Sept. 28, 1937. G. S. HODGKINSON ET AL 2,094,155

LOCK AND THE LIKE

Filed Nov. 8, 1935 2 Sheets-Sheet 1

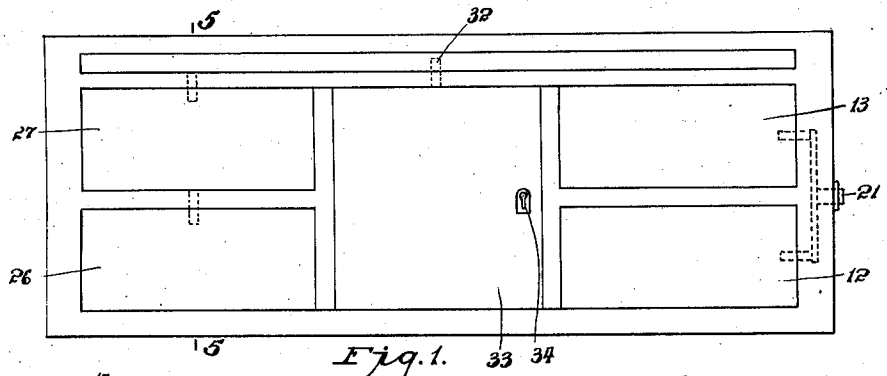


Fig. 1.

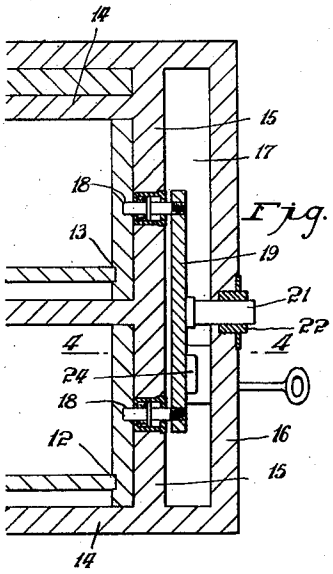


Fig. 3.

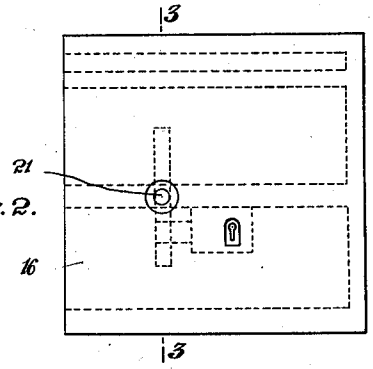


Fig. 2.

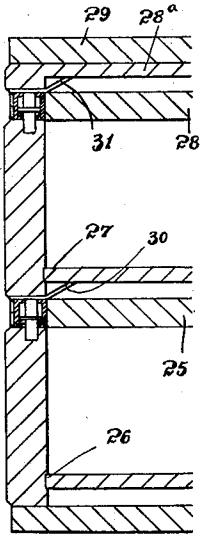


Fig. 5.

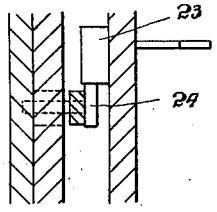


Fig. 4.

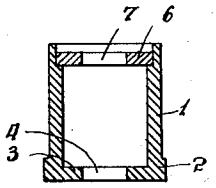


Fig. 9.

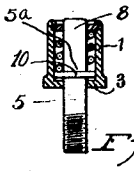


Fig. 6.

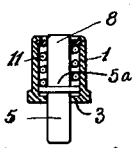


Fig. 7.

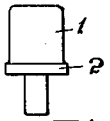


Fig. 8.

G. S. Hodgkinson
C. V. Shivman
INVENTORS

By: Glascock Downing & Seebold
Attys.

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LOCK AND THE LIKE

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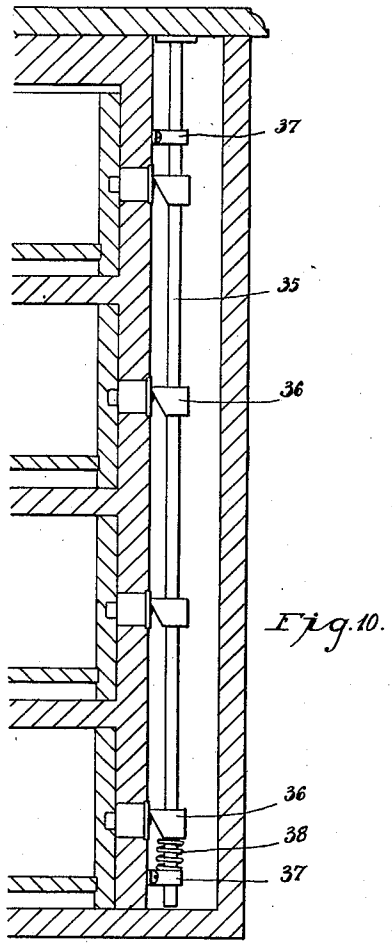


Fig. 10.

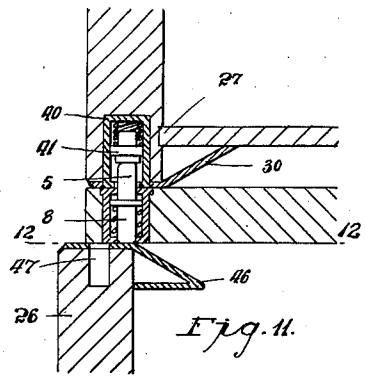


Fig. 11.

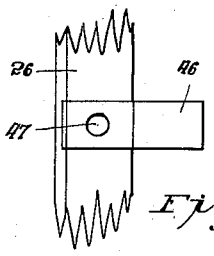


Fig. 12.

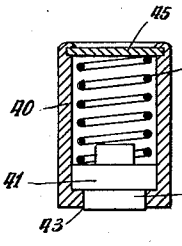


Fig. 13.

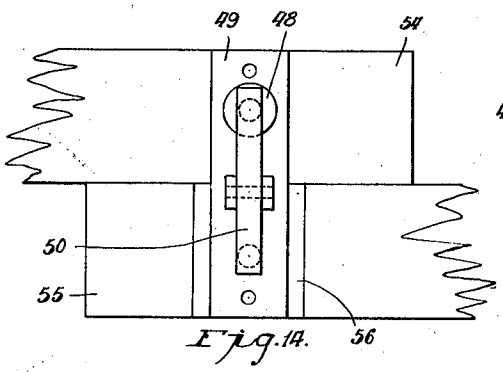


Fig. 14.

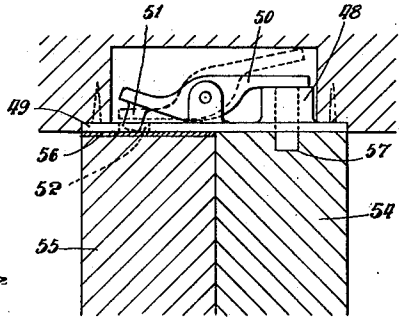


Fig. 15.

INVENTORS:
G. S. Hodgkinson
C. V. Shivhan
By: Glascock Downing & Seebold
Attys.

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UNITED STATES PATENT OFFICE

2,094,155

LOCK AND THE LIKE

George Saxton Hodgkinson and Cyril Vincent Shivnan, Wellington, New Zealand, assignors to Simplex Locks Limited, Wellington, New Zealand, a corporation of New Zealand

Application November 8, 1935, Serial No. 48,904
In New Zealand April 15, 1935

1 Claim. (Cl. 45—94)

This invention relates to locking devices by which a number of units may be locked or retained closed.

The invention is particularly useful when a number of drawers, doors or flaps, such as occur in sideboards or the like, filing cabinets, roll top desks, casement sashes where there are more than one in a frame, folding or sliding doors or partitions, or the like.

The object of the present invention is to enable this to be accomplished by means of a simple form of spring-operated locking pin device which can be easily and economically fitted.

According to the present invention, the locking pin device consists of a cylinder closed at one end but having a hole therethrough in which is guided one end of the locking pin, and having a closure in the other end of the cylinder containing a hole through which the other end of the locking pin passes. This pin has a shoulder against which bears a coil spring surrounding the pin and in compression against an end of the cylinder. One end, therefore, under influence of the spring normally tends to be retracted into the cylinder and, therefore, out of engagement with the unit that it would be employed to retain in a particular position. The other end of the pin is adapted to be actuated by any suitable means to push the locking end from the cylinder and retain it in position. A number of these retaining or locking parts may be controlled from a single member which in turn is retained by a lock or the like, or each lock member may be separately operated by means of a striking plate on a movable part.

The invention will be described and its use exemplified with the aid of the accompanying drawings, wherein:—

Figure 1 shows a cabinet with a number of drawers and a slide.

Figure 2 is an end elevation of the cabinet.

Figure 3 is a cross section along line **3—3** Figure 2, but drawn to a larger scale than the two preceding views.

Figure 4 is a cross sectional plan on line **4—4** Figure 3.

Figure 5 is a cross section along line **5—5** Figure 1, but drawn to a larger scale.

Figure 6 is a sectional elevation of the locking member.

Figure 7 is a similar view.

Figure 8 is an elevation.

Figure 9 is a cross sectional view of the cylinder of the locking pin device but drawn to a larger scale than Figures 6 to 8.

Figure 10 is a sectional elevation showing an alternate form of operating the pins.

Figure 11 is a cross section through the junction of two drawers.

Figure 12 is a plan on line **12—12** Figure 11.

Figure 13 is a sectional elevation on a larger scale of the locking unit shown in Figure 11.

Figure 14 is a plan and

Figure 15 is a section showing the device applied to the locking of sliding doors.

Referring to the drawings, and first to Figures 6 to 9, the locking pin device consists of a cylinder **1** with an external circumferential shoulder **2** and a closed end wall **3** which, however, has a central hole **4** to receive and guide the end **5a** of a locking pin **5**. A disc **6** having a hole **7** is placed within a recessed part in the top end of the cylinder and forms a closure and a guide for the other end **8** of the pin. This end is retained in position by curling in the top edge of the cylinder. The locking pin has a shoulder **10** against which bears a coil spring **11** surrounding the end **8** of the pin and is in compression between the shoulder and the closure disc **6**. The spring, therefore, normally retains the locking pin in the position shown in Figures 6 and 7 with its locking end **8** retracted into the cylinder so that it will not protrude beyond the outer face of the disc, the other end **5** of the pin being projected out of such cylinder. This end **5** is adapted to be depressed or actuated to push the other end outwards against the pressure of the spring and engage into an opening or recess in the part to be retained in a closed or locked position.

Figure 1 shows an example of a cabinet containing a number of drawers which may be locked by the aid of this device.

It will be seen by referring to Figure 3 that the drawers **12** and **13** slide into a casing **14**, and on one side of such drawers a partition **15** is provided, while an outer end wall **16** is separated from the partition **15** by a space **17**. The cylinders **1** are set into the partition **15** so that the ends **8** of the pins may project into holes **18** provided in the sides of the drawers. The ends **5** of the pins are threaded and attached to a rod or bar **19**, the spring **7** normally throwing the bar outwards and the end **8** of the pins out of engagement with the holes in the side of the drawers. A push pin **21** is carried in a socket **22** fixed in the end wall **16**, while a lock **23** of any usual type is also fitted on the inner side of the wall **16**. By depressing the pin **21** the bar **19** is pushed inwards against the pressure of the springs in the cylinders and the ends **8** of the pins engage the

holes in the side of the drawers. By then turning the key in the lock its bolt **24** will engage behind the bar **19**, as shown in Figure 4, and prevent the bar returning. The drawers **12** and **13** are thereby locked in a closed position and cannot be opened until the key of the lock **23** is again turned.

It will be seen, therefore, that by the aid of one lock such as **23** any number of drawers, shelves of a filing cabinet or the like arranged vertically one above the other may be locked at the one operation.

Another application of the locking pin device is also shown in Figures 1, 2 and 5.

By referring to Figure 5, it will be seen that a cylinder is set in a horizontal dividing wall **25** separating the drawers **26** and **27**, and another cylinder set in the partition **28** above the drawer **27**, while a slide **28a** is placed between the partition **28** and the top **29** of the cabinet. The pin of the cylinder in the wall **25** is depressed into a hole in the front of the drawer **26** by means of a striking plate **30** on the underside of the drawer **27**, so that upon the drawer **26** being closed and then the drawer **27**, the striking plate **30** will project the pin downwards and so retain the drawer **26** in a closed position. The drawer **27** is similarly locked by reason of another striking plate **31** on the underside of the slide **28a**. This slide may be similarly locked by a cylinder and pin indicated at **32** in Figure 1, the pin of which is projected upwards by a striking plate on the door **33** which may be locked by a locking key **34** in the usual way.

This method, by means of the striking plate, could also continue to the drawers **12** and **13**, and it will be obvious, of course, that it will apply to any number of drawers or combination of drawers and slides.

Referring to Figure 10, instead of the rod **19** being shown attached to the ends **5** of the locking pins as in Figure 3, a rod **35** is employed and has striking members **36** secured thereon and formed with bevel faces **36a**. This rod is carried in guide brackets **37** and is normally retained upwards by a coil spring **38** so that the members will be disengaged from the locking pins. The top end of the rod is pushed downwardly by the lid **35a** which may be hinged in the ordinary way.

In Figure 11, which is a section corresponding to Figure 5, but on a larger scale, an additional member **41** is inserted in the underside of the drawer **27**. This is done in order that when the upper drawer **27** is closed and the lower drawer **26** open, it may also be closed. In the bottom of the drawer **27** is inserted an auxiliary cylinder **40** in which slides a stud **41**, the reduced end **42** of which fits an opening **43** in the end of the cylinder. A coil spring **44**, of greater strength than the coil spring **11**, is in compression between the stud **41** and the end cover **45**, and normally retains the stud in an outward position, and the end **42** level with the end of the cylinder. A striking plate **46** in the bottom drawer **26** is adapted to strike the end **8** of the locking pin in the cylinder **1** set in the dividing wall **25** and raise the end **5**. This end **5** will coincide with the stud **41**, which will be forced upwards into its cylinder against the pressure of a coil spring **44**, thus allowing the end **5** of the locking pin also to enter the cylinder **40**. As the drawer **26** reaches its fully closed position, a hole **47** (see Figure 12) will register with the end **8** of the locking pin which will now be forced down into the hole by the pressure of the coil spring **44**, because this spring is of much greater strength than the coil spring **11**, thus again locking the bottom drawer. The locking plate **30** will operate as before described to push the pin into the hole **47** when the drawer **27** is closed, while the drawer **26** is closed.

In Figures 14 and 15, is shown a method of applying the locking device to a pair of sliding doors. In this case, the locking unit which includes the cylinder **1**, is housed in a stud-like portion **48** of a bracket **49**, in which a lever **50** is pivoted. The end of the lever has a striking pin **51** which is free to pass through a hole **52** in the bracket. The bracket **49** is fixed in the frame of the door-way, and when both doors are open the spring **11** in the cylinder **1** will retain the lever in the position shown in the dotted lines in Figure 15. The door **54** is closed first to the position shown, and upon the door **55** being closed a striking plate **56** on the door **55** will strike the pin **51** and cause the lever to push down the locking pin into a hole **57** in the door **54**.

What we claim is:—

In a case of drawers, a plurality of locking devices each consisting of a cylinder, an integral end to said cylinder having a central opening therethrough, a circumferential rim around the upper end of the cylinder of slightly greater diameter than the cylinder, a pin within the cylinder, one end of said pin projecting and guided through the opening of the integral cylinder end and forming an actuating end, a closure forming the other end of said cylinder, said closure having a central opening and retained in position by curling in the top of the cylinder, the other end of said pin projecting through and guided in the opening in the closure and forming a locking end, a shoulder on said pin fitting the interior of the cylinder, a coil spring around the pin in compression between said shoulder and said closure to normally retain the locking end of said pin in a retracted position and flush with the end of the cylinder, a rod mounted in said case, cams mounted on said rod, one adjacent each of said locking devices and adapted on longitudinal movement of the rod to actuate said pins, means for moving said rod, to actuate a plurality of said actuating ends against the tension of their springs, and means to retain said rod in a position at which the locking ends are extended in operative position.

GEORGE SAXTON HODGKINSON.
CYRIL VINCENT SHIVNAN.