July 8, 1969 A. R. OLREE 3,454,320

DRAWER INTERLOCKING MEANS FOR CABINETS AND THE LIKE

Filed June 28, 1967 Sheet 1 of 3

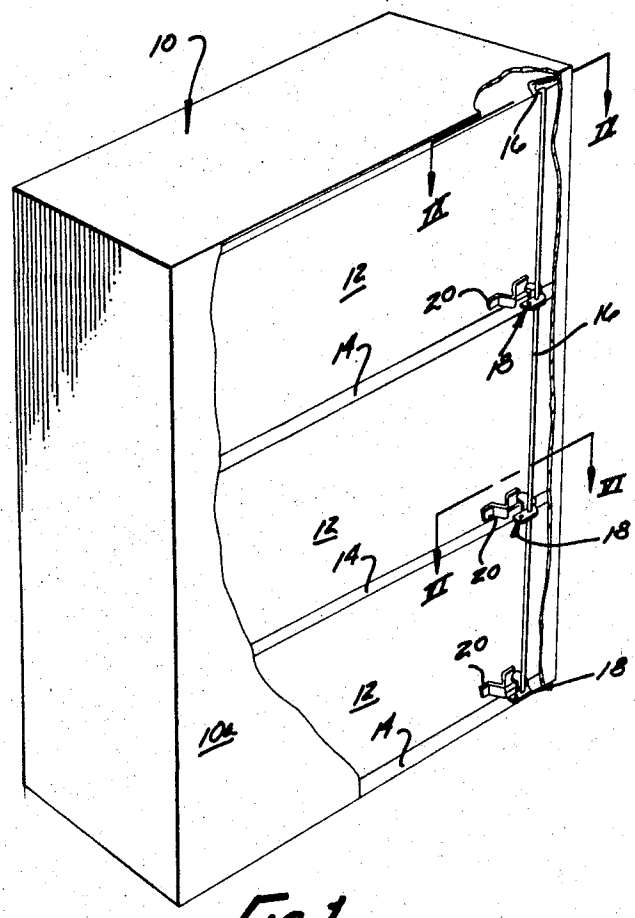


FIG. 1.

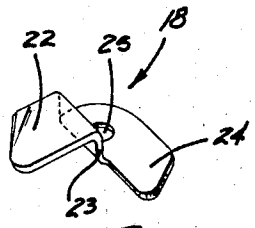


FIG. 2.

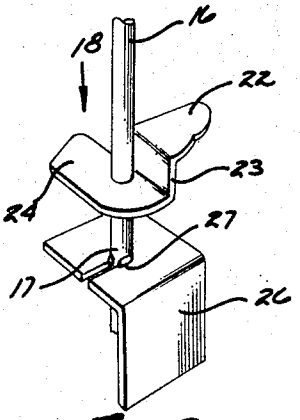


FIG. 3.

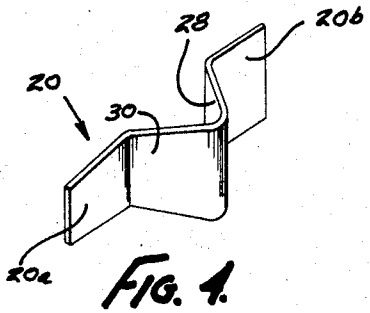


FIG. 4.

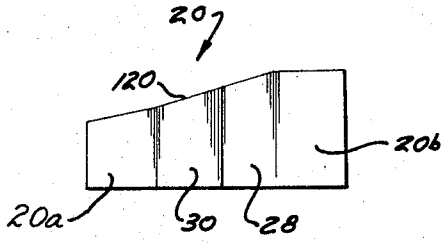


FIG. 5.

INVENTOR.
ADRIAN R. OLREE
BY Price, Heneveld, Huizenga & Cooper
ATTORNEYS

July 8, 1969 A. R. OLREE 3,454,320

DRAWER INTERLOCKING MEANS FOR CABINETS AND THE LIKE

Filed June 28, 1967 Sheet 2 of 3

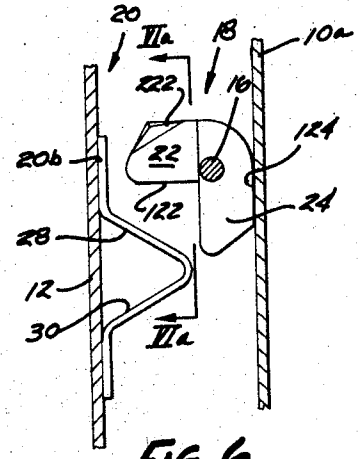


FIG. 6.

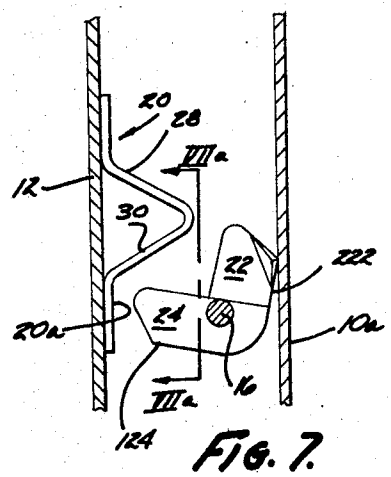


FIG. 7.

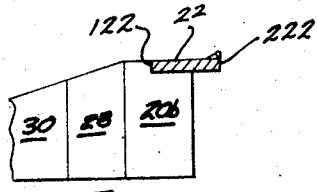


FIG. 6a

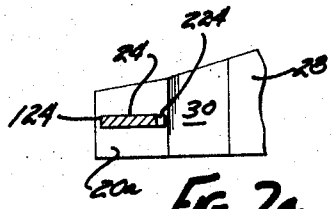


FIG. 7a

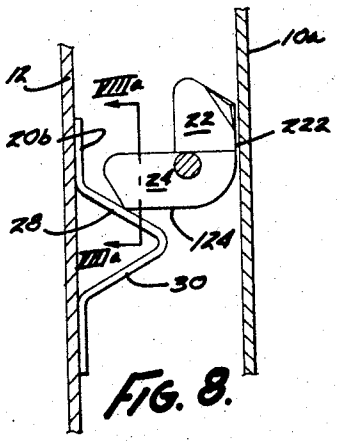


FIG. 8.

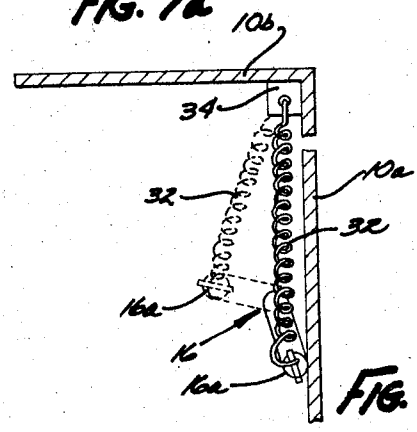


FIG. 9.

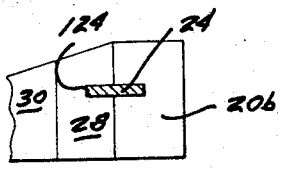


FIG. 8a

INVENTOR.
ADRIAN R. OLREE
BY Price, Heneveld
Huizenga & Cooper
ATTORNEYS

July 8, 1969 A. R. OLREE 3,454,320

DRAWER INTERLOCKING MEANS FOR CABINETS AND THE LIKE

Filed June 28, 1967 Sheet 3 of 3

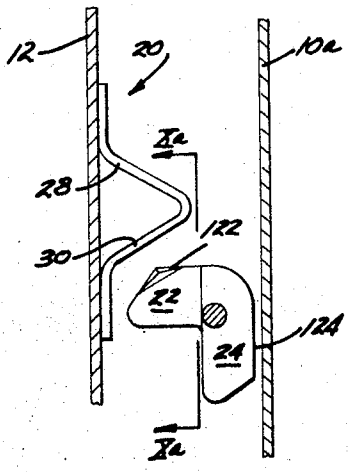


FIG. 10

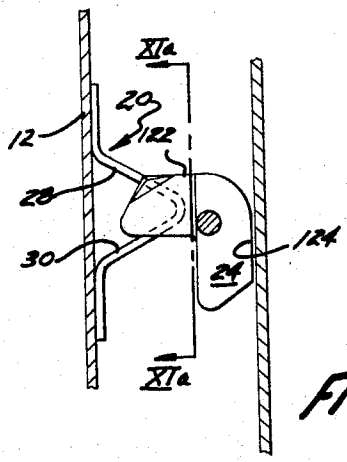


FIG. 11

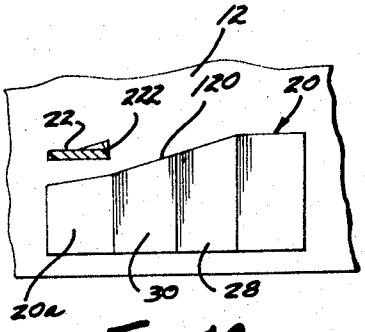


FIG. 10a

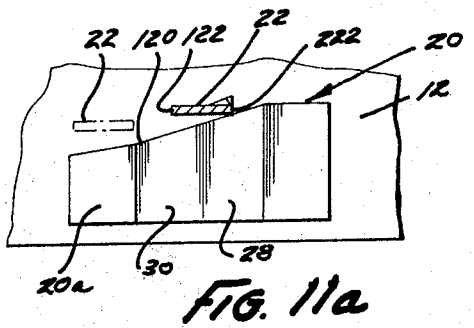


FIG. 11a

INVENTOR.
ADRIAN R. OLREE
BY Price, Heneveld, Huizenga & Cooper
ATTORNEYS

United States Patent Office 3,454,320 Patented July 8, 1969

3,454,320

DRAWER INTERLOCKING MEANS FOR CABINETS AND THE LIKE

Adrian R. Olree, Caledonia, Mich., assignor to Steelcase, Inc., Grand Rapids, Mich., a corporation of Michigan

Filed June 28, 1967, Ser. No. 649,600
Int. Cl. E05c 15/04
U.S. Cl. 312—217 25 Claims

ABSTRACT OF THE DISCLOSURE

A rotatably-mounted rod positioned perpendicular to the drawers in a file cabinet and located adjacent such drawers, with a number of pairs of angularly-disposed finger elements attached to the rod, each pair extending laterally of the rod in juxtaposition to one of the drawers in the cabinet. Each drawer has an abutment on its side which is in alignment with the finger elements extending laterally toward that drawer, with the arrangement being such that when any given drawer is drawn out of the cabinet to an open position the abutment means on such drawer will come into contact with and push against a first one of the finger elements in the adjacent pair thereof, to thereby rotate the rod, somewhat in the manner of a turnstile. Such rotation of the rod places a leading edge of each of the first finger elements in each pair in contact with a fixed part of the cabinet, to limit rotation of the rod. Also, the second finger element in each pair is moved during this rotation into alignment with the abutment means on the drawer adjacent thereto, such that drawers remaining in the cabinet cannot then be withdrawn until the open drawer is first closed. Further, each of the aforesaid first finger elements in each pair thereof is elevated somewhat above the other such element in each pair, so as to meet the forward portion of the abutment on the corresponding drawer near the upper extremity of such abutment as the drawer carrying the latter is opened. Such abutments have a vertically sloping rearward portion which slides beneath and operates to lift the aforesaid first element, and thereby lift the entire rod carrying all of the finger elements, to permit the closing of a drawer under conditions wherein the first finger element would otherwise directly block the abutment and prevent closing of the drawer.

Background of the invention

This invention relates to filing cabinets and the like of the type having a plurality of drawers arranged in linear alignment with each other, and more particularly it relates to a means for interlocking the drawers within such a cabinet so that once a first given drawer has been opened by extending it from the cabinet, other drawers are prevented from being so extended.

Problems have always been encountered in the use of vertical filing cabinets when more than a single one of the upper drawers is opened by withdrawing such drawer from the cabinet. The opening of two or more drawers may occur either deliberately or inadvertently, but whenever it does occur the entire filing cabinet is very likely to be so unbalanced by the weight of the loaded drawers jutting out from the top of the cabinet that the entire cabinet is overturned, often with considerable injury to persons or property in the vicinity.

A variety of prior devices have been provided to overcome the foregoing problem by locking closed drawers into the cabinet whenever a given drawer is drawn open, thereby permitting only one drawer at a time to be opened. Such prior devices generally include mechanisms of a type having either a longitudinally slidable or a rotary

member carrying a number of individual latch elements, with at least one such element for each drawer. Such prior devices have met with varying degrees of success, but most of them have been characterized by overly complex structural features, including various different springs and a number of different movable elements, for example. Such complexity is not really consistent with the simplicity and singleness of purpose which such a locking or interlocking mechanism should have, and consequently the aforementioned prior devices have been subject to malfunction and breakage, and were also characterized by excessive manufacturing and installation costs.

Summary of the invention

The present invention provides an interlock mechanism for the drawers of a file cabinet or the like which is of extremely high reliability and yet of an extremely simplified nature from a purely structural point of view. The device of the invention is thoroughly positive in action, and it virtually eliminates the possibility of any malfunction or improper operation.

Briefly stated, the interlock means of the invention comprises an elongate rod which is mounted in the file cabinet perpendicular to the aligned drawers therein and adjacent thereto, for rotary movements about its own longitudinal axis. This rod has a plurality of certain structural formations on it, each located in juxtaposition to one of the drawers. These structural formations each define a plurality of camming or operative surfaces, including a first such surface arranged to be contacted and pushed in a rotary path about the aforesaid rod by an abutment carried on the drawer nearest such surface, so that the latter is thus moved out of the way of the abutment. This rotation of the aforesaid rod brings it to a point where certain stop or blocking surfaces defined by each of said structural formations are moved into contact with interior portions of the cabinet, to thereby limit the allowable rotation of the rod at that point. At this limited position of the rod certain interlock surfaces defined by each of the aforesaid structural formations are positioned in direct alignment with and ahead of the abutment means on all drawers which are not yet opened, thereby blocking all such drawers so that they cannot then be opened. However, secondary camming surfaces defined by the structural formations on the rod are under these circumstances located in alignment with the rearward side of the abutment means on the drawer initially opened, so that when such drawer is closed the abutment means thereon contacts such secondary camming surface and rotates the elongate rod back to its initial position, in which any drawer may be opened.

Structural features of the invention and the complete nature thereof will become increasingly apparent following a consideration of the ensuing specification and the appended claims in which the invention is defined, particularly when taken in conjunction with the accompanying illustrative drawings setting forth a preferred embodiment of the invention.

Brief description of the drawings

FIG. 1 is a fragmentary lateral perspective view of a typical vertical filing cabinet incorporating the drawer interlock structure of the invention;

FIG. 2 is an enlarged frontal perspective view of a single first element of the interlock structure;

FIG. 3 is a rearward perspective view of the element of FIG. 2, showing also the mounting and attachment of the same;

FIG. 4 is an enlarged perspective view of another element of the interlock structure;

FIG. 5 is a side elevation of the element of FIG. 4;

FIG. 6 is an enlarged fragmentary sectional plan view taken through the horizontal plane VI—VI of FIG. 1, with the drawer in a closed position;

FIG. 6*a* is a fragmentary sectional elevation taken through the vertical plane VI*a*—VI*a* of FIG. 6;

FIG. 7 is a sectional plan view similar to that of FIG. 6, but showing the drawer in an open position and the resulting movement of the interlock structure;

FIG. 7*a* is a fragmentary sectional elevation taken through the vertical plane VII*a*—VII*a* of FIG. 7;

FIG. 8 is a sectional plan view similar to that of FIG. 7, but showing the interlock position when another drawer has been opened;

FIG. 8*a* is a fragmentary sectional elevation taken through the vertical plane VIII*a*—VIII*a* of FIG. 8;

FIG. 9 is an enlarged overhead sectional plan view taken through the horizontal plane IX—IX of FIG. 1 and showing the top of the interlock device, with phantom lines indicating the movement thereof during the opening of a drawer;

FIG. 10 is an enlarged sectional plan view similar to FIG. 7, but showing a different relative position of the interlock structure;

FIG. 10*a* is a sectional elevation taken through the vertical plane X*a*—X*a* of FIG. 10;

FIG. 11 is an enlarged sectional plan view similar to FIG. 10, but showing the closing of the drawer from that position; and

FIG. 11*a* is a sectional elevation taken through the vertical plane XI*a*—XI*a* of FIG. 11.

Description of a preferred embodiment

Referring now in more detail to the drawings, a typical vertical file cabinet **10** is illustrated generally in FIG. 1, in which a number of file drawers **12** are mounted in a spaced, vertically aligned relation upon rail structures **14** which may be of a typical type and which, as will be understood, permit horizontal movement of each drawer so that the same may be withdrawn from the cabinet to open the drawer. The interlock means of the invention has a primary structural component **16** comprising an elongate vertical rod which is mounted for rotary movement about its longitudinal axis within the cabinet **10**. As indicated in FIG. 1, the rod **16** has certain structural formations **18** thereon which are located adjacent each of the drawers **12**, and each drawer has an abutment means **20** attached thereto in immediate juxtaposition to each of the structural formations **18** on the elongate rod.

The structural formations **18** illustrated generally in FIG. 1 are identical, and one such formation is seen in more detail in FIGS. 2 and 3. Each such formation basically comprises an angular sheet metal component defining a pair of finger elements **22** and **24** which are disposed at substantially right angles to each other. Further, finger element **22** is elevated above the plane of finger **24**, being offset therefrom by a short vertical segment **23**, for purposes to be noted in more detail subsequently. An aperture **25** (FIG. 2) is formed through each structure **18**, between fingers **22** and **24** and generally adjacent vertical segment **23**. The elongate rod **16** noted previously passes vertically through aperture **25**, and each structural formation **18** is secured in direct vertical alignment with each other to the rod **16** at a desired position therealong, preferably by spot-welding the rod to the formation at the vertical segment **23** of the latter.

As indicated in FIG. 3, the rod **16** is mounted and supported in position by means of angle brackets **26** which have an appropriate aperture **27** in the horizontal portion thereof for receiving the rod. Preferably, the brackets **26** are slotted from one edge extremity to their aperture **27**, and the rod **16** is necked down at **17**, so that the rod may be slid sideways into position in the aperture **27**. As will be understood, the vertical portion of the angle bracket **26** serves to secure the bracket to a side wall of the cabinet **10** in a desired manner, whereas the horizontal portion of the bracket, in which the aforesaid aperture **27** is formed, is disposed immediately beneath finger element **24**, to support the latter as it slides thereupon when the rod **16** is rotated.

The abutment means **20** carried by each of the drawers **12** is seen in more detail in FIGS. 4 and 5, from which it will be noted that this is basically a V-shaped element, having generally flat, coplanar end extremities **20***a* and **20***b* by which it is attached to a drawer **12**, and also having angularly disposed forward and rearward side portions **28** and **30**, respectively, which give the abutment element its aforesaid V-shaped configuration. The top edge **120** of the abutment element **20** declines vertically rearwardly of the forward end portion **20***b* thereof, i.e., over the angular sides **28** and **30** and over the rearward end extremity **20***a*. The purpose for this will also be seen more fully hereinafter.

In FIGS. 6 and 6*a* the normal initial relationship of a drawer **12**, the abutment means **20** carried thereby, and the vertical rod **16** and one of the structural formations **18** attached thereto is illustrated, in connection with the side **10***a* of the file cabinet **10** which is located adjacent the other component structures just noted. That is, in the aforesaid normal initial position, the drawer **12** is closed and the abutment means **20** carried thereby is located slightly rearwardly of the vertical rod **16**; also, finger element **24** of the structural formation **18** is generally parallel to and touching cabinet wall **10***a*, whereas finger element **22** extends laterally inwardly of wall **10***a* and is located immediately ahead of the forward angular side **28** of the abutment element **20**.

As may be seen in FIGS. 1 and 9, the upper extremity of the vertical rod **16** has a crank-like or laterally offset portion **16***a* which extends radially away from the rod, preferably above the uppermost drawer **12**. A coil spring **32** is connected between the outer end of this offset portion **16***a* and a bracket **34** secured in the front corner of the file cabinet, against side **10***a* thereof. The structural formations **18** are arranged on rod **16** with respect to the offset portion **16***a* thereof such that the offset portion is more-or-less in vertical alignment with the several finger elements **24**. That is, in the initial position shown in FIG. 6, finger **24** is oriented generally parallel or at a very slight angle to the side **10***a* of the cabinet, and what is referred to herein as an interlock surface or portion **124**, defined by one side edge of finger **24**, touches the inner surface of wall **10***a*; in this position, the offset portion **16***a* of rod **16** is oriented at a slight angle to cabinet wall **10***a*, with the outer end of the offset portion touching, or almost touching, cabinet wall **10***a*. The rod **16** is spaced from side **10***a* at least slightly further than is the attachment point of the spring **32** to the bracket **34**; consequently, in the aforesaid initial position the axis of spring **32** lies to the outside of the longitudinal axis of rod **16**. Therefore, in this position the spring **32** pulls offset portion **16***a* at least lightly toward wall **10***a*, to maintain the interlock surface **124** on each of the finger elements **24** in abutting contact with side wall **10***a* of the cabinet. This is the basic purpose of this spring.

The two opposite side edges of each finger element **22** define surfaces or portions which are respectievly referred to herein as a first camming surface, designated **122**, and an indexing and blocking surface, designated **222** (FIGS. 6 and 6*a*). When any drawer **12** is withdraw from the cabinet to an open position, it moves forward from the position seen in FIGS. 6 and 6*a* to that seen in FIGS. 7 and 7*a*. During this movement, the forward angular side **28** of the abutment means **20** comes into contact with and pushes against the aforesaid first camming surface **122** on finger element **22**, to rotate the entire structural formation **18** and also the vertical rod **16** secured thereto a clockwise direction (as seen from overhead), to the position seen in FIG. 7.

When any drawer **12** is opened and the rod **16** is rotated in this manner, the offset portion **16***a* of the rod is similarly moved in a clockwise direction. At first, this motion is against the force exerted by spring **32**; however, after a brief rotation has occurred, the axis of spring **32** will have moved across the axis of rod **16** in an "over-center" operation. As soon as this occurs, the spring **32** begins to pull in the opposite direction on the offset **16***a*, thereby tending or helping depending on the amount of spring force which this spring exerts, to rotate the rod **16** and also each of the structural formations **18** thereon to the position shown in FIG. 7, wherein the indexing and blocking surface **222** of each finger element **22** lies in direct contact with cabinet wall **10***a* to thereby limit the allowable rotation of the rod **16** and that of each of the structural formations **18** secured thereto. Once again, spring **32** holds rods **16** in the position wherein its rotation is limited, to thereby fulfill the basic function for this spring.

Under the circumstances just described, each drawer **12** within the file cabinet **10** which is not open when a given other drawer is opened is locked within the cabinet and prevented from being opened, due to the presence of the interlock surface **124** defined by each finger element **24** immediately in front of the abutment means **20** on each drawer. As shown in FIGS. 8 and 8*a*, if any such closed drawer is then attempted to be drawn open, the forward side **28** of the abutment means thereon will come into abutting contact with the interlock surface **124** located immediately ahead of it. Since the indexing and blocking surface **222** of each finger element **22** is then in direct abutment against cabinet wall **10***a* none of the structural formations **18** can rotate clockwise any further; consequently, the interlock surfaces **124** of the various finger elements **24** stop each drawer and prevent each from being opened.

When a drawer which has been opened is closed, the rearward angular side **30** on the abutment means **20** of such drawer comes into contact with what is referred to herein as a second cam portion or surface **224**, formed on the side edge of finger element **24** which is opposite the aforesaid interlock surface **124** thereof. This may be seen in FIGS. 7 and 7*a*. Upon further closing of such drawer, side **30** of the abutment means thereon pushes finger element **24** in a counterclockwise direction by bearing against the aforesaid second camming surface **224**. This in essence reverses the previous rotation of the rod **16** and the various structural formations **18** thereon, to return the rod and the various structural formations thereon to their respective initial position, as seen in FIG. 6. That is, the stuctural formations **18** are rotated in a counterclockwise direction, which moves the offset portion **16***a* of rod **16** back toward the position seen in FIG. 9 against the tension of spring **32**. Of course, once the axis of spring **32** swings rightwardly across the axis of rod **16**, this spring will once again urge the rod in a counterclockwise direction, tending or helping to bring it to its original position, where the interlock surface **124** on each finger element **24** is once again in contact with wall **10***a* of the cabinet. As before, the spring will retain the rod in this position. At this point, any of the drawers **12** in the file cabinet may be opened, since nothing prevents such opening. However, upon opening any single drawer, the clockwise rotation of the vertical rod **16** noted previously will once again occur, as a result one of the first camming surfaces **122** on one of the finger elements **22** having been pushed forward by the corresponding abutment means **20** on the particular drawer which is opened.

As will be apparent from the foregoing discussion, it is possible to open at one time more than one drawer of a cabinet equipped with the present interlock means, if such drawers are opened simultaneously. If under such circumstances only one of these drawers is then closed, the various structural formations **18** will have been returned to their initial position (seen in FIG. 6), even

though one of the drawers still remains in an open position. Clearly, if only the construction already described were present, this open drawer could not then be closed, since the indexing and blocking surface **222** on each structural formation **18** is oriented as seen in FIGS. 10 and 10*a*, i.e., immediately behind the rearward side **30** of the abutment means **20** on such drawer.

It is at this point that the elevation of finger element **22** above finger element **24** and the inclined upper edge surface **120** of the abutment means **20**, noted previously, becomes important. With this inclining edge configuration, the indexing and blocking surface **222** on finger element **22** does not actually strike the outwardly-protruding angular forward side **28** of the abutment means **20** and prevent the drawer from being closed. On the contrary, an open drawer can be closed under these circumstances, due to the following operation. As the open drawer is pusher toward a closed position, the sloping upper edge **120** of the abutment means **20** initially comes into contact with the underside of the relatively elevated finger element **22** (FIG. 10*a*).

Upon further closing of the drawer, the aforesaid sloping edge **120** on the abutment means **20** acts as a cam in raising the finger element **22** and the entire structural formation **18** of which such finger is a part, as well as the rod **16** and all of the different structural formations **18** located thereupon, since each such formation is fixedly secured to the rod **16**. This upward movement of the rod is provided for by its mounting in the various angle brackets **26** (FIG. 3) which hold the rod in a rotatable manner and support it vertically beneath each of the finger elements **24**, so that the rod cannot slip downwardly. However, nothing prevents it from being moved upward in the manner just stated, even though the tension of coil spring **32** at the top of the rod must first be stretched or extended at least slightly. This may be a very light spring, however, and accomplishing the latter need not be a difficult matter.

Thus, the abutment means **20** slips beneath the finger element **22** without changing the rotational position thereof, as indicated in FIGS. 11 and 11*a*, until the drawer is once again in a fully closed position. At this point, the abutment means **20** is located rearwardly of the finger element **22** (as shown in FIGS. 6 and 6*a*) and consequently the rod **16** slips back downward to its initial position, assisted by the tension of spring **32**, which has been brought into existence or (perhaps) increased by the upward movement of the rod. Thus, both the force of gravity and the downward pulling of spring **32** return the rod **16** to its initial position, wherein the forward portion **28** of the various abutment means on each of the drawers is in direct alignment with the first camming surface **122** on each of the finger elements **22** disposed immediately forward of such abutment means.

As has now been fully set forth, the interlock means of the invention positively prevents the opening of drawers in a file cabinet once one such drawer has been opened, to thereby greatly increase the safety of using the file cabinet, by in effect preventing the cabinet from being tipped over by the weight of opened drawers. The blocking of each closed drawer is absolutely positive, since an integral structural element or formation blocks each individual drawer by in effect wedging its angularly-disposed finger elements between the cabinet and the drawer. That is to say, a single indexing and blocking surface located anywhere along the rod **16** might be used if separate interlock surfaces secured to the vertical rod were still utilized and disposed ahead of the abutment means on each drawer. However, this would give rise to torsion forces acting on the rod between such a single indexing and blocking surface and the various interlock surfaces. No such forces are created in accordance with the present preferred embodiment, however, since each drawer is independently blocked in a closed position by a separate blocking or interlocking entity. As will be ap-

parent, the operation of the present interlock device is essentially foolproof, is rapid, and is positive in every respect.

It is entirely conceivable that upon examining the foregoing disclosure, those skilled in the art may devise embodiments of the concept involved which differ somewhat from the embodiment shown and described herein, or may make various changes in structural details to the present embodiment. Consequently, all such changed embodiments or variations in structure as utilize the concepts of the invention and clearly incorporate the spirit thereof are to be considered as within the scope of the claims appended herebelow.

I claim:

1. In a file cabinet or the like of the type having plural drawers arranged in linear alignment with each other, the improvement consisting of interlock means for preventing the opening of other drawers after a first drawer has been opened, said interlock means comprising: an elongate rod mounted in said cabinet perpendicular to and adjacent said drawers for rotary movements about its own longitudinal axis; said rod having structural formations thereon defining a first series of camming surfaces, with at least one such camming surface located in lateral juxtaposition to each of said drawers; abutment means on each of said drawers, including forward and rearward portions; said forward portion on each drawer arranged to contact the particular camming surface in said first series thereof which is juxtaposed to such drawer and push against such surface to move the structural formation defining it and thereby rotate said rod in a first direction as such drawer is withdrawn from said cabinet toward an open position; said structural formations further defining at least one indexing and blocking surface for contacting a portion of such cabinet upon a predetermined extent of such rotation to thereby limit such rotation; said structural formations additionally defining a series of interlock surfaces, with at least one such surface located in lateral juxtaposition to each of said drawers and, at said limit of rotation of said rod, in direct alignment with said abutment means on said drawers, such that upon opening any one drawer any other drawer not yet extended to an open position is prevented from being so extended by contact of the abutment means thereon with such interlock surface; and said structural formations also defining a second series of camming surfaces with one such surface located in lateral juxtaposition to each of said drawers and arranged to be moved by rotation of said rod in said first direction to a position in direct alignment with the rearward portion of the abutment means on the drawer which has been extended to an open position, such that upon returning said drawer to its closed position said abutment means rearward portion will contact and push against such camming surface in said second series to rotate said rod in a second direction back to its initial position.

2. The improvement in file cabinets recited in claim 1, wherein said structural formations define a plurality of said indexing and blocking surfaces, one such surface being located in lateral juxtaposition to each of said drawers.

3. The improvement in file cabinets recited in claim 2, wherein each of said indexing and blocking surfaces is located generally in blocking alignment with respect to the abutment means on the drawer to which such surface is in lateral juxtaposition when said rod is in its said initial position and such drawer then occupies an open position, and wherein said interlock means further includes means operative in response to the closing of such drawer to move at least one of each such aligned indexing and blocking surface and abutment means to relatively move the two out of said blocking alignment and thereby permit such drawer to be closed.

4. The improvement in file cabinets recited in claim 3, wherein said means operative in response to the closing of such drawer includes a cam portion on said abutment means and a cam follower portion defined by said structural formations, said cam portion contacting said follower portion to move the same upon closing of said drawer.

5. The improvement in file cabinets recited in claim 4, wherein said cam portion and cam follower portion are arranged to move said rod upon closing of said drawer.

6. The improvement in file cabinets recited in claim 1, further including resilient biasing means coupled to said rod for holding the same at at least one of the limits its said first and second directions of rotary movement.

7. The improvement in file cabinets recited in claim 6, wherein said resilient biasing means is arranged to hold said rod at either of its limits of rotary movement when said rod has been brought to one or the other such limit.

8. The improvement in file cabinets recited in claim 7, wherein said resilient biasing means comprises a spring element arranged to operate in an over-center manner.

9. The improvement in file cabinets recited in claim 1, wherein at least some of said structural formations on said rod comprise rigid finger elements projecting laterally outwardly from said rod.

10. The improvement in file cabinets recited in claim 9, wherein at least some of said finger elements define on their outer periphery more than a single one of the surfaces in the group including said first camming surfaces, said interlock surfaces, and said second camming surfaces.

11. The improvement in file cabinets recited in claim 1, wherein at least some of said structural formations on said rod comprise a pair of angularly disposed rigid finger elements projecting laterally outwardly from said rod.

12. The improvement in file cabinets recited in claim 11, further including resilient biasing means coupled to said rod for holding the same at at least one of the limits its said first and second directions of rotary movement.

13. The improvement in file cabinets recited in claim 11, wherein one of the angularly disposed finger elements in each of said pairs thereof defines an indexing and blocking surface.

14. The improvement in file cabinets recited in claim 13, wherein each of said finger elements in said pairs thereof defines on its outer periphery two of the surfaces in the group including said first camming surfaces, said indexing and blocking surfaces, said interlock surfaces and said second camming surfaces.

15. The improvement in file cabinets recited in claim 14, wherein said resilient biasing means is arranged to hold said rod at either of its limits of rotary movement when said rod has been brought to one or the other such limit.

16. The improvement in file cabinets recited in claim 15, wherein one of said finger elements in each of said pairs defines on its outer periphery one of said first camming surfaces and one of said indexing and blocking surfaces and the other one of said finger elements in each such pair defines one of said interlock surfaces and one of said second camming surfaces.

17. The improvement in file cabinets recited in claim 16, wherein said resilient biasing means comprises a spring element arranged to operate in an over-center manner.

18. The improvement in file cabinets recited in claim 17, wherein said rod includes an offset portion extending laterally of the longitudinal axis of the rod, and said spring element is a coil spring connected between such offset portion and said cabinet such that the longitudinal axis of the spring is shiftable across the said longitudinal axis of the rod.

19. The improvement in file cabinets recited in claim 16, wherein said abutment means for said drawers comprises a lateral extension securable to each such drawer and having spaced forward and rearward edge surfaces comprising said portions for contacting said camming surfaces in said first and second series thereof.

20. The improvement in file cabinets recited in claim 19, wherein said lateral extension is a V-shaped element, having angularly-disposed sides forming said forward and rearward edge surfaces.

21. The improvement in file cabinets recited in claim 20, wherein each of said indexing and blocking surfaces is located generally in blocking alignment with respect to the abutment means on the drawer to which such surface is in lateral juxtaposition when said rod is in its said initial position and such drawer then occupies an open position, and wherein said interlock means further includes means operative in response to the closing of such drawer to move at least one of each such aligned indexing and blocking surface and abutment means to relatively move the two out of said blocking alignment and thereby permit such drawer to be closed.

22. The improvement in file cabinets recited in claim 21, wherein said means operative in response to the closing of such drawer includes a cam portion on said abutment means and a cam follower portion defined by said structural formations, said cam portion contacting said follower portion to move the same upon closing of said drawer.

23. The improvement in file cabinets recited in claim

22, wherein said cam portion and cam follower portion are arranged to move said rod upon closing of said drawer.

24. The improvement in file cabinets recited in claim 23, wherein said cam portion comprises a vertically sloping surface on said rearward portion of each of said abutment means and said cam follower portion comprises a surface portion on the finger element in each of said pairs which defines said first camming surface and said indexing and blocking surface.

25. The improvement in file cabinets recited in claim 24, wherein said finger element is elevated with respect to the other such finger element in each particular pair thereof.

References Cited

UNITED STATES PATENTS

2,719,770	10/1955	Roberts	312—221
2,842,419	7/1958	Howard	312—218
2,992,056	7/1961	Thielker	312—221
3,150,902	9/1964	Naab et al.	312—250 X
3,259,444	7/1966	Friend	312—221
3,323,849	6/1967	Stark	312—221
3,371,974	3/1968	Vermeersch	312—218

CASMIR A. NUNBERG, *Primary Examiner.*