Aug. 5, 1969 F. F. BRUNETTE 3,459,120

RACK FOR BINDING BUNDLES

Filed May 15, 1967

FIG. 1

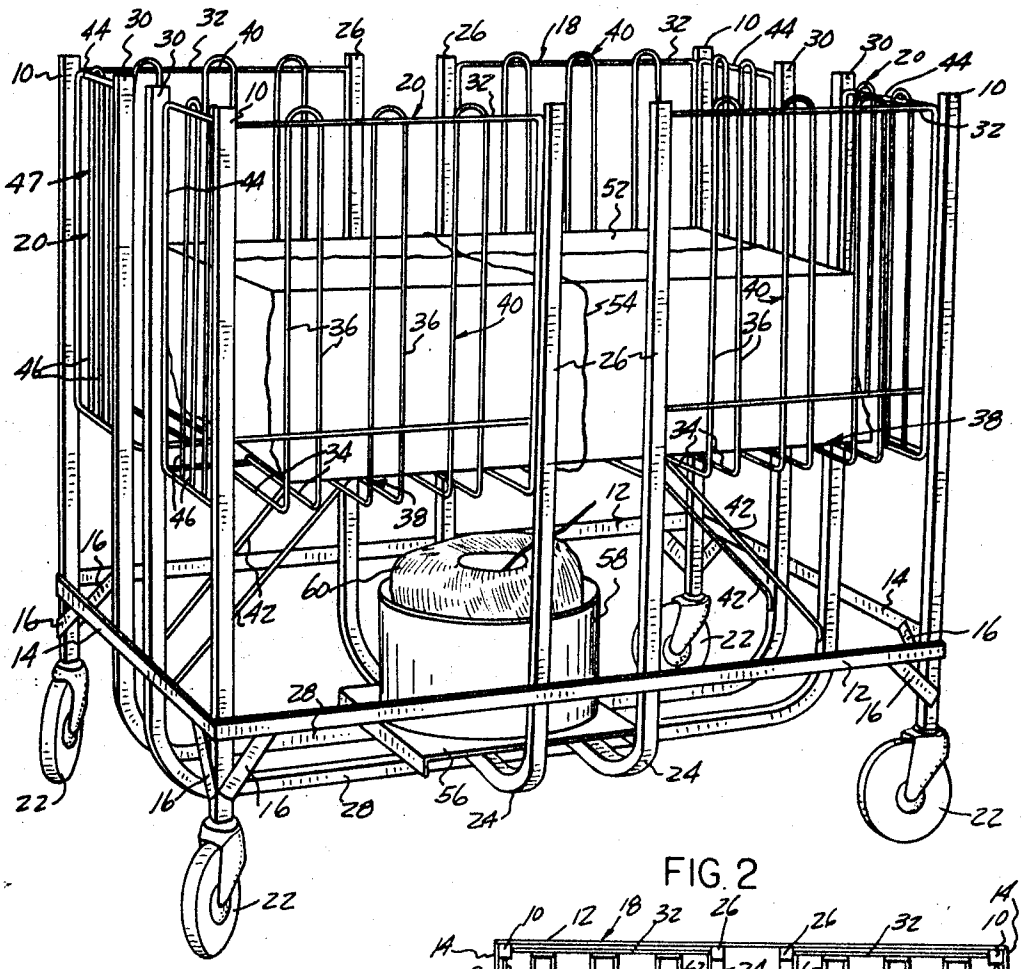


FIG. 2

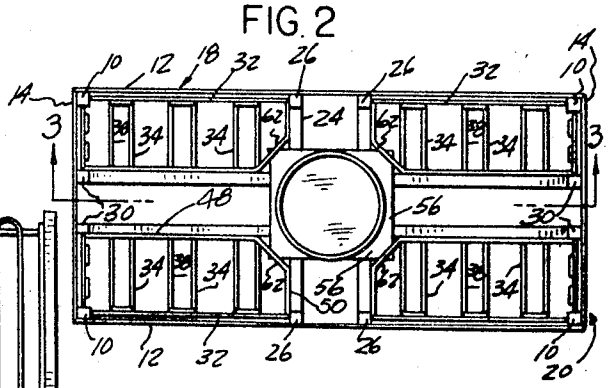
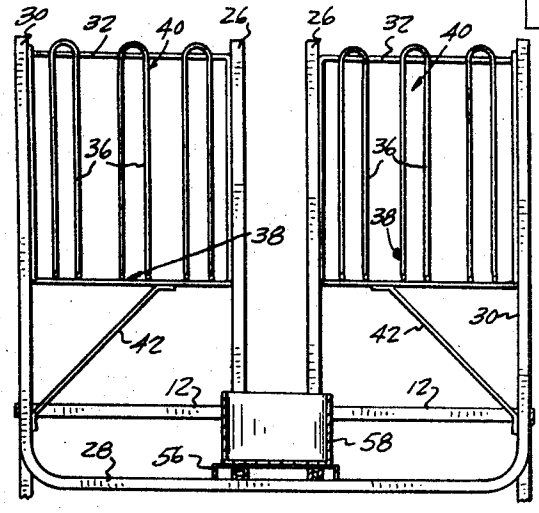


FIG. 3



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RACK FOR BINDING BUNDLES

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ABSTRACT OF THE DISCLOSURE

A four sided, open topped container is supported by a frame above a base. A continuous, open ended, narrow opening extends down the mid-section of each of the container sides and extends in the container bottom to a common intersection in the middle of the bottom. A ball of twine, supported on the base, and below the common intersection provides a strand for encircling a stack of collapsed carboard boxes confined within the container in two perpendicular directions without manipulating the stack.

BACKGROUND OF THE INVENTION

Field of the invention

This invention elates to a rack for containing a stack of collapsed cardboard boxes with the supporting sections arranged to permit the stack to be encircled by a strand of twine in at least two directions without moving the stack.

Description of the prior art

It is common practice to bind accumulations of papers, collapsed carboard boxes and the like into convenient bundles for transportation. A common problem encountered in binding a stack of articles of this character is the difficulty in forming a loop of a binding strand around the stack in a direction which includes the lower supported surfaces.

The problems in binding a stack of articles of this character take two general forms. First if the stack is of any size, the weight of the stack contributes to the difficulty in manipulating the binding twine under the lower portions of the stack. This problem is even more pronounced where the stack must be bound by two perpendicular loops of binding twine.

The second problem is related to binding a stack of articles having non-uniform dimensions. Thus, collapsed carboard boxes of various sizes are often difficult to stack to a convenient height because of their tendency to collapse.

The preferred embodiment of the present invention provides a rack having support members arranged to confine a number of articles in a stack and permitting the stack to be bundled by encircling the stack in at least two directions without moving the stack from its supporting surface.

SUMMARY

The preferred embodiment of the present invention, which will be subsequently described in greater detail takes the form of a wheeled frame having a base and four upstanding corner supports defining a generally four-sided structure. A pair of parallel U-shaped tubular members have their legs closely spaced apart and extending upwardly from the base to form the midportion of a pair of opposite sides of the rack. A second pair of parallel U-shaped tubular members also having upwardly directed legs closely spaced apart form the midportion of the remaining pair of sides of the rack. A generally horizontal bundle supporting section is attached to each corner upright member and its neighboring legs.

The four bundle supporting sections have their upper surfaces disposed in a common horizontal plane and are spaced apart from one another to define a pair of perpendicular and intersecting openings forming a horizontal extension of each of the narrow openings defined by the legs.

The leg members and the corner posts extend above the bundle supporting sections to support wall sections connecting each corner upright and its neighboring leg members. Thus, the bundle supporting sections and the wall sections define a four-sided open topped container for confining articles which are disposed therein so that they may be stacked one above the other to a suitable height. The continuous intersecting narrow openings in the sides and bottom of the container permit a strand of binding material to be encircled about the stack in at least two directions without removing the stack from its supporting surface.

A ball of twine is preferably disposed in a container supported by the base and below the intersection of the narrow openings so that a strand of suitable length can be conveniently unwound.

It is therefore an object of the present invention to provide a rack for supporting a stack of collapsed cardboard boxes or the like for bundling with the stack supporting sections arranged so that a binding strand can be wrapped around the stack in at least two perpendicular directions including the lower supported sides of the stack without moving the stack from its supporting surface.

It is another object of the present invention to provide a container for confining stackable articles and permitting the stacked articles to be bound by a strand encircling its horizontal surfaces without displacing the stack from its supporting surfaces.

It is another object of the present invention to provide a rack for bundling papers and the like with side walls for confining the stacked papers and a continuous narrow opening connecting each pair of opposite side walls and the base, the continuous openings permitting an uninterrupted access to the stack for bundle tying means.

Still further objects and advantages of the present invention will become readily apparent to one skilled in the art to which the invention pertains upon reference to the following detailed description:

DESCRIPTION OF THE DRAWING

The description refers to the accompanying drawings in which like reference characters refer to like parts throughout the several views and in which:

FIG. 1 is a perspective view of a rack useful for containing and bundling a stack of articles and illustrating a preferred embodiment of the present invention;

FIG. 2 is a plan view of the rack illustrated in FIG. 1; and

FIG. 3 is a transverse elevational sectional view taken along lines 3—3 of FIG. 2.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Now referring to the drawings, a preferred bundle binding rack comprises four, tubular, upright, corner members **10** spaced apart from one another and connected by a pair of long, horizontal, support members **12** and a pair of short, horizontal, supports **14**. A pair of diagonal braces **16** connect each of the corner members **10** to the long horizontal supports **12** and the short horizontal supports **14**. Thus, the four corner members **10** and their connecting support members **12** and **14** provide a four-sided structure having a pair of long sides **18** connected by a pair of short sides **20**.

Wheeled means **22** are attached to the lower end of each of the corner members **10**, preferably with a pair

of wheels 22 associated with one of the short sides 20 mounted for pivotal movement about a vertical axis while the opposite pair of wheels 22 are fixed from pivotal movement so that the bundle binding rack is steerable as well as mobile.

A pair of tubular U-shaped members 24 having upwardly directed leg sections 26 are attached to each of the long horizontal supports 12. The U-shaped members 24 are similar and arranged so their companion leg section 26 are arranged in spaced apart parallel relationship. The legs 26 are arranged midway between the corner members 10 and are spaced apart a distance sufficient to accommodate a manual binding operation.

A second pair of tubular U-shaped members 28 having upwardly directed leg elements 30 are attached to the short horizontal supporting member 14 midway between the corner members 10 associated with the short sides 20. The U-shaped members 28 are similar to one another and arranged so that each pair of legs 30 are arranged in a spaced apart parallel relationship to permit a manual binding operation to be performed therebetween. The bight portions of the U-shaped members 24 are arranged in an overlapping abutting relationship with the elongated bight portions of the U-shaped members 28 to therein define a base for the rack.

Preferably the upper ends of the corner members 10 and the legs 26 and 30 extend to a common vertical height. An elongated L-shaped wire member 32 connects each corner member 10 with its neighboring leg elements 26 and 30. A plurality of L-shaped wire members having horizontal legs 34 and vertical legs 36 are carried by each L-shaped member 32. The legs 34 carried by each member 32 comprise what will be referred to as a horizontal bundle supporting section 38, while the vertical legs 36 form a vertical wall section 40.

A diagonal brace member 42 supports each bundle supporting section 38 with its lower end attached to a leg 30 and its upper end attached to the horizontal portion of an L-shaped member 32. Thus, the sections 38 are supported so that the upper surfaces lie in a common horizontal plane.

A rectangular wire member 44 connects each of the corner members 10 with its neighboring leg 30 and provides means for supporting a plurality of vertical wire members 46. Each rectangular wire 44 and its associated vertical wire members 46 form a vertical wall section 47.

Thus, it can be seen that the horizontal supporting sections 38, the vertical wall sections 40 and the vertical wall sections 47 provide an open-topped four-sided container for confining a plurality of articles such as paper, collapsed cardboard cartons and the like in a stacked arrangement.

Referring to FIG. 2, the horizontal legs 34 of the L-shaped member 32 extend parallel to one another from the supporting legs 26 and 30 to define an elongated opening 48 extending between the short sides 20 of the rack and a second elongated opening 50 extending between the long sides 18 of the rack. The legs 30 provide an upward extension of the elongated opening in each of the short sides 20 while the legs 26 provide an upward extension of the opening 50 in each of the long sides 18 of the rack. It can be seen that the openings 48 and 50 intersect in the midportion of the bundle supporting surface and are arranged at a perpendicular relationship to one another.

Referring to FIG. 1, a stack of articles indicated at 52 can be stacked on the supporting sections 38 and easily bound by a continuous strand 54 of twine or other suitable binding material by encircling the stack 52 about its midsection in two perpendicular directions. The openings 48 and 50 permit the strand 54 to be wrapped about the stack without moving the stack from its supporting sections 38. This binding operation can be performed in a quick and easy manner because the legs 26 and 30 are spaced apart a distance permitting the user's arms to be inserted therebetween in performing the binding operation.

A flat supporting member 56 is fixed at the intersections of the bight portions of the U-shaped members 24 and 28 and carries an open topped cylindrical receptacle 58. The receptacle 58 provides means for storing a ball of twine 60 which is unwound as necessary to provide the strands 54 for wrapping the stacks.

As can best be seen in FIG. 2, the receptacle 58 is preferably disposed directly below the intersection of the openings 48 and 50 so that the free end of the twine is readily accessible to the user. Preferably the corners of the horizontal portions of the L-shaped members 32 are bent away from the intersection to permit a large ball of twine 60 to be deposited downwardly between the supporting sections 38 and into the receptacle 58.

Thus, it can be seen that I have described in detail a mobile rack providing means for confining collapsed cardboard boxes, paper and the like in a stacked arrangement and permitting an uninterrupted access around the midportions of the stack so that a binding element can be easily encircled around the supported portions of the stack. The preferred rack permits a stack of articles to be bundled without moving the stack during the binding operation and while confining the articles in the stacked arrangement to prevent collapsing.

I claim:

1. A rack useful for bundling a stack of cardboard boxes, paper and other like articles, comprising:

(a) a frame having a base and a plurality of upright support elements extending upwardly from said base,

(b) a plurality of bundle supporting sections attached to said upright support elements, said bundle supporting sections having upper surface sections providing a generally horizontal bundle supporting surface spaced above said base, said bundle supporting sections arranged such that the upper surface sections are arranged in spaced apart relationship to define a pair of perpendicularly related elongated openings in said bundle supporting surface, said openings intersecting in a central portion of said bundle supporting surface, and each of said elongated openings permitting access to bundle binding means to a lower supported surface of the stack of articles disposed on said bundle supporting surface, and

(c) a container affixed to said base below and adjacent the intersection of said openings for supporting a continuous strand for binding said stack whereby said container permits a feed-out of said strand in a close proximity to said elongated openings.

2. The rack as defined in claim 1 and including wheel means supporting said frame.

3. A rack useful for bundling a stack of cardboard boxes, paper and the like, comprising:

(a) a frame having a base and a plurality of upright support elements extending upwardly from said base,

(b) a plurality of bundle supporting sections attached to said upright support elements, said bundle supporting sections having upper surface sections providing a generally horizontal bundle supporting surface spaced above said base, said bundle supporting sections arranged such that the upper surface sections are spaced to define a pair of perpendicularly related elongated openings in said bundle supporting surface, and each of said elongated openings permitting access for bundle binding means to a lower supported surface of a stack of articles disposed on said bundle supporting surface, and

(c) said frame further comprising a pair of elongated, U-shaped members associated with each of said elongated openings, each of said U-shaped members having a bight section forming a part of said base and upwardly directed legs supporting said bundle supporting sections, each of said U-shaped members of said pairs arranged in parallel relationship and spaced apart from one another a distance sufficient to permit continuous uninterrupted access for said bundle

binding means between the corresponding legs of said U-shaped members and around a stack of articles disposed on said bundle supporting surface.

4. A rack as defined in claim 3, wherein the legs of said U-shaped members extend upwardly and above said bundle supporting surface a distance sufficient to provide lateral support to a stack of articles disposed on said bundle supporting surface.

5. A rack as defined in claim 3, including means for supporting a continuous strand of said bundle binding means, said strand supporting means permitting a feed-out of said strand in a close proximity to said elongated opening.

6. A rack as defined in claim 5, wherein said strand supporting means is fixed to said base below said bundle supporting surface and arranged to permit feed-out of said continuous strand in close proximity to the intersection of said elongated openings.

7. A rack as defined in claim 5, wherein said strand supporting means comprises a container having upwardly directed sidewalls and an open top, said container being fixed to said base, said open top arranged below the intersection of said elongated openings, and said intersection providing an opening sufficient to permit a ball of binding twine to be deposited downwardly through said opening and into said container.

8. A rack as defined in claim 3, wherein said frame has upwardly directed elongated corner members, and

including wall sections joining each of said legs to a corner member so that the wall sections and said bundle supporting sections define a generally rectangular and open topped container for a stack of articles permitting access for bundle binding means to encircle said stack with a continuous strand about at least two perpendicular directions without moving said stack.

9. A rack as defined in claim 8, including wheel means supportably attached at the lower end of said corner members.

10. A rack as defined in claim 9, wherein the bight portions of said U-shaped members form said base and including means for containing a ball of a continuous strand supported on said base, said containing means permitting feed-out of said strand below the intersection of said elongated openings.

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