

[54] **STACKING AND BUNDLING DEVICE FOR NEWSPAPERS, MAGAZINES, AND OTHER RECTANGULAR SHEET MATERIALS**

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[56] **References Cited**

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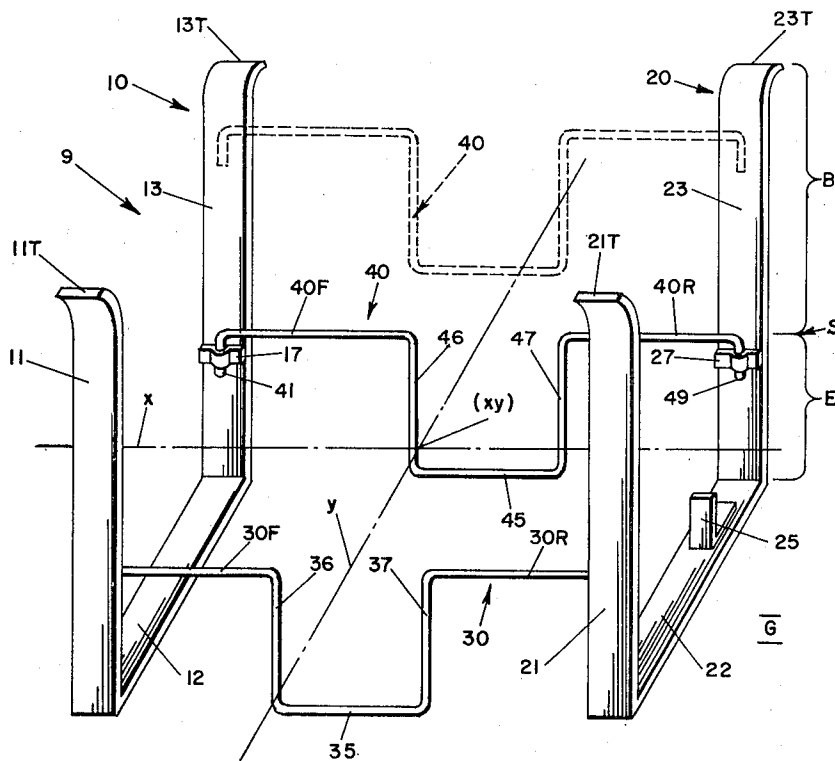
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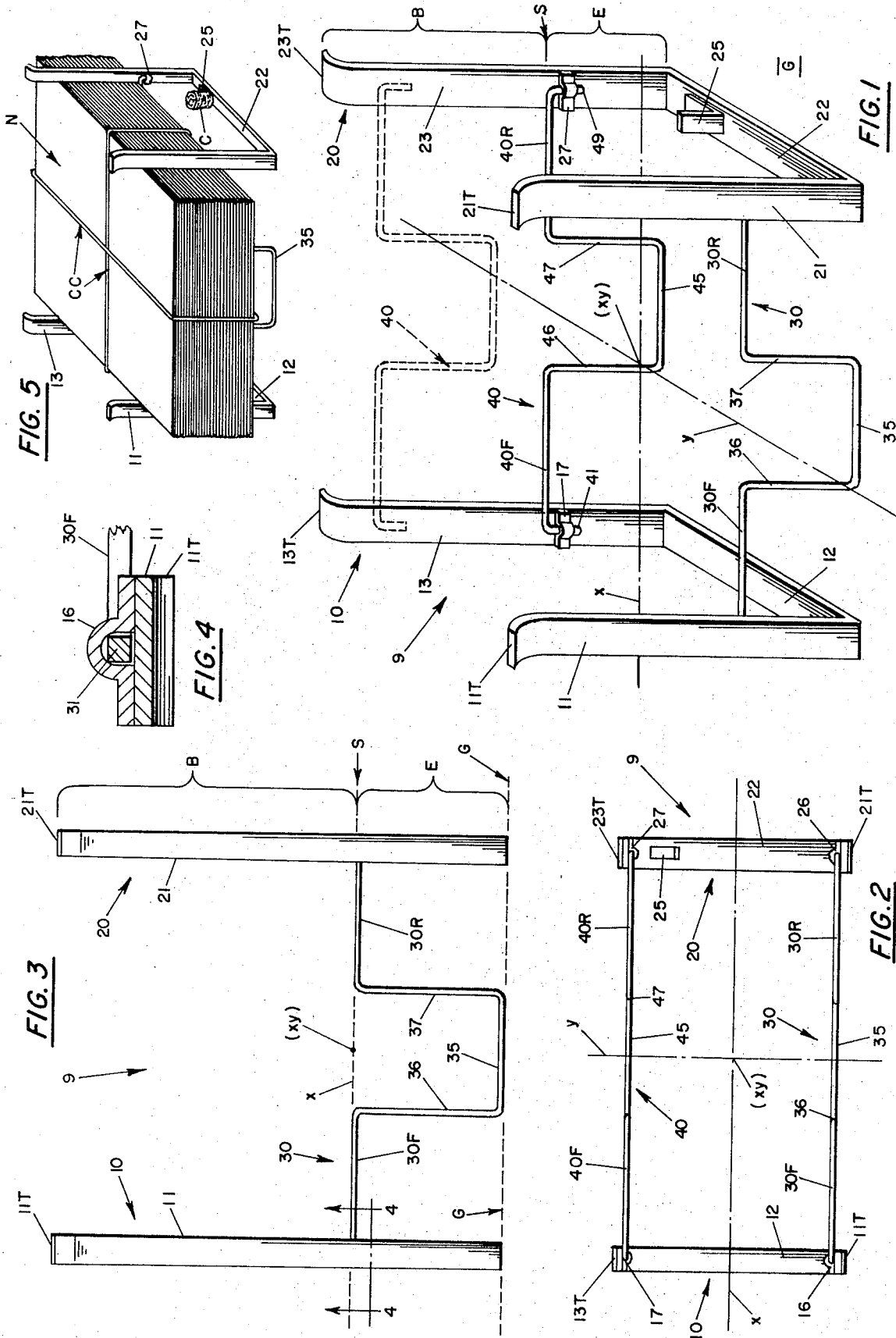
[57] **ABSTRACT**

There is provided a device to allow the typical subscriber of newspapers, magazines, and other periodical publications to compactly store outdated issues in easily bundleable laminar form and in a readily transportable condition for paper recycling salvage operations. The stacking and bundling device generally comprises a shelf means lying within a substantially horizontal shelf-plane and that is provided with cross-wise slots vertically therethrough whereby the shelf means includes four distinct isolated quadrants, an elevator means for stably elevating the tetra-quadrants shelf means well above an underlying substrate, and a skeletal bin means extending loftily upwardly from the shelf means so as to provide lateral restraint for the sheet materials stack; the elevator and the skeletal bin for generous vertical distances extending respectively below and above the shelf-plane are sufficiently structurally open laterally so as to not intersect vertical planes passing through the shelf means cross-wise slots. The preferred embodiment comprises only a few planar structural elements that can be shipped and merchandised in a very compact carton and then easily assembled by even the mechanically unsophisticated into a highly utilitarian structure to permit ready stacking and bundling of outdated periodical publications.

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4 Claims, 5 Drawing Figures





STACKING AND BUNDLING DEVICE FOR NEWSPAPERS, MAGAZINES, AND OTHER RECTANGULAR SHEET MATERIALS

Subscribers to daily and weekly newspapers, magazines, and other periodical publications are faced with the problem of disposing of the outdated issues. Over the years the paper salvage value of periodical publications has not been sufficient to warrant the time and effort of most individual subscribers to carry his own outdated copies to commercial paper salvagers. Accordingly, many periodical readers have routinely discarded outdated issues in trash cans for pick-up and eventual destruction by municipal sanitation authorities. In various residential areas, certain eleemosynary solicitation agencies such as boy scouts, civic clubs, church and school groups, etc., ancillary to funds raising projects, have attempted to collect outdated periodicals on intra-neighborhood house-to-house solicitation basis, the collected paper being sold in gross to commercial salvagers. Eventhough the typical periodical subscriber is sympathetically inclined toward such solicitation agencies, the task of saving and bundling outdated periodicals for periodic collection is so irksome as to dissuade many would-be paper donors from cooperating. In particular, the typical periodical subscriber finds the task of tying loose newspaper stacks into bundles so disagreeable and tedious that he postpones this operation as long as possible. Inevitably, during the procrastination period, the loose laminar stack becomes so shifted laterally or so tall as to be unmanageable whereupon many would-be paper donors become disgusted and discard the entire interim collection into the trash can. Thus, not only is the eleemosynary solicitation agency deprived of revenue from waste paper sales, but also the waste paper further burdens the municipal sanitation facilities and to the detriment of the public environment.

It is accordingly the general object of the present invention to provide a stacking and bundling device for rectangular sheet materials such as newspapers and magazines whereby the typical subscriber to periodical publications will be encouraged to save outdated issues for constructive recycling and re-use of the paper material rather than destroying same and to the detriment of the public environment.

It is a specific object to provide a device whereby newspapers and magazines might be loosely stacked in neat horizontally laminar form and protected from lateral shifting and sliding until such time as the laminar stack might be secured into manipulatable bundles with string, cord, etc.

It is a further object to provide a device to greatly expedite and facilitate the task of securely tying outdated periodicals into readily handlable bundles.

It is another object to provide a means for loosely stacking outdated periodicals in neat laminar fashion at almost any desired floor location of the typical house or apartment, including various locations at inconspicuous areas which need not be immediately adjacent to a wall area.

It is a further object to provide a stacking and bundling device for outdated periodicals that can be shipped and merchandised in an exceedingly compact form, that is simple to erect, that is of low cost to the typical periodical subscriber, and that is exceedingly reliable in use and operation.

With the above and other objects and advantages in view, which will become more apparent as this description proceeds, the stacking and bundling device generally comprises: a shelf means lying within a substantially horizontal shelf-plane which is defined by a pair of mutually perpendicular horizontal axes including a longitudinally extending major x -axis and a transversely extending minor y -axis, the shelf means being cross-wise slotted vertically therethrough along said intersecting horizontal axes to provide four distinct isolated quadrants for the shelf means; elevator means attached to and extending downwardly from the shelf means to elevate same well above an underlying substrate, the downwardly extending elevator means being positioned wholly remote from the shelf means cross-wise slots whereby the operator can extend his arm between the shelf-plane and the underlying substrate and either of said axes ancillary to bundling operations; and a skeletal bin means attached to and extending loftily vertically upwardly from the shelf means, said lofty bin means being sufficiently laterally open structurally at and above the shelf means so as to not intersect vertical reference planes passing through the said shelf-plane horizontal axes.

In the drawing, wherein like characters refer to like parts in the several views, and in which:

FIG. 1 is a perspective view of a representative embodiment of the stacking and bundling device of the present invention.

FIG. 2 is a top plan view of the FIG. 1 embodiment.

FIG. 3 is a left side elevational view of the FIG. 1 embodiment, the right side elevational view being a substantial mirror image thereof.

FIG. 4 is a detail sectional plan view taken along line 4-4 of FIG. 3.

FIG. 5 is a perspective view similar to FIG. 1 showing a stack of bundled newspaper sheet materials removably supported within the skeletal bin portion of the FIG. 1 embodiment.

The stacking and bundling device generally comprises a shelf means S lying within a substantially horizontal shelf-plane defined by perpendicularly intersecting horizontal axes including longitudinal major x -axis and transversely extending minor y -axis. The entire shelf means S is cross-wise slotted vertically there-through along said axes x and y whereby shelf S includes four distinct isolated quadrants (e.g. 30F, 30R, 40F, 40R) all located substantially within shelf-plane xy . There is an elevator means E for stably supporting the shelf means above a floor G or other suitable underlying substrate. Extending loftily upwardly from the shelf means so as to provide bi-directional lateral restraint for the loose sheet material stack is a skeletal bin means B e.g. the upper major height of opposed U -members 10 and 20. It is seen that the elevator means E and also the bin means B are sufficiently laterally open structurally at the shelf means that, for generous distances extending in both vertical directions of shelf-plane xy , neither bin B nor elevator E intersects vertical reference planes passing through axes x and y .

Thus, as alluded to in FIG. 5, for a loose laminar stack of folded newspapers supported upon shelf means S , there is ample room for the operator to extend his arm between shelf means S and substrate G to pass cord or string along the respective axes x and y . Moreover, owing to the said skeletal nature of the bin means

B, the operator can readily tie the loose stack into bundles to provide cross-wise girth-bands CC, whereupon the tied laminar bundle N can be easily removed from the lofty bin portion. For the typical folded rectangular newspaper having dimensions twelve inches by sixteen inches, the shorter twelve inch dimension extends along shelf major axis *x* and is bi-laterally confined, as between U-members 10 and 20. Accordingly, the newspaper longer sixteen inch dimension extends along minor axis *y* (herein cantileverly beyond both connector-bars 30 and 40). The elevation of shelf means S above substrate G should exceed about four inches while the bin B should extend at least about ten inches above the shelf. The device desirably includes an upright spindle 25 located below the shelf and adapted to carry a spool winding of cord C thereon.

The preferred embodiment 9 of the stacking and bundling device comprises only four separable parts (10, 20, 30, and 40) which, because of their planar natures, can be shipped and merchandised in relatively compact cartons. Moreover, as indicated in phantom line 40 in FIG. 1, the device 9 can be readily assembled and disassembled by even the mechanically unsophisticated consumer.

There is a pair of dimensionally similar U-shaped members 10 and 20, rear U-member 20 differing from front U-member 10 herein only in having as an additional structural feature the L-shaped bracket or spindle weldably attached to spacer-leg 22. The respective U-members 10 and 20 are uniplanar and aptly provided with a permanently bent length of sturdy strap iron having a regular cross-sectional area as indicated in FIG. 4 (and herein measuring one inch by one-eighth inch). Each U-member comprises a pair of substantially parallel upright-legs of similar heights including a first-leg and a second-leg and a transversely extending intervening spacer-leg. Herein, front U-member 10 has vertical first-leg 11, vertical second-leg 13, and horizontal spacer-leg 12, while rear U-member 20 has vertical first-leg 21, vertical second-leg 23, and horizontal spacer-leg 22. The respective spacer-legs 12 and 22 preferably have a transversely horizontally extending length of about nine inches, and the vertical height of the two upright-legs of each U-member exceeds about twelve inches. The upper major height (e.g. above 16-17, 26-27) of the four upright-legs aptly provide the entire skeletal bin means B. There are means, such as longitudinally extending elongate connector-bars 30 and 40, for maintaining the U-members 10 and 20 in substantial parallelism on opposite sides of the shelf-plane transversely extending minor *y*-axis and for also maintaining the two first-legs and the two second-legs on opposite sides of the shelf-plane longitudinally extending *x*-axis.

The respective elongate connector-bars 30 and 40 are uniplanar and provided of a permanently bent length of iron rod having a regular rectangular cross-sectional area as indicated in FIG. 4 (and herein measuring one-fourth inch square). First-bar 30 and herein identical second-bar 40 occupy vertical planes located on opposite sides of the shelf-plane *x*-axis; forward parts (e.g. 31, 41) of the connector-bars are attached to front U-member 10 and their rearward parts (e.g. 39, 49) are attached to rear U-member 20. Forward and rearward portions, but not the medial portions, of connector-bars 30 and 40 provide the shelf means. For example, first-bar 30 has a lineal horizontal forward por-

tion 30F and a colinear rearward portion 30R, said two lineal portions 30F and 30R together providing about two-thirds the overall longitudinally extending length between U-members 10 and 20. Similarly, second-bar 40 has a lineal horizontal portion 40F and a colinear rearward portion 40R, said portions 40F and 40R being separated by elements 45-47. Thus, each of the said four horizontal lineal portions (30F, 30R, 40F, and 40R) lies substantially within shelf-plane *xy* and provides one of the four isolated distinct quadrants for shelf means S. First-bar 30 includes the following elements along the entire bent length (about 26½ inches): horizontal lineal portions 30R and 30F (about 4.75 inches each); vertical lineal portions 36 and 37 (about 4.75 inches each); vertical lineal termini 31 and 39 (about 1½ inches each); and horizontal medial lineal portion 35 (about 4½ inches). Thus, assuming that the quadrants 30F, 30R, 40F, and 40R, lie within a shelf-plane *xy* located about 4.75 inches above substrate G, the lineal medial portions 35 and 45 and the two spacer-legs 12 and 22 all occupy the same horizontal plane G.

Removable attachment between the termini of the connector-bars 30 and 40 and the U-members 10 and 20 is herein provided with a semi-circular loop attached (as by welding) to the interior side of the U-members' upright-legs. For example, the two legs 11 and 13 at a common elevation above G (and 12) are provided with loops 16 and 17 respectively; similarly, the two legs 21 and 23 at said common elevation above G (and 22) are provided with loops 26 and 27, respectively. Terminus 31 extends slidably downwardly through loop 16 and terminus 39 extends slidably downwardly through loop 26 whereby mount-locations 16 and 26 hold shelf quadrants 30R and 30F within shelf-plane *xy*. Similarly, mount-locations 17 and 27, through second-bar termini 41 and 49, hold shelf quadrants 40R and 40F within shelf-plane *xy*. Thus, it can be seen that for embodiment 9, the shelf means cross-wise vertical slots therethrough measure about 4½ inches wide along the *y*-axis and nearly nine inches along the *x*-axis. The upper minor terminal portions of the four upright legs, and designated with the suffix T e.g. 11T, extend outwardly whereby the skeletal bin means upper portion is outwardly flared to facilitate loose stacking and ultimate bundle removal from the bin means B.

It is readily apparent from FIG. 1 that skeletal bin means B is sufficiently structurally open in all four lateral directions that imaginary vertical planes passing through axes *x* and *y* will not intersect the bin means structural elements. Moreover, such imaginary vertical planes for a few inches extending below the shelf-plane *xy* will not intersect the elevator means E structural elements. Thus, the operator can easily extend his arm between the shelf means and the underlying substrate G (herein defined by horizontal members 12, 22, 35 and 45) and along the respective crossed axes *x* and *y*; cross-wise girth-bands CC from spool C can be easily secured around a loose laminar stack of newspapers as indicated in FIG. 5. Moreover, owing to the said skeletal nature of the bin means B, the bundle N can be easily removed therefrom whereby another loose stack of periodicals can be built upon the shelf means S. In the example described above, the tetraquadrants horizontal shelf means comprising a total of only about nineteen inches of the one-fourth inch rod stock (e.g.

30,40) will amply support more than one hundred and fifty pounds of newspapers or other laminar sheet material.

From the foregoing, the construction and operation of the stacking and bundling device will be readily understood and further explanation is believed to be unnecessary. However, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction shown and described, and accordingly, all suitable modifications and equivalents may be resorted to, falling within the scope of the appended claims.

I claim:

1. A stacking and bundling device for newspapers, magazines, and similar rectangular sheet materials and including a substantially horizontal uniplanar shelf means elevated above a suitable underlying planar substrate, the horizontal shelf-plane being defined by a pair of mutually perpendicular intersecting horizontal axes including a longitudinally extending major x-axis and a transversely extending minor y-axis, said shelf means being cross-wise slotted vertically therethrough and along said intersecting horizontal axes whereby the shelf means includes four isolated distinct quadrants, said stacking and bundling device comprising:

A. A pair of substantially parallel uniplanar U-shaped members located on opposite sides of said y-axis, each U-member including an upright first-leg and an upright second-leg located on opposite sides of said x-axis and also a transversely extending spacer-leg adapted to abuttably rest upon said underlying substrate, the two first-legs and the two second-legs together wholly providing a skeletal bin means commencing and extending loftily upwardly from the said shelf-plane; and

B. A pair of substantially parallel longitudinally extending elongate connector-bars including a first-bar and a second-bar located on opposite sides of said major x-axis, each said connector-bar being singularly constructed of a single length of permanently formed sturdy construction material and occupying a single vertical plane, the first-bar being removably connected to the two first-legs and the second-bar being removably connected to the two second-legs, each said connector-bar comprising the following three longitudinally extending horizontal elements along the length thereof:

- i. two horizontally aligned lineal portions defining in elevation the said shelf-plane, the four total said horizontal portions wholly providing the four isolated quadrants of the connector-bars type shelf means; and
- ii. A horizontal medial linear portion located between the said two horizontally aligned lineal portions and also located in elevation below the said shelf-plane.

2. A stacking and bundling device for newspapers, magazines, and similar rectangular sheet materials and including a substantially horizontal uniplanar shelf means elevated above a suitable underlying planar substrate, the shelf-plane being defined by a pair of mutually perpendicular intersecting horizontal axes including a longitudinally extending major x-axis and a transversely extending minor y-axis, said shelf means being cross-wise slotted vertically therethrough and along said horizontal axes whereby the shelf means includes

four isolated distinct quadrants, said stacking and bundling device comprising:

A. A pair of substantially parallel uniplanar U-shaped members located on opposite sides of said y-axis, each U-member including an upright first-leg and an upright second-leg located on opposite sides of said x-axis and also a transversely extending spacer-leg adapted to abuttably rest upon said underlying substrate, the first-leg and the second-leg of each U-member being provided with a loop and the four said loops being located at substantially common elevation and together defining said shelf-plane, the two first-legs and the two second-legs together providing a skeletal bin means located and extending loftily upwardly from the said shelf-plane; and

B. A pair of substantially parallel longitudinally extending elongate connector-bars including a first-bar and a second-bar located on opposite sides of said major x-axis, each said connector-bar being singularly constructed of a single length of permanently bent sturdy rod stock and occupying a single vertical plane, each said connector-bar comprising the following elements along the bent length thereof:

- i. vertical lineal terminii portions respectively extending slidably downwardly into the U-member loops to provide removably attachment between the connector-bar and the respective U-members;
- ii. a horizontal medial lineal portion located in elevation between the U-member loops and spacer-leg and nearer to said spacer-leg; and
- iii. two horizontal intervening lineal portions located in elevation substantially at the shelf-plane defined by said loops, the four total intervening portions wholly providing the four isolated quadrants of the connector-bars type shelf means.

3. The stacking and bundling device of claim 2 wherein each of said uniplanar U-members is provided of a single length of permanently bent sturdy strap material and having outwardly flared upper terminii for the first-leg and the second-leg; wherein the loops are located nearer in elevation to the U-members' spacer-legs than to the outwardly flared upper terminii and whereby the two first-legs and the two second-legs together wholly provide a four-membered skeletal bin means; and wherein the two horizontal medial portions of the two connector-bars are at common elevation with the U-member spacer-legs and too adapted to abuttably rest upon said underlying substrate.

4. The stacking and bundling device of claim 3 wherein the longitudinally extending distance between the two U-members as determined by the connector-bars' said horizontal lineal portions exceeds the transversely extending length of a U-member spacer-leg; wherein the two horizontal intervening lineal portions of a connector-bar are co-lineal and represent a ratio of about two-thirds as compared to the longitudinal distance between the U-members; wherein the two connector-bars are of identical shape and size; and wherein at least one of the two U-members at a spacer-leg carries a vertical spindle located entirely below the loops' elevation and also markedly transversely offset from the x-axis and hence much nearer to one U-member leg.

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