J. M. THATCHER,

STOVE GRATE.

No. 109,968. Patented Dec. 6, 1870.

Fig. 1.

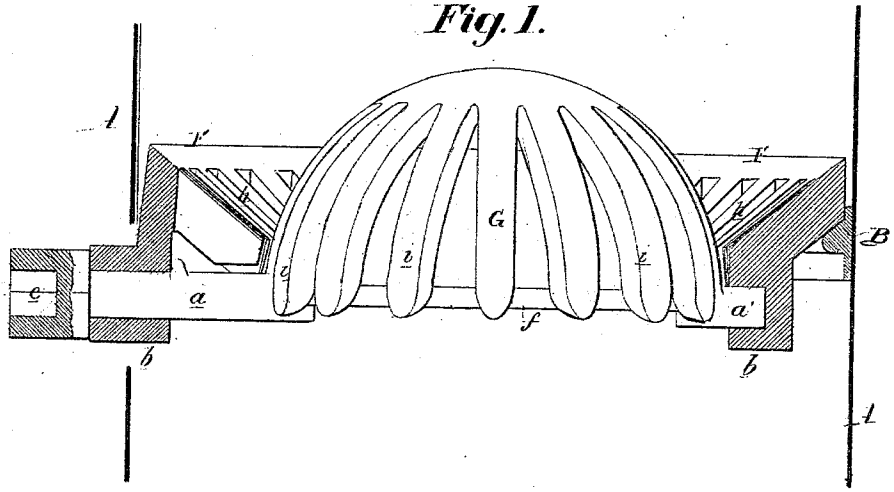
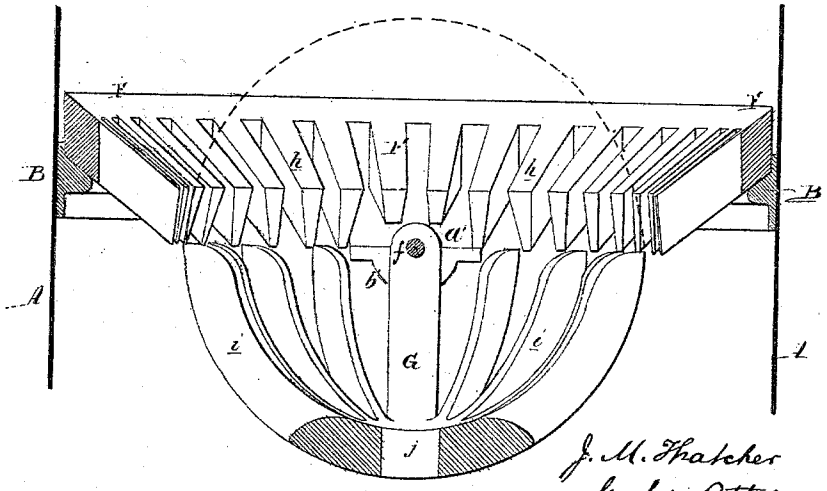


Fig. 2.



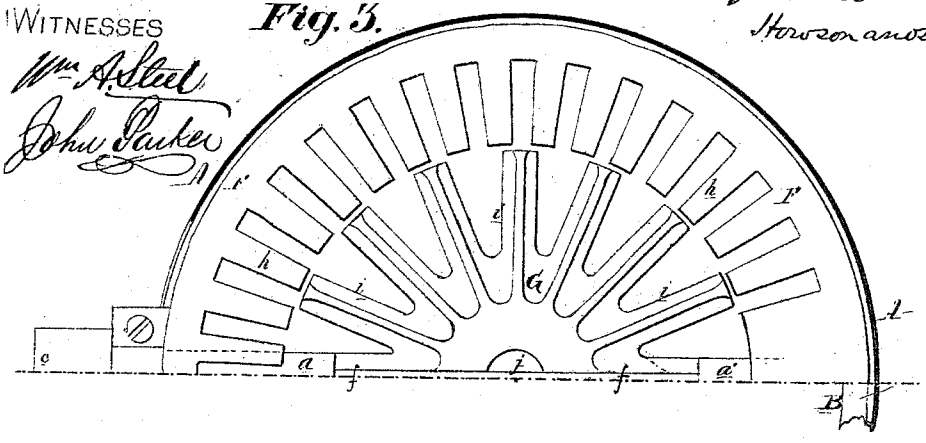
J. M. Thatcher
by his Attys
Howson and Sons

WITNESSES

Wm. A. Steel

John Parker

Fig. 3.



United States Patent Office.

JOHN MERRITT THATCHER, OF BERGEN, NEW JERSEY.

Letters Patent No. 109,968, dated December 6, 1870.

IMPROVEMENT IN STOVE-GRATES.

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

I, JOHN MERRITT THATCHER, of Bergen, county of Hudson, State of New Jersey, have invented an Improved Grate, of which the following is a specification.

Nature and Object of the Invention.

My invention consists—

First, of a concavo-convex grate, adapted to a stove or heater, and arranged to be turned within the same, as fully described hereafter;

Secondly, of the combination of the said grate with a movable or fixed outer grate; and

Thirdly, of such an arrangement of the said concavo-convex grate, in respect to a movable outer grate, that both can be operated by a single crank or key, as hereafter explained.

Description of the Accompanying Drawing.

Figure 1 is a sectional view of my improved grate;

Figure 2, a transverse section of the same on the line 1 2, fig. 1, showing the central portion of the grate reversed or inverted; and

Figure 3, a plan view of fig. 2.

General Description.

A represents part of the outer casing of an upright cylindrical heating-stove; and

B, an annular grate-bearer, suitably secured within the same.

The grate consists of an annular portion, F, resting upon and arranged to be turned to a limited extent on the bearer B, and of a central semi-spherical portion, G, having trunnions, *a* and *a'*, adapted to projections or bearings, *b* and *b'*, on the under side of the portion F.

The central portion of the grate may be strengthened by a rod, *f*, extending across the same between the trunnions *a* and *a'*; but this is not essential.

In the enlarged outer end of the trunnion *a* is formed a socket, *c*, adapted to receive the squared end of a key, or key and crank, by which the whole grate may be reciprocated upon the bearer or the central portion only be turned upon its trunnions.

The annular portion F of the grate has radial bars *h*, which incline downward toward the central portion G, and the latter is also provided with radiating bars *i*, joined together at the center of the grate, where there may be an opening, *j*. This arrangement of bars can, however, be modified, or the grate be merely punctured with holes; and, in some cases, the central semi-sphere might be perfectly solid if an outer grate of sufficiently large area was employed.

When the stove is in use the semi-spherical portion of the grate is retained in the upright position shown in fig. 1, so that it may project upward into the fire-place.

The grate may be held in this position by introducing the squared enlargement *c* into a similarly-shaped recess of the casing of the stove, or any other suitable retaining device may be employed.

In raking a stove provided with an ordinary flat grate, arranged to be reciprocated or shaken upon an annular bearer or central pivot, the portion of the fire near the circumference of the grate, where the motion is greatest, can be effectually cleared of ashes; but at the center, where the motion is very slight, there is apt to be an accumulation of ashes, which interferes with the draught and diminishes the supply of air at the point where it is most needed.

The peculiar projecting and upwardly-rounding form of the central portion of my improved grate effectually prevents this accumulation of ashes at the center of the grate, and a more extended surface is also presented than in ordinary grates, so that a better and more thorough circulation of air through the spaces between the bars is insured.

When the whole grate is shaken or reciprocated upon the bearer B, ashes, and particles of clinker, &c., too large to pass through the grate, will, owing to the downward inclination toward each other of the bars *h* and *i*, be directed into the angle between the two portions of the grate, from which point they can be readily discharged into the receptacle beneath by slightly turning or swinging the central portion of the grate upon its trunnions.

When this accumulation is, however, considerable, or when it is necessary to remove all of the coal and ashes from the stove prior to lighting a fresh fire, the central portion of the grate should first be turned half-way round, as shown in fig. 2, so as to form a concave receptacle into which the ashes will fall, and then be again righted, in order to discharge the mass into the drawer beneath.

This may be repeated until the fire-place is sufficiently cleared, or the same result may be attained more expeditiously by turning the central portion of the grate continuously upon its trunnions some half a dozen times or more.

It is not absolutely necessary that the grate G should be of the semi-spherical form represented, as, for an oblong or flattened stove, it might be elongated upon one axis, providing only that its concavo-convex form was retained, so that it might perform the duties above described.

The outer grate F might also be stationary instead of movable, and could, in some cases, be dispensed with, and the grate G be used independently.

I, therefore, claim—

1. The concavo-convex grate G, adapted to a stove or heater, and arranged to be operated substantially in the manner described.

2. The said grate or semi-sphere G, in combination with a movable or fixed outer grate, F.

3. The said grate G, so hung to a movable outer grate that both can be operated by a single crank or key, substantially in the manner described.

In testimony whereof, I have signed my name to this specification in the presence of two subscribing witnesses.

J. M. THATCHER.

Witnesses:
WM. A. STEEL,
FRANKLIN B. RICHARDS.