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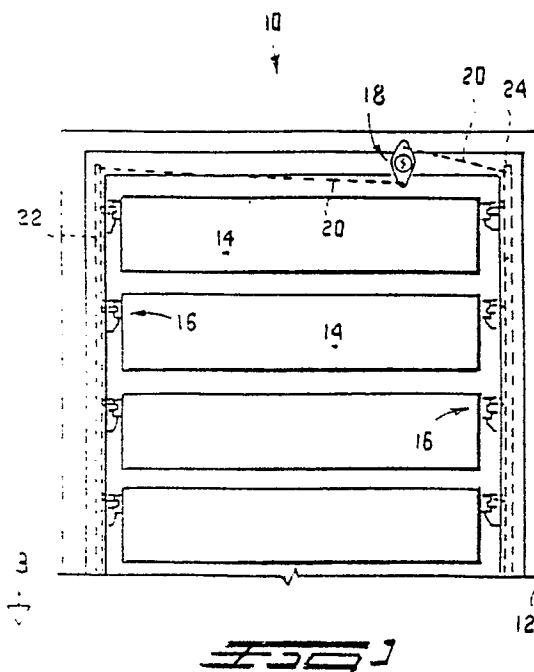
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London WC2A 3LS(GB)(54) **Cabinet.**

(57) A cabinet (10) is disclosed which is suitable for storing files, stationery and the like. Known cabinets include a plurality of drawers arranged in a vertical array, one above the other. When the drawers are full, they may have a substantial mass such that when more than one drawer is open, the possibility exists that the cabinet may overturn.

Thus the present invention is directed towards a cabinet (10) which only enables one drawer (14) to be open at a time and which enables all the drawers (14) to be locked or unlocked simultaneously. Hence, the cabinet (10) comprises a frame (12), a shaft (24) attached to the frame (12) and a catch (30) coupled to each respective drawer (14) and also coupled to the shaft (24) for enabling only one drawer to be open at any one time.



EP 0 352 990 A1

CABINET

This invention relates to a cabinet of the kind suitable for storing files, stationery and the like.

The use of the cabinet, and the principles described hereinafter, are however not confined to this particular application.

A cabinet of the kind described may include a plurality of drawers arranged in a vertical array, one above the other. The drawers may be large and, when filled with stationery, have a substantial mass. If more than one drawer is opened, at the same time, then there is a danger that the combined mass of the open drawers can be such that the cabinet is caused to overturn. This is a dangerous situation.

SUMMARY OF THE INVENTION

The invention is concerned with a cabinet which may contain a plurality of drawers which can be locked or unlocked in unison and which includes the safety feature that only one drawer can be opened at a time.

The invention provides a cabinet which includes a frame and at least one drawer which is movable into or out of the frame between closed and opened positions, and a catch mechanism which includes a first member adapted to be secured to the drawer, a shaft which is rotatably mounted to the frame, a catch which is fixed to, and which is rotatable with, the shaft, means for moving the catch between a first position at which it engages with a locking formation on the first member thereby to prevent the drawer from being opened and a second position at which the catch is disengaged from the first member, and biasing means which acts on the catch, when the drawer is open, thereby causing movement of the catch to the first position.

The drawer may include two of the catch mechanisms located respectively on opposing lateral sides of the drawer.

The drawer, when closed, may actuate or cause movement of the biasing means so that the catch can be moved between the first and second positions.

The cabinet may include a plurality of the drawers each of which includes at least one of the catch mechanisms, the respective catches of the catch mechanisms being mounted on a common shaft.

The plurality of the catches on the common shaft are rotatable in unison with the shaft and one another. Thus when the biasing means acts on any one of the catches and causes it to move to the

first position the shaft is simultaneously rotated and all of the catches are moved in unison to the first position. On the other hand when this biasing means is moved out of engagement with its respective catch, by closure of the associated drawer, the common shaft and all of the catches may then be counter-rotated so that the catches are moved to the second positions.

The first member may be made from any suitable material and preferably is a moulded plastics component. The first member may include at least one sloping face, but preferably has first and second sloping faces which are engagable respectively with the biasing means and with the catch respectively. The first and second sloping faces may be vertically spaced.

The biasing means may comprise a sheet of spring steel or the like which is fixed to the frame.

The catch may comprise any suitable component and may include a formation such as a projection which overlies the biasing means. Thus movement of the biasing means in one direction causes corresponding movement of the catch while movement of the biasing means in the opposing direction does not interact with the catch.

The first member may include a recess or other locking formation, on one side of the second sloping face, with which the catch is engagable or into which the catch is insertable.

With the cabinet of the invention all of the drawers may be locked simultaneously by causing rotation of the common shaft. This requires little physical effort. This may be accomplished by means of a key operated locking device or any similar component. The locking device may be coupled to the common shaft by means of any suitable link. When all the drawers are locked no drawer can be retracted. If the shaft is rotated so that the catches are disengaged from the respective first members then each catch abuts its respective biasing means and deflects the biasing means. If any drawer is removed then the biasing means associated with that drawer deflects the associated catch and all of the catches are moved in unison to their respective locking positions.

BRIEF DESCRIPTION OF THE DRAWINGS

A preferred embodiment of the invention is further described by way of example with reference to the accompanying drawings which;

Figure 1 is a frontal view of a cabinet according to the embodiment;

Figure 2 is a side view of portion of the

cabinet of Figure 1, on an enlarged scale,

Figure 3 is a plan view, in cross section, of the cabinet portion shown in Figure 2, taken on a line 3 - 3, and illustrating a portion of a drawer which is open,

Figure 4 is a view similar to Figure 3 but with the drawer in a closed position, and

Figure 5 is a plan view of a catch member used in the cabinet.

DESCRIPTION OF PREFERRED EMBODIMENT

Figure 1 illustrates a cabinet 10, according to the invention, which includes a frame 12 and a number of drawers 14 which are mounted in any suitable way so that they are respectively individually slidable into or out of the frame. The cabinet is shown schematically only for the construction of the cabinet frame, and of the drawers, is not important to an understanding of the invention.

Each drawer has associated with it, on opposed lateral sides, two catch mechanisms 16. A lock 18, which is mounted at a suitable position on the cabinet 10, is connected via wire links 20 to steel shafts 22 and 24 which extend down opposed sides of the frame.

Figure 2 illustrates in enlarged detail a portion of the frame 12 and two of the catch mechanisms 16.

Each catch mechanism includes a flat spring steel member 26 which is fixed to the frame 12 by means of a screw 28, and a locking member 30 which is mounted to the associated shaft 24. The locking members 30 are rotatable together with the shaft.

The locking member 30 has a projection 32 which overlies the spring steel member 26.

The shaft 24 passes through a number of spaced guides 34 along the height of the frame 12. At its upper end the shaft has a coil spring 36 which surrounds it. One end 38 of the spring is anchored in a hole in the frame 12 while an upper end 40 of the spring passes through a hole 42 in the shaft. The end 40 is connected to one of the wire links 20 which extend from the lock 18, shown in Figure 1.

Figure 3 illustrates a side wall 44 of a drawer 14. Fixed to the side wall, at a suitable location, is a moulded plastic member 46. This member is shown from the side in Figure 3 and in plan in Figure 5. The member includes a hole 48 through which passes a screw, not shown, whereby the member is fixed to the wall 44 of the drawer. The member has a first sloping face 50 on one side and a second sloping face 52 on an opposed side. The faces 50 and 52 are on a leading side of the member when referring to the direction in which

the drawer is moved when it is moved to a closed position. Visible in Figure 3 is a deep recess 54 to the right hand side of the second sloping face 52. It can also be seen that the first sloping face 50 terminates, at its upper end, in a raised formation or detent 56.

Figure 3 illustrates the drawer 14 in an open position i.e. in a position at which the member 46 is displaced from the spring 26 and the catch 30. The catch 30 is movable from a position at which the projection 32 abuts the spring steel member 26 to a position 39, shown in dotted outline, at which the projection 32 is displaced well clear from the spring steel member 26.

Assume that all of the drawers of the cabinet are closed i.e. fully pushed into the frame. Each drawer then has an orientation, relatively to the frame 12, substantially as shown in Figure 4. The spring steel member 26 is displaced by the face 50 of the member 46 to a position at which a curved portion 58 of the spring steel member engages with the detent 56. This provides a slight degree of rocking action for the drawer. If the drawer is retracted then provided a certain minimum force is applied to the drawer the spring is deflected and the drawer can be drawn out with the spring riding down the sloping face 50.

Still referring to Figure 4 it is apparent that the catch 30 is located in the recess 54 of the member 46. It has been pointed out that the catch is firmly fixed to the shaft 24. The shaft in turn is rotatable by means of the lock 18 via the wire links 20. Thus actuation of the lock causes rotation of the catches 30 between the position shown in Figure 4 which is obviously a locking position, and the solid line position shown in Figure 3 at which the catch abuts the spring steel member 26.

Thus, with all of the drawers closed, through the medium of the lock 18 the drawers can be all locked or, alternatively, the individual catches of the drawers are moved to positions, i.e. the solid line positions in Figure 3, at which any one drawer can be removed.

Assume that a drawer is removed i.e. is moved to the position shown in Figure 3. When this happens the first face 50 of the member 46 moves out of contact with the spring steel member 26. Under its resilience the member 26 moves towards the wall 44 of the drawer and engages with the projection 32 on the catch 30. The catch is thereby moved to the dotted line position i.e. the locking position, even though the drawer is in the open position.

Movement of the catch to the locking position causes rotation of the shaft 24. All of the remaining catches 30 are thus simultaneously moved to their respective locking positions and engage respectively with the deep recesses 54 of the respective

members 46. The other drawers are thereby automatically locked in the closed positions and cannot be retracted.

If the open drawer is now closed then the second sloping face 52 strikes the catch 30 and causes it, together with the shaft 24, to rotate to the solid line position shown in Figure 3. The various catches which are fixed to the shaft are thus simultaneously moved to the unlocked positions and it then becomes possible to open any one of the drawers as required. When this occurs the same procedure to that described takes place.

When all the catches are in the unlocked positions the shaft 24 is in a neutral position. Any rotational movement of the shaft away from the neutral position, in either direction, is against a biasing action exerted by the spring. Similarly when all the catches are in the locked positions the shaft is again in a different, neutral position and can only be rotated in either direction against the biasing action of the spring.

The invention has been described with reference to the working of one catch mechanism but obviously the same procedure takes place with both catch mechanisms which are located on opposing sides of the drawer. It is apparent that the number of drawers is not really important for merely by extending the shaft 24 any number of drawers can be interconnected in the manner described which ensures that only one drawer can be opened at any one time. The invention in addition makes it possible to lock all of the drawers simultaneously.

Claims

1. A cabinet (10) which includes a frame (12) and at least one drawer (14) which is movable into or out of the frame between closed and opened positions, and which is characterised by a catch mechanism (16) which includes a first member (46) adapted to be secured to the drawer, a shaft (24) which is rotatably mounted to the frame, a catch (30) which is fixed to, and which is rotatable with, the shaft (24), the catch (30) being movable between a first position at which it engages with a locking formation (54) on the first member (46) when the drawer is closed thereby to prevent the drawer (14) from being opened and a second position at which the catch (30) is disengaged from the first member (46), and biasing means (26) which acts on the catch (30), when the drawer (14) is open, thereby causing movement of the catch (30) to the first position.

2. A cabinet according to claim 1 characterised in that the drawer (14) includes two of the catch mechanisms (16) located respectively on opposing lateral sides of the drawer (14).

3. A cabinet according to claim 1 or 2 characterised in that the drawer (14), when moved to the closed position, causes movement of the biasing means (26) so that the catch (30) can be moved between the first and second positions.

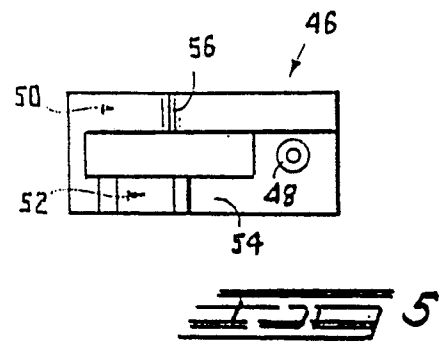
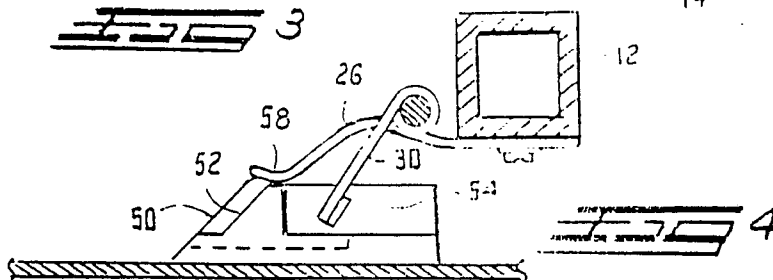
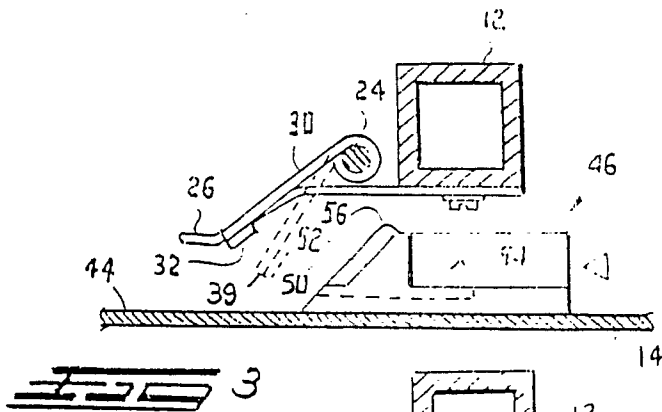
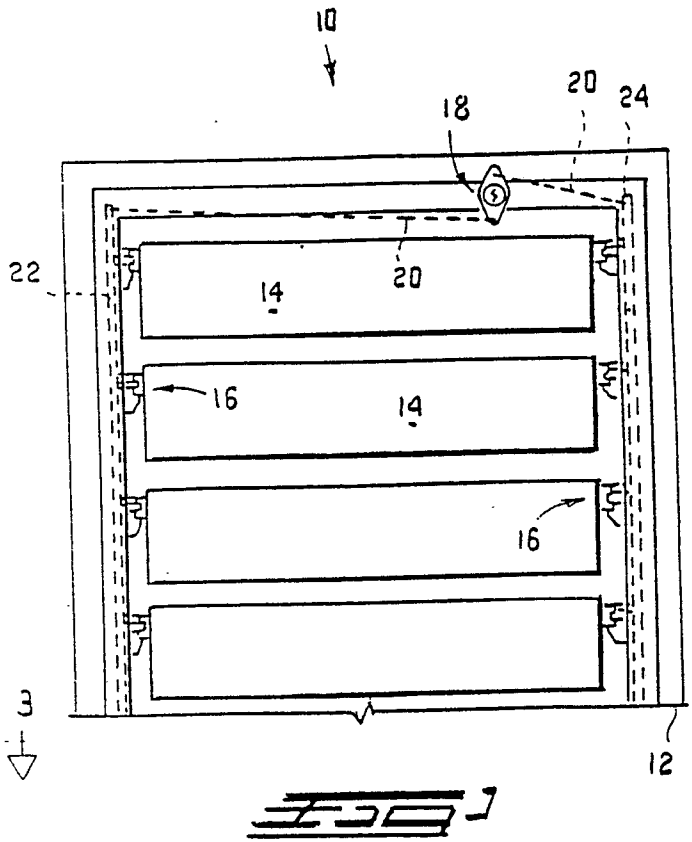
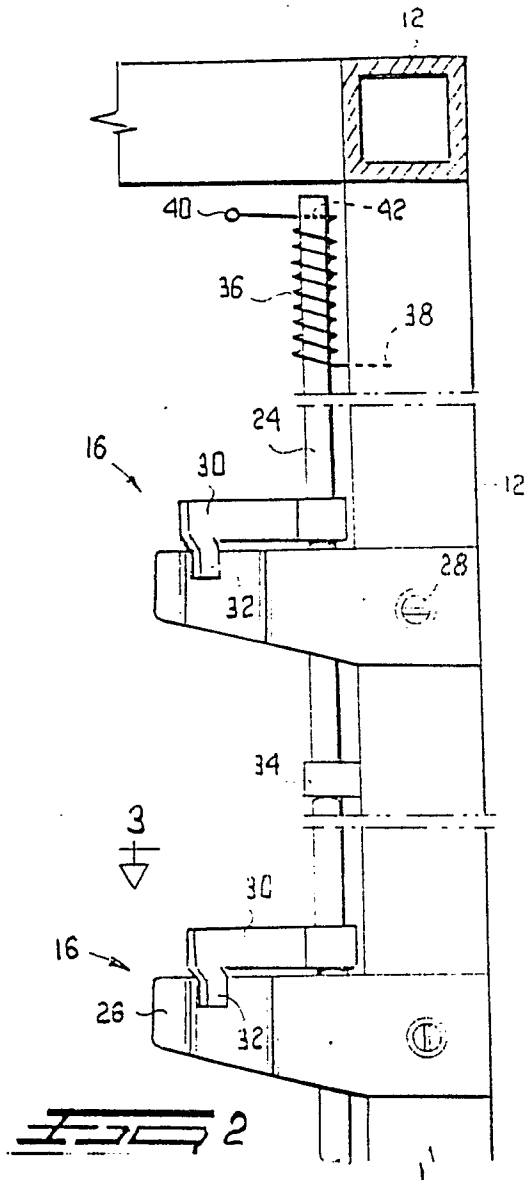
4. A cabinet according to claim 1, 2 or 3 characterised in that it includes a plurality of drawers (14) each of which includes at least one of the catch mechanisms (16), the respective catches (30) of the catch mechanisms (16) being mounted on a common shaft (24).

5. A cabinet according to claim 4 characterised in that the plurality of the catches (30) on the common shaft (24) are rotatable in unison with the shaft and one another.

6. A cabinet according to any one of claims 1 to 5 characterised in that the first member (46) includes first and second sloping faces (50, 52) which are engagable respectively with the biasing means (26) and with the catch (30).

7. A cabinet (10) which includes a frame (12) and a plurality of drawers (14) which are slidable relatively to the frame (12) between closed and open positions and which is characterised by at least one rotatable shaft (24) which extends vertically down the frame adjacent the drawers (14), a plurality of catches (30), at least one for each drawer, being fixed to the shaft and being rotatable in unison with the shaft, a plurality of biasing means (26), one for each catch, being fixed to the frame (12) and being respectively located adjacent each catch, and each drawer (14) including a member (46) fixed to it, the drawers (14), when all in the closed positions, being so positioned that the respective members (46) contact the respective biasing members (26) thereby permitting any drawer (14) to be moved to an open position and, when any drawer (14) is in an open position the respective biasing member (26) causing rotational movement of its respective catch (30), and hence of the shaft (24) and the remaining catches (30), so that the remaining catches (30) engage with formations (54) on the respective members (46) thereby to prevent any of the remaining drawers from being opened.

8. A cabinet substantially as hereinbefore described with reference to any one of the accompanying Figures 1 to 5.





DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
X	US-A-4 605 266 (HAWORTH INC.) * Figures 1-8; columns 3-6 * ---	1,3-5	E 05 B 65/46
A	US-A-3 297 376 (AMERICAN METAL PRODUCTS) * Figure 1 * ---	1,2	
A	US-A-4 352 529 (LYON METAL PRODUCTS) * Figures 1-5 * -----	1	
			TECHNICAL FIELDS SEARCHED (Int. Cl.5)
			A 47 B E 05 B
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 26-10-1989	Examiner NOESEN R.F.
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			