June 17, 1930. F. L. G. STRAUBEL 1,764,128

SORTING DEVICE

Filed Feb. 14, 1929

Fig. 1.

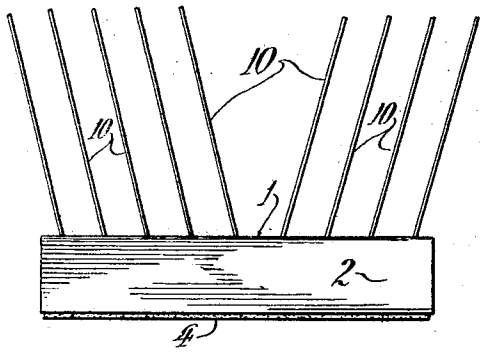


Fig. 2.

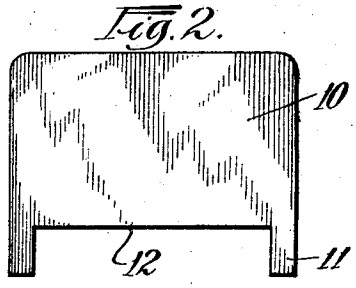


Fig. 3.

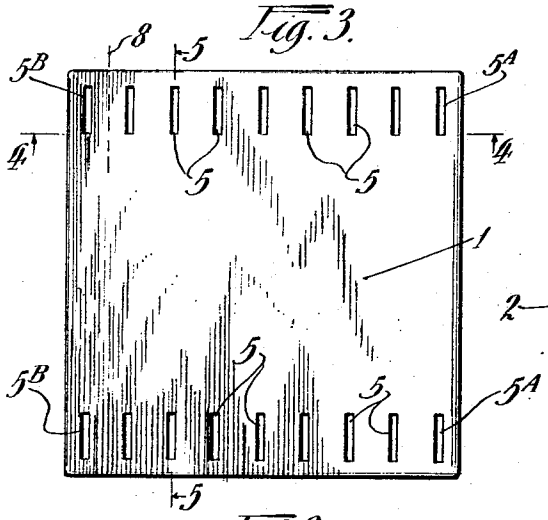


Fig. 4.

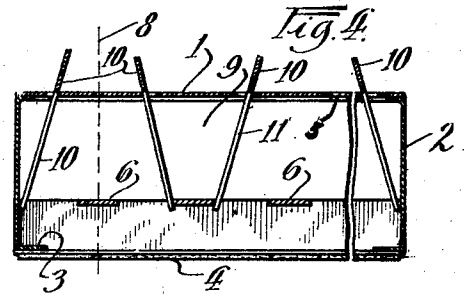


Fig. 5.

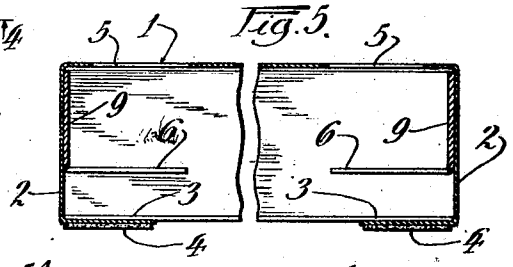


Fig. 6.

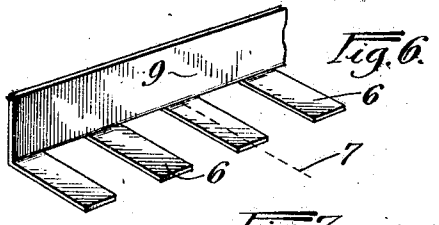


Fig. 9.

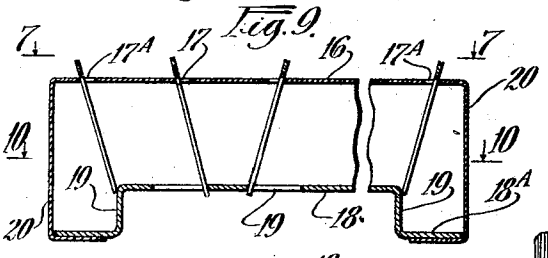


Fig. 10.

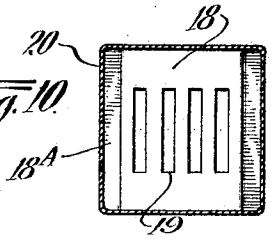


Fig. 8.

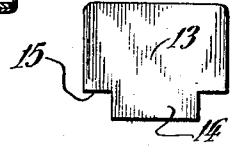
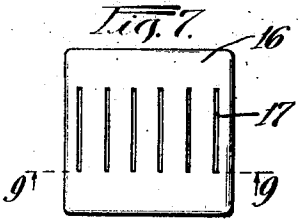


Fig. 7.



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UNITED STATES PATENT OFFICE

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SORTING DEVICE

Application filed February 14, 1929. Serial No. 339,893.

My invention relates to a sorting device of the general class employed in offices for sorting out letters, invoices, file cards and the like. As heretofore in use, such sorting devices commonly consist of a base having either parallel or upwardly diverging partition wings fastened to it in rigidly spaced relation. With these customary constructions, the spacing between the consecutive partitions are definitely fixed and cannot be adjusted in their relative spacing to meet varying requirements. Nor can ready access be had to papers or cards in the compartment between any two consecutive partitions if these are rigidly disposed in parallel positions. Moreover, such sorting appliance occupy an undesirably large space when not in use and require correspondingly bulky containers for shipping them.

Generally speaking, my present invention aims to overcome all of these objections by providing a sorting device which can be shipped and stored in a small fraction of the space occupied by it when in use, which will readily permit the partitions to be varied in number and spacing according to the needs of the user, which will permit consecutive partitions to be tilted either toward or away from each other, and which will limit the tilting of each partition in both directions.

Furthermore, my invention aims to provide a simple and inexpensive construction for these purposes, and one in which the major parts can readily be formed of sheet metal. Still further and also more detailed objects will appear from the following specification and from the accompanying drawings, in which

Fig. 1 is a side elevation of a sorting device embodying my invention.

Fig. 2 is a front elevation of one of the counterpart partitions in the sorting device of Fig. 1.

Fig. 3 is a plan view of the hollow base member of the same device.

Fig. 4 is a fragmentary and enlarged vertical and longitudinal section, taken through the base member along the line 4—4 of Fig. 3.

Fig. 5 is a similar enlarged and fragmentary vertical and transverse section, taken along the line 5—5 of Fig. 3.

Fig. 6 is an enlarged and fragmentary view of one of metal parts which present stop fingers within the base member.

Fig. 7 is a plan view of the hollow base member of a second embodiment of my invention, and Fig. 8 is an elevation of a partition suitable for use with this embodiment.

Fig. 9 is an enlarged and fragmentary section taken along the line 9—9 of Fig. 7, including portions of four partitions.

Fig. 10 is a horizontal section taken along the line 10—10 of Fig. 9, but drawn on a reduced scale.

In each of the illustrated embodiments, my sorting device comprises a hollow base member including a top or elevated platform provided with apertures desirably in the form of parallel slits, partitions each of which has a tab adapted to extend downwardly through one of the said apertures, and stop means below the said top or elevated platform for engaging such tabs to limit the tilting of the partitions on which these tabs are formed.

Thus in the embodiment of Figs. 1 to 6, the base member comprises a downwardly open and rectangular sheet metal casing including a horizontal top 1, vertical sides 2, feet 3 formed by inwardly turned webs at the lower ends of two opposite sides of the casing, and cork strips 4 cemented to the bottom faces of these feet. The top 1 of this base member is provided with two counterpart rows of parallel and counterpart slits 5, which rows of slits are respectively near the two vertical sides of the base member. The slits in each row are of equal number (and desirably uniformly spaced), each slit alines longitudinally with a slit of the other row, and the spacings between the alined slits in the two rows are desirably equal.

Rigidly mounted within the hollow base member (and desirably at a considerable distance below the top 1 and near each of the said opposite sides of the base member) are rows of stop fingers 6 presenting edges

parallel to longitudinal walls of the slits 5, the spaces between consecutive fingers being considerably wider than the uniform width of the said slits. Each finger desirably has its longitudinal axis 7 in a vertical plane 8 extending parallel to two consecutive slits and midway between these slits, as shown in Figs. 3 and 4. As an easily manufactured construction for such stop finger arrangements, I desirably dispose each row of fingers 6 so that these fingers form the horizontal web of a sheet metal angle strips which also includes a vertical web 9. Then I weld this vertical web 9 to the inner face of one of the side walls 2 of the base member, adjacent to which wall one row of the slits 5 extend.

For use with a base member of the above described construction, I provide counterpart document spacers or partitions, each of which consists of a main portion 10 and two finger-like tabs 11 projecting beyond the lower edge 12 of this main portion; the two tabs being spaced by a distance at least equal to the space between the adjacent ends of two of the alined slits 5 in the base member; and the distance between the oppositely directed edges of the two tabs being slightly less than that between the outer ends of two such alined slits, so that each tab has a width somewhat less than the length of one of the counterpart slits. Each such spacer member or partition has its tabs of a thickness somewhat less than the uniform width of the slits and of greater length than the vertical distance between the tops of the stop fingers 6 and the upper face of the base top 1, and each partition may be a simple punching of sheet metal or other stiff sheet material.

When such a partition has its downwardly extending tabs inserted downwardly through an alined pair of slits, the free end portions of each enters the space between two consecutive fingers and the lower edge 12 of the main portion of the partition seats on the top 1 of the base member. Since the tabs are thinner than the widths of the slits through which they extend, the partition can then rock upon the top of the base member transversely of the face of the partition, but the extent of this rocking in each direction is limited by the engagement of the tabs with longitudinal edges of the adjacent fingers, as shown for two of the tabs in Fig. 4. When a partition is thus rocked to the limiting extent in either direction, the center of gravity of the main and exposed portion of the partition is at one side of the alined slits, so that gravity holds the partition in a definitely tilted position.

Thus, each finger serves as a tilt-limiting stop for two partitions which have their tabs inserted respectively through consecutive pairs of alined slits, and by suitably spacing each of the end pairs 5A and 5B of alined slits from the adjacent end wall of the casing I make these end walls serve as stops (as shown in Fig. 4) for limiting the inward tilting of the main portions of the partitions used in association with these end pairs of slits.

In employing such an appliance, partitions may be used in connection with each pair of alined slots, so that they define compartments of widths corresponding to the spacing between consecutive slits, while for wider compartments fewer and more widely spaced partitions can be employed. In either case, every partition can instantly be tilted to its limited extent in either direction, and when any two adjacent partitions are tilted away from each other (as illustrated at the middle of Fig. 1) the compartment between these partitions is expanded at the top for affording convenient access to the papers or cards in this compartment. Then when one of the partitions which forms a wall of a previously expanded compartment is tilted towards the companion partition, the first named partition (particularly if made of heavy sheet material) will clamp and compress the contents of the compartment.

When such a sorting device is not in use, the partitions can be stacked flatwise on the top of the base member, so as to reduce the space for storing the entire appliance. Indeed, with the base member hollow and open at the bottom, these partitions may even be slipped into the interior of the base member, so that the entire space required for storing (or packing) my sorting device is only that needed for the base member.

However, while I have heretofore described my sorting device as including partitions or spacer member each provided with two tabs, as having the base member provided with alined pairs of slits, and as having stop fingers forming parts of angle-sectioned strips, I do not wish to be limited to these or other details of the construction and arrangement thus disclosed. Many changes might obviously be made without departing either from the spirit of my invention or from the appended claims.

For example, Figs. 7 to 10 show portions of another sorting device embodying my invention. In this embodiment, each partition or spacer (as shown in Fig. 8) has its main portion 13 extending at each side beyond a single bottom tab 14 so as to afford two lower edge portions 15 adapted to seat on the top 16 of the hollow base shown in Fig. 7. This base top 16 has a single row of counterpart parallel slits 17, each somewhat wider than the thickness of one of the tabs 14 and at least as long as one of these tabs.

Instead of the two finger strips of the previously described embodiment, the hollow base member in this case has a false

bottom which presents a horizontal plate 18 provided with parallel slots 19 in axial vertical alinement with all of the slits 17 excepting the two ends slits 17A. This slotted stop plate portion 18 is spaced from the top 16 by a distance less than the uniform height of the tabs 14, and each slot 19 in the stop plate 18 is sufficiently wider than the slits 17 to permit the partitions to tilt to the desired extent as shown in Fig. 9. The false bottom has its end portions 18A offset downwardly to provide riser walls 19 disposed for limiting the outward tilting of partitions which have their tabs inserted respectively through the two end slits 17A in the top 16 of the hollow base.

By suitably spacing these end slits from the adjacent end walls 20 of the base, I enable these end walls to serve as stops for limiting the inward tilting of the partitions used in association with the same two end slits, as shown in Fig. 9.

With each of the illustrated embodiments, the packing or storage space required for my sorting device is only a small fraction of that which would be needed for an appliance of the same effective size if the partitions or spacers were fastened to the base member after the heretofore customary manner. Furthermore, my device permits the user to vary the spacing between the lower ends of the main portions of consecutive partitions, and to expand or compress any desired compartment between two consecutive partitions instantly. The base top in each case affords a platform which supports the partitions in a sufficiently elevated disposition to allow the needed stop elements to be disposed below it, and by disposing the stop edges (namely, the longitudinal edges of the fingers 6 or the longitudinal walls of the slots 19 in the stop plate of Figs. 9 and 10) parallel to the longitudinal walls of adjacent base top slits, I secure long stop bearings for the tabs, so that pressure on the partitions will not bend the tabs.

By disposing the fingers in Fig. 4 and corresponding stop plate portions in Fig. 9 (namely those between the consecutive slots 19) in staggered relation to the slits in the top, I require only a single such stop element for a pair of slits at opposite sides of this stop element. And by also using end walls of the base (and in the embodiment of Figs. 9 and 10 riser formations on a stop plate) as stops, I further reduce the number of stop shoulders required in proportion to the maximum number of partitions for which the base portion of my sorting device is designed.

It will also be noted that in the embodiment of Figs. 1 to 10, each portion of the stop plate 18 which is between two consecutive slots 19 in this plate corresponds in substance to one of the fingers 6 in the embodiment of Figs. 1 to 6, thus illustrating that the construction of such stop elements may be varied considerably.

I claim as my invention:

1. A sorting device for papers or the like, comprising a horizontal elevated platform provided with parallel and counterpart slits; counterpart partitions each having a bottom tab adapted to extend freely through any one of the slits and a shoulder engaging the top of the platform; a horizontal false bottom spaced downwardly from the platform by a distance less than the length of one of the said tabs; the false bottom having openings respectively in vertical axial alinement with the slits, each of the said openings being considerably wider than the width of the slits and a base frame connecting the platform with the false bottom and supporting both of the latter with the false bottom sufficiently above the bottom of the base frame so that the tabs on the partitions project downwardly beyond the false bottom through the slits in the latter.

2. A sorting device for papers or the like, comprising a hollow casing having a flat top provided with parallel and counterpart slits; stop elements mounted within the casing and spaced downwardly from the said top and each underhanging the portion of the top which is between two consecutive slits, each stop element presenting edges parallel to the slits and spaced by a less distance than consecutive slits; and counterpart partitions each having a bottom tab insertible through one of the slits to have the tab extend between two adjacent stop elements, each partition having a main portion exposed above the platform and formed to provide a shoulder seating on and adapted to rock on the platform; the casing including an end wall transverse of the slits, and the stop elements comprising fingers formed on a plate fastened to the said end wall.

3. A sorting device for papers or the like, comprising a platform provided with two parallel counterpart rows of apertures, the apertures of one row alining respectively with those of the other row transversely of the platform; partitioning members each having a lower edge adapted to seat and rock on the platform, and each having two downward projections spaced for simultaneously extending through two of the said alined apertures; and stop means fast with respect to and spaced freely downward from the platform and presenting pairs of shoulders respectively offset in opposite directions longitudinally of the platform from the several apertures, each such shoulder being disposed for engaging one of the said projections when the partitioning member provided with that projection is rocked upon the platform.

4. A sorting device for papers or the like,

comprising a casing including two side walls and a flat top, the said top having counterpart rows of uniformly spaced slits formed near each of the said side walls and disposed so that each slit alines longitudinally with a slit in the other row; counterpart partitions each comprising a main portion presenting a bottom edge seating on the said top and two tabs projecting respectively through two alined slits; and two stop members respectively adjacent to the said side walls and each including a row of fingers disposed so that each finger underhangs the platform portion between two consecutive slits in the adjacent row of slits, each finger being narrower than the distance between the said two consecutive slits.

5. A sorting device for papers or the like, comprising a casing including two side walls and a flat top, the said top having counterpart rows of uniformly spaced slits formed near each of the said side walls and disposed so that each slit alines longitudinally with a slit in the other row; counterpart partitions each comprising a main portion presenting a bottom edge seating on the said top and two tabs projecting respectively through two alined slits; and two stop members respectively adjacent to the said side walls and each including a row of fingers disposed so that each finger underhangs the platform portion between two consecutive slits in the adjacent row of slits, each finger being narrower than the distance between the said two consecutive slits, the casing also having two end walls each adjacent respectively to the end fingers of both rows of fingers, each of the said end walls being spaced from the adjacent end fingers of both rows by a distance substantially equal to the spacing between the consecutive fingers of each row.

6. A paper sorting device comprising a box-like structure including a top and a bottom connected by a frame-like peripheral wall, the bottom having its major portion offset upwardly from the lower edge of the said peripheral wall to present the main bottom portion at a height intermediate that of the top and the said lower wall edge; the top and the main bottom portion being both provided with slits all parallel to one another, the slits in the top being of less width than those in the main bottom portion and in vertical axial alinement respectively with the slits in the main bottom portion; and partitions each having shoulders seated on the top and having tabs extending through a slit in both the said top and a slit in the main bottom portion.

7. A paper sorting device, in which the partitions are of such a size that they can be stored in the space below the said main bottom portion within the confines of the peripheral wall of the said box-like structure.

Signed at Green Bay, Wis., Feb. 10, 1929.

FREDERICK L. G. STRAUBEL.