

No. 670,719.

Patented Mar. 26, 1901.

J. O. MORRIS.
MARINE BOILER FURNACE.

(Application filed Dec. 29, 1900.)

(No Model.)

Fig. 1.

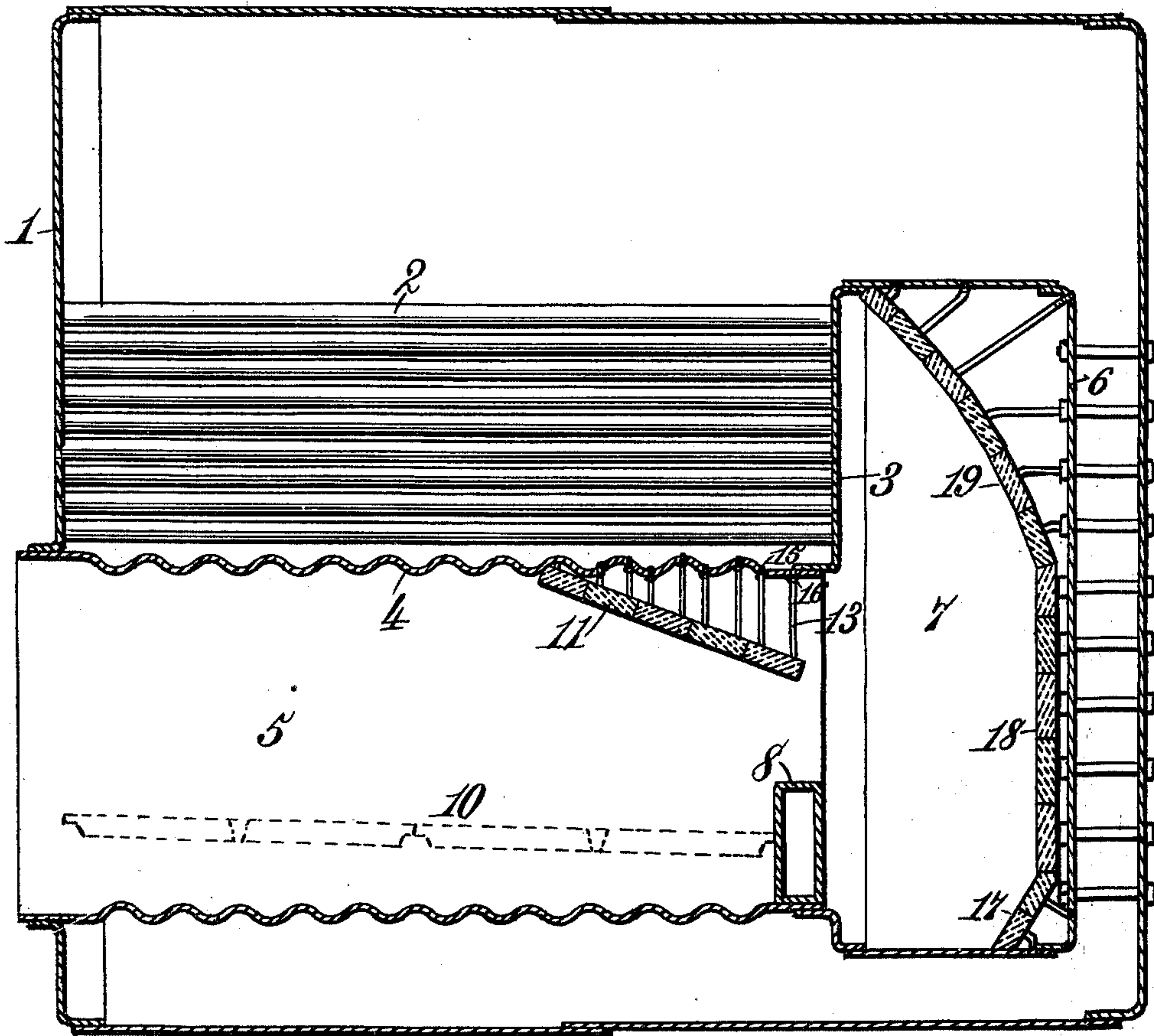
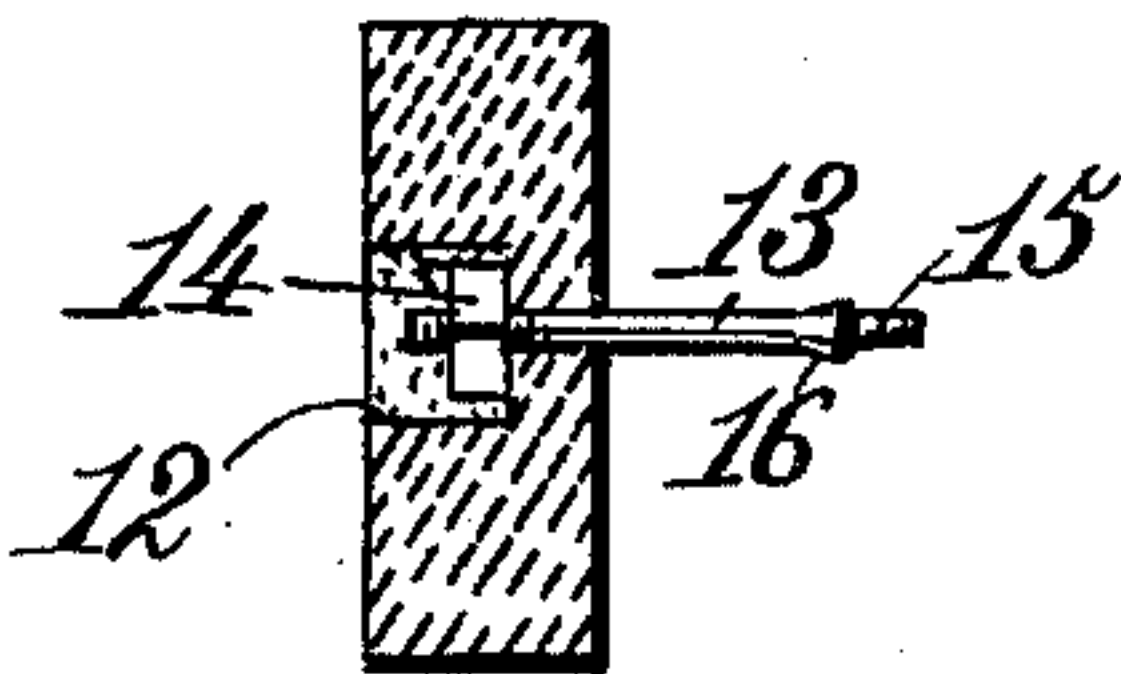


Fig. 2.



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UNITED STATES PATENT OFFICE.

JOHN ODEN MORRIS, OF RICHMOND, VIRGINIA, ASSIGNOR TO THE MORRIS SMOKELESS FURNACE CO., OF PORTSMOUTH, VIRGINIA.

MARINE-BOILER FURNACE.

SPECIFICATION forming part of Letters Patent No. 670,719, dated March 26, 1901.

Application filed December 29, 1900. Serial No. 41,502. (No model.)

To all whom it may concern:

Be it known that I, JOHN ODEN MORRIS, a citizen of the United States, residing at Richmond, in the county of Henrico and State of Virginia, have invented new and useful Improvements in Marine-Boiler Furnaces, of which the following is a specification.

This invention relates to certain new and useful improvements in marine-boiler furnaces, and is particularly adapted for use in connection with marine engines.

The invention aims to construct a marine-boiler furnace for consuming all the combustibles contained in the fuel, thereby increasing the temperature of the heat, obtaining a considerable saving in the consumption of fuel, and deflecting the heat uniformly through the boiler-flues; and to this end the invention consists in providing the fire-box with a deflecting-wall near the bridge-wall of the furnace and the chamber for the products of combustion at the rear of the bridge-wall with a deflecting-wall for causing the products of combustion to pass uniformly into the flues, thereby increasing the rapid generation of steam.

The invention further aims to construct a marine-boiler furnace which shall be extremely simple in construction, strong, durable, efficient in its use, and comparatively inexpensive to set up.

The invention finally consists in the novel combination and arrangement of parts hereinafter more specifically described, illustrated in the accompanying drawings, and particularly pointed out in the claims hereunto appended, and in describing the invention in detail reference is had to the accompanying drawings, forming a part of this specification, wherein like numerals of reference indicate corresponding parts throughout both views, and in which—

Figure 1 is a sectional elevation of my improved boiler-furnace. Fig. 2 is a detail view of one of the bricks forming the deflecting-wall and the tie for securing the same in position.

Referring to the drawings by reference-numerals, 1 indicates the walls of the boiler-furnace, 2 the flues, 3 the flue-sheet, 4 the top wall of the fire-box 5, 6 the walls of the

chamber 7, 8 the hollow bridge-wall, and 10 the grate-bars, the foregoing being the ordinary construction of a marine-boiler furnace.

Secured to the top wall 4 of the fire-box, near the inner end thereof and a portion thereof above the bridge-wall, is a downwardly-extending inclined deflector consisting of a series of bricks 11, constructed of fireproof material and each formed with a countersunk opening 12, through which extend the hangers or ties 13, provided on their lower ends with the nut 14 and near their upper ends with the screw-threaded portion 15, terminating at its lower end in the swell or offset 16. The hanger or tie is screwed up into the top wall 4 of the fire-box until the latter is engaged by the swell or offset, forming a tight joint. The hangers or ties gradually increase in length toward the rear of the fire-box, so that the deflector when in position will extend downwardly at an inclination toward the rear of the fire-box and contract the opening between the chamber 7 and the fire-box 5, and, furthermore, the deflector will cause the products of combustion to be deflected downwardly at an inclination against the deflecting-wall of the chamber 7.

The deflecting-wall of the chamber 7 consists of an inclined lower section 17, a vertical central section 18, and a curvilinear upper section 19, each of which is formed of a series of bricks of fireproof material similar to and secured in a like manner as the bricks employed in the deflector, the same reference-numerals being applied thereto.

By the employment of the inclined deflector near the end of the fire-box the passage of the products of combustion is retarded somewhat and the smoke or other gases consumed to a certain extent, increasing thereby the temperature of the heat and a saving in the consumption of fuel. The products of combustion when leaving the fire-box will be deflected against the vertical section 18 of the wall in the chamber 7 and then pass upwardly and are deflected by means of the curvilinear upper section 19 through the flues. The deflecting-wall causes the products of combustion to pass substantially uniformly through the flues, so that a rapid generation of steam will take place.

The many advantages in constructing a marine-boiler furnace in the manner set forth by the foregoing description, taken in connection with the accompanying drawings, will be apparent and it will be noted that various changes can be made in the details of construction without departing from the general spirit of my invention, which consists in providing the deflector in the fire-box for retarding the passage of the products of combustion, and, further, providing a deflecting-wall for causing the heating of the flues by the products of combustion in a uniform manner.

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

1. In a marine-boiler furnace, the combination with the fire-box and boiler thereof, of a downwardly-inclined deflector arranged thereon, and a deflecting-wall consisting of inclined vertical and curvilinear sections arranged at the rear of the fire-box and adapted to deflect the products of combustion through the flues of the boiler.

2. In a marine-boiler furnace, the combination with the fire-box and boiler thereof, of a downwardly-inclined deflector formed of a series of fireproof bricks arranged in said fire-box and adapted to retard the passage of the products of combustion over the bridge-wall, and a deflecting-wall formed of a series of

fireproof bricks arranged at the rear of said fire-box and adapted to deflect the products of combustion through the flues of the boiler.

3. In a marine-boiler furnace, the combination with the fire-box and boiler thereof, of a series of fireproof bricks suspended therein and forming a downwardly-extending inclined deflector for retarding the passage of the products of combustion, a deflecting-wall formed of inclined, vertical and curvilinear sections arranged at the rear of said fire-box and adapted to deflect the products of combustion through the flues of the boiler, and means for tying said sections in position.

4. In a marine-boiler furnace, the combination with the fire-box thereof, of a series of fireproof bricks suspended therein and forming a downwardly-extending inclined deflector for retarding the passage of the products of combustion, a deflecting-wall consisting of inclined, vertical and curvilinear sections each formed from a series of separate fireproof bricks, and means for tying said bricks in position.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

JOHN ODEN MORRIS.

Witnesses:

GEO. E. SULLIVAN,
GEO. W. REA.