H. W. PUGH.

FOLDING DOOR STRUCTURE.

APPLICATION FILED SEPT. 6, 1919.

1,396,780. **Patented Nov. 15, 1921.**

Fig. 1.

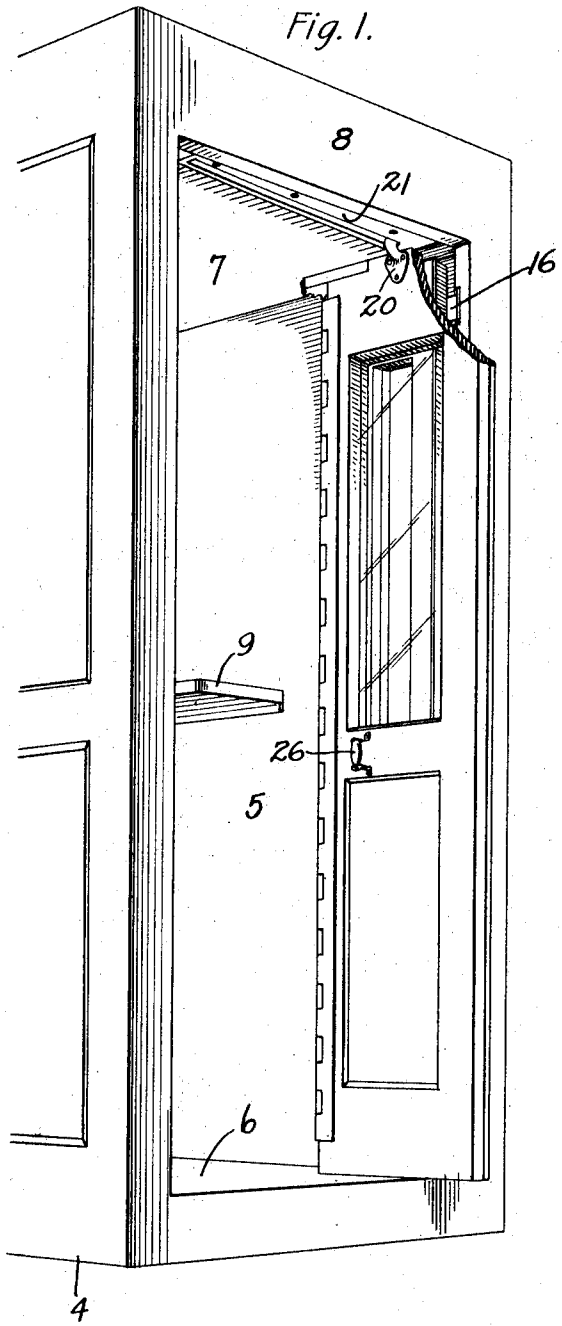


Fig. 2.

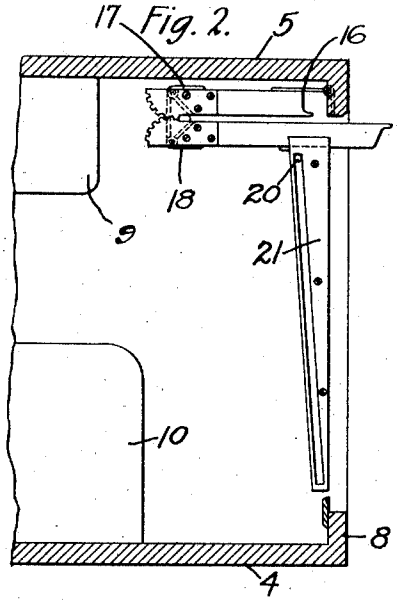
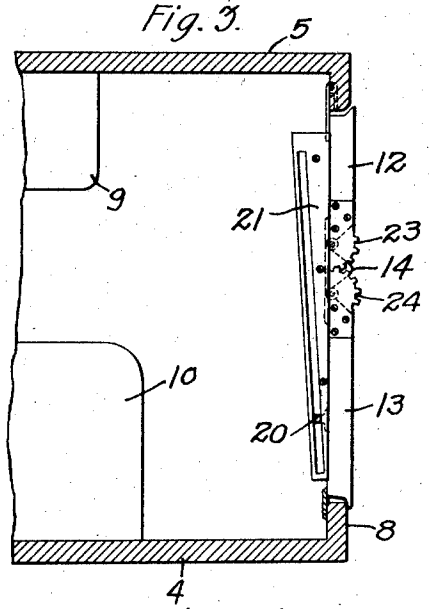


Fig. 3.



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UNITED STATES PATENT OFFICE.

HARRY W. PUGH, OF NEW YORK, N. Y., ASSIGNOR TO WESTERN ELECTRIC COMPANY, INCORPORATED, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

FOLDING-DOOR STRUCTURE.

1,396,780. Specification of Letters Patent. Patented Nov. 15, 1921.

Application filed September 6, 1919. Serial No. 322,153.

To all whom it may concern:

Be it known that I, HARRY W. PUGH, a citizen of the United States, residing at New York, in the county of Bronx, State of New York, have invented certain new and useful Improvements in Folding-Door Structures, of which the following is a full, clear, concise, and exact description.

This invention relates to door structures, and particularly to a type of door structure which is useful in telephone booths. More specifically, the invention relates to a door structure of the folding type, and may be considered as an improvement on the structure described and claimed in the copending application of George E. Mather, Serial No. 322,131, filed September 6, 1919, and assigned to the same assignee as this application.

In the accompanying drawing, the invention is illustrated as applied to a telephone booth. Figure 1 is a perspective view, part of the door being broken away to show certain features; Fig. 2 is a horizontal cross-sectional view on a plane coinciding with the ceiling of the booth, the door being open; and Fig. 3 is a horizontal cross-sectional view similar to Fig. 2, the door being closed.

Referring to the drawing, the booth is shown as having side walls 4 and 5, floor 6, ceiling 7 and front wall 8 in which is the doorway equipped with the door structure hereinafter described. The usual shelf for the telephone is shown at 9 and a seat at 10.

The door proper comprises an inner door section 12, an outer door section 13 and an intermediate door section 14. The inner door section is hingedly supported on the front wall 8, which serves as a door frame, by hinges of any suitable kind one of which is shown at 16. The intermediate door section 14 has a width approximately equal to the combined thicknesses of the inner and outer door sections 12 and 13; and the intermediate door section is connected to the inner and outer door sections by hinge mechanisms 17 and 18 which, in the particular embodiment shown, are of the so-called "piano hinge" type. The hinges 17 and 18 are attached to the inside faces of the door sections and all three of the door sections 12, 13 and 14 are beveled from their outside faces toward the hinge pintles, as clearly shown in Figs. 2 and 3. These beveled surfaces are at an angle of 45° with the inside faces of the door sections, and this beveling permits the door section 13 to be folded into a position parallel with the door section 12, as shown in Fig. 2.

The folding movement of the outer door section 13 is directed by a guiding means of any suitable kind, such as an upwardly extending pin 20 secured to the inside face of the door section 13 and extending into a slotted member 21 attached to the ceiling 7 of the booth.

In order to maintain the intermediate door section substantially parallel to the doorway during the movement of the door, a geared connection, using this expression in the broadest sense, is provided between the inner and outer door sections. While this geared connection may take a variety of forms, the preferred form shown in the drawing comprises intermeshing gears 23 and 24 formed in plates attached to the top surfaces of the inner and outer door sections 12 and 13, as clearly shown in Figs. 2 and 3. The centers of the gears 23 and 24 are located respectively in line with the pintles of the hinges 17 and 18; and it is necessary that the gear teeth extend over only about 90°, as will be obvious from the drawing.

The folding door is closed and opened from the inside of the booth by means of a handle 26 attached to the inside face of the outer door section 14. By means of this handle the door may be moved from the open position shown in Fig. 2 to the closed position shown in Fig. 3, and vice versa. During the opening and closing movement of the door, the pin 20 travels in the slot of the member 21; and the gears 23 and 24 intermesh; thereby properly controlling the movements of the outer door section 13 and the intermediate door section 14.

What is claimed is:

A folding door structure comprising a hingedly supported inner door section, an

outer door section, an intermediate door section, hinge mechanisms connecting the intermediate door section with the inner and outer door sections, guiding means for directing the folding movement of the outer door section, and intermeshing gears carried by the inner and outer door sections whereby the intermediate door section is maintained substantially parallel to the doorway during the movement of the door.

In witness whereof, I hereunto subscribe my name this 4th day of September A. D. 1919.

HARRY W. PUGH.