A. H. OTIS.

SHEET METAL GATE.

APPLICATION FILED AUG. 7, 1915.

1,176,484. Patented Mar. 21, 1916.

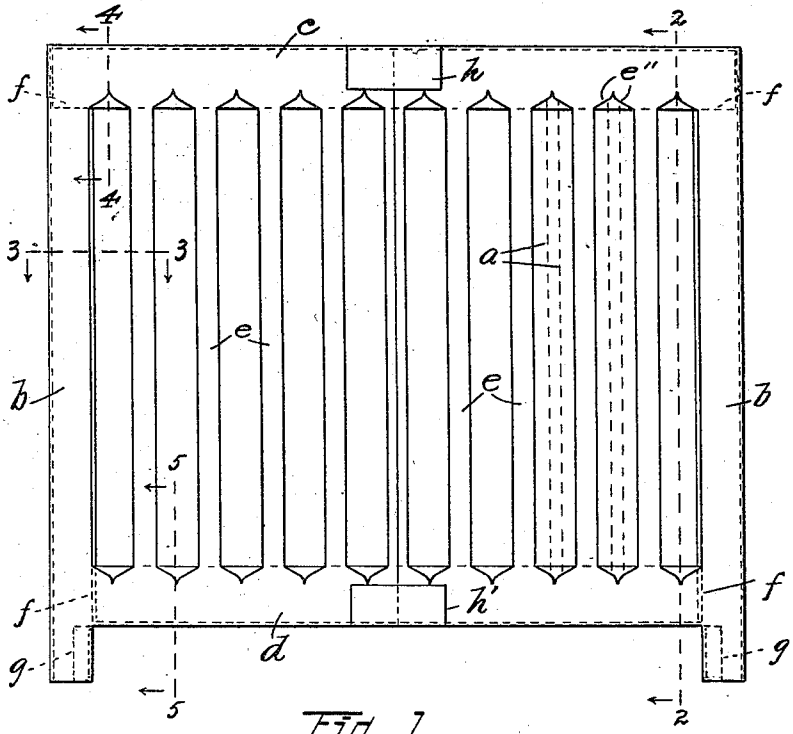


Fig. 1

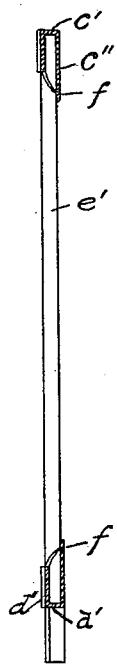


Fig. 2

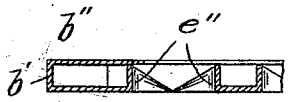


Fig. 3

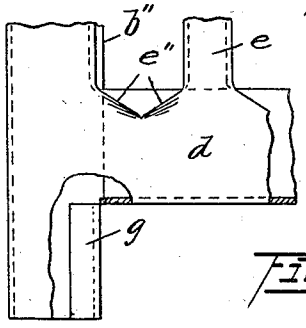


Fig. 6

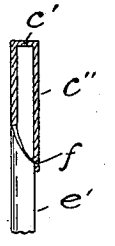


Fig. 4

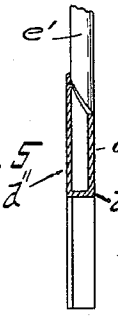


Fig. 5

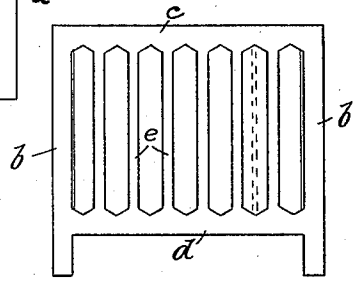


Fig. 7

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SHEET-METAL GATE.

1,176,484. Specification of Letters Patent. Patented Mar. 21, 1916.

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To all whom it may concern:

Be it known that I, ARTHUR H. OTIS, a citizen of the United States of America, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Sheet-Metal Gates, of which the following is a specification.

My invention relates to improvements in sheet metal gates, and has for its object the provision of a reinforced gate which is both light and strong, and will be cheap to construct.

The embodiment of my invention, set forth herein, is a gate of the type preferably used with elevator shafts and may be formed of one or more sheet metal stampings, suitably shaped and spot-welded to afford the necessary stiffness and reinforcement.

The details of construction may best be explained in connection with the accompanying sheet of drawings, wherein:—

Figure 1 is a view in front elevation of a gate embodying my invention. Fig. 2 is a cross sectional view thereof on line 2—2. Fig. 3 is an enlarged fragmentary section in a plane at right angles thereto on line 3—3. Figs. 4 and 5 are additional fragmentary cross-sections on lines 4—4 and 5—5, respectively. Fig. 6 is an enlarged detail, partially broken away and in sections, showing the bottom corner construction, and Fig. 7 is a view in elevation upon a smaller scale, showing a gate formed from a single sheet metal stamping, after the manner illustrated in the foregoing figures.

Throughout the several figures of the drawings, I have employed the same character of reference to indicate similar parts.

It will be understood that the features of construction are the same, whether the gate is formed from two symmetrical stampings as in Fig. 1, or from a single stamping, as in Fig. 7. In either case, the sheet metal blank is first cut to shape, and the spaces between the bars of the gate are slit at equidistant intervals, as along the dotted line *a*—*a*.

Although the gate is integral, for convenience, we may refer to the side posts *b*, and the top and bottom strips *c* and *d*; which latter are connected by the vertical bars *e*.

Referring to Figs. 2 and 3, it will be seen that the side post comprises a hollow member formed of two rectangularly folded sections of the metal *b'*, *b''*, the latter overlapping the inwardly bent section *e'* of the adjacent open space in the gate. Similarly, the top and bottom strips are folded back to form the rectangular sections *c'*, *c''* and *d'*, *d''*, as indicated in Fig. 2, which also overlap the backwardly bent members *e'*, integral with the bars *e*. At the tops and bottoms of said bars, the metal is stiffened by the connecting wings *e''*, forced back at these points.

Preferably at the four corners of the gate, as at *f*, the overlapping sections are spot-welded so as to stiffen the structure and prevent its deformation. In addition, the posts may be reinforced by sections of channel form, *g*, which are welded into the bases of said posts. Moreover, for convenience of construction, said gate may be formed of two symmetrical right and left hand sections, as shown in Fig. 1, which sections are connected by top and bottom members *h*, *h'*, overlapping the said strips of the gate and centrally welded thereto. Indeed, each of the overlapping or abutting portions of the gate may be spot-welded at any and all points which are deemed desirable, in order further to strengthen and stiffen the structure. However, this expense may be avoided unless the gate is subjected to more than ordinarily severe use.

With the construction described, the body or central portion of the gate comprises stiffened integral bars which are approximately U-shaped in cross-section and these bars may be disposed as closely together as is desired or some of the metal may be cut away to afford larger openings. As long as sufficient strength is provided, however, it is immaterial as to the exact form which is assumed by the central portion of the gate.

The gate, as stated, may be constructed of one or of a plurality of stampings, suitably secured or welded together as convenience of manufacture may dictate, and the reinforcements of channel form may be inserted within the hollow frame, at such points as reinforcement is found to be desirable. In the drawings I have shown, a very simple construction, or constructions, which exhibit the principles of my invention, the features whereof, I wish to protect together with any known equivalents of form, shape or material.

Having now described the preferred em-

bodiment of my invention, I claim as new and desire to secure by Letters Patent, the following:—

1. As a new article of manufacture, a sheet metal gate, comprising a sheet metal blank centrally slit at intervals with the body of the metal adjacent to the slits bent at right angles to the plane of the gate to form a series of reinforcing ribs throughout the body of the gate, substantially as set forth.

2. As a new article of manufacture, a sheet metal gate, comprising a sheet metal blank centrally slit at intervals with the body of the metal adjacent to the slits bent at right angles to the plane of the gate to form a series of reinforcing ribs throughout the body of the gate, and an integral frame bent from the blank at the top, bottom and sides thereof, to form hollow inclosing rails for the gate, substantially as set forth.

3. As a new article of manufacture, a sheet metal gate comprising a blank of sheet metal slit throughout the central portion thereof, with the adjacent metal bent back to form stiffening ribs and the exterior borders of the blank rectangularly bent throughout to form the inclosing hollow frame for the gate; said members being secured at the corners thereof, substantially as set forth.

4. As a new article of manufacture, a sheet metal gate, formed from a blank of sheet metal, having an integral frame bent twice at right angles along its bordering edges, to form top, bottom and side rails of hollow form; the same being secured at the corners of the gate, substantially as set forth.

5. As a new article of manufacture, a sheet metal gate, formed from a blank of sheet metal to provide a partially open central portion, and an inclosing frame bent twice at right angles along its bordering edges, and overlapping at the corners to form top, bottom and side rails, for the gate; the same being secured at the overlapping corners, substantially as set forth.

In testimony whereof I do now affix my signature in the presence of two witnesses.

ARTHUR H. OTIS.

Witnesses:
FRANK BUBNA,
ALBERT LYNN LAWRENCE.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents. Washington, D. C."