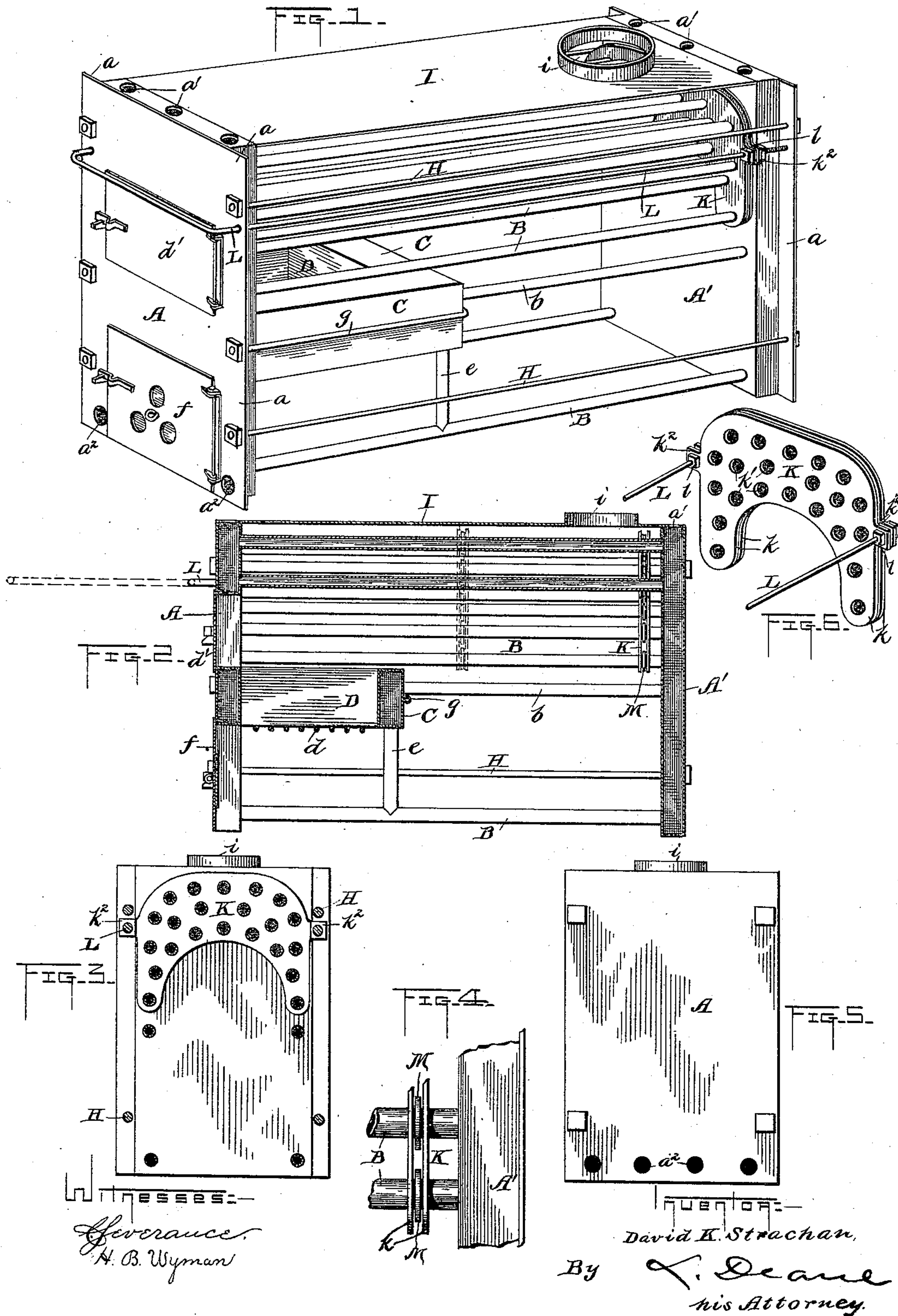


(No Model.)

D. K. STRACHAN.  
FLUE SCRAPER.

No. 428,538.

Patented May 20, 1890.





# UNITED STATES PATENT OFFICE.

DAVID KIRK STRACHAN, OF GODERICH, ONTARIO, CANADA.

## FLUE-SCRAPER.

SPECIFICATION forming part of Letters Patent No. 428,538, dated May 20, 1890.

Application filed November 16, 1889. Serial No. 330,605. (No model.)

*To all whom it may concern:*

Be it known that I, DAVID KIRK STRACHAN, a subject of the Queen of Great Britain, residing at Goderich, in the Province of Ontario and Dominion of Canada, have invented certain new and useful Improvements in Hot-Water Heaters and Flue-Scrapers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

Figure 1 is a perspective view from the front of this heater removed from the casing. Fig. 2 is a vertical central section of the heater shown in Fig. 1. Fig. 3 is a vertical cross-section showing pipe-cleaner in elevation. Fig. 4 is a detail, enlarged, showing a portion of the flue-cleaner, one of the washers between the two plates of the cleaner, and one pipe. Fig. 5 is an end elevation of the heater. Fig. 6 is a perspective view of the flue-scraper or cleaner detached.

The object of the present invention is to provide a compact, cheap, durable, and effective flue-scraper; and the novelty consists in the construction of the several parts of the device, and in the combination of the said parts, and in the device as a whole, all as will now be more fully set forth and explained, reference being had to the accompanying drawings.

To illustrate the application of the present invention, it is shown in the drawings as in place in a hot-water heater. In this A denotes the vertical hollow front head, and A' the vertical hollow rear head, which afford water-chambers at these points, and B the horizontal pipes or tubes connecting said heads.

C is the hollow water-jacket which forms the walls of the fire-box D and communicates at its ends with the head A, and at the rear by horizontal pipes or tubes b with the rear head A', also by means of vertical pipes e at its rear with the lower pipes B, connecting the system of pipes connecting the front and rear heads.

The usual grate is designated by d.

Access to the fire-box is had by the front door d', and to the ash-box by the door f.

The metal strap g, or any convenient means, is used to hold the jacket C in close connection with the front head.

The two heads can be secured together by means of tie-rods H, having nuts on their projecting ends. These rods pass through the flanges a on each side of each head.

The volatile products of combustion will pass off through the exit-pipe placed in the opening i in the top-plate I, that connects the front and rear heads.

The flue-cleaner K is made of two nearly-semicircular plates or pieces of sheet metal k, each having pipe-holes k', those in one piece registering with those in the other. On the sides of each piece are ears k<sup>2</sup>, through which an end of the rod or handle L passes. On this rod at this point are nuts l, and by means of them the two pieces of the cleaner which come between are held in position on the screw-threaded ends of the rod. The ears are bent so that they will act to space apart slightly the two plates of the cleaner. The forward end of the rod passes through the flange a on the front head and is bent so as to afford a handle by means of which the scraper can be moved back and forth. It is not necessary that this rod or handle L should be made in one piece, as now shown, though this is the more convenient structure.

To effect a perfect cleaning of the soot, ashes, &c., from the outside of the water-pipes, a washer M is placed between the pieces or parts of the cleaner K at each series of the registering holes k', where the water tubes or pipes pass through. The pipe-holes in the scraper or cleaner are large enough for easy insertion of the pipes or tubes, and the washers are designed to fit on the pipes, so as to thoroughly remove all deposit from the pipes when the scraper or cleaner is moved back and forth for that purpose. The plates k having been suitably spaced apart, as has been above suggested, there is no danger when the ends of the handle are secured in place that the efficiency of the washers will be diminished, as by being fitted too tightly between said plates.

The structure of this device is very simple. It is very easily kept in order, as the union of the parts is very secure and durable, and it is very easily adapted in position. In operation it is peculiarly fitted for efficient work; since the construction, adaptation, and arrangement of the washers insure the most

thorough cleaning of the pipes as the scraper is passed back and forth.

The scraper or flue-cleaner is not only adapted for the pipes or tubes in a heater like the present, but as well in any hot-water apparatus where the pipes are located as shown, or vertically, or at any inclination. By means of this cleaner a very large saving of fuel can be effected, as there is removed all unnecessary obstruction from the pipes or tubes, and the most complete results from the heat are obtained.

Having thus described my invention, I claim—

1. The flue-cleaner K, consisting of the perforated plates  $k$ , each having an ear  $k^2$  at each side, bent as set forth, to space the plates

apart, the washer M, and the handle-rod L, secured in and to said ears by means of nuts  $l$  on each side of the plates, substantially as set forth.

2. A flue-cleaner consisting of two perforated plates secured upon the ends of a handle-rod and provided with washers between said plates, as described, said plates being spaced apart by the bent ears, as set forth, and held together, substantially as shown and described.

In testimony whereof I affix my signature in presence of two witnesses.

DAVID KIRK STRACHAN.

Witnesses:

W. PROUDFOOT,  
R. S. ROBERTSON.