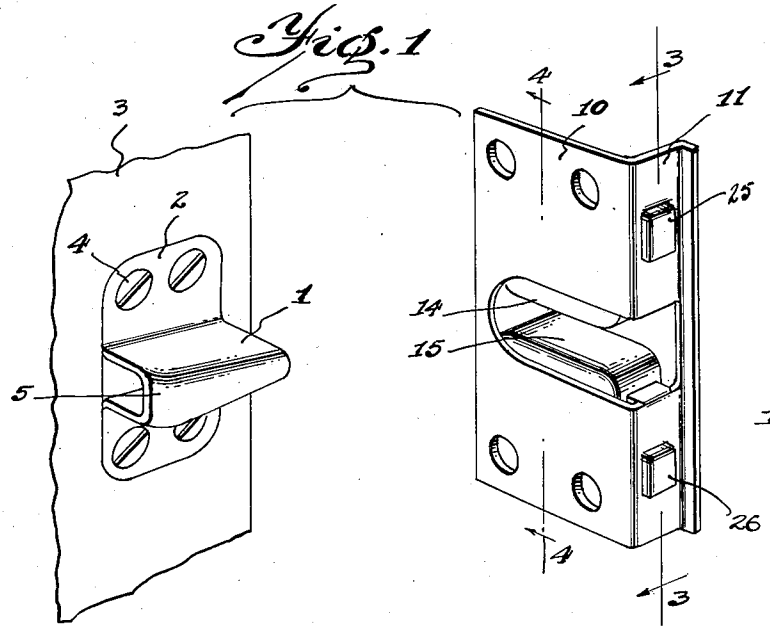
Dec. 24, 1929. T. P. ARCHER ET AL 1,740,939

DOOR BUMPER

Filed July 17, 1926 2 Sheets-Sheet 1

Fig. 1



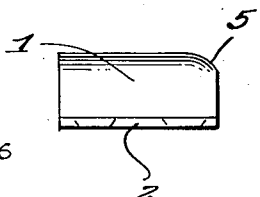
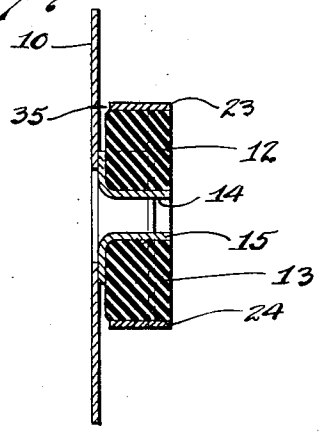


Fig. 2

Fig. 4



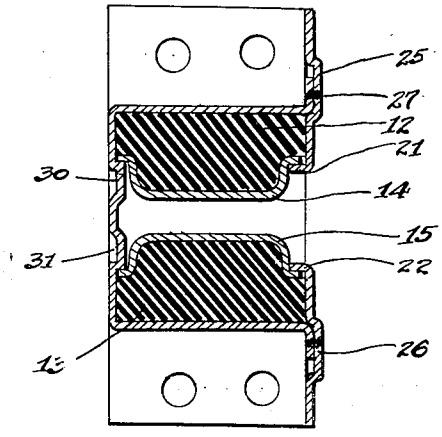


Fig. 3

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DOOR BUMPER

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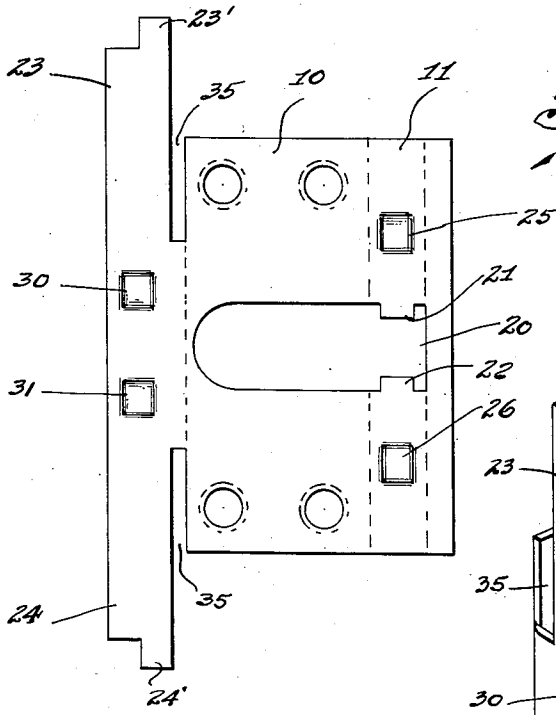

Fig. 5

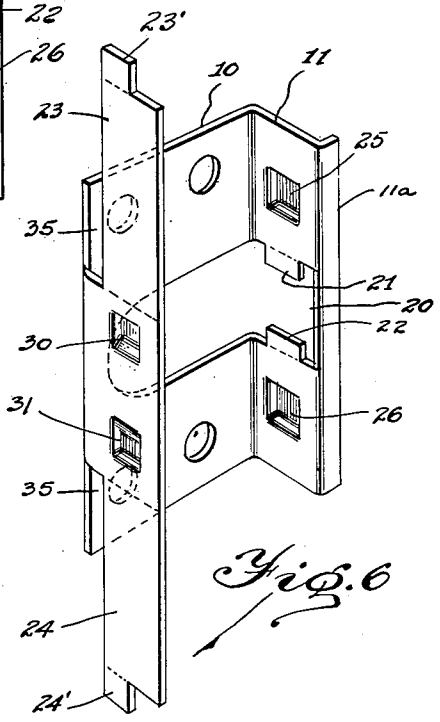

Fig. 6

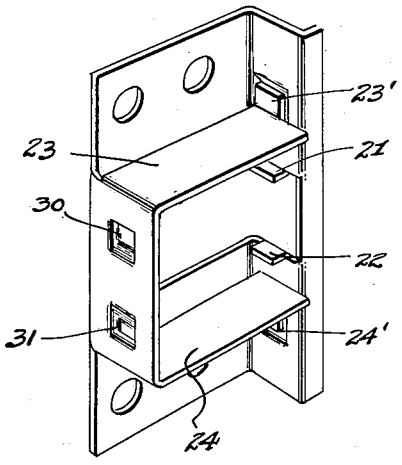

Fig. 7

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UNITED STATES PATENT OFFICE

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DOOR BUMPER

Application filed July 17, 1926. Serial No. 123,068.

This invention relates to door bumpers and has to do more particularly with bumpers which are known to the trade as dove tails.

According to this invention, a bumper is provided which will not interfere with the operation of the door, and especially the opening of the door. The wedge member is shaped so as to readily permit the opening of the door, even though an obstruction of some kind should project beyond the face of the door post into the path of a wedge. The socket member, which is secured to, and imbedded in the door post, is constructed of a single piece of sheet metal, and this member is of such a novel design that it requires only a minimum of cutting away of the door post in order to mount it thereon. The manufacture of this member is simplified and rendered comparatively inexpensive by the manner in which the metal of the single sheet is cut, so that retaining lugs can be formed, and also the manner in which the sheet is distorted or struck out, so as to provide other retaining lugs, thus eliminating the use of multiplicity of parts for such purposes. The invention affords a particularly strong, and durable socket member, and side walls of the member, which are formed by bent portions of the sheet metal, are fixed to an adjacent wall in a secure manner which aids in rendering the socket strong.

A bumper constructed in accordance with the invention is shown in the accompanying drawings wherein:

Fig. 1 is a perspective view of both the wedge or striker member and the socket member.

Fig. 2 is a side elevation of the wedge or striker member.

Fig. 3 is a sectional view taken on line 3—3 of Fig. 1.

Fig. 4 is a sectional view taken on line 4—4 of Fig. 1.

Fig. 5 is a plan of the blank of sheet metal from which the socket member is constructed.

Fig. 6 is a perspective view of the blank after certain bending operations have been performed in the making of the socket member.

Fig. 7 is a perspective of the socket member in its completed form, without the resilient blocks and wear plates.

The wedge of the dove tail bumper is indicated in Fig. 1 and it consists of a wedge portion 1 having flanges 2, which are secured to a door stile 3 as by means of screws 4 extending through holes in the flanges. This wedge may be a stamping made from a single sheet of material, and the wearing surfaces of the wedge member which may be hardened if desired. As shown in Figs. 1 and 2, the end of the wedge member is depressed or otherwise rounded as at 5. This is to prevent catching of the wedge on any loose or projecting edge of wood or metal on the door post. Such a condition may arise in case the door should be set too close to the post and, in opening the door, any projecting piece of wood or metal will not catch the wedge member and prevent opening of the door, but will ride over the slanting suface povided by the depressed or turned over edge of the wedge member.

The socket member of the bumper, is indicated in its completed form in Fig. 1. This socket consists of a plate-like body portion 10 which is provided with holes for receiving screws for securing the same to a door post. At the edge of the body member 10 there is a flange or wall 11 adapted to embrace the corner of the door post. The socket member includes a box-like structure (Fig. 3) which contains rubber blocks 12 and 13, these rubber blocks being held in place by wear plates 14 and 15. These wear plates may be of hardened metal, and the wedge member enters between the wear plates and compresses the rubber blocks in the customary manner when the door is closed.

The manner in which the socket member is constructed from a single sheet of material is indicated in Figs. 5 to 7. The blank includes the body portion 10 provided with openings for the reception of screws, and a part 11 which is contiguous with the body 10. Part of the metal blank is cut away as at 20, and this cut away part extends across the portion 11. This cut away is shaped so as to provide projections 21 and 22, which are adapted to be turned at right angles to the body for the purpose of retaining the rubber

blocks and wear plates, as will presently more clearly be described. The blank includes strip-like members 23 and 24, and these are for the purpose of forming the box for retaining the rubber blocks and the wear plates.

In Fig. 6 the blank is shown after a number of operations have been performed. The plate has been bent upon the dotted lines of Fig. 5 so that the portion 11 now extends at right angles to the body portion 10, and the part 11ª forms the extreme edge of the portion 11, and this extends at right angles, or substantially at right angles, to the portion 11. The strips 23 and 24 have been turned upwardly so that they extend substantially parallel with the part 11. Fig. 7 shows the one piece socket member in its final form. The lugs 21 and 22 have been bent inwardly at substantially right angles to the wall 11, and the strips 23 and 24 have been bent so that they extend transversely across the body portion 10.

The extreme ends 23′ and 24′ of strips, are reduced in size, and are turned at right angles to the strips for the purpose of forming securing lugs for the strips. These securing lugs 23′ and 24′ are adapted to fit into depressions 25 and 26 which are formed in the wall 11 as indicated in Fig. 3. These depressions have a depth substantially the same as the thickness of the metal which forms the lugs 23, so that the inner edges of the lugs lie substantially flush with the inner surface of the wall 11. These lugs may be spot welded in place as shown at 27, in their respective depressions. The blank is provided with further depressions 30 and 31, the general shape of which is shown as in Fig. 3. These lugs are for the purpose of retaining the wear plates. One edge of each depression is comparatively abrupt, and is preferably at substantially right angles to the metal from which it is depressed. The other edge of the depressions need not be so abrupt.

After the blank has been shaped, the rubber blocks and the wear plates are put in place. The rubber blocks fit into opposite sides of the box formation and are held therein by the wear plates. The plate 14 is fitted behind the lug 21, and the abrupt side of the depression 30, and the plate 15 is held in a similar manner by the lug 22 and the depression 31. These plates are free to move to compress the rubber blocks when the wedge moves between them.

It will be observed from Fig. 5 that a considerable space is provided, as shown at 35, between the body 10 and the strips. This affords a clearance between the strips and the body 10 when they are bent to form the box structure. In this manner there is no interference with the bending of the strips, as the clearance is sufficient to accommodate for any unevenness which might possibly occur from the stamping action, and is also sufficient to accommodate for slight inaccuracies in the bending of the sheet material.

The several depressions which are formed in the sheet of metal are shown in Fig. 5 as existing in the sheet before the same is bent into final form. These depressions may be formed simultaneously with the stamping out operation, or they may be formed before or after the stamping operation. Also, the depressions need not be placed in the material until after some or all of the bending operations have been completed and the bending of the lugs 21 and 22 may be done at the most desirable time.

It will be observed that, by reason of the structure of the wedge member, interference with the operation of the door is in a large measure prevented because any obstruction which projects into the path of the wedge is caused to ride over the slanting surface instead of catching and stopping movement of the door. It will also be observed that the socket structure is particularly strong and durable and, at the same time, the structure is such that it can be manufactured economically. The wear plates are held in place in a very secure manner by integral parts which are struck from the single sheet from which the socket is made. The box structure of the socket, which holds the rubber blocks and wear plates, is rendered strong by the manner in which the strips 23 and 24, which form side walls of the box, are secured in depressions and welded to the side wall 11. This insures that the blocks and the wear plates will be maintained in their proper position and not become displaced.

We claim:

1. In a door bumper, a socket member adapted to be secured to a door post for cooperating with a striker member on a door stile, this socket member being constructed from a single piece of sheet metal and comprising a platelike body portion, a box structure formed by upturned side walls and striplike portions integral with the ends of the side walls and which are bent transversely across the body portion, this box structure being of a length less than the length of the body portion whereby the socket member can be embedded in a door post with a minimum of cutting away of the post.

2. In a door bumper, a socket member made from a single piece of sheet metal comprising a body plate having a side wall, a box-like structure formed in part by said side wall and strips of the said metal which are bent to extend transversely across the plate, the said side wall having depressions therein, and the ends of the said transverse strips having lugs which are fitted into said depressions.

3. In a door bumper, a socket member made from a single piece of sheet metal comprising a body plate having a side wall, a box-like structure formed in part by the side wall and

strips of the said metal which are bent to extend transversely across the plate, the said side wall having depressions therein, and the ends of the said transverse strips having lugs formed by reduced and bent ends which are fitted into said depressions and welded therein.

4. In a door bumper, a socket member made from a single piece of sheet material comprising a body plate, a side wall on the plate, a box for receiving and holding resilient blocks and wear shoes formed by said side wall and members bent transversely across the plate, a projection formed by a depressed portion in the metal of the box for supporting one end of a wear plate and means for supporting the opposite end of the wear plate.

5. In a door bumper, a socket member made from a single piece of sheet metal comprising a base plate, a box-like structure on the plate which is formed by up-turned and transversely bent portions of the sheet metal, a block of resilient material disposed against a wall of the box-like structure and embraced on its opposite side by a wear shoe, means for holding the wear shoe and block in place including a projection formed by an inwardly depressed portion of a wall.

6. In a door bumper, a socket member made from a single piece of sheet metal comprising a base plate, a box-like structure on the plate which is formed by up-turned and transversely bent portions of the sheet metal, a block of resilient material disposed against a wall of the box-like structure and embraced on its opposite side by a wear shoe, means for holding the wear shoe and block in place including a projection formed by an inwardly depressed portion of a wall, this depression being such as to form an abrupt projection for engagement with the wear shoe.

7. In a door bumper, a socket member made from a single piece of sheet material comprising a base plate, a box-like structure on the base plate which is formed by up-turned and transversely bent portions of the sheet metal, a pair of resilient blocks disposed against opposite walls of the box-like structure, each of which is embraced by a wear shoe, means for holding the wear shoes in place including projections which are formed by depressed portions of a wall of the box-like structure, these depressions being such as to form abrupt projections for engagement with the shoes.

8. A casing of sheet material for a socket member of a door bumper comprising a body plate, an extension on one side of the plate which is bent to form a side wall, an extension on the opposite side bent to form another side wall, strip-like members on the ends of this second named extension which are adapted to be bent transversely of the body plate to form end walls, these strip-like members being spaced from the body plate, and depressions in the first mentioned side wall for the purpose of receiving the ends of the said strips.

9. A socket member of a door bumper for retaining bumper blocks and wear plates comprising, a single blank of material having a main or body portion, one edge of which is turned up at substantially right angles to the main or body portion to form a side wall, the opposite side of the blank being longer than the main or body portion, and the blank being slotted between the body portion and the longer part leaving an intermediate connection between the body portion and longer part to form strip-like extensions, this wider edge portion being turned up at substantially right angles to the body portion to form another side wall, and the strip-like extensions being turned over at substantially right angles to the last mentioned side wall so as to extend across the body portion to provide end walls of the socket.

10. A socket member of a door bumper for retaining bumper blocks and wear plates comprising, a single blank of material having a main or body portion, one edge of which is turned up at substantially right angles to the main or body portion to form a side wall, the opposite side of the blank being longer than the main or body portion, and the blank being slotted between the body portion and the longer part leaving an intermediate connection between the body portion and longer part to form strip-like extensions, this wider edge portion being turned up at substantially right angles to the body portion to form another side wall, and the strip-like extensions being turned over at substantially right angles to the last mentioned side wall so as to extend across the body portion to provide end walls of the socket, the said slots being of such width as to cause the strip-like extensions to be spaced above the body portion.

In testimony whereof we affix our signatures.

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