C. S. DOOLITELL.

Heating Stove.

No. 83,049. Patented Oct. 13, 1868.

Fig. 2.

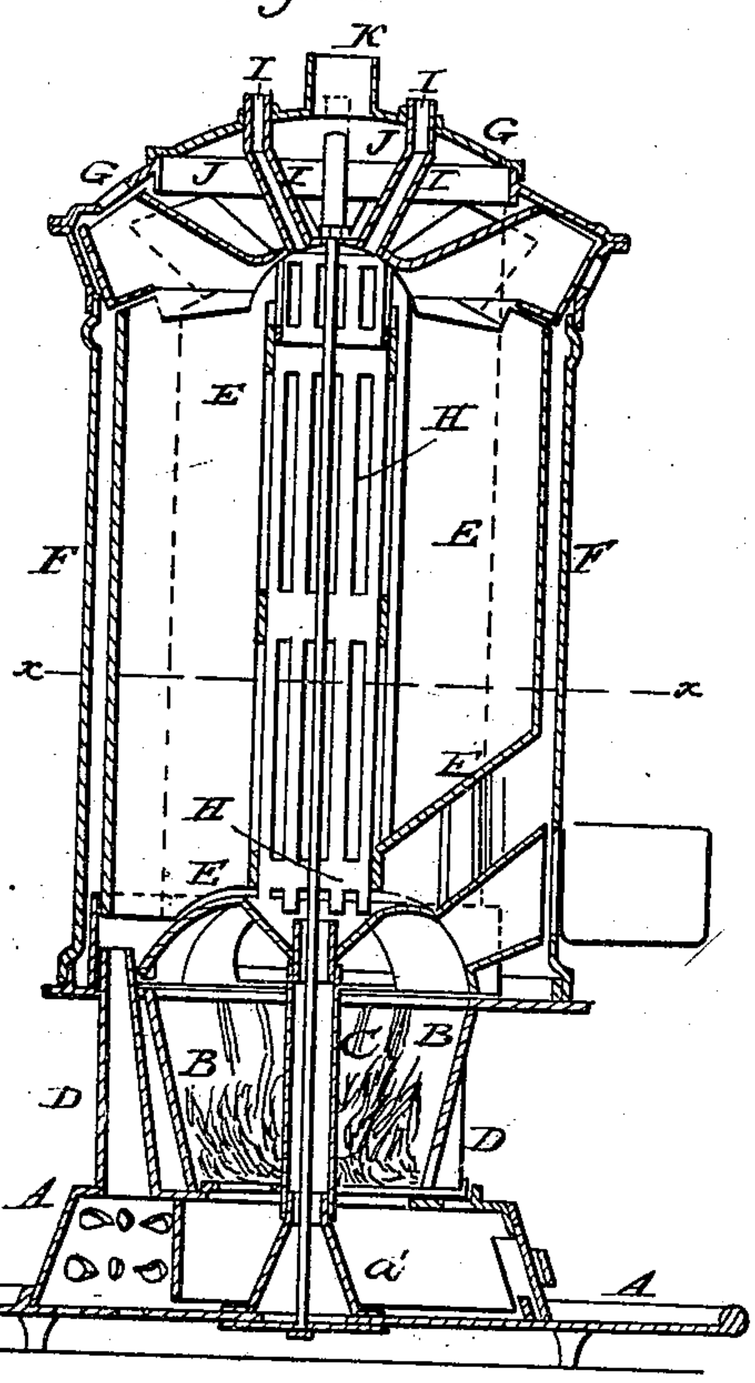
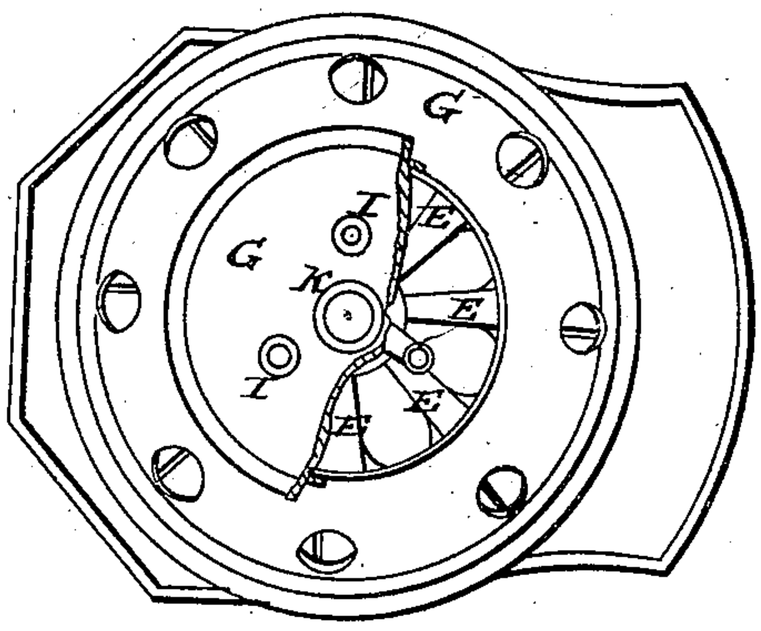
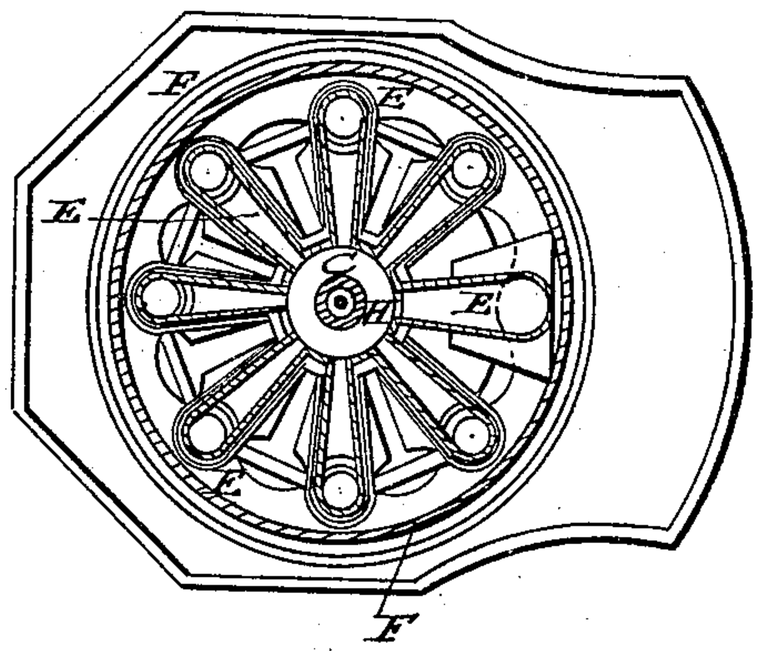


Fig. 1.

Fig. 3.





Witnesses.

Wm A Morgan

G. C. Cotton

Inventor.

C. S. Doolitell

per Munn & Co

Attorneys.

United States Patent Office.

C. S. DOOLITELL, OF MANSFIELD, OHIO.

Letters Patent No. 83,049, *dated October* 13, 1868.

IMPROVEMENT IN COAL-STOVES.

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

To all whom it may concern:

Be it known that I, C. S. DOOLITELL, of Mansfield, in the county of Richland, and State of Ohio, have invented a new and improved Heater; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification.

Figure 1 is a top view of my improved heater, part of the top plate or cap being broken away.

Figure 2 is a vertical longitudinal section of the same.

Figure 3 is a horizontal section of the same, taken through the line *x–x*, fig. 2.

Similar letters of reference indicate corresponding parts.

My invention has for its object to improve the construction of stoves, furnaces, and other heaters, in such a way as to utilize a larger proportion of heat than is possible with heaters constructed in the ordinary manner; and it consists in the construction and combination of the various parts, as hereinafter more fully described.

A is the base of the heater, consisting of two compartments, a^1 and a^2. The inner compartment, which is directly below the bottom of the fire-chamber, is the ash-pit, and also serves as a draught-chamber, through which air is introduced to support combustion, the opening of said inner chamber a^1 being closed with a door or damper, so that the draught may be regulated at pleasure. The outer compartment forms the cold-air chamber, through which the air is introduced into the pipes or flues to be heated, and the sides of which should be made with numerous openings, to permit the free ingress of air into said chamber.

B is the fire-chamber, in the bottom of which is placed a grate, secured and operating in the ordinary manner. The walls of the fire-chamber B are made corrugated, as shown in fig. 2, so as to present the largest possible radiating-surface. The fire-chamber B is so constructed and connected with the other parts that it may be easily removed, and replaced with a new one, when burned out. The fuel is introduced into the fire-chamber B through a hopper-shaped spout in the part of the heater immediately above the said chamber B, as shown in fig. 2.

C is a cold-air pipe leading up from an opening in the bottom of the heater, through the central part of the ash-pit a^1, and through the central part of the fire-chamber B, so that the current of air passing through said pipe may be exposed to the full heat of the fire.

D are cold-air pipes, the lower ends of which open into the cold-air chamber a^2 which pass up along the outer sides of the fire-chamber B in the depressions of the corrugations of the walls of said fire-chamber, so as to be as much as possible exposed to the heat radiating from said walls.

The upper ends of the pipes D communicate with the lower ends of the flattened flues E, which are made of a somewhat greater capacity than the pipes D. The upper ends of the flattened flues E communicate with openings formed in the upper part of the case F that surrounds the collection of flues E, and forms the outer walls of the upper part of the heater, or with openings in the top or cap-plate, G, of said heater, or with openings in both places, as shown in figs. 1 and 2.

H is a pipe, passing up through the middle of the upper part of the heater, and the lower end of which communicates with the upper end of the pipe C, so as to receive the heated air from said pipe C.

Numerous slots or openings are formed in the sides of the pipe H, opening into the flattened flues E, so that the heated air in the said pipe H, and in the said flattened flues E, may become thoroughly intermingled and be reduced to a uniform temperature.

I are air-pipes, leading up from the upper end of the pipe H, through the cap-plate G, for the passage of the heated air from the said pipe H into the room to be heated.

The egress-openings of the flues E and pipes I, or any desired number of them, may be connected with other rooms so as to heat them, and the direction in which the heated air is allowed to escape may be regulated and controlled, as desired, by means of dampers suitably arranged.

The smoke and other products of combustion escape from the fire-chamber, B, through openings in the top of said fire-chamber, said openings being so arranged that an opening may be between each pair of adjacent flattened flues, the said openings and flues alternating with each other, as shown in fig. 3.

By this construction, the smoke and heated gases from the fire-chamber B surround the flues E and pipe H within the exterior case F, so that all the heat in said smoke and gases may be extracted and utilized by being communicated to the air passing through the flattened flues E and pipe H, or radiated by the case F into the room.

The smoke passes up into the smoke-chamber J, where it strikes directly against the cap-plate G, and passes out through the smoke-pipe K into the chimney-flue, the cap-plate G extracting and radiating into the room any heat that may still remain in the smoke.

If it should be found necessary to clean the fire-flues, I design to use an iron ring, fitting the inside of the coating, with a corrugated ring attached to its inner surface, exactly conforming to the flattened flues E. This cleaner may be moved up and down by suitable rods. The flues could also be cleaned by simply raising the cap and operating from above.

When the heater is to be used as a furnace exclusively, it should be surrounded with an external case in the ordinary manner, to collect and utilize the heat that may be radiated from the exterior of the heater.

I claim as new, and desire to secure by Letters Patent—

1. The arrangement of the air-pipe C, fire-chamber

B, slotted pipe H, and flattened flues F, whereby the current of air entering the pipe C is heated in its passage through the fire-chamber, and distributed through the slotted pipe H into the series of flattened flues E, where it mingles with the cool air entering said flues through the pipes D, as herein shown and described.

2. The flattened air-flues E, constructed as described and arranged in respect to the outer case F and egress, draught openings of the fire-chamber B, substantially as herein shown and described, and for the purpose set forth.

3. The combination of the slotted pipe H with the flattened flues E, and with the pipe or pipes C passing through the fire-chamber B, substantially as herein shown and described, and for the purpose set forth.

4. The combination and arrangement of the air-pipes D with the fire-chamber B and with the flattened flues E, substantially as herein shown and described, and for the purpose set forth.

C. S. DOOLITELL.

Witnesses:

JAMES E. COX,

I. DOOLITELL.