(No Model.)

C. O. COOK, C. W. CHASE, & J. BEARD.

Barrel Heater.

No. 234,908. Patented Nov. 30, 1880.

Fig. 1.

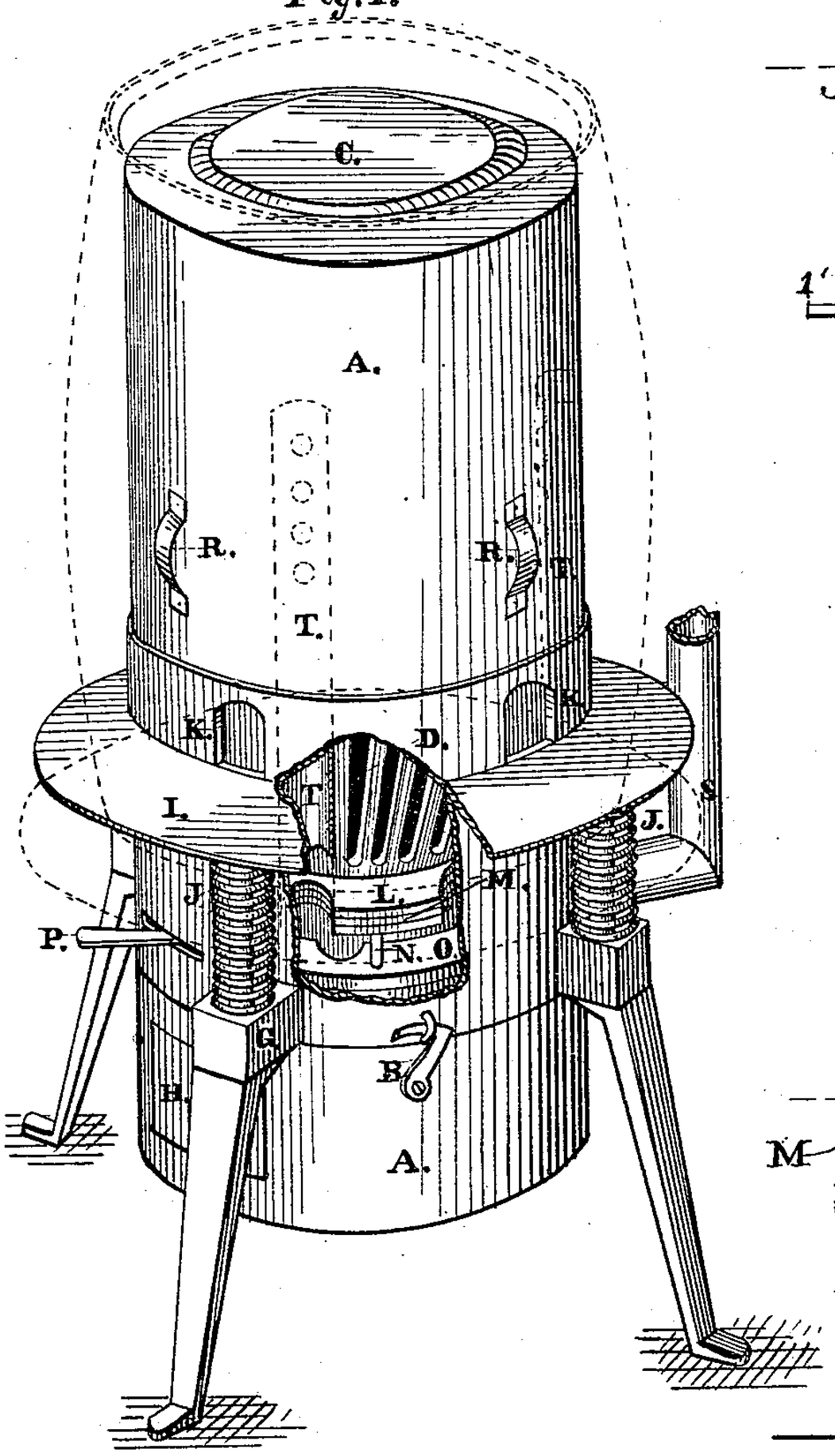


Fig. 3.

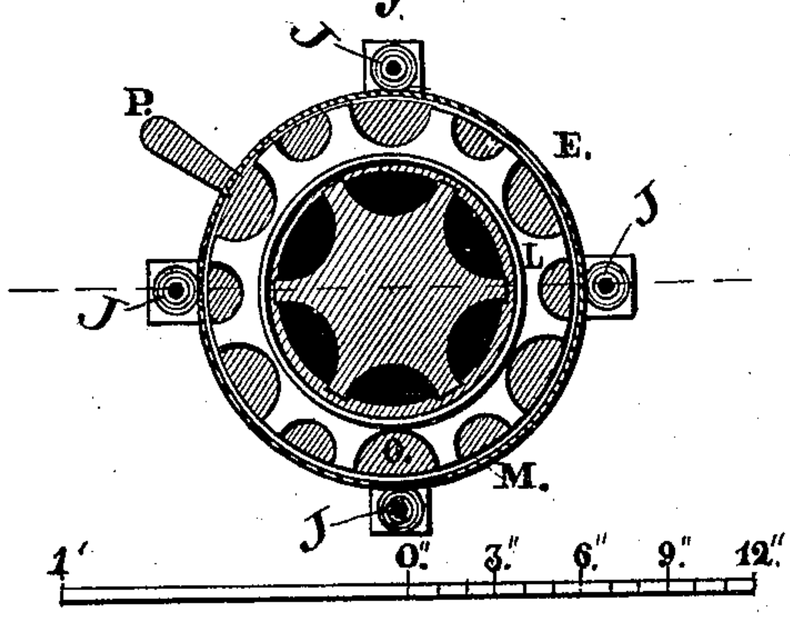
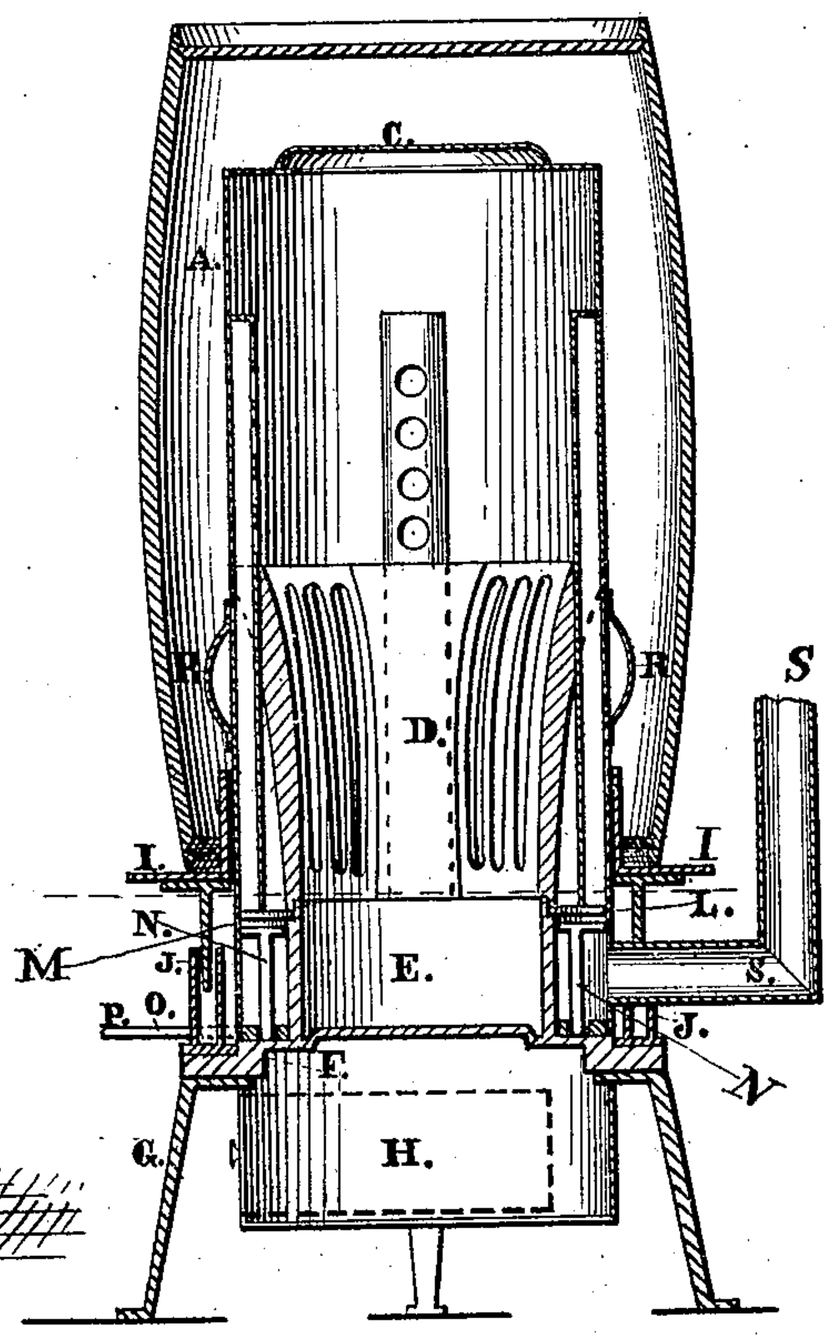


Fig. 2.



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UNITED STATES PATENT OFFICE.

CHARLES O. COOK, CHARLES W. CHASE, AND JOHN BEARD, OF OSWEGO, NEW YORK.

BARREL-HEATER.

SPECIFICATION forming part of Letters Patent No. 234,908, dated November 30, 1880.

Application filed March 16, 1880. (No model.)

To all whom it may concern:

Be it known that we, CHARLES O. COOK, CHARLES W. CHASE, and JOHN BEARD, residing respectively at Oswego, Oswego county, and State of New York, have invented a new and useful Improvement in Barrel-Heaters, of which the following is a specification.

Our invention relates to improvements in that class of barrel-heaters in which the heat is radiated from drums of sheet-iron covering and confining the fire, with down-draft pipes to give a uniform heat to the whole surface of the drum and also to take the smoke down and out of the heater below the annular ring or barrel-carriage on which the barrel rests; and the objects of our improvements are, first, an economic machine in manufacture and management; second, to avoid injury and breakage by our manner of construction and combination of different parts; third, to provide a heater that will not smoke when the fire is first started; and, fourth, to provide for the more perfect regulating of the heat when in use, and thus prevent the usual burning out of drums and pipes of this class of barrel-heaters. We attain these objects by the arrangement of the barrel-heater illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view with the lower part of the drum represented as broken away to show the interior construction. Fig. 2 is a vertical section of the same. Fig. 3 is a plan of the combined shaker, damper, and grate.

Similar letters refer to similar parts throughout the several views.

The exterior drum, A A, is made in two parts, held together, when in place, by the hook B. The upper section is provided with a cover, C, opening upward, for feeding the fire, which is built in the cast-iron fire-pot D. This fire-pot D also rests on a lower section, E, of cast-iron, which also forms part of the base-frame of the heater and is cast in one piece. The base-frame F is supported by the legs G, which may be attached to the base-frame F in the usual manner. Below the base-frame E, in the lower section of the drum A, is an ash-pan, H.

At I is shown the annular barrel-carriage, working freely outside of the drum A and resting on the coiled spring and socket-guide J, which is formed of a socket with a flanged base and a pin with a flanged head working freely in the socket, and the whole surrounded with a coiled wire spring working freely outside of the socket and being held in position by the barrel of the socket and the flange of the socket and pin, the construction of which is shown in section by Fig. 2.

At K are shown openings through the barrel-carriage and drum for automatic cold-air drafts.

The combined shaker, damper, and grate is composed of a central cylinder, E, encircled at the top with the ring L, on which the fire-pot D rests, and by its weight and manner of construction holds it in place.

The ring L is provided on its outside circumference with six semicircular openings, matching in size and location a corresponding number in the ring M immediately below it. The ring L is also provided with six other semicircular openings smaller in size and intermediate with the larger ones.

The ring M is supported on four legs, N N, passing through openings in the lower ring, O, and resting and sliding in the base-frame F. The lower ring, O, is provided with four or more semicircular openings on its inner circumference, with corresponding openings through the base-frame F.

The combined shaker, damper, and grate and the base-frame are made of cast-iron.

This barrel-heater is designed for the use of wood for fuel. If coal is used a different arrangement of the grate in the cylinder can be made without involving any new principle of construction.

The mode of using the barrel-heater is to build the fire within the grate and place the barrel over the drum resting on the barrel-carriage I, as shown in Fig. 2. The weight of the barrel closes the openings K by compressing the springs J, thus shutting off the flow of cold air over the fire, and by the proper arrangement of the combined shaker, damper, and grate the draft from below may be rapidly increased with the resulting rapid increase of heat, which is the most efficient heat for barrel-forming. By the use of the perforated pipes T the heat and smoke are drawn down and

through the combined shaker, damper, and grate, and the smoke out through the smoke-pipe S.

We are aware that our invention appears to have points in common with other barrel-heaters in use; but we claim for ours a combination of useful improvements that gives a more perfect barrel-heater than any now in use.

Heretofore the openings through base-plates into air-chambers below have been fixed and stationary, so that the heat, being drawn constantly to the same points of exit, burned out the openings.

By our arrangement of the fire-pot and down-draft pipes, and their being held in place by the inclosing-drum without bolts or other fastenings, they may be turned inside the drum, thus obviating the necessity of the hot air being drawn against the drum in the same places until it is burned out, and by our arrangement of openings through the combined shaker, damper, and grate the drafts of hot and cold air can be so controlled as to regulate the heat at pleasure by the turning of the combined shaker, damper, and grate by the handle P to the right or left. By the same movement of this handle a new series of down-draft openings can be opened, thereby obviating the necessity of continued heat in the same set of down-draft openings, which may be partly or wholly closed by this same movement of the handle, and in this manner so controlling the draft that a great economy of fuel is the result, and the heater is saved from injurious and unnecessary heat, all of which can be accomplished by the simple turning of the shaker-handle by the hand or foot.

The barrel carriage or ring is common to other heaters; but the mounting of the same on the coiled spring and guide-support is our invention, and is of great importance, as it saves the heater from the danger of breakage by careless usage, and by its automatic action closes or opens the openings through the drum and the openings through the perpendicular ring of the barrel-carriage as the barrel is put on or taken off, increasing or diminishing the heat by its automatic action, as explained above. Another great difficulty with the down-draft heaters in present use is the universal tendency to smoke when the fire is first built. This we obviate by the series of circular openings through the down-draft pipes extending upward from the top of the fire-pot, which takes the smoke away before it collects in the top of the drum and smothers the fire.

We are aware that our barrel-heater has points in common with other barrel-heaters. We therefore do not claim such a combination, broadly; but

What we do claim as our invention, and desire to secure by Letters Patent, is—

1. The combination of the fire-pot D E, the draft-pipes T, the rings L M, the legs N, the ring O, and the plate F.

2. The combination, with the rings L M, legs N, ring O, and plate F, of the perforated pipes T and the exit-pipe S.

3. The combination, with the legs G and the spring and socket-guide J, carrying the ring or carriage I, of the casing A, having openings K.

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