(No Model.) 3 Sheets—Sheet 1.

H. G. CODER & F. C. RUFFHEAD.

CAR DOOR.

No. 552,821. Patented Jan. 7, 1896.

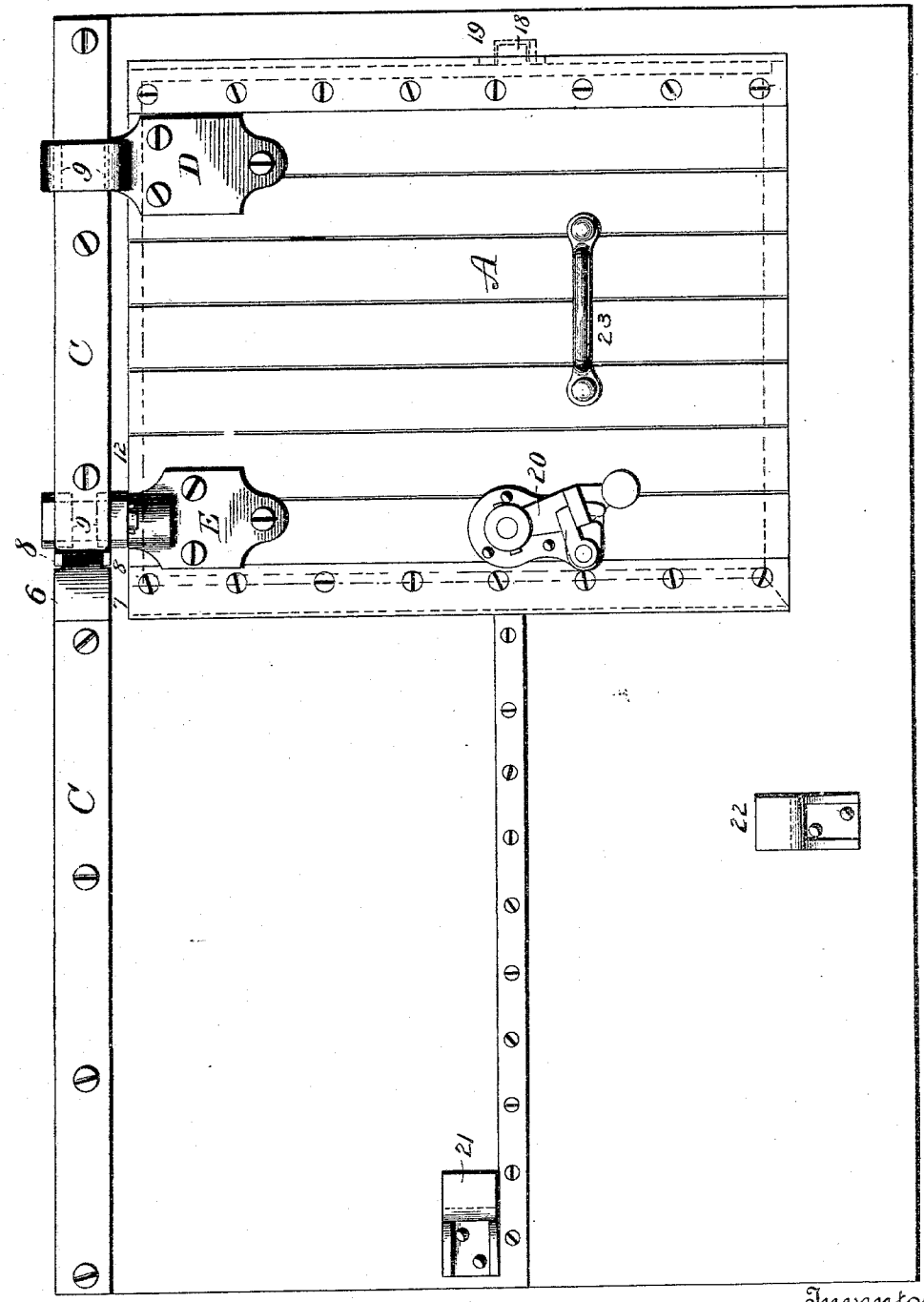

Fig. 1.

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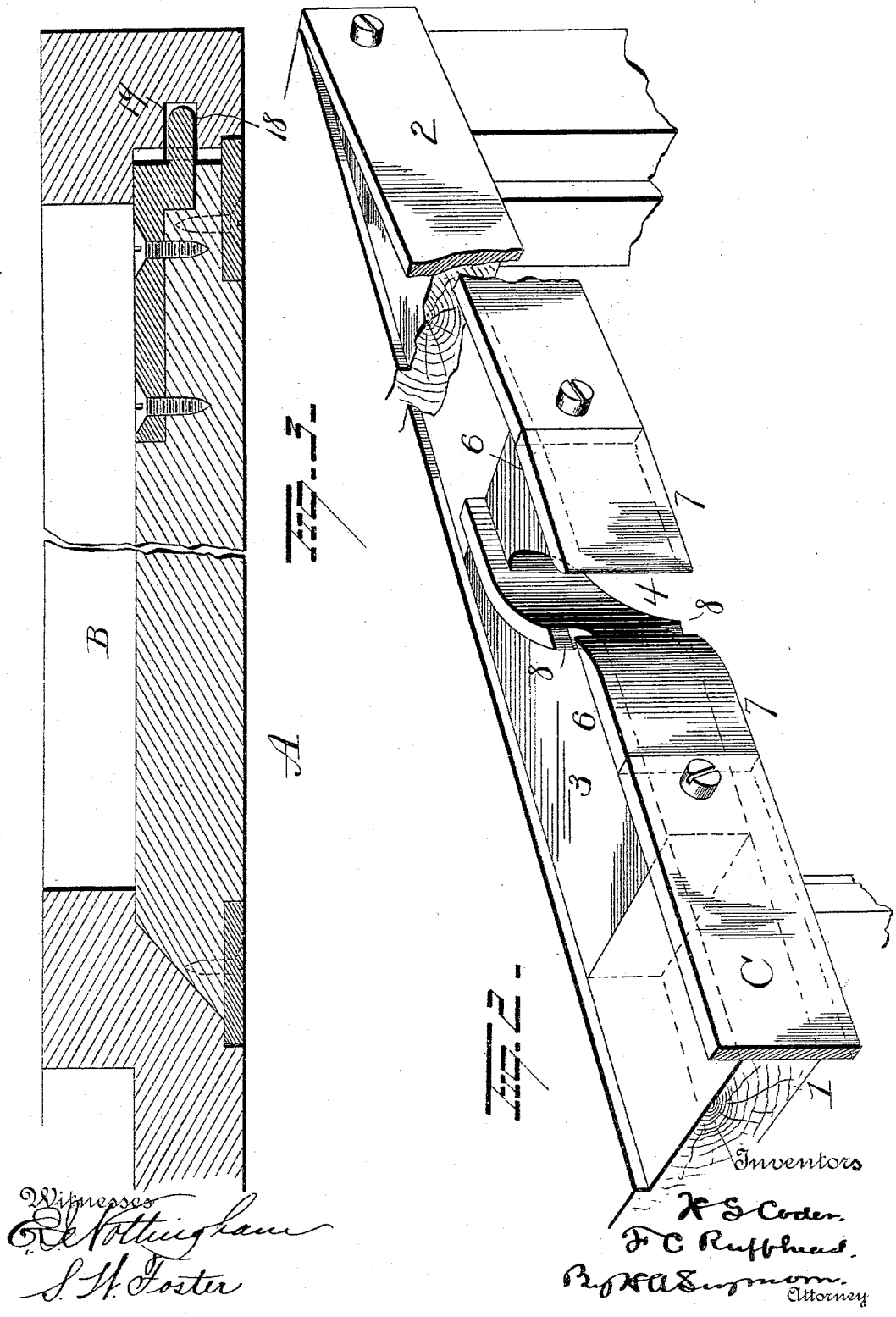

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(No Model.) 3 Sheets—Sheet 3.

H. G. CODER & F. C. RUFFHEAD.

CAR DOOR.

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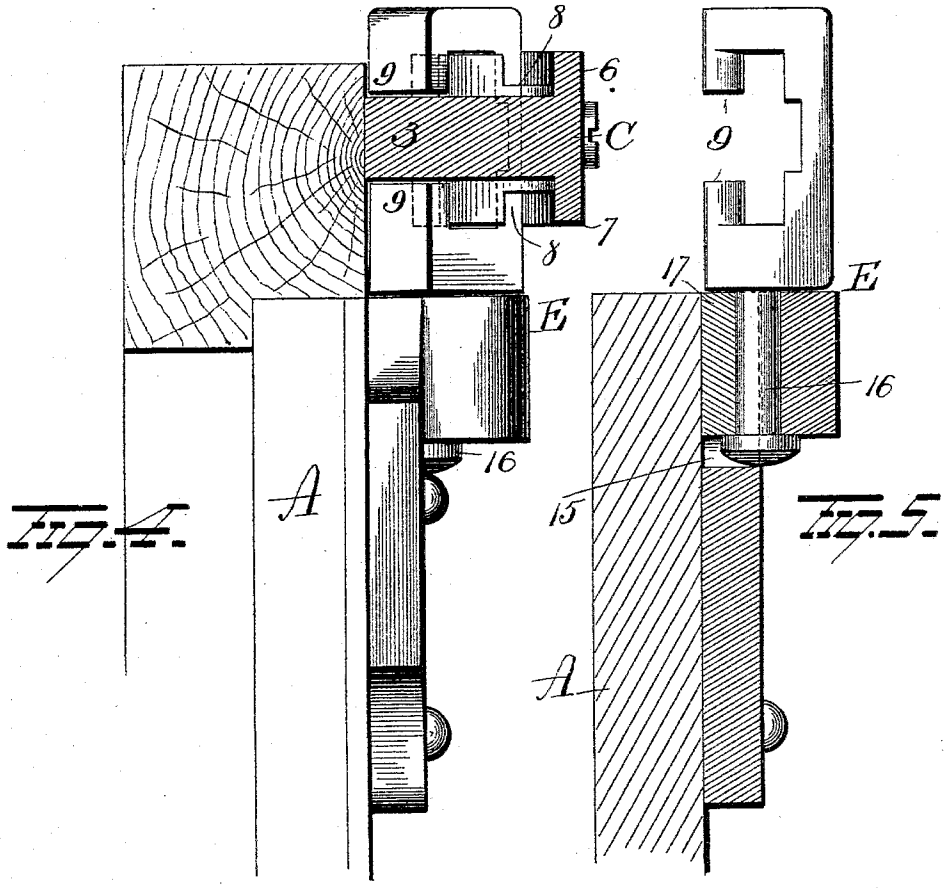

Fig. 4. Fig. 5.

Fig. 7.

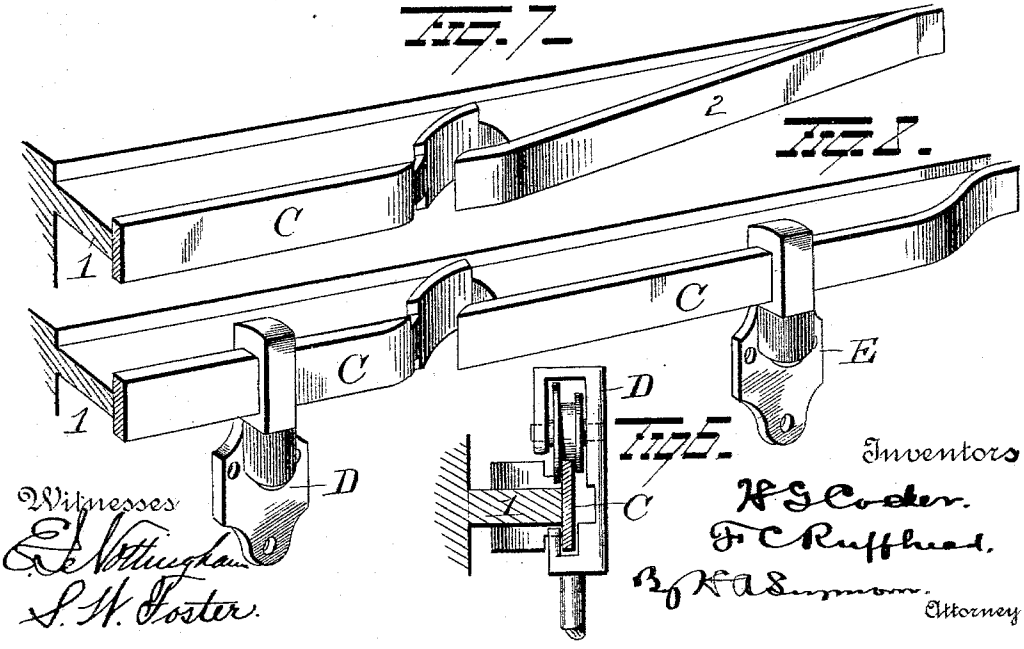

Fig. 2. Fig. 6.

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UNITED STATES PATENT OFFICE.

HARRY G. CODER AND FREDERICK C. RUFFHEAD, OF WILLIAMSPORT, PENNSYLVANIA, ASSIGNORS TO THE KEYSTONE CAR DOOR AND SUPPLY COMPANY, OF SAME PLACE AND CHICAGO, ILLINOIS.

CAR-DOOR.

SPECIFICATION forming part of Letters Patent No. 552,821, dated January 7, 1896.

Application filed May 24, 1893. Serial No. 475,365. (No model.)

To all whom it may concern:

Be it known that we, HARRY G. CODER and FREDERICK C. RUFFHEAD, of Williamsport, in the county of Lycoming and State of Pennsylvania, have invented certain new and useful Improvements in Car-Doors; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

Our invention relates to an improvement in car-doors.

Means have been employed heretofore for causing car-doors to automatically enter their doorways so as to extend flush with the outer surface of the side of the car for the purpose of making a nice fit, to prevent the entrance of water or moisture of any kind from storm, and to exclude sparks or any other damaging agent likely to find its way through the cracks around car-doors. In the means heretofore employed—for instance, the construction disclosed in Letters Patent No. 382,243, granted to T. G. Ruffhead—this was accomplished by the use of two rails, one at the top and one at the bottom, traversed by bearings or shoes attached to the sliding door. Our present construction is an improvement on that construction and, abstractedly speaking, in the present instance we dispense entirely with the bottom rail and suspend the door upon hangers constructed to travel upon the upper rail. Other details are employed, as will be fully brought out hereinafter in the description and set forth in the claim.

In the accompanying drawings, Figure 1 is a view in elevation showing our improved door. Fig. 2 is a plan view. Fig. 3 is a horizontal section through the rigid bolt at the edge of the door and its lock-plate. Fig. 4 is a section through the switch-plate. Fig. 5 is a sectional view through the swivel-hanger. Fig. 6 is a modified construction of hanger, and Figs. 7 and 8 show modified forms of track and switches.

A represents a door, and B a doorway constructed to receive the door. The edges of the doorway and door not only conform in shape to each other, but also they are preferably beveled or inclined, as shown, in order to make the joint as tight as possible when the door is closed to keep out moisture, water, and sparks from the locomotive.

C is a track, the same being located above the doorway and its length being sufficient to allow the door to slide a distance equal to its width to one side out of the way of the doorway in the usual manner. The trackway shown in Fig. 1 consists in a narrow strip of metal secured to a blocking 1 narrower than itself, so that its edges project above and below the blocking; also, by reference to Fig. 2 it will be seen that one end of the track slopes gradually inward over the doorway, as at 2, and as shown in the patent above referred to for the purpose of carrying the end of the door traveling upon it inward. At the point where the track starts to converge or incline inward a switch-block 3 is inserted for throwing the end of the door, which stops opposite it, inward. This block has a notch 4 formed therein adapted to receive one of the hangers and is provided with flanges 6 and 7 above and below, bordering upon the notch and constituting continuations of the straight and converging portions of the track. The top and bottom flanges 6 6 are each notched, as at 8 8, for a purpose which will now be explained.

The door A is supported upon the track by means of a pair of hangers D and E, the former being rigid and constructed with short inwardly-projecting lips 9 9, which overlap and embrace the edges of the track, so that they absolutely prevent lateral displacement or derailment of the door, and yet these lips are so short that they do not strike flanges 6 6, but pass through the notches 8 8 formed in them and continue on upon the inclined or converging portion of the track. The other hanger E has a pivotal or swivel connection with the part which is secured to the door, as at 12, and while this hanger is also furnished with inwardly-projecting lips 9 9 they are longer than the lips 9 9 of the rigid hanger, and hence do not pass through the notches 8 8, but follow the flanges 6 6, thus throwing the end of the door to which it is attached inward on a plane with the opposite edge of the door or flush with the side of the car. Thus by the use of a single track at the top and the two

hangers, one rigid and the other swiveled, we are enabled to accomplish what has required double this number of parts heretofore, but in lieu of the lower track and hangers we employ other means for locking the door, which will be explained. To return to the swivel-hanger it may be stated by way of amplification that the swivel-joint is formed by forming a recess 15 in the rear of the rigid lower portion of the hanger and locking the cylindrical stem 16 therein by means of a wedge-shaped key or block 17, as shown in Fig. 5. In this connection it may be stated that in the modification shown in Fig. 7, in lieu of the switch-block one end of the track is simply bent inward, and in the modification shown in Fig. 8 the track, instead of inclining or converging at one end, is bent inward abruptly at both ends alike. In the construction shown in Fig. 6 the hanger has a wheel therein to reduce or prevent friction.

As a locking means the following is provided: At one end the door is provided with tongue or tenon 18 and the door-frame with a socket-plate or mortise 19 adapted to receive the tongue or tenon 18. At the opposite end the door is provided with locking hook or button 20, which swings around on a pin and hooks at the rear on the door-frame.

Cleats 21 and 22 are placed on the side of the car as guides and stops for the door when open to stop it and to prevent its swinging outward; also the door may be furnished with a handle 23, by which it is easily grasped to slide it back and forth.

It is evident that other slight changes might be resorted to in the form and arrangement of the several parts described without departing from the spirit and scope of our invention, and hence we do not wish to limit ourselves to the exact construction herein set forth; but,

Having fully described our invention, what we claim as new, and desire to secure by Letters Patent, is—

The combination with a car, a door and a track secured to the car over the opening for the door, said track being made in two sections and arranged to gradually recede from the car body, of a switch block between said sections of the track, said switch block having a curved opening or recess, flanges on said switch block coincident with one wall of the recess or opening and with a portion of the outer face of the switch block and forming a continuation of one track section, flanges on the outer edge of the switch block and forming a continuation of the other track section, and hangers on the door adapted to run on said track sections and flanges, substantially as set forth.

In testimony whereof we have signed this specification in the presence of two subscribing witnesses.

HARRY G. CODER.
FREDERICK C. RUFFHEAD.

Witnesses:
C. R. HARRIS,
W. S. FOULK.