OPIC
Office de la propriété intellectuelle du Canada

CIPO
Canadian Intellectual Property Office

(12) (19) (CA) **Brevet-Patent**

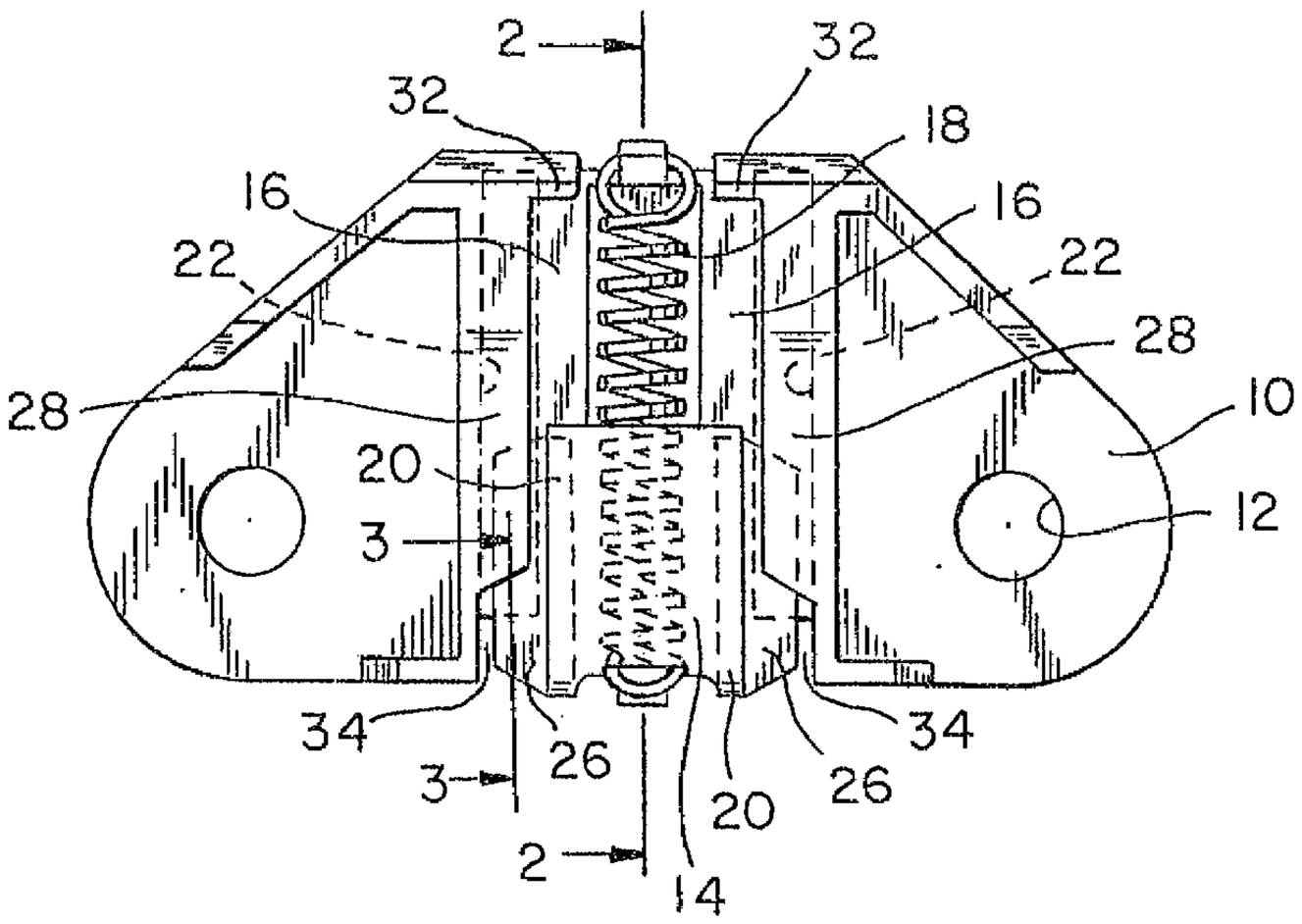
(11) (21) (C) **2,023,755**
(22) 1990/08/22
(43) 1991/04/13
(45) 2000/06/20

(72) Flowers, Thomas A., US
(72) Schubring, Gary L., US
(72) Elward, Theodore E., US
(73) Emhart Industries, Inc., US

(51) Int.Cl.[5] E05D 7/00
(30) 1989/10/12 (420,799) US

(54) **CALE ANTIVIBRATILE**

(54) **ANTI-RATTLE WEDGE ASSEMBLY**



(57) A wedge assembly to be secured to a vehicle door to prevent door rattling during vehicle operation. A slide element is captured by a base plate and stops are provided to prevent inadvertent disassembly.

2023755

WEDGE ASSEMBLY

ABSTRACT

A wedge assembly to be secured to a vehicle door to prevent door rattling during vehicle operation. A slide element is captured by a base plate and stops are provided to prevent inadvertent disassembly.

ANTI-RATTLE WEDGE ASSEMBLY

The present invention relates to wedge assemblies which are used to reduce vehicle user squeak and rattle complaints due to door and door latching system vibrations.

Vehicle doors are conventionally pivotally mounted to a vehicle frame and latched closed. During operation, the doors may rattle and the generated stress tends to cause sheet metal fatigue at the hinge and latch locations. Cracking and stress marks may result with the likelihood of corrosion increasing. Wedge assemblies are intended to prevent door vibrations and to thereby protect the hinge and latch mechanisms from deterioration.

Wedge assemblies are subject to manipulation by the installer and are occasionally damaged prior to installation. It is accordingly an object of the present invention to provide a wedge assembly which is designed to prevent damage prior to installation.

Other objects and advantages of the present invention will become apparent from the following portion of this specification and from the accompanying drawing which illustrates in accordance with the mandate of the patent statutes a presently preferred embodiment incorporating the principles of the invention.

According to a broad aspect of the present invention there is provided a wedge assembly which comprises a base plate to be secured to the frame of a door. The base plate includes a pair of spaced parallel cam surfaces. A pair of spaced parallel slots are situated outwardly of the cam surfaces and are defined in a base portion of the base plate. A pair of capturing flanges overlie the spaced parallel slots. The wedge assembly also has a slide element to be displaced from a free state location to an advanced location. The slide element includes a pair of spaced parallel cam follower surfaces for engaging with the cam surfaces, and a pair of flanges, to be captured below the

capturing flanges. The slide element also has stop means which project downwardly from the slide element flanges for location within the slots. The slots are selectively sized so that the displacement of the slide element towards the advanced location will be stopped by engagement of the stop means and the base portion of the base plate. The wedge assembly also has a spring means which interconnects the base plate and the slide element.

REFERRING TO THE DRAWING

Figure 1 is a top view of a wedge assembly made in accordance with the teachings of the present invention;

Figure 2 is a view of the wedge assembly taken along lines 2-2 of figure 1; and

Figure 3 is a view of the wedge assembly taken along lines 3-3 of figure 1.

The wedge assembly has a base plate 10 which has a pair of holes 12 permitting connection by bolts or the like to the door of a vehicle. The base plate 10 supports a movable slide element 14 which is slideable along a pair of spaced parallel and inclined cam surfaces 16 defined on the base plate. The slide element is pulled toward its start position, at the left end of the cam surfaces in figure 2 by a spring element 18 and can be forced down the cam surfaces against the action of the spring by the vehicle surface which it strikes when the door is closed.

The slide element 14 is generally U-shaped (upside down) with the bottom surfaces 20 comprising the cam followers. Elongated slots 22 are defined in the base plate 10 in which stop elements 24 are located. These stop elements extend downwardly from flanges 26 that extend horizontally outwardly from the U-shaped body and are displaceable within the slots 22. The flanges 26 are trapped by overlying inwardly extending base plate flanges 28. Movement of the wedge element to the left (to the start position) is stopped by engagement of the rear vertical surfaces 30 of the wedge element with inwardly extending base plate projectories 32 and forward movement is limited by the engagement of each stop 24 with the portion 34 of the base plate at the forward end of its slot 22.

To permit assembly, the overlying flanges 28 terminate short of the forward of the forward end of the slots and are beveled 36 inwardly along the lower front edge. As shown in figure 3, the slide element can be pivoted into its trapped operating location (the front portion of the overlying flanges 28 will be slightly deflected).

As can be seen from figure 2, the ends of the spring are captured by J-shaped catches 40 which open in the direction opposite to the removal direction for the ends of the spring. These J-shaped hooks or catches minimize the likelihood that the spring can come off a result of snapping the wedge element.

CLAIMS:

1. A wedge assembly comprising:

a base plate to be secured to the frame of a door, including:

a pair of spaced parallel cam surfaces,

a pair of spaced parallel slots situated outwardly of said cam surfaces, defined in a base portion of said base plate, and

a pair of capturing flanges overlying said spaced parallel slots;

a slide element to be displaced from a free state location to an advanced location including:

a pair of spaced parallel cam follower surfaces for engaging with the said cam surfaces,

a pair of flanges, to be captured below said capturing flanges,

stop means projecting downwardly from said slide element flanges for location within said lots, said slots being selectively sized so that the displacement of said slide element towards said advanced location will be stopped by engagement of said stop means and said base portion of said base plate, and

spring means interconnecting said base plate and said slide element.

2. A wedge assembly according to claim 1, wherein the ends of said base plate flanges proximate the engaged base portion at the ends of the slots terminate rearwardly therefrom to permit assembly of the wedge assembly.

3. A wedge assembly according to claim 2, wherein the lower front edges of said base plate flange ends are beveled to facilitate assembly.

FIG. 1

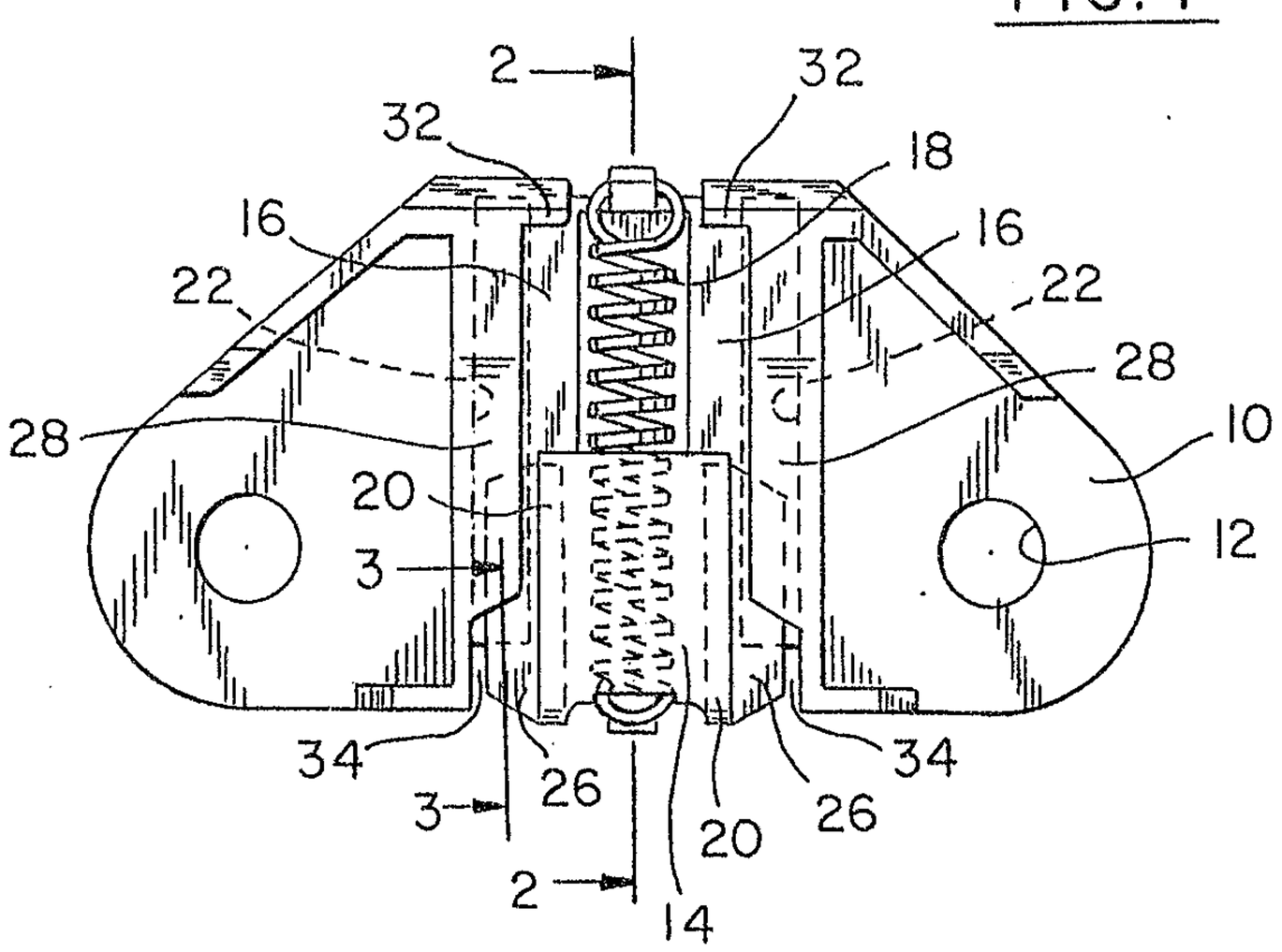


FIG. 2

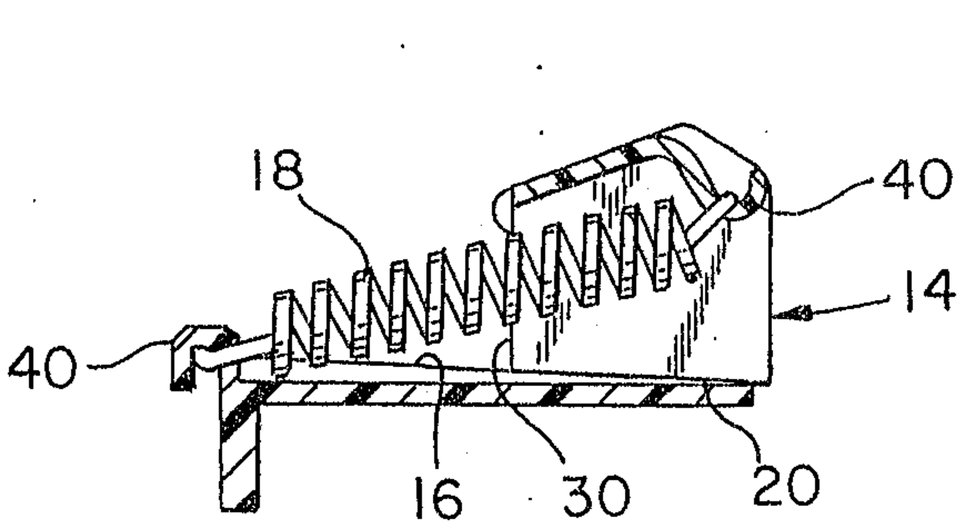
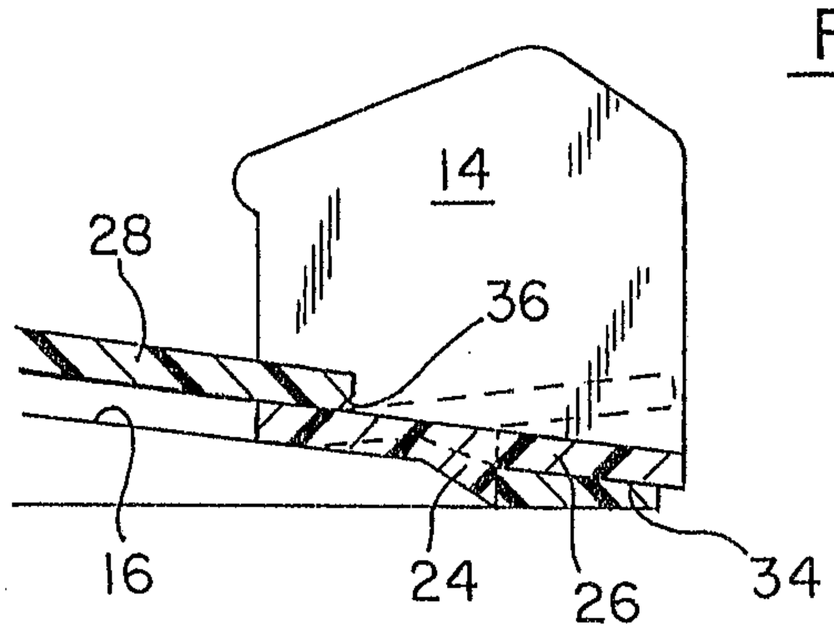


FIG. 3



PATENT AGE...

Audrey Ojibay Kenaette