

A. McD. Sprague,
Feeding Boiler Furnaces,

No 14,674.

Patented Apr. 15, 1856.

Fig. 2.

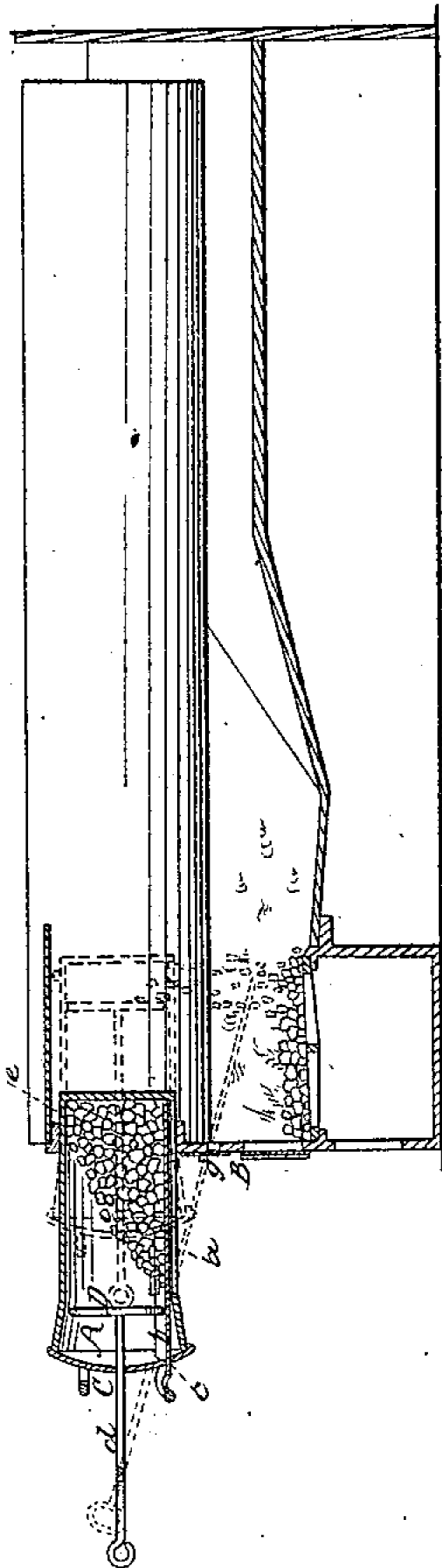
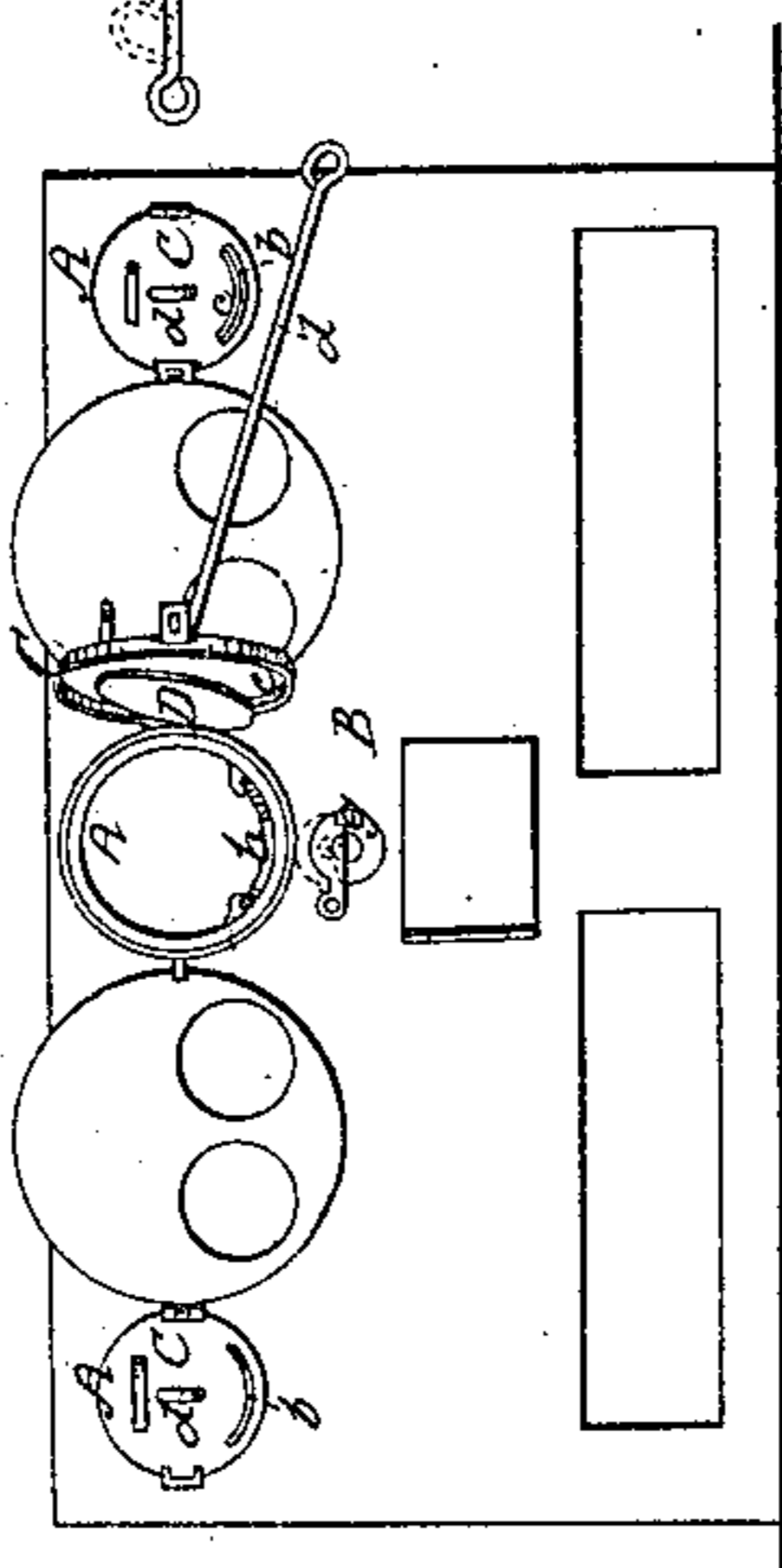


Fig. 1.



UNITED STATES PATENT OFFICE.

ALEXR. McD. SPRAGUE, OF MOBILE, ALABAMA.

APPARATUS FOR FEEDING FURNACES WITH FUEL.

Specification of Letters Patent No. 14,674, dated April 15, 1856.

To all whom it may concern:

Be it known that I, ALEXANDER McDONALD SPRAGUE, of Mobile, in the county of Mobile and State of Alabama, have invented a new and useful Apparatus for Feeding Furnaces with Fuel; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, forming part of this specification, in which—

Figure 1, is a front view of a steam boiler furnace with my improved fuel feeding apparatus applied, and Fig. 2, is a vertical section of the same.

Similar letters of reference indicate corresponding parts in both figures.

This apparatus is intended for feeding the fires, without admitting to the fires such quantities of cold air as materially to check combustion as in the case in shoveling coal through an open furnace door, and without exposing the firemen to the heat of the furnace.

The furnace represented is furnished with three fuel feeders which are all alike in their construction and operation.

A, A', A², are iron cylinders of about the length of the fire place or a little longer and of any suitable diameter arranged to slide horizontally through suitable openings provided for them in the furnace front B. The inner ends of these cylinders are closed and the outer ends are fitted with hinged doors C, C, C. In the bottom of each there is an opening *a*, extending nearly from end to end, and this opening is fitted inside the cylinder with a sliding shutter *b*, which passes through an opening *c*, provided for it in the door C. Each cylinder is provided with a piston D, fitting loosely within it, and having a rod *d*, which passes through a hole in the center of the door. A stop *e*, is provided near the inner end of the cylinder to prevent its being withdrawn entirely from the furnace, and the cylinder is intended to have a stop or to be enlarged at its outer end sufficiently to prevent its being pushed entirely through the furnace front.

To feed the furnace either charging cylinder A, A', or A², is drawn out as far as possible as shown in black outline in Fig. 2; the piston is drawn up close to the door and the door opened, as shown at the central cylinder in Fig. 1, withdrawing the piston from the cylinder as it opens, the sliding shutter *b*, being all this time closed. The cylinder is then charged with fuel in

any convenient manner, and the door closed, the latter taking with it the piston and introducing it into the cylinder. The fuel may be pushed by the piston, which is worked by the protruding end of the rod *d*, all up to the inner end of the cylinder, or it may remain evenly distributed over the whole length of the bottom of the cylinder, and all that remains to be done is to push the cylinder into the furnace and draw out the sliding shutter, when the fuel falls on the grate or hearth. By pushing in the cylinder only a short distance into the furnace, the fuel may be placed on the front part of the grate, or by pushing it in all the way and pushing the piston far back before opening the sliding shutter it may be placed on the rear part, or by pushing the cylinder in all the way keeping back the piston and drawing out the sliding shutter to open the whole length of the bottom of the cylinder, the fuel may be evenly distributed from front to back of the grate or hearth. The cylinder will always be drawn as far out as possible when not in actual use to prevent their being burned.

It will be readily understood that while the doors of the charging cylinders are open, provided the sliding shutters *b*, are at that time closed, no air can enter the fire any more than when the doors are closed.

In connection with this feeding apparatus I intend to use a poker working through an opening fitted with a self-closing door *g*, which fits to the poker while the latter is in use and closes the opening when the latter is withdrawn, and by that means I am enabled almost perfectly to exclude cold air above the fire.

Instead of cylinders charging boxes of other external form may be used, fitted up in the same way with piston, door and shutter. One or more charges may be used for a furnace according to its size and form.

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

The furnace feeding apparatus composed of a cylinder C, or box of other form sliding through an opening in the furnace front, having its inner end closed and an opening *a*, in the bottom, being fitted with a door C, at its outer end, and with a piston D, and a sliding shutter *b*, all arranged and operating substantially as herein described.

ALEXANDER McDONALD SPRAGUE.

Witnesses:

DEWITT FULLER,
GEORGE AITE.