(No Model.) 2 Sheets—Sheet 1.

# H. P. TALLMADGE.

## GRATE.

No. 376,170. Patented Jan. 10, 1888.

FIG. 1.

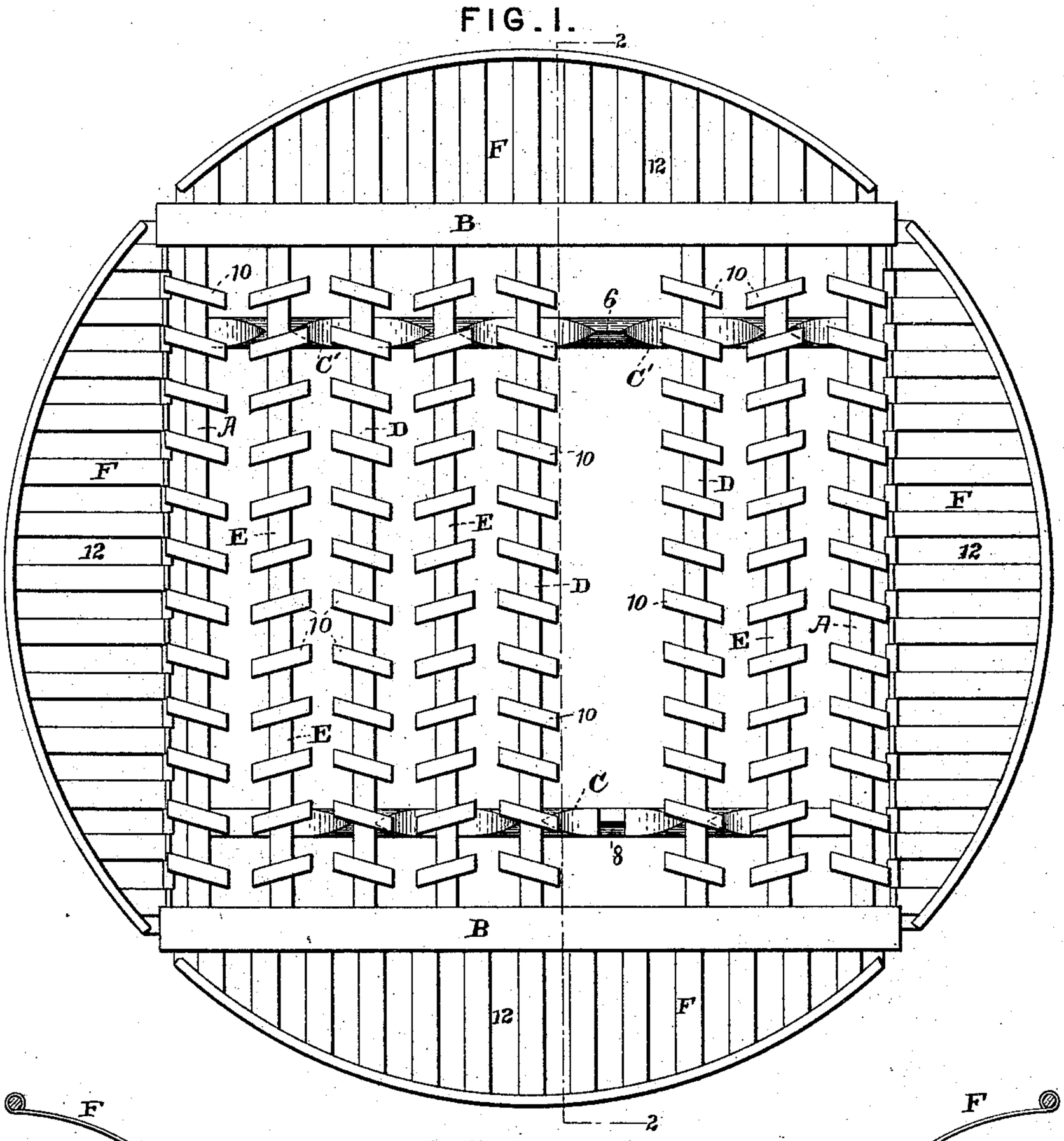
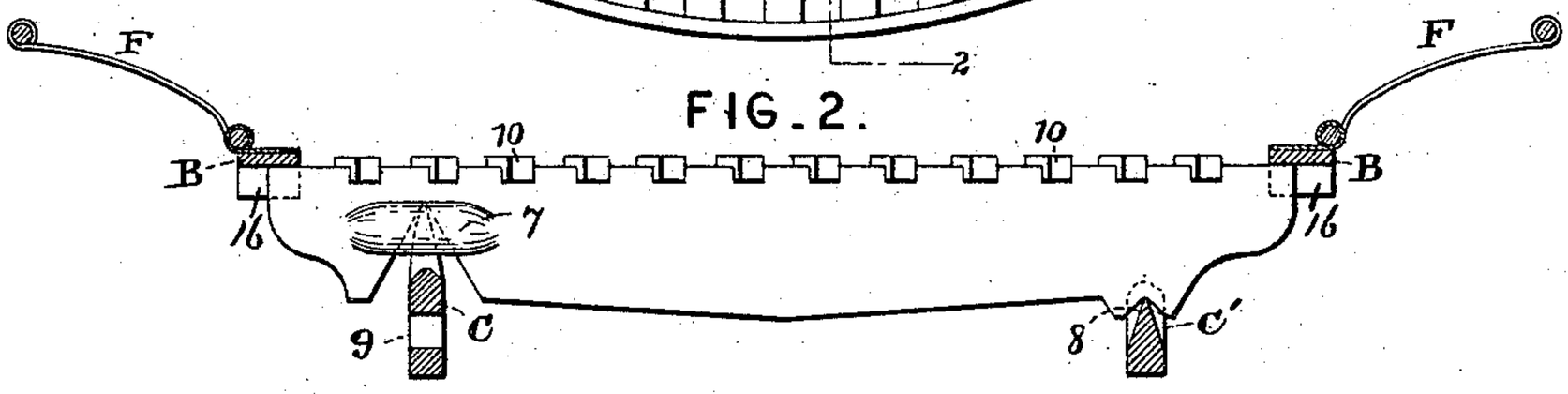



FIG. 2.




Attest.

Geo. T. Smallwood.

Philip Hawes.

Inventor:

Hiram P. Tallmadge

By A. Pollok atty

(No Model.) 2 Sheets—Sheet 2.

# H. P. TALLMADGE.

## GRATE.

No. 376,170. Patented Jan. 10, 1888.

FIG. 3.

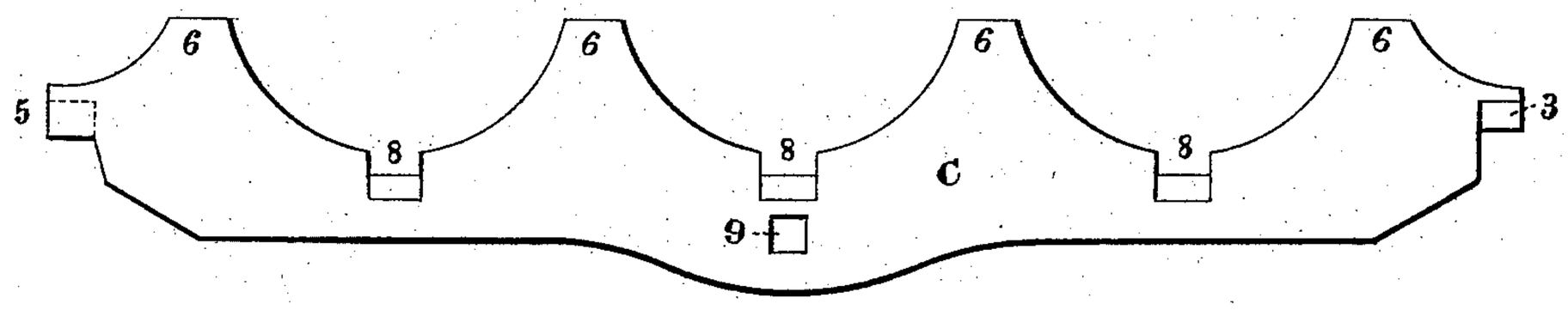
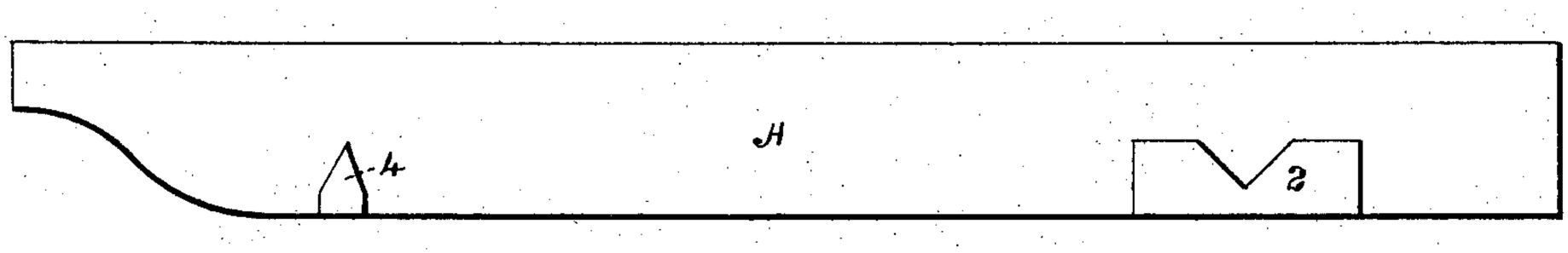



FIG. 4.




Attest:
Geo. P. Smallwood.
Philip Mauro.

Inventor:
Hiram P. Tallmadge
By A. Pollok atty

# UNITED STATES PATENT OFFICE.

HIRAM P. TALLMADGE, OF BOSTON, MASSACHUSETTS.

## GRATE.

SPECIFICATION forming part of Letters Patent No. 376,170, dated January 10, 1888.

Application filed October 30, 1886. Serial No. 217,599. (No model.)

*To all whom it may concern:*

Be it known that I, HIRAM P. TALLMADGE, of Boston, in the county of Suffolk and State of Massachusetts, have invented a new and useful Improvement in Fire Grates, which improvement is fully set forth in the following specification.

This invention has reference to grates for stoves, furnaces, &c., wherein the grate-bars, or some of them, are constructed and arranged to be rocked or reciprocated horizontally to sift out ashes and cinders and clear the fire.

The object of the invention is to simplify and improve the construction of such grates with a view to rendering them cheaper, more durable, and less likely to get out of order.

My said invention comprises certain improvements in the construction of grates of the character indicated, as hereinafter fully set forth.

In the accompanying drawings, which form a part of this specification, Figure 1 is a plan view of a grate constructed in accordance with the invention, one of the grate-bars being removed; Fig. 2, a sectional elevation showing the shape of the grate-bar; Fig. 3, a detail of the rock-bar, and Fig. 4 a detail of the hanging bar.

The stationary parts or the frame of the grate comprise the hanging bars A, one at each side of the grate, and the headers B, secured to the latter at each end thereof. The hangers are designed to be supported in the furnace or stove in any suitable way. The hangers have bearings for the rock-bars C. These bearings may be formed in lugs or brackets fastened to the side of the bar, as shown in Fig. 4. The lug 2 at one end of the hanger is provided with a notch, in which the end 3 of the rock-bar, Fig. 3, provided with a knife-edge, rests. The lug 4 at the other end of hanger A is provided with a knife-edge, and when this form of bearing is used the end of the rock-bar must be notched, as at 5, Fig. 3. The rock-bars have projections or arms 6, extending above the axis thereof, and provided with knife-edges, which enter notches in the under side of the grate-bars D. These bars are held in place by gravity, and are prevented from lateral movement by the strips or guards 7 (see Fig. 2) on each side of the bar and embracing between them the end of the arm or projection 6. These strips also strengthen the bar at the part where it is weakest. The grooves 16, Fig. 2, in the headers B also keep the grate-bars from lateral movement.

The grate-bars which rest upon and are operated by the projections 6 of the front rock-bar, C, are lettered D in the drawings. The alternate bars are lettered E. The latter rest upon knife-edge bearings 8 on bar C, which alternate with the projecting arms 6 and are below the axis of said bar. The construction of the rear rocking-bar, C′, is similar to that of the front bar, C, except that the lower bearings, 8, are in line with the arms 6 of the front bar, and vice versa. Thus each grate-bar D E is supported above the axis of one of the rocking bars and below the axis of the other. By this arrangement the grate-bars can all be made of the same pattern, the bars D when placed in the grate being turned in the opposite direction to the bars E. The rock-bars C C′ move in opposite directions—that is, each bar is supported above the axis of one rock-bar and below the axis of the other. The rock-bars C move in opposite directions.

A hole, 9, may be provided in one of the rock-bars C for the insertion of a shaking-handle.

The cross-sections 10 on the top of the grate-bars are placed obliquely thereto, as shown in Fig. 1. Preferably the sections on adjacent bars are inclined in opposite directions. These lugs or cross-sections project above the body of the bars D E, and the object of their oblique arrangement is not only to stir the fire more effectively, but also to prevent the hoe or slice-bar being caught between the lugs in drawing or banking.

I am aware that grate-bars have been provided with oblique lateral projections flush with the top of the bar, and that stationary grate-bars have been obliquely disposed in a grate, and do not wish to cover either construction.

The square grate may be adapted to fit a round fire-chamber by means of the movable sections F. (Shown in plan in Fig. 1 and in section in Fig. 2.) These sections are castings having the shape in plan of the segment of a circle, and they have slots or spaces 12 for the passage up-

ward of air and downward of the ashes, &c. These sections F slope downwardly toward the shaking-grate, so as to conduct the fuel thereto.

I claim—

1. The combination of the two rock-bars rocking in opposite directions and having bearings for grate-bars alternately above and below their axes, the upper bearings of one bar being opposite the lower bearings of the other, and a series of grate-bars, all of the same pattern, having at one end a deep notch and at the other a shallow notch corresponding with the bearings on said rock-bars, alternate bars being turned in opposite directions, substantially as described.

2. The combination of the hangers, the rock-bars supported thereby and having arms or projections, as specified, the grate-bars having notches to receive said projections, and guards on the sides to prevent lateral movement, whereby the grate-bars are reciprocated, supported, and held in place by said rock-bars, substantially as described.

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

HIRAM P. TALLMADGE.

Witnesses:

HORACE G. ALLEN,

GEORGE D. ALDEN.