

May 9, 1933.

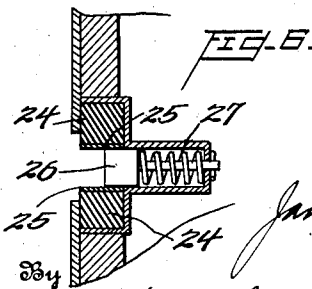
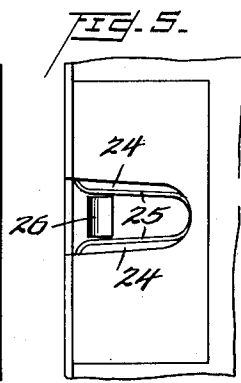
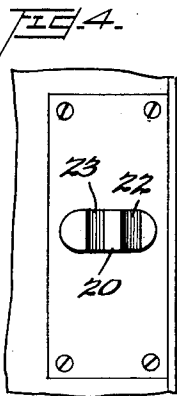
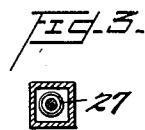
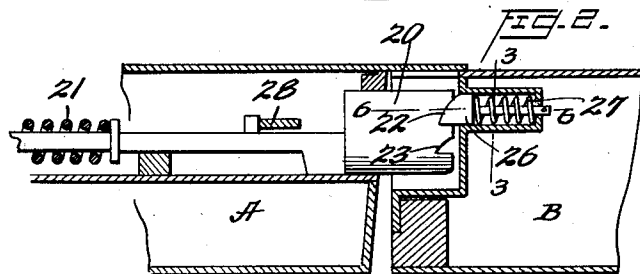
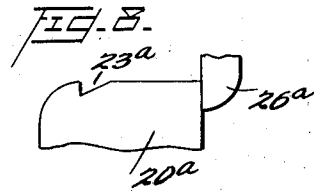
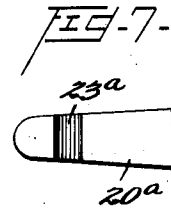
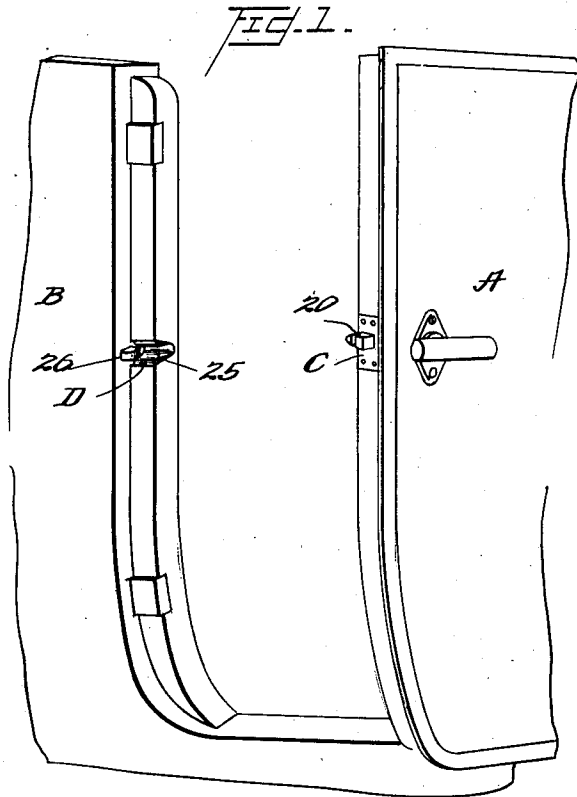
J. A. WATSON

1,908,388

COMBINED LOCK AND DOOR RETAINER

Filed July 9, 1929

2 Sheets-Sheet 1



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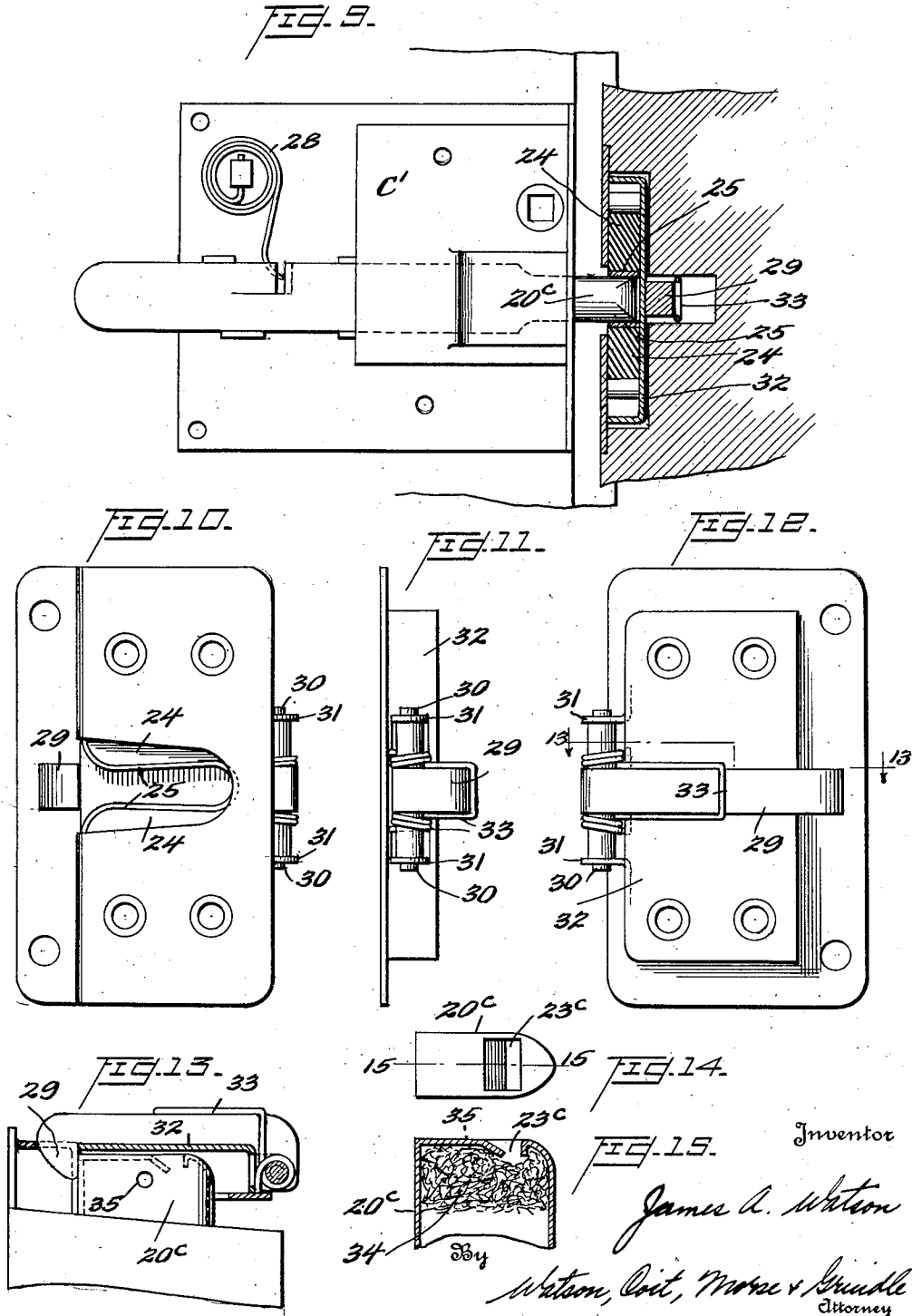
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COMBINED LOCK AND DOOR RETAINER

Filed July 9, 1929

2 Sheets-Sheet 2



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UNITED STATES PATENT OFFICE

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COMBINED LOCK AND DOOR RETAINER

Application filed July 9, 1929. Serial No. 376,965.

The present invention may be termed a combined lock and door retainer for automobile doors. Heretofore it has been customary to provide each door with a lock and striker and also with a two-part retainer, usually called a "dove-tail". This required the mounting of four pieces of hardware on the door and frame for each door. One object of the invention is to reduce the expense of the parts and of fitting the hardware to the door and frame by reducing the number of pieces required. Another object is to provide a lock which may be closed and opened with less effort and which is quite as secure when locked as those at present in use. Other advantages will be apparent from the following description and the accompanying drawings in which:

Figure 1 is a perspective view of an automobile door and frame with the invention applied thereto;

Figure 2 is a sectional view through the lock and dove-tail;

Figure 3 is a section on the line 3—3 of Figure 2;

Figure 4 is a face view of the lock showing the projecting end of the latch bolt;

Figure 5 is a face view of the dove-tail;

Figure 6 is a section on the line 6—6 of Figure 2;

Figure 7 is an end view of a different form of latch bolt;

Figure 8 is a side view of the latch bolt shown in Figure 7;

Figure 9 is a view of another form of lock and dove-tail, the dove-tail being shown in section;

Figure 10 is a face view, Figure 11 an edge view, and Figure 12 a rear view of the dove-tail shown in Figure 9;

Figure 13 is a section on line 13—13 of Figure 12;

Figure 14 is an end view of another form of lock bolt; and

Figure 15 is a section on the line 15—15 of Figure 14.

Referring to the drawings, A indicates a door frame, B a door, C a lock, and D a retainer. The lock may be of any approved type having a spring bolt, the only change re-

quired being in the projecting end of the latch bolt. The retainer or dove-tail may be of the usual type having two opposed resilient jaws or members with a catch or detent added to cooperate with the modified latch bolt to lock the door. Broadly, therefore, the invention consists in modifying the latch bolt so that it will act as a tongue or wedge to cooperate with a dove-tail to support the free side of the door and prevent vibration and in modifying the usual dove-tail so that it will cooperate with the latch bolt to both lock and steady the door. The invention may be embodied in many specific forms, some of which will be presently described.

Referring to Figures 2 to 6, inclusive, 20 indicates the projecting end of the latch bolt which is urged to the position shown by a relatively stiff spring 21. The end 20 of the latch bolt has flat parallel upper and lower faces and a rounded forward edge, as shown in Figure 4. The latch bolt 20 is provided in its end with a locking notch 22 and may be provided with a similar latching notch 23, if desired, to operate as a safety catch.

The retainer or dove-tail D is provided with two opposed resilient jaws of any usual type, those shown being of the type commonly used having rubber blocks 24 faced with metal 25. The bolt end 20 is proportioned to press the resilient jaws outward and fit snugly between them to prevent the door from vibrating.

A catch or detent 26 urged by a spring 27 normally projects from the rear of the retainer between the resilient jaws. The spring 27 is considerably weaker than the latch bolt spring 21, which permits the door to be closed and locked without the heavy slamming action which is now necessary with locks commonly used. The catch 26 is shaped to engage the notches 22, 23.

The operation of the devices above described is as follows: In closing the door, the latch bolt of the lock remains projected to its full extent, as limited by the stop 28, and slides in between the resilient jaws of the dove-tail, thus forming a buffer to absorb shock and a means of preventing rattling and

vibration while running and a support to relieve strain on the hinges. The heavy spring 21 overpowers the lighter spring 27, and the detent 26 is pressed back and then springs
 5 into the locking notch 22 in the bolt 20, securely locking the door. The door is unlocked in the usual way by withdrawing the bolt against the pressure of spring 21, by means of the usual handle or lever, thus freeing
 10 it from the retaining latch 26. The door may then be opened freely as the usual operation of pulling the tongue or "wedge" out of the dove-tail after unlocking is obviated. It will thus be observed that, while the door
 15 may be closed without the usual effort, it remains securely locked under the action of the heavy bolt spring. It will also be observed that by combining the lock and dove-tail the operations of installing a two-part separate
 20 dove-tail or retainer are obviated.

In Figures 7 and 8 there is shown the end of a latch bolt 20^a which is slightly wedge-shaped to cause it to fit tightly between the resilient jaws of the dove-tail. The catch
 25 26^a engages the notch 23^a when the door is partially closed and engages the rear edge of the bolt, as shown, when the door is fully closed and locked.

In Figures 9 to 13, inclusive, I have shown
 30 a modified form of latch bolt in connection with the dove-tail or retainer. The lock C' is of an ordinary commercial type excepting as to the projecting portion of the latch bolt 20^c, to be presently described. The stout bolt
 35 spring 28 is of customary form. The detent 29, which operates in a plane between the resilient jaws, is provided with pivots 30 mounted in bearings 31, which may be struck up from the metal of the rear edge of the
 40 casing 32 which houses the resilient jaws of the dove-tail. The detent is in the form of a T-shaped lever, and it is urged to its normal position by a suitable spring 33. As the detent lies close to the back of the retainer
 45 casing, this form of combined latch bolt and dove-tail is especially useful in sedans and other vehicles in which two adjacent doors close upon a center post of limited cross-section. When the center post is too narrow to
 50 permit the dove-tails to be placed opposite one another, they may be staggered and the bolts of the right and left hand locks correspondingly staggered. As will be noted, the end of detent 29 operates through an opening in
 55 the back of casing 32. The operation of the devices shown in Figures 9 to 13 is the same in principle as that of the devices shown in Figures 2 to 6.

In Figures 14 and 15 there is shown in
 60 detail the projecting end of the latch bolt 20^c. In this form the bolt end is hollow and provided in its face with an opening 23^c to receive the detent 29 to serve as a preliminary or safety catch. In this form the flat sides
 65 of the bolt are unbroken, thus providing for

maximum surface contact with the resilient jaws. This hollow bolt is preferably packed with felt or other fibrous material 34 and provided with oil holes 35. By injecting a small supply of oil occasionally through the holes 23^c or 35, friction and wear between the latch bolt and the metal facings 25 may be reduced to a minimum.

Having thus described the invention, what is claimed as new and desired to be secured by Letters Patent is:

1. In a combined lock and dove-tail for automobile doors, a dove-tail comprising opposed jaws, means to resiliently oppose separation of said jaws and a spring-operated, pivotally mounted detent or keeper located in a plane between said jaws, in combination with a device adapted to enter between and be gripped by said jaws and to be locked in said gripped position by said detent or keeper.

2. In an automobile door locking device, a dove-tail comprising spaced opposed jaws, means yieldably opposing separation of said jaws, and a detent or keeper located in a plane between said jaws, said detent or keeper being pivotally connected at one edge of said dove-tail.

3. In an automobile door locking device, a dove-tail comprising spaced opposed jaws, means to resiliently oppose separation of said jaws, and a detent or keeper located in a plane between said jaws, said detent or keeper being pivotally mounted at one edge of said dove-tail and having its free end near the opposite edge thereof.

4. The combination with a door lock having a latch bolt adapted to cooperate with a dove-tail and a spring for projecting the bolt, of a dove-tail comprising two opposed members adapted to receive between them the projected latch bolt of the lock, means to resiliently oppose separation of said members, and a spring-operated device arranged in a plane between the resilient members for engaging the projected latch bolt to prevent the door from opening.

5. The combination with a door lock having a latch bolt adapted to cooperate with a dove-tail and a spring for projecting the bolt, of a dove-tail comprising two opposed members adapted to receive between them and engage the projected latch bolt of the lock, means resiliently opposing separation of said members, and a spring-operated device arranged in a plane between the resilient members for engaging the projected latch bolt to prevent the door from opening, the spring operating said device being weaker than the latch bolt projecting spring.

6. A combined lock and dove-tail comprising a dove-tail having spaced opposed jaws, means to resiliently oppose separation of said jaws, and a detent in a plane between said jaws in combination with a lock having a latch bolt shaped to frictionally engage said

jaws and also shaped to engage the detent to positively hold the door in closed position and prevent vibration thereof.

7. A combined lock and dove-tail comprising a dove-tail having spaced opposed jaws, means to resiliently oppose separation of said jaws, and a detent in a plane between said jaws in combination with a lock having a spring-operated latch bolt shaped to frictionally engage said jaws and also shaped to engage the detent to positively hold the door in closed position and prevent vibration thereof.

8. A combined lock and dove-tail comprising a dove-tail having spaced opposed jaws, means to resiliently oppose separation of said jaws, and a spring-operated detent operating in a plane between said jaws in combination with a lock having a spring-operated latch bolt shaped to enter between and frictionally engage said jaws and also shaped to be engaged by the detent to positively hold the door in closed position and prevent vibration thereof.

9. An automobile door lock having a retractable spring-operated latch bolt, the projecting end of the latch bolt having a rounded forward edge and substantially flat upper and lower surfaces adapted to enter between and frictionally engage the resilient jaws of a dove-tail, said latch bolt also having at its free end a vertical surface adapted to engage a detent.

10. In a device of the class described, the combination with a retainer comprising spaced elements, means for yieldingly opposing separation of said elements, and a detent, of a device adapted to enter between said elements so as to be resiliently gripped thereby and to be locked in such position by said detent.

11. The combination for use with a door frame member and a swinging door member, of a retainer adapted to be mounted on one of said members and a lock adapted to be mounted on the other member, the retainer including spaced elements and means yieldingly opposing separation of said elements, and the lock including a retractable normally projected latch bolt adapted to enter between said elements and to be resiliently gripped therebetween when the door is swung to closed position so that vibration of the door in its own plane is prevented, retraction of the latch bolt resulting in withdrawal of the same from between said elements and rendering the door freely openable, the latch bolt being also provided with a tooth and the retainer with a detent to engage the same to positively lock the door in closed position, the tooth being also withdrawn from engagement with the detent when the latch bolt is retracted.

12. The combination for use with a door frame member and a swinging door member,

of a retainer adapted to be mounted on one of said members and a lock adapted to be mounted on the other member, the retainer including spaced elements and means yieldingly opposing separation of said elements, and the lock including a retractable normally projected latch bolt adapted to enter between said elements and to be resiliently gripped therebetween when the door is swung to closed position so that vibration of the door in its own plane is prevented, retraction of the latch bolt resulting in withdrawal of the same from between said elements and rendering the door freely openable, the latch bolt being also provided with a series of teeth and the retainer with a detent positioned to be successively engaged by said teeth when the door is moved to closed position, retraction of the latch bolt also effecting disengagement of the detent and tooth engaged thereby.

13. In a device of the class described, the combination with a retainer including spaced elements and means for yieldingly opposing separation of said elements, of a device having a single member adapted to enter between, and to engage, both of said elements and be resiliently gripped therebetween, said retainer having additional portions which positively interlock with said member when said member is moved into gripped position.

14. In a device of the class described, the combination with a retainer including spaced elements and means for yieldingly opposing separation of said elements, of a device having a single member adapted to enter between, and to engage, both of said elements upon being moved in one direction and to be automatically gripped therebetween, said member being otherwise unsupported by said retainer and means for withdrawing said member from engagement with said elements by movement in a different direction.

15. In a device of the class described, the combination with a retainer including spaced elements and means for yieldingly opposing separation of said elements, of a device having a single member adapted to enter between said elements upon being moved in one direction, to be resiliently gripped therebetween but being otherwise unsupported by said retainer, and being adapted to be withdrawn from engagement with said elements by movement in a different direction, said member and retainer also having mutually engageable portions which positively interlock when said member is moved in one direction into gripped position, which portions are disengaged when said member is withdrawn from engagement with said elements in a different direction.

16. In a combined lock and dovetail for doors, in combination, wedge receiving means having spaced wedge engaging elements bodily movable relatively to each other and at least one of which is resiliently supported,

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wedging means adapted to enter between said elements and to be gripped thereby, and mechanism associated with one of said aforesaid means and adapted to engage the other such means to lock the wedging means in gripped position.

17. In a combined lock and dovetail for doors, in combination, wedge receiving means having spaced wedge engaging elements bodily movable relatively to each other and at least one of which is resiliently supported, wedging means adapted to enter between said elements and to be gripped thereby, a movable locking member associated with one of said means and adapted to engage the other to lock the wedging means in gripped position, and a resilient member normally urging said locking member toward locking position.

18. In a combined lock and dovetail for doors, in combination, wedge receiving means having spaced wedge engaging elements bodily movable relatively to each other and at least one of which is resiliently supported, wedging means adapted to enter between said elements and to be gripped thereby, a member pivotally mounted upon one of said means and adapted to engage the other to lock the wedging means in gripped position, and a resilient member normally urging said locking member toward locking position.

19. In a combined lock and dovetail for doors, in combination, wedge receiving means having spaced wedge engaging elements bodily movable relatively to each other and at least one of which is resiliently supported, wedging means adapted to enter between said elements and to be gripped thereby, and a member associated with the wedge receiving means and movable into and out of the path of movement of the wedging means, said member being adapted to lock the wedging means in gripped position.

20. In a combined lock and dovetail for doors, in combination, a latch mechanism having a retractable wedge-shaped latch bolt, and a dovetail having spaced wedge receiving elements adapted to receive between them, and frictionally grip, said latch bolt, said latch bolt and dovetail having mutually engaging parts which automatically interlock when the latch bolt is in gripped position, which parts are automatically disengaged when the latch bolt is retracted.

In testimony whereof I hereunto affix my signature.

JAMES A. WATSON.