W. SELLERS.

SWINGING BIN FOR CABINETS.

APPLICATION FILED FEB. 21, 1913.

1,100,329. Patented June 16, 1914.

Fig. 1.

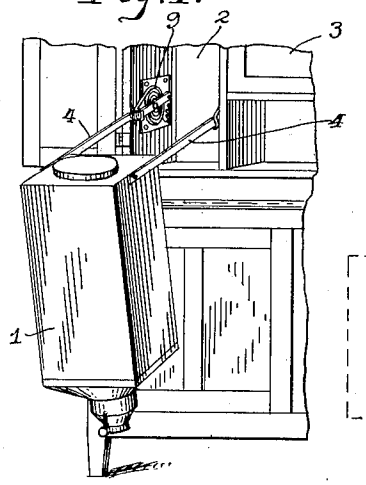


Fig. 2.

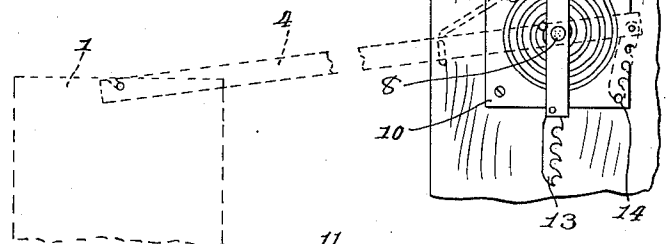


Fig. 3.

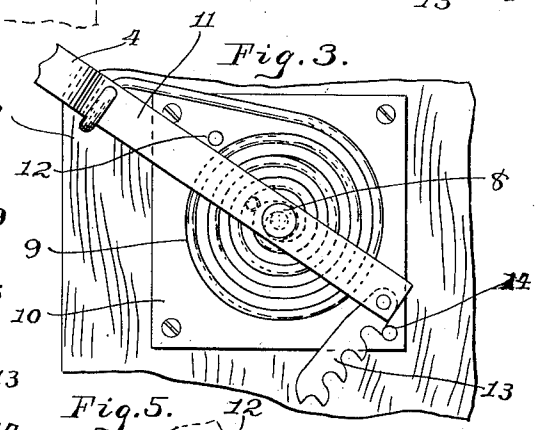


Fig. 4.

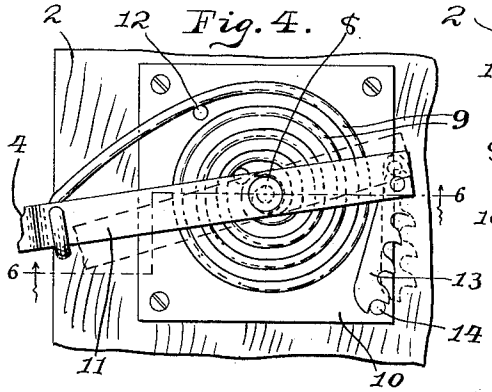


Fig. 5.

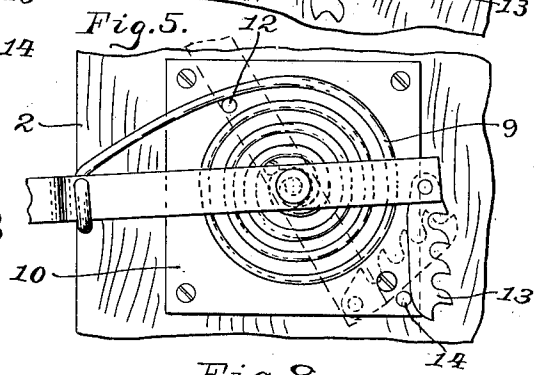


Fig. 6.

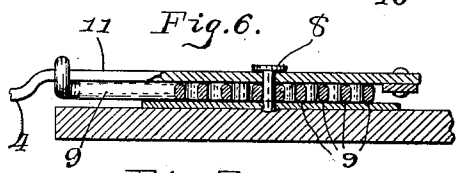


Fig. 7.

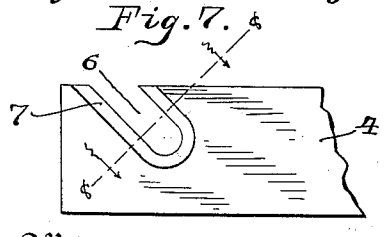
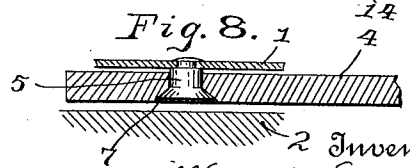


Fig. 8.



Witnesses

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SWINGING BIN FOR CABINETS.

1,100,329. Specification of Letters Patent. Patented June 16, 1914.

Application filed February 21, 1913. Serial No. 749,972.

To all whom it may concern:

Be it known that I, WILFRED SELLERS, a citizen of the United States, residing at Elwood, Madison county, and State of Indiana, have invented and discovered certain new and useful Improvements in Swinging Bins for Cabinets, of which the following is a specification.

My invention relates to pivoted bins for kitchen cabinets. Its object is to provide a device of this class which shall be capable of automatically restoring a loaded bin to its position within the cabinet by means which shall be sufficiently powerful to perform the restoring function effectively and yet which shall be of such construction that it may be conveniently mounted in a small space within the cabinet, which shall have effective, automatically acting latching means for the bin and means for holding the bin closely against the supporting arms thereof.

With this end and others in view my invention is embodied in preferable form in the device hereinafter described and illustrated in the accompanying drawings.

In these drawings, Figure 1 is a perspective view of a portion of a cabinet with the bin in its lowest position and ready to receive a supply of flour from the bag; Fig. 2, a view in elevation looking at left side of bin, showing in full lines the operating means in the position that they occupy when the bin is in upright position within the cabinet and showing such means in dotted lines in the lowermost position; Fig. 3 a view similar to Fig. 2, showing the operating means in the intermediate position that they occupy when the bin has been lowered part way to its load receiving position; Fig. 4 a similar view showing in full lines the operating means in the position which they occupy at the lowermost position and in dotted lines immediately after the latching means have been released and the bin is about to be restored to its normal position; and Fig. 5 a similar view showing in full lines the latching means after they have been released and in dotted lines showing the latch dog swung back past the bin; Fig. 6 a cross section through the spring in line 6—6 of Fig. 4; Fig. 7, a detail side view of countersunk or beveled slot; and Fig. 8, a detail section through slot and pin engaging same.

Referring to the drawings, 1 is a flour bin adapted to fit within a compartment 2 formed in a kitchen cabinet 3. This bin at its upper end is pivotally hung in supporting and operating lever arms 4, these lever arms each being identical in construction and each having means exerting pressure thereon to cause them to aid in lifting the bin. From each side of the bin projects a headed pin 5 having the under surface of the head thereof beveled. This pin is adapted to engage the inclined slot 6 formed in the upper end of the lever arm on the adjacent side of the bin and the head fits the beveled portion 7 of the slot, whereby the lever is permitted to fit closely against the bin. Each lever arm near its lower end is pivoted at 8 to the inner face of the wall of the compartment 2 and surrounding the pivot on which the arm is mounted is a helical spring 9. One end of this spring is fastened to the pivot pin and the other end is fastened to the lever arm and the spring serves to exert a tension on the lever arm to swing the same upwardly and to thus carry the bin into normal position within the compartment in the cabinet. This spring is composed of a thick band of metal substantially rectangular in cross section and capable of a transverse tension, as well as of a radial tension relative to the coil in which it is disposed. The spring for each lever arm is mounted on a plate 10 secured to the wall of the compartment and both the plate and the spring are disposed beneath the lever arm, the latter being arched outwardly for a suitable distance at 11 for the purpose of accommodating the spring and plate beneath it.

From the wall of the compartment projects a pin 12 located in front of the spring and adapted to coöperate therewith to subject the movable end of the latter which is attached to the lever arm, to additional tension by the transverse flexure of the spring when bent over the pin at the latter part of the downward movement of the lever arms. Pivotally and loosely hung on the lower end of each lever arm is a dog 13 having a series of teeth. This dog, in connection with a pin 14 projecting from the wall of the compart-

ment is adapted to constitute latch means for holding the pin in its load receiving position. The powerful springs employed enable straight rigid arms to be used, of sufficient length to carry the bin out and down to a convenient loading position and enables the arms to be pivoted at the lower part of the side walls of the compartment, whereby the arms will be in vertical position to support the weight of the bin when the latter is within the compartment.

The operation of the device is as follows: The bin is especially designed to receive the contents of a fifty pound bag of flour and to automatically restore itself to its position within the cabinet after it has been filled with such a load. To place the bin in load receiving position the same is moved outwardly by hand on its lever arms and swung down until any of the teeth of the dog 13 engage the latch pin 14 whereupon the bin will be held rigidly in position against the tendency of the springs to return it into the compartment. As the bin is being moved thus downwardly, the lever arms will be moved against a constantly increasing tension of the springs and when the forward portions of these springs reach the projecting pins 11, the transverse bending of the spring bands over these pins will place them under such a greater tension that when the bin is permitted to move back the lifting force of the springs is greatly augmented. By this arrangement it is rendered possible to obtain a very powerful spring but one which at the same time may be compactly mounted in a very small space and is thereby rendered practicable and advantageous for use in connection with a swinging bin of a kitchen cabinet, since in such devices it is not only important but necessary that any operating mechanism employed occupy but very little space in order that the effective storing capacity of the cabinet may not be diminished. Preferably, in order to load the bin, the latter is pressed downwardly until the last notches in the dogs 12 engage the latch pins 14, in which position of the bin it will be found easier to fill the same with the flour from the sack. After the bin has been filled and it is desired to restore the same to its position within the cabinet, further downward pressure is exerted on the bin which will serve to carry the front ends of the lever arms downward thus raising the rear, lower ends of the lever arms until the dog 12 is carried above the latch pin 14, so as to swing free to spring upwardly to their normal closed position within the cabinet. The dog being thus relieved, the springs exert their tension to carry the bin upwardly. These springs are graduated in strength according to the capacity of the bin, to which they are to be connected, but are usually made of sufficient strength to lift a load of fifty pounds. In the lifting of the bin by the springs and lever arms the bin is guided by the hand of the user in order to prevent a too sudden return of the bin to its position within the compartment.

Having thus described my invention, what I claim is:

1. In combination with a swinging bin, arms on which said bin is mounted and a helical spring having transverse and radial tension, and releasable means for locking said bin in position, substantially as described.

2. In combination with a bin, a pivoted supporting arm for said bin a helical spring-band engaging said arm and having a section of sufficient thickness and rigidity to provide a transversely acting resistance when the spring is subjected to flexure and means against which the spring bears to obtain such flexure, substantially as described.

3. In combination with a cabinet and a swinging bin, a supporting arm pivoted to said bin, a helical spring engaging at one end said cabinet and at the other end said arm, a member fixed on the cabinet and projecting into the line of movement of the free end of said spring, substantially as described.

4. In combination with a cabinet and a swinging bin, a supporting arm pivoted to said bin, a helical spring mounted on the cabinet and having one end fixed thereto and the other end secured to said arm and a pin projecting from the cabinet and located to contact with the free, movable end of the spring in the last part of the travel of the arm to impart an additional tension to said spring, substantially as described.

5. In combination with a cabinet, a swinging bin, a pivoted supporting arm therefor, a spring connected to said arm, latch means for holding the bin against the tension of the spring and means for releasing said latch means upon continued movement of the bin against said tension, substantially as described.

6. In combination with a cabinet, a swinging bin, means for automatically restoring the bin to its position within the cabinet, means for automatically latching the bin in load receiving position, said latching means being automatically releasable upon a continued movement against the force of the restoring means, substantially as described.

7. In combination with a cabinet, a swinging bin, means for automatically lifting the bin toward its position within the cabinet, a loosely swinging latching dog carried by said bin and means on the cabinet to engage said dog, said dog and engaging means being so relatively mounted as to permit the

dog to engage said means when the bin is swung toward load receiving position and to disengage said means upon the continued movement of the bin in the same direction, substantially as described.

8. In combination with a cabinet, a bin mounted to swing up and down, a latch pin mounted on said cabinet, a dog having downwardly inclined notches in one edge thereof and having the opposite edge smooth and loosely pivoted on said bin, and operable to swing into engagement with said pin and past the same in movements of the bin in the same direction, said dog being movable by gravity into a vertically depending position with its smooth edge against said pin, substantially as described.

9. In combination with a cabinet, a swinging bin, a lever pivoted on said cabinet and connected at one end of one arm of the lever to said bin, a dog loosely pivoted to the end of the other arm of the lever, said dog adapted to hang in a vertical depending position free of any engagement with the cabinet when moved to a point to be acted upon by gravity alone and a dog engaging member mounted on the cabinet to the rear of and below the pivot of the lever, substantially as described.

10. In combination with a cabinet having a bin compartment, a swinging bin, rigid arms pivoted at their lower ends to the walls of the cabinet compartment at the lower part of said compartment, a single arm for each side of the bin, a coiled spring mounted in the compartment and directly engaging an arm beyond the pivotal point thereof and exerting its coiling tension in a plane parallel with the plane of movement of the arm, for automatically returning the same toward its position within the compartment, substantially as described.

In witness whereof, I have hereunto set my hand and seal at Elwood, Madison county, Indiana, this 28th day of January, A. D. nineteen hundred and thirteen.

WILFRED SELLERS. [L. S.]

Witnesses:

ELIZABETH BAKER,

ELLMA PARSONS.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."