(No Model.)

F. ROCK.

DOOR CHECK.

No. 598,664. Patented Feb. 8, 1898.

Fig. 1.

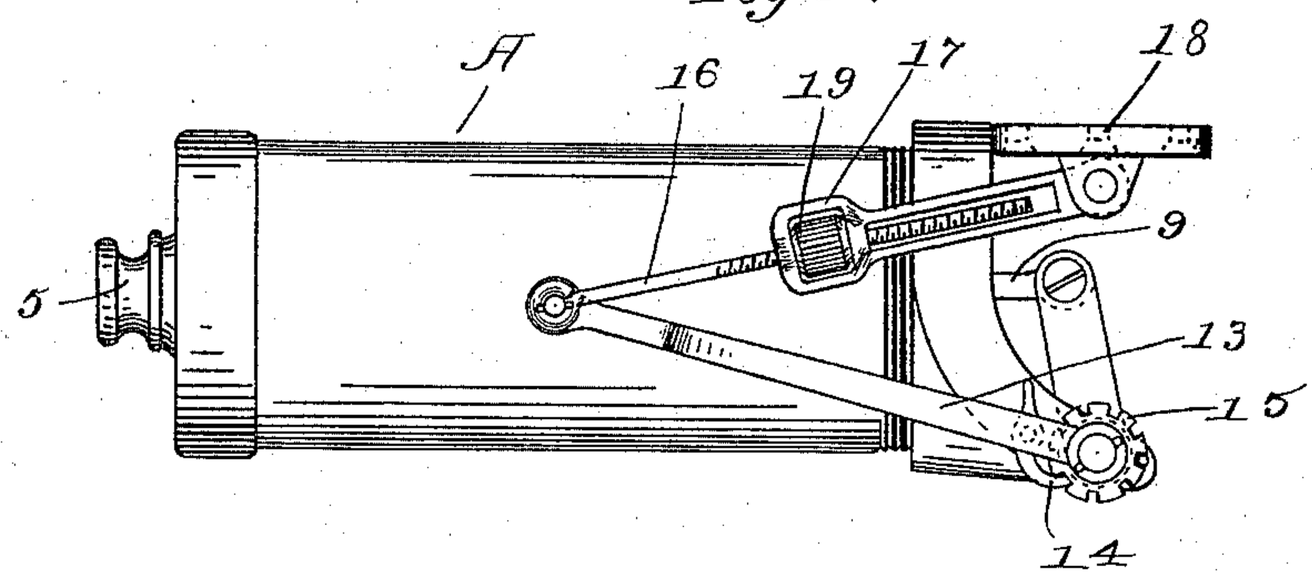


Fig. 2.

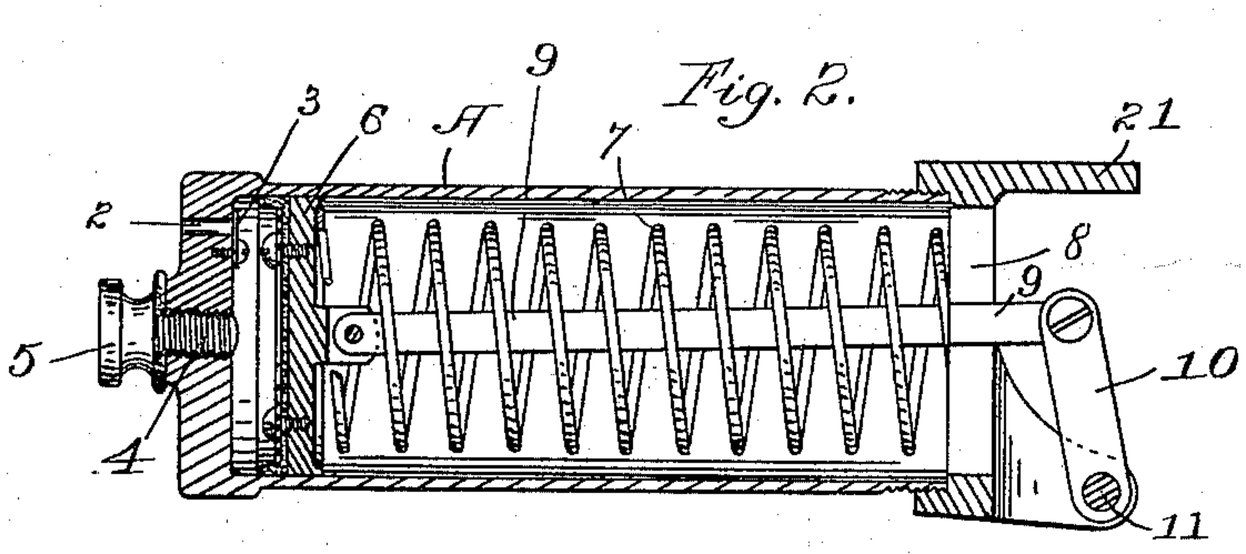
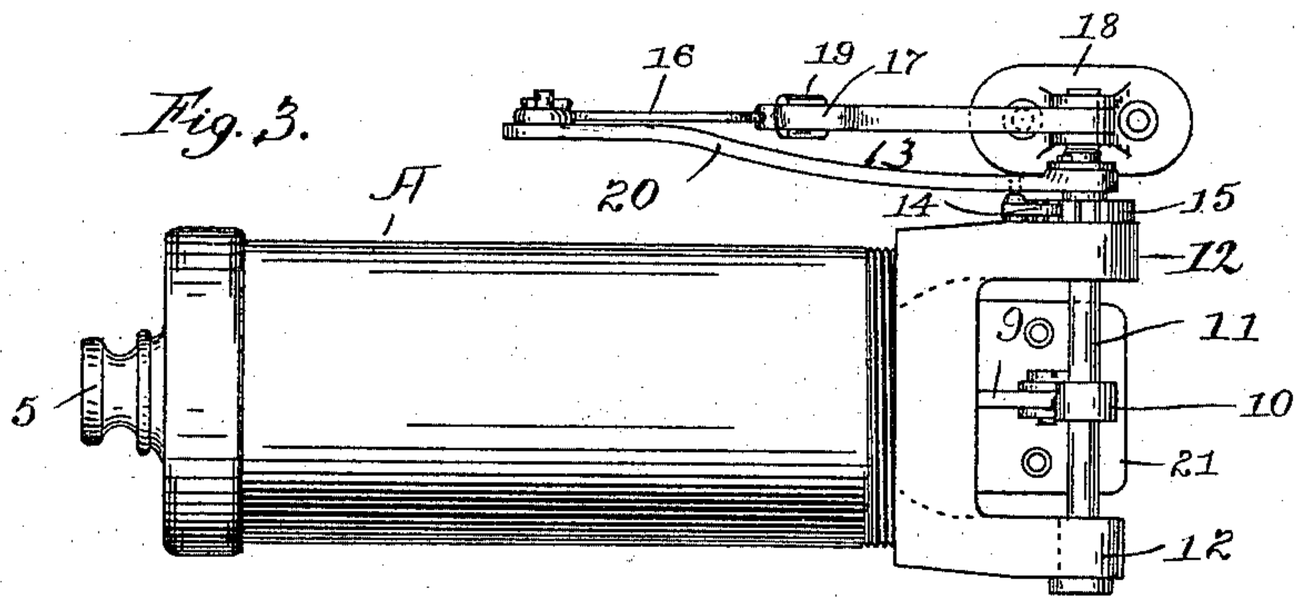


Fig. 3.



Witnesses:

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UNITED STATES PATENT OFFICE.

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DOOR-CHECK.

SPECIFICATION forming part of Letters Patent No. 598,664, dated February 8, 1898.

Application filed February 1, 1897. Serial No. 621,496. (No model.)

To all whom it may concern:

Be it known that I, FERDINAND ROCK, of Grand Forks, Grand Forks county, North Dakota, have invented certain Improvements in Door Springs and Checks, of which the following is a specification.

My invention relates to improvements in devices for automatically closing hinged doors and checking the closing movement thereof, its object being to provide a more simple and efficient construction than ordinarily used.

To this end my invention consists in the improved construction hereinafter particularly described and claimed.

In the accompanying drawings, forming part of this specification, Figure 1 is a side elevation of my improved device, showing the lever connections by which the piston-rod is connected to the door-casing. Fig. 2 is a longitudinal section of the same, and Fig. 3 is an elevation of same in position for attachment to the door and casing.

In the drawings, A represents the pneumatic cylinder, having an air-inlet 2 closed by a flap-valve 3, and an air-outlet 4 closed by the thumb-screw 5. Within the cylinder is arranged the piston 6, normally held at the inlet end of the cylinder by means of the coil-spring 7, interposed between said piston and the cylinder-head 8. The cylinder-head 8, as shown, is screw-threaded upon the open end of the cylinder and is formed with forwardly-projecting side lugs 21. The transverse rock-shaft 11 has journal-support 12 in the cylinder-head 8 and is provided with a laterally-extending crank-arm 10, which is pivotally connected to the piston 6 by rod 9. Said rock-shaft is also connected to the door-casing by the lever connections shown. Loosely arranged upon the end of the rock-shaft is the lever-arm 13, provided with a pawl 14, adapted to interlock with the adjacent ratchet 15, secured upon the shaft. The lever-arm 13 is connected with the door-casing by means of a corresponding lever-arm comprising a rod 16, having pivotal connection with the arm 13 and being adjustably secured in the arm 17, which in turn has pivotal connection with a plate 18, adapted to be secured to the casing. A thumb-nut 19 is provided, by means of which the rod 16 may be adjusted, when desired, to change the relative positions of the parts. The lever-arm 13, as shown, is preferably formed with a bend 20 to allow it to move under the opposite arm, as is necessary where the casing projects beyond the door.

In the application of my device the pneumatic cylinder is secured to the top of the door in horizontal position by means of the lugs 21, the plate 18 being secured to the door-casing. The device being secured in place, the parts are adjusted so that they will stand in the position shown in Figs. 2 and 3 when the door is closed. When the door is then opened, it will be evident that the rock-shaft will be turned by means of the lever-arms drawing the piston toward the cylinder-head and compressing the spring, the piston cushioning upon the inclosed air to check the closing movement. By the adjusting of the thumb-screw 5 the escape of air from the cylinder may be regulated to vary its cushioning effect upon the piston. Tension may be applied to the spring, when desired, by means of the pawl and ratchet.

I am aware that the idea of using a cylinder with a contained spring connected with the door-casing, so that the door is closed by the tension of the spring, is not new, and I merely claim the specific construction shown. By the peculiar arrangement of rock-shaft and connections, by means of which a direct pull upon the spring is obtained, I am able to secure a much more simple and at the same time more efficient construction than ordinarily used for the purpose.

I claim—

1. In a device of the class described, the combination with the door-casing and door, of the pneumatic cylinder adapted to be attached to the door, the piston in said cylinder, the transverse rock-shaft journaled in the end of said cylinder, its crank-arm, and the rod connecting said crank-arm and piston, the lever-arms connected to the rock-shaft and adapted to connect the same to the door-casing, and the spring controlling the piston in said cylinder whereby the piston is actuated against the tension of said spring in the opening of the door.

2. In a device of the class described, the combination with the pneumatic cylinder hav-

ing inlet and outlet ports, of the transverse rock-shaft journaled upon one end of said cylinder, the piston in said cylinder, and the rod connecting said piston and rock-shaft, the coil-spring surrounding said rod and holding said piston at the opposite end of the cylinder, the lever-arm mounted loosely upon said rock-shaft, the pawl-and-ratchet connection between said arm and shaft, and the adjustable lever-arm secured to said arm.

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

FERDINAND ROCK.

Witnesses:
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