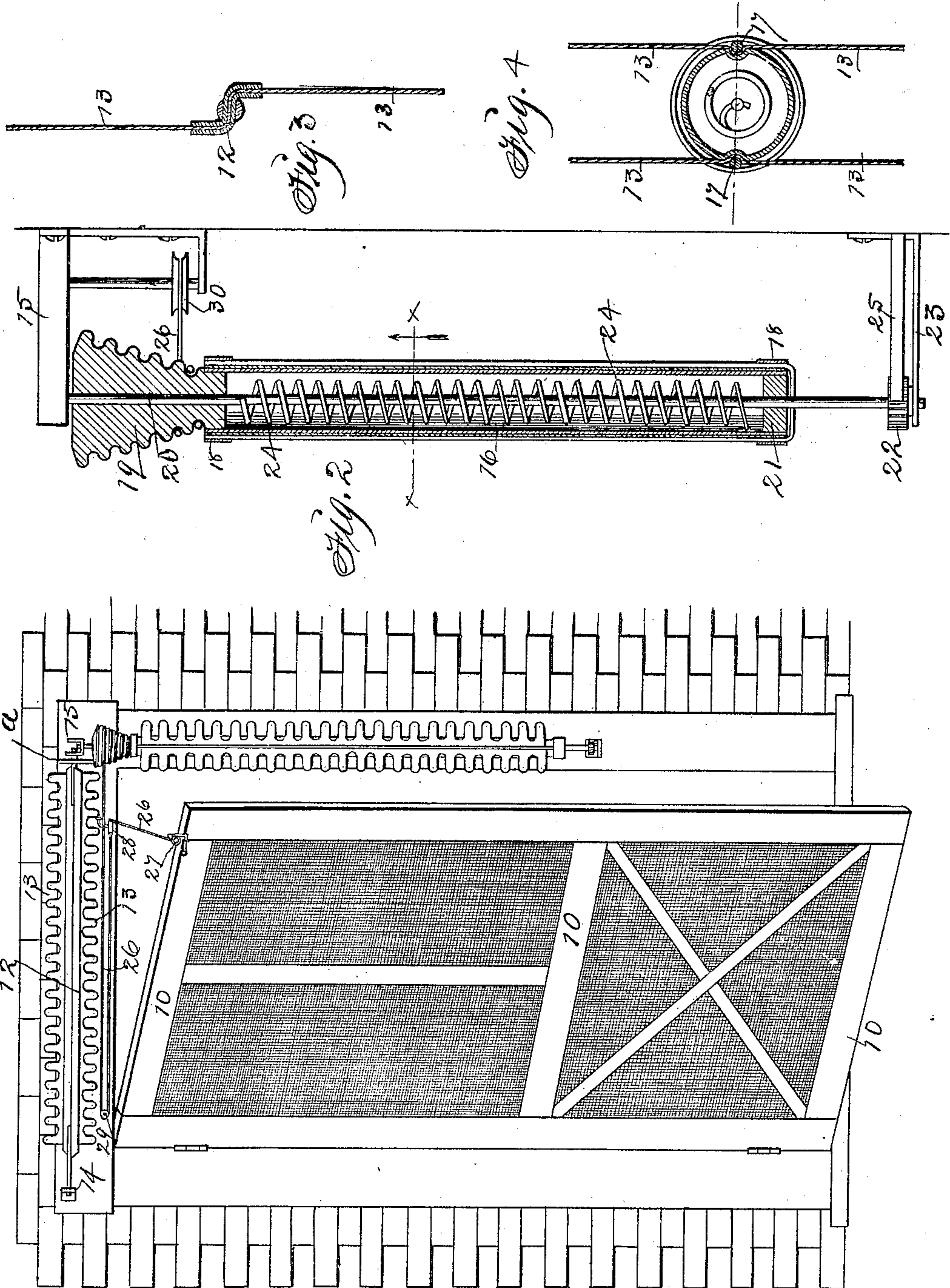


No. 821,880.

PATENTED MAY 29, 1906.

A. MILLER.  
AUTOMATIC FLY BRUSH AND DOOR CLOSER.

APPLICATION FILED MAR. 7, 1904.



Witnesses:  
H. Heibrock.  
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Fig. 1 Inventor: Abraham Miller,  
By Thomas G. Orwig, Attorney.



# UNITED STATES PATENT OFFICE.

ABRAHAM MILLER, OF NEWTON, IOWA.

## AUTOMATIC FLY-BRUSH AND DOOR-CLOSER.

No. 821,880.

Specification of Letters Patent.

Patented May 29, 1906.

Application filed March 7, 1904. Serial No. 197,062.

*To all whom it may concern:*

Be it known that I, ABRAHAM MILLER, a citizen of the United States, residing at Newton, in the county of Jasper and State of Iowa, have invented a new and useful Automatic Fly-Brush and Door-Closer, of which the following is a specification.

The main object of this invention is to provide improved means for preventing the entrance of flies through a doorway when the door is opened.

A further object of the invention is to provide improved means for the above purpose which will also operate to close the door.

The accompanying drawings illustrate the invention.

Figure 1 is a perspective of the door, door-frame, and automatic closing and brushing devices. Fig. 2 is a vertical section of one of the automatic closing and brushing devices. Fig. 3 is a transverse section of the brushing device above the door. Fig. 4 is a section of the brush and automatic closing device at the side of the door, taken on line *xx* in Fig. 2. 9 designates the door frame or casing, and 10 a screen-door hinged therein to swing outward.

A horizontally-extending brush device 12 is mounted at the top of the door-frame or above the door, and a vertically-extending brush device 16 is mounted at the side of the door, these brush devices being located adjacent to the top and outer edges of the door and being movable to brush or scare away the flies that would attempt to enter when the door is opened. Such movement of the brush devices is effected by the movement of the door, and one of said devices is also provided with means tending to close the door.

Brush device 12 consists of metal strips bent into double-elbow shape, as shown in Fig. 3, with brush material 13 clamped between them by riveting them together, said device being journaled at its ends in bearings in brackets 14 and 15 on the door-frame 9, as shown in Fig. 1.

Brush device 16 consists of a metal tube having parallel longitudinal external grooves, into which brush material 13' is clamped by a wire 17, that extends along the grooves and is fastened to the tubes by ferrules 18 on the ends of the tube or in any other suitable way. A normally stationary shaft 20 is revolvably mounted in bearings 23 and 15. This shaft does not rotate in these bearings automatically when the door is swung on its hinges, but

is manually adjustable revolvably in said bearings to adjust a tension device, hereinafter described. The shaft 20 extends axially through the brush device 16, and the brush device 16 is rotatably mounted on the shaft 20 and rotates thereon whenever the door is swung on its hinges. The brush-carrying tube 16 is rigidly attached to a cone-pulley 19, which cone-pulley is journaled on the normally stationary shaft 20, while the other end of the tube has a bearing-cap 21, which is journaled on the normally stationary shaft 20. Thus the tube and cone-pulley are rotatably mounted on the shaft 20, although the shaft 20 does not rotate or turn except when said shaft is being turned for purposes of adjustment, about to be described. One end of a coil-spring 24 is connected to shaft 20, and the other end of the spring is connected to tube 16. A spur-toothed wheel 22 is fixed on the shaft 20 and is engaged by a spring-pawl or detent 25, mounted on bracket 23. The tension of the spring 24 may be increased by winding up the shaft 20, the pawl 25 serving as a check to hold the spur-wheel 22 and shaft 20 stationary when the proper tension has been secured.

A cord 28 is connected to an elbow-shaped metal holder 27, fixed to the door, and is extended over directing-pulleys 28 and 29, attached to the door-casing, as shown in Fig. 1, and over a sheave 30 and rotatably mounted on a shaft 30' on bracket 15, as shown in Fig. 2, or in any suitable way, and the end of said cord is fastened to the top of cone-pulley 19, as shown at 19', and coiled thereon in such manner that the power stored in the spring 24 will normally retain the door closed. Said pulley is spirally grooved in the manner of a fusee. A wheel 31, fixed to the end of brush member 12, bears on top of cone-pulley 19 to cause rotation of member 12 simultaneously with member 16.

When the door is opened, the cord unwinds from the lower and smaller end of the pulley 19 and rotates said pulley and the attached brush device 16 and at the same time causes rotation of brush 12 by the connecting friction-wheel 31. During this action the spring 24 is wound up, and on release of the door said spring in unwinding pulls the door closed and operates the brush devices 16 12 in reverse direction.

By means of the fusee or cone-shaped pulley 19 the leverage of the spring 24 is increased as its power is diminished by un-



winding and rotary speed of the brushes maintained or equalized as the door is opened and closed.

What I claim is—

5 1. In an automatic fly-brush and door-closer, a brush-carrying tube, a cone-shaped spirally-grooved pulley fixed in the top of the tube, a shaft extending axially in said tube and pulley, a toothed wheel fixed to the shaft,  
10 detent means engaging said toothed wheel, a spring connected to the tube and the shaft, and fixed bearings for supporting the shaft in position.

2. An automatic fly-brush and door-closer  
15 comprising a horizontal rotatable brush having a shaft, bearings for said shaft fixed to the door-casing, a disk on said shaft, a vertically-extending brush at the side of the door having a cone-shaped pulley at its top, the  
20 said disk engaging the top of said cone-shaped pulley, a shaft for the last-named brush, fixed bearings for said last-named shaft, a spring connected to the shaft and the brush, detent means for holding the shaft  
25 and spring against back movement, and a cord connected to the top of the cone-shaped pulley and to the door.

3. An automatic fly-brush and door-closer comprising a rotatable brush having a shaft  
30 mounted in bearings fixed to a door-casing to extend horizontally, a disk on said shaft, a spring-actuated brush having a cone-shaped pulley at its top mounted in fixed bearings to extend vertically at the side of a door, the  
35 said disk engaging the top of said cone-shaped pulley, a spur-wheel on the lower end of the axis of the brush, a pawl to engage said spur-wheel, a cord fixed to the top of the cone-shaped pulley and extended over directing-pulleys attached to the door-casing  
40 and fixed to the top of a hinged door, all arranged and combined to operate in the manner set forth for the purposes stated.

4. In an automatic fly-brush and door-closer, a tube having longitudinal grooves,  
45 wires extended through the grooves and brush material clamped to the tube under the wires, and means for fastening the wires to the ends of the tube, arranged and combined for the purposes stated.

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