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2,830,699

PACKAGE OF OBLONG BARS

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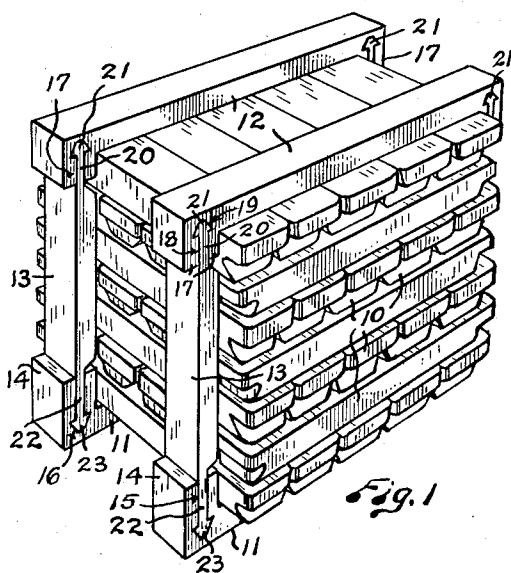


Fig. 1

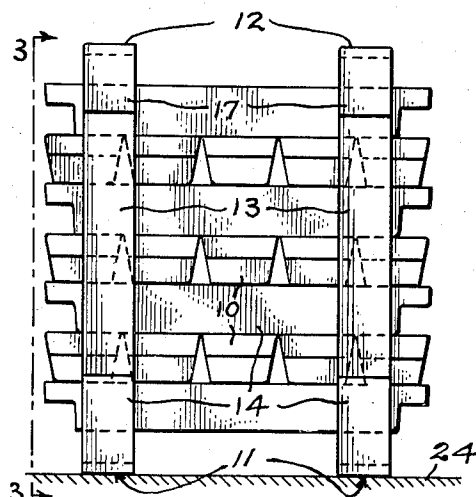


Fig. 2

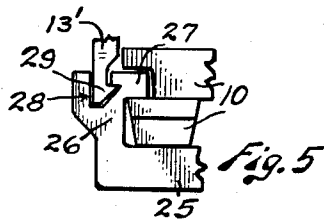


Fig. 5

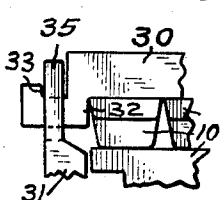


Fig. 6

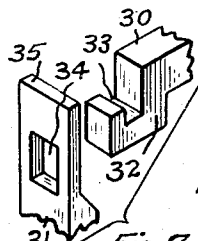


Fig. 7

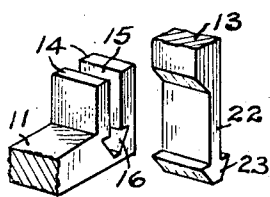


Fig. 4

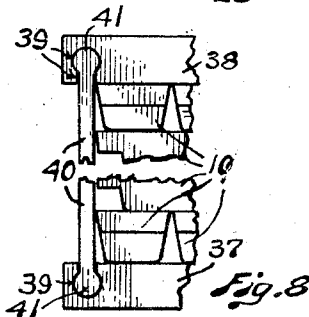


Fig. 8

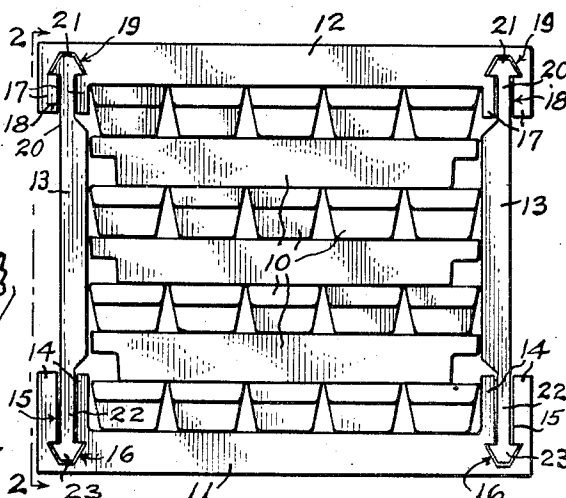


Fig. 3

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PACKAGE OF OBLONG BARS

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5 Claims. (Cl. 206—65)

This invention relates to the art of packaging oblong bars to facilitate handling and transportation of the same.

An object of this invention is to improve the art of packaging oblong bars and to provide a packaging method and means which is particularly well adapted for use in connection with bars or ingots or pigs or similar shapes of metal or like material.

Bars, ingots, pigs or like oblong pieces or units of metal of uniform weight and shape and size are ordinarily assembled in stacks with the bars arranged in side by side relation in tiers one above another and with the bars of each tier extending crosswise of the bars of the adjacent tiers. These stacks are usually handled with fork trucks or with overhead lifting means. In handling and shipment the bars in these stacks are very liable to become disarranged or spilled to such an extent that they have to be re-assembled or manually handled one bar at a time. Shippers of these bars, such as refineries and foundries, have sought to correct this difficulty by wire tying and strapping the stacks of bars and by placing the bars in boxes or crates and by placing the stacks of bars on pallets but this has proved to be expensive and not satisfactory to either the shipper or the receiver.

An object of this invention is to overcome the difficulties and objections above pointed out by providing a package in which oblong bars of heavy material are held in assembled or stacked relation by interlocking holding bars of the same material, the holding bars forming a portion of the merchandise in the package and the weight of each holding bar being a known and definite proportion or ratio of the weight of the other individual bars in the package.

Another object of this invention is to provide a package which does away with wire tying and strapping and like packaging and which does not require the use of special tools or skilled labor either to assemble or disassemble.

Another object is to provide a package of bars, ingots, pigs or like shapes in which a plurality of oblong bars are assembled side by side in superposed tiers forming a stack having sides intersecting substantially at right angles and in which stack holding assemblies extend around the stack of oblong bars, each stack holding assembly being formed of a plurality of stack holding bars having end portions provided with interlocking parts which can easily be engaged or disengaged by relative sidewise movement of the bars.

Other objects will be apparent from the following description taken in connection with the accompanying drawings.

In the drawings Figure 1 is a perspective view of a package of bars exemplifying my invention.

Fig. 2 is an elevation of said package looking in the direction of broken line 2—2 of Fig. 3.

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Fig. 3 is an elevation of the same looking in the direction of broken line 3—3 of Fig. 2.

Fig. 4 is an exploded isometric fragmentary view showing the interfitting end portions of two of the holding bars.

Fig. 5 is a fragmentary view in elevation showing a modified form of the invention.

Fig. 6 is a fragmentary view in elevation showing another modified form of the invention.

Fig. 7 is a fragmentary exploded isometric view of the structure shown in Fig. 6.

Fig. 8 is a fragmentary view in elevation of another modified form of this invention.

Like reference numerals designate like parts throughout the several views.

The package shown by way of illustration in Figs. 1 to 4 comprises a plurality of oblong bars 10, such as ingots or pigs or like shapes of merchantable material, assembled in tiers to form a stack with the bars 10 of each tier positioned alongside of each other and preferably with the bars of adjacent tiers extending crosswise of each other. The oblong bars herein shown are of conventional shape and are uniform in size and weight and when a plurality of these bars are evenly assembled they will form a stack of approximately cubical outline with the sides thereof intersecting at right angles.

In accordance with this invention each stack of bars 10 is held in assembled relation by at least two spaced apart stack supporting assemblies of holding bars which extend like bands around the stack. Each of these stack supporting assemblies is made up of a bottom bar 11, a top bar 12 and two side bars 13, the side bars 13 being of duplicate construction. Each bottom holding bar 11 has two upwardly extending similar end members 14, preferably formed integral with said bottom bar. Each upwardly extending end member 14 has an upwardly opening slot 15 provided with an enlarged bottom portion 16 of greater width than the slot.

Each top holding bar 12 has two similar downwardly extending end members 17, preferably integral therewith. Each downwardly extending end member 17 has a downwardly opening slot 18 and each slot 18 has an enlargement 19 at its upper end. The end members 17 of the top bars are herein illustrated as being shorter than the end members 14 of the bottom bars but it will be understood that the end members 17 and 14 may be of equal length and that the top and bottom holding bars 12 and 11 may be duplicates. The end members 14 and 17 of the holding bars 11 and 12 prevent sidewise displacement of the oblong bars 10.

Each side holding bar 13 has a thinner upper end portion 20 which terminates in an enlarged top head 21. Each side holding bar also has a thinner lower end portion 22 which terminates in an enlarged bottom head 23. The outer face of each side holding bar 13 is preferably plane and flat but the inner face thereof is preferably thickened or padded between the two thinner end parts 20 and 22 so that this thickened part will make close contact with the oblong bars 10 of the stack.

The holding bars 11, 12 and 13 are made of the same material as the oblong bars 10 in the stack and constitute part of the gross material or merchandise of the stack and said holding bars are preferably either equal in weight or are multiples of or divisions of the weight of the oblong bars 10 so that they are readily computed as part of the material of the stack. All of the bars 10, 11, 12 and 13 are shaped so that they can easily be cast in open, split or pressure moulds.

In the use of this invention usually two bottom holding bars 11 are positioned in spaced apart parallel relation on a floor or like horizontal support 24, Fig. 2. Oblong bars 10 forming the lower tier are then placed side by side on said two bottom bars 11 crosswise thereof and successive tiers, upwardly considered, are laid one upon the other with the bars 10 of each tier extending across the bars of the adjacent tiers until a stack of the desired size or weight is completed. Preferably the bars of the upper tier will extend in the same direction as the bars of the lower tier. Two top holding bars 12 are placed on the top tier of bars 10 directly above the bottom holding bars 11. The side holding bars 13 are then interlocked with the top and bottom holding bars 12 and 11 by placing them alongside of the end members 17 and 14 and moving them sidewise into telescopic engagement with said slotted end members 17 and 14.

The side holding bars 13 are accurately dimensioned so that they will draw the top holding bars 12 down onto the oblong bars 10 and firmly bind the entire stack. The enlarged end portions 19 and 16 of the slots 18 and 15 in the respective end members 17 and 14 and the parts 21 and 23 which fit telescopically therein are illustrated as being of uniform size from end to end. This makes it possible to assemble and disassemble the holding bars without the use of tools. However these parts may be tapered so that they will fit snugly when assembled, in which instance a mallet may be used in assembling and disassembling them.

The bottom holding bars 11 have flat floor engaging surfaces and they extend a substantial distance beyond the sides of the stack. Thus these bottom bars provide good stability and resist slippage on the floor and minimize movement of the package in transit and resist tipping of the package in the longitudinal direction of the bars. Said bottom holding bars 11 are also of sufficient thickness so that they support the stack far enough above the floor 24 to allow picking up of the entire stack with a fork truck or with overhead lifting means. The upper surfaces of the top holding bars are flush with each other so that one stack of bars may be placed on top of another stack if desired.

Fig. 5 shows one end portion of a modified form of bottom holding bar, it being understood that the other end portion of said bar is similar. The bottom holding bar 25 shown in Fig. 5 has an upwardly extending end portion 26 provided with an inwardly directed lip or flange 27 which extends over the top of the adjacent oblong bar 10. This flange 27 will secure the bottom holding bar 25 firmly to the stack so that said bar 25 can not drop away from the stack if the stack is lifted clear of the floor at a time when said bottom holding bar 25 is not connected with any side holding bars. The use of the flange 27 helps to prevent rolling of the oblong bars 10 in the bottom tier, a thing which sometimes occurs in transit and disarranges an entire stack. A bottom bar of the type shown in Fig. 5 and having a lip or flange 27 at each end to engage over the top of the adjacent oblong bar 10 may be used to advantage without using any side holding bars or top holding bar therewith and when so used will stabilize a stack of bars and support them at a desired elevation above the floor for lifting purposes. The upwardly extending end portion 26 of the bottom bar 25, Fig. 5, further has a modified form of upwardly opening undercut slot 28 to receive a hook shaped bottom end 29 of a side holding bar 13'. The side holding bar 13' functions in substantially the same manner as the previously described side holding bars 13.

Figs. 6 and 7 show other holding bars 30' and 31 of modified form. The bar 30' is illustrated as a top holding bar and it can also be used as a bottom holding bar. Said bar 30' has a transversely offset part 32 which overlaps the side of an adjacent oblong bar 10 of the stack and further has a hook shaped end 33 over which a slot 34 in an end portion 35 of the bar 31 engages.

Fig. 8 shows another modified form of this invention in which the end members that protrude perpendicularly from the end portions of both the top and bottom holding bars are dispensed with. Said Fig. 8 shows two holding bars 37 and 38 of duplicate construction having transverse keyhole shaped slots 39 in their respective end portions. A side holding bar or plate 40 of substantial width has an enlarged cylindrical portion 41 on each end thereof adapted to engage in the slots 39 of the upper and lower bars 38 and 37. Obviously the shape of the slots 39 and enlargements 41 may be varied as long as the enlarged parts 40 lock into the slots 39.

The foregoing description and accompanying drawings clearly disclose preferred embodiments of this invention but it will be understood that this disclosure is merely illustrative and that changes may be made within the scope and spirit of the following claims.

I claim:

1. A package comprising a plurality of oblong bars assembled in tiers one above another with the oblong bars in alternate tiers extending crosswise of each other, said oblong bars forming a stack having four sides with adjoining sides substantially at right angles to each other; and at least two spaced apart stack holding assemblies extending around said stack, each stack holding assembly being formed of a bottom bar extending across the bottom of the stack, rigid end portions on said bottom bar extending upwardly a substantial distance in close proximity to the sides of said stack, a top bar extending across the top of the stack, and two side bars extending between said bottom bar and said top bar, the end portions of said side bars having dove tail type interlocking connection with the end portions of said top bar and with the upwardly extending end portions of said bottom bar.

2. A package comprising a plurality of oblong bars assembled in superposed relation forming a stack having four sides with adjoining sides substantially at right angles to each other; and at least two spaced apart stack holding assemblies extending around said stack, each stack holding assembly being formed of four stack holding bars having interlocking end portions and at least one stack holding bar of each stack holding assembly being of substantial thickness and extending across the bottom of the stack and having upright integral end portions extending upwardly alongside of the stack positioning and transversely supporting the lowermost bars of the stack, said bottom stack holding bars supporting the stack a substantial distance above the surface on which said bars rest providing clearance under the stack for the entrance of stack lifting means.

3. In a package of merchandise, a plurality of oblong bars assembled in superposed relation forming a stack having four of its sides adjoining substantially at right angles to each other; at least two bottom holding bars extending across the bottom of said stack and having rigid upwardly extending end portions engaging the sides of the stack, said upwardly extending end portions having upwardly opening slots extending crosswise thereof and said slots having enlargements at their bottom ends; at least two other holding bars extending across the top of the stack directly above said bottom holding bars and having rigid downwardly extending end portions engaging the sides of the stack and provided with downwardly opening slots extending crosswise thereof, said downwardly opening slots having enlargements at their upper ends; and upright side holding bars extending between the end portions of said bottom holding bars and said top holding bars and telescopically engaging within the slots thereof, said upright side holding bars having end enlargements engaging within the enlarged end portions of the slots in the bottom holding bars and top holding bars.

4. The apparatus as claimed in claim 3 in which the upright side holding bars have thickened inwardly extending pad portions contacting the sides of the oblong

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bars in the stack when the side holding bars are engaged with the top and bottom holding bars.

5. A package comprising a plurality of oblong bars assembled in superposed relation forming a stack having four sides with adjoining sides substantially at right angles to each other; and at least two spaced apart stack holding assemblies extending around said stack, each stack holding assembly being formed of four stack holding bars having interlocking end portions and at least one stack holding bar of each stack holding assembly being of substantial thickness and extending across the bottom of the stack and having upright integral end portions extending upwardly alongside of the stack positioning and transversely supporting the lowermost bars of the stack and each upright integral end portion having a rigid flange

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projecting inwardly over the top of the adjacent oblong bar in the lowermost tier of bars in the stack, said bottom stack holding bars supporting the stack a substantial distance above the surface on which said bars rest providing clearance under the stack for the entrance of stack lifting means.

References Cited in the file of this patent

UNITED STATES PATENTS

1,261,155	Norris	Apr. 2, 1918
1,498,377	Honigbaum	June 17, 1924
1,826,835	Spousta	Oct. 13, 1931
1,900,980	Dittmar	Mar. 14, 1933
2,400,197	Grodin	May 14, 1946