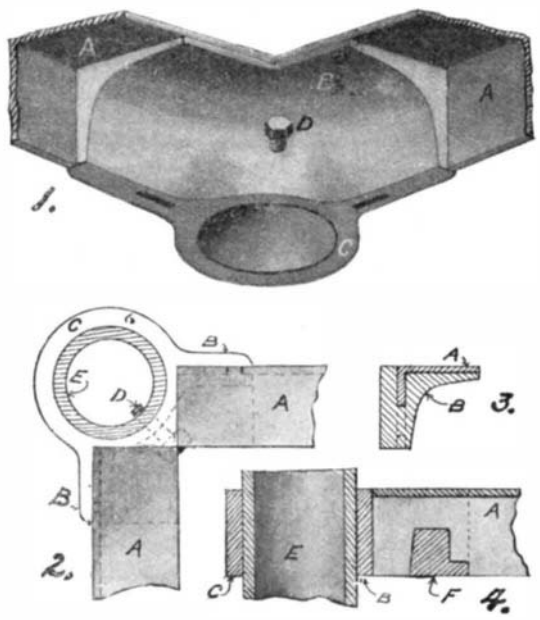
Patent Department

AN IMPROVED BED-RAIL JOINT.

A recent invention which is illustrated herewith provides improvements in corner joints or fastenings for the rails of metal beds. The joint is very simple in construction, and can be made cheaply because it does



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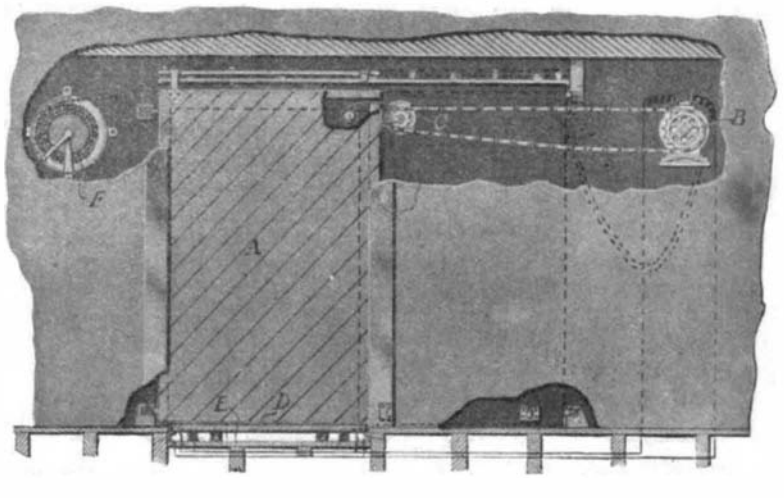
away with the casting on the side rail, and it also reduces the amount of iron in the bracket to one-half or less. Fig. 1 shows the joint double, as used for brass beds. The joint is illustrated as tipped back to reveal the under side. The rails of the bed are indicated at *A*, and the bracket at *B*. It is understood that the bracket can be fastened by bolt *D*, or by pouring the iron around the pillar so as to shrink it on. Fig. 2 is a top view of the double joint. Fig. 4 is a view of the single joint, such as is used for iron beds, showing the slot cut in the rail, also the slightly tapered bridge piece near the bracket. This is shown by the cutting away of the outside face *B* of Fig. 2. Fig. 3 is a cross section of the rail-bearing part of the bracket. The rail is cut off square, and the slot is punched out slightly tapered, to match the tapered bridge piece, which serves to crowd or wedge the rail toward the corner post as it is forced home. The rail is thus readily secured without bolts or screws, and will keep the bed ends vertical at all times, regardless of the weight carried by the bed. It will also be evident that the joint is effected without forging or bending the rail. Mr. James Murphy, of 700 Park Avenue, Kenosha, Wis., is the inventor of this improved corner joint.

AUTOMATIC DOOR OPENING AND CLOSING DEVICE.

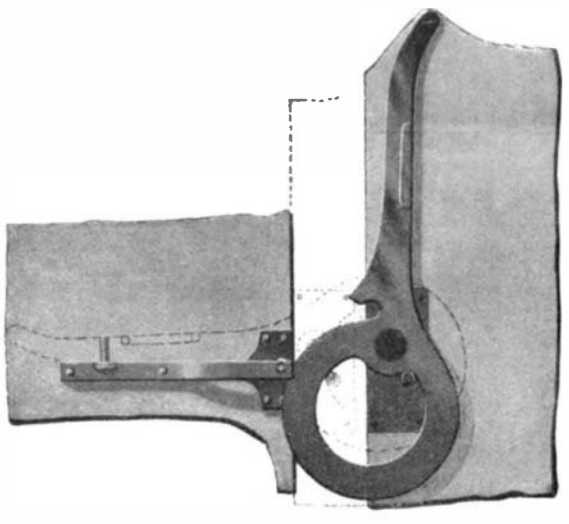
The object of the invention illustrated herewith is to provide an automatic door opening and closing device, controlled by a person walking on a movable platform arranged adjacent to the door. The invention is more particularly applicable to a sliding door, such as a barn door, and the like. In the engraving a door of this type is indicated at *A*. The door is mounted to slide on an overhead track into a pocket in the side of the wall. In this pocket a motor is mounted. The armature shaft is fitted with a sprocket wheel, *B*. A chain on this wheel passes to a second sprocket wheel, *C*, mounted on the door *A*. A wheel, secured to the sprocket wheel *C*, is engaged by a spring-pressed brake shoe, which normally prevents the sprocket *C* from turning. The movable platform, as indicated at *D*, is supported on springs in a recess, *E*, of the floor. The platform is provided with contact plates at opposite ends, adapted to engage similar plates in the recess when the platform is depressed. In this manner the circuit of the motor is closed whenever anyone steps on the platform. The motor then draws up the chain on the sprocket *B*, opening the door. When the door reaches the position indicated by dotted lines, it is stopped by a pair of spring buffers. But as long as the platform is depressed, the motor will keep drawing in the chain; and for this reason a brake is provided, for it permits the sprocket *C* to turn after the door *A* has reached the limit of its motion. As soon as the platform *D* is released the motor stops running, and the door is then drawn back by a spring-operated reel, *F*, acting on a chain connected to the forward edge of the door. The inventor of this novel door opening and closing mechanism is Mr. Cleophas Gamache, of Barre, Vt.



AUTOMATIC DOOR OPENING AND CLOSING DEVICE.

CAR DOOR FASTENER.

The car door fastener which is herewith illustrated is of very simple construction, having no parts liable to get out of order, and being so designed that it cannot be released without breaking the car seal. The invention is particularly applicable to freight cars, and it is so designed that when the fastener is moved in the releasing direction, it will start the door toward its opening position. In our illustration we show the fastener in its open position, while the closed position is indicated by dotted lines. A portion of the car wall is shown at the left, and this carries a bar provided with a slot adapted to receive a lug formed on the latch which is hinged to the car door. This latch, it will be observed, comprises a handle portion on which the lug is formed, and a cam ring eccentrically disposed with respect to the pivot pin of the latch. When the fastener is closed, the handle lies flush with the bar on the car wall. A wire is then passed through an opening in the handle and a lug on the bar, and to this wire the usual seal is attached. Not until this seal is broken will it be possible to open the door. In opening the door the eccentric ring engages an anti-friction roller at the end of the bar, and thus starts the door toward its opening position, so that the edge may be readily grasped by a



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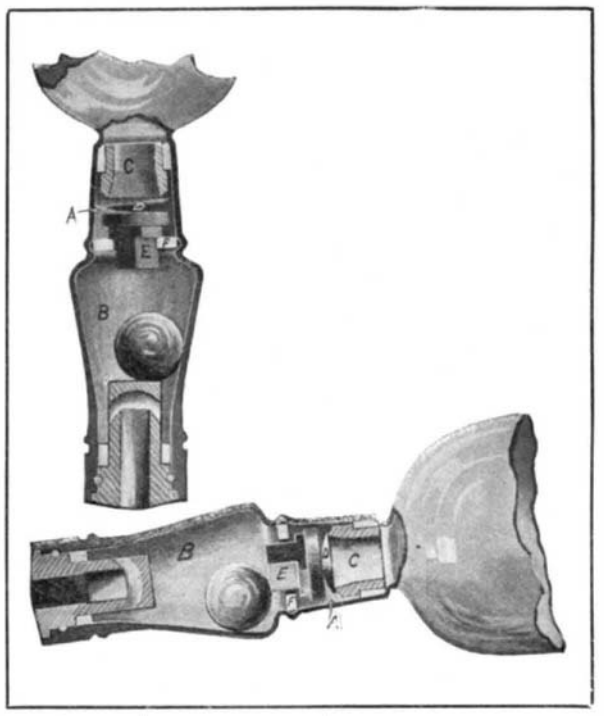
person to slide the door fully open. The eccentric ring is formed with an inner projection adapted to engage a stop pin, to stop the member when in the vertical position illustrated. By this arrangement, when the eccentric comes in contact with the anti-friction roller upon closing the door, the fastener will be automatically moved down to locking position. The inventor of this car door fastener is Mr. F. L. Estes, of 27 Bridge Avenue, Nashville, Tenn.

NON-REFILLABLE BOTTLE.

In the accompanying engraving we illustrate a non-refillable bottle, which not only appears to be absolutely non-refillable, but also is of such design that the cost of manufacture is but a fraction above that of the ordinary bottle. In addition to a ball weight, the improved bottle makes use of a float for operating the valve, so that in any attempt to fill the bottle the valve will be closed by the float when the bottle is inverted and by the weight when the bottle is in upright position. This principle is not entirely new, but heretofore bottles of such design could be readily filled if held in a horizontal position. In the new bottle this objection is overcome by a novel construction of that portion of the neck in which the ball weight operates. The neck is formed with a float chamber *A* and a ball chamber *B*. Fitted into the bottom of the float chamber is a glass valve seat, *C*. The valve, also of glass, is shown at *D*. Both the valve and valve seat are ground to provide a perfect closure. The float, which is indicated at *E*, is confined with a small amount of play in its chamber by the collar *F*. The shank of this float projects through the collar, and against this shank the ball is adapted to roll when the bottle is tilted upward. The object of confining the float is to give perfect freedom of movement to the ball, a feature which is a great improvement over previous constructions.

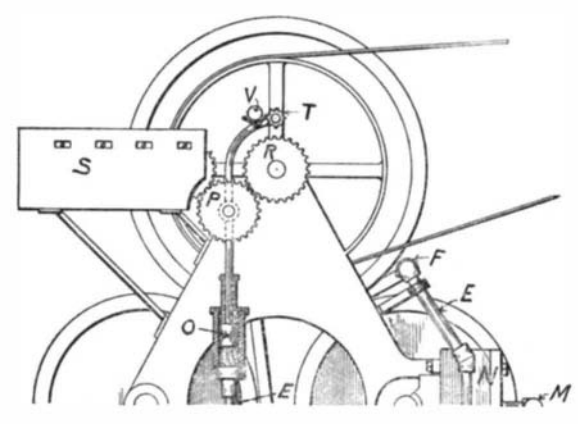


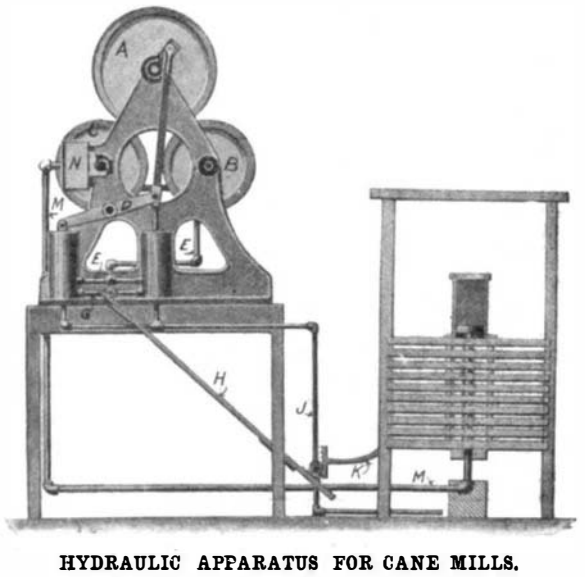
NON-REFILLABLE BOTTLE.

It will be observed that the chamber *B* flares at the bottom, providing an inclined surface for the ball to roll upon. This surface is not a plane surface, but is slightly convex, so that it is next to impossible to balance the ball midway of the chamber. Owing also to the inclination of the wall, the bottle cannot be held in a horizontal, or even approximately horizontal, position without the ball rolling against the float and thereby closing the valve. The top of the ball chamber is closed by a glass plug of such design that it would be impossible to insert a wire into the bottle neck to hold the ball clear of the float. This plug is cemented in place, so that it is impossible to remove it without breaking the bottle. An ordinary cork is used to close the opening through the plug. The inventor of this improved non-refillable bottle is Mr. P. Anthony Brock, 74 Lembeck Avenue, Jersey City, N. J.

HYDRAULIC APPARATUS FOR CANE MILLS.

In sugar-cane mills it is customary to pass the cane through two or more sets of rolls. The first set squeezes out most of the juice, reducing the cane to a sort of trash known as bagasse. The latter is then sprinkled with water and passed through the next set





HYDRAULIC APPARATUS FOR CANE MILLS.