

No. 700,546.

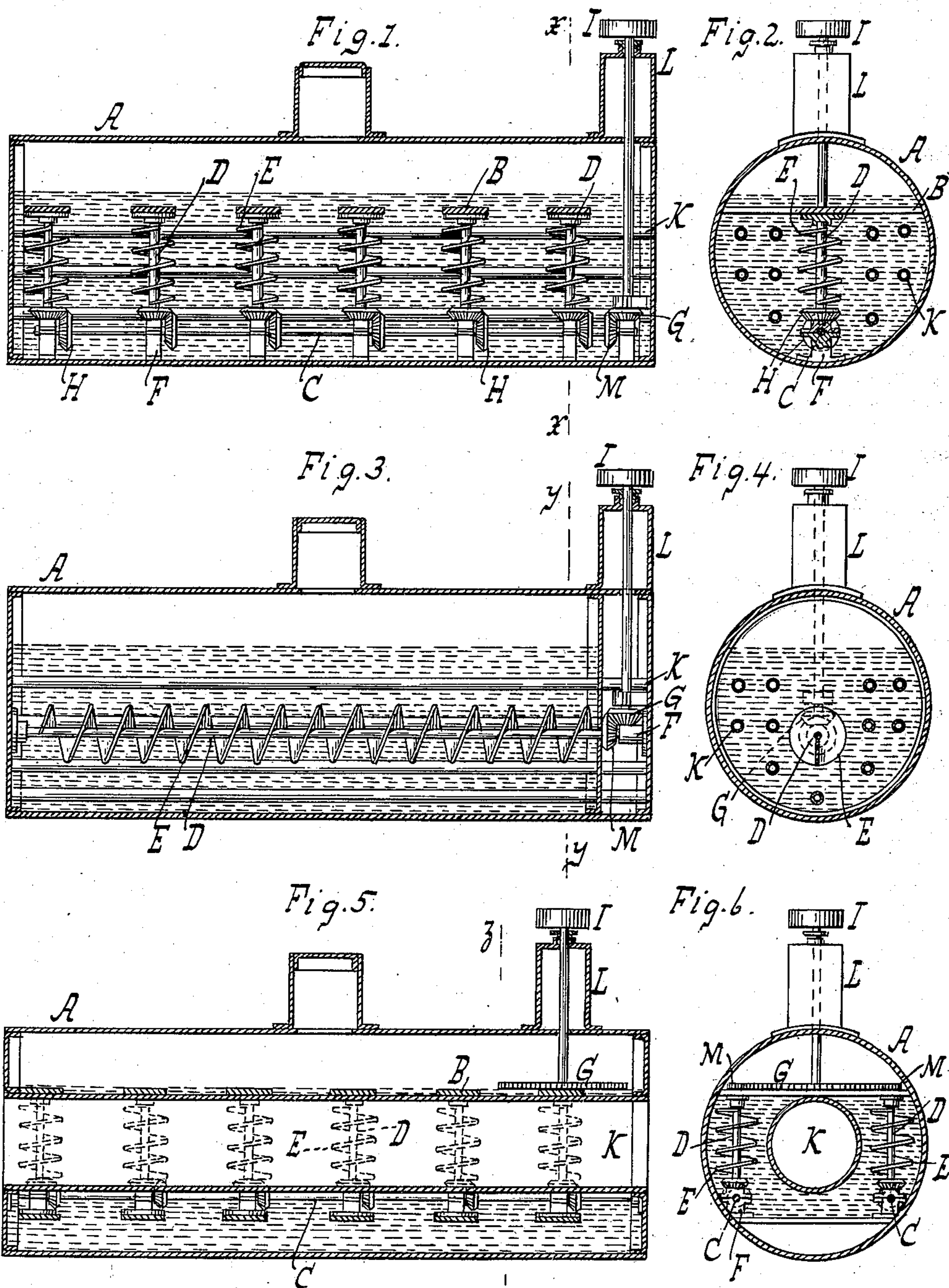
Patented May 20, 1902.

C. NALENCE.

WATER HEATER AND STEAM GENERATOR.

(Application filed Jan. 3, 1902.)

(No Model.)



WITNESSES:

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UNITED STATES PATENT OFFICE.

CHARLES NALENCE, OF CRANFORD, NEW JERSEY.

WATER-HEATER AND STEAM-GENERATOR.

SPECIFICATION forming part of Letters Patent No. 700,546, dated May 20, 1902.

Application filed January 3, 1902. Serial No. 88,314. (No model.)

To all whom it may concern:

Be it known that I, CHARLES NALENCE, a citizen of the United States, residing at Cranford, in the county of Union and State of New Jersey, have invented new and useful Improvements in Water-Heaters and Steam-Generators, of which the following is a specification.

In steam-boilers, as known, it is desirable to obtain as large a water-heating surface as possible, and the more intense the heat the more violently is the water agitated. At the same time, however, it is desirable to economize fuel as much as possible, and mechanical means for agitating the water more or less, as required, will aid the fuel in causing circulation and thorough heating. A small amount of fuel can thus be made to yield or produce the required quantity or pressure of steam. My invention resides in an axle with water-impelling devices of suitable form, as hereinafter described, said axle or shaft being placed inside a boiler and rotated to secure the violent moving or stirring of the water required for thorough heating. Said invention is set forth in the following specification and claims and illustrated in the annexed drawings, in which—

Figure 1 shows a boiler with my improvement in one position, the boiler being of the so-called "horizontal" type, although the invention is not confined to such structure. Fig. 2 is a section along xx , Fig. 1. Fig. 3 shows a horizontal boiler with horizontal shaft. Fig. 4 is a section along yy , Fig. 3. Fig. 5 shows a boiler with one large flame-tube of suitable form and stirrer-shafts in vertical position. Fig. 6 is a section along zz , Fig. 5.

In the drawings the letter A indicates a boiler of any suitable type. A fastening-rail (shown at B, Fig. 1) is adapted to form a bearing for one or more axles or shafts D, which are suitably driven. The shaft D is shown with a water-impelling device E, such as spiral wings or propellers or other suitable form of agitator or mixer. These shafts are suitably supported in pillow-blocks F and receive motion from gears H on the main or driving shaft C. The shaft C receives mo-

tion from any suitable source, as electricity, steam, or hand-power. In the drawings are shown gears M, driven by gear G, whose axle receives motion from a pulley I, said axle being extended through a suitable stuffing-box in an extension or chamber L of the boiler, so that waste or escape of steam is avoided.

The flame-tubes K need not be specially described.

Modifications can of course be made without departing from the invention.

The horizontal shaft D, (shown in Fig. 3,) resting against the end pillow-blocks F, will also impel or stir the boiler-water; but a series of stirrers, as shown in Figs. 1 and 5, is quick-acting and efficient. The water at any one point if heated and impelled by the driving device to be replaced by another quantity of water less or differently heated will impart from its heat as it moves along, and colder particles of water coming to the points of the boiler directly heated or fired will in turn be heated and propelled, so that the heat is rapidly diffused through or imparted to the entire mass or body of water.

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

1. A boiler provided with a fastening-rail, a driving or main axle, axles driven by the main axle and having a bearing in the fastening-rail, and water-impelling devices carried by the driven axles.

2. A boiler provided with a fastening-rail and pillow-blocks, a driving or main axle extended longitudinally through the boiler, axles placed transversely to and driven by the main axle and supported in said fastening-rail and pillow-blocks, water-impelling devices on said transverse axles, and driving gears and shaft for the main axle, said boiler having a stuffing-box chamber for the passage of said last-named shaft.

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

CHARLES NALENCE.

Witnesses:

FRANK B. HAM,
A. J. W. TRIMBLE.