

COX & BROWN.

Heating Stove.

No. 92,172.

Patented July 6, 1869.

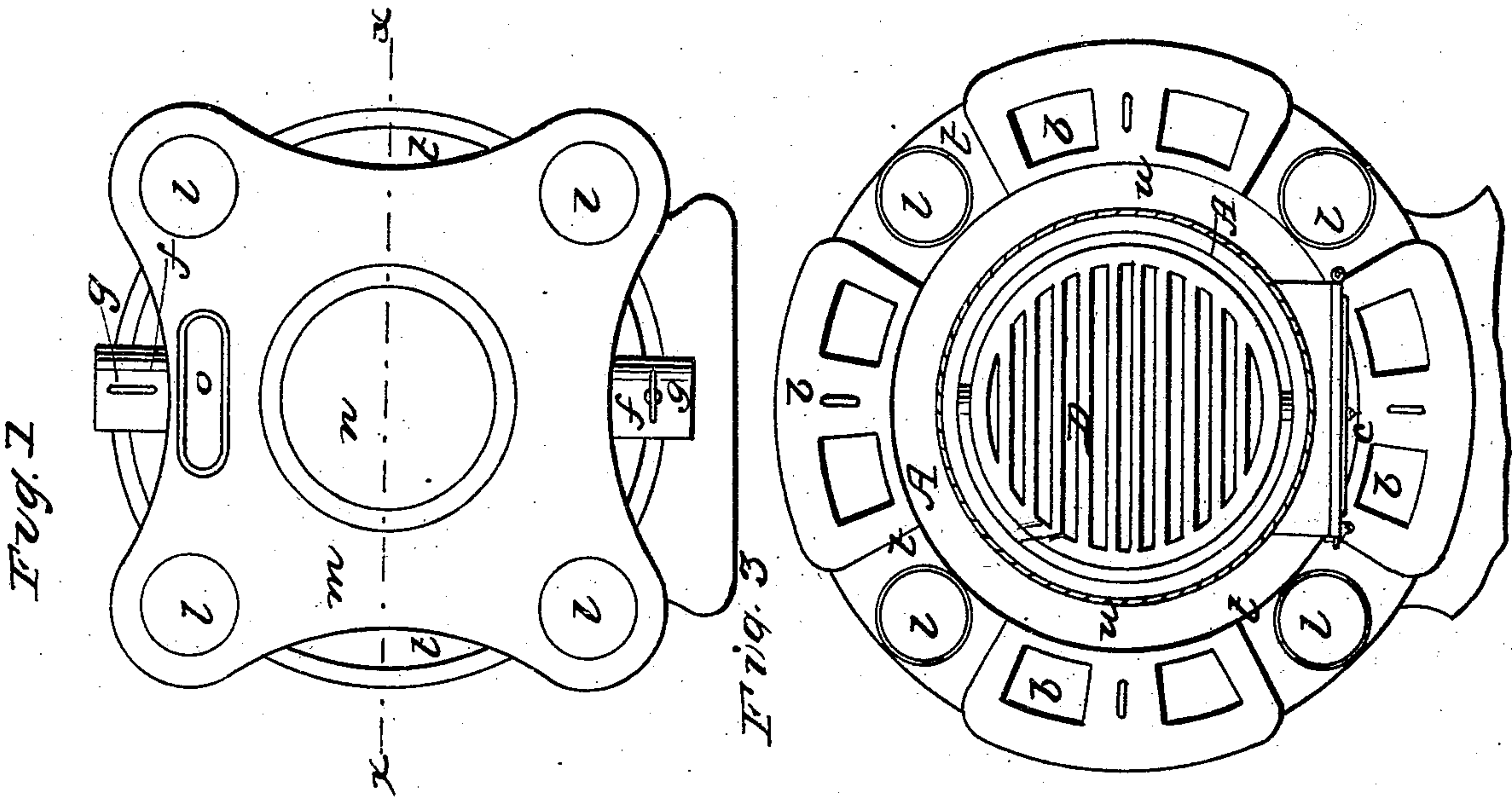
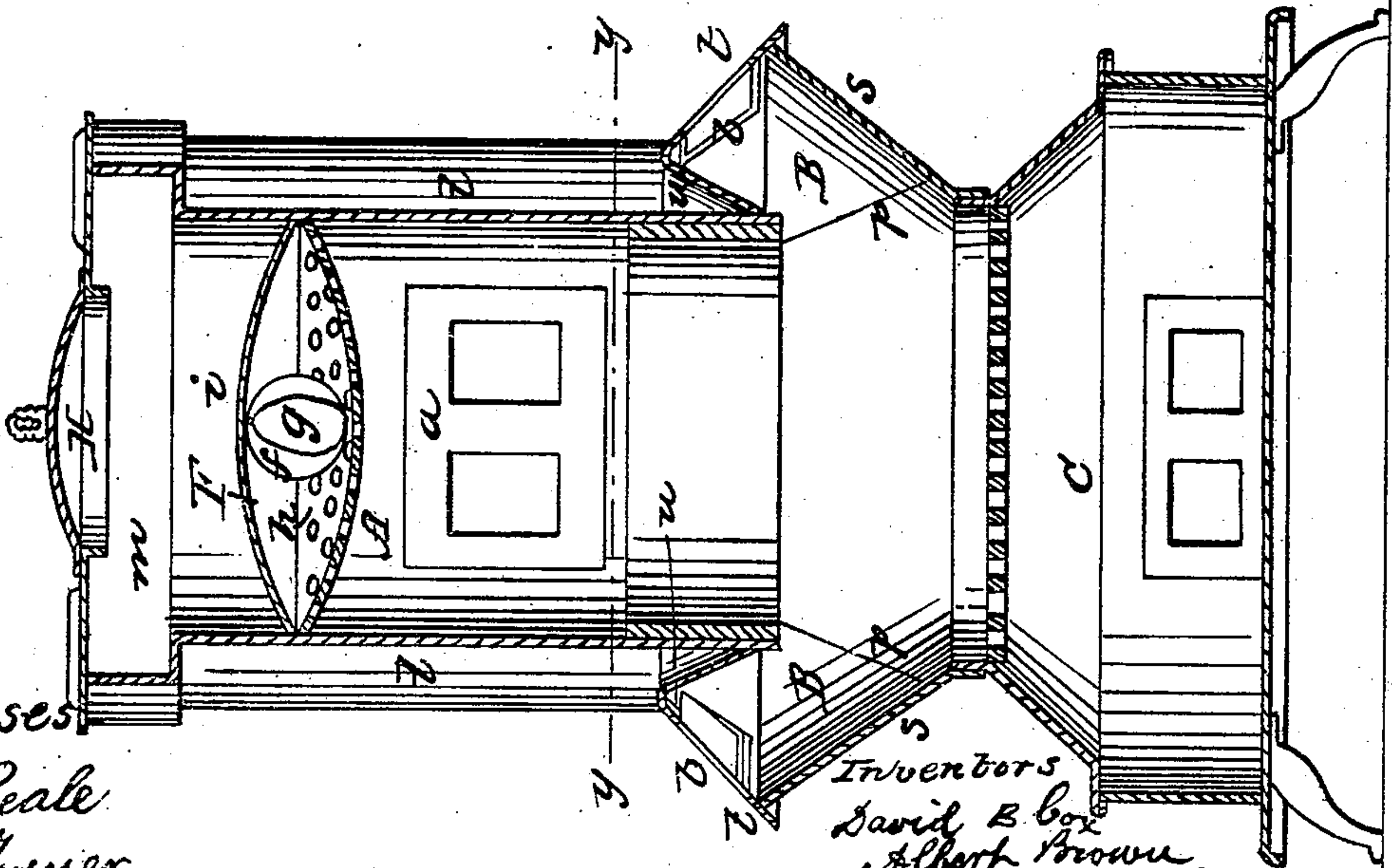


Fig. 2



Witnesses
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DAVID B. COX AND ALBERT BROWN, OF TROY, NEW YORK.

Letters Patent No. 92,172, dated July 6, 1869.

COAL-STOVE.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that we, DAVID B. COX and ALBERT BROWN, of Troy, in the county of Rensselaer, and State of New York, have invented an Improved Heating-Stove; and we do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making part of this specification.

Figure 1 being a top view of the stove.

Figure 2, a central vertical section thereof, in a plane indicated by the line *x x*, fig. 1.

Figure 3, a horizontal section of the same, in a plane indicated by the line *y y*, fig. 2.

Like letters designate corresponding parts in all of the figures.

This stove is constructed to burn with both a downward draught, through the mass of the coal, and an upward draught from the base, through the grate, and through the lower portion of the mass of coal.

The fuel-chamber A terminates below, in a comparatively shallow portion or compartment, B, enlarged laterally from close down to the grate D, outward and upward, at an inclination sufficient to deliver the ashes and cinders to the grate when the latter is shaken, the said inclined under side *s*, being external, and radiating heat downward, quite near the floor, as well as laterally outward.

It terminates upward and outward, in an inclined or outwardly-sloping face, *t*, also external, in which are located mica windows *b b*, and from which separate flue-pipes *l l* extend upward to a chamber, *m*, in the top of the stove, whence the products of combustion make their exit through the smoke-pipe *o*.

The grate D is well widened, as shown, fully equal in diameter to the upper portion A of the fuel-chamber, and the lower portion of the fuel spreads somewhat in the widened chamber B, as indicated by red lines *p p* in fig. 2, thus forming a conical base from the line *d* downward.

Above and outward from the outer surface of the coal there thus remains an unoccupied space in the chamber B, into which the draught flows both from above and below, and the most intense heat is there concentrated.

Here is formed, therefore, a combustion-chamber, where most of the fuel is consumed, and from which a copious radiation of heat takes place through the inclined surfaces *s t*, and a bright illumination through the mica windows *b b*.

The mass of coal in the chamber B is also quite thin at all times, between the grate D and the open combustion-chamber, so that the draught from below can never be choked, while the gases disengaged in the upper chamber A always find vent downward into the combustion-chamber, assisted by the downward draught.

The stove is consequently a successful bituminous coal-burner, as well as for the transition and anthracite coals.

The surface of the upper chamber A is all external and heat-radiating, since there is, or may be, an inwardly-inclined surface, *u*, on the top of the enlarged chamber B, so as to expose all of the periphery of the said chamber A.

Besides, the outside connecting flue-pipes *l l*, and the upper chamber *m* furnish additional heating-surface, all without downward flues. The stove is therefore a powerful heater.

The upward draught is admitted into the base, or ash-chamber C, through the door *c*, or otherwise, suitably controlled, as usual, by a register or damper. The grate is kept comparatively cool thereby, and does not quickly burn away.

The downward draught may be admitted through a door, *a*, in the side of the fuel-chamber A, but we provide a special device for this purpose, consisting of a hollow damper, F, situated in and closing the upper part of the fuel-chamber A, and provided with hollow trunnions *f f*, through which the air is admitted, and which are provided with damper-valves *g g*, to control the admission of the air.

One side, *h*, of the damper F is perforated with many holes, and the other side, *i*, is close, or imperforated.

The perforated side is ordinarily turned downward, as shown, so as to admit the air to the chamber A. But it may be reversed, to shut off the air from the fuel, and at the same time give draught to the smoke-pipe.

It is also inverted, to cast off soot and ashes which collect on its upper surface, and it is turned up edgewise, when cool air is furnished to the stove through a top-opening, closed by a cover, *n*. But the fuel may be introduced through a door-way in the side of the chamber A.

The downward and upward draughts may thus be respectively regulated, or either cut off.

For instance, if the whole power of the stove is required, both draughts are opened; and, if the heating-power is to be reduced to a minimum, the downward draught is shut off, and only the upward draught is admitted, and that regulated to the lowest degree, if desired.

When fresh fuel is put in the stove the upward draught keeps up the combustion, without sensible diminution, or danger of putting out the fire. The draught upward through the grate is also employed in first kindling a fire.

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

In a heating-stove, having both a downward and upward draught, the construction of the combustion-