Oct. 11, 1932. C. E. NELSON 1,881,868

MAGAZINING DEVICE

Filed Dec. 10, 1928

Fig. 1.

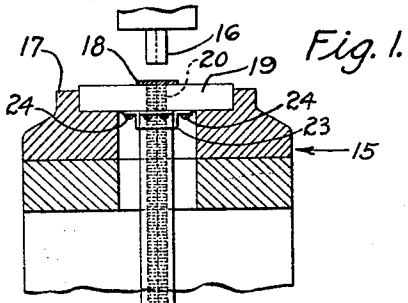


Fig. 2.

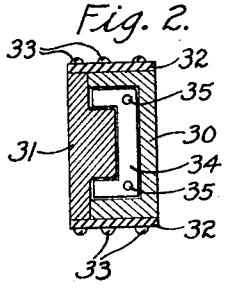


Fig. 5.

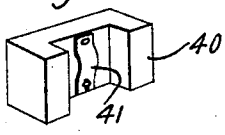


Fig. 3.

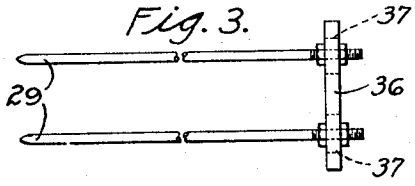
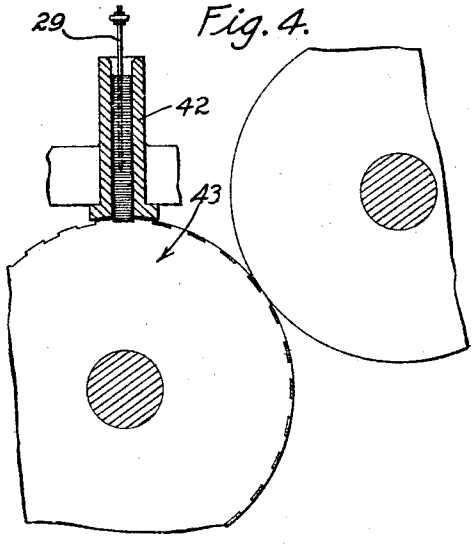


Fig. 4.



Inventor
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1,881,868

UNITED STATES PATENT OFFICE

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MAGAZINING DEVICE

Application filed December 10, 1928. Serial No. 325,113.

This invention relates to a magazining device, and more particularly to a magazining attachment for a blank forming machine.

It has been the practice in many instances in the past when forming blanks from a strip of material by a severing machine, such as a punch press, to promiscuously drop the severed blanks from the machine into a receptacle, and then separate and stack the blanks by hand for future operations. Obviously a device which will stack the blanks at the time that they are formed will produce a considerable saving in obviating the hand stacking.

The object of this invention is to provide a simple and inexpensive device for stacking blanks at the time that they are formed.

In accordance with the general features of the invention there is provided a chute which abuts against the die of a punch press and conducts blanks punched therethrough away in an orderly fashion into engagement with stacking rods for stringing the blanks. The cross section of the chute conforms substantially to that of the blanks in order to align the blanks in a stacked formation, and means are connected to the chute for preserving this order.

A clear understanding of the invention will be had from the following description of one specific embodiment thereof when taken in connection with the accompanying drawing, wherein

Fig. 1 is an elevational view of the apparatus as used with a punch press:

Fig 2 is a sectional view of the apparatus taken on line 2—2 of Fig. 1;

Fig. 3 is a detail view of the stacking rods;

Fig. 4 is a view showing how the stacking rods are used after they are filled, and

Fig. 5 is a detail view of a retarding block.

Referring now to the drawing in which like numerals designate similar parts throughout the several views, there is disclosed an ordinary punch press 15 which is one of a number of part or blank forming machines with which the improved magazining structure may be used. The press 15 possesses the familiar essential components of a punch press, consisting of a punch 16, a counter 17 for supporting a sheet of stock 18, and a die 19 having an aperture 20 through which the punch forces a portion of the stock 18 to form blanks therefrom.

The improved magazining or stacking structure comprises a chute 22 which is connected by brackets 23 and screws 24 to the bottom of the die 19. This chute provides an inner passageway or guideway 25 which conforms in cross section to the outline of the die aperture 20, and the brackets 23 position the chute 22 so that the passageway 25 cooperates with the die aperture 20 and receives the punched blanks in the same position in which they are blanked, without allowing them to be turned around or about themselves. Thus, it is to be understood that the passageway 25 is designed to conduct the successively punched blanks away from the die 19 in an orderly fashion and to align them in a stacked formation, as will appear more fully below.

The chute 22 curves outwardly at its lower end and is connected to a table 26 by a band 38, and this table has a top 27 which is adapted to engage the blanks and conduct them therealong as they leave the end of the chute. Springs 28 are attached to the end of the chute for resiliently engaging the formed parts and preventing them from moving out of the chute too rapidly, as further noted below. On top of the table 26 there is disposed a pair of stringing rods 29 for engaging the blanks as they move along the table, and these rods are used to remove the stacked parts to other apparatus for further operations.

The chute 22 is constructed, as shown in Fig. 2, of two cross pieces 30 and 31 secured by side plates 32 and screws 33. The cross pieces 30 and 31 form the passageway 25 approximating in cross section the outline of a formed blank 34. These formed blanks usually possess a number of holes 35, and the stringing rods 29 readily engage the holes and secure the blanks in a stacked formation produced by the guideway or passageway 25. The stringing rods 29 may be adjustably threaded to a cross bar 36 within slots 37, as shown in Fig. 3, so that the rods can be adjusted to fit different types of blanks.

In the operation of the magazining or stacking structure, it is preferable to keep the chute 2 filled at all times with a continuous column of the blanks 34 in order that the blanks may have no chance of turning about themselves or becoming disarranged in the passageway 25. In order to thus fill the chute 22 at the starting of the operation, a retarding block 40 having lateral springs 41, of which only one is shown in Fig. 5, is first inserted within the die-aperture 20. The punch 16 is then actuated to punch successive blanks from the stock 18 into the passageway 25 of the chute, and this punching of the blanks, of course, gradually forces the block 40 to the bottom of the chute. Thus it is apparent that the chute becomes filled with the blanks, and due to the fact that the passageway 25 conforms in cross-section substantially to the cross-section of the blanks 34, the blanks become arranged into a stacked column.

After the column of blanks is thus formed the springs 28 at the bottom of the chute engage the lowermost blanks of the column and retain the blanks within the chute to preserve the column, and the retarding block 40 is removed because it is no longer necessary in the operation. From now on the operation of the stacking chute 22 is apparent. Blanks are continuously punched into the top of the chute by the punch 16, and as each blank is punched therein the column of blanks in the chute is forced downwardly the thickness of one blank, and a blank is forced past the springs 28 at the lower end of the chute. Continuous successive punchings of the blanks force many blanks out past the springs 28 and onto the table top 27 which conducts the blanks into engagement with the stringing rods 29 which engage the holes 35 in the blanks. Finally the stringing rods 29 become filled with the stacked blanks and are replaced by other similar rods.

The stringing rods 29 are particularly applicable for emptying the stacked blanks into a magazine, such as the one designated 42 in Fig. 4. The stacked blanks are inverted over this magazine and inserted therein when the stringing rods 29 are readily removed leaving the blanks stacked in the magazine and ready for further operations, such as roll forming by a rolling machine 43.

Thus it is believed to be apparent from the above description that the invention provides a simple structure for efficiently stacking the blanks and produces a considerable saving by dispensing with stacking by hand when the blanks are indiscriminately passed from the punch press. Furthermore, the novel structure also produces a significant saving when the parts blanked are thin or bendable when they would be rendered defective in case they were mixed together in a pile. Of course, the structure shown may be modified in various ways, as for instance it may be altered to stack different shaped blanks, or it may be constructed with adjustable parts so that the same apparatus will be adapted to stack different blanks. It is to be understood, of course, that the invention is limited only by the scope of the appended claim.

What is claimed is:

A device for stacking recessed and apertured parts successively formed by a machine, comprising a chute for receiving the parts from the machine having its receiving end extending vertically and its discharge end extending horizontally, a horizontally disposed supporting member positioned in general alignment with the discharge end of the chute and having its upper surface receivable in the recesses of the parts when passing from the chute for maintaining the parts in stacked formation, and a headed stringing member supported parallel to said upper surface by its head and by said parts.

In witness whereof, I hereunto subscribe my name this 30th day of November A. D., 1928.

CHARLES EDWIN NELSON.