

H. G. VOIGHT.

LOCK.

APPLICATION FILED AUG. 3, 1911.

1,024,466.

Patented Apr. 23, 1912.

3 SHEETS-SHEET 1.

Fig. 1.

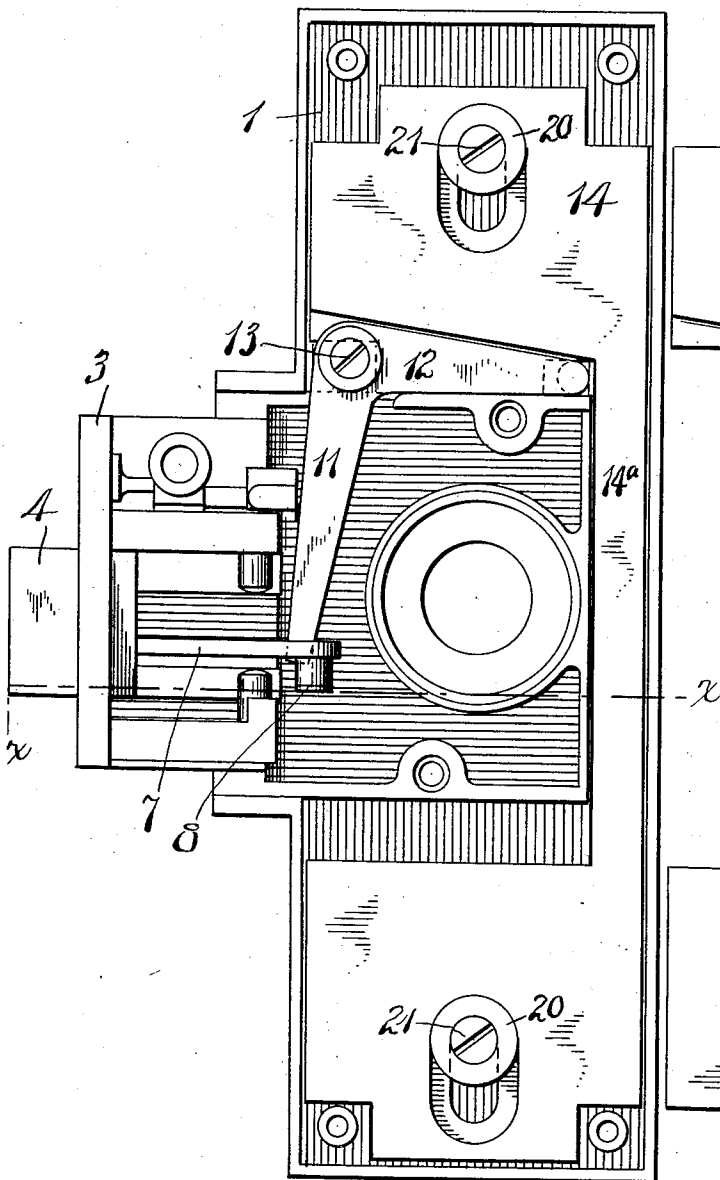
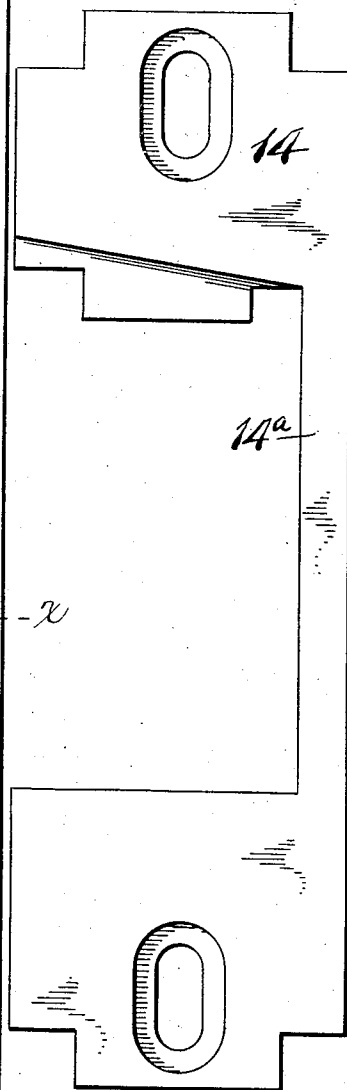


Fig. 4.



Witnesses:
Chas. M. Rard
Ida M. Hunziker

Inventor
H. G. VOIGHT
By *his Attorney*
Samuel B. Moore & Co.

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3 SHEETS—SHEET 2.

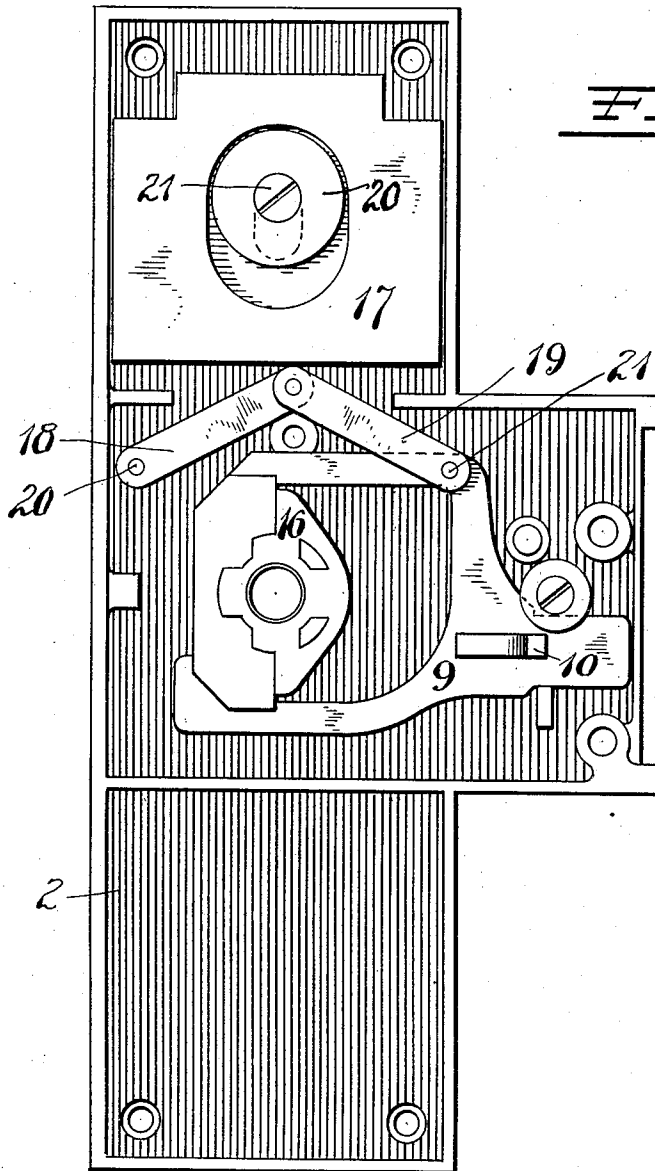


Fig. 2.

Witnesses:
Chas. A. Hart
Ida M. Hunziker

Inventor
H. G. VOIGHT
By *his Attorneys*
Samuel Barnes & Melrose

H. G. VOIGHT.

LOCK.

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3 SHEETS-SHEET 3.

Fig. 3.

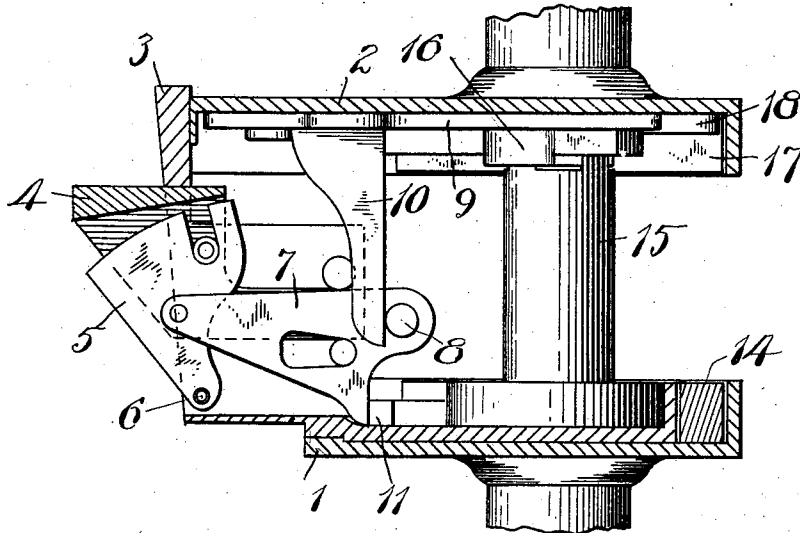


Fig. 5.

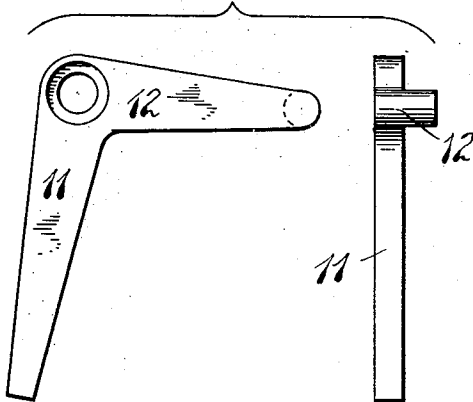
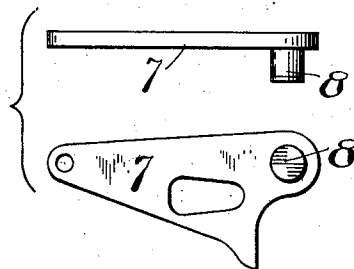


Fig. 6.



Witnesses:
Chas. H. Beard
Ida McHugh

Inventor
H. G. Voight
By *his Attorneys*
Carroll B. Barnes & Thelmer

UNITED STATES PATENT OFFICE.

HENRY G. VOIGHT, OF NEW BRITAIN, CONNECTICUT, ASSIGNOR TO RUSSELL & ERWIN MANUFACTURING COMPANY, OF NEW BRITAIN, CONNECTICUT, A CORPORATION OF CONNECTICUT.

LOCK.

1,024,466.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, HENRY G. VOIGHT, a citizen of the United States, residing at New Britain, county of Hartford, Connecticut, have invented certain new and useful Improvements in Locks, of which the following is a full, clear, and exact description.

My invention relates to an improvement in locks, and is of particular utility when employed in connection with fire exit door latches. The purpose of the present invention being to provide a construction in which a latch bolt mechanism may be effectively operated without the use of springs as to certain and probably all of its moving parts.

In the drawings Figure 1 is an elevation of the inside of one section of a lock constructed to embody my invention. Fig. 2 is a similar view of the opposite section. Fig. 3 is a horizontal sectional elevation on the plane of the line $x-x$, looking up. Figs. 4, 5 and 6 are detail views.

In the particular embodiment of my invention shown herein, which constitutes a preferred form of the invention, I have applied my improved construction to a lock of that type commonly known as a unit lock, and in this particular case the unit lock is of that construction in which much of the working mechanism is carried in recesses in the back of the opposite side plates.

Describing the preferred construction, 1 represents a side plate, in this instance adapted to the inside of the door. 2 represents a side plate adapted to the opposite side of the door.

3 represents an end plate, in this instance rigidly connected to the side plate 1.

4 is a latch bolt of any suitable construction, arranged to move in and out. In this instance, the latch bolt 4 has only a reciprocating movement. The latch bolt connections preferably comprise a swinging plate 5 pivoted at 6.

7 is a slide having an offset 8.

9 is a latch slide suitably guided within the plate 2 and carrying an extension 10 which makes an adjustable connection with the offset 8 so that the side plates may be adjusted to and fro.

11 is one arm of a bell crank lever, which operates as a projector for the latch bolt. 12 is the other arm of said bell crank lever. This lever is preferably pivoted at 13 to the inside of the plate 1.

14 is a weight suitably mounted inside of the plate 1, and of any suitable design, part of the weight engaging the end of the arm 12 of the bell crank lever to cause the arm 11 to move in a direction to advance the latch bolt 4, the end of said arm 11 engaging the slide 7, through which latter movement is transmitted to the latch bolt 4 through the medium of the swinging plate 5.

15 represents a spindle controlled by knobs (not shown) or otherwise, by which the latch may be retracted.

16 represents a two-arm roll-back, suitably connected with the spindle 15, and in turn engaging the latch slide 9, so that when the spindle is turned, said slide will be retracted and the latch bolt will be withdrawn through the medium of the parts previously described. The roll-back 16, may be of any well known design and construction.

17 is a weight guided in the plate 2, said weight being suitably connected with the slide 9 to advance the same as the weight descends. In the particular form shown herein, 18 and 19 represent toggle links, the former being pivoted to the plate 2 at 20, the latter being pivoted to the slide 9 at 21, as shown, the weight 17 bearing on the toggles tends to straighten the same out and move the latch slide in a forward direction, whereby there will be no drag upon the advance movement of the bolt, as would be the case if the advance movement of the bolt were alone relied upon to draw the latch slide 9 forwardly.

In many instances springless latches may be employed with much satisfaction, for example, connection with so-called fire exit door latches.

In the preferred construction, the plates 1—2 are vertically elongated whereby one of the weights, for example the weight 14, may be of such size as to provide a very substantial weight fully equaling in effect the action of a spring. For example, in the rear of the plate 1 a long recess is formed and the weight 14 may comprise a head and foot section guided at two points, as shown, the head and foot section being connected by a narrow bridging piece 14^a. To hold the plates in position any suitable means may be provided, but I preferably provide a screw retainer with a suitable head or flange. In the preferred construction a relatively broad washer is provided between the screw-

head and the weight to prevent undue friction and wear. 20—20 represent said washers, and 21 the screws.

What I claim is:

5 1. In a latch of the character described, a latch bolt, a latch slide, a mounting for the aforesaid parts, a weight carried by said mounting and operating to project said latch bolt, and another weight operating to project the latch slide.

10 2. In a latch of the character described, a latch bolt, a latch slide, a mounting for the aforesaid parts, a weight carried by said

mounting and operating to project said latch bolt, and another weight operating to project the latch slide, said mounting including two side plates adjustable to and fro, the connections between said latch slide and latch and between said latch projector and said latch permitting said plates to be adjusted to and fro. 15 20

HENRY G. VOIGHT.

Witnesses:

GWENDOLINE A. JACKSON,
EDWARD B. ALLING.

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