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E. J. WIESE

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DOOR LOCK STRIKER AND BUMPER

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2 Sheets-Sheet 2

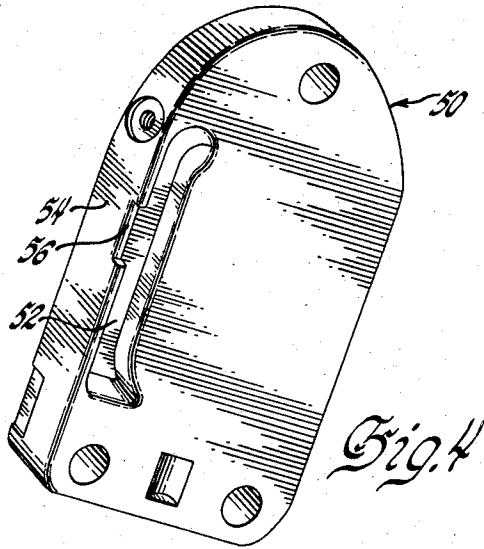


Fig. 4

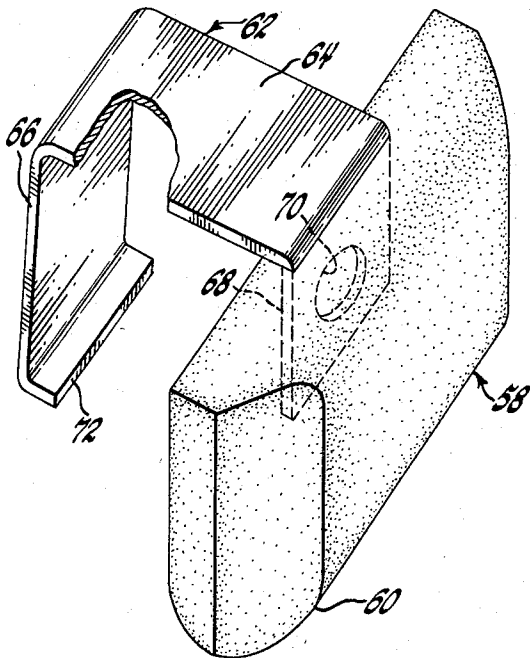


Fig. 5

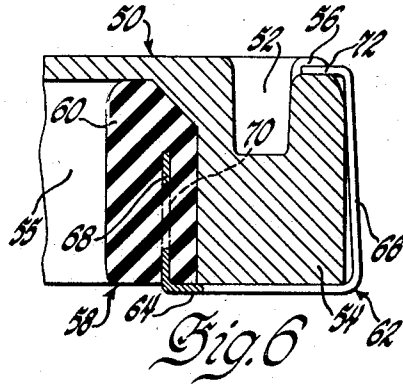


Fig. 6

INVENTOR
Emil J. Wiese
BY
Paul J. Patrick
ATTORNEY

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DOOR LOCK STRIKER AND BUMPER

Emil J. Wiese, Flint, Mich., assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware

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This invention relates to a door lock striker and bumper, and more particularly to a striker and bumper combination for an automobile door lock.

One feature of the invention is that it provides an improved door lock striker and bumper combination; another feature of the invention is that it provides a novel door holding and anti-rattle device; a further feature of the invention is that it includes a bumper for a door lock which may be installed upon manufacture of the lock striker or which may be mounted on the lock striker after a period of use of the striker without replacement of the striker or any other parts or the necessity for additional parts; yet another feature of the invention is that it provides a combination striker and bumper including a striker with a bolt-receiving recess and a spring clip mounted on the striker carrying a resilient bumper in the recess; and still another feature of the invention is that the spring clip has an opening into which the material of the flexible bumper flows to prevent removal of the bumper from the clip.

Other features and advantages of the invention will be apparent from the following description and from the drawings, in which:

Fig. 1 is an elevational view, partly in section, of automobile door lock structure including a bolt and its housing in engagement with a striker upon which is mounted one embodiment of a bumper according to this invention;

Fig. 2 is an enlarged fragmentary transverse section through the striker taken on the plane 2—2 of Fig. 1;

Fig. 3 is an enlarged isometric view of the bumper of Fig. 1 removed from the striker, parts being broken away to show underlying structure;

Fig. 4 is a rear perspective view of another striker which may be used with the automobile door lock structure of Fig. 1;

Fig. 5 is an enlarged isometric view of another embodiment of a bumper according to this invention which is adapted to be mounted on the striker of Fig. 4, with part of the bumper being broken away to show underlying structure; and

Fig. 6 is a sectional view corresponding to Fig. 2 and showing the mounting of the bumper of Fig. 5 on the striker of Fig. 4.

In conventional automobile door lock construction, the automobile door carries a lock having a bolt projecting from the jamb face of the door for latching engagement with a striker carried by a body pillar. Wedging means to maintain the bolt in engagement with the striker and hold the door against vertical movement may comprise a bolt housing which engages a yieldable shoe on the striker.

This invention provides a novel combined striker and bumper which acts to hold the door tightly and which eliminates rattles. While anti-rattle devices on automobile doors are old, the present invention includes two important advantages not found in the prior art. The first is that the bumper and striker are so constructed

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that the anti-rattle bumper may be assembled on the striker when the automobile is manufactured or it may be mounted on the striker any time after manufacture of the car without replacement of the striker or any other parts or the necessity for additional parts. The second advantage is that the bumper is located at a position where it engages the bolt housing so that it is more effective to hold the door and to prevent rattles than it would be if it was located remotely from the interengaging striker and door lock parts.

Referring now more particularly to Figs. 1 through 3 of the drawings, one embodiment of this invention will now be described. The body pillar wall 10 of an automobile supports a striker 12 which is secured to the wall by screws 14. The striker is generally C-shaped, having spaced latching and wedging portions connected by a strut with the space between said portions forming a bolt-receiving recess. The upper arm of the C-shaped striker mounts a sliding shoe or wedge 16 which slides on a pin 18, being urged by a spring 20 outwardly or to the left as the parts appear in Fig. 1. The lower arm of the striker carries a toothed insert 22 having a pair of bolt engaging teeth 24. A strut 26 connects the upper and lower arms of the striker and defines the rear wall of a bolt-receiving recess 28. A web 30 extends across the back side of the striker to strengthen the device.

A rotatable bolt 32 is carried by the automobile door, the bolt turning on a shaft 34 mounted in a bolt housing member 36 which projects from the jamb face of the door. When the door is closed, the teeth of the rotatable bolt ride over the striker teeth 24 while the top surface of the bolt housing 36 engages the sliding shoe 16 to wedge the door against vertical movement. The bolt is detented by conventional door lock means against counterclockwise rotation to prevent the door from being opened, and in the striker illustrated, the lower portion of the bolt housing lies back of the striker teeth to prevent separation of the bolt and striker in directions longitudinal of the vehicle.

The parts are so proportioned that the inner part 36a of the bolt housing is spaced from the strut 26 since it would damage the striker and cause excessive noise in operation if the bolt housing struck the strut 26 when the door was closed.

A novel bumper device designated generally as 38 is mounted on the striker for engagement with the bolt housing to hold the door tightly and to prevent rattling. This bumper device includes a U-shaped spring clip having a base 40a, a gripping arm 40b and a bumper retaining arm 40c. The gripping arm 40b has barbs 42 bent therefrom at each side for frictional engagement with the strut 26. A resilient rubber block 44 is mounted on the arm 40c of the spring clip, preferably being molded integrally thereon. As shown in Figs. 2 and 3, the arm 40c has a hole 46 through which the rubber of the integrally molded bumper extends to retain the bumper on the arm. The spring clip and bumper subassembly is so designed that the spring clip may be mounted on the strut 26 with the bumper engaging one side of the strut and the barbs 42 engaging the other side so that the barbs provide a frictional retaining means. The bumper is of such thickness that it is engaged by the bolt housing portion 36a when the parts are in the normal door closed position illustrated in Fig. 1. Since the bumper engages directly with the bolt housing, it is at its most effective location for preventing rattles. The striker and bumper combination is so constructed that the bumper subassembly may be mounted on the striker strut during manufacture of the automobile, or, if desired, the bumper subassembly can be mounted at any subsequent time without replacement of the striker or other parts or the necessity for additional parts. This

feature of my invention is of prime importance in the mass production of automobiles. Furthermore, the friction retention permits the bumper subassembly to be readily removed for repair or replacement.

Referring now particularly to Figs. 4, 5 and 6 of the drawings, another embodiment of this invention will be described. The striker 50 of Fig. 4 is substantially the same as the striker 12 of Fig. 1, except that the striker 50 includes an elongated groove 52 opening to the rear thereof and located within the strut 54 which joins the upper and lower arms of the striker and forms therewith the bolt receiving recess 55, Fig. 6, with the strut defining the rear wall of the recess. The outer wall of groove 52 is provided with a rectangularly shaped notch 56 intermediate the ends thereof. The provision of the groove 52 is common in presently known and used strikers in order to reduce the weight of the striker. It will be noted that the bumper device 38 can be used with equal success on strikers which may or may not include the groove 52. The front portion of striker 50 is the same as the front portion of striker 12 as shown in Fig. 1 and previously described. No further description of the front portion of striker 50 is therefore believed necessary.

The bumper device 58, which is adapted to be mounted on the striker 50, is substantially the same as the bumper device 38 of Fig. 3, except that the retention means for the bumper device 58 is different. The bumper device 58 includes a resilient rubber block 60 and a U-shaped spring clip 62 having a base 64, a gripping arm 66 and a bumper retaining arm 68 provided with a hole 70 through which the rubber of the integrally molded bumper extends to retain the bumper on the arm. The bumper gripping arm 66 is provided with a laterally extending terminal 72. As can be seen in Fig. 6, when the bumper device 58 is mounted on the striker 50, the terminal 72 of the gripping arm 66 extends within the notch 56 in the outer wall of groove 52 to retain the bumper device on the striker, with the gripping arm 66 of the clip engaging one side of strut 54, the rubber block 60 fitting within the bolt receiving recess 55 and engaging the opposite side of the strut, and the base 64 of the clip engaging an intermediate side of the strut. The bumper device 58 operates in the same manner as the bumper device 38, as previously described.

Since only the opening of notch 56 is closed by the body pillar wall of the automobile when the striker is mounted thereon, the terminal 72 of the gripping arm may be fitted within the notch regardless of whether the striker is disassembled from the body pillar wall or is assembled thereto. When the striker is secured to the body pillar wall and the bumper device is mounted on the striker, the bumper device may be easily removed for repair or replacement by inserting a wedging tool between the gripping arm 66 and the adjacent side of the striker to pry the terminal 72 of the gripping arm out of notch 56. Thus, both embodiments of this invention provide an improved door lock striker and bumper combination which may be installed upon manufacture of the lock striker or upon existing lock strikers without replacement of the striker or any other parts or the necessity for additional parts.

While I have shown and described two embodiments of my invention, it is capable of many modifications. Changes, therefore, in the construction and arrangement may be made without departing from the spirit and scope of the invention as set forth in the appended claims.

I claim:

1. A door lock striker and bumper combination, including: a striker formed with a recess having bolt holding means therein, said striker having a generally vertical strut forming a wall of said recess, a resilient bumper mounted on said strut, said bumper having a plane surface

facing into said recess, and a bolt housing having a bolt movably mounted therein, said bolt housing being adapted to enter said recess so that the bolt engages said bolt holding means, said housing having a straight flange extending generally parallel to the plane surface of said bumper and abutting said surface over substantially the entire length thereof when the bolt is in engagement with the bolt holding means.

2. A door lock striker and bumper combination, including: a striker formed with a recess having bolt holding means therein, said striker having a generally vertical strut forming a wall of said recess, a spring clip mounted on said strut, a resilient bumper on said clip in the recess, said bumper having a plane vertical surface facing into said recess, and a bolt housing having a bolt movably mounted therein, said bolt housing being adapted to enter said recess so that the bolt engages said bolt holding means, said housing having a straight vertical flange extending parallel to the plane surface of said bumper and abutting said surface over substantially the entire area thereof when the bolt is in engagement with the bolt holding means.

3. A door lock striker and bumper combination, including: a striker having spaced latching and wedging portions which face each other and are connected by a vertical strut, the space between said portions forming a bolt-receiving recess and the strut defining a wall of said recess, a resilient bumper mounted on said strut in the recess, said bumper having a plane vertical surface facing into said recess, and a bolt housing having a bolt movably mounted therein, said bolt housing being adapted to enter said recess so that the bolt engages said latching portion, said housing having a plane generally horizontal portion for engaging said wedging portion of the striker and a straight vertical flange depending from said housing portion and extending generally parallel to the plane surface of said bumper and abutting said bumper surface over substantially the entire area thereof when the bolt is in engagement with the latching portion.

4. A door lock striker and bumper combination, including: a striker having latching and wedging portions which face each other and are connected by a strut, the space between said portions forming a bolt-receiving recess and the strut defining a wall of said recess, a spring clip mounted on said strut, a resilient bumper on said clip in the recess, said bumper having a plane vertical surface facing into said recess, and a bolt housing having a bolt movably mounted therein, said bolt housing being adapted to enter said recess so that the bolt engages said latching portion, said housing having a plane generally horizontal portion for engaging said wedging portion of the striker and a straight vertical flange depending from said housing portion and extending generally parallel to the plane surface of said bumper and abutting said bumper surface over substantially the entire area thereof when the bolt is in engagement with the latching portion.

5. Apparatus of the character claimed in claim 4, wherein the bumper comprises a rubber block molded on one arm of the clip, and wherein said clip has another arm having a barb in frictional engagement with said strut.

6. Apparatus of the character claimed in claim 4, wherein said strut has an opening in one wall, and wherein one arm of said clip has a flange portion fitting within said opening to retain the clip on the strut.

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