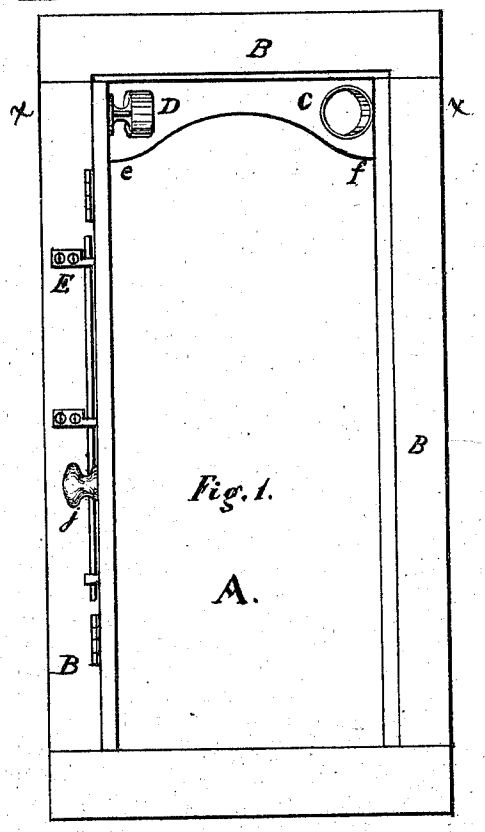
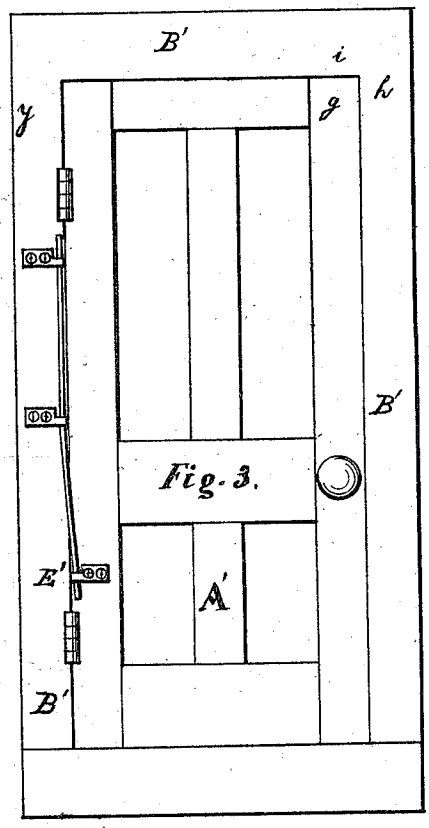
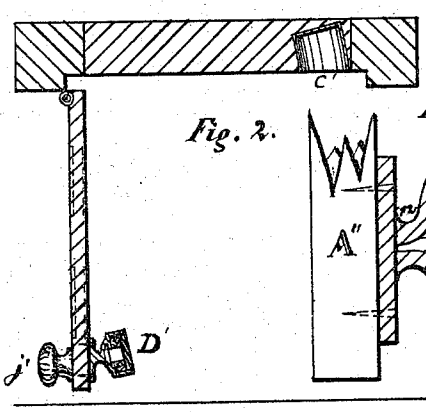
J. W. WETMORE.

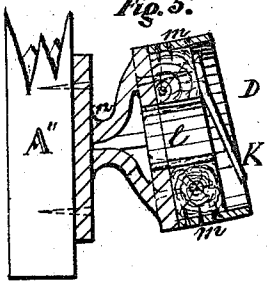
Air-Cushions for Doors.

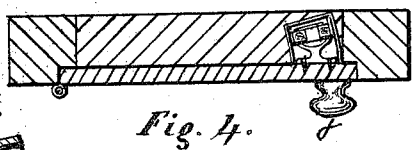
No. 142,540. Patented September 2, 1873.











Witnesses

H. N. Armstrong.

D. W. Fitch.

Inventor

Jerome W. Wetmore.

UNITED STATES PATENT OFFICE.

JEROME W. WETMORE, OF ERIE, PENNSYLVANIA.

IMPROVEMENT IN AIR-CUSHIONS FOR DOORS.

Specification forming part of Letters Patent No. **142,540**, dated September 2, 1873; application filed January 6, 1873.

To all whom it may concern:

Be it known that I, JEROME W. WETMORE, of Erie, in the county of Erie and State of Pennsylvania, have invented an Air Cushion or Brake as an improvement in the means of preventing the slamming of doors which are closed by springs, which I name the door air-brake, and of which the following is a specification:

The object of my invention is to prevent the slamming of doors or gates, which are closed by weights or springs; and it consists in producing a brake or cushion from air compressed by a valve-piston in a cylinder, for attachment one to the door or gate and the other to the casing, all as hereinafter more fully described.

Figure 1 represents a side view of the piston and nearly a full view of the cylinder; Fig. 2, a horizontal section through the line *x x;* Fig. 3, the door and door-casing with the spring to close the door; Fig. 4, horizontal section through the line *y g h;* Fig. 5, enlarged horizontal view of the piston, as seen in Fig. 2.

A, door-way; A′ and A″, door; B, door-casing; D, piston of the air-brake; E, torsion-spring to close the door; *e f*, an arch in the door-way to hold and conceal the cylinder; *g h i*, points referred to, where the devices may be alternately attached; *j*, knob of the door; *k*, valve of the piston. This is a vertical section of the valve, for it is fastened at its upper edge, its weight closing it. The rest of Fig. 5 is a horizontal section; *l*, opening through the valve; *m*, leather packing on the valve; *n*, the bracket to hold the piston. The cylinder and piston are constructed on arcs of a circle, as shown in Figs. 2, 4, and 5, of which the hinge of the door is the center, and the outer and inner sides of the cylinder are the radiuses. The cylinder is from three to seven inches deep, and from two to ten inches in diameter. It is deeper, if it is desired to have the door acquire a greater retardation. It is closed at the bottom, and its open end flares at the rim to accommodate slight variations in the size and position of the piston and cup-packing. The packing *m* of this piston is a cylinder of leather, and forms a cup-valve. The sudden pressure of air when the door is closing springs it against the sides of the cylinder, and renders the valve tight fitting for the moment. The solid foot of the cylinder is sufficiently loose fitting to be free from binding, and permit the escape of air when it is moving slowly. The cylinder C is held in place by screws in the bottom, if attached on the door-casing, and by lugs and the arch *e f*, if placed in the upper corner of the door-way. The cylinder may be attached to the casing at *h* or *i*, Fig. 2, and then the piston attached to the door at *g* by a bent arm.

The operation of the brake is as follows: When the door is closed, as in Fig. 3, and it is drawn back, the valve *k* is opened by the pressure of the air through the passage *l*, and there is no resistance by the air. When the door is open, as in Fig. 2, and is left to the operation of the spring or weight, it moves with accelerated velocity (the air closing the valve D) until the piston enters the cylinder and condenses the air to the point of complete resistance. The packing of the piston, expanded against the sides of the cylinder, shrinks by the escape of air to its place, and the door passing the inch or two of remaining space is closed.

The improvement may be used with a tight-fitting piston without the leather packing with its cup-valve.

I claim as my invention—

The air-cylinder C and piston D, attached one to the door or gate and the other to the casing, to form an air-brake, all constructed, arranged, and operating substantially as and for the purpose set forth.

JEROME W. WETMORE.

Witnesses:

H. N. ARMSTRONG,

D. W. FITCH.