

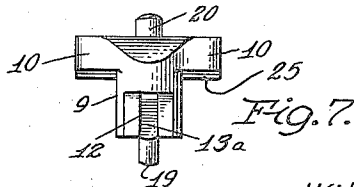
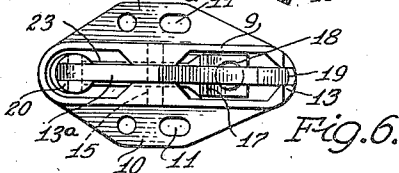
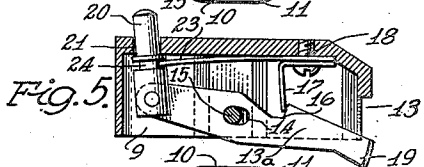
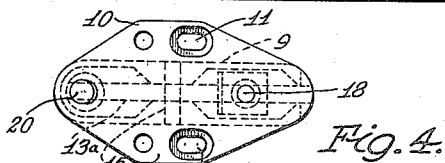
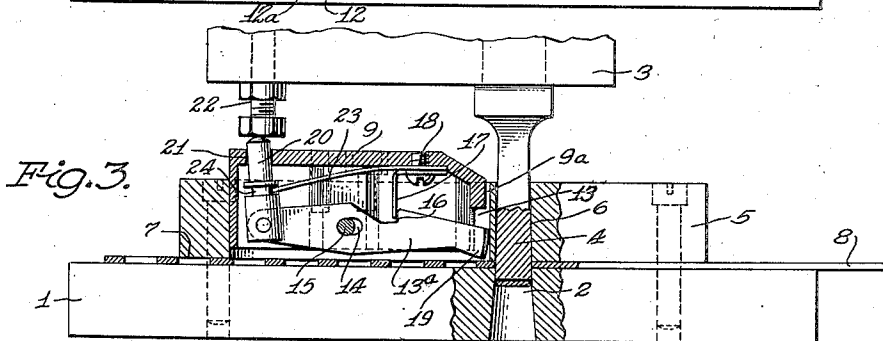
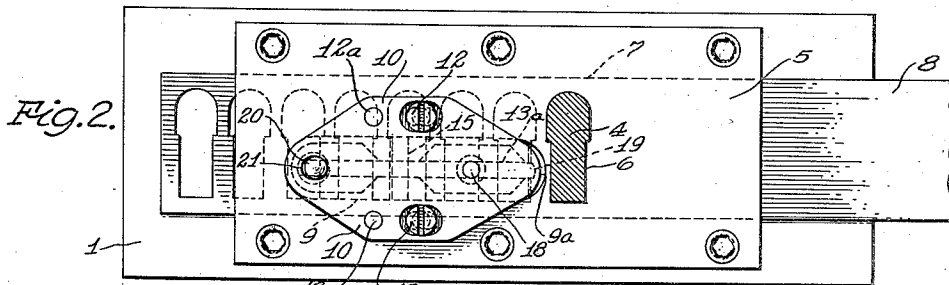
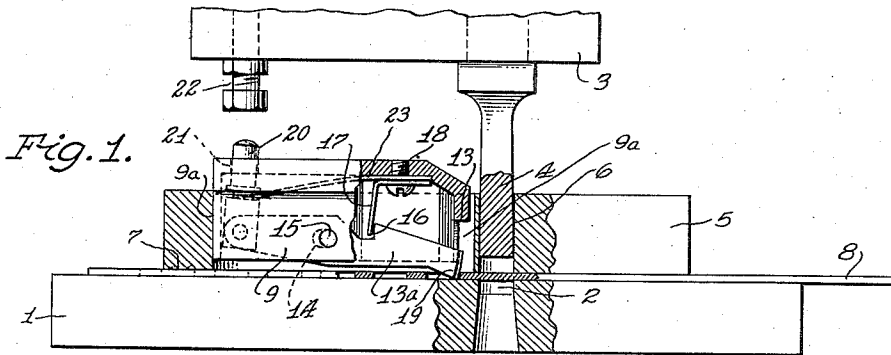
Oct. 27, 1936.

W. MELIN

2,059,010

STOCK STOP DEVICE FOR PRESSES

Filed Sept. 28, 1934



INVENTOR

William Melin,

BY

Carthel & Carthel

ATTORNEYS

UNITED STATES PATENT OFFICE

2,059,010

STOCK STOP DEVICE FOR PRESSES

William Melin, Detroit, Mich.

Application September 28, 1934, Serial No. 745,928

1 Claim. (Cl. 164—88)

The present invention pertains to a novel stop device for dies such as are used on punch presses for controlling the feeding action of stock as it is fed through the die, or in other words, means for positioning the stock for each successive working stroke of a press so that openings cut into the stock will be uniformly spaced a predetermined distance apart.

The primary object of the present invention is to provide a latch mechanism or trigger device for engaging stock as it passes through a punch press, the mechanism being so arranged that it definitely positions the stock for each successive stroke of the press and is thereupon retracted from engagement with the stock by the working stroke of the punch so that the stock is free to move into position for the next successive stroke. In performing this function it is another object of the invention to provide a latch device including means for preventing the latch from engaging the stock at the same place from which it was retracted when the punch, which retracted the latch by its down stroke, is travelling in its upward stroke.

Another object is to provide a latch mechanism as a unitary assembly so that it may be easily assembled on a die in correct, operative position.

With the above and other ends in view the invention is more fully disclosed with reference to the accompanying drawing, in which

Figure 1 is a vertical cross section of a die with my improved latch mechanism operatively connected thereto;

Fig. 2 is a plan of a die and stripper with the present mechanism assembled thereon;

Fig. 3 is a vertical cross section illustrating another stage of operation;

Fig. 4 is a top plan of the latch unit removed from the press;

Fig. 5 is a transverse cross section thereof;

Fig. 6 is a bottom plan, and

Fig. 7 is an end elevation.

With reference to the drawing the numeral 1 designates a die block having an opening 2 conforming in shape to that of the part to be cut or stamped from stock in a manner to be described. The movable top section 3 of the die is provided with a punch 4 which accurately fits in the die opening 2. Mounted on the die block 1 is a stripper plate 5 having an opening 6 for the punch 4 and a groove 7 serving to guide stock 8 and maintain it in alignment with the die opening 2 as the stock is fed along.

The above described mechanism is shown as an example of a die assembly which is well known

to those versed in this particular art. It constitutes a simple conventional cutting or blanking die for cutting or punching flat pieces or blanks from a strip of stock and comprises a type of die with which the invention to be described has special utility. The mechanism which is associated with the press for moving the ram upwardly and downwardly in successive strokes and the mechanism for feeding the stock through the die has not been illustrated here because it is also well known in the art and forms no part of the present invention.

The stripper plate 5 is provided with an aperture 9a in which the latch or trigger stop housing 9 is received, the housing being provided with laterally extending lugs 10 having slots 11 through which fastening screws 12 are passed to enter the stripper plate. As shown in Figs. 1 and 3 the aperture 9a is formed of greater length than the housing 9 so that a small amount of lengthwise adjustment movement of the housing may take place when the fastening screws 12 are loosened, it being obvious that the slots 11 permit such movement to take place before the screws 12 are tightened. When properly located, the housing is then dowelled at 12a.

The housing 9 is provided with an open end 13 through which a rocker arm 13a extends. The latch element 13a is provided with an elongate slot 14 intermediate its ends through which a pin 15 extends. The pin 15 is firmly mounted in the housing 9 and serves as a fulcrum for the latch element 13 and it is obvious that the elongation of the slot permits a limited amount of lengthwise movement of the latch element as well as pivotal movement thereof, the length of the slot determining the amount of lengthwise movement. Formed on the latch element 13a is a shoulder 16 which is engaged by a spring 17, the latter being secured as at 18 to the housing 9 and functioning to resiliently urge the latch member to a position where one end of the slot 14 engages the pin 15 and cooperating with the spring 23 in engagement with the groove 24 for resiliently urging outward pivotal movement of the latch element. In the absence of any external pressure the spring 17 moves the latch element to a position where its forward end 19 is depressed to a position outwardly of the housing 9. On the other end of the latch element is pivotally mounted a stem 20 which extends upwardly through an opening 21 in the housing 9 to be engaged by an adjustable tappet 22 carried by the movable section 3 of the die.

In operation, the stock 8 is fed into the press

and as the die section 3 descends the punch 4, by a shearing action, cuts through the stock as it enters the die opening 2, leaving an opening in the stock. After the die section 3 ascends, the forward end of the latch element 13a is projected by the spring 17 into the opening thus formed in the stock 8 and as the stock feeding movement is continued the side wall of the opening strikes against the end of the latch element. Further feeding movement of the stock causes the latch element to shift lengthwise against the opposition of spring 17, until the end of slot 14 engages the pin 15, at which time the stock is positively held against further movement, this stage of the operation being shown in Fig. 1. As the movable die section 3 descends the tappet 22 strikes the stem 20, causing the latch member 13 to pivot from the position shown in Fig. 1 to that shown in Fig. 3, in which position the forward end 19 is retracted from the opening in the stock and the spring 17 functions to move the latch element toward the punch 4 so that the end 19 is moved out of alignment with the said opening. As the die section 3 again ascends the end 19 rides along the top surface of the stock as the stock is again advanced through the press and the same operation is repeated in connection with each successive opening cut into the stock by successive operations of the die.

By providing a housing adjustable temporarily by the screws 12 and then permanently or fixedly by the dowels 12a it becomes possible to construct a latch mechanism as a unitary device which may be sold in assembly as distinguished from present practice of assembling various parts on a die at the time of setting up a machine.

Further, the use of the lugs 10 as provided herein renders it feasible to adjust the height of the housing 9 by means of shims 25.

Although a specific embodiment of the present invention has been shown and described in combination with a specific type of press it will be understood that various changes may be made within the scope of the appended claim without departing from the spirit of the invention, and such changes are contemplated.

What I claim is:—

In combination with the stripper plate of a die having an elongated opening therethrough and holes adjacent said opening, a latch mechanism comprising a housing having smaller longitudinal dimension than said opening for insertion thereto, lugs extending laterally from said housing and having elongated openings therethrough for placement over the holes in said plate whereby temporary holding means may be inserted therethrough, and dowel means fixedly positioning said housing in said opening after accurate adjustment thereof, said housing having a pin fixedly mounted therein, a rocker arm mounted on said pin in loose longitudinal engagement therewith for endwise sliding movement, a trip pin mounted on one end of said rocker arm and extending outwardly through the top of said housing for actuation, and a stock engaging means on the other end of said rocker arm extensible through the bottom of said housing for metering the stock fed beneath said stripper plate.

WILLIAM MELIN.