

G. DE CESARE.

LOCK.

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986,808.

Patented Mar. 14, 1911.

Fig. 1.

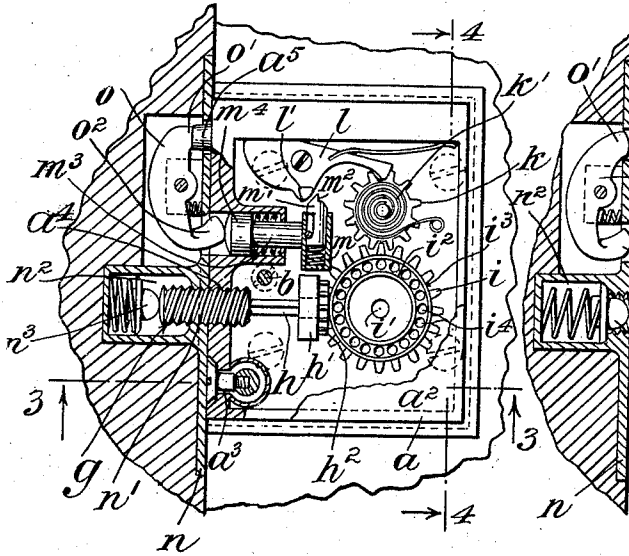


Fig. 2.

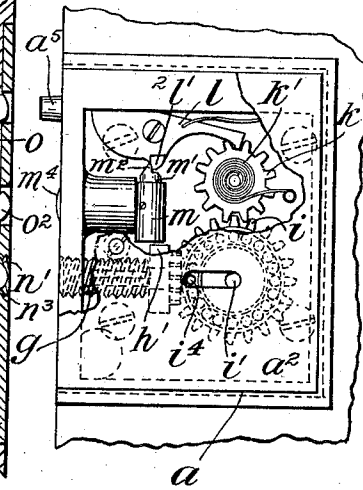
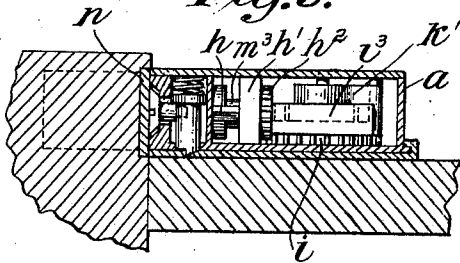


Fig. 3.



Attest:
W. McGinnis
Ell. J. Kruger

Inventor:
Giuseppe De Cesare
by Redding, Greeley & Austin,
Attys.

UNITED STATES PATENT OFFICE.

GIUSEPPE DE CESARE, OF NEW YORK, N. Y.

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To all whom it may concern:

Be it known that I, GIUSEPPE DE CESARE, a citizen of the United States, residing in the borough of Brooklyn of the city of New York, in the State of New York, United States of America, have invented certain new and useful Improvements in Locks, of which the following is a specification, reference being had to the accompanying drawing, forming a part hereof.

This invention relates to locks for doors, desk lids and other uses and is mainly concerned with locks of the general character of that shown in Letters Patent of the United States, No. 711,040, dated October 14, 1902, that is to say locks in which the bolts are thrown by a screw action, the bolt itself being screw threaded to engage the socket in the latch plate or to engage the bolt head which may have the ordinary sliding engagement with the socket.

The invention will be more fully explained hereinafter with reference to the accompanying drawing in which it is illustrated and in which—

Figure 1 is a view in side elevation, partly in section, of a lock which embodies the invention, a part of the case being broken away to show the mechanism within. Fig. 2 is a similar view, but showing the parts in different positions. Fig. 3 is a view in section on the plane indicated by the line 3—3 of Fig. 1.

In the drawing the invention is illustrated as embodied in a lock which is specially adapted for application to a sliding door or a sliding desk lid, but obviously is capable of application to other uses, either with or without such modifications as may be necessary to suit the conditions of use.

The improved locking mechanism is shown as embodied in a lock case *a*. The bolt *g* is operated by a screw action. Obviously, so far as concerns the mechanism for operating the bolt, the bolt itself may be screw-threaded externally, as shown in Figs. 1 and 2, or it may engage an external cylindrical bolt head, as shown in the Letters Patent above mentioned, No. 711,040. In Figs. 1 and 2, the bolt *g*, which is preferably multiple threaded, is threaded into the front edge wall of the case *a*, as at *a*⁴, and is rotated by a squared shaft *h* which enters a similarly formed longitudinal hole in the

bolt and is mounted in a bearing *h*¹ erected upon the back of the lock case. The shaft *h* is armed with a pinion *h*² which is engaged by a gear *i*, also mounted on the back of the lock case. The gear *i* is adapted to be rotated in one direction by the application of the key and for this purpose it is formed with a central hole *i*¹ to receive the pin of the key and with cylindrical walls *i*² and *i*³, to which the bit of the key is fitted. The gear may also be provided with recesses *i*⁴ to be engaged by the end of the bit of the key so that the gear may be rotated by the key, at least in one direction. The gear *i* is in mesh with another gear *k*, also mounted on the back of the lock case and having applied thereto a clock spring *k*¹ which is wound up by the rotation of the gear *k* and the gear *i*, when the bolt *g* is withdrawn, energy being thereby stored in the spring sufficient to throw the bolt at the proper time. As shown, the gear *k* is engaged by a spring-pressed dog *l*, pivoted on the back of the case, and provided with a projecting lug *l*¹, tapered on one side and substantially flat on the other, as clearly shown in Figs. 1 and 2. Obviously the spring *k*¹ is held under tension by engagement of the dog *l* with the gear *k*, until the dog is disengaged from the gear. This is accomplished automatically in the construction shown, when the door or lid to which the lock is applied is closed, as will now be described.

Mounted in the lock case is a spring-pressed latch head *m*, carrying a spring-pressed yielding bolt *m*¹ which has its toe *m*² suitably shaped to coöperate with the lug *l*¹ of the dog *l*, so that when the latch head is thrust back from its normal position, which is shown in Fig. 2, to the position shown in Fig. 1, the toe of the yielding latch *m*¹ will engage the flat side of the projecting lug *l*¹ and will rock the dog *l* on its pivot, causing it to release the pinion *k*. As the latch head *m* returns to its normal position, the tapered faces of the latch and the lug will cause the latch to be thrust back against its spring as it passes the lug without disengaging the dog from the gear. The stem *m*³ of the sliding latch head has a forward head *m*⁴ which slides in the guide provided on the lock case and is exposed at the front edge of the lock case.

The latch plate *n*, which is secured in the

fixed part of the door frame, has a screw-threaded opening n' to receive the screw-threaded bolt g , the recess n^2 into which the bolt enters being provided with a spring-pressed plug n^3 which is adapted to close the hole when the bolt is withdrawn so as to exclude dust and dirt. The latch plate n is also provided with a spring-pressed pivoted dog o which stands normally in the position shown in Fig. 2, its two ends o' and o^2 being exposed at corresponding openings in the plate n .

The lock case a is provided on its forward edge with a projecting lug a^5 which is adapted to coöperate with the end o' of the dog o , as the door or lid is closed, to throw the end o^2 of the dog against the head m^4 of the sliding latch head m and to push it back, from the position shown in Fig. 2 to the position shown in Fig. 1. As already described, this movement of the latch head m causes the dog l to be rocked on its pivot so as to release the gear k which is then rotated by the spring k' and, through the described connections, causes the bolt g to be thrown forward locking the door or lid. When the door or lid is to be unlocked the key is applied to rotate the gear i in a proper direction to withdraw the bolt, the spring k' being wound up at the same time, as already described.

It will be obvious that various changes in details of construction and arrangement may be made to suit different conditions of use.

I claim as my invention:

1. In a lock, the combination of a screw operated bolt, gearing adapted to be engaged by a key to withdraw the bolt, a spring connected with the gearing and adapted to be wound up as the gearing is operated to withdraw the bolt and to shoot the bolt when the gearing is released, and means to engage the gearing and permit movement thereof to withdraw the bolt and to hold the gearing against movement by the spring.

2. In a lock, the combination of a screw operated bolt, gearing adapted to be engaged by a key to withdraw the bolt, a spring connected with the gearing and adapted to be wound up as the gearing is operated to withdraw the bolt and to shoot the bolt when the gearing is released, a pivoted dog engaging the gearing and adapted to permit movement thereof to withdraw the bolt and to hold the same against movement to shoot the bolt, and means to disengage said dog.

3. The combination with a door and a latch plate, of a lock comprising means adapted to be actuated by a key to withdraw the bolt, a spring coöperating with said means to actuate it to shoot the bolt, a detent engaging said means to hold it against operation by the spring, and a releasing device carried by the lock and a releasing lever carried by the latch plate and adapted to be operated by contact with the lock as the

door is closed to release the bolt operating means.

4. The combination with a door and a latch plate, of a lock comprising a bolt, gearing adapted to be actuated by a key to withdraw the bolt, a spring applied to said gearing and adapted to operate it to shoot the bolt, a detent to hold the gearing from movement by the spring and a releasing device adapted to disengage the detent as the door is closed.

5. The combination with a door and a latch plate, of a lock comprising a bolt, gearing adapted to be actuated by a key to withdraw the bolt, a spring applied to said gearing and adapted to operate it to shoot the bolt, a detent to hold the gearing from movement by the spring, a releasing device adapted to disengage the detent as the door is closed, and a releasing lever carried by the latch plate and adapted to be actuated by contact with the lock as the door is closed to operate the releasing device.

6. The combination of a lock case, a bolt, gearing adapted to be actuated by a key to withdraw the bolt, a spring applied to said gearing and adapted to actuate the gearing to shoot the bolt, a detent engaging said gearing to hold it against movement by the spring, and a spring-pressed latch head having a yielding latch adapted to engage and release the detent as the latch head is moved in one direction and to slip by the detent as the latch head is moved in the opposite direction.

7. In a lock, the combination of a screw operated bolt, means for operating the same including a pinion, an actuating gear in operative engagement with the pinion, a second gear also in engagement with the actuating gear, and a spring connected with said gear and adapted to return to the actuating gear the energy which is stored in the spring by the rotation of the gear.

8. In a lock, the combination of a screw operated bolt, means for operating the same including a pinion, an actuating gear in operative engagement with the pinion, a second gear also in engagement with the actuating gear, a spring connected with said gear and adapted to return to the actuating gear the energy which is stored in the spring by the rotation of the gear, a detent engaging the second named gear to permit the rotation thereof in one direction and to prevent rotation in the opposite direction, and means to disengage said detent.

9. In a lock, the combination of a screw operated bolt, means for operating the same including a pinion, an actuating gear in operative engagement with the pinion, a second gear also in engagement with the actuating gear, a spring connected with said gear and adapted to return to the actuating gear the energy which is stored in the spring

by the rotation of the gear, a detent engaging the second named gear to permit the rotation thereof in one direction and to prevent the rotation in the opposite direction, means to disengage said detent, a spring-pressed sliding latch head and a yielding latch carried thereby and adapted to engage the detent to release it, when moved in one

direction, and to slip idly by the detent when moved in the opposite direction.

This specification signed and witnessed
this 19th day of September, A. D., 1910.

GIUSEPPE DE CESARE.

Signed in the presence of—

ELLEN J. KRUGER,

NANCY A. SMITH.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."
