No. 786,158. PATENTED MAR. 28, 1905.

H. W. ROSS.

DOOR STOP.

APPLICATION FILED NOV. 28, 1904.

Fig. 1.

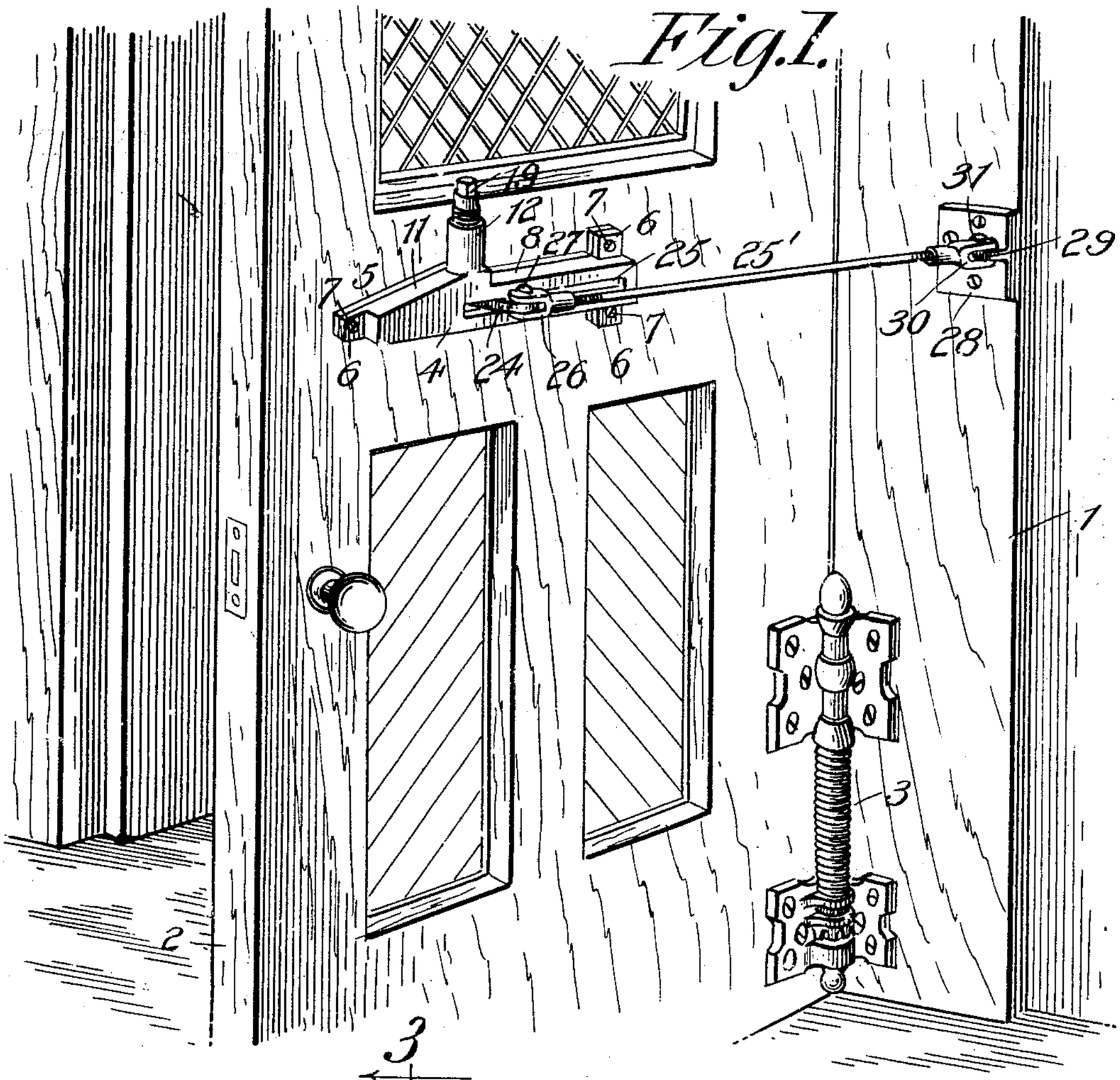


Fig. 2.

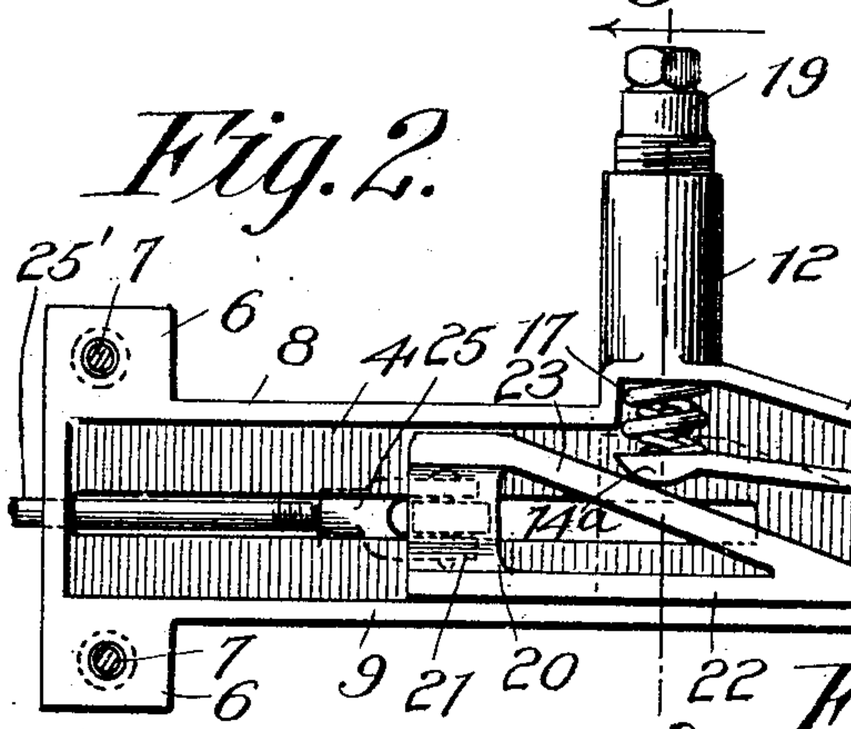


Fig. 3.

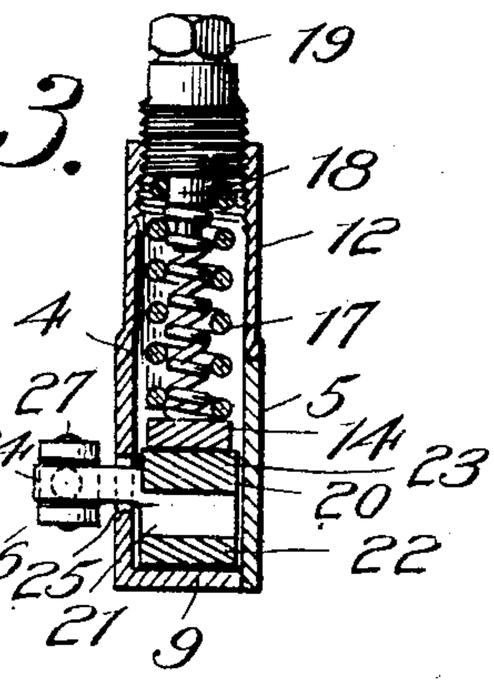
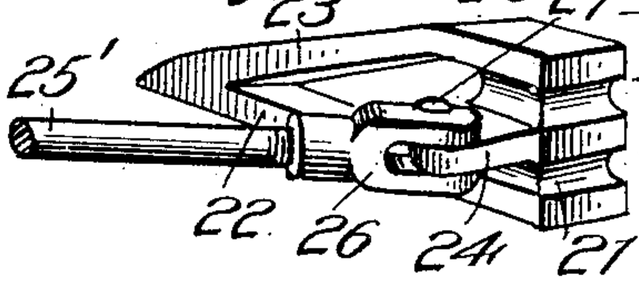


Fig. 4.



Witnesses:

J. R. Fairfield

G. R. Driscoll.

Inventor:

Henry W. Ross,

by Wm. F. Bellamy,

Attorney.

No. 786,158. Patented March 28, 1905.

UNITED STATES PATENT OFFICE.

HENRY W. ROSS, OF SPRINGFIELD, MASSACHUSETTS.

DOOR-STOP.

SPECIFICATION forming part of Letters Patent No. 786,158, dated March 28, 1905.

Application filed November 28, 1904. Serial No. 234,537.

To all whom it may concern:

Be it known that I, HENRY W. ROSS, a citizen of the United States of America, and a resident of Springfield, in the county of Hampden and State of Massachusetts, have invented certain new and useful Improvements in Door-Stops, of which the following is a full, clear, and exact description.

My invention has relation to new and useful improvements in door-stops, and it is especially designed to be employed in connection with doors having means to automatically throw them open when the locking or fastening devices therefor are released, such doors being of the general type usually employed in connection with the horse-stalls in engine-houses.

The object of the invention is to provide a stop or buffer which will permit the door to swing open the proper distance to permit easy passage through the door-opening, but which will prevent the door from swinging back against the wall or across the opening to an adjacent stall.

The invention consists in providing a buffing device the operating parts of which are supported upon and carried by the door and the wall adjacent thereto and operated by the movement of the door relative to the wall to attain the desired result.

I have fully and clearly illustrated my invention in the accompanying drawings, to be taken as a part of this specification, and wherein—

Figure 1 is a perspective view of a door having my invention associated therewith. Fig. 2 is a rear elevation of the buffer or stop removed from the door, the parts being shown in the relative positions they assume when the door is closed. Fig. 3 is a section through the stop, taken on the line 3 3 of Fig. 2. Fig. 4 is a detailed view of the buffer-head and the connecting-rod for securing the same to the door-frame.

Referring to the drawings, 1 designates the door-frame, to which is hinged for a swinging movement the door 2, the hinge 3 for connecting the parts being of any of the well-known forms embodying features of construction which operate to automatically swing the door open when the fastening or locking devices of the latter are released.

Mounted upon the door and carried thereby is a supporting or guiding member, upon which the various elements comprising the invention are located and arranged for operation. This support or guiding member is shown as consisting of an elongated casing 4, closed at its rear portion by means of a plate 5, said casing and plate being each formed with ears or projections 6, having alining apertures adapted to receive suitable fastening devices 7, by means of which said casing and plate are rigidly secured in position on the door. This casing is formed at its upper and lower sides with substantially horizontal walls 8 9, which perform a function to be hereinafter stated, and at its front portion, or that portion directed toward the swinging edge of the door, is provided with a recess 10, offset from the upper wall 8 and communicating with the interior of the main casing, said recess being bounded on its upper side by an inclined wall 11, directed upwardly to a point intermediate the ends of the casing where it joins with the wall 8. At the junction of the walls 8 and 11 the casing is provided with a vertically-projecting socket-piece 12, which opens downwardly into the casing. Upon the inside of the casing and at the lower end of the wall 11 is formed a recess 13, in which is seated one end of a rearwardly-extending buffing member 14, the member being formed adjacent said end with an elongated slot 15, through which projects a fastening pin or screw 16, which is supported in the inclined wall 11 and the lower wall of the casing, said pin serving to prevent the dislodgment of the member 14 from said recess, the arrangement being such that the member is free to swing in a vertical plane within the casing, the engagement of its end with the recess 13 providing a fulcrum for the swinging movement.

The free or swinging end of the member 14 extends within the casing to a point beneath the open end of the socket-piece 12, and said end is formed or provided with an engaging face which is preferably made by thickening the end of the member and forming the thickened portion with a curved face located on

the under side of said member, as shown at 14ª. This buffing member 14 is free to swing vertically downward within the casing; but means is provided to strongly resist upward movement thereof, so that any force exerted against the under side of said member to force the latter upwardly, as will be more apparent hereinafter, will be resisted by a counter force acting to move said member downwardly. This means I have shown as consisting of a double coiled spring 17, housed within the socket-piece 12 and the lower end of which rests against the end of the buffing member, the upper end of said spring being seated over a projection 18, carried by a screw-threaded plug 19, which is screwed into and closes the upper end of the socket 12. By the screw-threaded engagement of the plug with the socket it will be seen that means is provided for the ready adjustment of the tension of the spring 17 whenever desired.

Slidingly arranged within the casing 4 and having a reciprocating movement lengthwise thereof is a buffer-head 20, which is guided in its movement by upper and lower parallel walls of the casing. This buffer-head consists of a body or block 21, formed with a forwardly-extending straight side 22, which rests upon the lower wall of the casing, and an inclined engaging face 23, which slopes upwardly from the front end of the straight side 22 to the upper part of the block 21. Projecting laterally from one side of the buffer-head is an ear or projection 24, said ear extending through a slot 25, disposed in the front wall of the casing and extending longitudinally thereof, said slot being of such length as to permit a reciprocating movement of the head within the casing. Pivotally secured to the ear 24 is one end of a rigid member 25′, the connection being preferably made by means of a yoke 26, which straddles the ear and is pivoted thereto by a pivot-pin 27, said yoke having a screw-threaded connection with said member 25′. The opposite end of the rigid member 25′ is pivotally secured to the door-frame or wall closely adjacent the hinged edge of the door, the connection being made by employing a suitable plate 28, provided with an ear 29, which is straddled by a yoke 30, carried by the member 25′, the ear and yoke-arms being connected by a suitable pivot-pin 31. This yoke 30 also has a screw-threaded connection with the member 25′, this arrangement permitting the adjustment of the length of the member as occasion may require.

The parts being arranged as above described, the operation is as follows: When the door is shut, the pull exerted on the buffer-head by the member 25′ will slide said head to the rear end of the casing, in which position the head remains as long as the door is in its closed position, the inclined face of the buffer-head being drawn back out of engagement with the curved face of the buffing member 14. The fastening device which maintains the door closed being released, the door is swung open by means of the spring-hinge 3, and it will be apparent that this swinging movement will be unrestricted until the inclined face of the buffer-head engages the end of the member 14, when the downward force of the spring exerted on said member will resist the further movement of the head, and the continual movement of said head causes the buffing member 14 to be swung upwardly against the force of the spring 17, and it will be seen that the farther the head moves under said member the greater will be the resistance offered to the movement of the head, and the door will be effectually prevented from swinging back on its hinges to strike the adjacent framing or wall.

It is apparent that instead of securing the end of the member 25′ to the wall or door-frame it may be attached to any stationary part bearing a fixed relation to the swing-door, and it is also obvious that the arrangement of the parts may be reversed—*i. e.*, by placing the casing on the wall and pivoting the end of the member 25′ to the door—without departing from the spirit of the invention.

What I claim is—

1. In a device of the class described, a guiding member adapted to be attached to a swinging body, a yielding buffing-plate carried by said member, a buffer-head mounted for sliding movement in the guiding member and having an inclined face adapted to make contact with said buffing-plate, and a link connected at one end to the buffer-head and adapted to be connected at its opposite end to a fixed support.

2. In a device of the class described, the combination with a swinging body, of a buffing element mounted thereon for a swinging movement, means to resist said movement in one direction, a buffer-head mounted for sliding movement on said body to and from said element and having an inclined face adapted to engage the buffing element, and a link connection between said head and a fixed support.

3. In a device of the class described, the combination with a swinging body, of a buffing element pivotally mounted on said body and adapted to have a swinging movement thereon, a spring engaging one side of the element to resist movement of the latter in one direction, a buffer-head mounted for a sliding movement on said body toward and away from the buffing element and having an inclined face adapted to engage the latter on the side opposite to the spring, and a link connection between said head and a fixed support.

4. In a device of the class described, the combination with a swinging body, of a guid-

ing and supporting member consisting of a casing having an elongated slot and provided with a socket-piece, a pivoted buffing element mounted on the casing, a spring disposed in the socket-piece and engaging the element to resist movement thereof in one direction, a sliding buffer-head mounted in the casing for movement to and from said element, and having an inclined face adapted to engage the latter, and a link connection between said head and a fixed support, the connection with the head being made through the slot in the casing.

5. In a device of the character described, the combination with a swinging body, of a guiding and supporting means consisting of a casing having an elongated slot therein and provided with a socket-piece, a buffing element pivoted in the casing, a spring disposed in the socket-piece to resist movement of the element in one direction, a buffer-head slidably mounted in the casing to and from said element and having an inclined face adapted to engage the latter, said head being provided with an ear projected through the slot in the casing, and a link secured at one end to the ear and at the opposite end to a fixed support adjacent the swinging body.

Signed by me at Springfield, Massachusetts, in presence of two subscribing witnesses.

HENRY W. ROSS.

Witnesses:
WM. S. BELLOWS,
G. R. DRISCOLL.