

Feb. 8, 1966

D. P. STEWART ET AL

3,233,611

RING SECTION FOR VISIBLE SECTIONAL FILING

Filed Sept. 7, 1962

2 Sheets-Sheet 1

FIG. 1.

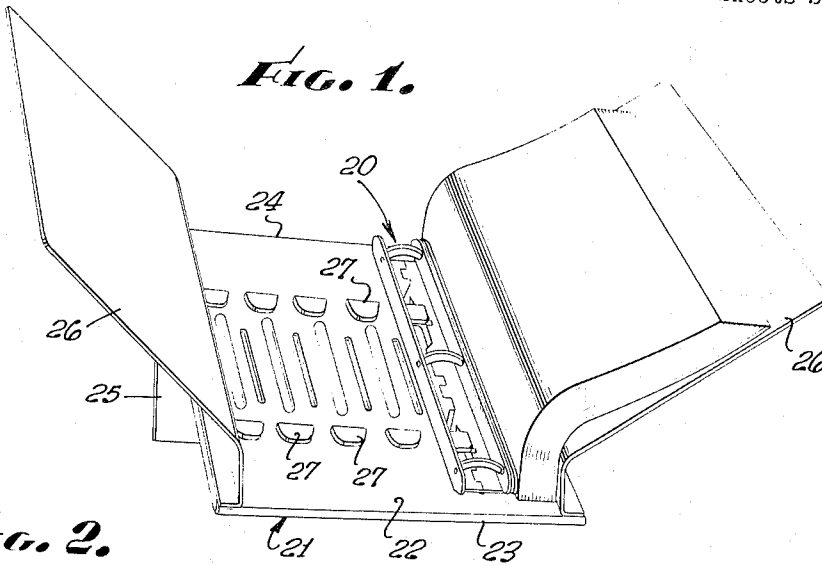


FIG. 2.

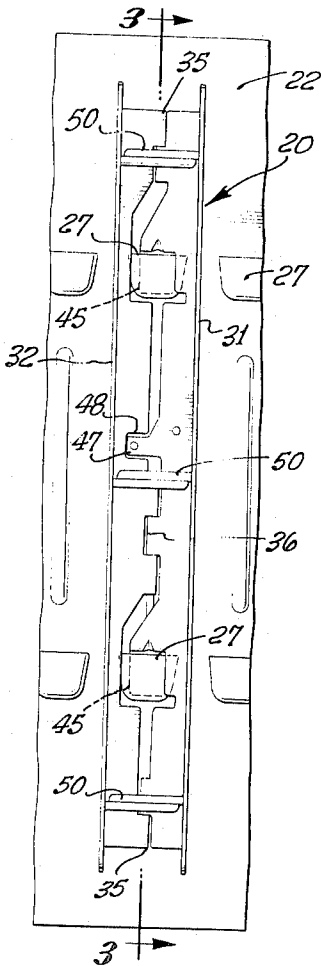


FIG. 3.

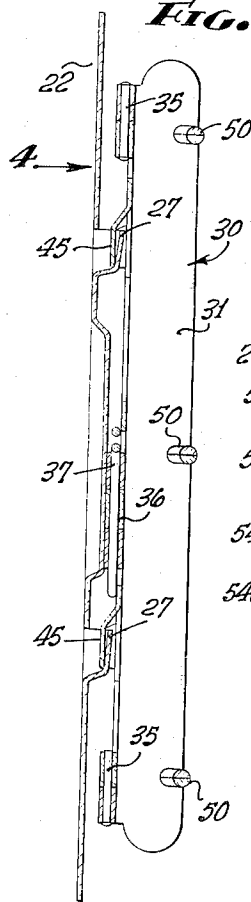


FIG. 10.

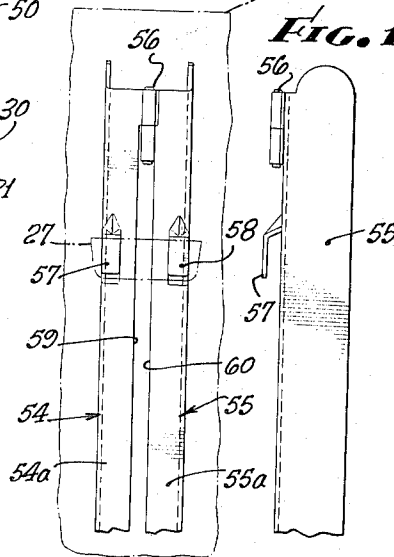
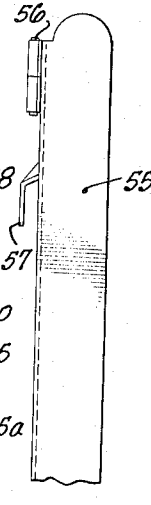


FIG. 11.



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FIG. 4.

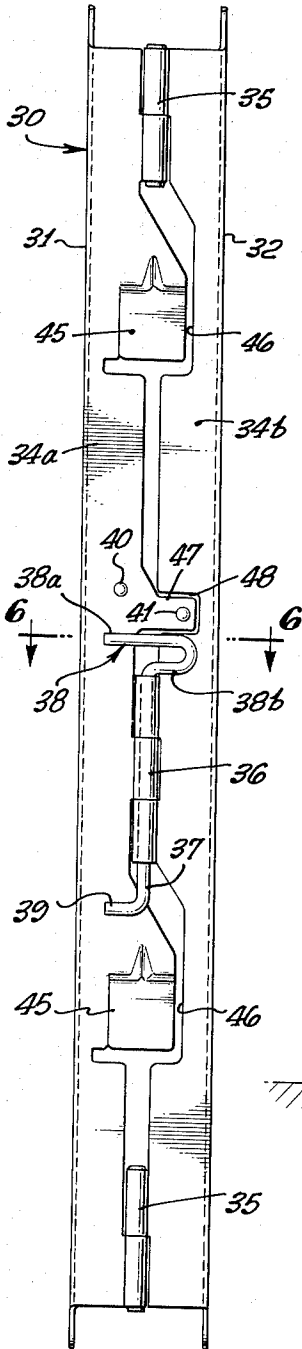


FIG. 5.

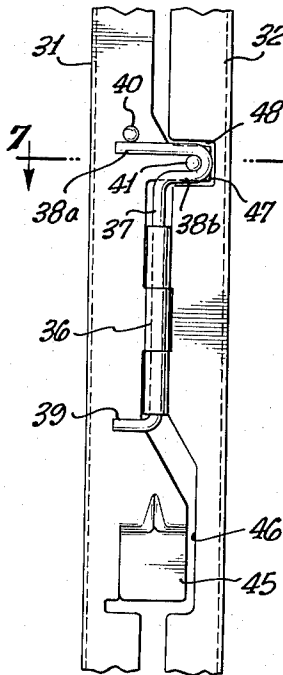


FIG. 6.

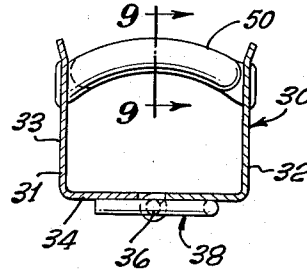


FIG. 7.

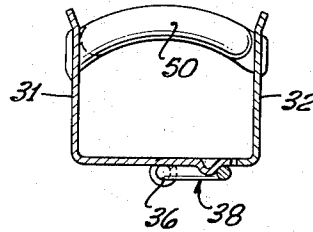


FIG. 9.

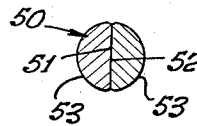
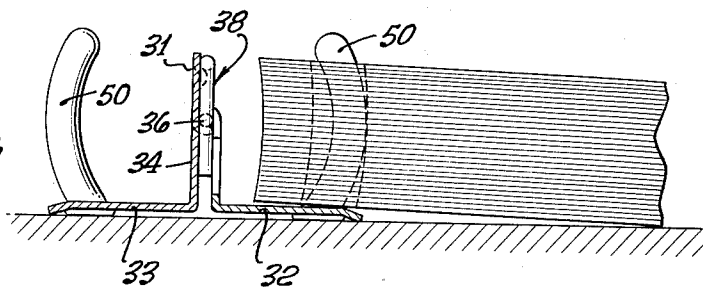


FIG. 8.



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RING SECTION FOR VISIBLE SECTIONAL FILING

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4 Claims. (Cl. 129—1)

This invention relates to equipment for visible sectional filing of punched removable sheets or brochures, examples of which are catalog sheets or inventory sheets, which are to be replaced or rearranged from time to time.

Ease and speed in opening and closing the binding section as well as the compactness thereof are features desirable of attainment and are included among the objects of the invention.

Inasmuch as binding sections for visible filing systems frequently are utilized by mounting a plurality of them with their page contents in a cabinet or magazine or sales case, a convenient means of securement of the binding section in its environmental structure is desirable, and this feature is also included among the objects of the invention.

Another object of the invention is to provide in a binding section of the character identified, means holding the section closed when it is removed for individual handling.

Binding sections are known wherein separable longitudinal units with straight cooperating mounting posts hold the loose leaf pages in position when the units are latched or clamped together. Such a device is shown, for example, in the U.S. Patent to Marsh, No. 2,644,456, granted July 7, 1953. However, devices of that type require manual grasping of the separable sections, and the manual guiding of one unit into its complementary engaging relationship with the other, an operation which it is an object of the present invention to eliminate.

Ring binders, of course, have long been known, but the construction of these has involved split rings, spring hinged at their mounting location, and with abutting faces which pressureably engage when the ring is closed to retain the page contents. This type of binder never can be completely filled and while it possesses certain advantages for certain purposes, as for example it can be used in a manner to lay the pages flat, it lacks an advantage more important in the sectional filing of catalogs, inventory sheets, reference data sheets, etc., wherein of more importance is the compact filling of the cabinet space. For accomplishing the latter, one prerequisite is a structural design of binding section which can be substantially completely filled, and which provides for a series of them to be intimately installed side by side in a sectional filing cabinet or other receptacle of the required design.

Our invention comprises in general a ring binding section with flat sides and of a structural design which enables the binder to be completely filled with loose leaf page material from wall to wall. In its closed position the section embodies an elongated channel member with flat sides and flat back and with one or more arcuate posts bridging the channel, to be positioned through the punched holes of the loose leaf page material, such channel member being constructed of complementary parts hinged along a generally medial longitudinal line at the back of the channel member whereby the two parts may be opened by swinging them apart on the hinge, the page material inserted or removed or replaced, the parts then swung closed so that the sides are parallel and the arcuate posts bridge the channel. Preferably means are also included for locking the parts in closed position,

at least when the section is mounted in a filing cabinet and preferably also when the section is removed from the cabinet for handling independent thereof.

With the foregoing objects and general description of the invention in mind, a more complete understanding thereof will be obtained from the detailed description which follows taken in conjunction with the drawings.

In the drawings:

FIGURE 1 is a perspective view of a sectional filing cabinet of a suitable type in which is mounted two of our ring binding sections, one empty and one which is filled with loose leaf page material.

FIGURE 2 is a plan view of the empty ring section binder shown in FIGURE 1.

FIGURE 3 is a longitudinal sectional view of the ring section taken on the line 3—3 of FIGURE 2.

FIGURE 4 is a back plan view somewhat enlarged of the ring section shown in FIGURES 2 and 3, taken in the direction of the arrow 4 in FIGURE 3. In FIGURE 4 a latch pin is in position for locking the channel parts closed.

FIGURE 5 is a fragmentary plan view taken from the central section of FIGURE 4 showing the latch pin shifted to an unlocking position at which the parts of the ring section channel are freed for pivotal opening.

FIGURE 6 is an enlarged cross sectional view taken on the line 6—6 of FIGURE 4.

FIGURE 7 is a view similar to FIGURE 6 taken on the line 7—7 of FIGURE 5.

FIGURE 8 is a cross sectional view of the ring section with the channel parts opened up.

FIGURE 9 is an enlarged sectional view taken on the line 9—9 of FIGURE 6.

FIGURE 10 is a fragmentary back plan view of a second form of the invention which omits the latch pin and utilizes mounting lugs or ears on each channel back portion for maintaining the ring section closed when it is mounted in a sectional filing cabinet.

FIGURE 11 is a side view of the form of device shown in FIGURE 10.

The ring binding section is generally designated 20 and is shown mounted in a sectional filing cabinet generally designated 21.

To briefly describe the environmental disposition of the ring section, the cabinet 21 comprises a flat inclined base 22, the forward edge 23 of which may rest upon a table, desk or counter (not shown), and the rear edge 24 of which is supported at a height above the table by a vertical panel 25. Wings 26 flare outwardly from both sides of the base 22. Tabs 27 are punched upwardly through the base 22 to provide mounting slots for the reception of tongues on the ring section to be later identified. These slots are arranged in a regular pattern from front to rear and side to side to provide for the correct alignment and spacing of the ring sections to be installed.

Each ring section when closed comprises an elongated channel 30 composed of complementary parts 31 and 32 each of which is L shaped in cross section and is formed with a side plate 33 and a base plate 34. The base plates 34 when in closed position provide a generally plane flat back at each edge of which the side plates 33 project at a generally 90° angle.

Hinges 35 are provided at each end of the channel with their axes coincident and along the generally medial longitudinal line of the back which line corresponds to the mean inner edges of the base plates 34.

The hinges 35 are supplemented, in the form shown in FIGURES 1—9, by a hinge 36 located intermediate of the ends and which is structurally and functionally designed to afford a latching means as well as a hinge.

The hinges preferably are formed by stamping and rolling the sockets outwardly of the base plates as illustrated, so that the inside surfaces of the channel back are substantially free of protuberances except for the arcuate posts which will be subsequently described.

The central hinge 36 utilizes as a hinge pin a member 37 in the form of a wire key having a return U bend 38 at one end and a simple right angle bend 39 at the opposite end. The right angle bend 39 functions as a step to prevent withdrawal of the pin 37 when it is shifted from the locking position shown in FIGURE 4 to the unlocking position shown in FIGURE 5.

A facet 40 on one of the base plates may also be used as a stop means for the pin 37. In conjunction with that a complementary facet 41 may be used to releasably hold the pin in the unlocking position. The facet 40 for preventing unintentional withdrawal of the pin 37 may be omitted if the right angle bend 39 is employed, or the right angle bend 39 may be omitted if the facet is employed.

For mounting the ring binding section in a filing cabinet of the character shown, one or more tongues 45 are struck outwardly from one of the base plates 34 for engagement in the slots 27 of the filing cabinet. It is preferable that these tongues 45 be located centrally between the side plates 33 and to accomplish that in the form shown in FIGURES 1-9 one of the back plates 34, designated as 34a, is widened past the axis of the hinges at the areas immediately occupied by the tongues 45 and the other back plate, designated 34b, is recessed as at 46 to provide space for the encroaching side of the tongue 45 to be located free of interference with the back plate 34b.

If the facet 41 is utilized, it is located on an extension 47 crossing the axis of the hinges well into the area of the back plate 34b, and to provide clearance for this extension 47 a recess 48 is formed in the back plate 34b. This recess 48 also provides a clearance for the return bend 38 of the pin 37 when it is disposed in unlocking position and the hinged back plates are rotated to an open position.

The arcuate posts, designated 50, are rigidly mounted on the side plates 33 adjacent the free edges thereof. As illustrated, these posts are curved on a relatively flat arc struck on a radius having its center coincident with the axis of the hinges. They preferably are formed in pairs consisting of complementary posts oppositely mounted, and of the same length. Each post has a cross section which is generally semi-cylindrical. Two posts of a pair are mounted so that a flat face 51 of one post will slide against or immediately adjacent to a flat face 52 of the mating post, and their circular outer faces 53 when the posts are in juxtaposition will define a generally cylindrical cross section. The length of the posts is such that they bridge the space between the opposite side plates 33 when the ring section is closed. The posts preferably are given a rounded taper at their free ends to facilitate entry into punched holes in the loose leaf paper material. The mating complementary post arrangement is preferable for several reasons. In the first place, pages can be inserted or removed from either side. In the second place, insertion of the posts is exceptionally easy due to the fact that individually they do not occupy the full area of the holes, and when the section parts 31 and 32 are closed, entry of one post into the holes partly occupied by the opposite post is readily accomplished, and the combination of the mating posts is virtually self adjusting to position the loose leaf pages correctly. In the third place, mating oppositely mounted posts assures a complete bridging of the space between the side plates, eliminating any possibility of free space between an end of a post and the side plate it points toward through which a sheet or two might be dislodged or lost.

While the form and arrangement of posts shown and described is the preferred arrangement, this form and the

pattern may be varied. Thus, individual full round posts could be employed, all of them being mounted on one of the side plates and none on the other side plate, or such full round posts could be staggered in their mounting arrangement with some on one side plate and some on the opposite side plate. Irrespective of the exact detail of the posts and the pattern of arrangement, they do enable a complete filling of the ring section from side plate to side plate, and by virtue of the generally plane flat surfaces of the side plates such ring sections may be mounted in close proximity side by side in a filing cabinet or sales case, or they may be conveniently laid flat on a table, desk or counter or stacked thereon.

Operation of the device should be clear from the foregoing, but will be briefly summarized. Assuming that the ring binding section is open, as shown in FIGURE 8, perforated loose leaf pages are slipped over the posts 50 at either or both sides of the side plates. The L shaped parts 31 and 32 then are folded toward each other on the hinges 35 and 36, during which operation the opposing and mating half round posts, as they slide past each other, automatically perform any minor shifting of the pages to correctly position them as the L shaped parts are closed into the position shown in FIGURES 6 and 7. The pin 37 then should be shifted from the position shown in FIGURE 5 to the position shown in FIGURE 4, in which latter position the double return bend 38 functions as a bar extending partially across both base plates 34a and 34b and holds the L shaped parts 31 and 32 in the channel form of FIGURE 6. Normally there will be sufficient frictional engagement of the pin 37 in the hinge sockets to prevent unintended shifting of the pin from this locking position. If, however, through vibration or looseness the pin tends to move toward the unlocking position, which would be upward as viewed in FIGURE 4, the upper leg 38a of the return bend 38 would come to rest against the facet 41 and the lower leg 38b would still lie against the base plate 34b.

To open the ring section, the operation is reversed. Thus, the pin 37 is slid from the position shown in FIGURE 4 to the position shown in FIGURE 5 wherein the return bend 38 is disposed in registry with the recess 48 of the base plate 34b, and the restraint against opening of the channel is thus removed, permitting the parts 31 and 32 to be spread apart from the channel configuration shown in FIGURE 6 to the open configuration shown in FIGURE 8.

In the form of ring binding section shown in FIGURES 10 and 11 we have illustrated L shaped channel parts 54 and 55 hinged at 56, a similar hinge being provided at the opposite end (not shown) and a central hinge (not shown) if desired. Instead of the major full size tongue 45 of the form of device first described, we strike from the back plates 54a and 55a a pair of smaller tongues 57 and 58, duplicated along other points of the section, if desired. These tongues 57 and 58 are located one on each of the back plates, they are in transverse alignment, and they are each narrower but of generally the same length as the tongue in the first form.

Thus, when this form shown in FIGURES 10 and 11 is mounted in a filing cabinet, two of the tongues which are complementary to one another enter the same slot 27 in the base of the cabinet which results in locking the two back plates in closed channel relationship without the necessity of a central locking device such as the pin 37. Of course, the form of FIGURES 10 and 11 can be utilized in conjunction with the central locking mechanism employed in the first form described, but such locking mechanism may be omitted if there is no necessity for using the ring binding section when separated from the filing cabinet or sales case. If the form of FIGURES 10 and 11 is employed without the central locking mechanism, the inner edges 59 and 60 of the base plates may be straight and parallel and slightly separated. If it is desired to utilize the locking mechanism in the

form of FIGURES 10 and 11, the central area of the respective base plates, sections 54a and 55a, could be conformed to the configuration illustrated in FIGURES 4 and 5.

It should be further noted that in all cases where a locking device is desired, there are known equivalents which could be substituted for the particular mechanism shown in FIGURES 4 and 5. For example, by way of illustration and not of limitation, a simple transverse slide bolt operating through an eye could be employed. Another equivalent would be a short bar pivotally mounted on one base plate and rotatable for transverse positioning across the adjacent base plate.

While a self contained locking device is useful in either the form of ring binding section illustrated in FIGURES 1-9 or the form illustrated in FIGURES 10 and 11, the ring binding section can be utilized without it. The tongue 45 of the first form, or the tongues 57 and 58 of the second form, when inserted in the slot formed by the tongue 27 in the base 22 of the cabinet 21, retain the plane flat back of the section in sufficiently close contact with the base 22 to prevent the L-shaped members of the channel from pivoting on the hinges and consequently preventing the channel from opening.

While we have herein shown and described our invention in what we have conceived to be the most practical and preferred embodiment, it is recognized that departures may be made therefrom within the scope of our invention, which is not to be limited to the details disclosed herein but is to be accorded the full scope of the claims so as to embrace any and all equivalent devices.

Having described our invention, what we claim as new and desire to secure by Letters Patent is:

1. A ring binding section for visible sectional filing manipulatable from a closed position to an open position and comprising a pair of complementary elongated elements generally L-shaped in cross-section wherein in the closed position parts of the L-shaped elements are horizontal base members and other parts of the L-shaped elements are vertical side members and the L-shaped elements are disposed with the free edges of their base members in juxtaposition, hinge means comprising aligned sockets and a hinge pin therein joining said juxtaposed edges together, the joined members forming a generally U-shaped sheet-receiving channel wherein the bottom is formed by the base members and the upper surface of the bottom is of generally flat unobstructed planar form, arcuate posts mounted on the vertical member of at least one of said elements and extending across the channel to retain punched sheets, and releasable means to hold the elements in channel forming relationship or to enable them to be spread apart into an inverted T-shaped cross-sectional relationship for inserting or removing sheets, said hinge pin being slidable in said sockets between a locking position and a releasing position and serving as said releasable means, said hinge pin being provided with a rigid transverse part extending transversely therefrom in opposite directions and engaging the under surface of the bottom of both base members to hold said members closed when said pin is in locking position, a cut-out in one of said base members aligned with said transverse part when the pin is in releasing position and through which cut-out the transverse part may freely pass when aligned therewith, and means retaining said transverse part in engagement with the under surface of the bottom of the other one of said base members in all positions of said base members thus insuring correct positioning of the transverse part for sliding from releasing to locking position.

2. A device as defined in claim 1 wherein one of said base members has a tongue struck downwardly there-

from with a generally horizontal section centered longitudinally and extending laterally in both directions from the axis of the hinge means and spaced from the bottom and its upper surface lying substantially in a plane containing the lower surface of the hinge means, the other of said base members having a cut-out transversely adjacent the tongue providing clearance when the elements are swung open, said tongue being adapted to engage a slot in a filing base, and when the device is in open loading position, the hinge means and tongue are all disposed within parallel planes defined by the inside walls of the base members.

3. A device as defined in claim 1 including resilient detent means releasably holding said transverse part in said releasing position.

4. A ring binding section for visible sectional filing manipulatable from a closed position to an open position and comprising a pair of complementary elongated elements generally L-shaped in cross-section wherein in the closed position parts of the L-shaped elements are horizontal base members and other parts of the L-shaped elements are vertical side members and the L-shaped elements are disposed with the free edges of their base members in juxtaposition, hinge means joining said juxtaposed edges together, said hinge means including sockets formed integrally with said base members and protruding entirely downwardly from the base members when the latter are in closed position, a hinge pin extending through the sockets, the joined members forming a generally U-shaped sheet-receiving channel wherein the bottom is formed by the base members and the upper surface of the bottom is of generally flat unobstructed planar form, arcuate posts mounted on the vertical member of at least one of said elements and extending across the channel to retain punched sheets, and releasable means to hold the elements in channel forming relationship or enable them to be spread apart into an inverted T-shaped cross-sectional relationship for inserting or removing sheets, said releasable means comprising retention means formed integrally with one of said base members and protruding entirely downwardly from said base member when in the closed position, a substantially rigid member slidably mounted in said retention means having a first position in which it presses against the under surface of the bottom of both base members holding said members in the closed position, and the slide member having a second position in which it is free of one of the base members releasing said members from the closed position and enabling the L-shaped elements to be swung open on the hinge means for loading or unloading, and when the device is in open position the hinge means and releasable means are all disposed within parallel vertical planes defined by the inside walls of the base members, and the side members are disposed with their upper surfaces in a common horizontal plane.

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