

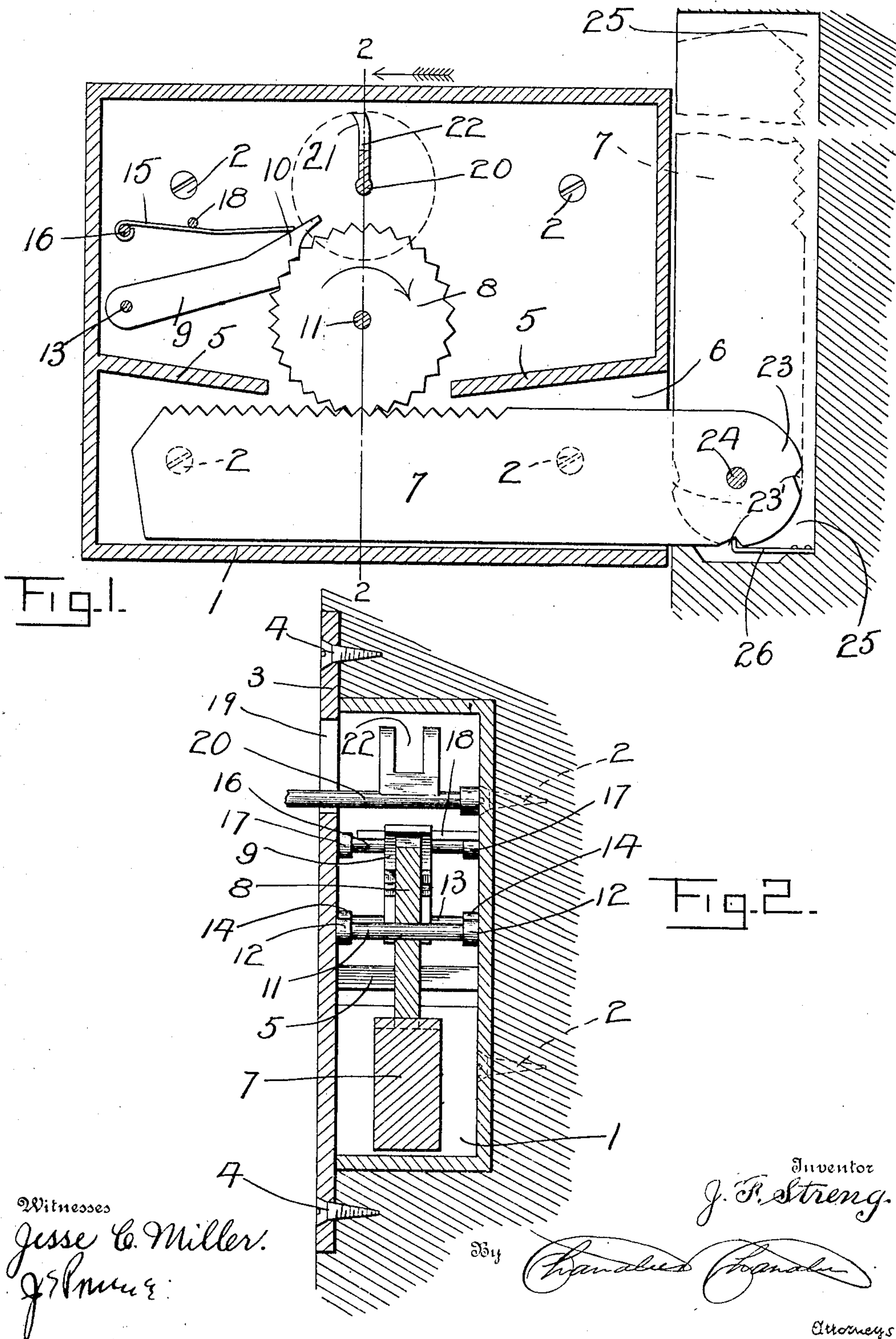
No. 875,747.

PATENTED JAN. 7, 1908.

J. F. STRENG.
SLIDING DOOR LOCK.

APPLICATION FILED APR. 11, 1907.

2 SHEETS—SHEET 1.



Witnesses

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Inventor
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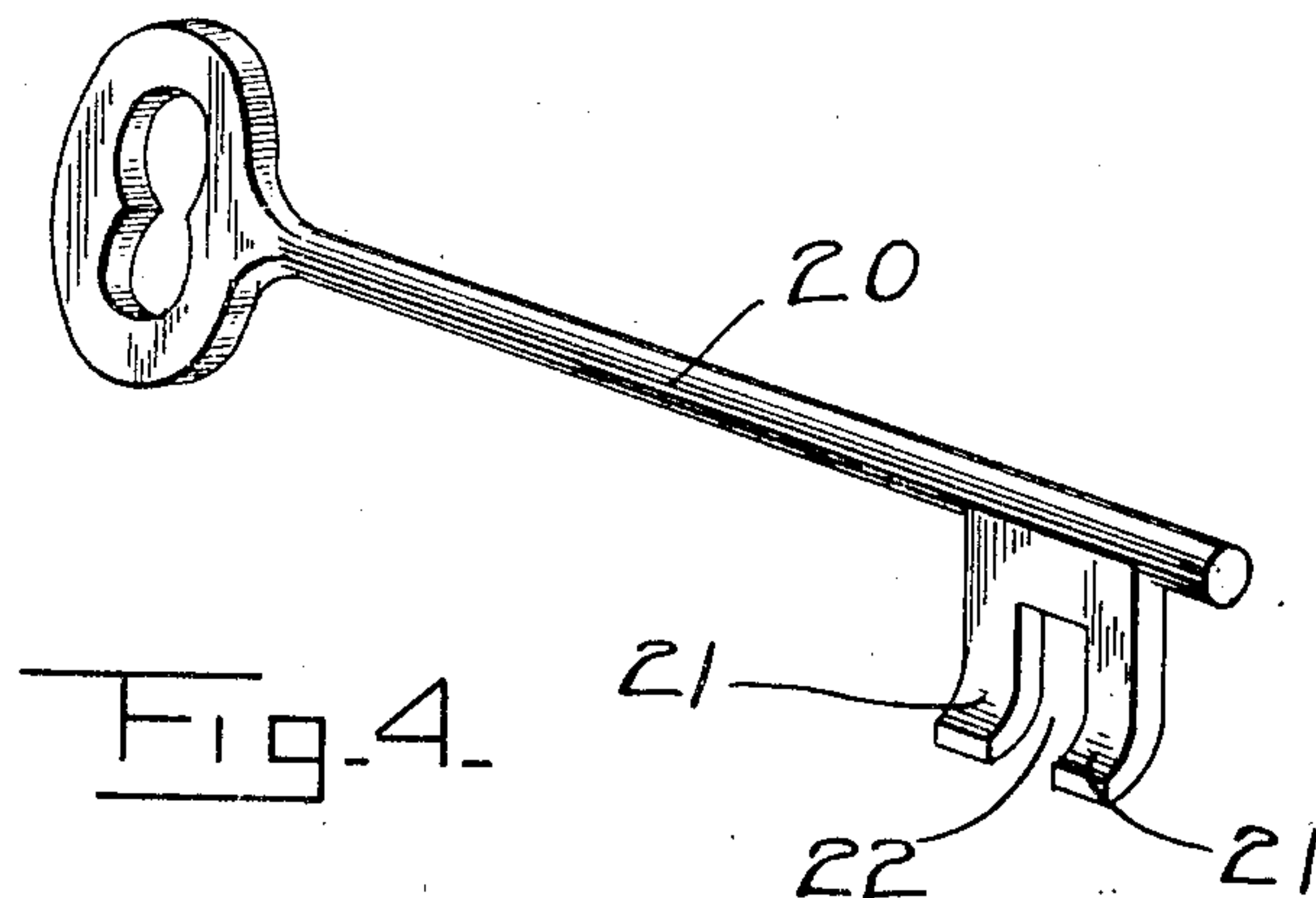
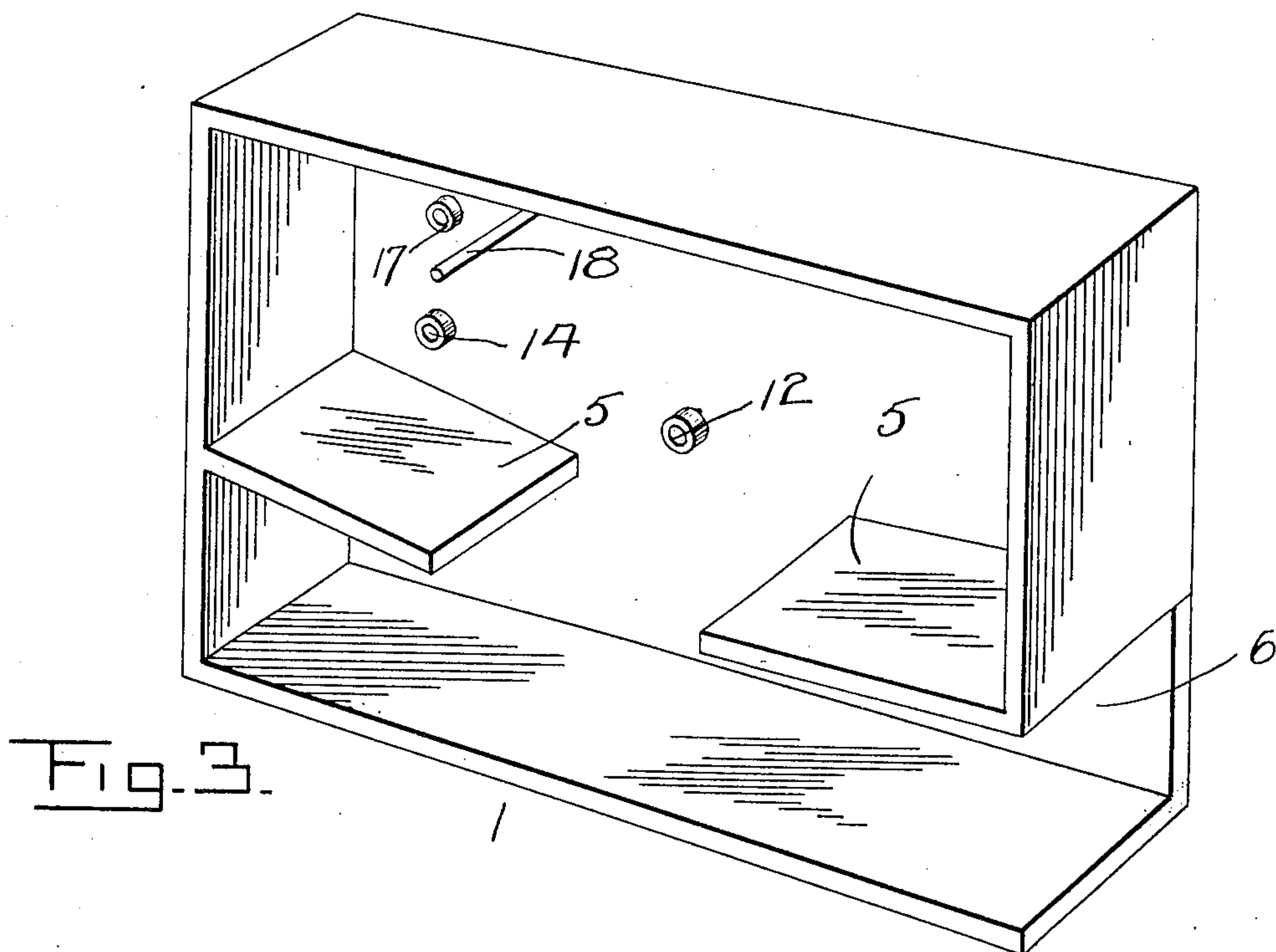
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UNITED STATES PATENT OFFICE.

JOHN F. STRENG, OF STEWARDSON, ILLINOIS.

SLIDING-DOOR LOCK.

No. 875,747.

Specification of Letters Patent.

Patented Jan. 7, 1908

Application filed April 11, 1907. Serial No. 367,628.

To all whom it may concern:

Be it known that I, JOHN F. STRENG, a citizen of the United States, residing at Stewardson, in the county of Shelby, State of Illinois, have invented certain new and useful Improvements in Sliding-Door Locks; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to new and useful improvements in locks, and it has particular reference to an improvement in locks for sliding doors, more especially the sliding doors of freight cars.

The invention in its broad conception comprises a rack rail carried by the car and a toothed wheel mounted in a door frame and designed to engage said rack rail and to lock the same at any selected point in its movement, a key controlled tumbler being provided for engagement with the toothed wheel to hold the same against backward rotation which would release the door.

In connection with a device of the above type the invention aims as a primary object to provide a novel construction, combination, and arrangement of parts, the details of which will appear in the course of the following description, in which reference is had to the accompanying drawings forming a part of this specification, like characters of reference designating similar parts throughout the several views, wherein:

Figure 1 is a central vertical section of a lock constructed in accordance with the present invention, the locking elements being shown in elevation and in engaged relation, the disengaged relation thereof, being indicated by dotted lines. Fig. 2 is a vertical transverse section on the line 2—2 of Fig. 1 looking in the direction of the arrow, parts being shown in elevation. Fig. 3 is a detailed perspective view of the major member or body of the casing which is closed by an outside plate bearing against the frame. Fig. 4 is a detailed perspective view of a key for actuating the tumbler to release the toothed wheel above referred to.

Referring specifically to the accompanying drawings, the numeral 1 designates a casing which is mounted in a recess provided in a door frame and which is held in position by screws or other approved fastening means 2, the casing 1 being constituted of offset hori-

zontal walls and a vertical rear wall. As thus constructed said casing is closed by a front plate 3 which is held to the door frame by screws or other fastening devices 4. The casing 1 is strengthened by integral inclined webs 5 extending from the end walls thereof and terminating short of one another. The outer end wall of said casing terminates short of the bottom wall so that an opening 6 occurs therebetween, the opening 6 affording means whereby a rack rail 7 carried by the movable door may be introduced into the casing. Elements are provided in the casing 1 which coöperate with the rack rail to lock the door, such elements comprising essentially a rack wheel 8 and a pivoted tumbler 9 having a toothed end 10 for engagement with the teeth of the wheel 8. The wheel 8 is rotatable on an arbor 11 which is supported in angular bosses 12 projecting inwardly from the casing 1 and the plate 3. The tumbler 9 is pivoted upon an arbor 13 supported in bosses 14 and is held normally in engagement with the wheel 8 by a leaf spring 15 having its rear end wrapped about a transverse arbor 16 supported in bosses 17. The spring 15 bears against a stop pin 18 projecting laterally from the rear side of the casing 1 forwardly of the arbor 16. The plate 3 is formed with a suitable shaped opening 19 by means of which a key 20 may be projected there-through, the key 20 being illustrated more particularly in Fig. 4 and having the edge of its working portion curved as at 21 and formed with a central recess 22 to accommodate the wheel 8 during the use of the key.

The rail 7 is formed with a rounded end 23 which is pivotally mounted at the inner end of a radius by means of a pin 24 in a recess formed in the edge of the door. The rounded end 23 has notches 23' in its circumference of which two are employed and are separated by a space of 90 degrees. Within the recess is a suitably secured spring dog 26, the end of which is formed to engage in either of the notches 25 and to hold the rail 7 against displacement from either of its extended or folded positions. The dog 26 bears with sufficient force to hold the rail 7 against accidental displacement, but said rail may be moved manually at which time the dog will yield.

In use, the rail 7 is folded within the recess in the door whenever the door is opened, or it is not desired to lock the same. However, when it is desired to lock the door the rail 7 is

swung downwardly to a horizontal position, and the door is moved inwardly. In such inward movement, the rail 7 enters the casing 1 through the space 6 and in this action the 5 teeth on its upper surface will engage the teeth of the wheel 8 which projects through the space between the webs 5, thereby rotating the wheel 8 in the direction of the arrow. The teeth on the end 10 of the dog 9 are so 10 constructed that when the wheel 8 is rotated in the manner above indicated, the dog will yield but the dog will hold the wheel against movement in the reverse direction as will be readily apparent. When it is desired to re- 15 lease the door the key 20 is employed, and, upon rotation of said key, as indicated in dotted lines in Fig. 1, the curved edges 21 of its working portion will engage the end of the dog 9 and raise the same from the wheel 8 20 against the tension of the spring 15. The door is then free to be moved outwardly until its rail 7 passes beyond the wheel 8 at which time the key 20 is withdrawn and the dog is restored to normal position to lock the door 25 upon its inward movement.

From the foregoing description it will be seen that simple and efficient means are provided for accomplishing the objects of the invention, but, while the elements herein 30 shown and described, are well adapted to serve the functions set forth, it is obvious that various minor changes may be made in the proportions, shape and arrangement of the several parts, without departing from the spirit and scope of the invention as defined 35 in the appended claims.

What is claimed is:

1. The combination with a door and a projecting rack rail carried thereby, of a casing, a rotatable element mounted therein and de- 40 signed to engage said rack rail, means engaging said element to hold the same against displacement from said rack rail, and means for releasing said engaging means.

2. The combination with a door and a pro- 45 jecting rack rail carried thereby, of a casing, said rack rail being adapted to move into and out of said casing, a rack wheel mounted for rotation in said casing and formed to engage said rack rail and hold the same against move- 50 ment in a determinate direction and a spring pressed key controlled dog formed to engage said rack wheel and prevent backward rotation thereof.

3. The combination with a door and a pro- 55 jecting rack rail carried thereby, of a casing, said rack rail being adapted to move into and out of said casing, a rotatable element mounted in said casing and formed to engage said rack rail to hold the same against dis- 60 placement, means engaging said element to hold the same against rotation, and means for releasing said engaging means, said rack rail being pivotally carried by said door, said door being recessed to receive said rack rail 65 in one position thereof.

In testimony whereof, I affix my signature, in presence of two witnesses.

JOHN F. STRENG.

Witnesses:

DAVID BEST,
CHAS. W. WILSON.