

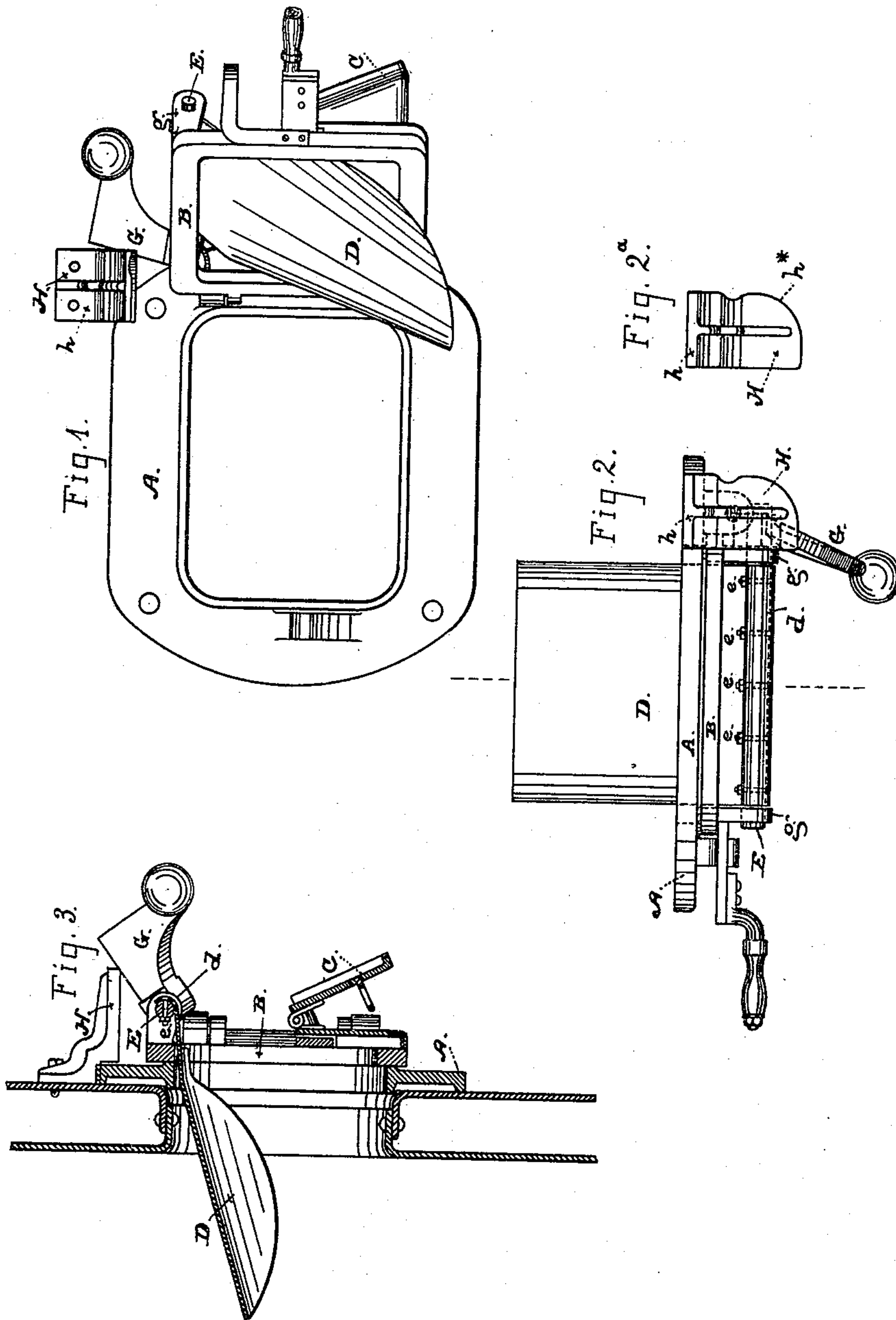
(No Model.)

A. J. STEVENS.

DEFLECTOR PLATE FOR FIRE BOXES.

No. 329,603.

Patented Nov. 3, 1885.



Witnesses:

Wm Maye
Ink

Inventor:

By his Atty. Andrew Stevens
Edith

UNITED STATES PATENT OFFICE.

ANDREW J. STEVENS, OF SACRAMENTO, CALIFORNIA.

DEFLECTOR-PLATE FOR FIRE-BOXES.

SPECIFICATION forming part of Letters Patent No. 329,603, dated November 3, 1885.

Application filed July 2, 1884. Serial No. 136,670. (No model.)

To all whom it may concern:

Be it known that I, ANDREW J. STEVENS, a citizen of the United States, residing in Sacramento, county of Sacramento, in the State of California, have invented certain new and useful Improvements in Deflector-Plates for Fire-Boxes of Steam-Boilers; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings.

My invention relates to an improvement in guard-plates or deflectors that are applied within steam-boiler fire-boxes behind the draft-openings, both to bring the air into more complete and thorough contact with the surface of the fuel and to produce such intimate combination of air and gases and consequent elevation of temperature that the tubes are not exposed to direct contact of cold air from the draft-openings.

The invention consists in the construction and combination of parts hereinafter described, and pointed out in the claims.

In the accompanying drawings, referred to by figures and letters, Figure 1 is a front view of a furnace-door frame and door with my improvement applied to it, the door being in open position. Fig. 2 is a top view, the door being closed; Fig. 2^a, a top view of the cam-plate; Fig. 3, a longitudinal section through the line *x x*, Fig. 2.

A represents the door-frame, and B the door, of a fire-box of ordinary construction. C is the air-door. D is the deflector, and E is a shaft or rod on the front of the furnace-door, to which the deflector is fastened in such manner as to be capable of moving up and down upon this point of attachment as a center. The deflector is a concave plate shaped like a scoop and of such width as to fit within the opening in the furnace-door. It is secured by the straight outer edge, *d*, to the rod E by means of short bolts *e e*; but while this end projects through the door the body of the deflector is on the inside. The rod E takes into small brackets or ears *g g* on the door, and at one end passes through the bracket to receive the counterweight-lever G. This lever and a fixed cam-plate, H, bolted to the

door-frame or the boiler-front, constitute the means for setting and holding the deflector in position for action when the furnace-door is closed, while the deflector itself is so hung and balanced that it is turned down or depressed by virtue of its own weight as the door is opened and thrown back. The deflector, being therefore permanently attached to the door, is automatically adjusted and brought into the required position for service inside the furnace, and is also withdrawn from the opening and turned down closely against the door out of the way of the fireman by the act of swinging back the door. The plate H has a flange, *h*, with bolt-holes to secure it to the front of the boiler, and the edge of the horizontally-projecting plate is curved. The arm G is set to ride against this curved edge, and is held at all times in contact with it by virtue of the superior weight of the deflector. The end of the arm is weighted to an amount sufficient to overcome excessive weight, but not to balance the deflector, as its own gravity is relied on to bring it down in the closed position clear of the doorway when the door is thrown open.

Fig. 1 of the drawings shows this operation of the deflector and its position when withdrawn, while the sectional view Fig. 3 illustrates the relative position of the parts of this lifting device when the door is closed and the deflector set.

As thus applied the deflector is a fixture, and is moved into and out of action automatically by the movements of the furnace-door on its hinges.

Having thus fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. The combination, with the furnace-door, of the swinging deflector-plate hinged to the door, the rod or shaft E, the lever G, and the fixed plate H, constructed and applied to operate to raise the plate into an inclined position behind the air-opening as the furnace-door is closed and to allow the plate to drop or be closed against the door by the act of opening the door, substantially as described.

2. The combination, with the air-opening

in a furnace-door, of the deflector plate attached to the back of the door and adapted to be withdrawn from and returned into the furnace by the movements of the door in
5 opening and in closing, and the shaft E, the lever G, and fixed plate H, having the curved outer edge, h^* , as a means of mechanically

turning the deflector into and out of position during such times of movement, for the purposes set forth.

ANDREW J. STEVENS. [L. S.]

Witnesses:

BERT. A. WORTHINGTON,
J. E. SHIELDS.