

H. J. WENTZ.

DOOR CLOSER.

APPLICATION FILED MAR. 18, 1909.

Patented May 10, 1910.

957,282.

3 SHEETS—SHEET 1.

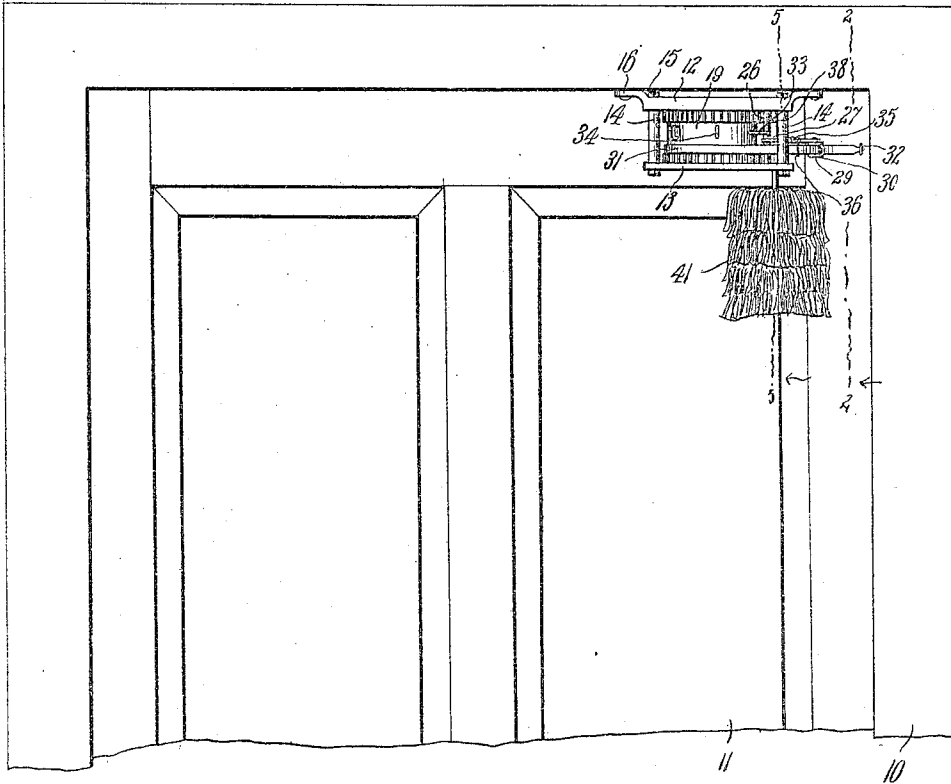


Fig. 1.

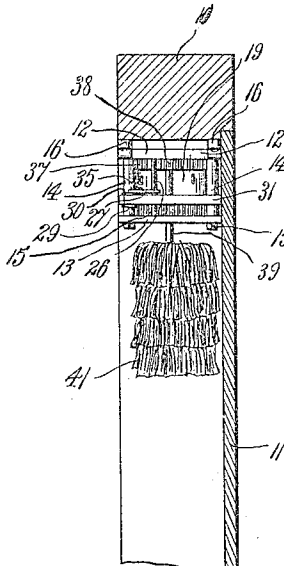


Fig. 2.

Witnesses

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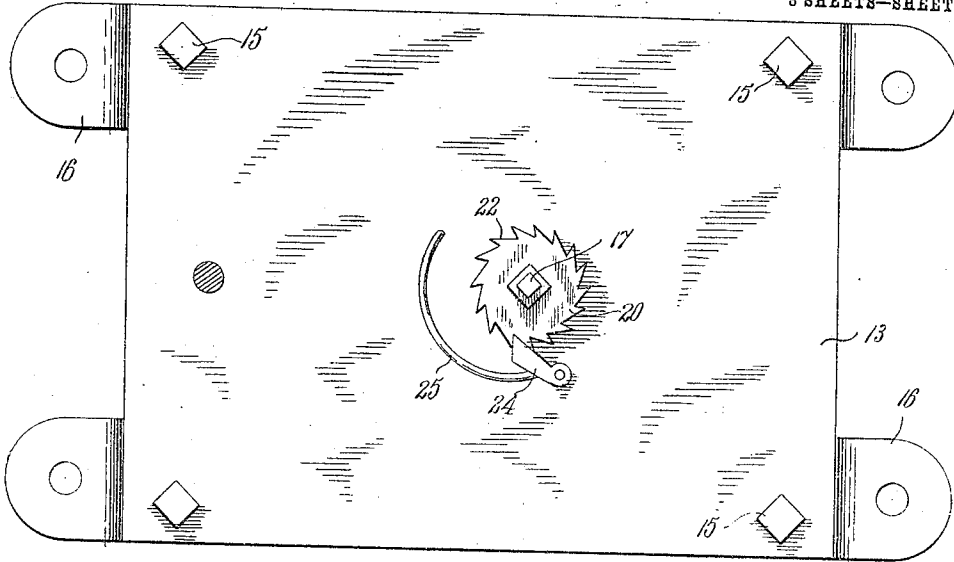


Fig. 7.

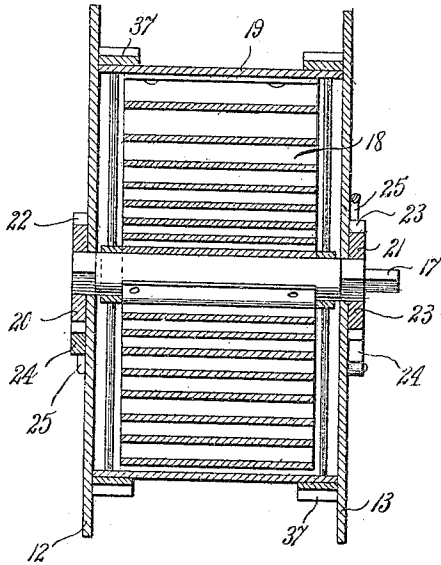
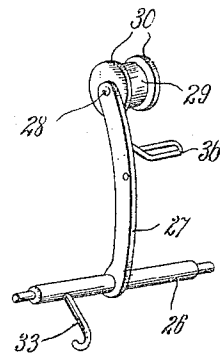


Fig. 3.

Fig. 4.



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3 SHEETS—SHEET 3.

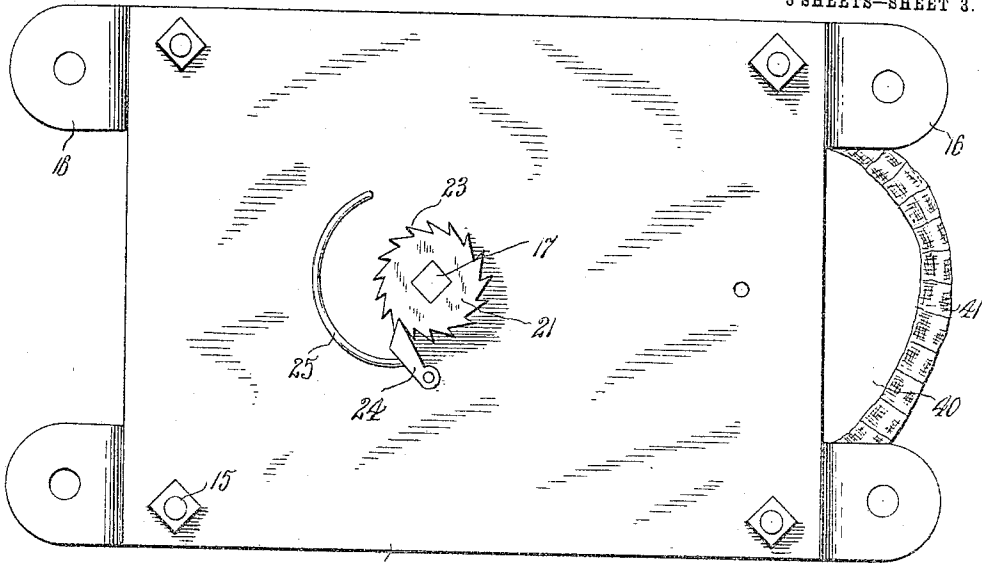


Fig. 6.

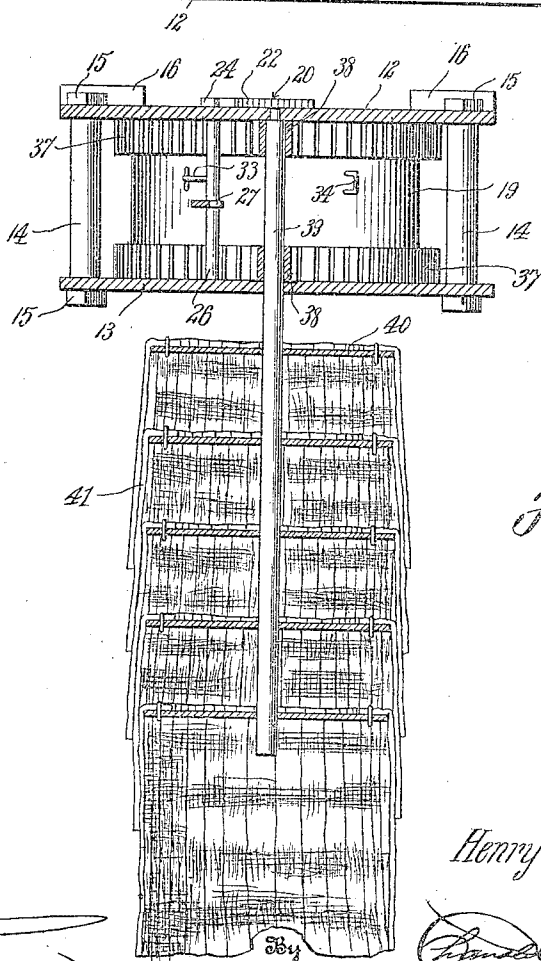


Fig. 5.

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UNITED STATES PATENT OFFICE.

HENRY JNO. WENTZ, OF TRIPP, SOUTH DAKOTA.

DOOR-CLOSER.

957,282.

Specification of Letters Patent.

Patented May 10, 1910.

Application filed March 18, 1909. Serial No. 484,124.

To all whom it may concern:

Be it known that I, HENRY J. WENTZ, a citizen of the United States, residing at Tripp, in the county of Hutchinson, State of South Dakota, have invented certain new and useful Improvements in Door-Closers; 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.

The invention relates to door closers and more particularly to the class of automatic door closers having a fly brush actuated thereby.

The primary object of the invention is the provision of a door closer in which a door will be automatically brought to a closed position after the opening thereof and upon the opening and closing of the door a fly brush will be set in motion to prevent insects and flies from entering a doorway when the door is being opened or closed.

Another object of the invention is the provision of a door closer of this character in which a door will be automatically brought to a closed position upon the opening thereof, and means for tensioning the closing action of the door so as to enable the same to be quickly closed if found desirable.

A further object of the invention is the provision of a door closer which comprises a spring controlled drum having connections with a door to permit the automatic closing thereof when brought to an open position, means acted upon by the connection between the drum and door to positively lock the said spring controlled drum when the door has been entirely closed, and means for tensioning the spring to regulate the closing action of the door.

A still further object of the invention is the provision of a door closer which will automatically close a door upon the opening thereof and adapted to set in action an automatically operated brush upon the opening and closing of the door so as to brush flies away from the door when it is opened.

With these and other objects in view the invention consists in the construction, combination and arrangement of parts as will be hereinafter more fully described in detail, illustrated in the accompanying drawings which disclose the preferred form of embodiment of the invention and as brought out in the claims hereunto appended.

In the drawings: Figure 1 is an elevation of a door and casing with the invention applied thereto. Fig. 2 is a sectional view on the line 2—2 of Fig. 1. Fig. 3 is an enlarged vertical sectional view through the spring casing. Fig. 4 is a detail perspective view of the safety or catch lever removed from the frame. Fig. 5 is a section on the line 5—5 of Fig. 1. Fig. 6 is a top plan view of the frame. Fig. 7 is a bottom plan view thereof.

Similar reference characters indicate corresponding parts throughout the several views in the drawings.

In the drawings, the numeral 10 designates a door frame or casing which is of the usual construction and 11 a door, the latter being hinged to the casing and swinging by its free edge in the usual manner. Depending and secured to the cross head of the door casing is a frame comprising spaced upper and lower parallel plates 12 and 13 respectively, the latter held spaced from each other by spacer tubes 14 through which pass bolt fasteners 15 to detachably unite the said plates. Projecting from opposite corners of the upper plate 12 are perforated ears 16 through which pass suitable fasteners for securing the frame in position on the upper cross head of the door casing.

Journaled centrally in the upper and lower plates is a winding shaft 17 the latter having connected thereto one end of a coiled spring 18 the opposite end of which is fixed to the inner face of a rotatable drum or cylinder 19 which latter forms a housing for the spring.

Secured near opposite ends of the shaft 18 are ratchet wheels 20 and 21 the same lying contiguous with the outer faces of the plates 12 and 13 respectively, the teeth 22 of the ratchet wheel 20 being disposed in an opposite direction with respect to the teeth 23 of the ratchet wheel 21 and in engagement with the teeth of the ratchet wheels 20 and 21 are locking pawls or dogs 24 which latter are normally held in engagement with the said ratchet wheels by springs 25 so that the said shaft 17 is held against rotary movement in either direction. One end of the said shaft 17 is squared in cross section to permit the connection of a clock key therewith so that upon release of the locking pawl 24 from engagement with the teeth of the ratchet wheel 21 the said shaft can be rotated to permit the winding

of the spring 18 so as to increase the tension thereof to effect the quick closing of the door 11 if desired.

Mounted between the plates 12 and 13 of the frame adjacent the winding drum or cylinder 19 is a safety device comprising a rocking shaft 26 the latter having formed integral therewith an arm 27 having secured to its free end a stud or short pin 28 disposed at right angles thereto and upon which is rotatably mounted a friction roller 29 formed with peripheral guide flanges 30 and over which roller is trained a steel band or tape 31 the latter having one end connected to the winding drum or cylinder 19 and its opposite end connected to an eye 32 secured to the door 11. Formed integral with the rocking shaft 26 is a catch or locking finger 33 the latter adapted to engage a series of teeth 34 projecting from the outer face of the drum or cylinder 19 and disposed circumferentially thereof. Connected to the arm 27 and to one of the spacer tubes 14 is a tension spring 35 the latter normally holding the catch or locking finger 33 into engagement with the teeth 34 exteriorly of the drum so as to hold the drum or cylinder 19 locked to prevent the unwinding of the spring 18 connected thereto and also to relieve a continuous tension on said spring. Projecting from the arm 27 in rear of the friction roller 29 is a guide eye or loop 36 the same freely receiving the band or tape 31 and is adapted to prevent the same from jumping off of the roller during the opening and closing of the door.

Formed on the drum or cylinder 19 peripherally thereof are spaced cog gears 37 the latter enmeshing with pinions 38 fixed to a rotatable shaft 39 journaled in the said frame and which shaft projects a considerable distance below the plate 13 of the frame, and has connected to its projected portion a fly brush comprising a plurality of spaced disks 40 to the periphery of which are secured the inner ends of flexible strips 41 constituting the brush.

In operation upon the opening of the door 11 the tape or band 31 will be caused to unwind from the drum or cylinder 19 which latter will effect a winding of the spring 18 so that upon the release of the door the same will be automatically closed. During the opening and closing of said door the brush will be automatically actuated to effectually drive all flies and other insects from the vicinity of the door so that they will not enter while the door is being opened and when being closed. It is obvious upon the initial opening of the door 11 that the band or tape 31 will become extremely taut to effect the tripping of the catch or locking finger 33 from engagement with the teeth 34 thereby freeing the drum or cylinder 19 to permit winding of the spring 18 as the

door 11 is swung to an open position to enable the automatic closing thereof when released. Upon the automatic closing of the door the tape or band 31 will become slackened to some degree and also during the closing movement of the door the angle of the band is changed so as to permit the catch through the medium of the tension spring 35 to move into a position so that its locking finger 33 will be brought into the path of and engage with one of the teeth 34 when the door has arrived at a closed position so as to lock the drum or cylinder 19 which will relieve a continuous tension upon the spring housed thereby and connected thereto. Furthermore during the opening or closing of the door should the band break the safety device will be brought into action so as to automatically stop the rotation of the drum and thereby prevent the unwinding of the spring within said drum. As previously stated should it be desired to decrease or increase the tension of the spring 18 to effect a slow or quick closing of the door 11 it is necessary to unwind or wind the spring to the desired degree to accomplish said purposes.

What is claimed is—

1. The combination with a swinging door, of a frame, a spring controlled winding drum rotatably mounted in the frame and having exterior teeth, a band connected to said drum and to the door, and a safety device acted upon by the band and adapted to engage the teeth for locking the drum upon the closing of the door or the breaking of the band.

2. A door closer of the class described comprising a spring tension winding drum, a band adapted to be wound on and unwound from the drum and engageable with a door, and a safety device automatically operated upon the closing of a door or the breaking of the band for locking the drum against movement in one direction.

3. A door closer of the class described comprising a spring tension winding drum, a band adapted to be wound on and unwound from the drum and engageable with a door, a safety device automatically operated upon the closing of a door or the breaking of the band for locking the drum against movement in one direction, and a fly brush rotatably operated by the drum.

4. The combination with a swinging door of a frame, a spring controlled winding drum rotatably mounted in the frame and having exterior teeth, a band connected to said drum and to the door, a safety device acted upon by the band and adapted to engage the teeth for locking the drum upon the closing of the door or the breaking of the band, and a fly brush automatically operated upon the rotation of the drum.

5. The combination with a swinging door,

of a frame, a spring controlled winding drum rotatably mounted in the frame and having exterior teeth, a band connected to said drum and to the door, a safety device 5 acted upon by the band and adapted to engage the teeth for locking the drum upon the closing of the door or the breaking of the band, and guide means maintaining the band in operative relation to the safety 10 device.

6. The combination with a door closer having a flexible band operated thereby, of a safety device for locking the door closer in inoperative position either when a door 15 is closed or upon the breaking of the band.

7. The combination with a door casing and a door hinged thereto of a spring controlled rotatable drum suspended from said door casing, a band connected to the door and 20 drum and adapted to be wound upon and unwound from the latter, teeth formed exteriorly on the drum and in spaced relation to each other, and a safety device automatically controlled by the band and having a

finger for engagement with the teeth to lock 25 the drum against rotation either upon the closing of the door or the breaking of the band.

8. The combination with a door casing and a door hinged thereto of a spring controlled rotatable drum suspended from said 30 door casing, a band connected to the door and drum and adapted to be wound upon and unwound from the latter, teeth formed exteriorly on the drum and in spaced relation 35 to each other, a safety device automatically controlled by the band and having a finger for engagement with the teeth to lock the drum against rotation either upon the 40 closing of the door or the breaking of the band, and a rotatable fly brush operated by the drum.

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

HENRY JNO. WENTZ.

Witnesses:

G. J. KEOUDT,
C. J. MARTIN.