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BLANK FEEDING MECHANISM FOR CAN MAKING MACHINES

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2 Sheets-Sheet 1

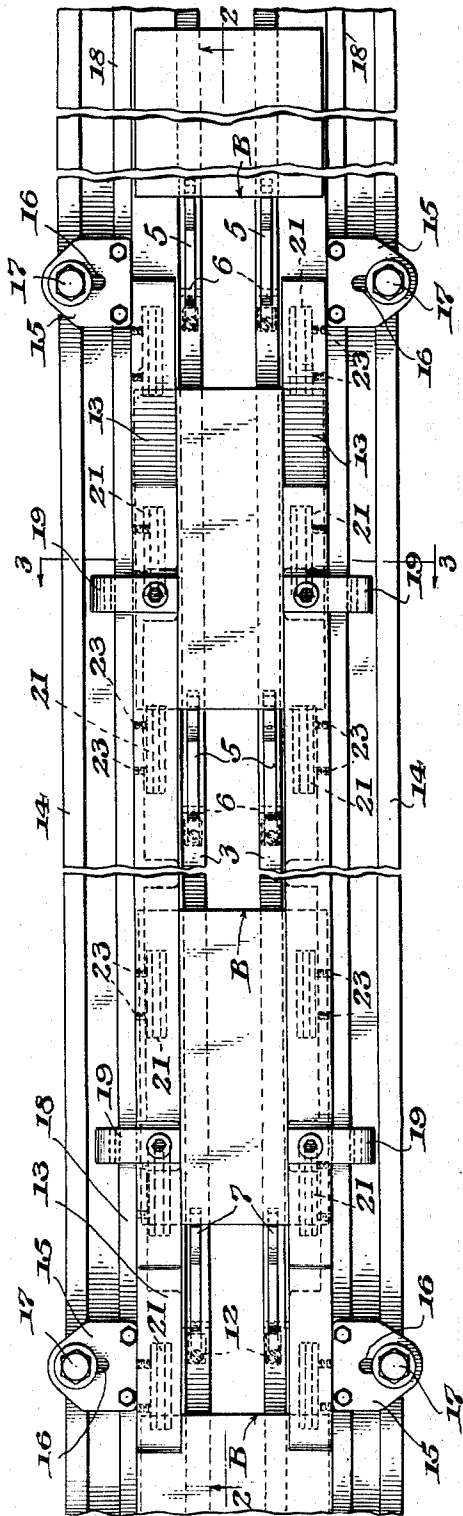


Fig. 1.

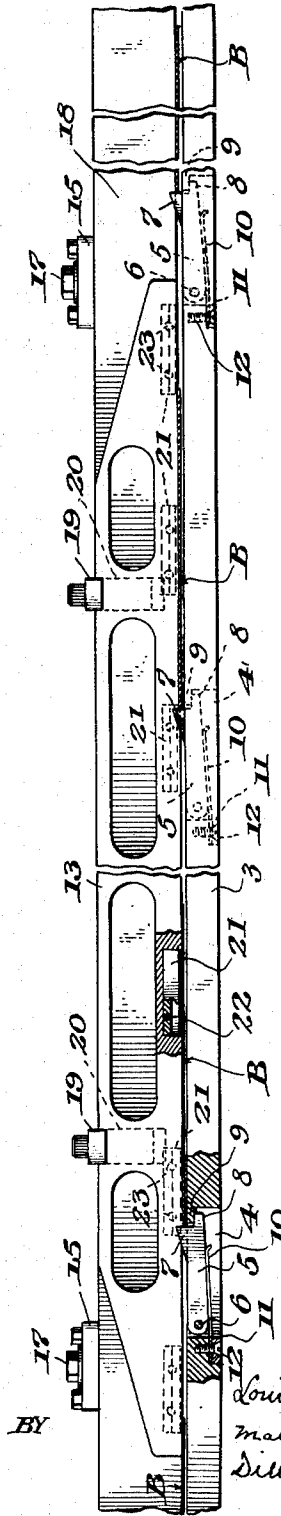


Fig. 2.

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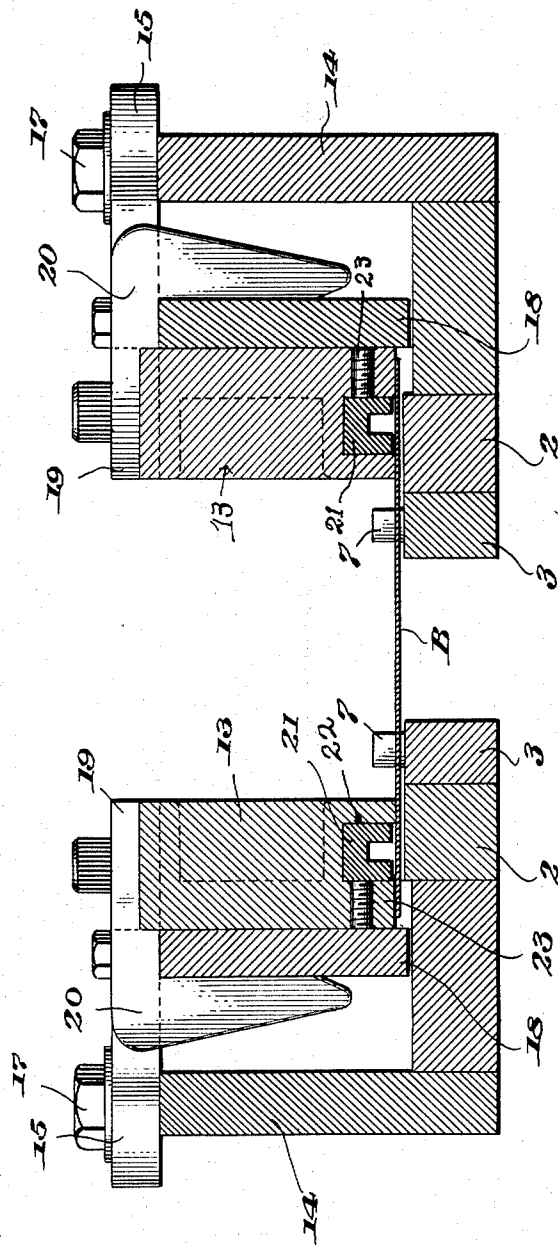


Fig. 3.

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UNITED STATES PATENT OFFICE

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BLANK FEEDING MECHANISM FOR CAN
MAKING MACHINES

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3 Claims. (Cl. 198—41)

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The invention relates to new and useful improvements in a mechanism for feeding metal blanks from one operating mechanism to another in a can making machine.

An object of the invention is to provide a feeding mechanism for moving metal blanks along a bed from one operating station to another which has associated therewith means disposed between the stations for lifting the moving blanks out of contact with the bed so as to prevent scratching the under face of the blanks by contact with foreign matter collecting on the bed.

A further object of the invention is to provide a feeding mechanism of the above type wherein the associated means for lifting the blanks includes non-magnetic tracks suspended above the bed and having magnets therein for lifting the blanks into contact with the tracks.

These and other objects will in part be obvious and will in part be hereinafter more fully disclosed.

In the drawings which show by way of illustration one embodiment of the invention,

Figure 1 is a plan view of a portion of a can making machine in which the improved blank feeding and suspending means has been embodied.

Figure 2 is a view longitudinally through the machine on the line 2—2 and showing in side view the non-magnetic tracks; said view has parts broken away to show more clearly the manner of mounting the feed dogs and also the manner of mounting the magnets;

Figure 3 is a section through the machine on the line 3—3 of Figure 1.

In a machine for manufacturing metal can bodies from flat blanks, the blanks are often fed from one operating station to another where, for example, the blanks are notched at one station and then hooks are formed on the blanks at another station which are interlocked to form the side seams, and when a body is to be used in a can having a hinged cover, the body blank is shaped and a pintle attached thereto. After this treatment of a body blank it is then placed on a horn and bent around the same into body shape. Machines of this type are provided with a bed having track bars on which the blanks rest and along which they are fed from one station to another. The blanks are fed by a reciprocating feed bar carrying feed dogs which engage the blanks in succession one after another and push the same along the bed. Dust and dirt are likely to accumulate on these track bars on which the body blanks rest and slide. When the under sur-

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face of the blank is enameled or decorated, the foreign matter on the bed sometimes scratches and defaces the enameled or decorated surface.

The present invention has to do with a mechanism associated with the feeding mechanism of a body making machine which associated mechanism includes non-magnetic bars extending along the bed directly over the blanks, in which bars are placed magnets for the purpose of lifting the metal blanks off from the bed into engagement with these non-magnetic bars and along which they are slid by the feed dogs. This lifting of the moving metal blanks off from the bed and suspending the same on these non-magnetic bars will prevent the scratching of the under face of the blanks by contact with any foreign matter collecting on the bed.

Referring more in detail to the drawings, the body making machine includes a bed having at opposite sides thereof track bars 2, 2 on which the body blanks are placed and along which they are fed from one operating station to another. The operating station referred to may be of any desired type and is only diagrammatically illustrated in the drawings. The blank B at the right-hand end of Figure 1 is located at an operating station and at this station it rests on the bed so that it may be notched or shaped at the edges thereof in any desired way. As machines for making can bodies from metal blanks and the operating devices used in connection therewith are so well known in the art, it is not thought necessary to describe the bed operating mechanism in detail.

The metal blanks are fed along the bed by feed bars 3, 3. These feed bars may be reciprocated by any suitable mechanism. The feed bars carry feed dogs one of which is shown in side elevation in Figure 2 of the drawings. The feed bar 3 is recessed at 4 and the feed dog 5 is mounted in this recess by means of a pivot 6. The feed dog at the forward end thereof has an upwardly projecting finger 7 and an extension 8. The feed bar 3 has a portion 9 which overlies the extension 8. A flat spring 10 is secured to the feed bar by the plate 11 which is clamped against the spring by a screw 12. This spring engages the under side of the feed dog and raises it until the extension 8 engages the overlying portion 9 of the feed bar. This limits the upper movement of the feed dog and at the same time it permits the feed dog to be depressed to an extent so that the feed finger 7 on the feed dog will be below the upper face of the feed bar. The blanks are placed on the bed so that when the feed bar is retracted the

feed dog will engage the rear edge of the blank and as the feed bars move forward, the two feed dogs will move the blank along the bed. This is the customary way of feeding blanks along a bed of a can making machine from one operating station to another.

When the outer face of the completed can body is to be decorated by lithographing, this decoration is applied to the sheets before they are cut to provide the metal blanks which form the can body. In order that the blank may be properly shaped about a forming horn, it is desirable to place the blank on the bed with the decorated face contacting with the bed. Dust and dirt often accumulate on the bed and when the blank is slid along the tracks forming the bed, this under face is scratched by this foreign matter. Applicant's improvement resides in a mechanism which will lift the blanks off from the bed and hold them suspended a slight distance from the bed while they are moved along the same from one operating station to another. This lifting of the blank out of contact with the bed prevents the scratching of the decorated surface. Extending along the bed directly over the tracks 2, 2 are track bars 13, 13. The bed of the machine includes side plates 14, 14. Attached to these plates at intervals are brackets 15. The bracket is slotted at 16 and clamping bolts 17 secure the brackets to these plates and permit the bracket to be shifted toward and from the center of the machine. Attached to the brackets 15, 15 are guide plates 18, 18. These guide plates guide the metal blanks as they are moved along over the tracks 2, 2. The purpose of making the brackets adjustable is to permit these guide plates to be set at different distances apart for different lengths of body blanks. Mounted on the guide plates 18, 18 are these non-magnetic bars 13. Brackets 19, 19 are bolted at intervals to the non-magnetic bars 13, 13 and these brackets have depending arms 20 which extend downwardly at the outer side of the guide plates 18, 18 and thus the non-magnetic bars are removably supported and suspended by these guide plates 18, 18. These non-magnetic bars 13, 13 are spaced above the tracks 2, 2 and are preferably placed so as to provide a clearance above the tracks of approximately .030". These non-magnetic bars are preferably of brass. They are recessed as indicated at 22. Disposed in this recess is a permanent magnet 21. The magnet is held in the recess by means of set screws 23, 23. The recess is of such a depth that the magnets are of approximately .010" above the under surface of the non-magnetic bar. The magnets are disposed a distance apart which is slightly less than the length of a metal blank, as clearly shown in Figure 2. These metal blanks are of a thickness less than the distance of the non-magnetic bar from the tracks and when the metal blank moves underneath the section of the non-magnetic bar containing the magnet, the blank will be lifted from the bed into contact with the non-magnetic bar. Inasmuch as the magnets are spaced from the lower surface of the non-magnetic bar, the blank does not contact with the magnet but it will be held in contact with the under face of the non-magnetic bar through the magnetic influence of these permanent magnets. One or more magnets will be operating upon each blank as they pass underneath the non-magnetic bars. With the usual thickness of plate, there is a clearance space between the blanks and tracks 2, 2 of the bed when the blanks are held suspended by the magnets.

The fingers of the feed dogs are of sufficient height so as to retain their engagement with the metal blank and will slide the blanks along the non-magnetic bars. The blanks thus suspended are free from contact with the bed and any foreign matter accumulating thereon and therefore the lithographed under face of the blank will not be scratched or in any way defaced through contact with this foreign matter.

These non-magnetic bars and the suspension of the blank thereon extend substantially from one operating station to the other. When the blanks move out from beneath the magnets, they will drop onto the bed and therefore each blank will rest on the bed at an operating station. It is customary to provide a retaining dog for holding the blank in the position to which it is fed by the reciprocating feed bar. None are shown in the present embodiment of the invention, although they may be used if desired. The magnets will hold the blanks in the position to which they are moved by the reciprocating feed dogs so that when the feed bars are retracted, the feed dogs will be depressed and slide along underneath the next following blank so as to engage the same at the rear edge thereof. The upper edges of these fingers of the feed dogs are slightly rounded so that they will not in any way injure the lithographed faces of the blanks as they move along beneath the same.

Let us assume that there is an operating station at the left-hand end of the non-magnetic bars shown in Figure 1. The blank will be at rest at the operating station and as soon as the operation on the blank has been completed, the reciprocating feed bar will cause the feed dog to engage the blank and move it along the bed toward the next operating station. Just as soon as the blank comes within the range of the range of the magnets, it will be lifted from the bed into contact with the non-magnetic bar and therefore while underneath this non-magnetic bar, it will be suspended free of the bed and will be slid along the bar by the feed dog. Just before the blank reaches the next operating station at the right-hand end of the bed, as shown in Figure 1 of the drawing, it will pass from beneath these magnets and will drop onto the bed and be carried by the reciprocating feed dogs to an operating position where it will remain at rest during the operation thereon and then it will again be picked up by the feed dogs and moved to the next operating station.

Between each of the operating stations are these non-magnetic bars with the magnets for lifting and suspending the blanks free of the bed during the movement thereof.

While the blank is referred to as lithographed to provide a decorated surface, it will be understood that this surface may be a plain enameled surface and may form the inside of the container body instead of the outside thereof.

It is obvious that many changes in the details of construction may be made without departing from the spirit of the invention as set forth in the appended claims.

I claim:

1. A feeding mechanism for metal blanks comprising a bed having track bars along which a blank may be moved, reciprocating feed bars, feed dogs carried thereby and engaging successive blanks for moving the same along said bed from station to station, non-magnetic bars disposed above said bed and extending lengthwise thereof from one station to another, permanent mag-

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nets disposed in said non-magnetic bars and spaced at distances less than the length of the blanks whereby said blanks as they are fed along the bed will be lifted therefrom by the magnets into engagement with the non-magnetic track bars and moved along the same by the feed dogs while suspended free from contact with said bed.

2. A feeding mechanism for metal blanks comprising a bed having track bars along which a blank may be moved, reciprocating feed bars, feed dogs carried thereby and engaging successive blanks for moving the same along said bed from station to station, non-magnetic bars disposed above said bed and extending lengthwise thereof from one station to another, permanent magnets disposed in said non-magnetic bars and spaced at distances less than the length of the blanks whereby said blanks as they are fed along the bed will be lifted therefrom by the magnets into engagement with the non-magnetic track bars and moved along the same by the feed dogs while suspended free from contact with said bed, said permanent magnets having their lower faces spaced above the lower faces of the non-magnetic bars so that the lifted blanks contact only the non-magnetic track bars.

3. A feeding mechanism for feeding blanks in succession along a bed from one operating station

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to another in a can making machine comprising a bed having track bars extending from one end of the machine to the other, non-magnetic bars disposed above the bed and extending lengthwise thereof from one station to another, said non-magnetic bars being spaced from the bed a distance slightly greater than the thickness of the blanks, magnets associated with the non-magnetic bars and disposed so as to lift the blanks from the bed as they are passed from one station to another, and means for intermittently feeding the blanks from one station to the other while suspended on the non-magnetic bars and through the stations while on the bed.

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REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
875,837	McIntyre	Jan. 7, 1908
1,168,281	Buch	Jan. 18, 1916
1,171,011	Young	Feb. 8, 1916
2,143,026	Nordquist	Jan. 10, 1939
2,193,162	Carter	Mar. 12, 1940
2,269,474	Nordquist	Jan. 13, 1942