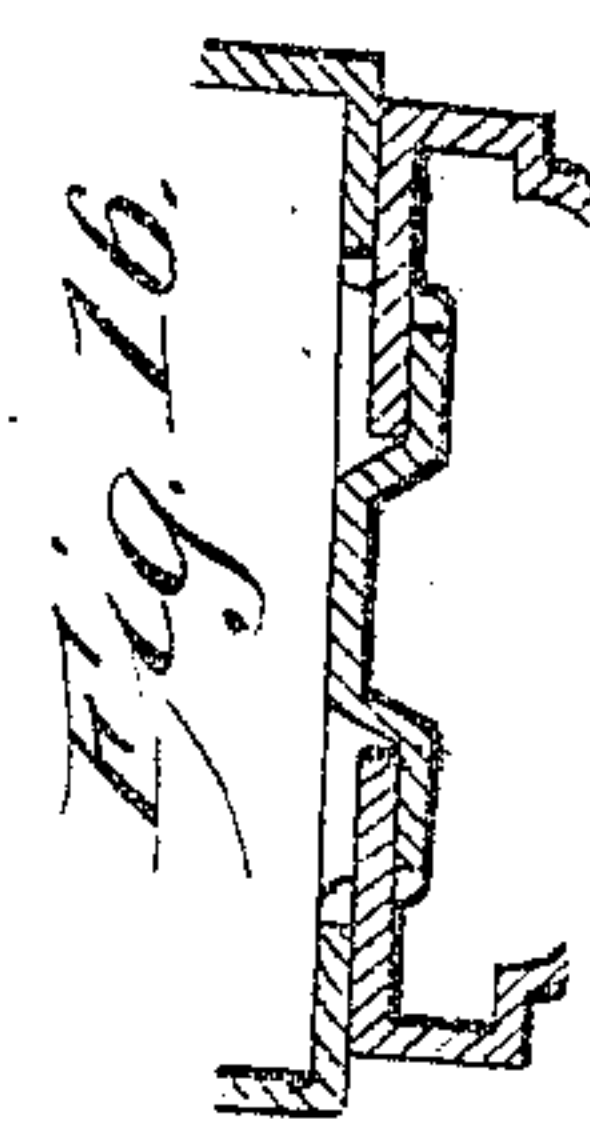
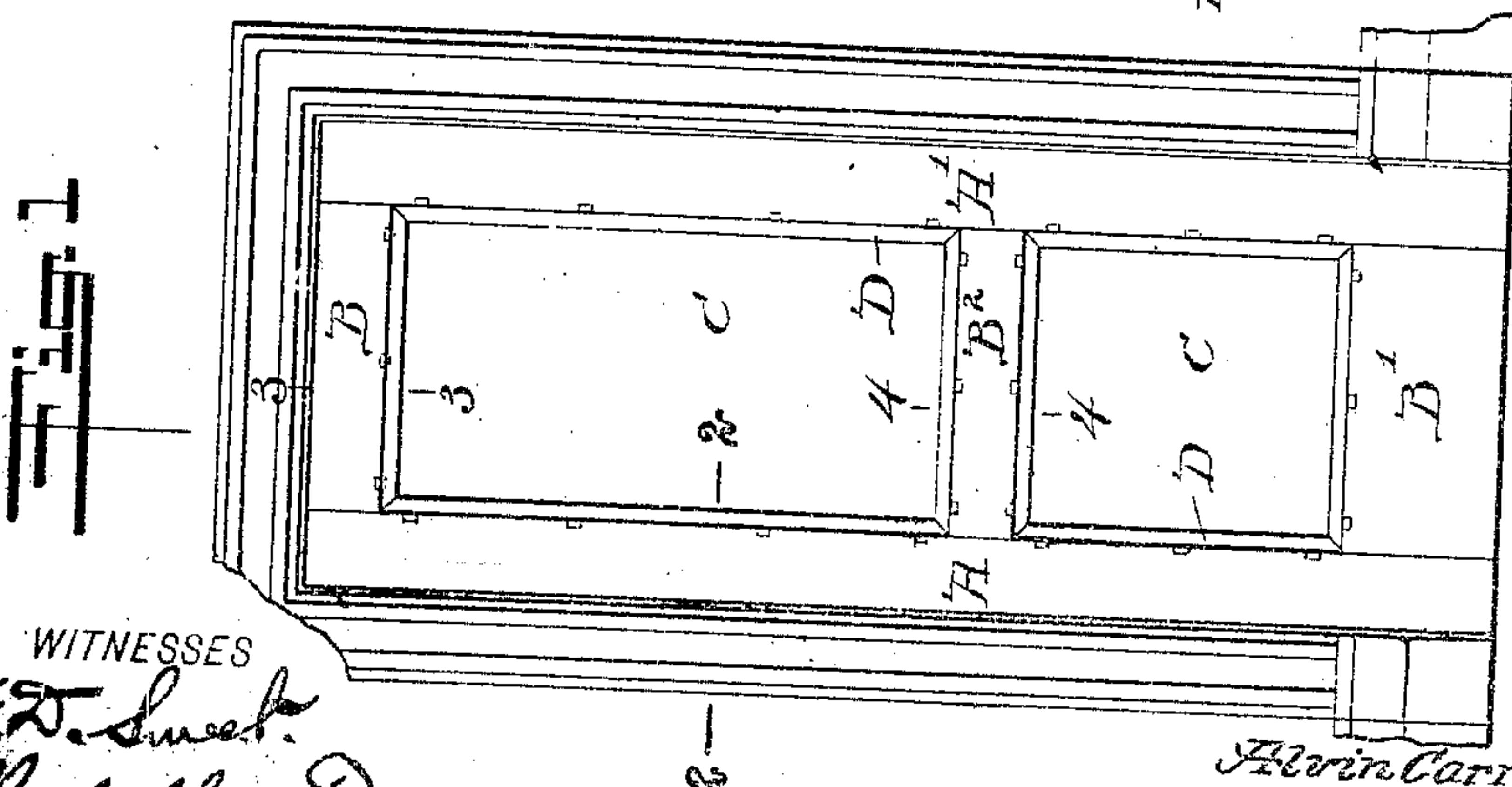
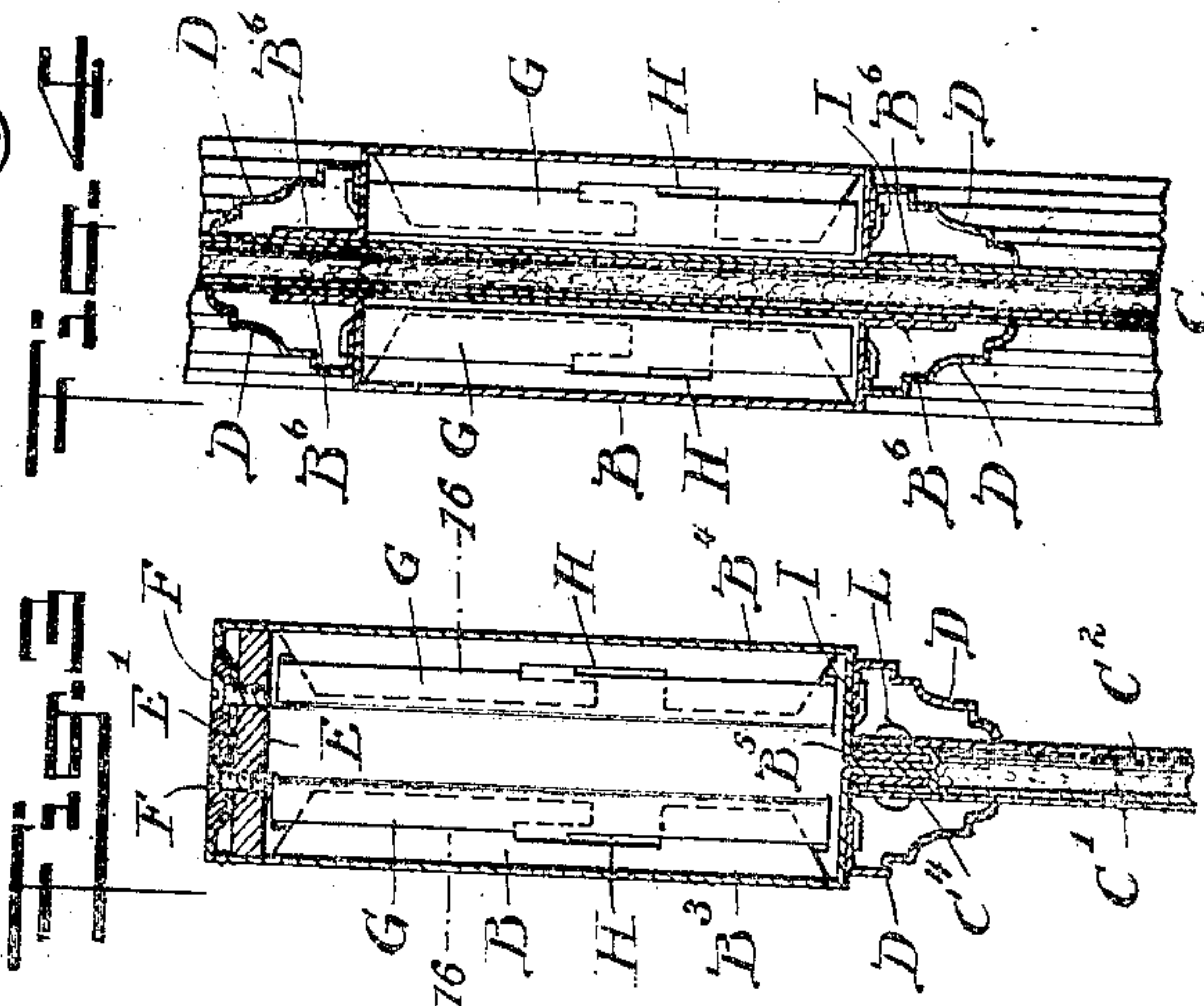
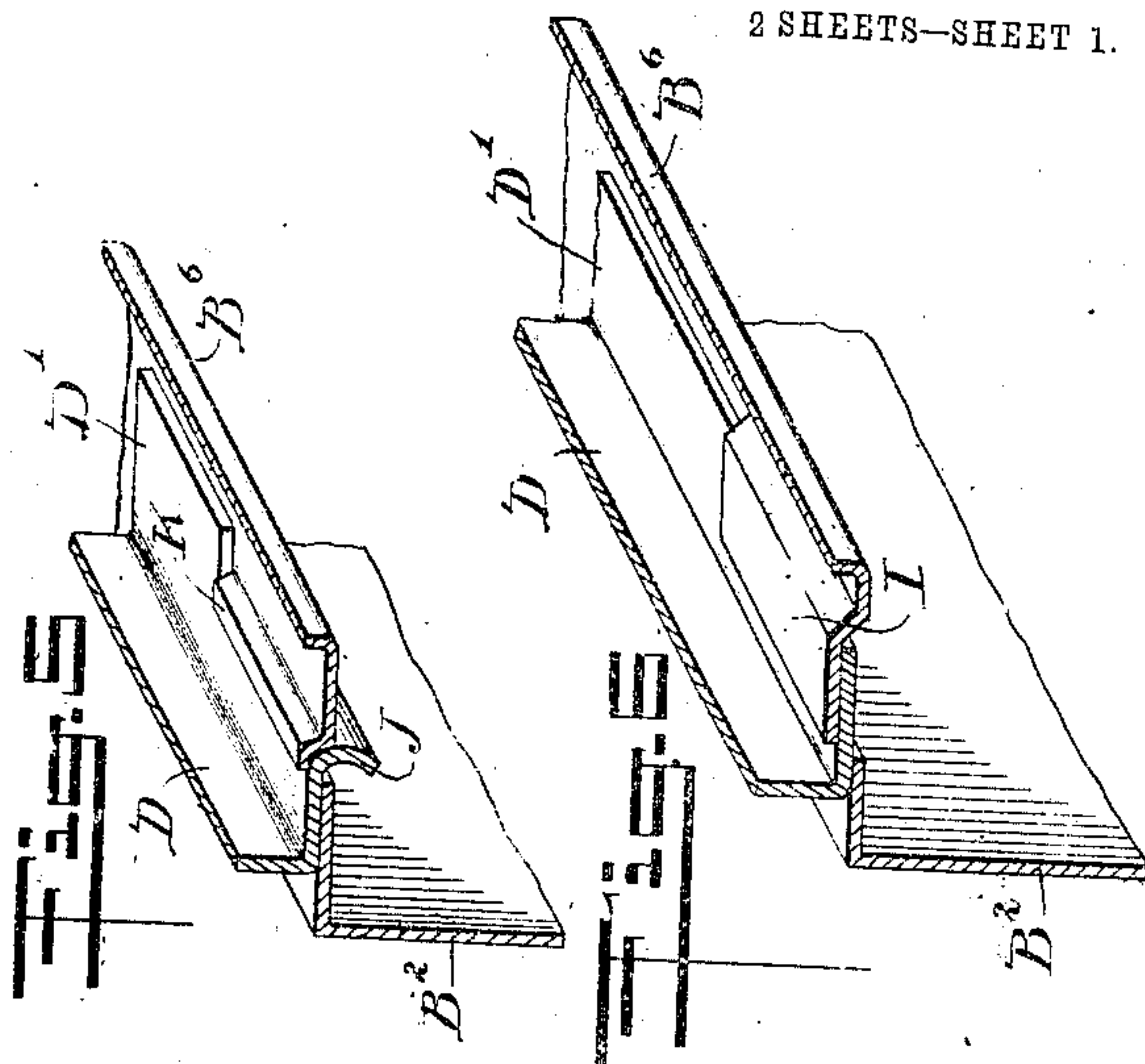


APPLICATION FILED JAN. 30, 1908.

2 SHEETS—SHEET 1.



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R. G. Hoisted

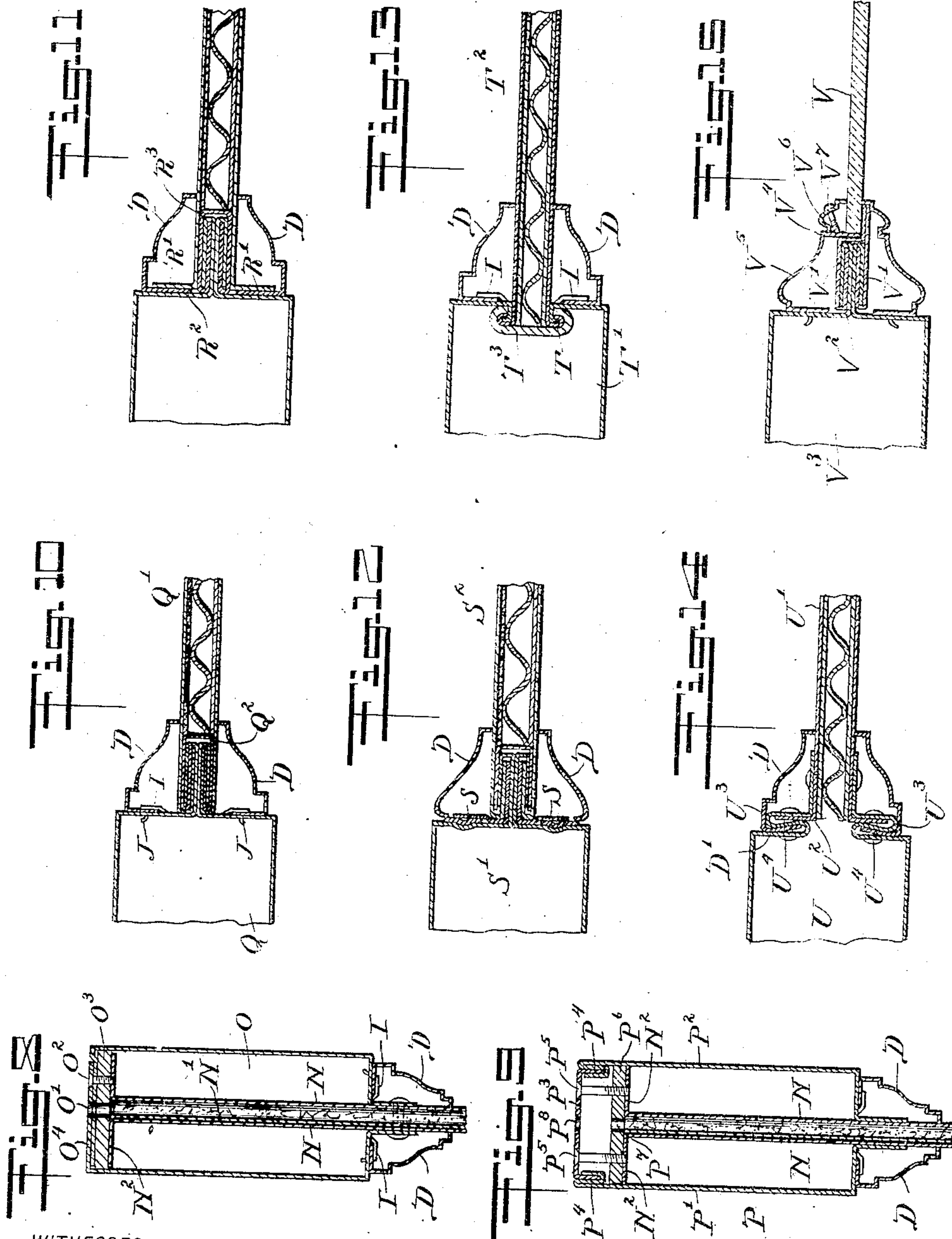
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METAL DOOR.
APPLICATION FILED JAN. 30, 1908.

918,142.

Patented Apr. 13, 1909.
2 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

ALVIN CARROLL GODDARD, OF NEW YORK, N. Y., ASSIGNOR TO J. F. BLANCHARD CO., OF
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METAL DOOR.

No. 918,142.

Specification of Letters Patent.

Patented April 13, 1909.

Application filed January 30, 1903. Serial No. 413,355.

To all whom it may concern:

Be it known that I, ALVIN CARROLL GODDARD, a citizen of the United States, and a resident of the city of New York, Long Island City, borough of Queens, in the county of Queens and State of New York, have invented a new and Improved Metal Door, of which the following is a full, clear, and exact description.

10 The object of the invention is to provide a new and improved door, made in its main parts of sheet metal, the parts being fastened or locked together to render the door exceedingly strong and capable of withstanding a high heat in case of fire, the means for fastening the parts together being invisible, thus rendering the door exceedingly ornamental.

15 The invention consists of novel features and parts and combinations of the same, which will be more fully described hereinafter and then pointed out in the claims.

20 A practical embodiment of the invention is represented in the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

25 Figure 1 is a face view of the metal door in position on the door casing; Fig. 2 is an enlarged sectional plan view of the same on the line 2—2 of Fig. 1; Fig. 3 is an enlarged transverse section of the same on the line 3—3 of Fig. 1; Fig. 4 is a like view of the same on the line 4—4 of Fig. 1; Figs. 5 and 6 are perspective views of the interlocking means for fastening the molding in place; Fig. 7 is a similar view of the interlocking means for the stiles and rails; Fig. 8 is a cross section of a modified form of the means for connecting the rail, panel and molding with each other; Fig. 9 is a like view of another modified form of the same, Figs. 10 to 15 are sectional plan views of modified forms of the means for connecting the stile, panel and molding with each other, and Fig. 16 is a section on the line 16—16 of Fig. 3.

30 35 40 45 50 55 The door is preferably made of sheet metal and in its general construction consists of the hollow stiles A, A', the hollow top and bottom rails B, B', the intermediate rail B², the panels C and the moldings D covering the joints between the panels and the stiles A, A' and rails B, B' and B². Each of the stiles A, A' is made of a single piece of sheet metal bent into tubular form (see Fig. 2), and having its ends meeting at

the middle of the inner side. The hollow top and bottom rails B and B' (see Fig. 3), are formed of two pieces of sheet metal B³, B⁴, connected with each other and the top rail B at the top thereof by reinforcing bars E, E', of which the bar E extends within the rail while the bar E' fits into a recess formed by bending the top portion of the pieces B³, B⁴ downwardly, as indicated in Fig. 3, the said top pieces and bars E, E' being connected with each other by screws F. The bottom rail B' is similarly constructed. The rails B' and B² are connected with the stiles A and A' by providing the stiles at the inner sides with struck-up keepers G, adapted to be engaged by bayonet slots H formed on the corresponding end of the rail B, B' or B² (see Figs. 3 and 7).

70 75 80 85 The panels C are formed of two sheets of metal C', C² having their sides terminating in double seam members C³ interlocked with like double seam members A² formed by flanges extending integrally from the inner sides of the stiles A and A' (see Fig. 2). In a like manner the top and bottom ends of the panels C', C² terminate in double seam members C⁴ interlocked with corresponding double seam members B⁵ formed on the rails B and B' (see Fig. 3).

90 95 The middle or intermediate rail B² is formed of two pieces of sheet metal having their tops and bottoms terminating in vertically-extending flanges B⁶ resting against the faces of the sheets C', C² of the panel C, as plainly indicated in Fig. 4, and the ends of the middle or intermediate rail B² are interlocked with the stiles A, A', the same as the top and bottom rails, that is, by means of the keepers G and the bayonet slots H (see Fig. 4).

100 The fastening of each strip of molding D with the corresponding stile A, A' and rail B, B', B² is the same, special reference being had to Figs. 5 and 6, which shows the molding D at the intermediate rail B².

105 110 The molding D is formed of a single strip of sheet metal bent to a desired ornamental cross section and provided with an inwardly-extending flange D' resting against the corresponding flange of the stile or rail, the said flange D' being engaged by a struck-up tongue I on the corresponding part of the stile rail (see Figs. 2, 3 and 4). The flange D' of each molding strip is also provided with an outwardly struck-up tongue J (see Fig. 5) adapt-

ed to abut against an opposite bent tongue or abutment K struck up on the corresponding part of the stile or rail, so that when the molding is forced in place the lug J in striking the abutment K is curved, to firmly interlock with the corresponding part of the stile or rail, as will be readily understood by reference to Fig. 5.

In assembling the parts of the door, the flange members for forming the double seams between the panels and the stiles and rail, are open to allow of conveniently engaging one double seam member with the other, and when this has been done, the engaged double seam members are pressed together, to completely interlock with each other, as shown in the drawings. In order to avoid a possible opening of the double seams, the two sets of abutting double seams are fastened together by rivets L (see Figs. 2 and 3).

In the modified form illustrated in Fig. 8, the spaced panel sheets N, N are extended into the rails O, and the latter are provided with vent openings O', registering with the space between the panel sheets N, N and with the corrugated filling N' of asbestos, so that air can circulate in the hollow door. The panel sheets N are provided with outwardly-extending frames N², secured by screws O², to a reinforcing bar O³, held on the inside of the rail under the overlapping flanges O⁴ of the rail O.

In the modified form shown in Fig. 9, the rail P is formed of two side sheets P', P² connected with each other by a cross piece P³, interlocked by seams P⁴ with the side sheets P', P². Screws P⁵ connect the cross piece P³ with the reinforcing bar P⁶ and the flanges N² of the panel sheet, the said bar P⁶ and the cross piece P³ having vent openings P⁷, P⁸ for admitting air to the air space and filling of the panel, the same as above described relative to the form shown in Fig. 8.

As shown in Fig. 10, the stile Q is interlocked with the double sheet panel Q' and with the reinforcing strip Q² by the double seams, the reinforcing strip extending between the two sheets of the panel Q' to reinforce the same.

As shown in Fig. 11, the moldings D are locked in place between flanges R' of the panel sheets R and the inner side of the corresponding stile R², the panel having a reinforcing bar R³ interlocked with the stile by the double seams.

The moldings D shown in Fig. 12 are fastened in place by separate angle irons S, one member of which is held in the corresponding double seam connecting the stile S' with the panel S², and the other member clamps the flange D' against the stile.

In the modified form shown in Fig. 13, the double seams T between the stile T' and the panel T², are inside of the stile and the said

seams T are connected with each other by a corresponding bar T³, having its sides curved over the said seams.

As shown in Fig. 14, the interlocking of the stile U, panel U' and molding D is in a transverse direction, an angle iron U² being riveted at one member to the corresponding panel sheet, and the other member being engaged by an S-shaped flange U³ on the stile side terminal. Rivets U⁴ serve to fasten the angle iron U², the flange U³ and the molding flange D' together.

The panel V shown in Fig. 15 is made of glass and rests on supporting members V' interlocked with the double seam members V² of the stile V³, the end of the glass panel abutting against a shoulder V⁴ on the shortened molding V⁵ on which is secured a retaining strip V⁶ by the use of screws V⁷, to hold the glass panel V in place. The strip V⁶ is shaped to render the appearance of the moldings alike on both faces of the door.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:

1. A metal door provided with hollow panels connecting the bars, the bars being formed of sheet metal bent into tubular form the ends of the sheet meeting at the inner side of the bar, and the hollow panel being formed of spaced sheets of metal having their margins interlocking with the ends of the sheets forming the bar, and moldings provided with inturned flanges for covering the joints, the bar being provided with tongues for engagement by the flanges.

2. A metal door provided with stiles and rails connecting the stiles with each other, each stile being formed of a single piece of sheet metal bent into tubular form, the ends of the sheet meeting at the inner side of the stile, and the said inner side having integral struck-up keepers, each of the said rails being hollow and provided at each end with bayonet slots for engagement with the said keepers.

3. A metal door provided with stiles and rails connecting the stiles with each other, each stile being formed of a single piece of sheet metal bent into tubular form, the ends of the sheet meeting at the inner side of the stile, and the said inner side having integral struck-up keepers, each of the said rails being formed of two pieces of sheet metal, and means for connecting the sheets together at the outer edge, each of the said pieces being provided at each end with a bayonet slot for engagement with the said keeper.

4. A metal door having members of sheet metal and each provided with a flange, the flange having tongues struck up in opposite directions, one of the tongues forming an abutment for the other tongue to strike against and be curved into locking position.

5. A metal door having a rail, a panel

formed of spaced sheets, and reinforcing members in the said panel sheets, the said rail, panel sheets and reinforcing members being interlocked by double seams.

5 6. A metal door having a rail having S-shaped flanges, a panel formed of spaced sheets, a molding having a flange, angle irons for reinforcing the panel sheets, and fastening means for securing the angle irons, the
10 rail flanges and the molding flanges together.

7. A metal door comprising stiles of sheet metal bent into tubular form, the ends meeting at the inner sides of the stiles and provided with seams, top and bottom rails
15 formed of two pieces bent into tubular form the pieces being connected at one edge by reinforcing bars and provided at the other edge with seams the stiles having struck up keepers and the rails being provided with

bayonet slots whereby to connect the stiles 20 and the rails, panels formed of spaced sheets having seams at their edges connecting with the seams of the stiles and the rails, an intermediate rail comprising two sheets arranged on each side of the panel and having flanges 25 engaging the same, said rail being provided with bayonet slots for engagement by the keepers of the stiles and molding covering the joints of the panel with the stiles and the rails.

30 In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ALVIN CARROLL GODDARD.

Witnesses:

H. J. MESLOH,
EMIL BLAUM.