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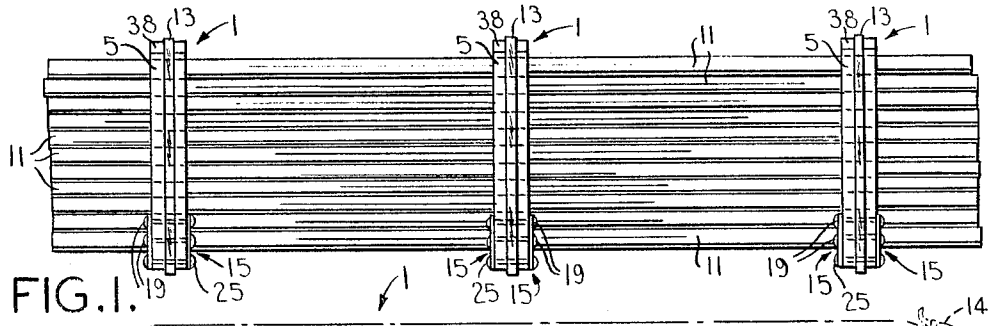


FIG. 1.

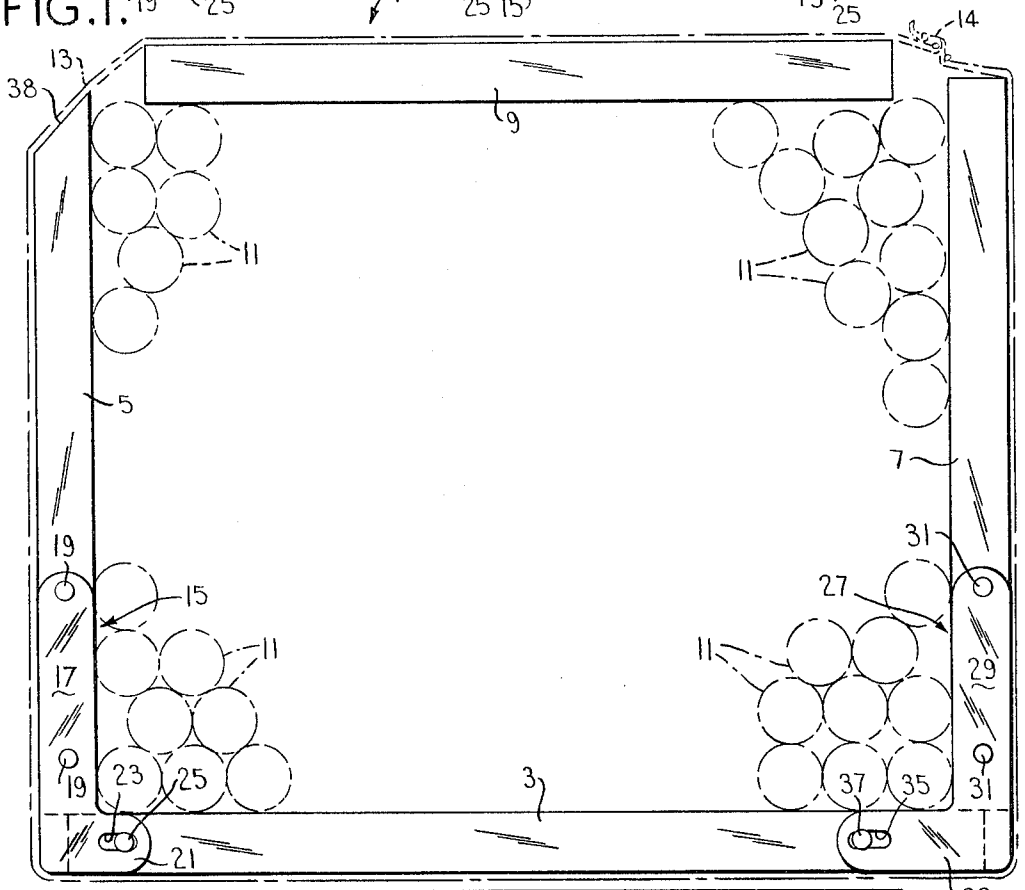


FIG. 2.

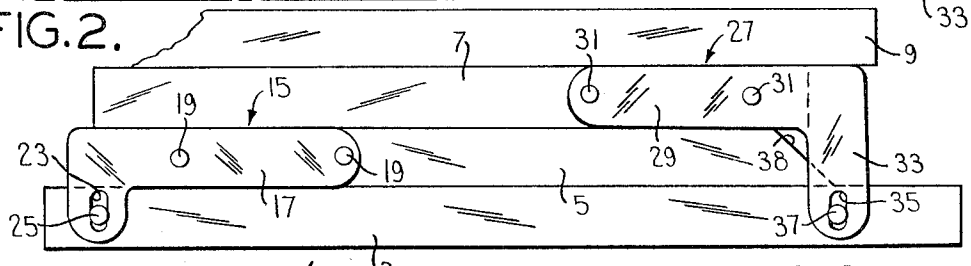


FIG. 3.

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This invention relates to so-called skids, and more particularly to a collapsible skid useful for the stacking of steel tubes or the like.

Among the several objects of the invention may be noted the provision of a skid adapted for use in multiples to form a cradle for holding a stack of steel tubes or the like, the skid per se being collapsible for convenient storage, shipment and handling; the provision of a skid such as described which is of such construction as to permit tight banding of a stack of items cradled in a plurality of the skids by application of steel strapping or the like around the skids and drawing up of the strapping; the provision of skids such as described useful upon removal of the strapping to form an open-topped cradle or bin for holding the stacked items and allowing for removal of items from the stack; and the provision of a skid such as described which is of low-cost construction and easy to use. Other objects and features will be in part apparent and in part pointed out hereinafter.

The invention accordingly comprises the constructions hereinafter described, the scope of the invention being indicated in the folowing claims.

In the accompanying drawings, in which one of various possible embodiments of the invention is illustrated,

FIG. 1 is a view in elevation showing several skids constructed in accordance with this invention supporting elongate items such as steel tubes;

FIG. 2 is an enlarged view from the right end of FIG. 1; and

FIG. 3 is a view showing a skid of this invention in the collapsed position.

Corresponding reference characters indicate corresponding parts throughout the several views of the drawings.

Referring to the drawings, a skid of this invention is designated in its entirety by the reference numeral 1, and is shown to comprise a bottom bar 3, side bars 5 and 7 and a top bar 9. The skid 1 is adapted to receive elongate items 11, such as steel tubes or the like, with the tubes resting on the bottom bar 3 and positioned between side bars 5 and 7. Top bar 9 is then placed on top of the tubes 11 and held in place by fastening means 13, such as a strap or band of steel or the like having its ends connected as shown at 14 with commercial banding tools. Multiples of the skids 1 are employed for supporting items of substantial length as illustrated in FIG. 1. The bars 3, 5, 7 and 9 can be constructed of various materials, lengths of wooden two-by-fours having been found acceptable for these members.

An L-shaped plate or hinge member 15 has a relatively long arm 17 secured to side bar 5 by rivets 19. Hinge member 15 also has a relatively short arm 21 positioned at one side of one end of bottom bar 3. Arm 21 has an elongate slot 23 which extends longitudinally along the arm portion 21 and transverse to the length of side bar 5. A rivet or pivot pin 25 is secured in bottom bar 3 and passes through or is received in slot 23. With this mounting, the side bar 5 is slidable relative to the bottom bar 3 in the direction transverse to the length of the

side bar 5, and the side bar 5 can be swung about rivet 25 from the erect position shown in FIG. 2 to the collapsed position shown in FIG. 3.

Another L-shaped plate or hinge member 27 has a long arm 29 secured to side bar 7 by rivets 31, and a short arm 33 positioned at the side of the other end of bottom bar 3. An elongate slot 35 in arm 33 extends longitudinally along arm 33 transverse to the length of bar 7. A rivet 37 is mounted in bottom bar 3 and is received in or passes through slot 35 so that side bar 7 is movable or slidable with respect to the bottom bar 3 in the direction transverse to the length of the side bar 7, and the side bar 7 can be swung about rivet 37 from an erect position (FIG. 2) to a collapsed position (FIG. 3). FIG. 1 shows two of the hinge members 15 located on opposite sides of the side bar 5 and bottom bar 3 with the rivets 19 and 25 passing entirely through the side and bottom bars to mount both hinge members 15. In a similar manner, two hinge members 27 can be provided and connected to side bar 7 and bottom bar 3.

Slots 23 and 25 are sufficiently long and are located in hinge members 15 and 27, respectively, so that side bars 5 and 7 when in at least one position relative to bottom bar 5 may be swung from the erect position of FIG. 2 to the collapsed position of FIG. 3 by movement about pivots 25 and 37. When in the erect position, the lower ends of side bars 5 and 7 engage the top of bottom bar 3 to limit pivotal movement of side bars 5 and 7 outwardly or away from each other, such resulting from the binding engagement or contact between the lower ends of the side bars and the top surface of the bottom bar.

Slot 35 in hinge member 27 is spaced from the side bar 7 (offset from the central plane of the side bar) a greater distance than the spacing between slot 23 and side bar 5, the slot 35 being approximately one side bar width farther from bar 7 than the slot 23 is from bar 5. This permits the side bars 5 and 7 when collapsed to be in substantially parallel relation with side bar 5 nested under side bar 7 as illustrated in FIG. 3.

When it is desired to collapse the skid 1, side bars 5 and 7 are slidably moved to a position such as shown in FIG. 2 and side bar 5 is then swung downwardly or to the right as viewed in FIG. 2 to move the side bar 5 from the erect position of FIG. 2 to the collapsed position of FIG. 3 wherein the side bar 5 lies on top of the bottom bar 3. In a similar manner, side bar 7 is swung from the erect position of FIG. 2 to the collapsed position of FIG. 3 on top of the side bar 5. The free end of side bar 5 is tapered as shown at 38 so that it will not interfere with pivotal movement of side bar 7.

In using the skid of this invention, the side bars 5 and 7 are moved to the erect positon of FIG. 2 to form an open topped bin or cradle and elongate items 11, such as steel tubes or the like, can then be placed on the bottom bar 3 between side bars 5 and 7. When the items 11 have a substantial length, the skids 1 are used in multiples and located in spaced relation to each other as illustrated in FIG. 1. When it is desired to ship or transport the items 11 in skids 1, top bar 9 is positioned on top of the elongate items 11 and is held in position by passing a metal band or strap 13 around the bottom bar 3, side bars 5 and 7, and top bar 9 and drawing up of the strapping. As the strapping is drawn taut, side bars 5 and 7 move inward toward one another, while remaining erect,

as permitted by slots **23**. The ends of the strap or band **13** are then fastened as shown at **14** with commercial banding tools. The skids **1** and elongate items **11** then become a substantially unitary package which may be easily shipped without loss of items **11** from the skids. Band **13** is preferably tightly fastened in place to maintain some force or pressure on the elongate items **11** and prevent relative axial movement therebetween.

By removing band **13** and top bar **9**, the skid may be used as an open-top bin until all of the elongate items are removed. The skid can then be collapsed to the position shown in FIG. 3 and returned to the supplier of the elongate items or stored. Collapsing of the skids facilitates shipment, storage and handling of the skids. Use of the skid as a bin eliminates the need for moving the elongate items from a shipping crate to a temporary storage bin, thereby saving the purchaser time and expense. The skids **1** can be made inexpensively due to the few parts required and the fact that most parts can be made from stock items cut to the desired size.

In view of the above, it will be seen that the several objects of the invention are achieved and other advantageous results attained.

As various changes could be made in the above constructions without departing from the scope of the invention, it is intended that all matter contained in the above description or shown in the accompanying drawings, shall be interpreted as illustrative and not in a limiting sense.

What is claimed is:

1. A collapsible skid for holding a stack of elongate items such as steel tubes comprising a bottom bar and two side bars, each side bar having a pivotal and slidable connection with a respective end portion of the bottom bar such as to enable one side bar to be swung to a collapsed position on top of the bottom bar and the other side bar to be swung to a collapsed position on top of the one side bar, said side bars also being adapted to be swung to an erect position extending upward from the ends of the bottom bar and, while in said erect position, being laterally movable with respect to the bottom bar by reason of the slidable connections between the side bars and the bottom bar, said skid having a first generally L-shaped hinge member having one arm fixedly secured to the one side bar and having another arm with a slot therein, a second generally L-shaped hinge member having one arm fixedly secured to the other side bar and having another arm with a slot therein, two pivot pins mounted in the end portions of the bottom bar with end portions of the pins projecting into the slots in said hinge members to thereby provide the pivotal and slidable connection between the side bars and the bottom bar, said slots being elongated transverse to the length of said side bars to thereby permit lateral movement of said side bars, while in the erect position, relative to the bottom bar, said hinge members being connected to the side bars and said pivots being located on the bottom bars so that the lower ends of the side bars engage the top of the bottom bar when the side bars are in the erect position, thereby limiting pivotal movement of the side bars.

2. A collapsible skid for tubes or the like comprising a bottom bar and two side bars, hinge members connected to said side bars, each of said hinge members having a connection with a respective end portion of the bottom bar such as to enable one side bar to be swung to a collapsed position on top of the bottom bar and the other side bar to be swung to a collapsed position on top of the one side bar, said side bars being adapted to be swung to an erect position extending upwardly from the bottom bar, the side bars being mounted on hinge members so that lower ends of the side bars, when in the erect position engage the top surface of end portions of the bottom bar, each of said hinge members being generally L-shaped with one arm of each hinge member being connected to the side bars and with the other arm of each hinge member having a sliding connection with the bottom bar.

3. A collapsible skid for tubes or the like comprising a bottom bar and two side bars, hinge members connected to said side bars, each of said hinge members having a connection with a respective end portion of the bottom bar such as to enable one side bar to be swung to a collapsed position on top of the bottom bar and the other side bar to be swung to a collapsed position on top of the one side bar, said side bars being adapted to be swung to an erect position extending upwardly from the bottom bar, the side bars being mounted on the hinge members so that the lower ends of the side bars, when in the erect position, engage the top surface of end portions of the bottom bar, each of the hinge members having a slot therein, and pivot pins mounted on the bottom bar and received by the slots to thereby provide a sliding connection betwen the hinge members and the bottom bar.

4. A collapsible skid as set forth in claim **3** wherein said hinge members are generally L-shaped with one arm of each hinge member being connected to the side bars and with said slots being in the other arm of said hinge members.

5. A collapsible skid for elongate items comprising a bottom bar and two side bars, two L-shaped hinge members, a first one of said hinge members mounting one of said side bars for pivotal movement on said bottom bar so that said side bar can be swung to a collapsed position on top of said bottom bar, the second one of said hinge members mounting the other of said side bars on said bottom bar so that the other bar can be swung to a collapsed position on top of said one side bar and said bottom bar, said side bars having a slidable connection relative to said bottom bar, said skid having pivots mounted on end portions of said bottom bar and operatively connected to said hinge members to permit pivotal movement of said hinge members and said side bars relative to said bottom bar, said one of said side bars being closer to one of said pivots than the other of said side bars is from the other of said pivots when said side bars are in corresponding positions.

6. A collapsible skid as set forth in claim **5** wherein said hinge members have slots therein receiving said pivot pins to provide the slidable connection of said side bars relative to said bottom bar.

7. A collapsible skid for elongate items comprising a bottom bar and two side bars, two L-shaped hinge members, a first one of said hinge members mounting one of said side bars for pivotal movement on said bottom bar so that said side bar can be swung to a collapsed position on top of said bottom bar, the second one of said hinge members mounting the other of said side bars on said bottom bar so that the other bar can be swung to a collapsed position on top of said one side bar and said bottom bar, said side bars having a slidable connection relative to said bottom bar, each of said hinge members having a slot therein and the slots being of such length and so located in the hinge members that the side bars and hinge members can be moved to a position relative to said pivot pins where the bottom of said side bars are in binding engagement with said bottom bar to prevent pivotal movement of said side bars in at least one direction.

8. A collapsible skid for holding a stack of elongate items such as steel tubes comprising a bottom bar and first and second side bars, the first side bar having a pivotable and slidable connection with the bottom bar adjacent one end of the bottom bar and the second side bar having a pivotable and slidable connection with the bottom bar adjacent the other end of the bottom bar, each connection comprising a hinge member secured to one of the respective bars having a slot therein and a pin extending from the other of the respective bars received in the slot, said connections providing for swinging of the first side bar to a collapsed position lying on top of the bottom bar and for swinging of the second side bar to a

collapsed position lying on top of the collapsed first side bar, and for swinging of the side bars to an erect position extending upward from the bottom bar adjacent its ends with the lower ends of the side bars engaging the top of the bottom bar, said slots extending transversely to the side bars when the latter are in their erect position enabling sliding of the erected side bars relative to the bottom bar in the direction transverse to the length of the side bars.

9. A collapsible skid as set forth in claim 8 wherein said hinge members are secured to the side bars and said pins extend from the bottom bar, said slots being in said hinge members extending transverse to the length of said side bars.

10. A collapsible skid as set forth in claim 9 wherein the slot in the hinge member on the first side bar is offset from the central plane of the first side bar a first distance and the slot in the hinge member on the second side bar is offset from the central plane of the second side bar a second distance greater than said first distance.

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