

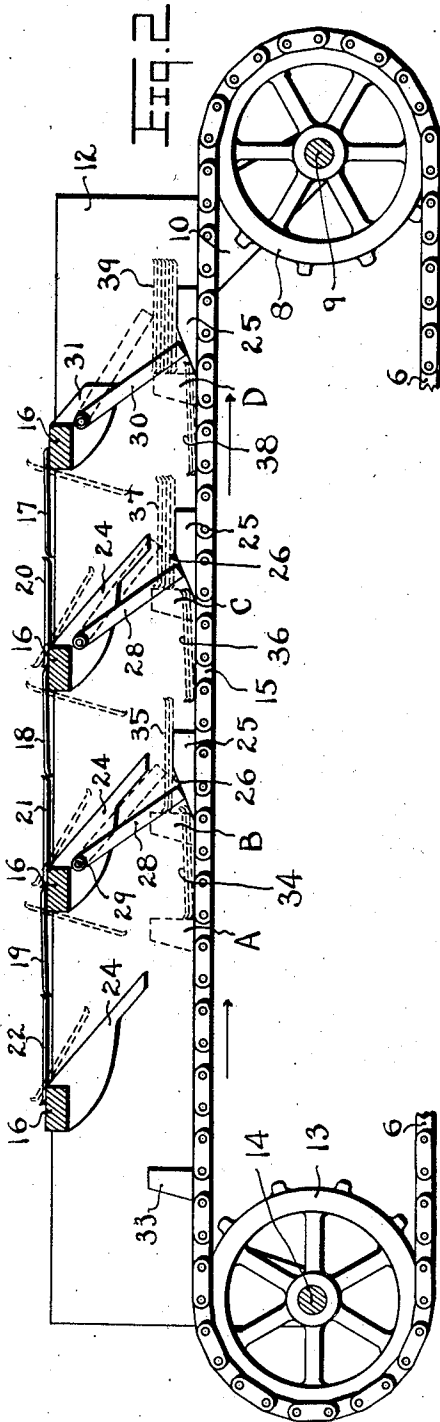
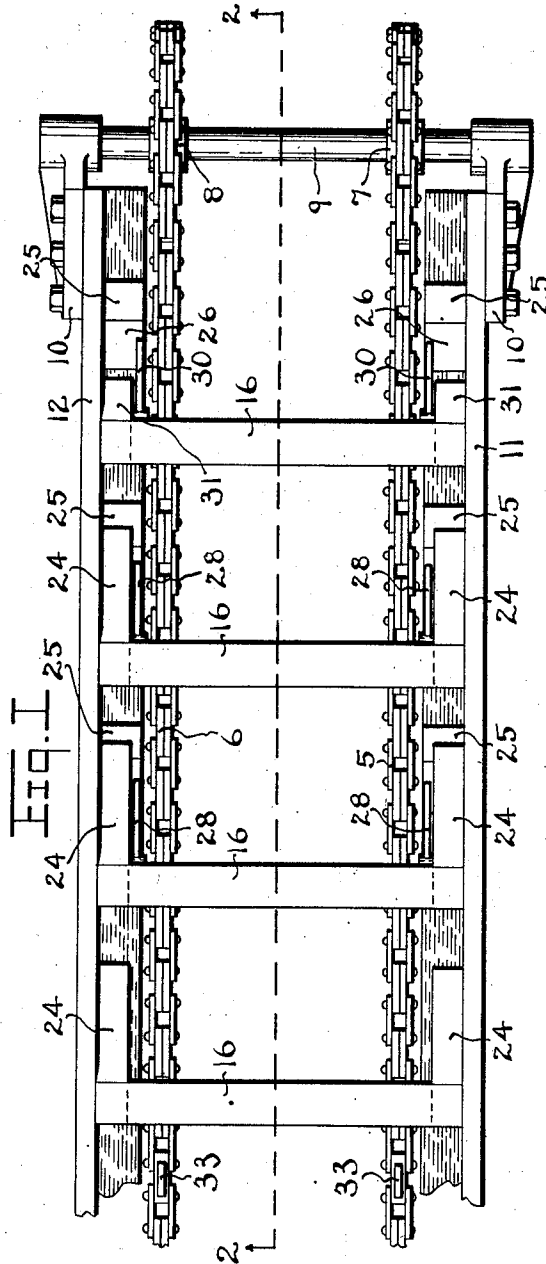
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J. H. YOUNG ET AL

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DEVICE FOR STACKING SHEET METAL AND THE LIKE

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INVENTORS  
*John A. Young*  
*Wilbur E. Sprink*  
By *Archibald Coy, Atty*

## UNITED STATES PATENT OFFICE.

JOHN H. YOUNG AND WILBUR G. FRINK, OF MIDDLETOWN, NEW YORK, ASSIGNORS TO  
THE BORDEN COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW JERSEY.

## DEVICE FOR STACKING SHEET METAL AND THE LIKE.

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The invention relates to an improvement in devices for stacking sheet metal, such as the blanks used in forming tin cans and other articles.

5 The machines employed in cutting up sheets of metal into blanks of the requisite size usually comprise two sets of cutters, one set for dividing and trimming the sheet, and the other set for cutting the divided sheet  
10 into blanks. The cutters for cutting the blanks usually discharge the blanks onto a conveyor located beyond the cutters and traveling transversely of the direction of movement of the blanks discharged by the  
15 cutters. The blanks land side by side on the conveyor. The object of the present invention is to provide a device which will effectively stack or pile up the blanks on the conveyor so that they may be removed manu-  
20 ally therefrom or be discharged as a whole onto another conveyor. To this end the invention consists in the improved stacking device hereinafter fully described and particu-  
25 larly pointed out in the appended claims.

In the accompanying drawings illustrating the preferred form of the invention, Fig. 1 is a top plan of the improved stacking device; and Fig. 2 is a section taken along the line 2—2 of Fig. 1.

30 The improved device for stacking or piling up sheet metal or body blanks comprises a conveyor consisting of the chains 5 and 6 which pass at their forward ends over the sprocket wheels 7 and 8 mounted on the shaft 9 journaled at its ends in brackets 10 depend-  
35 ing from the side walls 11 and 12 which may be supported from the framework of the machine with which the stacking device is associated. One such machine is shown and de-  
40 scribed in our copending application Serial No. 126,990, filed August 4, 1926. At their rear ends the conveyor chains 5 and 6 pass over sprocket wheels, one of which is indicated at 13 in Fig. 2, mounted on the shaft 14.  
45 The upper sections 15 of the conveyor travel constantly in the direction indicated by the arrow in Fig. 2, and for this purpose power may be transmitted in any desired manner to the shaft 9.

50 As a sheet of metal is acted upon by the body blank cutters, the body blanks are shot forward from the cutters onto the cross-

pieces 16 extending from the upper edge of the side wall 12 to the upper edge of the side wall 11, thereby constituting bridges for sup- 55  
porting the body blanks as they come from the cutters, as fully shown and described in our said application. The odd alternate blanks 17, 18 and 19 are supported by their right hand edges on the cross-pieces 16 and the even alternate blanks 20, 21 and 22 by 60  
their left hand edges on the cross-pieces 16. This support of the body blanks by the cross-pieces 16 continues only so long as the body blanks are traveling forwardly under the im- 65  
pulse of the cutting action, and as soon as this impulse is dissipated the body blanks fall downwardly onto the upper sections 15 of the conveyor chains located beneath the cross- 70  
pieces 16. Extending from the ends of the three left hand cross-pieces 16 downwardly and forwardly in the direction of travel of the upper sections 15 of the conveyor chains are a series of guides 24 which serve to direct the even alternate blanks 20, 21 and 22 onto 75  
the conveyor chains in the same relative position in which they come from the cutters, the odd alternate blanks 17, 18 and 19 being unsupported, turn over as they fall and land bottomside up on the conveyor. This mode 80  
of operation and the means by which it is accomplished constitute the subject-matter of our said application.

To prevent the body blanks falling upon the conveyor from being immediately dis- 85  
charged from the conveyor we provide a retarding means comprising the wedge blocks 25. There are two alined series of the wedge blocks 25, one series being attached to the lower edge of the side wall 11 and the other 90  
series being attached to the lower edge of the side wall 12. The wedge blocks 25 are positioned somewhat in advance of the three right hand cross-pieces 16. Each wedge block 25 is provided on its rear face with 95  
an inclined surface 26 which is in the path of travel of the ends of the body blanks carried by the conveyor. The frictional engagement of the body blanks with the conveyor is sufficient to carry the body blanks against 100  
the lower part of the inclined surfaces 26 of the wedge blocks. To prevent the body blanks from traveling too far up the inclined surfaces 26 of the wedge blocks by

reason of the frictional engagement between the body blanks in the conveyor we provide the stop arms 28 pivotally mounted at 29 on the guides 24. The forward pair of stop  
 5 arms 30 are pivotally mounted on the truncated guides 31 depending from the right hand cross-piece 16. Whether each pair of body blanks held on the rear side of each pair of wedge blocks 25 by the stop arms 28  
 10 overlap each other accurately or whether any of the blanks is askew is immaterial and depends upon the relative positions of the blanks as they descend onto the conveyor chains.

15 To aline the body blanks of each pair and to push them over their retaining wedge blocks, and to pile the successive pairs of body blanks on top of the preceding pairs, the conveyor chains 5 and 6 are provided  
 20 with a pair of alined lugs 33. The travel of the upper sections of the conveyor chains in the right hand direction, viewing Fig. 2, causes the front edges of the lugs 33 to engage with the rear edges of the ends of the  
 25 first pair of body blanks 34 held to the rear of the left hand pair of wedge blocks 25. As the lugs 33 push the pair of blanks 34 up the inclined surfaces 26 of the first pair of wedge blocks 25 the pivoted stop arms 28 serve to  
 30 hold the blanks against the advancing forward edges of the lugs 33 and thereby aline the two blanks with each other. The point at which the lugs 33 engage with the rear edges of the body blanks 34 is indicated at  
 35 A. As the body blanks travel up the inclined surfaces 26 of the first pair of wedge blocks the stop arms 28 are pushed forwardly out of the way and the body blanks are shoved onto the top surfaces of the wedge  
 40 blocks, as indicated at 35, the position of the lugs 33 at this point being indicated at B.

The continued forward travel of the lugs pushes the pair of body blanks off the first  
 45 pair of wedge blocks 25 and onto the pair of body blanks 36 held at the rear of the second pair of wedge blocks 25. The lugs 33 then push the four superposed body blanks up the rear inclined surfaces of the second  
 50 pair of wedge blocks and onto the top surfaces thereof, as indicated at 37, the stop arms 28 acting to aline the four blanks. The position of the lugs 33 at this point is indicated at C. The four body blanks on the  
 55 second pair of wedge blocks are pushed forward onto the pair of body blanks 38 held at the rear of the third or right hand pair of wedge blocks 25. The continued forward travel of the lugs 33 pushes the six superposed body blanks onto the top surfaces of  
 60 the right hand pair of wedge blocks 25, as indicated at 39, the position of the lugs 33 at this point being indicated at D. The six superposed body blanks 39 may be removed  
 65 manually from the wedge blocks or the lugs

33 may be permitted to discharge the stacked up pile of blanks onto another conveyor or into a receptacle.

Having thus described the invention, what we claim as new, is:—

70 1. A device for stacking sheet metal blanks comprising, a conveyor, a series of retarding members located adjacent the path of travel of the conveyor for holding back blanks placed on the conveyor, the frictional en-  
 75 gagement of the blanks with the conveyor being insufficient to carry the blanks beyond the retarding members, and means on the conveyor for positively engaging the blanks and pushing them over the retarding members. 80

2. A device for stacking sheet metal blanks or the like comprising, a horizontally arranged conveyor traveling in one direction, a series of retarding devices located adjacent the conveyor to engage and hold back the  
 85 blanks resting on the conveyor and carried forward by their frictional engagement therewith, said frictional engagement between the blanks and conveyor being insufficient to carry the blanks over the retarding  
 90 devices, and means on the conveyor for positively engaging the blanks to carry them successively over the retarding devices and deposit them on the blanks held by the next preceding retarding device. 95

3. A device for stacking sheet metal blanks comprising, a conveyor, a series of pairs of wedge blocks between which the conveyor passes, the inclined surfaces of the blocks facing the direction of travel of the conveyor,  
 100 a movable stop arm arranged over each inclined surface, the frictional engagement of the blanks with the conveyor being insufficient to push the blanks up the inclined surfaces past the stop arms, and lugs on the  
 105 conveyor for positively engaging the rear edges of the blanks to push them over a pair of wedge blocks and deposit them on the blanks held at the rear side of the preceding blocks.

4. A device for stacking sheet metal blanks  
 110 comprising, a conveyor traveling in one direction on a horizontal plane, a series of wedge blocks located beside the conveyor and arranged to be engaged by blanks placed transversely on the conveyor, a pivotally  
 115 mounted stop arm located over each wedge block with its free end directed toward the inclined surface of the wedge block and in the path of travel of the blanks, and means on the conveyor for positively engaging the  
 120 rear edges of the blanks and pushing them over the wedge blocks successively, the blanks pushed over the wedge blocks falling onto and piling up on the blanks held on the rear side of the preceding wedge blocks. 125

5. In a machine for delivering a series of blanks having a conveyor traveling transversely of the direction in which the blanks are delivered, means in combination with the conveyor for stacking the blanks compris- 130

ing a series of retarding devices located adjacent the conveyor and spaced along its direction of travel for engaging and holding back blanks placed transversely on the conveyor, the frictional engagement of the blanks with the conveyor being insufficient to carry the blanks over the retarding devices, and means on the conveyor for positively engaging the blanks and pushing them over the retarding devices, said retarding devices being spaced apart a distance permitting the blanks pushed over a retarding device to fall onto the blanks held at the rear of the next preceding retarding device.

JOHN H. YOUNG.  
WILBUR G. FRINK.