May 14, 1929. B. E. RICHARDSON 1,712,842

DESK DRAWER LOCK

Filed Sept. 17, 1923 2 Sheets-Sheet 1

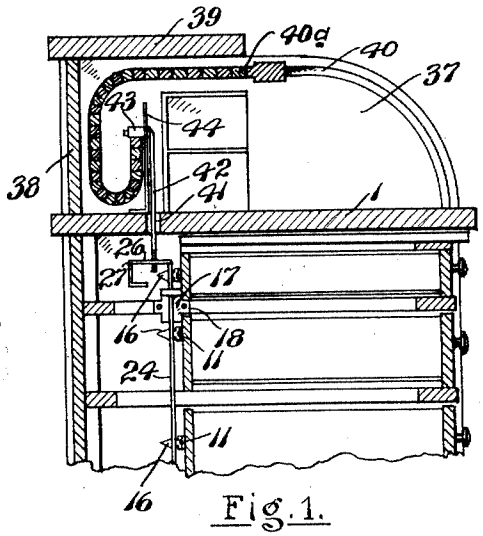


Fig. 1.

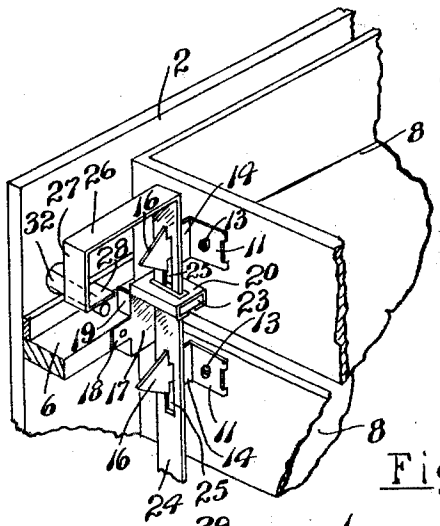


Fig. 2.

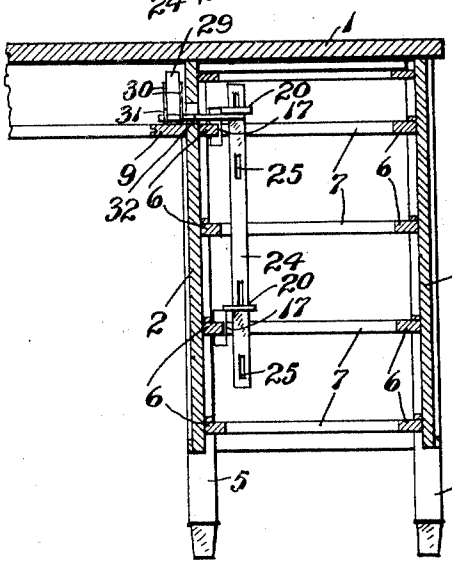


Fig. 3.

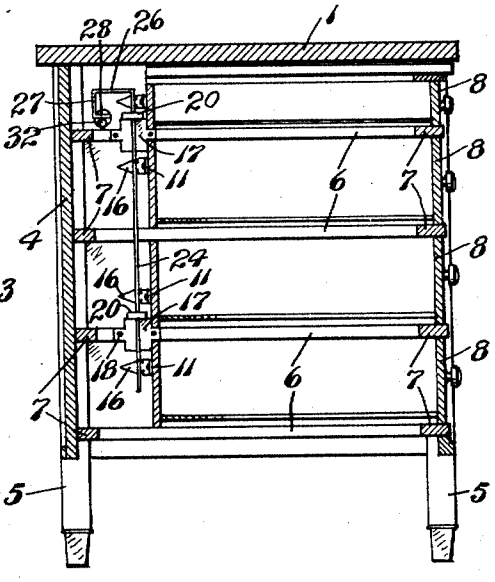


Fig. 4.

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DESK DRAWER LOCK

Filed Sept. 17, 1923 2 Sheets-Sheet 2

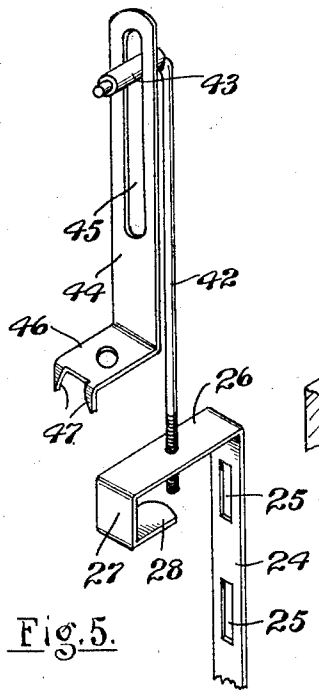


Fig. 5.

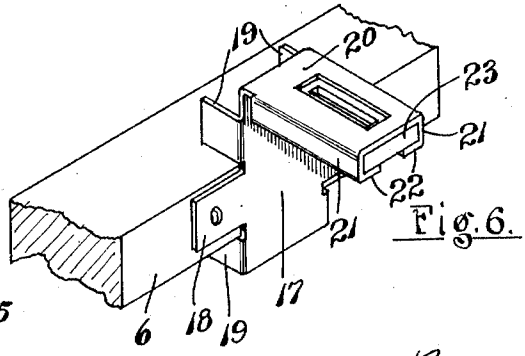


Fig. 6.

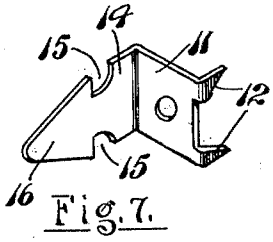


Fig. 7.

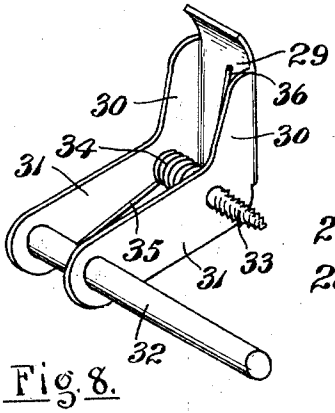


Fig. 8.

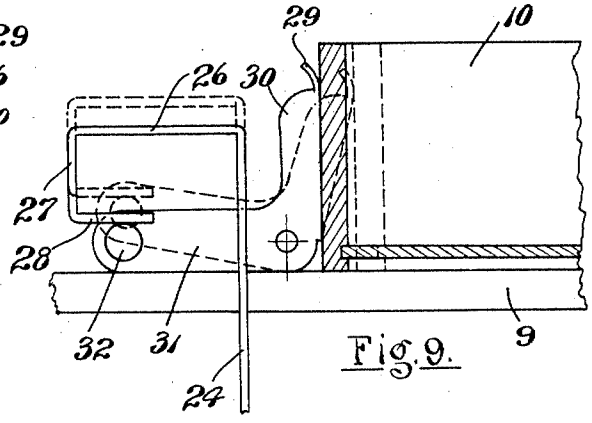


Fig. 9.

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UNITED STATES PATENT OFFICE.

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DESK-DRAWER LOCK.

Application filed September 17, 1923. Serial No. 663,038.

This invention relates to a drawer lock for desks, of the type wherein all of the drawers in the desk may be locked or unlocked simultaneously and automatically with the locking or unlocking of a single control drawer or, in a roll top desk, with the movement of the roll top to closed or open position. The present invention comprises many novel constructions for making a simple and effective lock of this character and one in which the desk structure is substantially the same for either a flat top or roll top desk except for the addition of the upper strucutre necessary for the roll top, the locking mechanism in either type of desk working on the same principle and requiring but small changes for the adaptation of the lock from one type of desk to the other and with a use of common parts to a very large extent in the locks for either type of desk. A further object of the invention is to provide a very simple and easily applied mounting for the locking bars, requiring practically no effort for the installation thereof with a resultant lessening of expense, a valuable feature of the invention being that the guides used for the locking bar serve as stops for the drawers on their inward movement and there is no need to properly adjust separate stop members with relation to the drawers and the locking mechanism, with a resultant saving in time and expense of installation. A still further object of the invention is to provide, in the flat top desk, a means for automatically projecting the control drawer thereof forward a sufficient amount that the locking of the other drawers is automatically freed, the device which projects the control drawer forward moving to position to release the locking bars which hold the other drawers in locked position. And a still further object of the invention is to provide means whereby when one or more of the drawers are locked, and others are partly projected and unlocked, such unlocked drawers may be moved inwardly and locked without affecting the locking of the other drawers. All of these objects and purposes, together with many others not now stated, with constructions for attaining the same, will be apparent as understanding of the invention is had from the following description, taken in connection with the accompanying drawings, in which,

Fig. 1 is a transverse vertical section through the upper portion of a desk equipped with a roll top and with my drawer lock construction.

Fig. 2 is a fragmentary perspective view partly in section, showing the back of two drawers and the locking devices mounted on and used in connection therewith.

Fig. 3 is a fragmentary longitudinal vertical section through a flat top desk, the section being at the rear of the desk back of the locking mechanism and looking forward.

Fig. 4 is a transverse vertical section through a flat top desk, showing the locking mechanism used with the drawers at a side of the desk in side elevation.

Fig. 5 is a fragmentary perspective view of a structural detail used with and added to the regular locking bars when applied to roll top desks.

Fig. 6 is a perspective view of the locking bar guide used with the construction.

Fig. 7 is a perspective view of one of the devices attached one to each drawer in the desk, except the middle drawer in a flat top desk.

Fig. 8 is a perspective view of one of the members mounted to act against the rear side or back of such middle drawer to partly project the drawer when free to do so, said member controlling the position of the locking bar with which the other drawers at a side of the desk engage, and

Fig. 9 is a fragmentary side elevation, partly in section showing the operative relation of the member shown in Fig. 8 to said middle drawer and the locking bar.

Like reference characters refer to like parts in the different figures of the drawings.

In the construction of a desk having a flat top, the top 1 is located above spaced apart pedestals, each having an inner side 2, an outer side 3, a back 4 and supporting corner posts or legs 5 of usual and conventional construction. Horizontal frames having side bars 6 and front and rear cross bars 7 are disposed in spaced apart relation between the upper and lower ends of the pedestals, serving as supports for drawers 8 slidably carried on the side bars 6, one over the other. On the inner sides of the sides 2 of the pedestals are other horizontal bars 9 which serve as supports for a middle drawer 10 located under the top 1 between the two pedestals in a flat top desk. This is conventional construction in desks and is old and well known. The manner in which the drawers are slidably

guided may be widely varied without affecting the invention, as will be evident.

In the following description, the drawer attachments and locking devices associated therewith will be described for one pedestal only of the desk, being duplicated in the opposite pedestal so that one description is sufficient for both. On the back or rear end of each drawer and near the inner side thereof, a member of sheet metal is attached, said member including a base portion 11 from which tangs 12 are turned at one end to embed in the back of the drawer, the base portion also having an opening for the passage of a securing screw 13 into the drawer for the firm connection of this member to the drawer. From the base 11 at the end thereof opposite that at which tangs 12 are formed a part 14 is bent at right angles to the base, indicated at 14, in the upper and lower edges of which notches 15 are cut, said part beyond the notches being reduced in width and brought substantially to a point so that an arrow-like end 16 is made in conjunction with the notches 15. In practice these members, which are designed to latch with a locking bar, to be later described, are made in this manner, though but one of the notches 15 is effective in function, so that two different forms for the drawers of the two pedestals are not needed, that is rights and lefts for the right and left pedestals, the latching members being operable as formed for both.

On two of the bars 6 at the inner side of the pedestal, guide members for the locking bar used with the drawers in the pedestal are mounted. In the construction of the guide members, a single piece of sheet metal is formed with a vertical part 17 from which two oppositely projecting ears 18 extend to lie alongside the edge of the bar 6, suitable fastening devices passing through the ears into the bar for attachment. At the upper and lower ends of the part 17, tongues 19 are turned at right angles, one at each side edge of the part 17, so that two tongues lie below and two above the bar 6 serving as stops to the inward movement of the drawers, as is evident. A short distance above the upper tongues the metal is bent to form a horizontal extension 20 which extends in a direction opposite to the extension of the ears or tongues 19. At each side edge, downwardly turned sides 21 are turned from the part 20 and terminate in inwardly turned portions 22, this forming a holder for a flat block 23 of fiber which is secured in place in any suitable manner. A vertical opening is made through the block 23 and larger like openings through the upper side 20 of the guide so that the metal locking bar passed downwardly through the two guides comes into contact engagement only with wood or fiber with a resultant elimination of noise.

The locking bar 4 is made from a flat bar of metal and passes loosely down through the two guide members. In the length of the bar a number of spaced apart elongated vertical openings or slots 25 are cut, one for each latching member on a drawer in the pedestal. The bar extends upwardly to a point above the latching member on the uppermost drawer and at its upper end is turned at right angles to the rear for a distance, as indicated at 26, then downwardly for a short distance, making a section 27, and terminates in a forwardly turned part 28 lying under and paralleling the part 26. In the normal lower position of the bar with the drawers in closed position, the arrow-like ends 16 of the latching members pass through the slots 25 and the bar drops until it enters the notches 15, locking the drawers from outward movement until the bar has been elevated sufficiently to clear from the notches 15. It is evident that if part of the drawers were in locked position and with the bar in its lowermost position, and others were partly projected outward, on moving said latter drawers inward, the pointed ends of the latching members would freely enter the slots 25 and automatically lift the bar until the notch in the upper side of the latching member was reached, whereupon the locking bar will drop into locking position. Accordingly, if the desk is locked, any drawers which have not been pushed inwardly sufficiently to lock may be locked by merely moving such drawers inward without doing anything else.

On the inside of the inner side 2 of the pedestal, at the rear portion thereof and above the bar 9 a member made of sheet metal is mounted to lie back of the center drawer 10. This member comprises a vertically positioned shoe 29 from the vertical edges of which sides 30 are turned to the rear, at their lower portions being extended to the rear to form arms 31, the same lying directly over the upper side of the bar 9. A pin 32 passes through both arms 31 at the ends thereof and through an opening in the adjacent side 2 of the pedestal and passes under the part 28 of the locking bar. One of these members is located at each side of the middle drawer opening and attached one to each inner side 2 of each pedestal by means of a screw 33 which forms a pivotal mount for the member at the elbow of the bell-crank lever substantially made by the member. A coiled spring 34 is located around the screw shank between the arms 31, one of its ends 35 bearing on the upper side of the bar 9 which supports the drawer 10, and the other end 36 bearing against the rear side of the shoe 29, as shown in Fig. 8. The springs of the two members have a tendency to force the vertical shoe portions of the members forward, this elevating the pins 32 with a consequent elevation of the locking bars 24 to inoperative position such that the ends 16 of the latching members on the drawers may

freely enter or leave the slots 25 in the bars. Also when the middle drawer 10 is in its rear position, the front side of the shoe 29 of each member bears against the back of the drawer, the tendency of the spring action of the members being to force the drawer forward when the drawer is free to move.

It is evident that when the middle or center drawer 10 is in its inner position so as to force the bell-crank levers to the position shown in full lines in Fig. 9, the locking bars 24 are permitted to drop to lower locking position. The said drawer 10 will be provided with the usual key operated lock at its front so as to hold the same in its rearmost position and effect the locking of the other drawers. As soon as the middle or center drawer 10 is unlocked, the bell-crank lever members are freed to exert their spring influence against the back of the drawer 10, moving it forward a short distance, elevating pins 32 and the locking bars 24 with the pins. All of the drawers unlock at once and automatically with the unlocking of the middle drawer and the middle drawer cannot be forced inward and held there so as to make the locking of the other drawers effective except by locking it against outward movement, it being moved slightly forward whenever unlocked and free to move. Accordingly, there is never any undesired locking of the pedestal drawers during the time of use of the desk, locking occurring only at the time the desk is completely closed and the center controlling drawer pushed completely shut and locked at the outside. And of course, if any of the pedestal drawers should not be entirely closed when this locking occurs, the same may be pushed in to fully closed position and locked as previously described.

The above described structure applies to desks having flat tops, but with few modifications is equally applicable to desks having roll tops. The desk structure is wholly the same so far as the top 1 and desk pedestals and drawers therein are concerned. The center drawer between the pedestals may or may not be omitted. The upper structure applied to the desk above the top 1 comrpises sides 37, a back 38 and a partial top 39, the sides having grooves 40 for the reception of the ends of the flexible roll top 40^a, as shown, mounted therein in the usual manner. In opening the desk the roll top is moved backwardly in the grooves and at its rear portion is guided first downwardly and then turned back in the opposite direction or vertically. The bell-crank lever members acting on the middle drawer are left off whether or not the drawer 10 is eliminated and the locking bars 24 have to be operated by another means.

Openings 41 are made through the top 1 directly over the parts 26 of the locking bars and a rod 42 is threaded at its lower end, passes through each opening 41 and threaded through a tapped opening in the part 26, as shown in Fig. 5. The adjustment of the rod with respect to the part 26 is obvious. A guide member 44 of sheet metal is located alongside each rod 42, having an elongated slot 45 therein into which the upper end of the rod 42, bent at right angles to the main body of the rod, extends, a fiber sleeve 43 covering said upper end of the rod. Of course the sleeve 43 may be of any suitable material that will obviate metallic noises and sounds. At the lower end of each support 44, a foot portion 46 is bent at right angles to lie against the upper side of the top 1, tangs 47 on the portion 46 being driven into the top, and a screw passing through the opening shown in the foot portion 46 into the top to secure the supporting guide securely in place. The sleeves 43 are located so that when the roll top 40^a is pushed back to its extremity, its inner edges strike against the sleeves, elevating the rods 42 and attached lock bars 24 to unlocking position, and as soon as the top is moved toward closed position, rods 42 and locking bars 24 are released to drop to locking position.

The construction is very practical and effective. While made substantially entirely of metal, this tending to economy in manufacture, no metal parts can clash to make undesired noises. The installation is exceptionally easy. A manufacturer can make either a flat desk or one with a roll top without needing to do more than add the roll top superstructure to the flat top desk and use practically the same lock. The locking device for the drawers is particularly desirable in that it is not liable to work when not needed with respect to some of the drawers, particularly in the flat desks, as unlocking the control drawer in the flat desk renders the locking means thereafter ineffective until the control drawer is closed and locked. Drawers inadvertently left unlocked in closing the desk can be closed and locked without trouble. The locking structure is particularly simple, effective and practical and has so proved in pratcice.

I claim:

1. A guide member for a locking bar in desks, comprising a plate of sheet metal adapted to be vertically positioned, at its upper end having a portion bent to horizontal position, said horizontal portion at its side edges having downwardly bent extensions terminating in inwardly bent horizontal extremities extending toward each other, forming a holder and a block of fibre-like material held in said holder, said block having an opening therethrough for the passage of a locking bar therethrough, and the said horizontal portion forming the upper side of the holder having a larger opening therethrough, substantially as described.

2. In a desk having a pedestal and a plurality of superimposed drawers slidably mount-

ed therein, a latch member rigidly attached to the back of each drawer, all of the members being located in vertical alinement, guides attached one over the other on the inner side of the pedestal and adjacent the rear portion thereof, said guides having alined openings therein, a locking bar passing downwardly through the openings in the guides and formed with an opening for each latch member into which the said latch member may pass freely when the bar is in an upper position, said bar normally dropping to a lower position to engage with and hold the latch members against movement when in said lower position, and a spring actuated bell crank pivotally mounted on said pedestal and associated with the upper end of the locking bar for lifting it a prescribed distance, substantially as described.

3. In a desk having two spaced apart pedestals, drawers slidably mounted therein, a desk top and a center drawer mounted at the side of the pedestal and under the top, a vertical locking bar mounted for vertical movements in the pedestal, a spring actuated bell crank mounted back of the center drawer normally tending to project the center drawer forward from its extreme inner position, means on said bell crank, associated operatively with the locking bar to lift the same a prescribed distance when said bell crank is free to move and allowing the locking bar to drop downwardly to a lower position when the bell crank is moved back on moving the center drawer inwardly to its extreme inner position, and latching means on the drawers in the pedestal and openings in the locking bar through which said latching means is freely movable when the bar is in upper position, but interengaging with the bar when it is in lower position to hold the pedestal drawers from outward movement.

4. In a desk a desk pedestal, drawers slidably mounted therein one over the other, a locking bar vertically positioned and slidably mounted at the rear portion of the pedestal and having a plurality of openings therethrough, one for each drawer, latching devices rigidly attached one to each drawer to pass through the openings when the drawers are in inner position, said latching devices being formed for the bar to engage therewith when in lower position to lock the drawers from outward movement, a top to the desk, a control drawer mounted slidably under the top alongside the upper end and inner side of the pedestal, a spring actuated bell crank lever member pivotally mounted on the inner side of the pedestal and having a vertical and a horizontal arm, against the first of which the back of the control drawer engages when forced inwardly to its extreme inner position, said lever member being normally turned forward when the drawer is moved outwardly, and a pin on the horizontal arm passing through the side of the pedestal and lying under the upper end portion of the locking bar, substantially as and for the purposes described.

In testimony whereof I affix my signature.

BAYARD E. RICHARDSON.