

No. 777,819.

PATENTED DEC. 20, 1904.

A. W. SULLIVAN & W. RENSHAW.
SLIDING CAR DOOR.

APPLICATION FILED JULY 17, 1903.

NO MODEL.

2 SHEETS—SHEET 1.

Fig. 1.

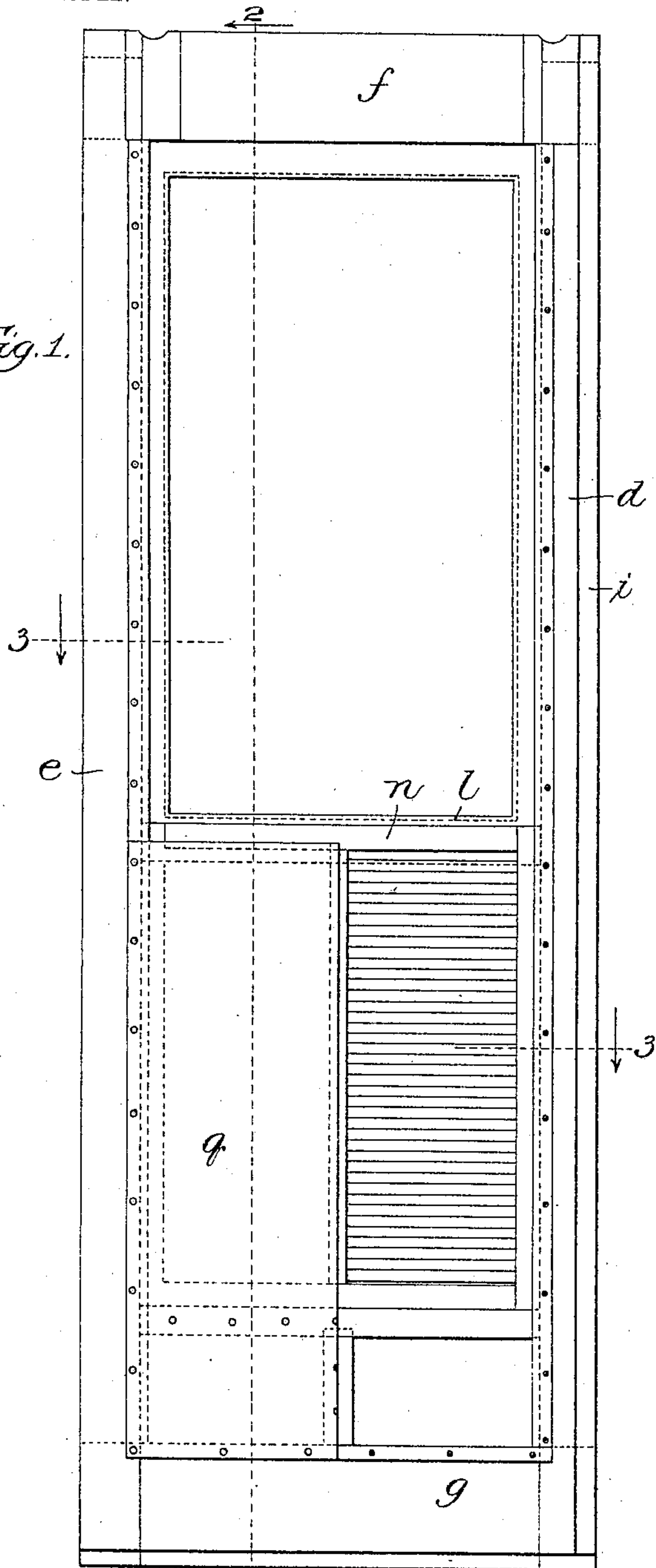
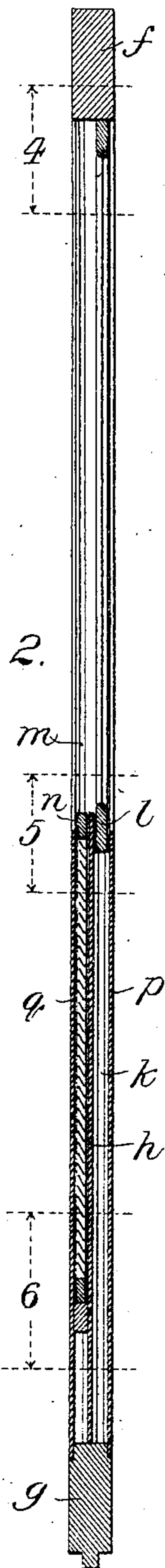


Fig. 2.



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2 SHEETS—SHEET 2.

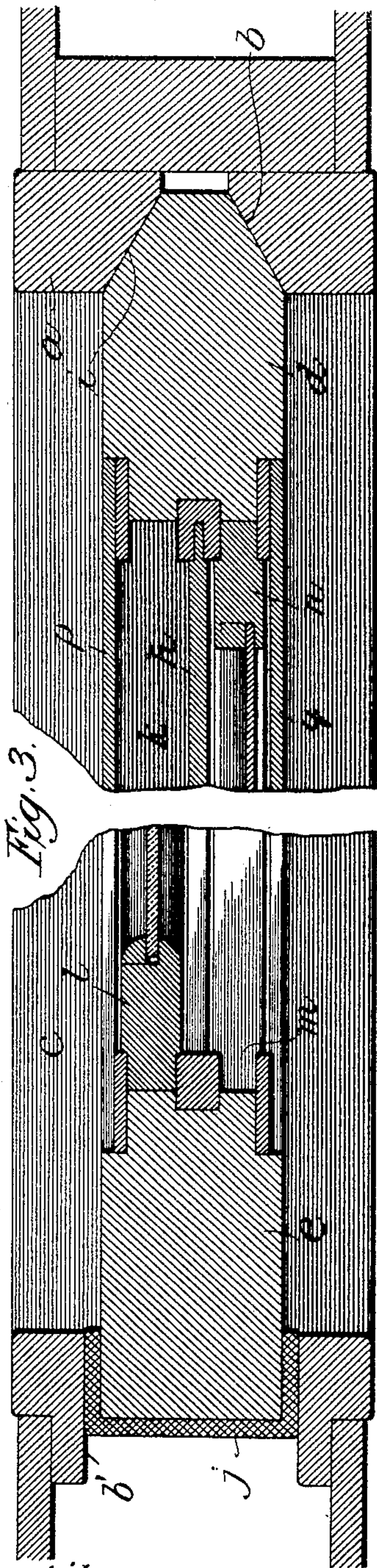


Fig. 3.

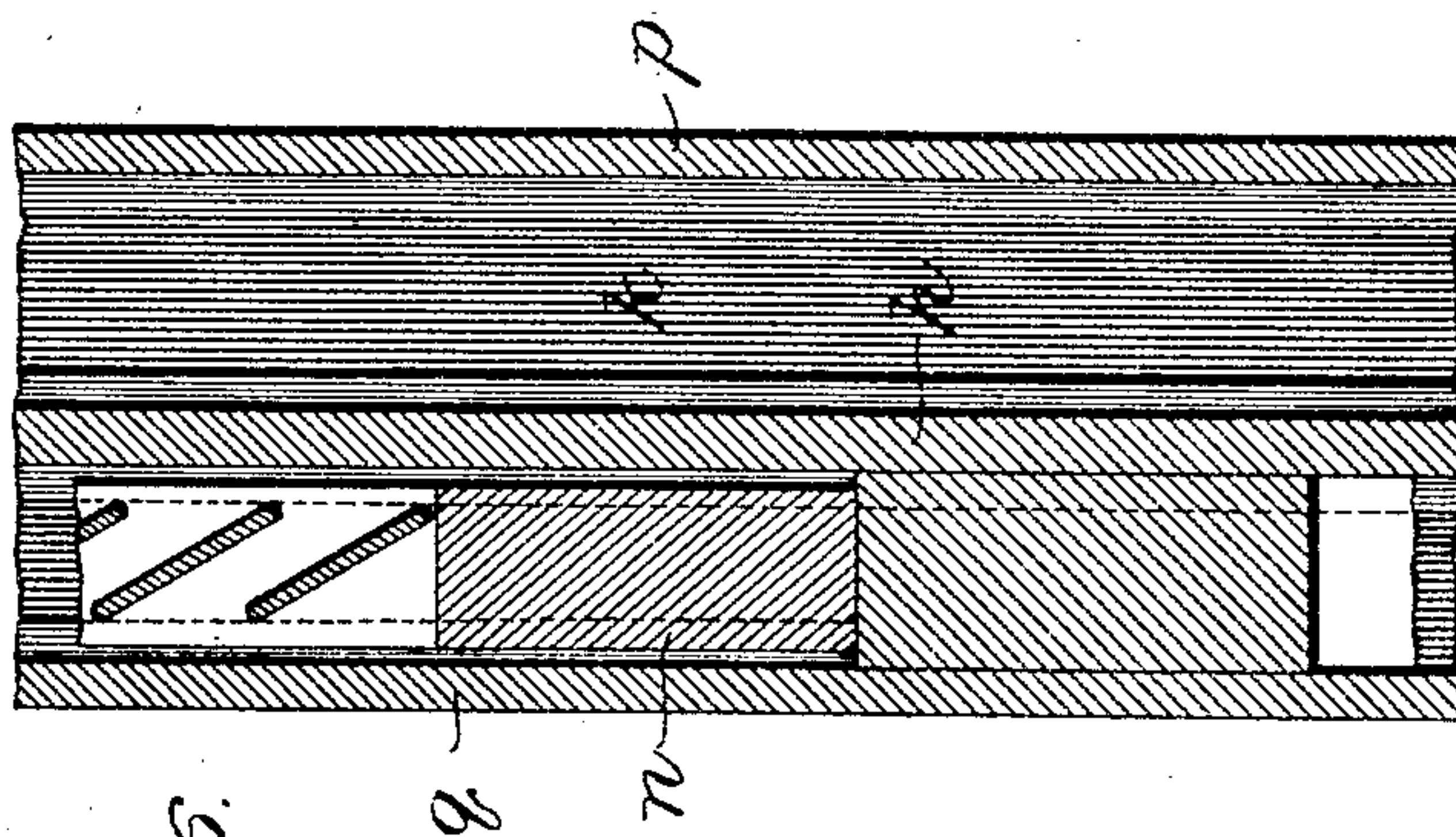


Fig. 6.

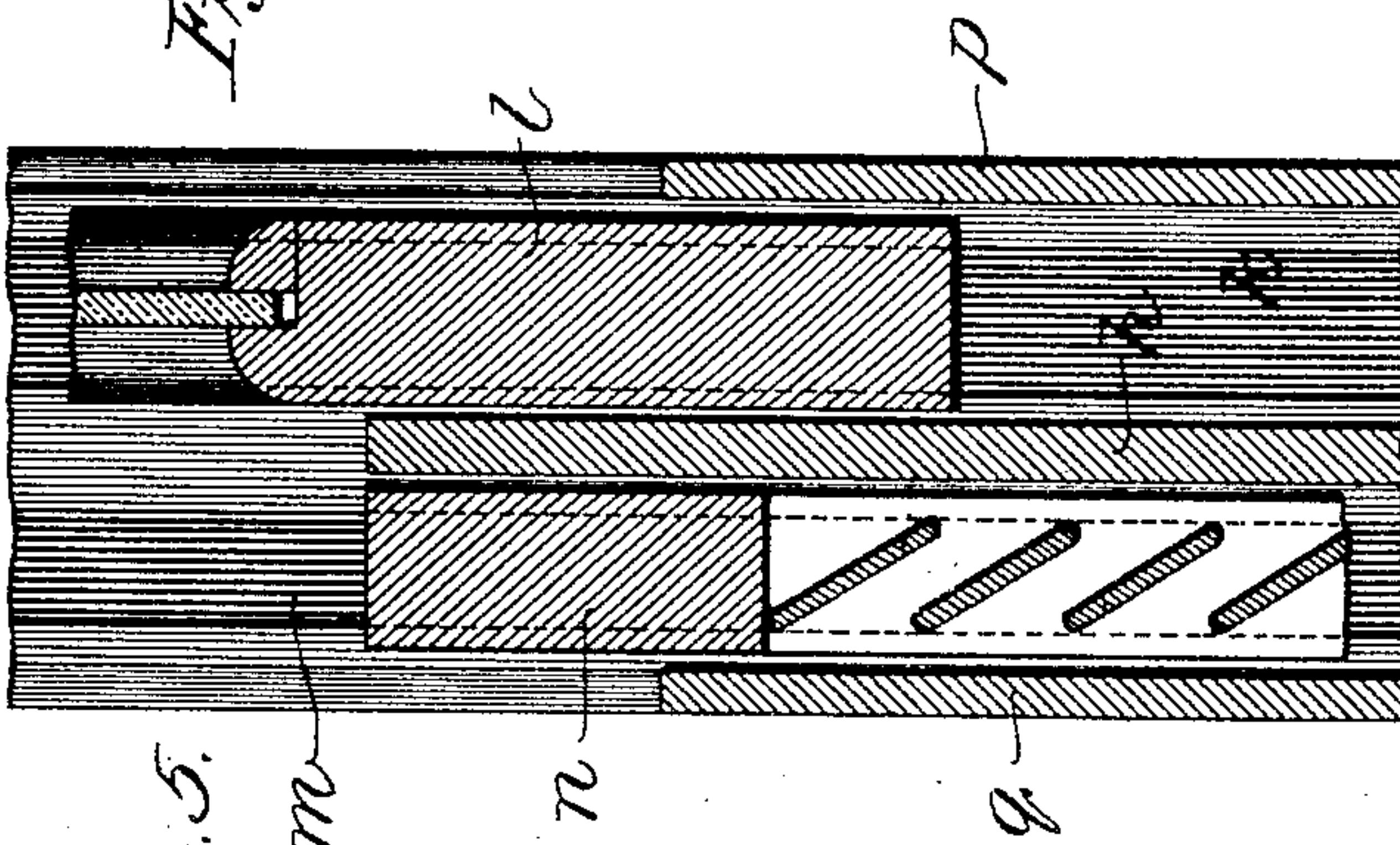


Fig. 5.

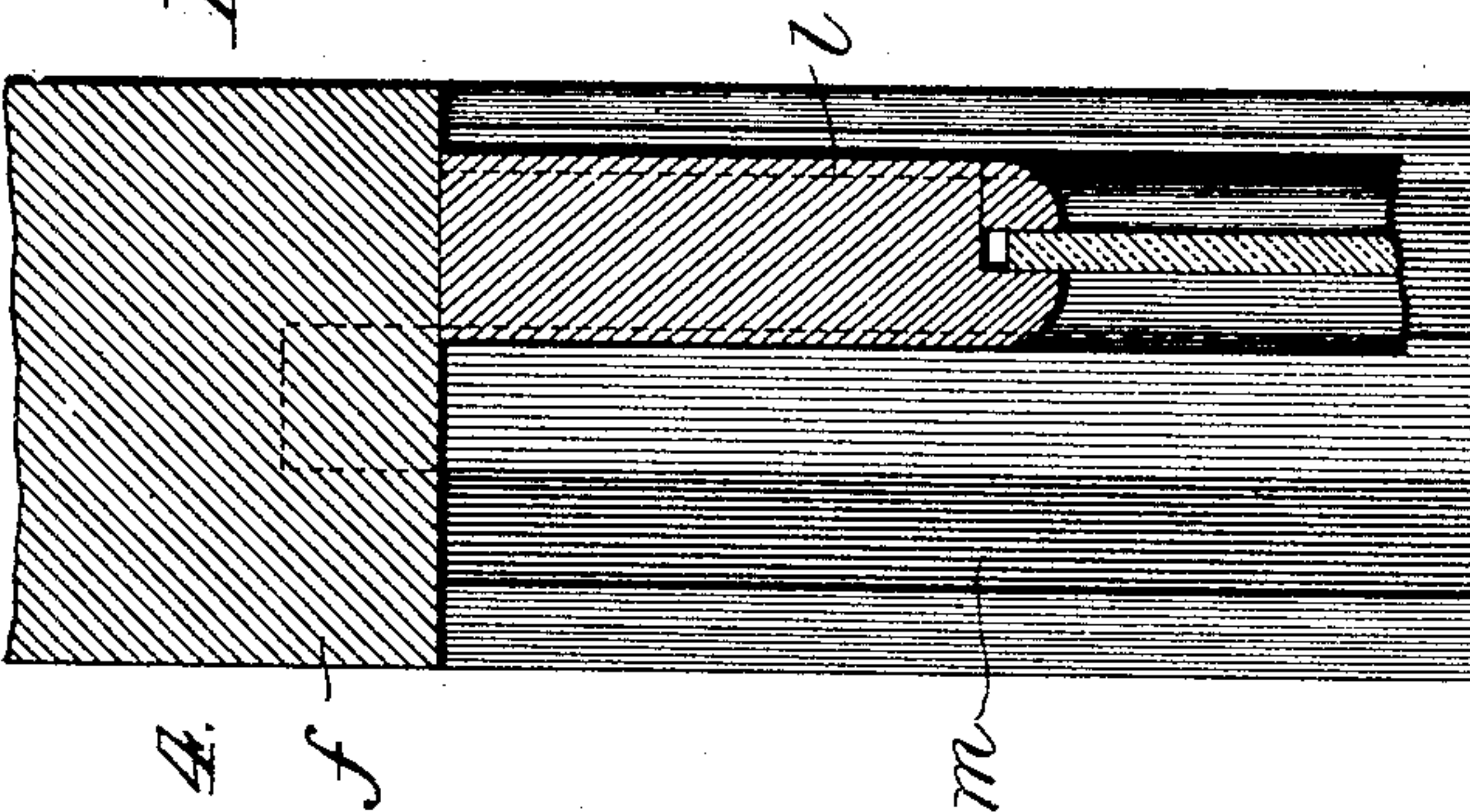


Fig. 4.

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UNITED STATES PATENT OFFICE.

ALBERT WALTER SULLIVAN AND WILLIAM RENSHAW, OF CHICAGO,
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SLIDING CAR-DOOR.

SPECIFICATION forming part of Letters Patent No. 777,819, dated December 20, 1904.

Application filed July 17, 1903. Serial No. 166,006.

To all whom it may concern:

Be it known that we, ALBERT WALTER SULLIVAN and WILLIAM RENSHAW, citizens of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Sliding Car-Doors, of which the following is a specification.

The invention relates to sliding doors that are used with railway-cars, and particularly to the construction and arrangement of a sliding door for use in connection with side-opening railway-cars of the kind shown and described in Letters Patent of the United States No. 686,959, granted to us the 19th day of November, 1901.

The principal object of the invention is to provide a simple, economical, and efficient sliding door for railway-cars.

The invention consists principally in a sliding door for railway-cars in which there are combined a frame portion, a window, and a shutter portion slidably mounted within the side surfaces of the door-frame, as will be more fully hereinafter set forth.

The invention consists, further and finally, in the features, combinations, and details of construction hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a front elevation of a sliding door as it appears when constructed in accordance with these improvements; Fig. 2, a vertical sectional elevation taken transversely through the door on line 2 of Fig. 1 looking in the direction of the arrow; Fig. 3, a transverse plan sectional view taken on line 3 3 of Fig. 1 looking in the direction of the arrow; Fig. 4, an enlarged sectional detail taken between the lines 4 of Fig. 2; Fig. 5, a similar view taken between the lines 5 of Fig. 2, and Fig. 6 a similar view taken between the lines 6 of Fig. 2.

In the art to which this invention relates it is well known that sliding doors as ordinarily constructed fail to close tightly, frequently rattle disagreeably, and when exposed to the weather on the sides or ends of railway-cars do not keep out drafts of air in cold and inclement weather or the dust and dirt that en-

velop a train when in rapid motion. When such doors have the upper portion of glass, it is usually framed as a fixed panel, with no provision for ventilation or for protecting the interior of the car from the rays of the sun by the use of a shutter, blind, or curtain, because of the impossibility of arranging those parts to work movably within the narrow limits of the inner and outer surfaces of such doors and not interfere with their movement in and out of the closely-fitting hollow spaces of the walls within which the doors slide. As a consequence of these limitations sliding doors as heretofore constructed to slide within hollow walls have failed to fulfil the functions of affording satisfactory protection against inclement weather and of providing ventilation with shade from the sun, as may be readily obtained from swinging doors, and have therefore been impracticable of application to the purposes required of the exterior doors of railway-cars. To overcome these difficulties and to meet in an efficient and satisfactory manner all the requirements of a closely-fitting weatherproof and noiseless sliding door to operate freely within the narrow space of the hollow walls of a railway-car, with suitable provision, self-contained, for ventilation and shade, readily and conveniently accessible to adjustment by the passengers, this invention is designed, all of which will more fully hereinafter appear.

In illustrating and describing our improvements we have only illustrated and will describe that which we consider to be new, taken in connection with so much that is old as will properly disclose the invention to others and enable those skilled in the art to practice the same, leaving out of consideration other and well-known elements, which if shown and described herein would only tend to confusion, prolixity, and ambiguity.

In constructing a car in accordance with these improvements we provide a car-wall having a door-opening frame, one side wall *a* of which is provided with a V-shaped recess *b* to receive a similarly-shaped lateral edge of the sliding door. The opposite wall *b'* of the door-opening frame is provided with a recess hav-

ing parallel walls, into and out of which the sliding door hereinafter described may be moved for the purpose of opening or closing the door-opening *c*. To form the sliding door, we provide a door-frame having lateral portions *d* and *e*, upper and lower portions *f* and *g*, a centrally-located panel *h* at the lower part, and a window-opening at the upper part, as will more fully hereinafter appear. The lateral edge of the portion *d* of the door-frame is beveled, as at *i*, while the opposite lateral edge is squared and provided with a U-shaped cushion *j*, formed of felt or other flexible material, which completely fills the recess or space between the parallel walls *b*, so as to minimize the noise and jar and at the same time keep out the dust and air when the door is closed.

It is highly desirable that this door be so constructed that the upper window-opening may be closed whenever desirable by a window only or by a shutter only, or by both, or may be left free and unobstructed, so that the door may be opened and closed without interference with these arrangements. To accomplish such results, the door-frame is grooved at *k* on one side and below the side surface thereof, so that a window-frame *l* may be slid therein, either to its upper position, as shown in the drawings, or dropped down, leaving the window-opening of the door free and unobstructed. On the other side of the central panel it is also grooved at *m* to receive the shutter-frame *n*. Both of these frames—the window and shutter frame—may be moved upwardly and downwardly in the door from the upper to the lower end and by suitable mechanism held in an intermediate position. As above stated and as shown in the drawings, they are ar-

ranged below or within the side surfaces of the door, so that it may be used with an upper opening unobstructed by window or the shutter or with a closed window and the shutter, blind, or screen all arranged below the side faces and within certain parts, so as not to interfere with the operations of the door. To protect these movable portions, the door may be provided with inclosing panels *p* on the outside and *q* on the inside to protect the window-screen when they are in open position, all of which will be understood and appreciated by those skilled in the art.

We claim—

In a sliding door for railway-cars, the combination of the side wall of a car having a door-opening frame thereon, one side of which is provided with a V-shaped recess to receive a correspondingly-shaped lateral edge of the door and the opposite portion having a parallel recess therein into and out of which the door may be moved, a door composed of a frame portion, one lateral edge of which is substantially V-shaped and the other edge squared and provided with a U-shaped cushion, a panel in the lower part of the door, a window-frame slidably mounted in the door on one side of the panel so as to move from the upper to the lower end of the door and within the surface of the door-frame, and a shutter slidably mounted on the opposite side of the panel to move from the upper to the lower end of the door and within the surface of the door on that side, substantially as described.

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