Sept. 16, 1930. W. G. MILLER 1,776,005

OVEN DOOR BUMPER

Filed May 15, 1929 3 Sheets-Sheet 1

Fig. 1

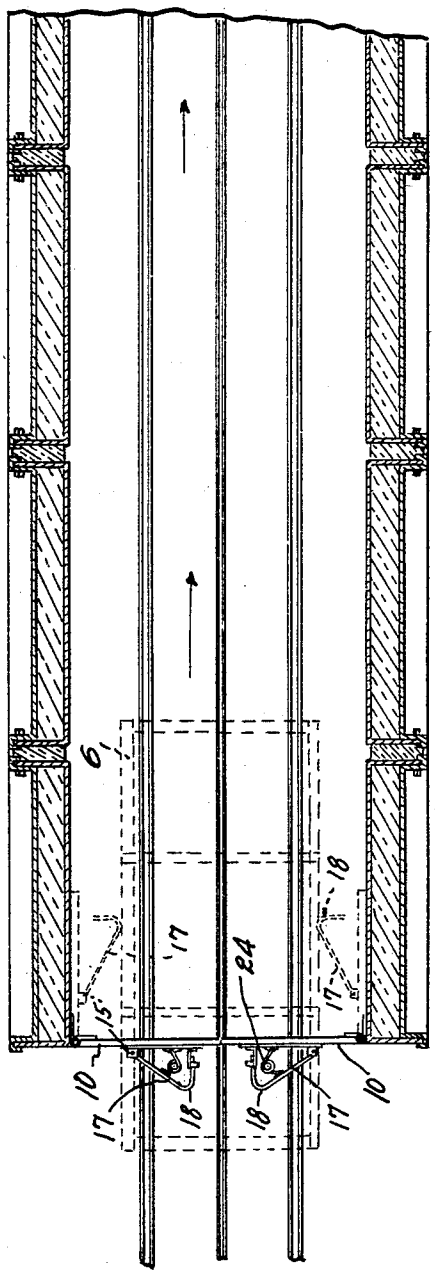
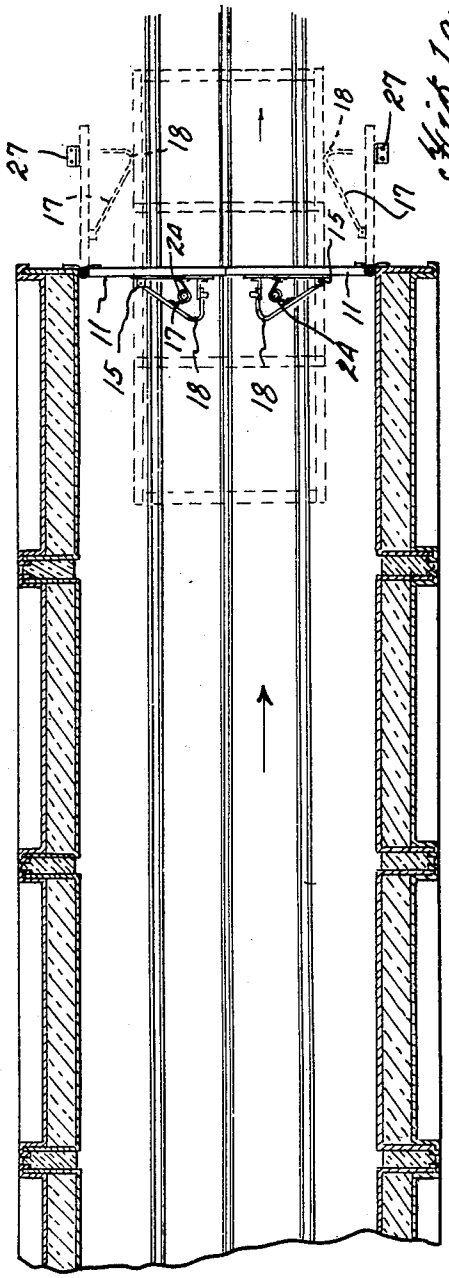


Fig. 1a



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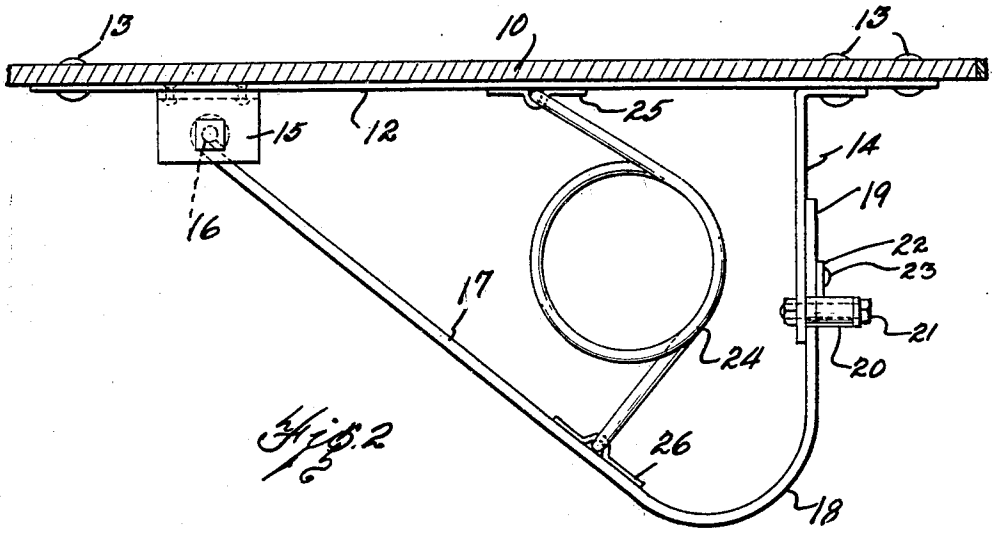


Fig. 2

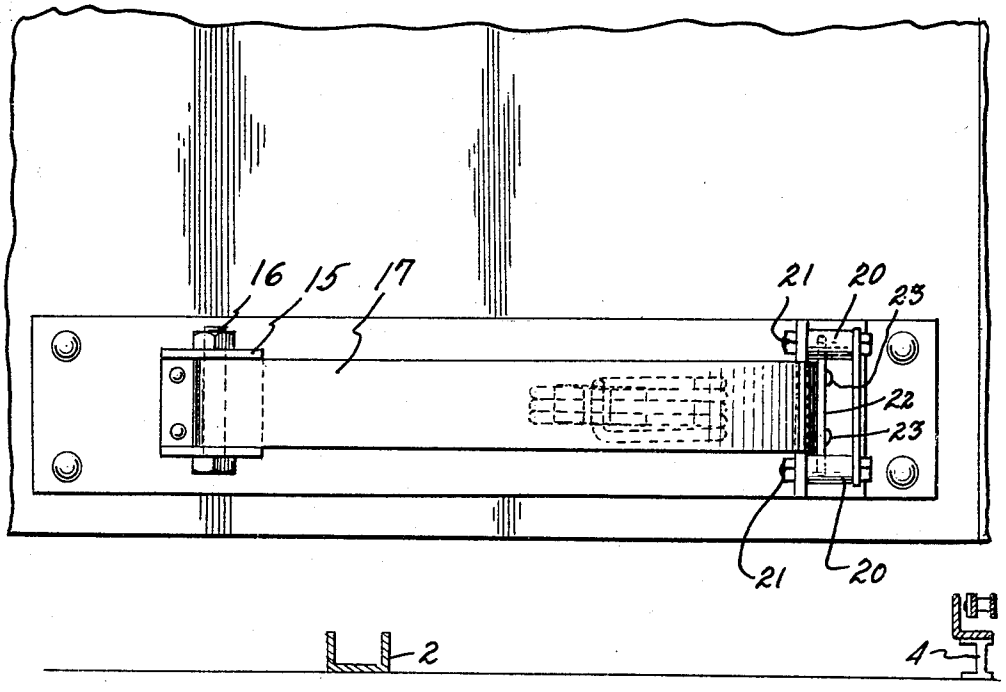


Fig. 3

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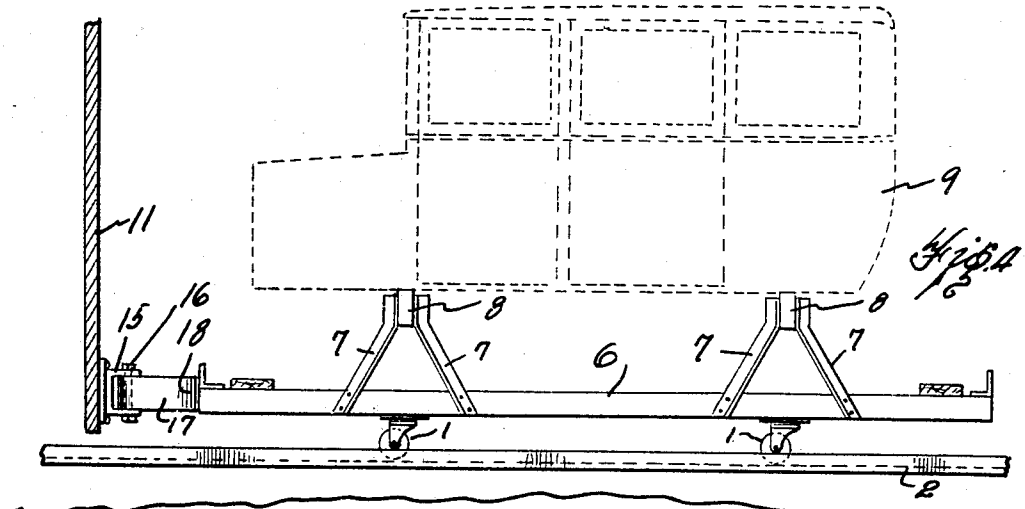


Fig. 4

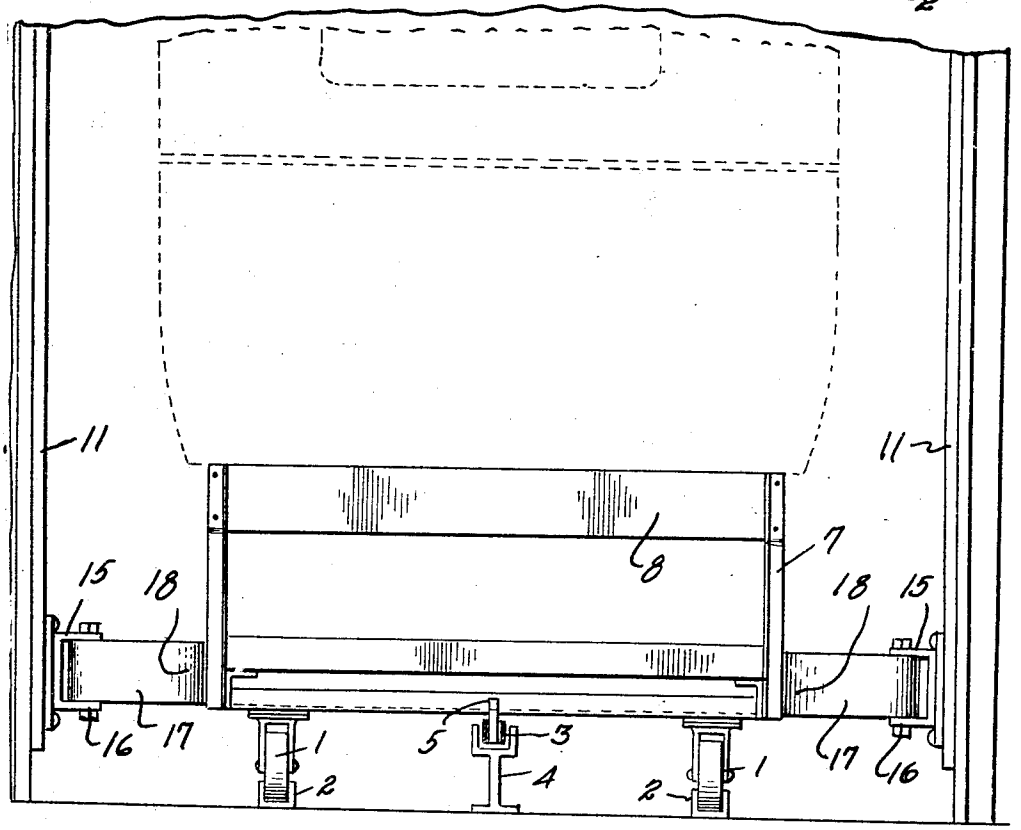


Fig. 5

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UNITED STATES PATENT OFFICE

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OVEN-DOOR BUMPER

Application filed May 15, 1929. Serial No. 363,327.

This invention relates to oven door bumpers and the object of the invention is to provide a bumper for oven doors at the opposite ends of a drying oven so that a body truck passing through the oven will strike the bumpers and force the doors open sufficiently to admit the truck and prevent the doors from scratching the automobile bodies mounted on the trucks.

Another object of the invention is to provide an oven through which body trucks are moved by a conveyor, each truck being arranged to support a freshly painted automobile body thereon and the oven doors being provided with bumpers adapted to be engaged by the truck frame and to ride in contact therewith while the truck is passing through the oven doors, the arrangement being such that the doors when open are held in parallel relation with the oven walls so as to prevent the doors from coming in contact with the automobile body and damaging the finish thereon.

Another object of the invention is to provide a spring bumper adapted to be compressed when the truck strikes the bumper and arranged to be held under compression by the truck as the truck moves through the doors, the compression action of the bumper tending to hold the doors in the wide open position.

A further object of the invention is to provide an oven in which the oven doors automatically close after the trucks pass therethrough.

These objects and the several novel features of the invention are hereinafter more fully described and claimed and the preferred form of construction by which these objects are attained is shown in the accompanying drawings in which—

Figs. 1 and 1[a] are plan views of opposite ends of an oven in which the doors are provided with bumpers embodying my invention.

Fig. 2 is an enlarged plan view of one of the bumpers.

Fig. 3 is an elevation thereof.

Fig. 4 is a side view of one of the trucks as it moves into contact with the bumpers.

Fig. 5 is a rear elevation of the truck in position to hold the doors open.

The bumper is adapted for use with any type of door in connection with which a conveyor truck is adapted to engage the bumpers to open the doors. To illustrate one form of the invention, I have shown a tunnel type oven through which automobile bodies, which have previously been spray painted, are moved in order to hasten the drying of the paint. These bodies are usually moved on trucks on which they are mounted having wheels 1 riding in channel rails 2 extending through the oven. Between the rails 2 a conveyor chain 3 is mounted riding in a special rail 4 and the conveyor chain at intervals is provided with lugs 5 for engaging the trucks as shown in Fig. 5.

The trucks each consist of a rectangular frame 6 shown in Figs. 1 and 4 having square ends and provided with brackets 7 on which the supporting bars 8 are mounted and on which the automobile body 9 is positioned. These trucks are preferably provided with four supporting rollers or wheels 1 and the trucks are preferably slightly longer than the automobile bodies as shown in Fig. 4. The oven, as shown in Figs. 1 and 1[a], may be of the usual form such as a tunnel type oven, as shown, and the bumpers are mounted on the doors 10 at one end thereof and on the doors 11 at the opposite end thereof. These doors are preferably provided with spring hinges which act to automatically close the doors or other spring arrangements may be provided for closing the doors if desired. As shown in Fig. 2 a flat strip of steel 12 is secured to the face of the door by the rivets 13 and some of the rivets 13 extend through a bracket 14 mounted on the metal strip 12. A U shaped bracket 15 is secured to the metal strip 12 at a distance from the bracket 14 and a bolt 16 extends through the two ends of the U shaped bracket 15 and supports a spring metal bumper member 17 thereon, the bumper member 17 being provided with an eye through which the bolt 16 is inserted, as shown in Figs. 2 and 3.

The spring metal bumper member 17 extends at an angle to the plane of the door and

is bent on a radius at 18 to provide an inwardly extending end 19. This end 19 extends between two sleeves 20 which are mounted in spaced relation on the bolts 21 which in turn are secured in the bracket 14. The end 19 of the member 17 beneath the sleeves 20 is provided with a cross bar 22 secured thereto by the rivets 23 and this cross bar forms a stop for the member 17 which is pressed outwardly by the coiled spring 24. This coiled spring 24 is shown more particularly in Figs. 2 and 3 and is attached to the stationary steel strip or base member 12 at one end by the bracket 25 and is secured to the member 17 at the opposite end by the bracket 26. It will thus be seen that when the end of a body truck strikes the curved portion 18 of the member 17 this member 17 is moved toward the door 10 on the pivot 16 which movement is resisted due to compression of the spring 24 and when the pressure is released the spring 24 throws the member 17 outwardly until the cross bar 22 strikes the sleeves 20 on the bolts 21.

As the bodies move down the conveyor line on the trucks the end of the truck frame 6 strikes the door bumpers on the doors 10 as will be understood from Figs. 1 and 4. This swings the doors inwardly on their pivots to the dotted position shown in Fig. 1.

As the portions 18 of the bumpers ride around the ends of the rectangular frame 6 these doors, it will be noted, are turned back against the inner oven wall and the springs 24 of the bumpers are preferably placed under compression slightly when the body truck is in the position shown in Fig. 1 thus holding the doors wide open in the dotted position. These bumpers are sufficiently yieldable so that they will pass over the frame members 7 or any other slight obstructions on the truck frames due to the fact that these obstructions ride up the sloping faces of the members 17. It will be noted that by these door bumpers the doors are spaced from the automobile bodies at all times so that there is no possibility of contact between the automobile bodies and the doors to injure the finish on the bodies. As the truck passes completely into the oven beyond the bumpers the doors are automatically swung closed by spring hinges as hereinbefore described. The same operation takes place at the discharge end of the oven shown in Fig. 1ª and in this case a pair of brackets 27 are secured to the floor on opposite sides of the conveyor to provide stops for the doors 11 and against which the doors engage when in the open position.

From the foregoing description it becomes evident that the device is very simple and efficient in operation, will not easily get out of order, maintains the doors spaced from the body trucks at all times and provides a device which accomplishes the objects described.

Having thus fully described my invention, its utility and mode of operation, what I claim and desire to secure by Letters Patent of the United States is—

1. A door bumper comprising a base member adapted for attachment to a door, a bracket attached to the base member and having a pair of spaced sleeves attached to the upper end thereof, a second bracket attached to the base member at a distance from the first bracket, a spring metal bumper member pivoted in the last named bracket and extending between the sleeves on the first named bracket, a cross member secured to the end of the spring metal member, and a coiled spring normally holding the bumper member in position with the cross member engaging the said sleeves.

2. In a door bumper, a base member adapted for attachment to the door, a pair of brackets secured to the base member in spaced relation, a spring metal bumper member pivotally mounted at one end in one bracket and extending at an angle to the plane of the door, the opposite end of the bumper member being inturned to extend in parallel relation with the second bracket, means limiting movement of the bumper member in relation to said second bracket, and a spring tending to force the bumper member away from the oven door.

3. In a door bumper, a bracket mounted in fixed relation with the door, a spring metal bumper member pivoted in the bracket and extending at an angle to the plane of the door, the end of the bumper member opposite its pivot being inturned, a second bracket mounted in fixed relation with the door, the inturned end of the bumper member riding on the second bracket, yieldable means for turning the bumper member outwardly on its pivot and means on said second bracket limiting outward movement of the said bumper member.

4. In a door bumper, a metal bumper member mounted on the door in pivotal relation therewith at one end and extending at an angle therefrom, a guide bracket mounted on the door in fixed relation therewith, the bumper member having an inturned end opposite its pivot riding in the guide bracket, and yieldable means limiting movement of the bumper member on its pivot.

In testimony whereof I sign this specification.

WILLIAM G. MILLER.