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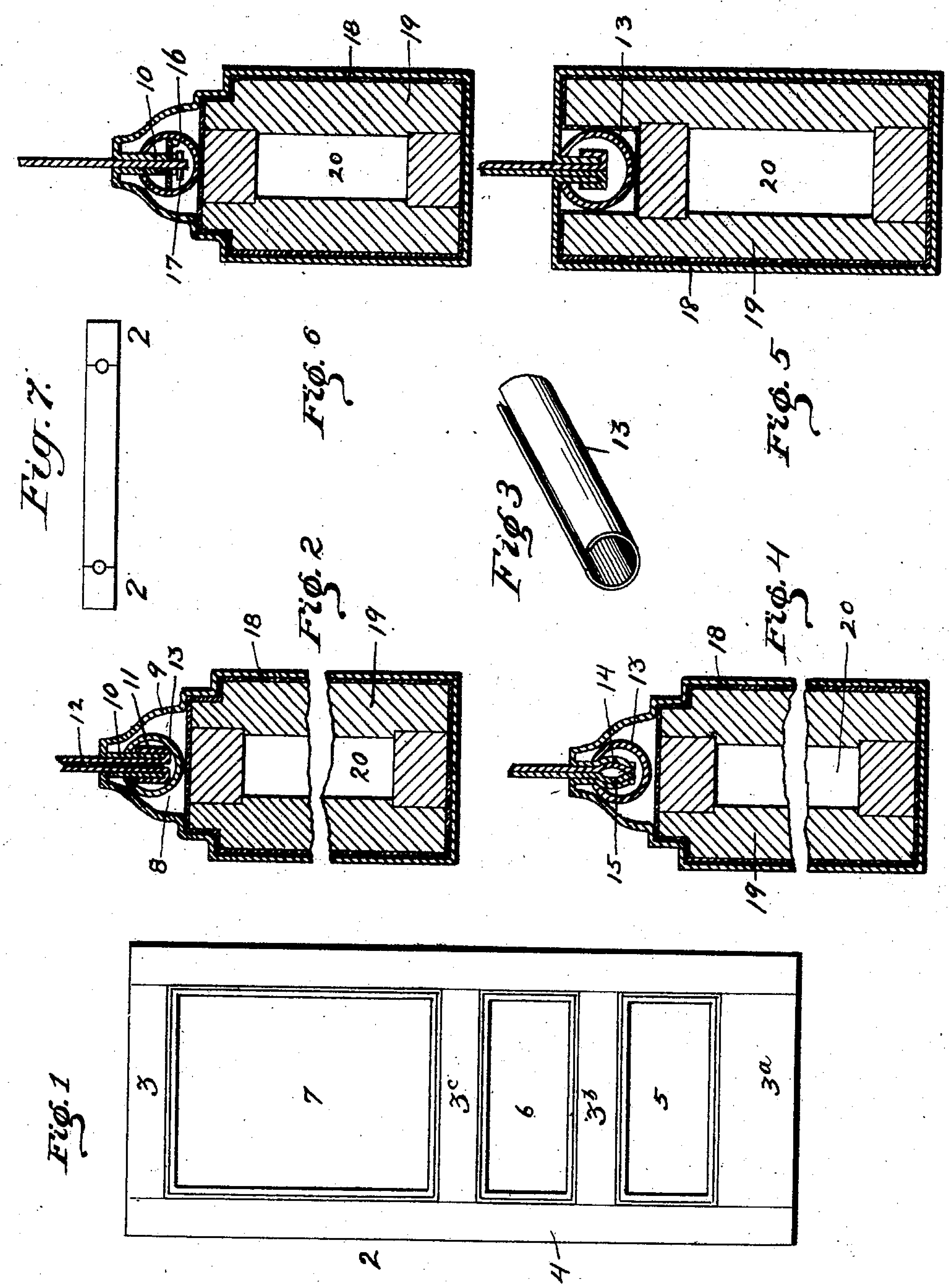
E. OHNSTRAND.

METALLIC FURNITURE.

APPLICATION FILED FEB. 20, 1903.

NO MODEL.



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No. 751,435. Patented February 2, 1904.

UNITED STATES PATENT OFFICE.

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METALLIC FURNITURE.

SPECIFICATION forming part of Letters Patent No. 751,435, dated February 2, 1904.

Application filed February 20, 1903. Serial No. 144,216. (No model.)

To all whom it may concern:

Be it known that I, ENOCH OHNSTRAND, a resident of Jamestown, in the county of Chautauqua and State of New York, have invented a new and useful Improvement in Metallic Furniture, (Case No. 1;) and I do hereby declare the following to be a full, clear, and exact description thereof.

My invention relates to metallic furniture, and within the term "furniture" as here employed are included doors, windows, partitions, and other fixtures, as well as bedsteads, bureaus, and like movable articles.

The object of my invention is to provide for the manufacture of such above-named articles from plate or sheet metal so as to obtain not only a durable and fireproof structure, but at the same time one whose parts are firmly united without the use of rivets or other like fastening devices, which increase the cost of manufacture and tend to mar the appearance of the finished article.

To these ends my invention comprises, generally stated, doors or other metallic furniture in which the rails, stiles, posts, &c., are each formed of a continuous piece of metal, the contiguous free ends of which are turned inwardly and adapted to receive between them the panels or like connecting parts, and a clamping or other connecting device adapted to engage the inwardly-projecting portions of the rail or stile, so as to provide for the connecting of the free ends of the metal of the rail or stile and bind the panel between the same in a secure and rigid manner.

My invention further consists in means for increasing the fireproof qualities, as well as for deadening the sound, all as hereinafter set forth and claimed.

To enable others skilled in the art to make and use my invention, I will describe the same more fully, referring to the accompanying drawings, in which—

Figure 1 is a view of a metallic door made in accordance with my invention. Fig. 2 is an enlarged view of the stile or rail, showing the manner in which the free ends of the stile or rail and the panel are connected and held together. Fig. 3 is a perspective view of a clamping device, and Figs. 4, 5, and 6 are modified forms of my invention. Fig. 7 is a top view of door.

Like numerals indicate like parts in each of the figures of the drawings.

I have illustrated my invention in connection with a metallic door, although, as above set forth, the invention may be applied to any article of furniture, fixed or movable.

The door 2 is composed of the top and bottom rails 3 3^a, together with the intermediate rails 3^b 3^c and the stiles 4 with the panels 5, 6, and 7. The stiles and rails are each (with the exception of the intermediate rails 3^b 3^c) formed of a continuous piece of metal, as indicated in Fig. 2, the metal being suitably shaped or bent to form the hollow body portion 8 of the stile, while at the same time, if desired, the molding or beveled portion 9 may be formed out of the same piece of metal, so that the necessity of attaching the said molding is avoided. The free ends of the metal are then bent inwardly to form the flanges 10, said flanges projecting a suitable distance within the hollow body of the rail or stile. The panels may be made of one or more thicknesses of steel or plate metal. Where the panel, as indicated in Fig. 2, consists of a double thickness of metal, the panel-pieces are inserted between the inwardly-extending flanges 10 of the stile or rail, the lower ends of the panel-pieces being turned outwardly, as at 11, to form hook portions or stops to engage the flanges 10, whereby the panels are locked securely in position to prevent their withdrawal or displacement. The panel-pieces may have interposed between them the asbestos or other suitable material 12, which will increase the fireproof qualities of the door and at the same time act to deaden sounds. The stiles and rails may also be provided with a lining 18, of asbestos or like material, together with an inner lining 19, of wood or other suitable material, so as to form one or more air-chambers 20, which act also to increase the fireproof qualities, as well as to deaden the sound. After the panel-pieces have been inserted in the manner described be-

tween the flanges 10 and so as to engage therewith by means of the outwardly-extending flanges 11 the means for holding the parts together is then applied, the means here illustrated consisting of a tubular section slit from end to end, thereby forming a slot longitudinally thereof when said edges are separated, the tubular shape and spring of the metal tending to force its edges together. This tubular section 13 is slipped endwise over the inwardly-extending flanges 10 of the rail or stile with its edges engaging the said flanges for substantially their entire length and so as to inclose the outwardly-extending flanges 11 of the panel-pieces in the manner indicated, the edges of said tubular section, owing to the spring of the metal, acting to bind the flanges and interposed panel-pieces tightly together and prevent the withdrawal of said panel-pieces. The outer ends of the flanges 11 act as shoulders or stops to pevent the withdrawal or slipping of the tubular section.

In assembling the parts the rails 3^b 3^c, which, owing to the fact that the panels enter from both sides thereof, cannot be made in one piece, have the panels inserted between them, and the tubular sections 13 are then driven in the open ends of the rails, so as to secure the rails and panels securely together. In the same manner the top and bottom rails 3 3^a are secured to the panels 7 and 5, the tubular section 13 being driven in from the side through the open ends of the rails in the same manner as in the case of the intermediate rails. The stiles 4 are now brought into position, and in order to connect them with the panels by means of tubular sections it is necessary to have apertures 21 formed in the top of the door, as indicated in Fig. 7, so that when the stiles are brought into proper position, with the side edges of the panels entering between the inwardly-extending flanges of the stiles, the tubular section 13 may be driven down through the aperture 21 for practically the entire length of the stile, so as to engage the inwardly-projecting flanges of the stiles and bind the side edges of the panels and stiles together. These apertures 21 may afterward be filled up with a suitable piece of metal.

The tubular section will act to securely unite the panel-pieces and the flanges of the rail or stile and bind them together, so as to form a secure connection without the use of rivets or other fastening devices. As the locking device is concealed or out of sight there is nothing to indicate the presence of a fastening device or anything which would mar the appearance of the door. The difficulties due to the loosening of rivets or other fastening devices is avoided, as the locking sleeve binds the parts in such a manner as to practically preclude any loosening of parts due to wear and tear.

By the employment of the asbestos lining between the panels as well as in the stiles and rails the conductivity is reduced, so that in case of fire in one compartment closed by a door of this character that side of the door in the adjoining compartment will be better able to resist destruction and prevent the spreading of the fire to such adjoining compartment. At the same time the lining acts to deaden sounds, so that in large office buildings or hotels noises or sounds in adjoining rooms do not carry to disturb other occupants of the building. In addition the air-chamber in the rail and stile reduces conductivity and also increases the protection against fire.

In Fig. 4 I have illustrated another form of my invention in which the inwardly-extending flanges of the rail or stile are formed with the bulging portion 14 extending longitudinally thereof, while the panel-pieces are also formed with a corresponding bulging portion 15, adapted to engage the bulging portion 14 of the inwardly-extending flanges 10. In this way the panel-pieces are adapted to engage with the inwardly-extending flanges of the stile or rail in such manner as to prevent the withdrawal or displacement of the tubular section.

In Fig. 5 I have illustrated still another form of my invention in which the stile or rail is formed without any beveled molding, the stile or rail being rectangular in cross-section with the free ends bent in to form the flanges 10, while the panel-pieces have the outwardly-extending flanges 11 engaging therewith, together with the tubular section 13, all as before described. In this case, however, the asbestos filling between the panel-pieces is omitted.

In Fig. 6 I have illustrated still another form of my invention in which the inwardly-extending flanges 10 of the rail or stile have the tongues 16 formed at intervals therein, said tongues projecting out at an angle to the flanges and acting when the tubular section is inserted to prevent the displacement or withdrawal of said tubular section. The lower ends of the panel-piece may be bent to form the shoulders 17 to engage the flanges 10 to prevent the withdrawal of the panel-pieces.

By my invention I am enabled to connect the panels of doors with the stiles and rails or the different parts of other articles of furniture—such as bedsteads, bureaus, &c.—by means of concealed fastenings without the use of rivets or like fastening devices, thereby greatly decreasing the cost of assembling the part to form the finished article as well as greatly enhancing the appearance of the finished article, while at the same time the durability is increased, since there is not the same liability of the parts working loose.

By having the parts united in the manner above set forth, with the beveled or like moldings integral therewith, the door or other piece of furniture is free from all rivet marks or dents caused by assembling the parts and

presents an unbroken and even surface at all points, so that when the finish, in imitation of mahogany or other woods, is applied a handsome and very effective appearance is obtained.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In metallic furniture, a stile, rail or other body portion having inwardly-projecting lips or flanges, and a panel or other part inserted between said inwardly-projecting lips, and separate connecting means within the stile for connecting the parts.

2. In metallic furniture, a stile, rail or other body portion having inwardly-projecting lips or flanges, a panel or other part adapted to be inserted between said projecting lips, and clamping mechanism within the stile engaging said projecting lips.

3. In metallic furniture, a stile, rail or other body portion having inwardly-projecting lips or flanges, a panel or other part adapted to be inserted between said projecting lips and having stops thereon, and clamping mechanism within the stile engaging said projecting lips beyond said stops.

4. In metallic furniture, a stile, rail or other body portion having inwardly-projecting lips or flanges, a panel or other part adapted to be inserted between said projecting lips and having a stop engaging said projecting portions, and means within the stile for connecting the parts.

5. In metallic furniture, a stile, rail or other body portion having inwardly-projecting lips or flanges, a panel or other part adapted to be inserted between said projecting lips, and a slitted tubular section adapted to engage said projecting lips.

6. In metallic furniture, a rail, stile or other body portion having inwardly-projecting lips or flanges, a panel or other part adapted to be inserted between said projecting lips and having outwardly-extending portions engaging said inwardly-projecting lips, and separate connecting mechanism within the stile engaging said inwardly-projecting lips.

7. In metallic furniture, a stile, rail or other body portion having inwardly-projecting lips or flanges, a panel or other part comprising panel-pieces adapted to be inserted between said inwardly-projecting lips, fireproof and sound-deadening material between said panel-pieces, and a connecting device within said stile engaging said projecting lips.

8. In metallic furniture, a stile, rail or other body portion having inwardly-projecting lips or flanges, a panel or other part comprising panel-pieces adapted to be inserted between said inwardly-projecting lips, fireproof and sound-deadening material between said panel-pieces and a clamping device within said stile engaging said projecting lips.

9. In metallic furniture, a hollow rail, stile, post or like body portion formed of a single piece of sheet or plate metal having inwardly-projecting lips or flanges, a panel or like part adapted to be inserted between said inwardly-projecting lips and a clamping device engaging said projecting lips.

10. In metallic furniture, a hollow rail, stile, post or like portion formed of a single piece of sheet or plate metal having beveled moldings formed thereon and having inwardly-projecting lips or flanges beyond the molding, a panel or like part adapted to be inserted between said lips, and a separate connecting device within the stile engaging said projecting lips.

11. In metallic furniture, a hollow rail, stile, post or like portion formed from a single piece of sheet or plate metal having an inner lining forming an air-space therein.

12. In metallic furniture, a hollow rail, stile, post or like portion formed from a single piece of sheet or plate metal, and a wooden lining in said rail forming an air-space therein.

13. In metallic furniture, a hollow rail, stile or like portion formed from a single piece of sheet or plate metal, a wooden lining in said rail forming an air-space therein, and an interlining of fireproof material between the inner walls of said rail and said wooden lining.

In testimony whereof I, the said ENOCH OHNSTRAND, have hereunto set my hand.

ENOCH OHNSTRAND.

Witnesses:
A. GILBERT,
R. M. BAUER.