

(No Model.)

R. H. NOGAR.
SAWDUST BURNER.

No. 426,847.

Patented Apr. 29, 1890.

Fig. 2.

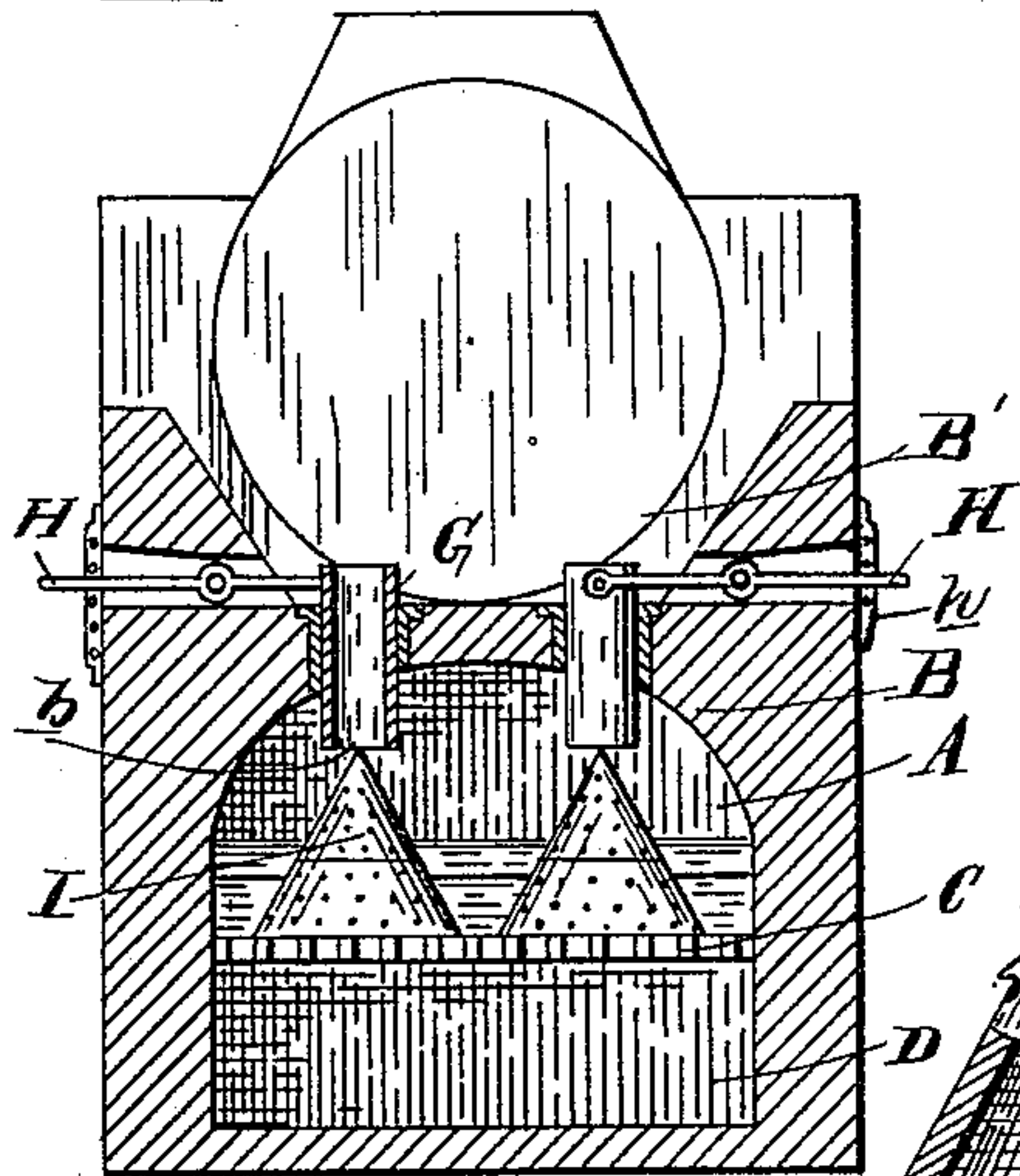


Fig. 1.

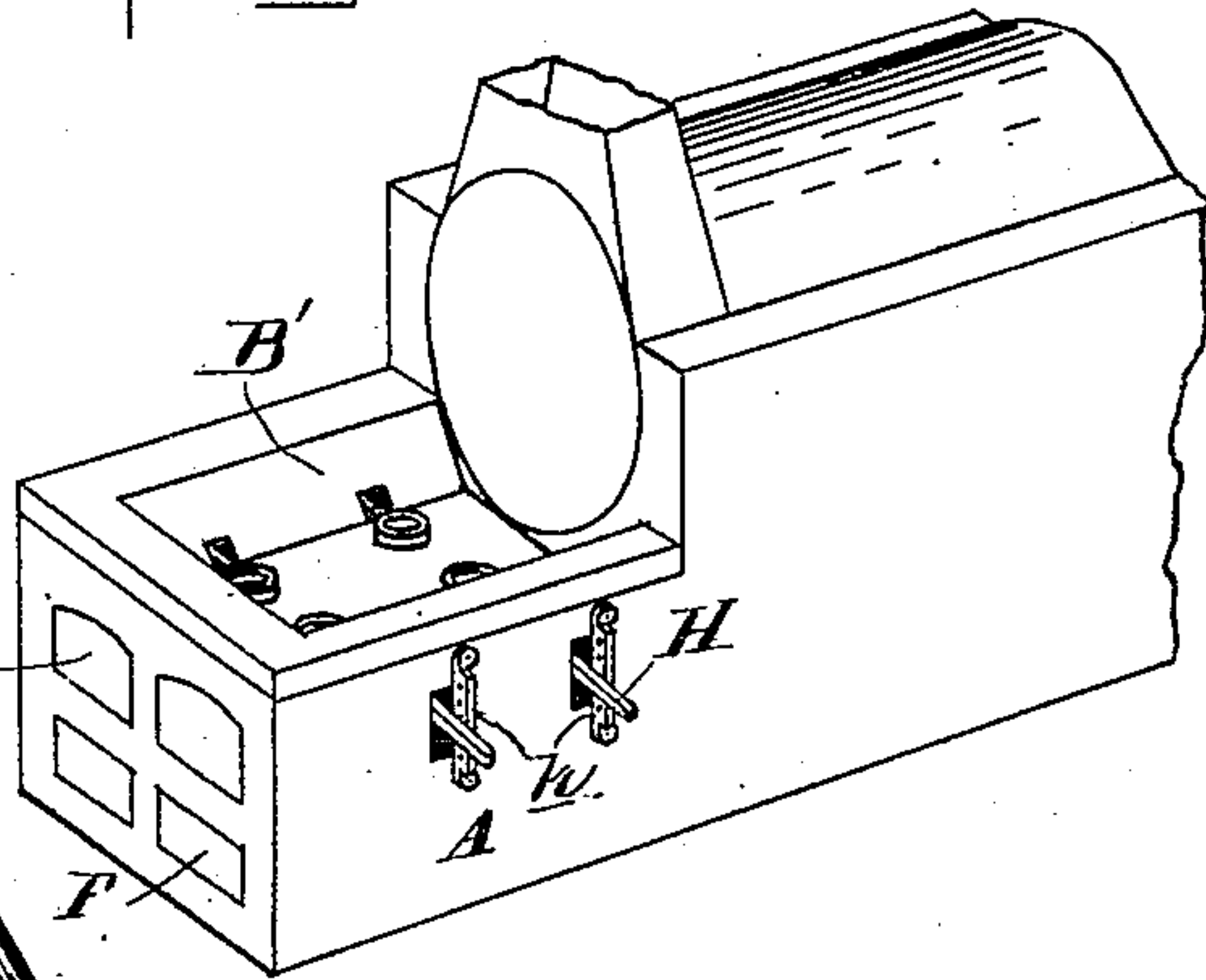


Fig. 3.

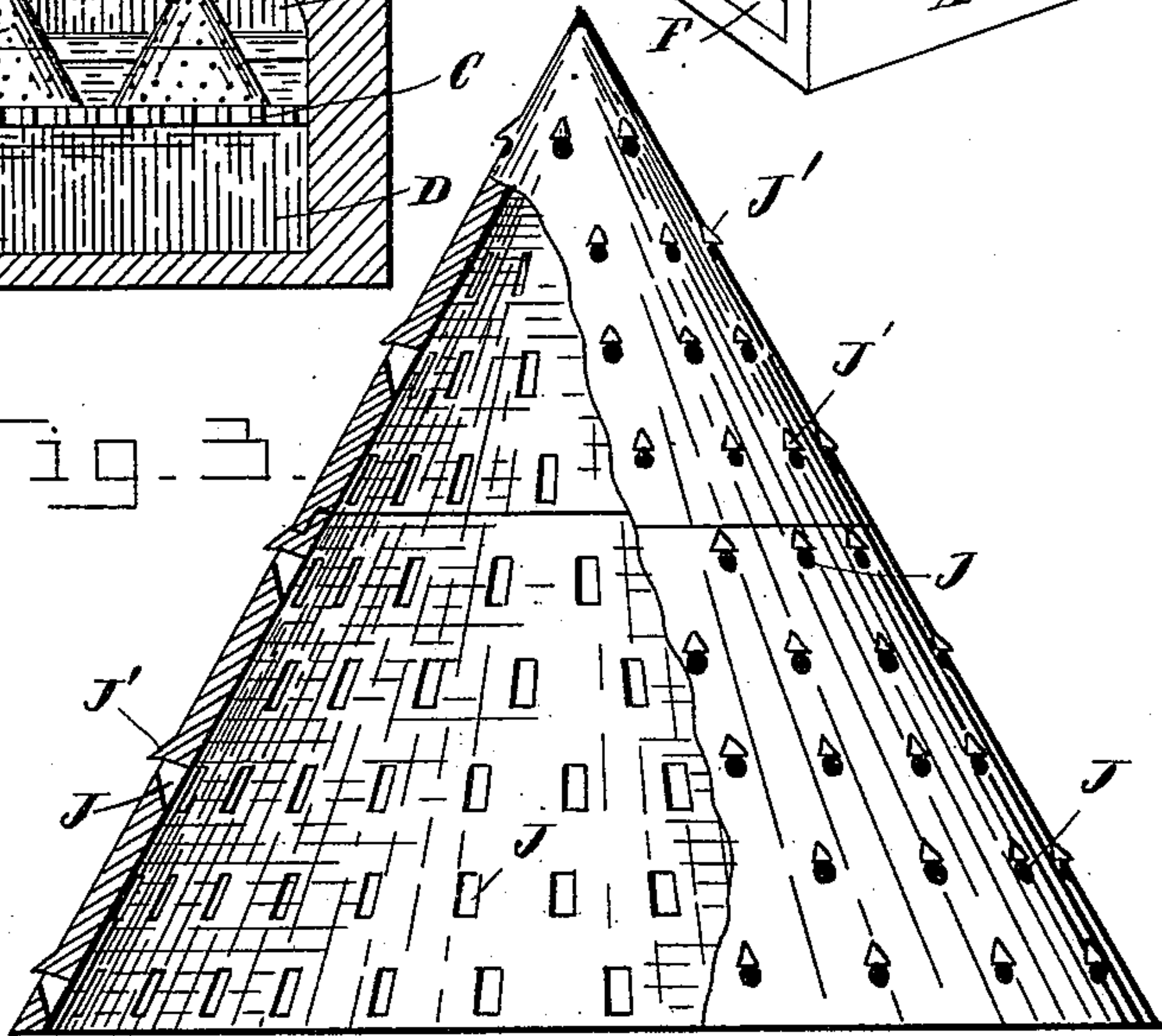
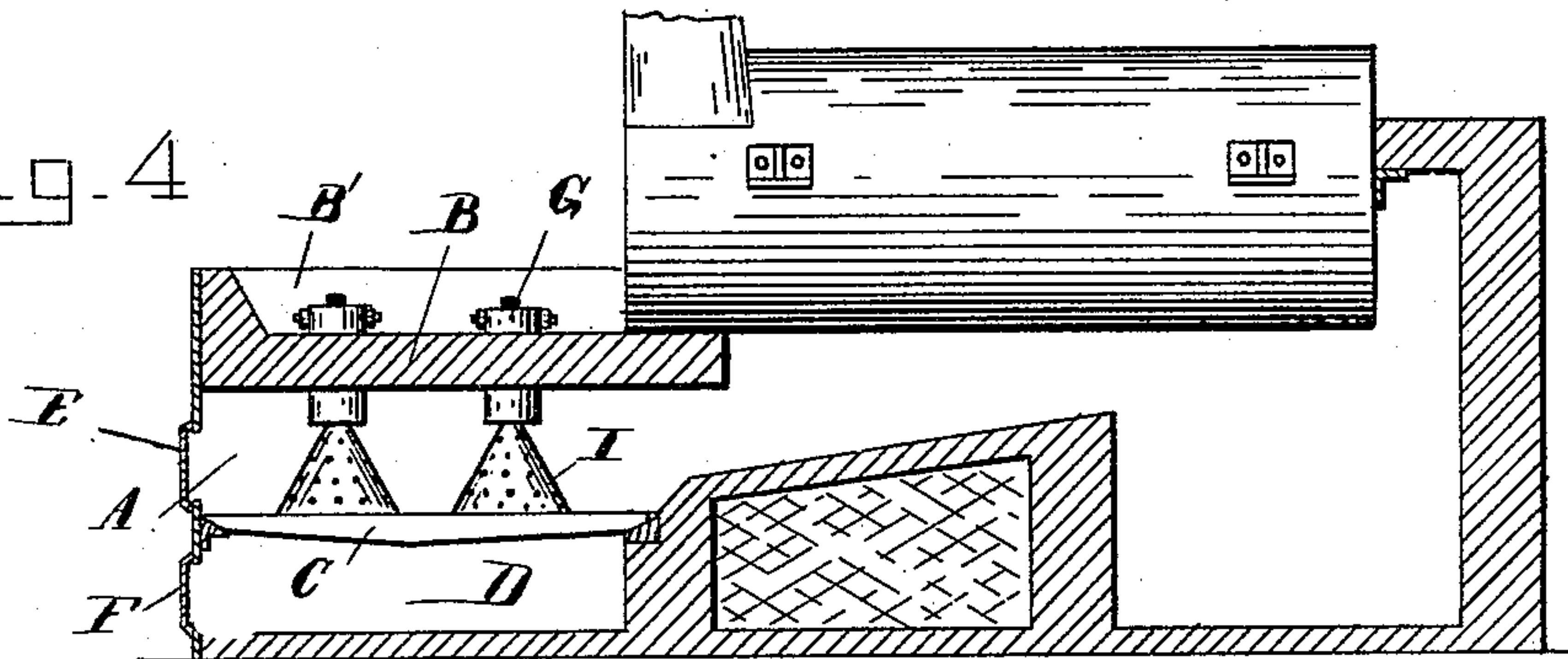


Fig. 4.



Witnesses

Geo. C. Gregg.
E. A. McBrearty

Inventor

Russell H. Nogar
By Thos. S. Sprague Son
Att'y.

UNITED STATES PATENT OFFICE.

RUSELL H. NOGAR, OF DUNDEE, MICHIGAN.

SAWDUST-BURNER.

SPECIFICATION forming part of Letters Patent No. 426,847, dated April 29, 1890.

Application filed August 30, 1889. Serial No. 322,421. (No model.)

To all whom it may concern:

Be it known that I, RUSELL H. NOGAR, a citizen of the United States, residing at Dundee, in the county of Monroe and State of Michigan, have invented certain new and useful Improvements in Sawdust-Burners, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to new and useful improvements in a furnace for burning sawdust, shavings, and like fuel; and the invention consists in the peculiar construction, arrangement, and operation of the furnace, all as more fully hereinafter described, and shown in the drawings, in which—

Figure 1 is a perspective view of my furnace as arranged in connection with an ordinary steam-boiler. Fig. 2 is a cross-section thereof. Fig. 3 is an elevation of one of the cones, partly shown in section. Fig. 4 is a longitudinal central section through the furnace and boiler.

A is a furnace, constructed in the usual manner, except that instead of being built under the boiler it is built out in front thereof and is closed over the top with a fire-arch B, and with the walls of the furnace extended above, and preferably made slanting on the inside, to form a hopper-shaped receptacle B' for the fuel on top of the fire-arch.

C is the grate, which may be of the ordinary construction.

D is the ash-pit below the grate.

E are the usual furnace-doors, and F are the ash-pit doors.

G are open tubes slidingly passing through suitable apertures in the fire-arch and extending some little distance below the top of the furnace-chamber. These feed-tubes are vertically adjustably supported, preferably by being swung from the ends of adjusting-levers H, which extend to the outside of the furnace-wall for convenient operation.

A suitable plate *h*, having perforations therein in which a plug may be inserted, is attached to the side of the hopper adjacent to the lever opening to retain the lever in its adjusted positions.

I are hollow cones placed upon the grate below the feed-tubes in axial line therewith.

These cones are preferably made of cast-iron in sections small enough to be taken in or out through the furnace-doors if it should become necessary, the divisions being preferably made in a horizontal plane, with a suitable joint adapted to hold the sections together without fastening.

J are perforations formed through the wall of the cones, with an integral cap or shield J' placed above each perforation to prevent it from being clogged by the sawdust falling thereon from the feed-tubes. Any suitable device may be used for feeding the sawdust into the hopper B'.

The parts being thus constructed and arranged, they are intended to operate as follows: The sawdust being delivered into the hopper B', a fire is started upon the grates. The feed-tubes are slightly raised, having an annular feed-space *b* between the cones and the feed-tubes, through which the sawdust is fed in a thin stream over the cones. The fire, being thus fed, will burn up all around the cones, the air for combustion being provided through the perforations J. The sawdust, being in a thin sheet over the cones, will make a hot fire, and as fast as it burns away it will automatically feed downward. That part of the sawdust which falls upon the grates will burn in the usual manner, the cones simply acting as an additional grate-surface. To increase or diminish the supply of fuel, the annular space between the feed-tubes and the cones is increased or diminished by lowering or raising the feed-tubes by means of the levers H. By means of the draft-doors F the draft may be made to correspond to the amount of fuel fed and the fire kept burning with almost perfect combustion. While the sawdust is in the hopper B' it is dried thoroughly, and is thus more readily ignited and burns better in the furnace. The shields J' feed the sawdust over the apertures, so that they cannot become clogged. It is evident that I may place my perforated cones in nearly any furnace and arrange the feed-tubes above them.

What I claim as my invention is—

1. In a sawdust-burning furnace, the combination, with the grate and the crown of the combustion-chamber having a series of open-

ings therein, of a hopper formed above said crown, vertically-moving feed-tubes in said opening, and means for adjusting the same, and perforated cones on the grates extending
5 up into the feed-tubes, substantially as described.

2. In a furnace for burning sawdust, a series of perforated cones having integral caps or shields J' struck up from the metal of the
10 cones immediately above the perforations,

and a grate on which the cones rest, substantially as described.

In testimony whereof I affix my signature, in presence of two witnesses, this 10th day of June, 1889.

RUSELL H. NOGAR.

Witnesses:

ED. MCBREARTY,
GEO. A. GREGG.