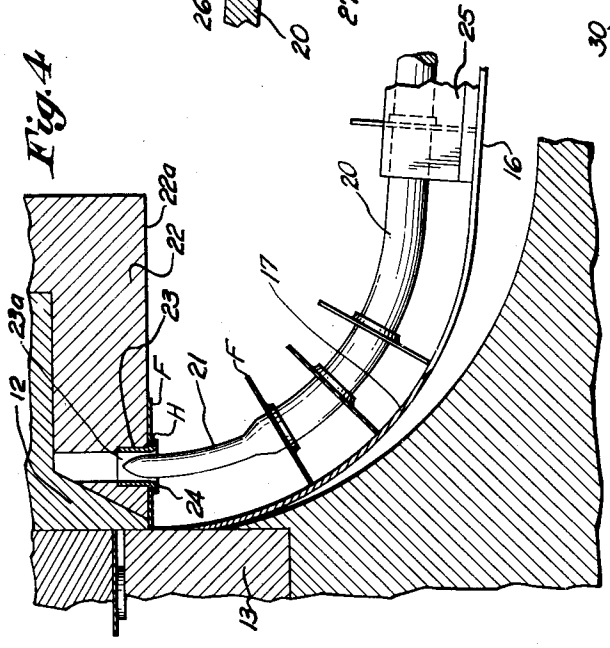


Fig. 4



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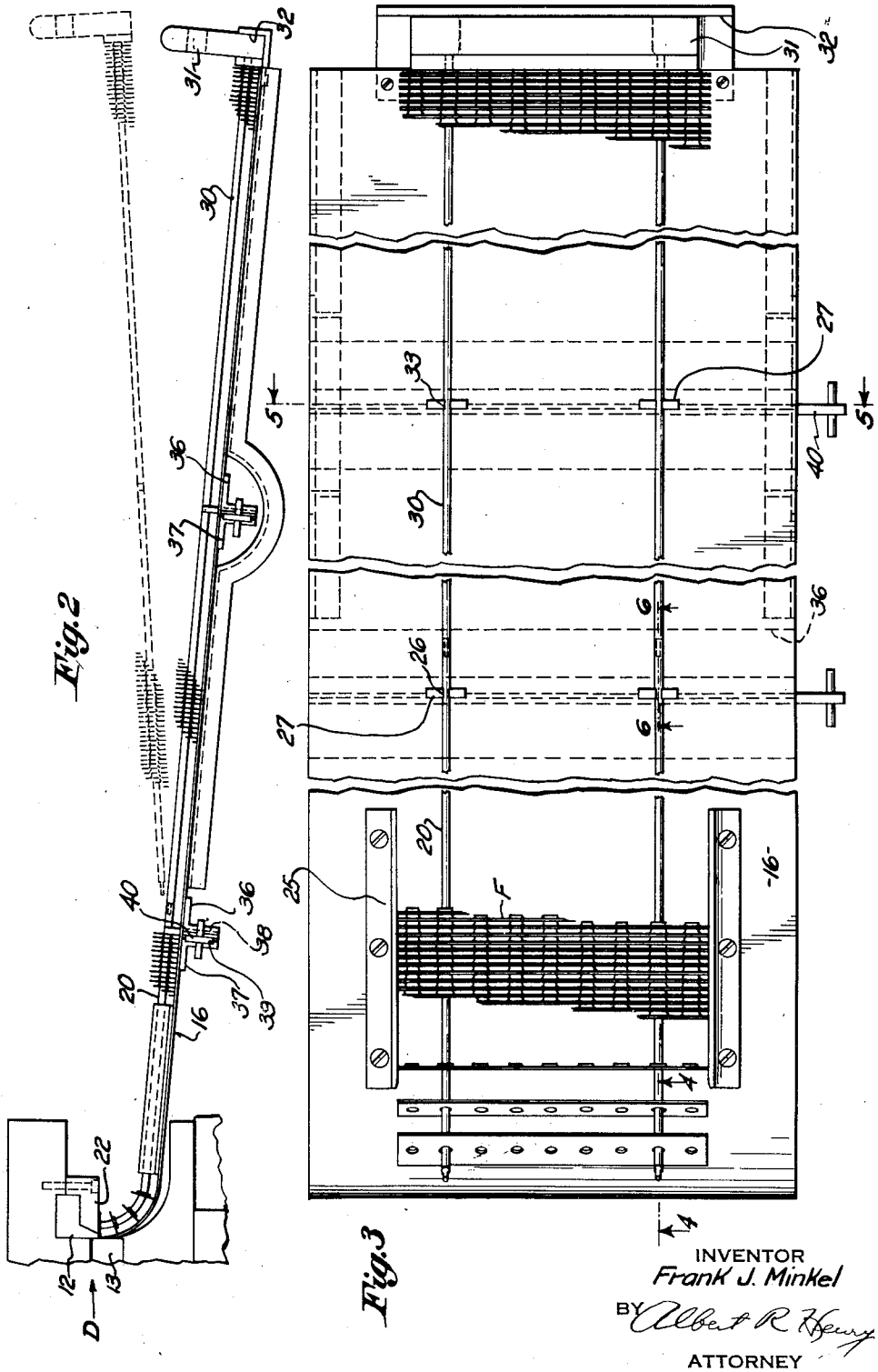


Fig. 2

Fig. 3

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STACKING FIXTURE FOR PRESSES

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Application May 24, 1938, Serial No. 209,750

5 Claims. (Cl. 113—1)

This invention relates to stacking or receiving fixtures for use with high speed presses.

In many production lines it is greatly advantageous that stampings be delivered from high speed presses in orderly array, so that subsequent operations may be performed without the necessity of an additional arrangement operation. Die and press design often interferes with the provision of dependable stackers, and, especially in cases where the work is sheared rather than blanked, difficulty arises in capturing the blanks in orderly fashion.

In the present invention there is provided a stacking fixture which may be applied to the delivery end of a press without the necessity of altering the bolster or ram of the press, and with but slight alteration to the die structure. The fixture is devised to receive the blanks as they leave the dies, and with the aid of the weight of the blanks and the delivery impulse of the dies, to deliver the blanks into a removable magazine.

In the drawings:

Fig. 1 is an elevation of a press adapted for continuous operation and having the stacking fixture of the invention applied thereto;

Fig. 2 is a side elevation of the fixture on an enlarged scale;

Fig. 3 is a top view thereof;

Fig. 4 is a section on the line 4—4 of Fig. 3 on a further enlarged scale;

Fig. 5 is an enlarged cross section on the line 5—5 of Fig. 3; and

Fig. 6 is an enlarged section on the line 6—6 of Fig. 3.

For purposes of illustration, the stacking fixture is shown organized with a press 10 containing a die unit D which forms fins F out of strip material S. In the enlarged view (Fig. 4) there is shown a shear portion of the die unit which consists of blocks 12 and 13, the former of which is carried by the ram of the press and is movable therewith. The sheet material is formed with flanged holes H in the die unit, and, as it intermittently emerges therefrom it is sheared by the blocks into fins F. Since this type of press operation is extremely well known in the art, a more detailed description thereof is not deemed necessary.

The fixture is disposed on the delivery side of the press P to receive the fins F from the blocks 12 and 13 and to stack the fins so that they may be periodically conveyed to assembling machines or other destination in orderly arrangement. The fixture includes an angularly disposed table 16 which is formed with an arcuate end portion 17 disposed beneath the shear blocks and supported by the press. The remaining end of the table is supported on suitable pedestals 18.

A pair of rods 20 is carried in parallel relation to the table, and they have curved terminals 21 which are pointed and reduced in diameter. The rods are spaced so that the terminals directly underlie two of the fin holes of the portion of the sheet material which projects from the dies. As the press closes and this portion is sheared off by the blocks 12, 13, it is also thrust downward to engage upon the rods 20. The upper shear block 12 has a plate 22 attached to it, and its lower face 22a acts as a thrust surface for engaging the fins F. This member carries spaced pilots or bushings 23 which are formed with projecting shoulder portions 24 which enter the flanged holes of the fin to anchor it against lateral displacement during the shearing operation. The bores 23a of the bushings receive the pointed ends of the rod terminals 21 during each stroke of the press.

As the fins slide down the rods they are guided between rails 25 which are secured to the surface of the table (Fig. 3). The rods 20 are flattened near their right hand extremity, and such flattened portions 26 are received in slotted yokes 27 which thus position the rods against either axial or rotary movement. A second pair of rods 30 is formed with shouldered terminals 30a which fit in sockets 29 in the rods 20 to provide a detachable joint structure. The right hand extremities of the rods 30 are secured to a handle 31 which in turn is supported against a shoulder 32 on the table 16. The central portions of the rods 30 are formed with flattened portions 33, as in the case of the rods 20, and they are received in a second pair of notched yokes 27.

Each pair of yokes 27 projects vertically through openings 34 in the table 16, and the yokes extend between spaced transverse angles 36, 37 which are secured to the bottom of the table (Figs. 2 and 5). One angle 36 of each pair is vertically notched, as indicated by the numeral 38, to provide vertical guides for the yokes 27, while the other angle is shouldered for its entire length to provide a transverse guide 39 for a cam strap 40. Each cam strap contains angular cam slots 42 which terminate in a horizontal dwell portion 43. The yokes 27 each carry a pin 44 which engages in a cam slot.

Referring to Fig. 5, it will be seen that when the cam straps 40 are moved to their extreme retracted position, the pins 44 of the yokes 27 engage in the dwell portions 43 of the cam slots,

and thus the yokes are locked in their normal elevated position.

During the operation of the press, the fins are intermittently applied to the rods **20**, and, as they slide down the curved terminals **21** thereof, they are guided against lateral displacement by engaging between the rails **25**. When the section of the table between the press and the first set of yokes becomes filled with fins, the first pair of yokes is lowered by moving the cam strap **40** outward to permit the fins to be moved to the next section of the table. The yokes are then restored and the operation of the press resumed to refill the first section of the table, whereupon both pairs of yokes are retracted and a majority of the fins are moved onto the rods **30**. The operator then removes the rods **30** and the fins thereon by lifting the handle **31** from its supporting shoulder **32** (dotted lines Fig. 2) and detaching the rods **30** from the rods **20**. The rods **30** and attached handle **31** thus serve as a removable magazine wherein groups of fins are periodically removed from the press table. A number of such magazines or rod units may be supplied, so that as filled magazines are removed an empty magazine may be fitted in place to permit immediate resumption of press operation.

It is not intended that the invention be construed as being limited to use with fins or stampings of the general shape of the fins herein illustrated, as it will be obvious to those skilled in the art that the rod type of stacking fixture may be modified in form to receive various types and shapes of perforate stampings without departing from the inventive concept.

I claim:

1. The combination with a press for producing perforate blanks, of a stacking fixture comprising a table having one end disposed on the press adjacent the delivery end thereof, a rod, means on the table for supporting the rod at spaced intervals, said rod having a terminal portion disposed to receive blanks from the press, said supporting means being removable through said table to permit the blanks to be moved along said rod.

2. The combination with a press for producing perforate blanks, of a stacking fixture comprising a table having one end secured to the press, a pair of rods having bent terminal portions entering the delivery end of the press, yokes extending through the table and adapted to support the rods in parallelism to the table, a mechanism on the table connected to the yokes and operable to lower the yokes and thereby to leave the table unobstructed for the passage of fins along said rods, and means associated with the press for engaging the blanks and directing them onto the terminals of said rods.

3. The combination with a press having die means for producing perforate blanks and including a shearing die, of a stacking fixture comprising a table having one end secured to the press, a pair of rods having bent terminal portions entering the delivery end of the press, means on the table for supporting the rods in parallelism to the table, a plate secured to movable portions of the press adjacent the shearing die, said plate having tubular pilots for engaging perforate portions of the blanks during the shearing operation, said pilots during each stroke of the press engaging over the terminals of the rods to deliver a blank thereto.

4. The combination with a press for producing perforate blanks, of a stacking fixture comprising a table having one end secured to the press, a pair of rods having at one end bent terminals entering the delivery end of the press and being connected to a handle at their opposite ends, said rods being each formed of two jointed sections, said sections of the rods secured to the handle constituting a removable magazine, means on the table for supporting the rod sections, and a socket on the table for removably receiving said handle.

5. The combination with a press for producing perforate blanks, of a stacking fixture comprising a table having one end secured to the press, a pair of rods having bent terminal portions entering the delivery end of the press, means on the table for supporting the rods in parallelism to said table, a magazine comprising a second pair of rods removably joined at one extremity to the first rods and connected to a handle at their opposite extremity, means on the table for removably receiving the handle of the magazine, and means associated with the press for engaging the blanks and directing them onto the terminals of said first rods.

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