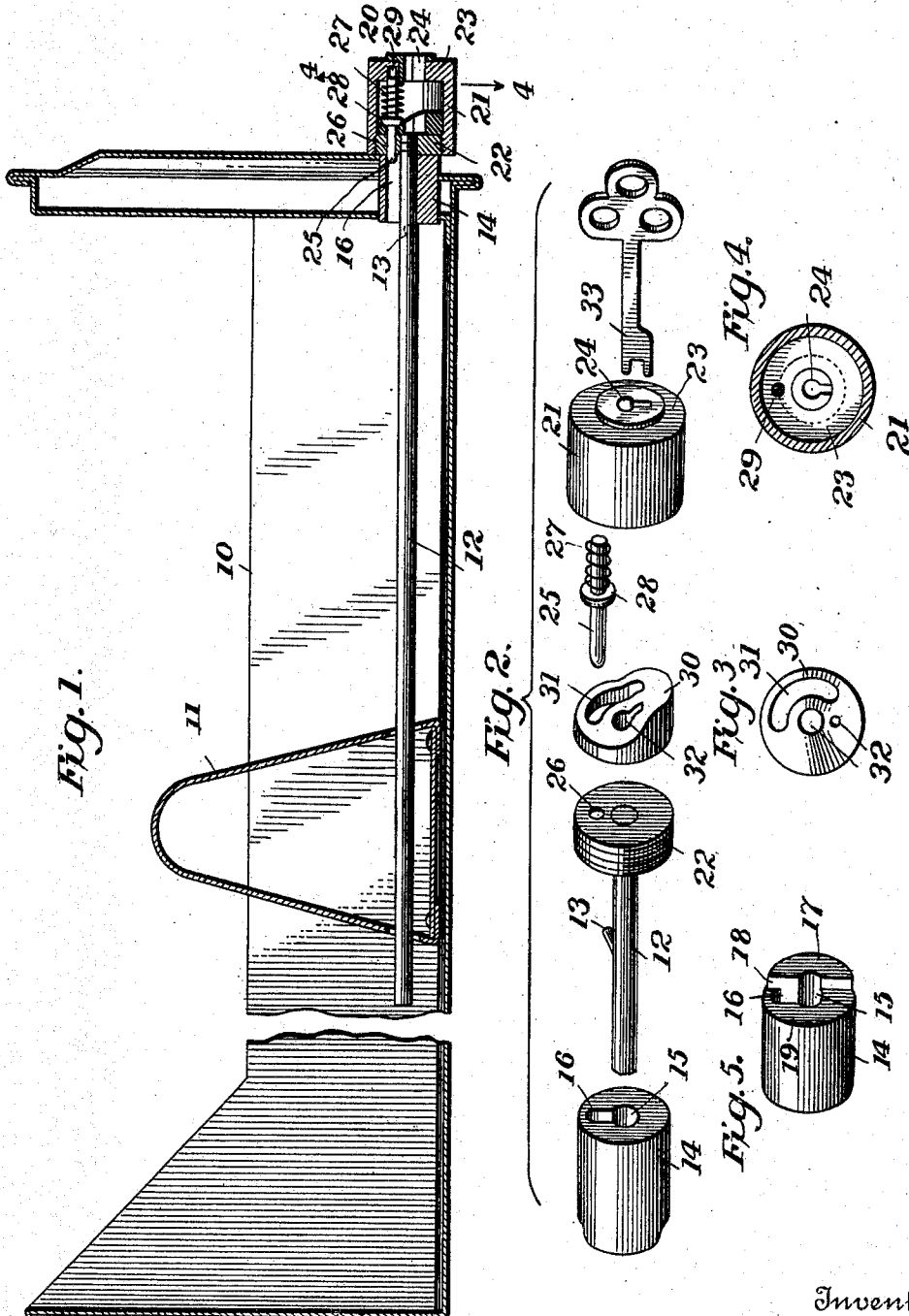


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 ROD LOCKING DEVICE FOR CARD INDEXES AND THE LIKE.
 APPLICATION FILED MAR. 22, 1910.

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Patented Jan. 10, 1911.



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ROD-LOCKING DEVICE FOR CARD-INDEXES AND THE LIKE.

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To all whom it may concern:

Be it known that I, GARRET MOTT, a citizen of the United States, residing at Yonkers, in the county of Westchester and State of New York, have invented new and useful Improvements in Rod-Locking Devices for Card-Indexes and the Like, of which the following is a specification.

My invention relates to improvements in card indexes for filing cabinets, and has particular relation to rod-locking mechanism.

Among the objects of the invention, are the following: (1) To provide a locking rod with means having an outer or exposed end operable by a key for locking the rod against withdrawal, the key operating to permit a withdrawal of the rod. (2) To provide a locking device carried by the locking rod, which will automatically lock the rod after the latter has been inserted within the file case, which will retain it locked after having once been placed in locked position, and which is released by a key, the unlocking movement of the key being in a direction to release the locking rod from the retaining action of the holding pin. (3) To provide a locking mechanism which coöperates with the usual passage way for the holding pin of the locking rod in providing the locking of the rod against withdrawal. (4) A provision of a spring-pressed pin or equivalent movable in the direction of length of the locking rod, and positioned to permit of its entrance into the passageway for the holding pin when the rod is rotated to position the holding pin where it will prevent withdrawal of the rod. (5) To provide a device of this character in which the holding pin of the locking rod is movable into and out of a position where the rod may be withdrawn to provide for placing an obstruction against withdrawal of the rod, and providing a locking mechanism operable solely to prevent the return movement of the holding pin after the latter has been moved out of its rod-withdrawing position. (6) The provision in a device of this character of a locking rod having a holding pin and locking mechanism on opposite sides of the case wall when the rod is in locking position, the holding pin being movable in one direction to retain the rod against withdrawal, this movement of the holding pin automatically locking it against a return movement, the return movement of the holding pin being

provided by the key employed for releasing the locking mechanism, the direction of releasing movement of the key corresponding to that of the return movement of the holding pin.

Other and further objects of the invention are to provide a device of this character which is neat and attractive in appearance, simple and efficient in operation, constructed of a minimum number of parts, none of which are of a complicated, fragile character, which is durable in construction, and which can be manufactured at a low cost and applied to any type of index cabinet, and which is capable of substitution for the ordinary locking rod now in general use without requiring changes in structure of the index case.

To these and other ends, the nature of which will be readily understood as the invention is hereinafter disclosed, said invention consists in the improved construction and combination of parts hereinafter fully described, and illustrated in the accompanying drawings, and particularly pointed out in the appended claims.

In the accompanying drawings, in which similar reference characters indicate similar parts in each of the views,—Figure 1 is a longitudinal sectional view of a well-known type of card index case or drawer, showing my invention applied thereto, the parts being shown in section, the locking mechanism being shown in locked position. Fig. 2 is a perspective view showing the various parts of my improved locking mechanism separated. Fig. 3 is a front elevation of the cam used for retracting the bolt or pin. Fig. 4 is a sectional view taken on the line 4—4 of Fig. 1. Fig. 5 is a perspective view of the inner end of the locking rod bushing.

The present invention is an improved lock-rod, or lock-rod attachment, the purpose being to retain cards in a drawer or cabinet, such as is commonly found in card catalogues, indexes, and other card records.

In the drawings, the invention is shown as applied to a drawer formed in accordance with a well-known type of steel construction, but it is understood that this showing is simply typical, the invention being applicable for use in connection with any desired form or type of drawer or cabinet employing a locking rod for retaining cards

therein against withdrawal. Furthermore, the particular type of locking rod employed is immaterial, the device forming the subject-matter of the present invention being 5 equally applicable to locking rods having a configuration to cooperate either with cards having simply a perforation (requiring a withdrawal of the rod from the drawer to release the card), or the type of cards in 10 which a bayonet slot opening is formed, the rod, in this type, being movable pivotally to place it in a locking or unlocked position within the bayonet slot.

10 designates a drawer which may be, as 15 above pointed out, of any usual or preferred kind, adapted to receive cards, and within which is mounted a follower 11, the latter being also of any desired type, the follower shown in the drawings being that adapted 20 to be used with the particular type of drawer referred to.

12 designates the locking rod, herein shown as of a circular cross-section, and having a holding pin 13 adjacent its forward end, said holding pin, as is usual in 25 this type of structure, being adapted to rest against the inner face of a bushing 14 carried by the front of the drawer, said bushing having a central opening 15 extending 30 longitudinally therethrough, and having communication with a radial slot 16, also extending therethrough, the opening and slot providing a passage way for the locking rod. It will be understood, of course, that 35 while I have shown and described the opening 15 as located centrally of the bushing 12, the position thereof may be varied if preferred, the advantage of the central formation being that the location of the rod as 40 presently described will not change the axial alinement of the bushing and the lock casing, such as will result were the openings placed other than centrally. For the purpose of preventing a complete rotating 45 movement of the locking rod and the holding pin 13, and at the same time preventing a movement of the holding pin in other than a predetermined direction after it has been inserted, I provide the inner face of the 50 bushing with a projecting portion 17, thereby placing in the path of rotative movement of the holding pin two abutments or faces 18, one of which extends in alinement with one wall of the slot 16, said face being 55 located on the side of the slot 16 on which it is necessary to limit the return movement of the holding pin to position the latter in direct alinement with the slot 16, so that the locking rod may be withdrawn when contact of the holding pin and said face 18 is 60 had. The bushing referred to is of a length not less than the thickness than the front of a drawer, this being the form preferred by me, but it will be understood that its length 65 may be greater or less than the thickness of

the drawer, the main essential being that its outer face be not located below the outer plane of the front of the drawer, and that a sufficient length be had to provide for the locking face (designated as 19) on the inner 70 end of the bushing, and against which the holding pin bears.

The outer end of the locking rod 12 carries the locking mechanism, designated as a whole at 20, and which embodies, in the 75 illustrative form shown in Fig. 1 of the drawings, a casing having a plunger or pin normally projected outwardly by a spring, and a cam for retracting the pin. The particular construction of these parts is capable 80 of such variation as to render it possible to make many changes in structure, and for this reason, I disclose herein a somewhat conventional type of mechanism which will produce the desired results, I reserving the 85 right to make such changes and modifications therein as may be necessary to meet various conditions that may arise in constructing and installing the mechanism for 90 use.

The form of mechanism shown in the drawings comprises a tubular casing 21, having its front and rear ends provided with closures connected thereto formed in any suitable manner. For instance, the rear 95 closure 22 is in the form of a plug screw-threaded to the casing, said plug 22 having a central opening, also screw-threaded, to receive the forward end of the locking rod 12. This provides for a screw-threaded 100 connection of the locking rod and the casing, but it will be readily understood that the connection may be formed otherwise, as, for instance, by brazing the rod to the plug 22, and the connection between the casing and 105 plug may also be made in any desired manner. One essential feature of the connection of rod and plug is, that the inner face of the plug (which face forms the rear face of the locking mechanism) shall be spaced 110 from the holding pin 13 a distance sufficient to provide a loose fit of the bushing between said parts when the holding pin is being rotated to and from its locking position.

The front closure is shown as in the form 115 of an integral web 23, having a central opening within which is mounted a key-hole structure 24, but it is to be understood that this manner of forming the forward or front closure may also be varied to meet various 120 conditions.

The front and rear closures are spaced apart a distance sufficient to provide a space therebetween to receive the lock mechanism, that shown herein comprising a pin or 125 plunger 25 having one end adapted to extend through an opening 26 within the plug 22, and be projected beyond the rear face of said plug by means of a spring 27 mounted on said pin between an annular collar 130

28 formed on the pin and the inner face of the closure 23, the latter being provided with a recess 29 to receive the end of the pin 25 when the latter is retracted or withdrawn into the plug 22.

The pin 25 is positioned out of alinement with the holding pin 13, the relation of the parts being such that said pin 25 will be brought into alinement with the slot 16 of the bushing only after the holding pin 13 has been moved from a position in alinement with said slot to a point sufficiently beyond the slot, as will prevent a withdrawal of said pin 13 when the pin or plunger 25 is in alinement with the slot 16; in other words, the holding pin 13 is positioned in advanced relation to the pin 25 in the direction of locking movement of the locking rod 12.

From the above, it will be readily understood that when it is desired to insert the locking rod into the drawer, the rear end of the latter is inserted within the opening 15 and the rod pushed therethrough until the holding pin 13 is reached, and that said holding pin 13 is positioned so as to pass through the slot 16 to the opposite end of the bushing. Owing to the fact that the distance between the holding pin and the rear face of the plug 22 is approximately the length of the bushing, and the fact that the normal position of the pin 25 is that wherein the rear end projects beyond the rear face of the plug, the movement of the holding pin 13 through the recess can only be completed by causing the pin 25 to be forced within its casing by a pressure applied on the locking rod in the direction of length of said rod, the pin yielding inwardly under the action of this pressure until the holding pin 13 passes beyond the inner face of the bushing, whereupon a rotative movement of the casing will cause the holding pin 13 to be moved out of alinement with the slot 16; this rotative movement of the casing causes a corresponding movement of the plug 22, with the result that the pin 25 is brought into alinement with the slot 16, whereupon the spring 27 immediately acts to project said pin into the entrance to said slot, and thereby places a barrier against a rotative movement of the casing in either direction, with result that the holding pin 13 is locked against a movement to place it in alinement with the slot 16, so that the rod 12 is securely locked against withdrawal. This construction provides for an automatic locking of the rod.

To unlock the rod and permit it to be withdrawn, any desired form of mechanism may be employed, that shown in the drawings being a cam 30 having variations in thickness axially, and also having a slot concentrically arranged (indicated as 31) within which the pin 25 is located, the cam

being positioned between the collar 28 and the front face of the plug 22. The cam is also provided with a recess or spaced openings 32, so formed as to cooperate with the rear end of the key 33 by means of which the cam is rotated. The normal position of the cam places its least thickness between the collar 28 and the plug 22, in which position the pin 25 is projected beyond the rear of the casing a distance sufficient to provide for an efficient locking against rotative movement of the casing. Upon insertion of the key through the key-hole structure 24, and its engagement with the recess 32, a rotative movement of the cam 30 will cause the cam face to force the collar 28 forwardly toward the front closure, and thereby withdraw the pin 25 from the slot 16 and into the opening 26, thus releasing the rod from its locked position with respect to a rotative movement, and permitting the rod to be rotated to place the holding pin 13 in alinement with the slot 16.

By preference, I provide the parts in such relation that the direction of rotative movement of the cam 30 is similar to that of the holding pin 13 when the latter is being moved to position in alinement with the slot 16, this particular arrangement permitting the user, in unlocking the rod, to retract the pin 25 and place the pin 13 in withdrawn position by a single continuous operation. In this manner the mechanism may be readily manipulated without a requirement of careful adjustment of parts relative to each other, and without the necessity of employing anything but the key as the operating medium.

As heretofore pointed out the locking mechanism and cam is a typical one, any particular means for projecting or retracting the pin 25 being provided to meet the various conditions, the form shown in the drawings being one which embodies simplicity and a minimum number of parts.

By this construction it will be readily seen that there is no requirement of any special construction of bushing or permanent parts of the drawer frame, the pin of the locking mechanism cooperating with the slot which is necessary to permit of the passage of the holding pin 13, so that the structure can be substituted for the ordinary locking rod where a holding pin 13 is provided, without difficulty. In addition, the structure is exceedingly simple and capable of many variations without materially affecting its simplicity, and being formed of few parts, can be manufactured at a relatively low cost, and at the same time provides a durable and efficient construction.

While I have herein shown and described one way in which my invention may be produced, the same is subject to variation and

modification to meet various conditions, and I reserve the right to make any and all such changes and modifications therein, as may fall within the spirit and scope of my invention as expressed in the following claims. It will also be readily understood that the mechanism herein disclosed is also applicable for use in connection with structures for locking loose leaf ledgers, temporary binders, and the like.

The locking face 19 may be formed flat, as shown, or may have the form and functions of a cam over which the pin 13 rides, the locking movement of the pin 13 tending to draw the front of the rod inwardly into closer relation to the front of the drawer or bushing.

Having thus described my invention, what I claim as new is:

1. In filing devices of the character described, the device having an opening leading from the surface to the interior thereof, a member insertible through said opening, and having means permanently positioned at spaced points in its length for engaging the faces at the opposite ends of said opening, said means including an element cooperating with the walls of said opening to normally prevent withdrawal of the member from the opening.

2. In filing devices of the character described, having an opening leading from the surface to the interior thereof, a rotatable member insertible through said opening and having means permanently positioned at spaced points in its length for engaging the faces at the opposite ends of said opening, said means including an element cooperating with the walls of said opening to normally retain the member against rotation.

3. In filing devices of the character described, having an opening leading from the surface to the interior thereof, a member insertible through said opening and having means permanently positioned at spaced points in its length for engaging the faces at the opposite ends of said opening, said means including an element projectable into said opening to normally prevent withdrawal of the member through the opening.

4. In filing devices of the character described, having an opening leading from the surface to the interior thereof, a member insertible through said opening and having means permanently positioned at spaced points in its length for engaging the faces at opposite ends of said opening, said means including an element projectable into said opening to normally prevent withdrawal of the member through the opening, said element being carried by the member.

5. In filing devices of the character described having an opening leading from the surface to the interior thereof, a member insertible through said opening and having

means permanently positioned at spaced points in its length for engaging the faces at opposite ends of said opening, and means including an element projectable into said opening to normally prevent withdrawal of the member through the opening, said element being carried by the member and movable in the direction of length of the opening.

6. In a device of the character described, the combination with a bushing having an opening extending therethrough, of a locking rod insertible through said opening, said rod having a holding pin also movable through said opening, and a locking device carried by the outer end of the locking rod and having an element projectable into said opening when the rod has been rotated to place the holding pin out of alinement with said opening.

7. In a device of the character described, the combination with a bushing having an opening extending therethrough, of a locking rod insertible through said opening, said rod having a holding pin also movable through said opening, and a locking device carried by the outer end of the locking rod and having an element automatically projectable into said opening when the rod has been rotated to place the holding pin out of alinement with said opening.

8. In a device of the character described, the combination with a bushing having an opening extending therethrough, of a locking rod insertible through said opening, said rod having a holding pin also movable through said opening, a locking device carried by the outer end of the locking rod and having an element automatically projectable into said opening when the rod has been rotated to place the holding pin out of alinement with said opening, and means for releasing said projected element to permit the holding pin to be returned to withdrawal position.

9. In a device of the character described, the combination with a bushing having an opening extending therethrough, of a locking rod insertible through said opening, said rod having a holding pin also movable through said opening, a locking device carried by the outer end of the locking rod and having an element automatically projectable into said opening when the rod has been rotated to place the holding pin out of alinement with said opening, and a key for releasing said projected element to permit the holding pin to be returned to withdrawal position.

10. In rod locking mechanism for filing devices, a fixed bushing having a rod-receiving opening, a locking rod having a holding pin adapted to be passed through said opening, a rotation of said rod placing the holding pin in position to prevent withdrawal of the rod, and means carried solely

by the rod for retaining the holding pin positively locked in such rotated position.

11. The rod locking mechanism for filing devices, a fixed bushing having a rod receiving opening, a locking rod having a holding pin adapted to be passed through said opening, a rotation of said rod placing the holding pin in position to prevent withdrawal of the rod, and means carried solely by the locking rod and automatically projectable into said opening by the rotation of the rod to retain said pin in holding position.

12. In rod locking mechanism for filing devices, a fixed bushing having a rod receiving opening, a locking rod having a holding pin adapted to be passed through said opening, a rotation of said rod placing the holding pin in position to prevent withdrawal of the rod, means carried solely by the locking rod and including an element automatically projectable into said opening by the rotation of the rod to retain said pin in holding position, and means for releasing said projectable element to permit the holding pin to be returned to a position where a withdrawal of the rod may be had.

13. In a locking mechanism for filing devices, a fixed bushing having a rod received opening, a locking rod having a holding pin adapted to be passed through said opening, a rotation of said rod placing the holding pin in position to prevent withdrawal of the rod, means carried solely by the locking rod and including an element automatically projectable into said opening by the rotation of the rod to retain said pin in holding position, and means for releasing said projectable element to permit the holding pin to be returned to a position where a withdrawal of the rod may be had, the direction of movement of said means to release said element corresponding to that of the return movement of the holding pin to rod withdrawal position.

14. In rod locking devices for filing cabinets and the like, a bushing having a longitudinal rod receiving opening, and a slot extending radially therefrom, of a locking rod, having a holding pin, said pin and rod being insertible through said opening and slot, and a projectable element carried by the rod and adapted to be projected into the entrance of said slot when the holding pin has

been moved out of alinement with said slot by rotation of the locking rod.

15. In rod locking devices for filing cabinets and the like, a bushing having a longitudinal rod receiving opening, and a slot extending radially therefrom, of a locking rod, having a holding pin, said pin and rod being insertible through said opening and slot, and a projectable element carried by the rod and adapted to be projected into the said slot when the holding pin has been moved out of alinement with said slot by rotation of the locking rod.

16. In rod locking devices for filing cabinets and the like, a bushing having a longitudinal rod receiving opening, and a slot extending radially therefrom, of a locking rod having a holding pin, said pin and rod being insertible through said opening and slot, and a projectable element carried by the rod and adapted to be projected into said slot when the holding pin has been moved out of alinement with said slot by rotation of the locking rod, said element being movable in a direction corresponding to the direction of length of the opening and slot.

17. A locking rod for the purposes described, comprising a rod having its outer or forward end provided with a head, an element carried by the head and normally projectable rearwardly beyond the head, means for retracting the element into the head at will, and a holding pin carried by the rod at a point spaced from and in rear of the head.

18. In a device of the character described having an opening leading from the surface to the interior thereof, a locking rod insertible through said opening and having a holding pin also movable through said opening, and locking means carried by the outer end of the locking rod and having a projectable element adapted to engage a receiving opening therefor in the outer face of the device when the rod has been rotated to place the holding pin out of alinement with its entering opening.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

GARRET MOTT.

Witnesses:

FREDERICK W. TOPELT,
JOHN TRINKNER.