Sept. 20, 1971 P. FECZKO 3,606,438

SCRAP-BOX BAIL ADAPTED FOR ENGAGEMENT BY COIL LIFTER

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FIG. 1.

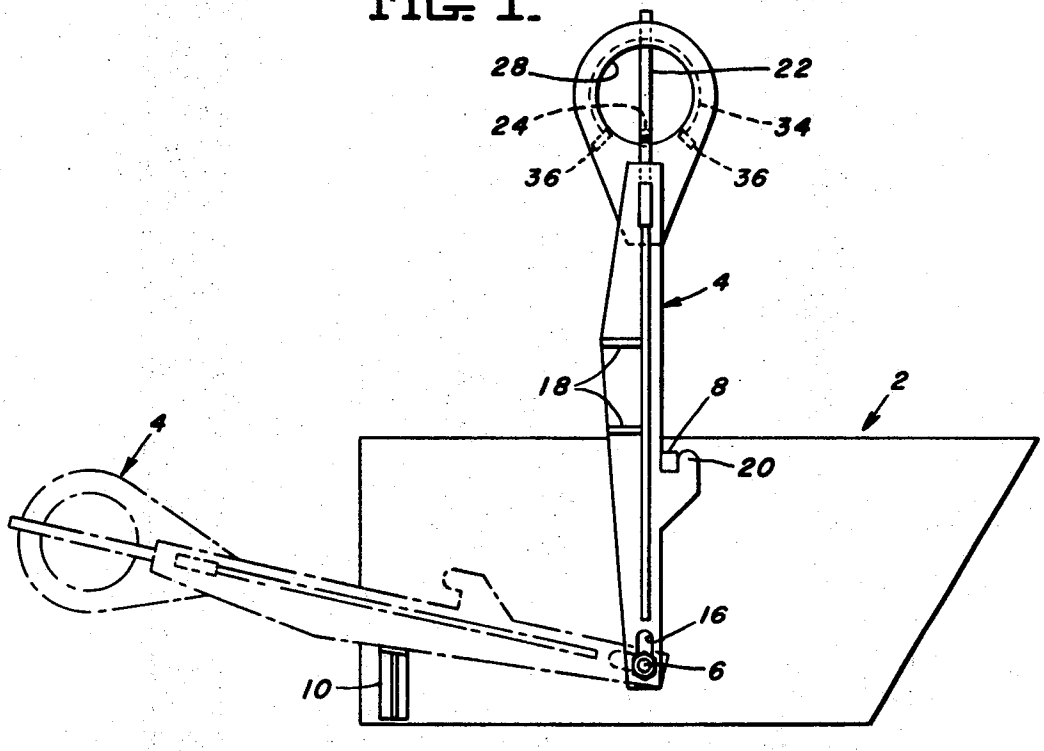

FIG. 2.

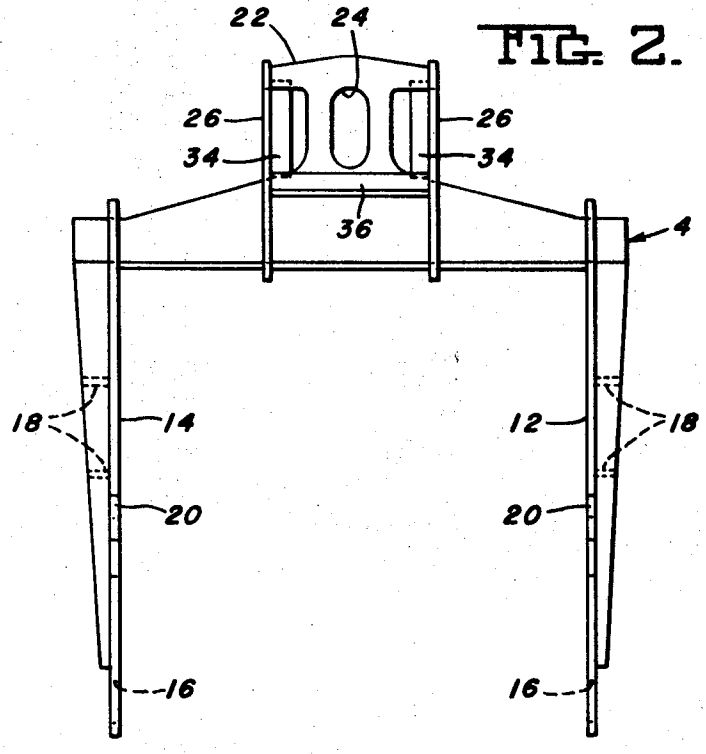

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FIG. 3.

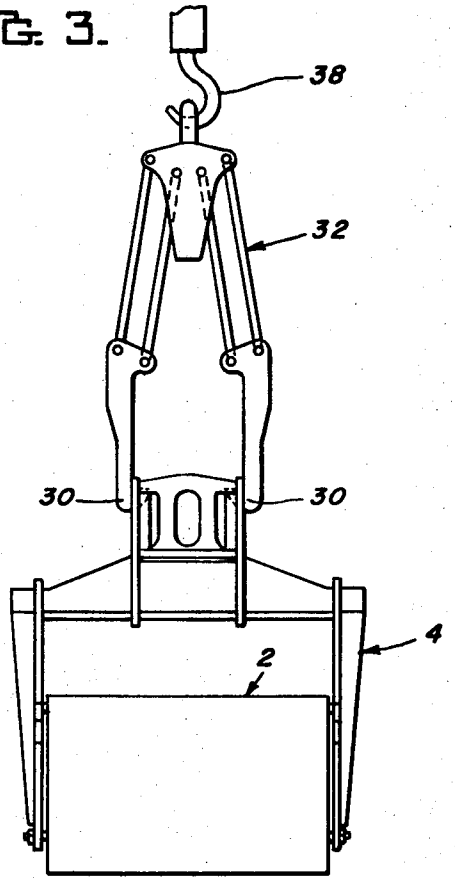
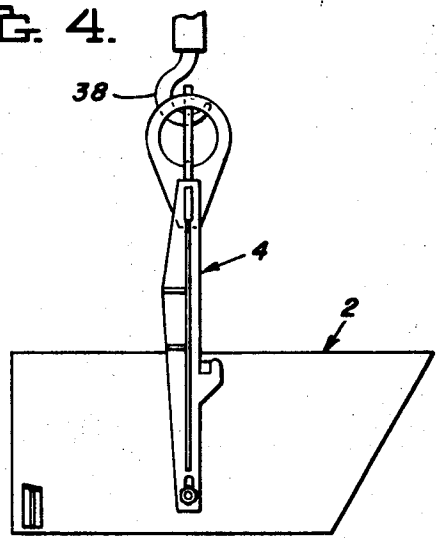


FIG. 4.



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SCRAP-BOX BAIL ADAPTED FOR ENGAGEMENT BY COIL LIFTER

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Int. Cl. B66c 3/00
U.S. Cl. 294—73 2 Claims

ABSTRACT OF THE DISCLOSURE

Disclosed is an improved lifting bail for containers such as industrial scrap boxes. The bail is constructed with a pair of parallel lifting eyes disposed normal to a conventional lifting eye in the spreader bar of the bail. The disclosed structure makes it possible for the bail to be manipulated by a conventional hoisting crane hook or by an auxiliary lifting means, such as a motorized coil lifter, attached to a conventional crane hook.

The present invention relates generally to material handling equipment and, more particularly, to an improved scrap-box bail which is capable of manipulation by means of a conventional crane hook or a motorized coil lifter attached to a conventional crane hook, as desired.

In strip rolling mills of the steel industry, scrap-boxes are located in various areas of the mills for receiving scrap pieces of steel such as the head and tail ends of coils and other miscellaneous steel scrap. Prior to my invention, the scrap-boxes were provided with conventional lifting bails which consisted of two side arms joined together at their upper ends, to form a U-shaped member, by a spreader bar having an opening or lifting eye therein intermediate its length. The side arms of the bail were pivotally connected to opposite sides of the open top scrap-box so as to be pivotally movable from an upright operative position to a resting position clear of the open top of the scrap-box. The side arms of the bail were provided with fingers which engaged locking blocks projecting from the sides of the scrap-box to selectively lock the bail in operative lifting position.

In operation, when it was desired to lift the scrap-box and transport it to a scrap car or other scrap disposal point, the lift hook of an overhead crane was lowered and inserted into the lifting eye in the spreader bar of the bail. The overhead crane was then operated to lift the bail to upright position with the side arms engaging the locking blocks on the sides of the scrap-box. After the bail had been locked into upright operating position, the crane was operated to raise the crane hook, lift the scrap-box, and carry it to the desired area for dumping.

In most modern strip rolling mills, the main function of the overhead crane is to convey coils of strip steel from one place to another in the mill. The handling of scrap-boxes, which may be necessary from 10 to 15 times during an eight hour operating turn of the mill, is a secondary function of the overhead cranes. When the overhead crane is used to convey coils, a motorized coil lifter, which is a tong-like implement having a pair of arms which enter the eye of a coil from opposite ends, is carried by the crane hook to engage the coils for lifting. Prior to my invention, when it was desired to move a scrap-box for dumping or other reason, the coil lifter was removed from the crane hook, placed on a storage stand, and its electrical connection with its power source on the crane disengaged. Then the crane was operated to handle the scrap-box. After the scrap-box manipulation had been completed, it was necessary to move again to the coil lifter storage stand, suspend the coil lifter from the crane hook, and again connect the coil lifter with its power source. The necessity of removing the coil lifter from the crane hook each time it was necessary to handle a scrap-box caused an excessive loss of time and frequently interfered with or interrupted productive operation of the mill.

It is, accordingly, the primary object of my invention to provide an improved lifting bail for containers, such as scrap-boxes and the like, which bail is so constructed that it can be handled by a conventional crane hook or a coil lifter suspended from a conventional crane hook.

It is a more specialized object of my invention to provide an improved lifting bail as set forth in the object above which is provided with side arms and a spreader bar connected with and extending between the side arms, the spreader bar having a conventional lifting eye therethrough intermediate its ends; and a pair of spaced plates rigidly attached to the spreader bar in substantially parallel relation, one on each side of the lifting eye extending normal to the spreader bar, each of the plates having an opening therethrough for receiving a lifting means such as the arms of a coil lifter.

These and other objects will become more apparent after referring to the following specification and attached drawing in which:

FIG. 1 is a side elevational view of a scrap-box equipped with the improved lifting bail of the invention showing the lifting bail in operative lifting position in solid lines and in operative position in broken lines;

FIG. 2 is a front elevational view of the lifting bail of the invention;

FIG. 3 is a front elevational view showing the lifting bail of the invention engaged by a coil lifter; and

FIG. 4 is a view similar to FIG. 3 but showing the bail engaged by a conventional crane hook.

Referring more particularly to the drawing, reference numeral **2** designates generally a scrap-box having the improved bail **4** of the invention attached thereto. The scrap-box **2** is provided with a pivot trunnion or pin **6** projecting from opposite side walls thereof. A bail-locking block **8** projects from the two side walls of the scrap-box just below the upper edges thereof intermediate their ends. A lifting-bail rest **10** is formed on the side walls of the scrap-box adjacent one end thereof for supporting the bail in inoperative position clear of the top of the box, as shown in broken lines in FIG. 1.

The elements thus far described are conventional and are not claimed as my invention.

The bail **4** of the invention includes side arms **12** and **14**, each of which has an elongated slot **16** formed in the lower end thereof for receiving one of the pivot projections **6**. Reinforcement ribs **18** are spaced along the lengths of each of the side arms **12** and **14**. A finger **20** is formed on each of the side arms intermediate its ends for engaging the bail-locking blocks **8** of the scrap-box as will become apparent. A spreader bar **22** having a lifting eye **24** extending transversely therethrough intermediate its ends is connected with and extends between the two side arms **12** and **14** at one end thereof.

A pair of spaced plates **26** is rigidly attached to the spreader bar in substantially parallel relation, one on each side of the lifting eye **24** extending normal to the spreader bar. Each of the plates **26** has an opening **28** therethrough for receiving the lifting arms **30** of a coil lifter **32**. A bushing **34** may be provided in each of the openings **28**. A pair of spacer bars **36** connected with and extending between the spaced plates **26** may be provided for the purpose of rigidifying the structure.

In operation, when it is desired to lift the scrap-box **2** with the coil lifter **32** attached to the crane hook **38**, the overhead crane (not shown) is operated to insert the arms **30** of the coil lifter into the bushing-lined openings **28** of the plates **26**. With the bail **4** thus engaged, the crane is

operated to lift the bail from its resting position, as shown in dotted lines in FIG. 1, to an upright operative position with the fingers **20** engaging the locking blocks **8**, as shown in solid lines in FIG. 1. The coil lifter is then raised and the scrap-box lifted and transported to the desired destination. After the scrap-box has been dumped and has been returned to its initial location, the crane is operated to lower the crane hook and coil lifter suspended therefrom so that the bail is clear of the locking blocks **8**. Then the crane hook with the coil lifter attached thereto is manipulated to pivot the bail to resting position supported by the rest **10**. After the coil lifter has been removed from engagement with the bail, its use for lifting coils may be resumed immediately.

While I have shown but one embodiment of my invention, other adaptations and modifications may be made without departing from the scope of the following claims.

I claim:

1. In an open top container such as a scrap box including a lift bail having a pair of side arms pivotally attached to two opposite sides of said container, locking means on said opposite sides of said container adapted to selectively engage said side arms and lock said bail in upright position, a rigid spreader bar connected with and extending between said side arms above said container, said spreader bar having a transverse opening intermediate the ends thereof for receiving a single point lifting means, the improvement therewith of a pair of spaced plates rigidly attached to said spreader bar in substantially parallel relation one on each side of said transverse opening extending normal to said spreader bar intermediate the ends thereof, at least a pair of spaced spacing bars connected with and extending between said plates, each of said plates having a transverse opening therethrough for alternately receiving a two point lifting means whereby said container may be lifted by said single point lifting means or alternately by said two point lifting means.

2. Apparatus as defined by claim **1** in which the opening in each of said plates has a bushing therein.

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294—68, 81