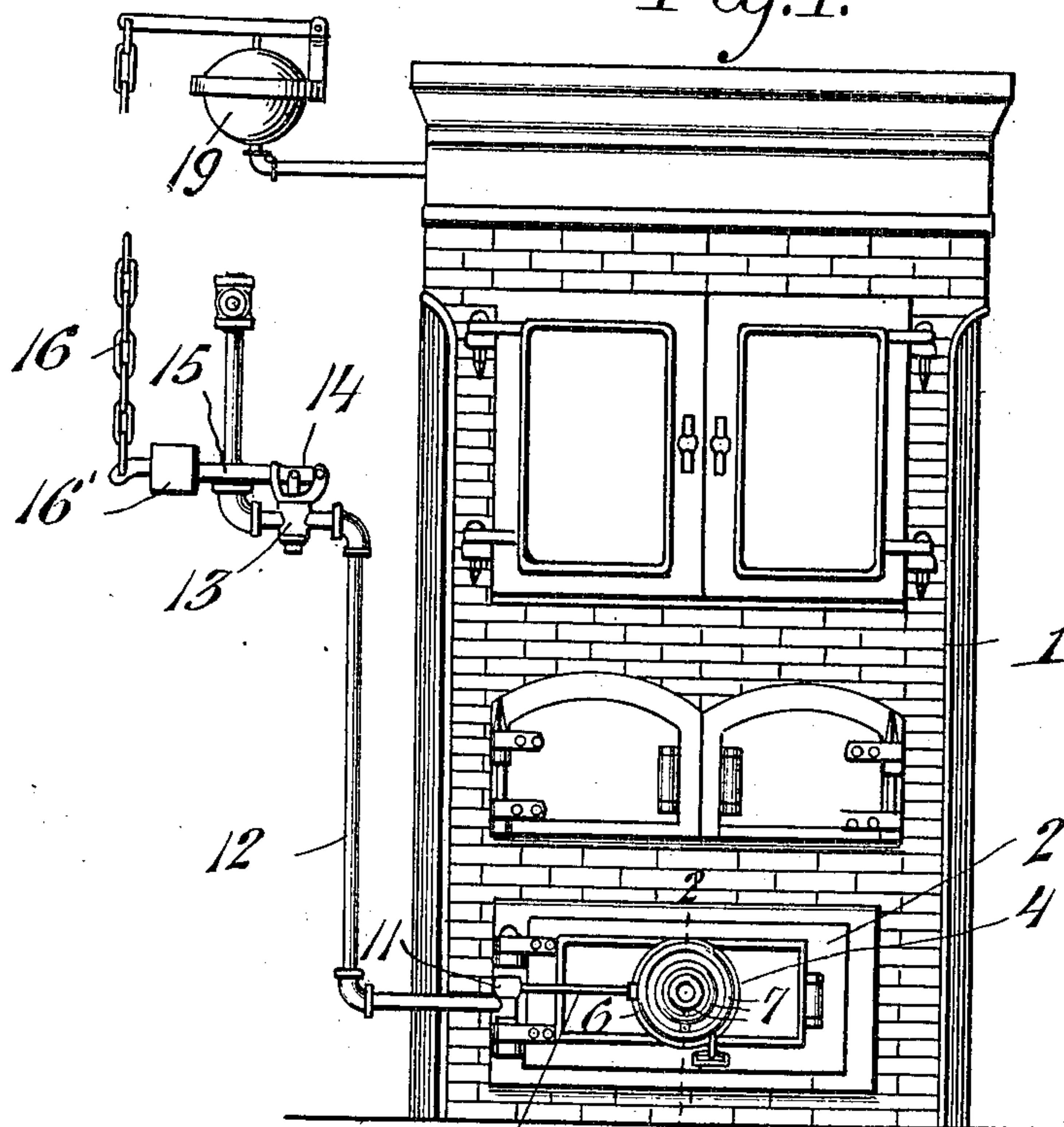


No. 825,776.

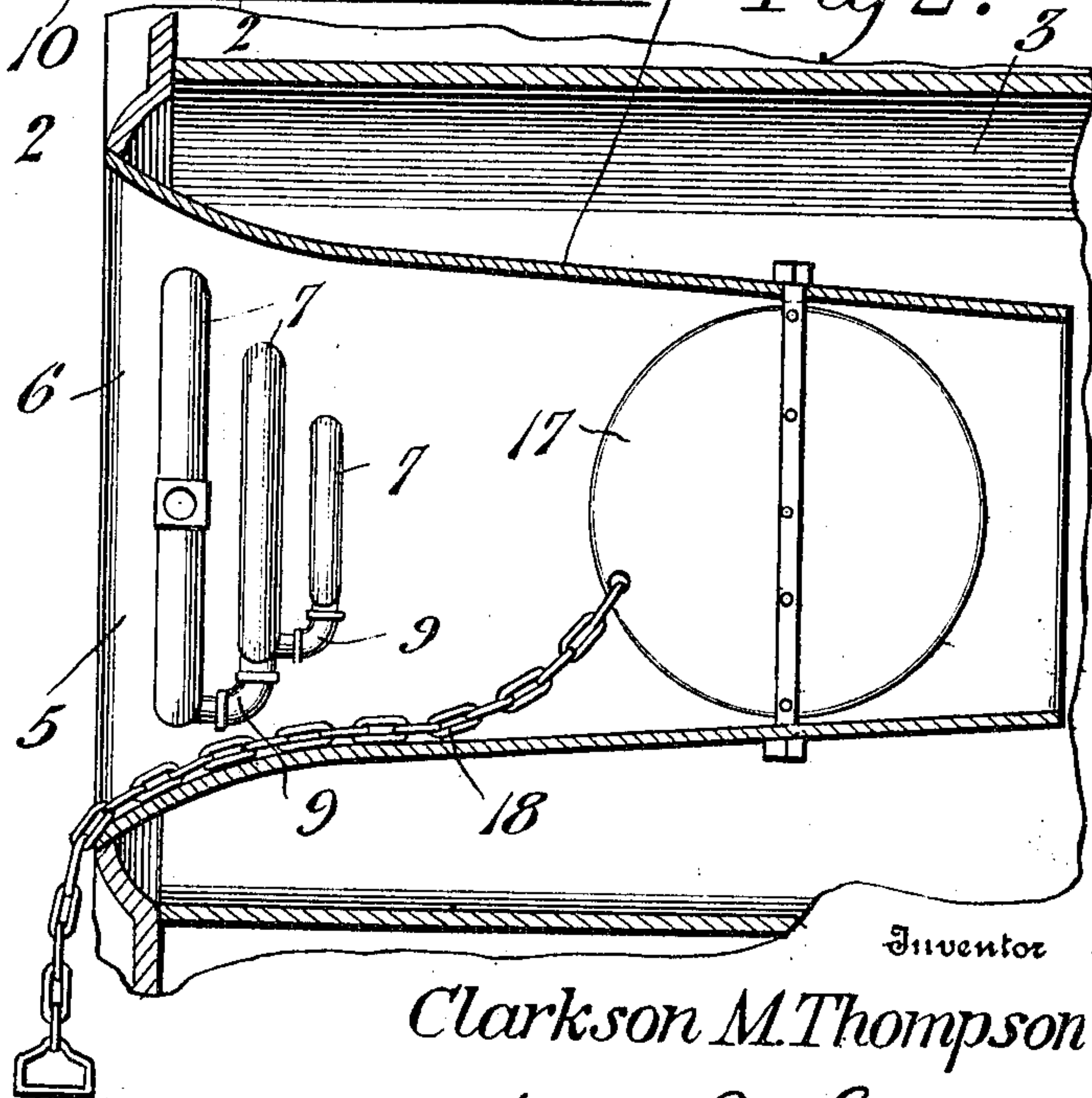
PATENTED JULY 10, 1906.

C. M. THOMPSON.  
DRAFT APPLIANCE.  
APPLICATION FILED OCT. 7, 1905.

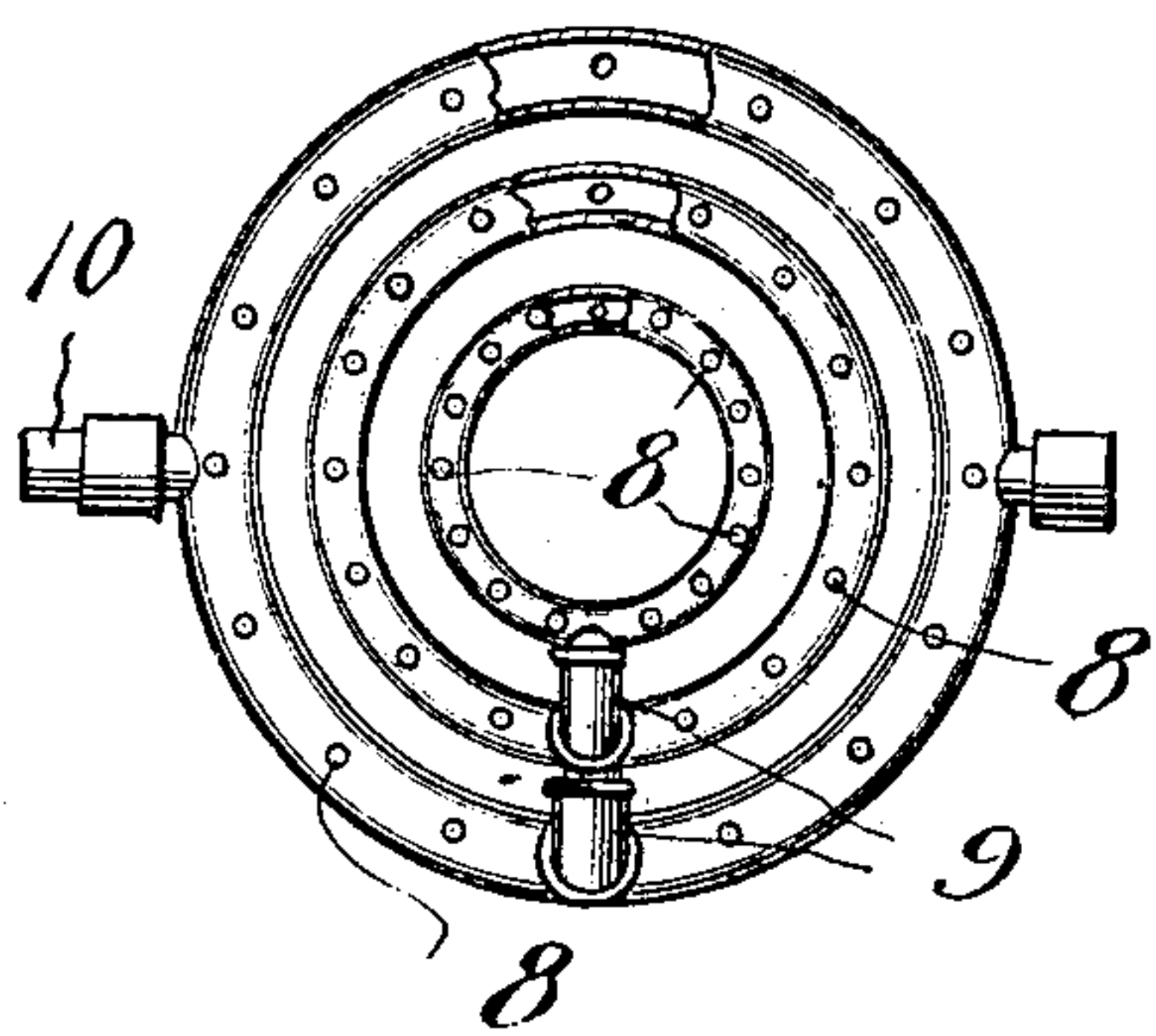
*Fig. 1.*



*Fig 2.*



*Fig. 3.*



Witnesses  
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# UNITED STATES PATENT OFFICE.

CLARKSON M. THOMPSON, OF PORTLAND, MAINE.

## DRAFT APPLIANCE.

No. 825,776.

Specification of Letters Patent.

Patented July 10, 1906.

Application filed October 7, 1905. Serial No. 281,805.

*To all whom it may concern:*

Be it known that I, CLARKSON M. THOMPSON, a citizen of the United States of America, residing at Portland, in the county of Cumberland and State of Maine, have invented new and useful Improvements in Draft Appliances, of which the following is a specification.

This invention relates to draft appliances designed especially for use in connection with steam-boiler furnaces, and has for its object to produce a comparatively simple inexpensive device of this character which may be readily installed for use, one wherein a forced draft will be induced in the boiler-furnace, one in which the draft will be automatically controlled to accord with the steam-pressure in the boiler, and one in which the draft may be entirely cut off when circumstances require.

With these and other objects in view the invention comprises the novel features of construction and combination of parts more fully hereinafter described.

In the accompanying drawings, Figure 1 is a front elevation of a furnace equipped with a draft appliance embodying the invention. Fig. 2 is a section, on an enlarged scale, taken on the line 2 2 of Fig. 1. Fig. 3 is an inner face view of the steam-injecting device.

Referring to the drawings, 1 designates a furnace of the usual or any appropriate construction having a door 2 for closing the mouth of the ash-pit 3, which forms a part of the combustion-chamber, these parts being designed to perform their ordinary functions.

Secured at its forward end in the door 2 and projecting into the ash-chamber is a tubular inwardly-tapered draft member or bell 4, having an enlarged mouth 5, in which is fixed an injector device 6, preferably comprising a plurality of circular coils or sections 7 of pipe-tubing, provided at their inner faces with jet-openings 8 and connected for communication one with another by means of tubular coupling members or elbows 9, it being noted that the coils or sections 7, which are spaced apart in a direction longitudinally of the bell 4, are of relatively decreasing sizes from the front to the innermost coil.

Connected at one end with the outer and largest coil 7 is a pipe section or duct 10, having its other end connected by a swivel-coupling 11 with the lower end of a steam pipe or

duct 12, leading from the engine-boiler, (not shown,) and provided at a suitable point between its ends with a cut-off valve 13, the stem 14 of which is pivoted to an operation-lever 15, in turn connected by a chain or other suitable flexible element 16 with an automatic pressure-regulator 19, adapted to be controlled by the pressure in the boiler, there being arranged on the lever 15 a weight 16', tending to hold the parts in normal position with the valve open.

Rotatively mounted in the draft member or bell 4 at a point adjacent the inner end of the latter is a cut-off member or damper 17, to which is connected an operating element or chain 18, extending outward through the mouth 5 of the bell.

In practice when the valve 14 is open steam passes through pipes 12 and 10 into the coils 7 of the injector, from which it is injected through the jet-openings 8 into the ash-pit, serving at the same time to draw air into the latter through the draft bell or funnel 4, it being mentioned in this connection that owing to the peculiar arrangement of the injector-section 7, as heretofore explained, a greater force is given to the injected steam and a freer entrance of the air into the bell is permitted. When the pressure in the boiler has reached the normal degree, the valve 13 is automatically operated, owing to its communication with the pressure-regulator, for closing the pipe 12 and cutting off the supply of steam to the injector. As soon, however, as the pressure drops below the normal in the boiler the valve 13 is automatically opened by means of the weight 16', thereby opening the pipe to permit entrance of steam to the injector for operation, as before explained. It is to be noted that the coupling 11 is arranged in axial alinement with the hinges of the door, whereby the latter may be readily opened when circumstances require and, further, that under the action of the injector 6 an induced draft is maintained in the combustion-chamber, thus insuring perfect combustion and minimizing the amount of smoke generated by the burning fuel.

From the foregoing it is apparent that I produce a simple device admirably adapted for the attainment of the ends in view, it being understood that in attaining these ends minor changes in the details herein set forth may be resorted to without departing from the spirit of the invention.



Having thus fully described my invention, what I claim as new is—

1. In a device of the class described and in combination with a boiler-furnace having a combustion-chamber, of a tubular draft member communicating with the latter, an injector device disposed at the forward end of the member, said device comprising a plurality of distinct sections or coils of relatively varying sizes spaced apart in a direction longitudinally of the member and with the smaller section innermost, tubular couplings connecting the sections for communication one with another, a steam-duct communicating with the injector device, and means controlled by the pressure in the boiler for automatically controlling the supply of steam to the injector.
2. In a device of the class described and in combination with a boiler-furnace having a

combustion-chamber, of a tubular draft member communicating with the latter, an injector device disposed in the draft member, said device comprising a plurality of sections or coils connected for communication one with another, a steam-duct leading from the boiler to one of the coils for supplying steam thereto, a cut-off valve arranged in the duct, a weighted lever connected with said valve and adapted for maintaining the same normally in open condition, and means controlled by an increased pressure in the boiler for operating the lever to close the valve.

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

CLARKSON M. THOMPSON.

Witnesses:

JOS. B. SHEPHERD,  
WILLIAM F. LONG.