# United States Patent [19]

**McLaughlin**

[11] **3,767,280**

[45] **Oct. 23, 1973**


[54] **LOCKING SYSTEM FOR FILING CABINETS**


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[22] Filed: **Mar. 14, 1972**

[21] Appl. No.: **234,515**

[52] **U.S. Cl.** ..... **312/219**

[51] **Int. Cl.** ..... **E05b 65/46**

[58] **Field of Search** ..... 312/216–221; 70/116, 120, 123



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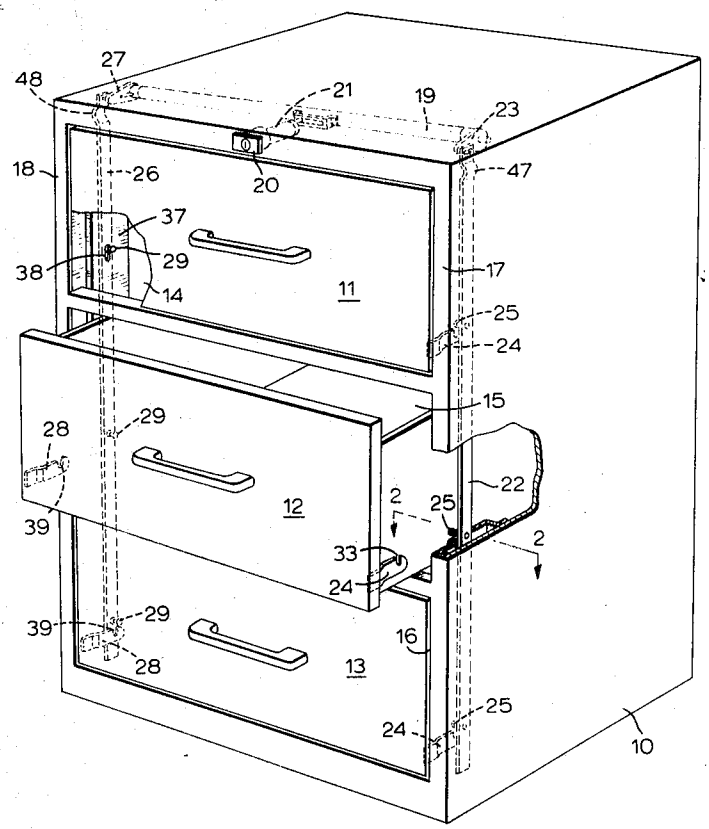
[57] **ABSTRACT**

A locking system for the drawers of articles of furniture such as desks and filing cabinets having a lock-actuated rotatable rod member and vertically movable locking bars at the sides of the drawers with locking studs thereon engageable with brackets on the drawers. The rotatable rod member engages with and actuates the locking bars upwardly and downwardly.


**4 Claims, 3 Drawing Figures**



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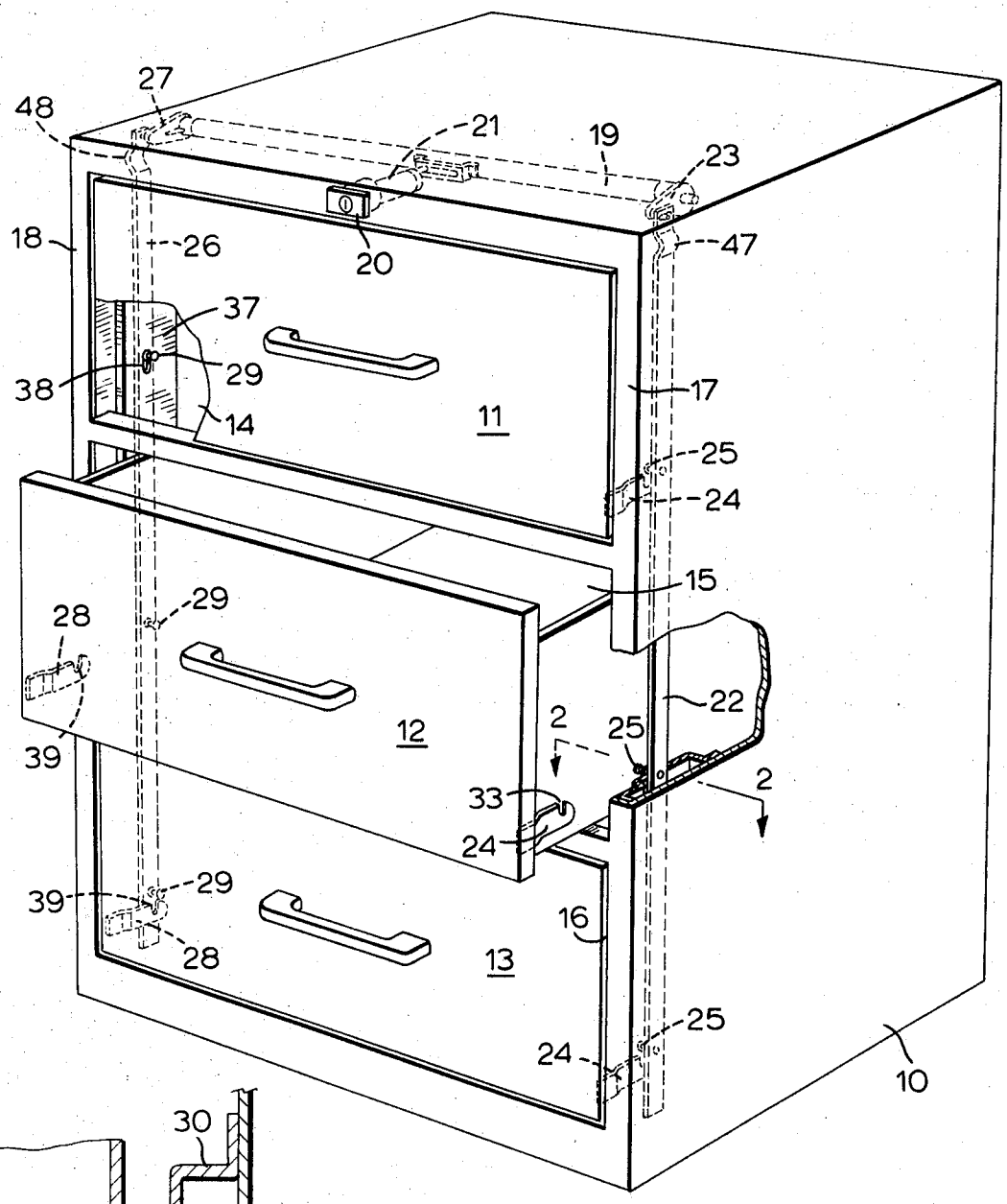


FIG. 1

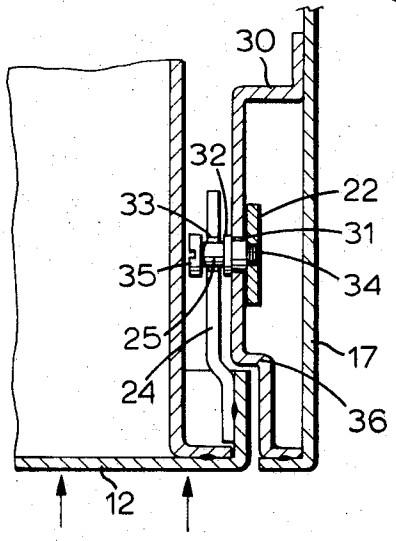


FIG. 2

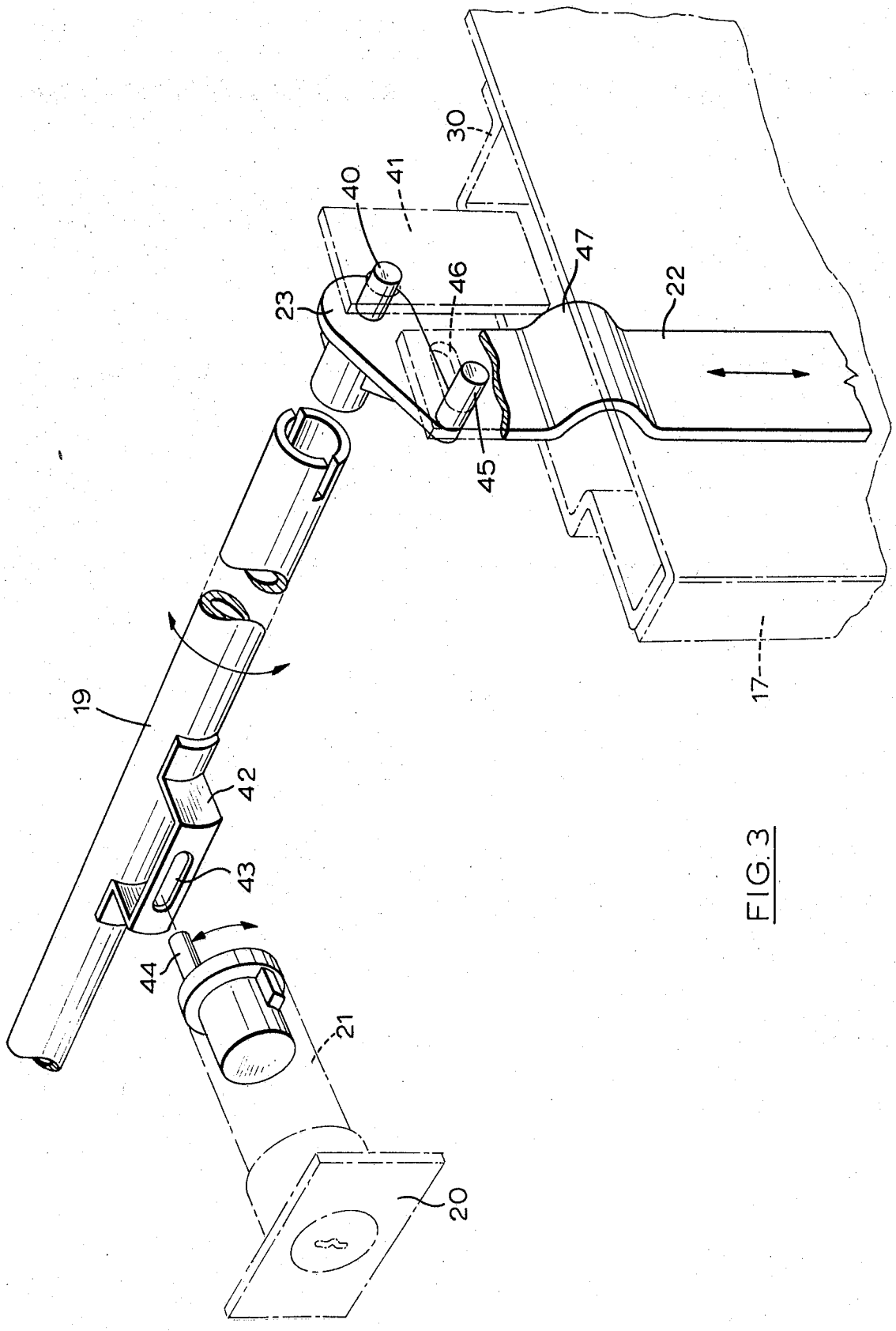


FIG. 3

# LOCKING SYSTEM FOR FILING CABINETS

## BACKGROUND OF THE INVENTION

Various locking systems have been developed for sets of vertically assembled drawers found in articles of furniture such as desks and filing cabinets. It is advisable, of course, to arrange the locking system so that all the drawers can be locked shut by use of one lock and key. A number of single lock locking systems have been devised but most of these have been quite complex and expensive to manufacture.

In the U.S. Pat. No. 2,793,927 to Reitzel a single lock multiple drawer locking mechanism is described which utilizes a complex striker and lock dog mechanism which interact upon operation of the locking arrangement in the system. In the Bergman U.S. Pat. No. 2,966,384, a vertical locking bar is disclosed which is actuated by a horizontally moving cam plate.

It is an object of the present invention to provide a simply and economically constructed locking mechanism for the drawers of filing cabinets and desks which can be operated to lock any number of vertically arranged drawers with one lock.

Other objects and advantages of the invention will be apparent from the description following taken in conjunction with the accompanying drawings.

## SUMMARY

The present invention relates to a locking system for the drawers of articles of furniture such as filing cabinets and desks having one or more drawers slidable in drawer channels. A horizontally arranged lock rod member is rotatably supported in the sidewalls of the drawer channels. A crank member is mounted on one end of the lock rod and a lock bar is vertically and slidably mounted in one sidewall of the drawer channels. The crank on the horizontal lock rod member rotatably engages with the vertical lock bar and the lock cylinder on a lock engages with and rotates the lock rod member thereby rotating the crank and raising or lowering the lock bar. A locking stud attached to the lock bar engages with a lock bracket on the side of the drawer to prevent outward motion of the drawer. Advantageously two vertical lock bars are used, one on each side of the drawer or drawers to be locked and the lock bars are actuated by cranks at each end of the lock rod. The number of locking studs located on the lock bars depends, of course, on the number of drawers located in vertically stacked configuration in a desk or file cabinet.

## BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of an embodiment of the invention shown with several broken-away portions;

FIG. 2 is a sectional view through line 2—2 of FIG. 1; and

FIG. 3 is a perspective view of a portion of the locking mechanism of FIG. 1, shown blown apart and partially broken away.

## DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring specifically to FIG. 1 of the drawings, a three drawer filing cabinet 10 is shown in a perspective view with a drawer locking system embodying the invention installed therein. It can be appreciated that the locking system can be used in filing cabinets with only one drawer or with two or more drawers in vertically stacked configuration or it can be used for locking drawers of desks or other types of cabinetry.



The locking system illustrated in cabinet 10 attends to the simultaneous locking of three drawers 11, 12, 13 slidably located in drawer channels 14, 15, 16 respectively having sidewalls 17, 18. A horizontally arranged lock rod member 19 is rotatably supported in the sidewalls 17, 18. A lock 20 is located in the top of the cabinet 10 over the top drawer 11 and the lock 20 has a lock cylinder 21 engaging with and rotating the lock rod 19 when the lock cylinder 21 is turned by operation of the lock 20. A lock bar 22 is vertically and slidably mounted in the sidewall 17 and a crank member 23 is integrally mounted on the end of the lock rod 19, the crank member 23 being rotatably engaged with the lock bar 22 at the upper end thereof.

A lock brakcet 24 is seen to be attached to each of the drawers 11, 12, 13, with the drawer 12 being shown partially opened to show its lock bracket 24 in plain view. At the same time, a portion of sidewall 17 is broken away in FIG. 1 to better show the arrangement of the lock bar 22 in the sidewall 17. Locking studs 25 are integrally attached to the lock bar 22 and are placed so as to be engageable with the lock brackets 24 upon vertical movement of the lock bar 22 (vertically downward in the embodiment of FIG. 1) by actuation of the lock cylinder 21 which rotates the lock rod member 19, thereby causing the crank member 23 to move downwardly.

Engagement of the locking studs 25 with the lock brackets 24 prevents outward motion of the drawers 11, 12, 13 from their closed positions.

In the embodiment of the invention shown in FIG. 1 locking of the filing cabinet drawers is provided on each side thereof to obviously provide more security and prevent easy prying open of any drawer from what would be an unsecured side if only the vertical lock bar 22 were provided. However it can be seen that the single lock bar 22 in the locked position, would by itself prevent outward motion of the drawers 11, 12, 13 from their closed position. Referring to FIG. 1, vertical lock bar 26 is located in the sidewall 18 and the horizontal lock rod 19 has a second crank member 27 integrally mounted on its other end, the crank member 27 being rotatably engaged with the lock bar 26 at its upper end. Furthermore each of the drawers 11, 12, 13 has a lock bracket 28 attached thereto and the brackets 28 are put in locking engagement with locking studs 29, which are integrally attached to the lock bar 26, when the lock bar 26 is moved downwardly to the locking position, all of which arrangement is the same as that associated with the sidewall 17,

In FIG. 1 a portion of the front of the drawer 11 is broken away to give a clear view of the locking stud 29 which engages with the locking bracket located on that drawer (but not shown in FIG. 1).

A detail view of the arrangement of the vertical lock bar 22 in the sidewall 17 is shown in FIG. 2, which is a sectional view through line 2—2 of FIG. 1. The lock bar 22 is advantageously slidably contained in a vertical channel member 30 (shown also in FIG. 1) which is contained in and attached to the sidewall 17. The channel 30 has vertical slots 31 (only one being shown in FIG. 2) through which the locking studs 25 project. Shoulder portion 32 on each of the studs 25 outside the channel 30 holds the lock bar 22 close to the wall of the

channel 30 and provides for even movement of the studs 25 up and down in the slots 31 and of the lock bar 22 inside the channel 30. Attachment of the locking bracket 24 to the drawer 12 is clearly shoen in FIG. 2 and the locking stud 25 is shown in locking position seated in receiving slot 33 in the bracket 24. The stud 25 is shown as being attached to the lock bar 22 by way of screw portion 34 and is easily attached to and removed from the bar 22 by using a screwdriver on slotted head portion 35. The head portion 35 is seen to have a greater width than the width of the receiving slot 33, thereby preventing substantial lateral movement of the side of the drawer 12.

The locking system of the invention is seen to be made tamperproof by inwardly projecting shoulder portion 36 of the channel 30 which blocks direct access to the locking bracket 24 or the locking studs 25.

The opposite lock bar 26 is seen in viewing FIG. 1, to be contained in the same fashion in a channel member 37 having vertical slots 38 therein (one being shown through the broken-away portion of the drawer 11) through which the locking studs 29 project and in which they move vertically. Receiving slots 39 for the locking studs 29 in the locking brackets 28 are also shown in FIG. 1.

In FIG. 3 an enlarged exploded view in perspective of the upper portion of the locking system embodied in FIG. 1 is shown. The lock rod 19 is shown to be of cylindrical configuration with axle members 40 (only one being shown) at each end thereof. The axle members 40 are rotatably supported in the sidewalls 17, 18 such as in plate member 41 attached to the channel member 30. The lock rod 19 is shown as having a bracket portion 42 centrally located thereon with a slotted portion 43 therein and the lock cylinder 21 has an actuating pin 44 outwardly projecting therefrom, the pin 44 being slidably engaged with the slotted portion 43. The crank member 23 has a pin 45 outwardly projecting therefrom and the lock bar 22 has a slot 46 therein, the crank pin 45 being engaged with and rotatable in the lock bar slot 46. The arrangement with the crank member 27 and the lock bar 26 is the same on the other side of the cabinet 10.

In order to prevent disengagement of the lock bar 22 from the crank pin 45, a bulged portion 47 at the top of the lock bar 13 near the crank member 23 is provided which prevents the lock bar 13 from being sprung outwardly. A similar bulged portion 48 is shown in the other lock bar 26 and these bulged portions 47, 48 are clearly shown in hidden outline in FIG. 1.

Operation of the locking system of the invention can easily be followed with reference to FIG. 3. Upon insertion of a key in the lock 20 the lock cylinder 21 is turned, thereby swinging the actuating pin 44 downwardly. The pin 44 slides along the slot 43 and at the same time rotates the rod 19 so as to swing the crank pin 45 downwardly. The crank pin 45 slides backwardly in the slot 46 and at the same time forces the lock bar 22 downwardly. The downward motion of the lock bar 22 results in engagement of the locking studs 25 (see FIG. 1) with the slots 33 in the lock brackets 24 of the drawers 11, 12, 13, thereby locking the drawers in place. A similar action occurs in the system on the other sides of the drawers. Unlocking the lock turns the actuating pin 44 upwardly and reverses the process, thereby releasing the drawers.

It can be appreciated that the rotatable lock rod 19 could be located at the bottom of the cabinets below all drawers or between two drawers, if desired, raising and lowering the lock bars 22, 26 in a similar manner. Furthermore, the horizontal lock rod could be extended across two or more vertical sets of drawers with vertical lock bars being actuated by the rod on the sides of each of the sets of drawers.

What I claim is:

1. A locking system for drawers of articles of furniture having at least one drawer channel with sidewalls and a drawer slidable therein comprising a horizontally arranged cylindrical lock rod member having axle members at each end rotatably supported in the sidewalls and having a longitudinally slotted portion outwardly of the axis thereof, a lock having a lock cylinder provided with an actuating pin engaging with said lock rod member slotted portion to rotate the same, at least one lock bar vertically and slidably mounted on a sidewall of the drawer channel and having a slot therein, a crank member mounted on said lock rod member and having a pin thereon outwardly projecting therefrom, the pin of said crank member being engaged with and rotatable in the slot of said vertical lock bar, a lock bracket inwardly of said lock bar and spaced from the side of the drawer and having a vertically facing receiving slot therein and a locking stud attached to the vertical lock bar, said locking stud being engageable in the receiving slot of said bracket upon vertical movement of the lock bar to prevent outward motion of said drawer from its closed position and said stud having a head thereon spaced from said lock bar and having a greater width than the width of the bracket slot and movable between the bracket and drawer to prevent substantial lateral movement of the side of the drawer relative to said lock bar.

2. A locking system as defined in claim 1 having two vertical lock bars one in each sidewall, two lock brackets, one on each side of the drawer, a locking stud on each vertical lock bar engageable with each said bracket and wherein the lock rod member has two crank members, one on each end, and each crank member rotatably engages with a vertical lock bar.

3. A locking system as defined in claim 2 wherein the sidewalls have vertical channel members attached thereto, the vertical lock bars being contained and sliding therein, said channel members having vertical slots therein through which the locking studs project.

4. A locking system as defined in claim 1 wherein said vertical lock bar has a bulge therein in the area of the crank member and pin thereon to prevent disengagement of the lock bar and crank.

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