

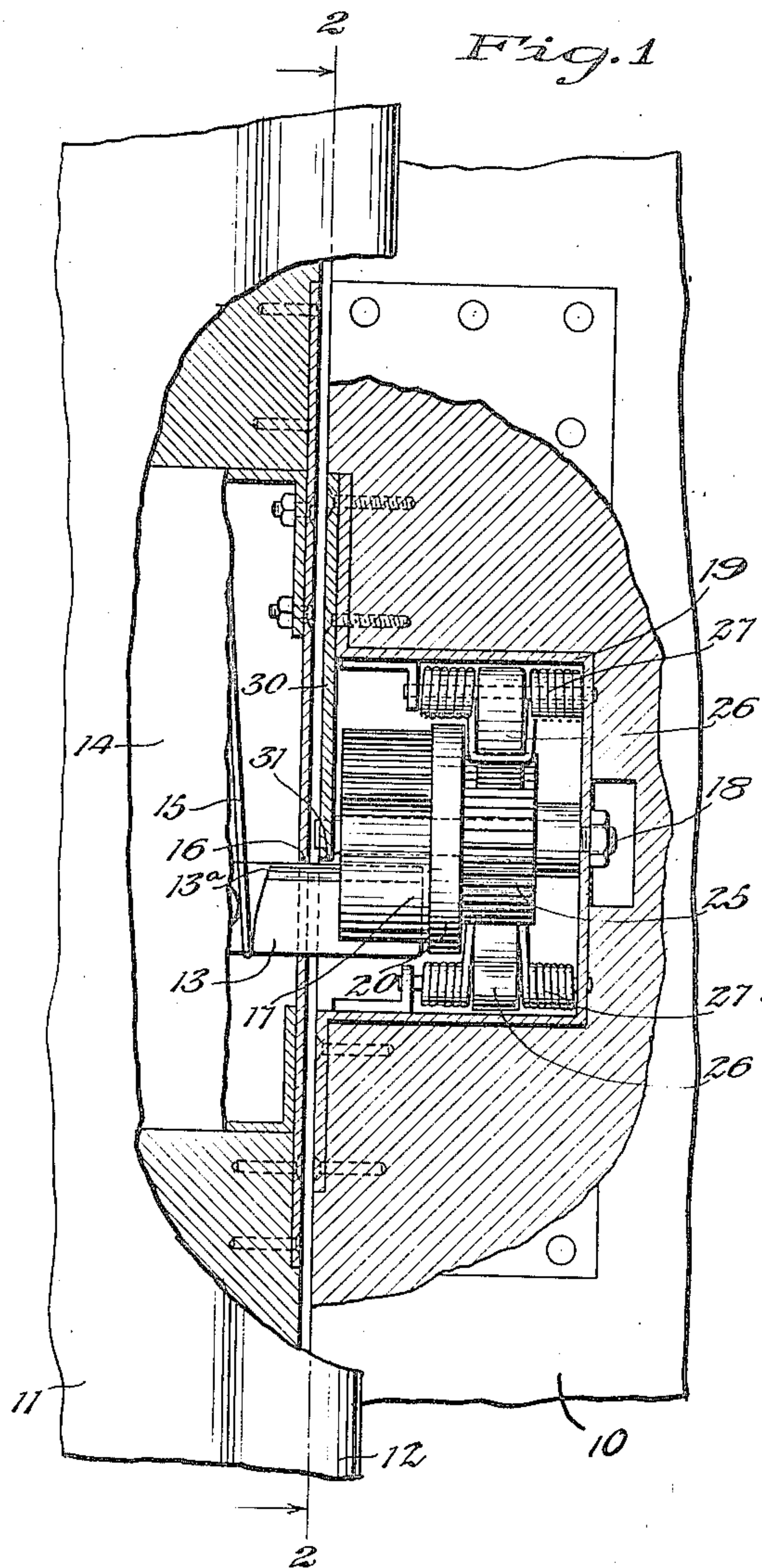
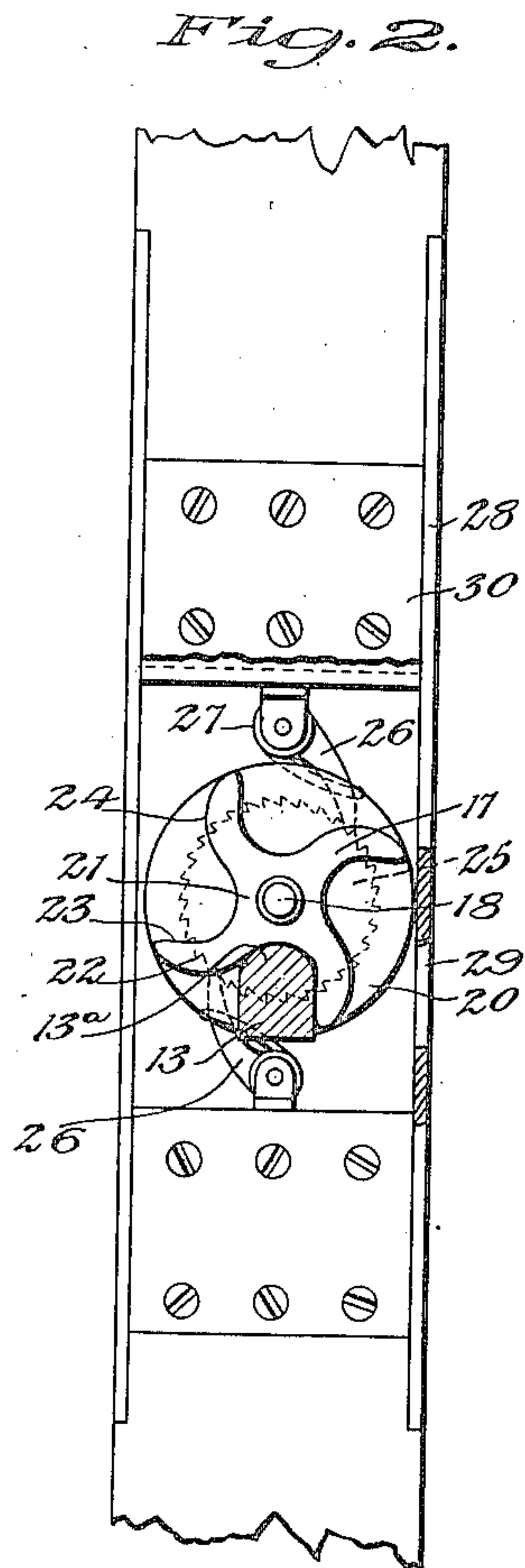
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DOOR LATCH

Filed May 17, 1922



WITNESSES

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DOOR LATCH.

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To all whom it may concern:

Be it known that I, OSCAR D. WILLIS, a citizen of the United States, and a resident of Huntington, in the county of Cabell and State of West Virginia, have invented a new and Improved Door Latch, of which the following is a full, clear, and exact description.

This invention has relation to latches for swinging closures and has particular reference to a door latch especially designed for use in connection with motor cars.

It is a well recognized fact that under the present construction of door latches for motor vehicles, considerable difficulty is experienced in the closing and latching of the door as well as in the release of the latch for opening the same.

It is therefore one of the principal objects of the present invention to produce an improved latch of the character set forth which greatly facilitates the closing and opening of the door without in any way sacrificing the holding qualities of the latch when the door is swung to its closed position.

As a further object the invention contemplates a latch keeper which offers comparatively slight resistance to the closing operation of a door, but which positively prevents opening of the same until the latch bolt has been properly retracted.

As a further object the invention contemplates in combination with a sliding latch bolt, a rotary keeper which functions in the capacity of a door check for gradually arresting the swinging movement of the door to closed position whereby to eliminate slamming of the same.

With the above recited and other objects in view, the invention resides in the novel construction set forth in the following specification, particularly pointed out in the appended claims and illustrated in the accompanying drawing, it being understood that the right is reserved to embodiments other than those actually illustrated herein to the full extent indicated by the general meaning of the terms in which the claims are expressed.

In the drawing—

Figure 1 is a fragmentary side view of a door and door support and jamb equipped with a latch constructed in accordance with the invention, parts thereof being broken

away and shown in section to disclose the underlying structure.

Figure 2 is a fragmentary end view of the door support or jamb with parts broken away and shown in section.

Referring to the drawing by characters of reference, 10 designates the door support casing or jamb and 11 a door or swinging closure which is hingedly associated therewith and designed to be closed thereagainst. The door 11 is provided with the usual protruding flange 12 at its outer free edge which constitutes a stop for limiting the inward swinging movement thereof and which is designed to overlie the edge of the support or casing when the door is in closed position. The latch which constitutes the invention includes a sliding bolt 13 of any approved construction which is mounted for sliding movement within a casing or housing 14 and is normally projected under the influence of a spring 15 outwardly through an opening 16 in the housing 14. The keeper which is designed to co-operate with the latch bolt 13 consists of a rotary nab 17 which is mounted for rotation on a shaft 18 extending longitudinally through the housing 19 within which the keeper nab 17 is arranged. As illustrated the keeper nab includes a disk like base 20 from the forward face of which the hub 21 projects in axial alignment and from which hub a series of radial blades 22 extend. The blades 22 are of arcuate formation providing on their leading faces a concaved surface 23 which merges into a convex surface 24 on the following face of the next adjacent blade. From the opposite or rear face of the disk-like base 20 a ratchet 25 projects in axial alignment with which diametrically opposed pawls 26 coact and function under the influence of the springs 27 to limit the rotation of the keeper nab 17 to one direction only, namely, the movement of the leading or concaved faces of the lowermost blades 22 from the outer side of the door casing or support to its inner side. The outer wall or blade 28 of the keeper housing is provided with a slot 29 disposed in alignment with the path of movement of the latch bolt 13 and the forward end wall 30 of the keeper housing is provided with a communicating slot 31. Preferably the upper edge of the latch bolt 13 is convex as at 13^a to conform to and closely fit the formation of the juncture be-

tween the leading face of one blade and the following face of the next adjacent blade.

In use and operation of the latch, when the door is swung to closed position, the latch bolt 13 will enter the communicating slots 29 and 31 of the keeper casing and will encounter and coact with the following or rear convex face 24 of the blade 22 of the keeper nab which is disposed in alignment with the slots 29 and 31 and in the path of movement of said bolt. As the latch bolt encounters the blade of the nab, the frictional engagement of the pawls 26 with the ratchet under the action of the springs 27 will operate to retard and gradually arrest the movement of the door to eliminate the slam. The latch bolt will effect the rotation of the nab and movement of the blade with which it coacts until in the final position, the following blade is disposed behind the outer side face of the latch bolt. The pawls 26 through their interengagement with the ratchet 25 will prevent retrograde movement of the keeper nab, thus effectively locking or latching the door in its closed position. When it is desired to release the latch bolt from the keeper for the purpose of opening the door the latch is shifted or retracted against the action of its spring 15 in axial relative movement to the blades 22 by means of the usual manipulating handle, not shown.

I claim:

1. The combination with a swinging closure and a retractable latch bolt which is normally projected therefrom, of means on the closure support disposed in the path of movement of the latch bolt for permitting of the free movement of the closure to closed position while the latch bolt is in normally projected position and operating to positively lock the closure against opening with-

out retraction of the latch bolt, said means consisting of a rotary keeper having radial blades disposed in the path of movement of the projected latch bolt, and means for limiting the keeper to rotation in one direction.

2. The combination with a door and door casing, of a latch for retaining the same in closed position comprising a latch bolt projectable from the end of the door, means for normally effecting the projection of said latch bolt therefrom, a keeper carried by the door casing having radial blades disposed in the path of movement of the latch bolt when the door is swung to closed position and movable with said latch bolt for disposing the next adjacent or following blade behind the latch bolt, and means coacting with said keeper for tensioning the rotation in one direction and preventing retrograde movement thereof, as and for the purpose specified.

3. The combination with a door having a latch bolt normally projected from the end thereof and adapted to be manually retracted, of a keeper carried by the door casing comprising a rotary nab having radial blades, one of which is disposed in the path of movement of the latch bolt upon swinging of the door to closed position, means for retarding or tensioning the rotation of said nab comprising a ratchet wheel secured thereto, and spring actuated pawls, said pawls functioning to tension or retard the rotation of the ratchet wheel in one direction and to prevent retrograde movement thereof whereby to retard or gradually bring the door to a stop and whereby to prevent swinging of the door to open position by the disposal of a following blade behind said latch bolt.

OSCAR DELLMONT WILLIS.