March 17, 1953 H. W. REGENHARDT 2,631,590

FOLLOWER FOR FILE DRAWERS

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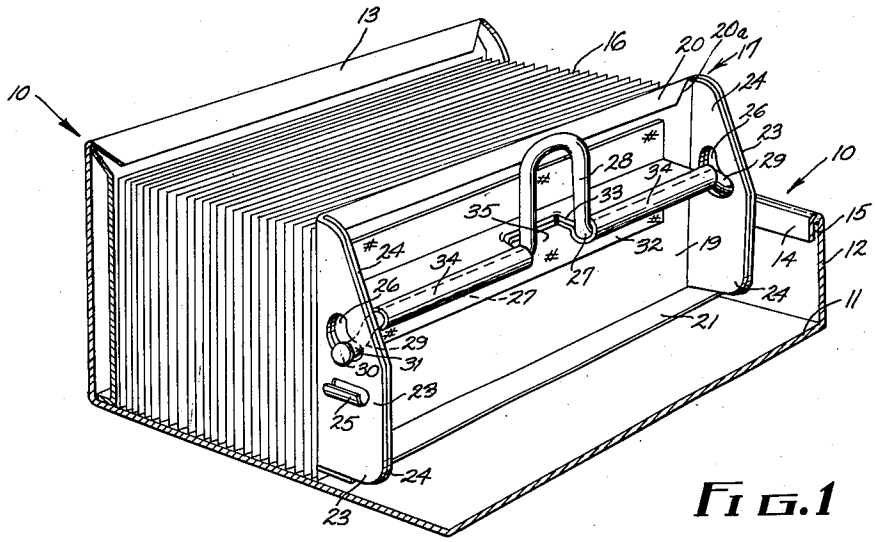


FIG. 1

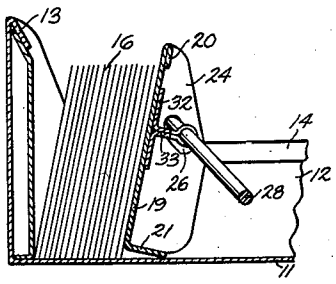


FIG. 2

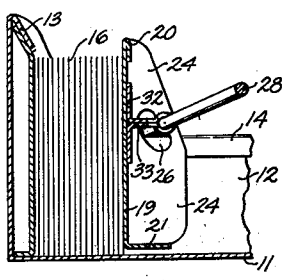


FIG. 3

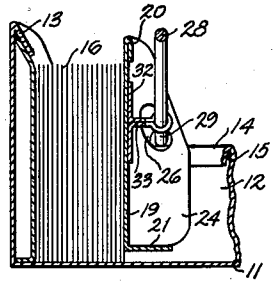


FIG. 4

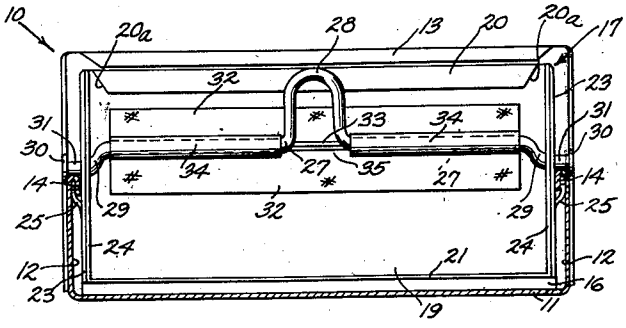


FIG. 5

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FOLLOWER FOR FILE DRAWERS

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5 Claims. (Cl. 129—29)

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This invention relates to a follower for a filing compartment or the like permitting the packing of material in the compartment; e. g., punch cards, in a manner leaving no substantial amount of slack forward of the follower.

With some followers, it is necessary that slack be left forward of the follower when the latter is in operative position in order that the follower, preparatory to relocation or removal, may be freed by first pulling or inclining it forward into the space so left. Such followers, which usually are of simple construction, are useful where the sacrifice of space is not an important consideration. However, where space is at a premium, as in compartments for storing punch cards that are to be preserved as records for a long period of time, it is desirable that the follower be of a type permitting solid packing of the cards in the compartment. It is a principal object of the invention to provide a follower satisfying this important desideratum.

A further object of the invention is to provide a follower lending itself to one-hand operation, by which latter term reference is had to the series of operations involved in insertion, placement and withdrawal of the follower. Where one-hand operation is possible, an amputee or a person whose other hand is holding material taken from or to be added to that in the compartment is enabled to perform unaided all of the acts necessary to introduce, locate, relocate or remove the follower. A further object is to provide a follower of this kind having an actuating member that is out of the way but instantly available to the end of facilitating operation of the follower.

Another object of the invention is the provision of an improved follower which embodies a sturdy locking mechanism to fix the follower firmly in the desired position in the compartment. Another object is to provide such a follower which has ample strength to resist the forces imposed upon it by the locking mechanism. Still another object is to provide a follower and locking device which can be readily installed in, relocated, or removed from a punch card filing compartment having inverted channels along the sides thereof.

Additional objects and advantages of the invention will become apparent from the following description of a preferred form thereof and from the accompanying drawings, in which Figure 1 is a perspective of a follower installed in a compartment of the nature of a drawer of a filing cabinet, parts of the compartment being broken away for convenience in illustration; Figures 2, 3 and 4 are side elevations, but with the parts in different positions, of the follower of Figure 1, the view in each instance being from the left as there

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illustrated; and Figure 5 is an end elevation, taken from the rear, illustrating the manner in which the follower is locked in position in the compartment, parts of the front member of the compartment appearing beyond the follower itself.

In the drawing, a preferred form of follower is shown as installed in a compartment 10. The compartment, which in this example takes the form of a drawer of a filing cabinet, may be of conventional construction, comprising, for example, a suitable back member (not shown), a bottom portion 11, side walls 12, and a front member 13. The upper edges of side walls 12 are provided with inwardly and downwardly extending flanges 14, thus providing inverted channels 15 extending along the upper edges of side walls 12. This construction strengthens and stiffens the side portions and, as will appear below, permits parts of the follower to engage flanges 14 at the base of channels 15 thereof. Packed solidly without slack between front member 13 and follower 17 is the material stored in the compartment, the same taking the form of punch cards 16.

The follower itself is formed largely of sheet metal. It consists, along with other parts hereinafter described, of an upright web or body portion 19 disposed substantially but not necessarily precisely vertically in the compartment, an integrally formed beaded and bent-down top portion 20, a rearwardly extending integral bottom flange 21, two rearwardly extending integral side flanges 23, and, spot-welded to side flanges 23, internal reinforcements 24. The latter, provided to add strength and stiffness to side flanges 23, are coextensive with them. Bottom flanges 21 and side flanges 23 extend at right angles to body portion 19 and abut or substantially abut at the base of side flanges 23.

In fabricating follower 17, a single piece of sheet metal in the form of a stamping of suitable shape may be used to provide body portion 19, top portion 20, bottom flange 21 and side flanges 23, the various flanges and other parts being struck up or struck down, as required. At an appropriate stage in the sequence of operations, side flanges 23 are lanced and bent to form outwardly and upwardly extending ears 25, such ears being so shaped and located as to permit them to underlie and enter into channels 15 at the upper edges of side walls 12. Reinforcements 24 have no corresponding lateral deformation and from top to bottom thereof are defined by substantially vertical planes. As shown in Figures 1 and 5, top portion 20 is cut away at its ends at an angle, as at 20a, to preclude any possibility of interference with side flanges 23.

A short distance above the level of ears 25, side

flanges 23 and reinforcements 24 are slotted as best shown in Figure 1, the slots 26 therein being of crescent or arcuate shape, extending forwardly and upwardly as shown in Figure 1 over an angular distance somewhat greater than 90° but less than 180°, and, on opposite sides of follower 17, registering laterally with each other to enable them to function in the manner hereinafter described. In large part, but to a greater or lesser extent depending on the position of follower 17 relative to the upper edges of side walls 12 of compartment 10, slots 26 lie above such upper edges; however, their lowermost portions are at all times below the upper edges of side walls 12. This is apparent from Figures 3 and 4, which show the follower raised to different extents above bottom portion 11 of compartment 10; even in Figure 4, corresponding to a position of the follower in which ears 25 are in locking engagement with flanges 14, the upper edge of far side wall 12 is visible above the bottom of slot 26. In this position, the distance between bottom flange 21 and bottom portion 11 of compartment 10 is of maximum height; by the same token, the top portion 20 of the follower projects upward to its maximum extent above punch cards 16.

Cooperating with slots 26 is an actuating rod 27 that is looped or bent upon itself toward the middle thereof to form a U-shaped handle 28, such rod being rotatable about its longitudinal axis through an angular distance somewhat in excess of 90° in response to counterclockwise (upward) or clockwise (downward) movement of handle 28 as seen in Figures 2 to 4. Rod 27 has at each end thereof an integral bell-crank 29 that is headed as at 30, off-set portions 31 of bell-cranks 29 immediately adjoining the heads 30 extending parallel to the axis of rotation of rod 27. In certain positions of the follower, off-set portions 31 coact as indicated in Figure 5 with the upper edges of side walls 12 of compartment 10.

Bell-cranks 29 at the ends of rod 27 extend oppositely to handle 28, so that when handle 28 projects upward, as in Figures 1, 4 and 5, bell-cranks 29 extend downward.

Rod 27 is supported in and by a T-shaped sheet-metal bracket 32 that is spot-welded as indicated in Figures 1 and 5 to the body portion 19 of follower 17. Such bracket has a double central web 33 extending rearwardly at right angles to body portion 19 of follower 17 and terminating in two cylindrical bearing portions 34 fitting closely around rod 27. Bearing portions 34 are separated from each other as shown by a shallow opening 35 in web 33 accommodating handle 28 when the latter is moved into its extreme counterclockwise position (not shown), in which it inclines slightly toward top portion 20 of follower 17.

In this and like positions at or near the limit of counterclockwise movement of handle 28, off-set portions 31 are located toward the rearmost portions of slots 26 and the outwardly projecting ends thereof ride on the upper edges of side walls 12 of compartment 10 as best shown in Figure 5. In the position shown in Figure 2, on the other hand, in which handle 28 extends downward at an angle of approximately 45° to body portion 19 and which represents the approximate limit of its clockwise movement, off-set portions 31 are at or near the upper or forward ends of slots 26 and positioned well above the upper edges of side walls 12. Between the extreme positions exemplified by the foregoing are numerous intermediate positions, exemplified by the showing in Figure 3, in which off-set portions 31 are disposed at varying distances between ends of slots 26. When the parts are in such intermediate positions, off-set portions 31 may or may not ride on the upper edges of side walls 12, depending on the circumstances.

By virtue of the frictional engagement of actuating rod 27 and bearing portion 34 and the frictional engagement of off-set portions 31 with the edges of slots 26, rod 27 will remain in the position into which it is rotated by moving handle 28 clockwise or counterclockwise, as the case may be.

In use, the follower 17, with handle 28 extending downward, is inserted in compartment 10 by angling the follower as if about a vertical axis to an extent enabling it to clear flanges 14, then squaring it in the compartment to cause it to make contact with bottom portion 11 at least at the trailing edge of bottom flange 21, and thereafter adjusting it as necessary so that it extends at right angles to side walls 12, in which position off-set portions 31 of rod 27 clear the upper edges of side walls 12 of compartment 10 as shown in Figure 2. In locating it in its operative position, follower 17 is then grasped at any convenient place and pulled forward with at least the trailing edge of bottom flange 21 in contact with bottom portion 11 of compartment 10 until punch cards 16 have been forced together into a solid mass free of slack forward of follower 17; that is to say, into that position in which they do not fall forward or backward but extend substantially vertically, after which the follower as a whole is allowed to drop by gravity until bottom flange 21 makes surface contact with bottom portion 11 of compartment 10. At this stage, body portion 19 of follower 17 will be in substantially vertical position with ears 25 on side flanges 23 disposed below channels 15 but out of contact with flanges 14.

If, follower 17 being in its operative position, it is desired to lock the follower in place, handle 28 is moved counterclockwise from the position shown in Figure 2, passing through various intermediate positions exemplified by Figure 3. Movement of handle 28 in such counterclockwise direction is usually accompanied by an upward lift on follower 17: such lift is evidenced by a progressively developing clearance between bottom portion 11 and bottom flange 21 which persists, after the operator's hand is withdrawn, as a result of the contact that comes about in the meanwhile between off-set portions 31 of rod 27 and the upper edges of side walls 12 of compartment 10. As shown in Figure 3, off-set portions 31 of rod 27 ride loosely on the upper edges of side walls 12 and thereby prevent the follower as a whole from returning to a position in which bottom flange 21 is in contact with bottom portion 11. While in this position, follower 17 cannot readily be removed from compartment 10 due to the fact that ears 25 extend upward for a substantial distance into channels 15 without, however, being in locking engagement with flanges 14. As previously noted, at this stage off-set portions 31 of bell-cranks 29 are located between the ends of slots 26.

As the counterclockwise movement of handle 28 is continued, rod 27, bell-cranks 29 and off-set portions 31, the latter being guided in and by slots 26, move toward the positions in which these parts are shown in Figures 1, 4 and 5. Dur-

ing this time, off-set portions 31 move rearwardly in slots 26 into firmer contact with the upper edges of side walls 12, with the result that follower 17 is lifted further until ears 25 actually engage flanges 14, thereby precluding the possibility of additional upward movement of follower 17. At this stage, follower 17 is effectively locked against movement in any direction until such time as handle 28 is moved clockwise out of the position indicated in Figures 1, 4 and 5 into a position in which the parts in engagement with each other are released at least to an extent sufficient to permit the follower to be relocated. Continued clockwise movement of handle 28 into the position shown in Figure 2 results in releasing the parts to an extent sufficient to permit of complete removal of the follower. In general, the action is the reverse of that above described.

Ordinarily, a downwardly acting force applied to handle 28 manifests itself to some extent, at least, as a rearwardly acting force on body portion 19 of follower 17, urging it into a tilted position more or less as shown in Figure 2. Once in this position, follower 17 may be moved rearwardly within compartment 10 until such time as it clears punch cards 16. Thereafter, it may be angled as necessary to permit its complete removal. Removal of follower 17 from the compartment is not ordinarily possible if handle 28 is in an intermediate position; accordingly, if its removal is contemplated, it is desirable to continue the downward movement of handle 28 until it is at or near the limit of its clockwise movement as shown in Figure 2.

Thus the invention provides a follower for a compartment of the kinds used for storage, filing, etc., that is relatively simple in construction but, due to its unusual design, not likely to become bent or warped in use. It can readily be inserted in or removed from the compartment. Once inserted, it can be located in the compartment without difficulty and without requiring that slack be left forward of the follower in anticipation of its later relocation. The actuating mechanism itself is simple, sturdy and normally out of the way, thus precluding loss of space such as occurs where the actuating mechanism is bulky or so designed that under normal circumstances it projects into otherwise useable space within the compartment. As will be apparent, there are few parts that can get out of order and many of the parts reinforce each other to the end of providing a strong, sturdy, rugged device that will stand up well over a long period of use.

Various changes and modifications may be made in the invention without departing from the spirit and scope thereof. It is therefore to be understood that the patent is not limited to the preferred form of invention. On the contrary, it is intended that the patent shall cover, by summarization in the appended claims, whatever features of patentable novelty reside in the invention.

I claim:

1. In a filing cabinet, a compartment including a bottom portion; two side walls extending upwardly from the bottom portion, said side walls having inwardly and downwardly turned flanges; a follower in the compartment characterized by an upstanding transverse web and two rearwardly extending side flanges having portions adapted to be received by and to enter into locking engagement with the inwardly and downwardly extending flanges on the side walls of the compartment, said side flanges projecting upwardly above and having arcuate openings at approximately the level of the tops of the side walls of the compartment; and, overlying the inwardly and downwardly extending flanges, a transversely extending actuating rod mounted on the web of the follower for limited rotary movement about its own axis the ends of which rod are offset from such axis, project through the arcuate openings at approximately the level of the tops of the side walls of the compartment for guided movement in an arcuate path in the side flanges of the follower, and bear on the inwardly and downwardly turned flanges on the side walls of the compartment.

2. In a filing cabinet, a compartment including a bottom portion; side walls having longitudinally extending inturned flanges along their top edges, and a cooperating follower comprising a sheet metal member characterized by a transverse body portion; rearwardly directed flanges, one at each end of the body portion, projecting upwardly above and provided with arcuate slots at approximately the level of the inturned flanges on the side walls of the compartment; upwardly facing ears on the rearwardly directed flanges, such ears being located on the sides of the rearwardly directed flanges adjoining the side walls of the compartment at a level enabling them to engage with the longitudinally extending inturned flanges on the side walls of the compartment; a horizontally extending actuating rod mounted on the transverse body portion of the follower for limited rotary movement about its own axis; and cranks on the actuating rod, one at each end thereof, the outer ends of which cranks are guided for arcuate movement by and project through the arcuate slots in the rearwardly directed flanges on the body portion of the follower to bear against the top faces of the longitudinally extending inturned flanges on the side walls of the compartment.

3. A filing cabinet as in claim 2 in which the lowermost portions of the arcuate slots in the rearwardly directed flanges on the body portion of the follower extend below the top faces of the longitudinally extending inturned flanges on the side walls of the compartment.

4. A filing cabinet as in claim 3 in which the arcuate slots in the rearwardly directed flanges on the body portion of the follower extend forwardly and upwardly as seen from the rear of the follower.

5. A filing cabinet as in claim 4 in which the arcuate slots in the rearwardly directed flanges on the body portion of the follower cover an angular distance not substantially less than 90°.

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