

(No Model.)

R. S. SMITH & J. MEIKLEJOHN.  
BOILER CLEANER.

No. 374,502.

Patented Dec. 6, 1887.

Fig. 1.

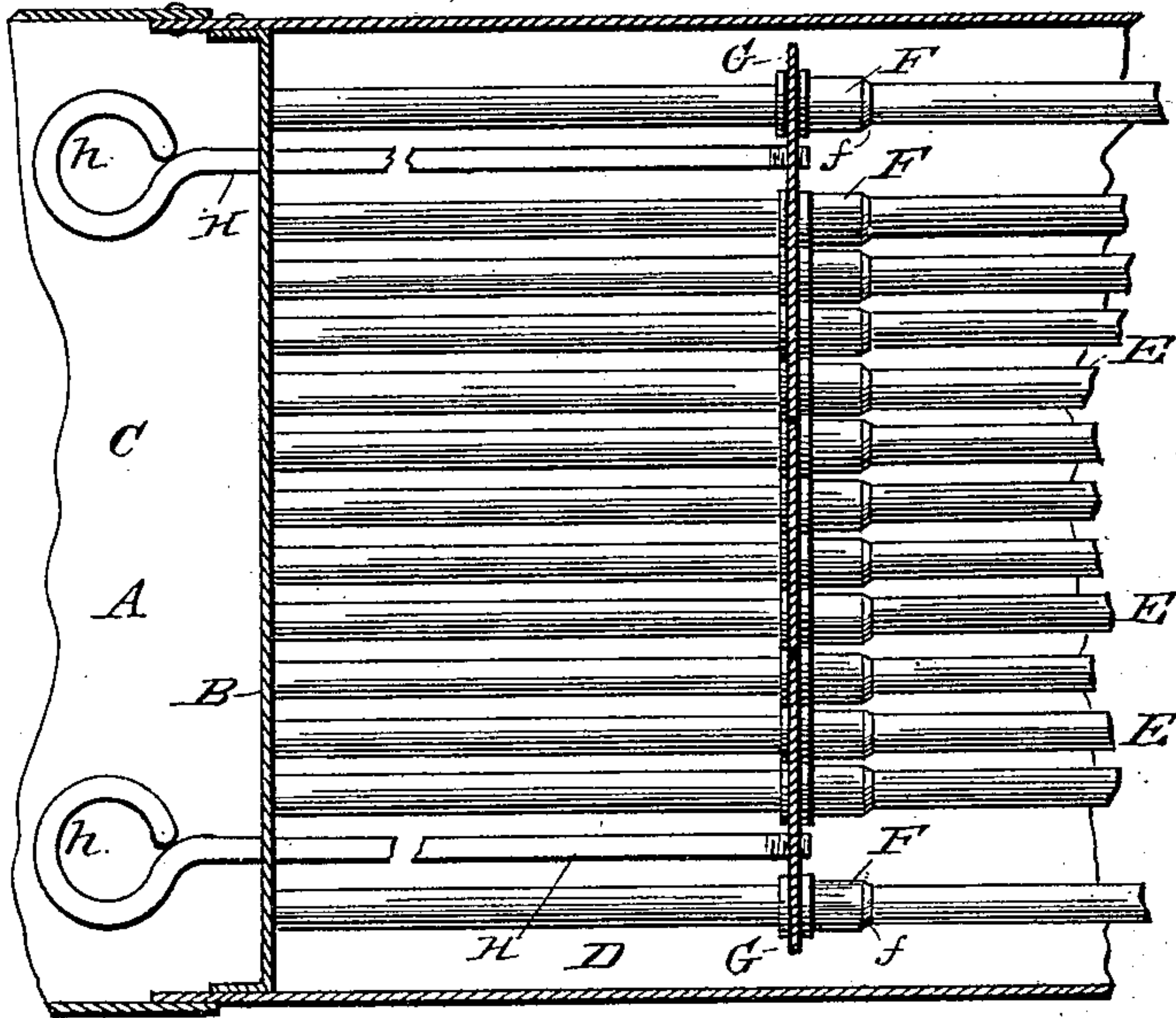


Fig. 2.

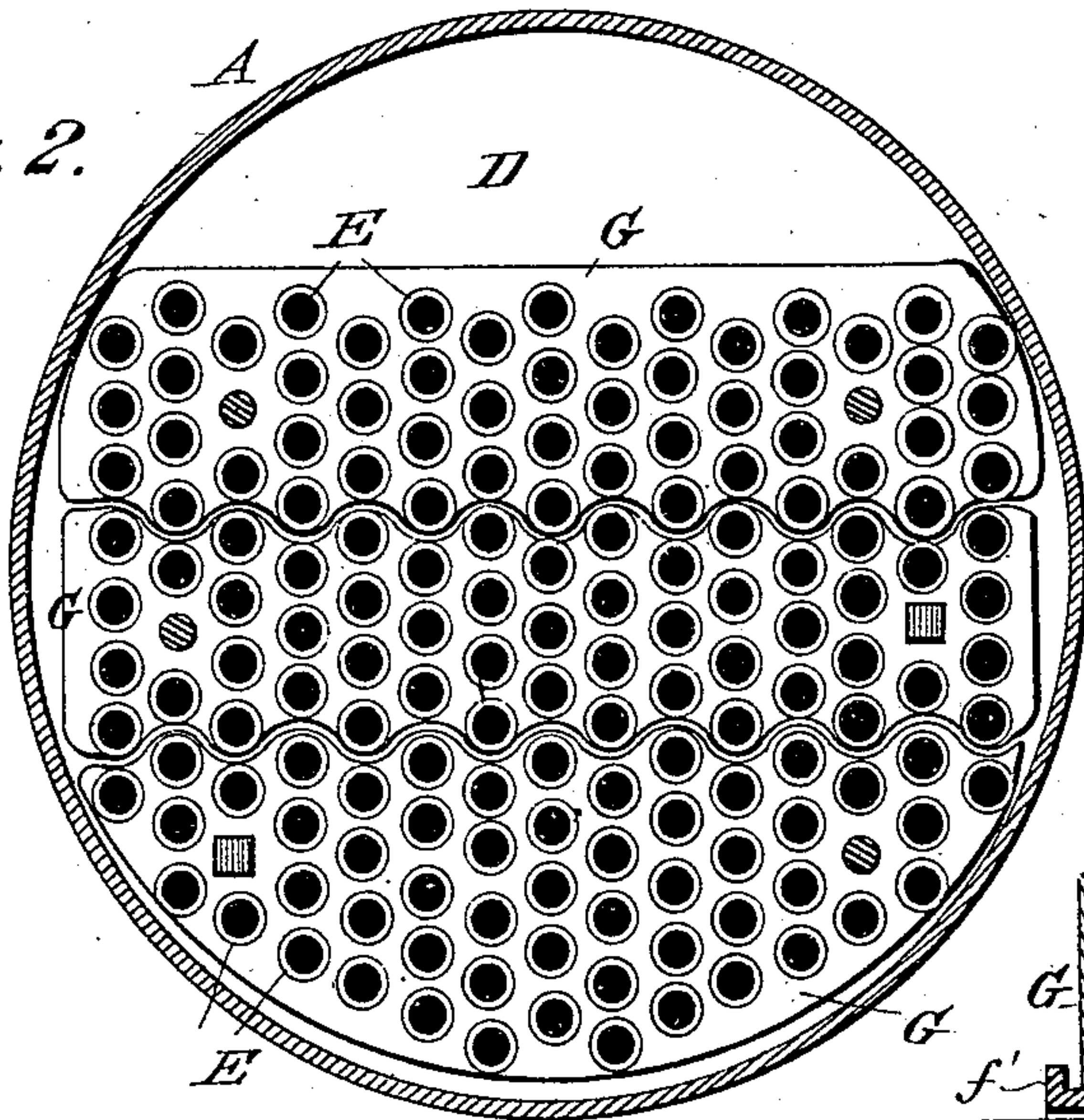


Fig. 3.

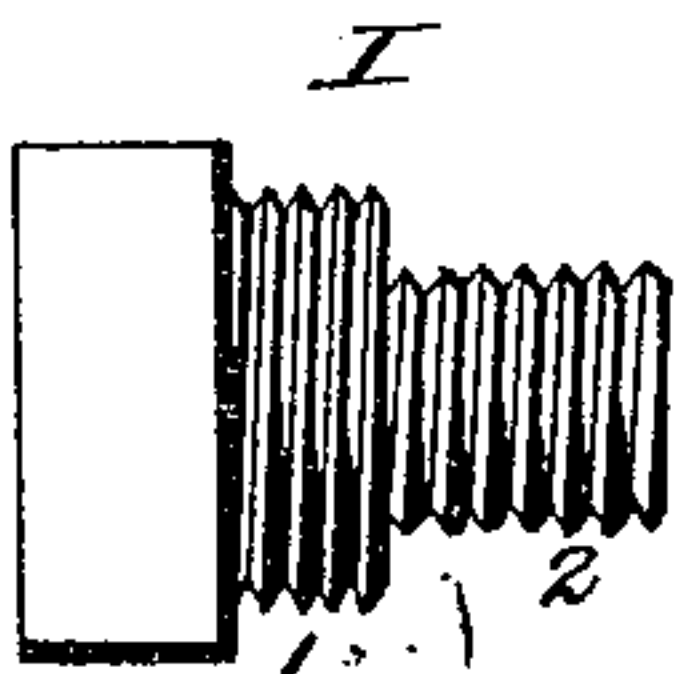


Fig. 5.

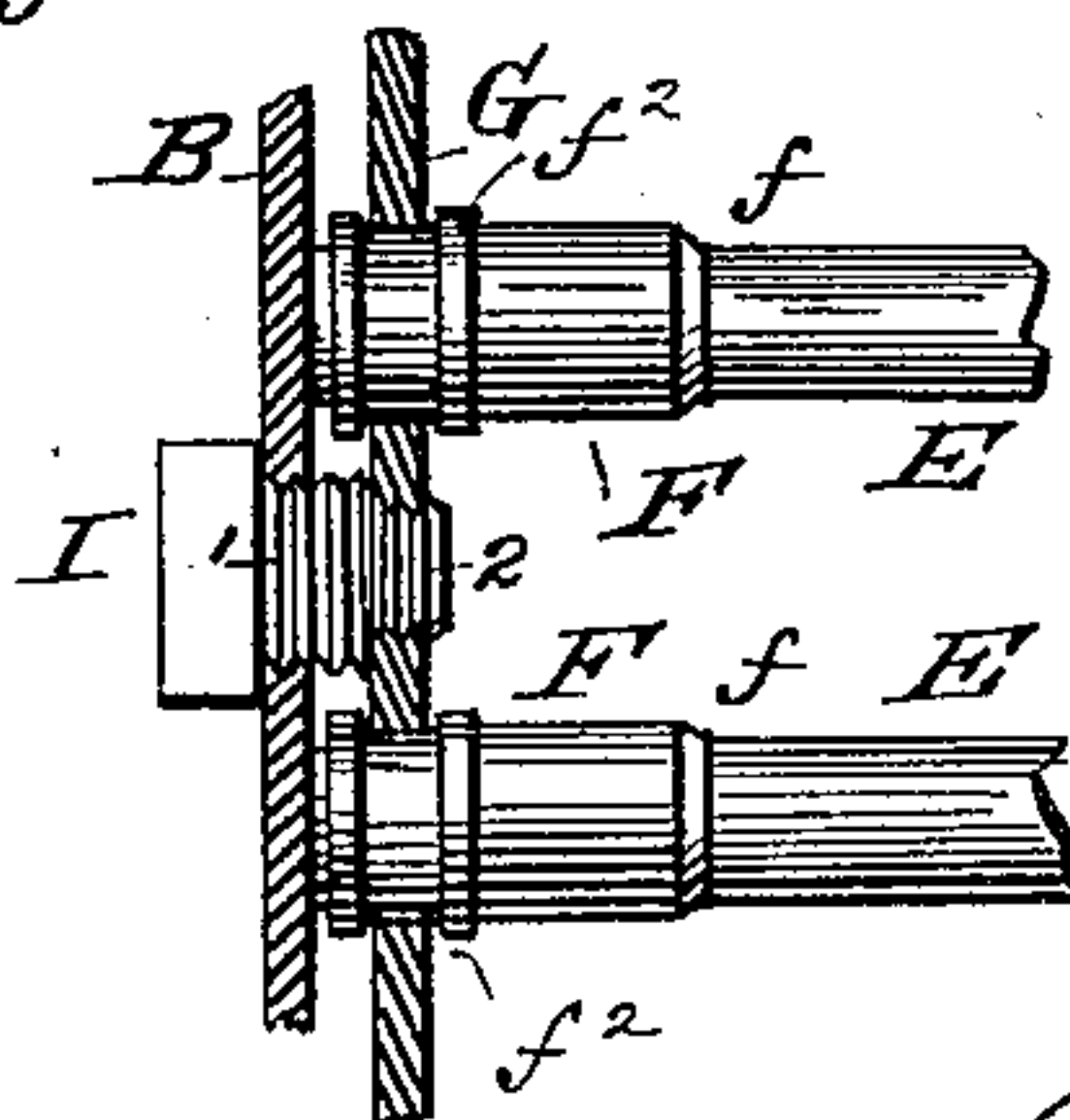
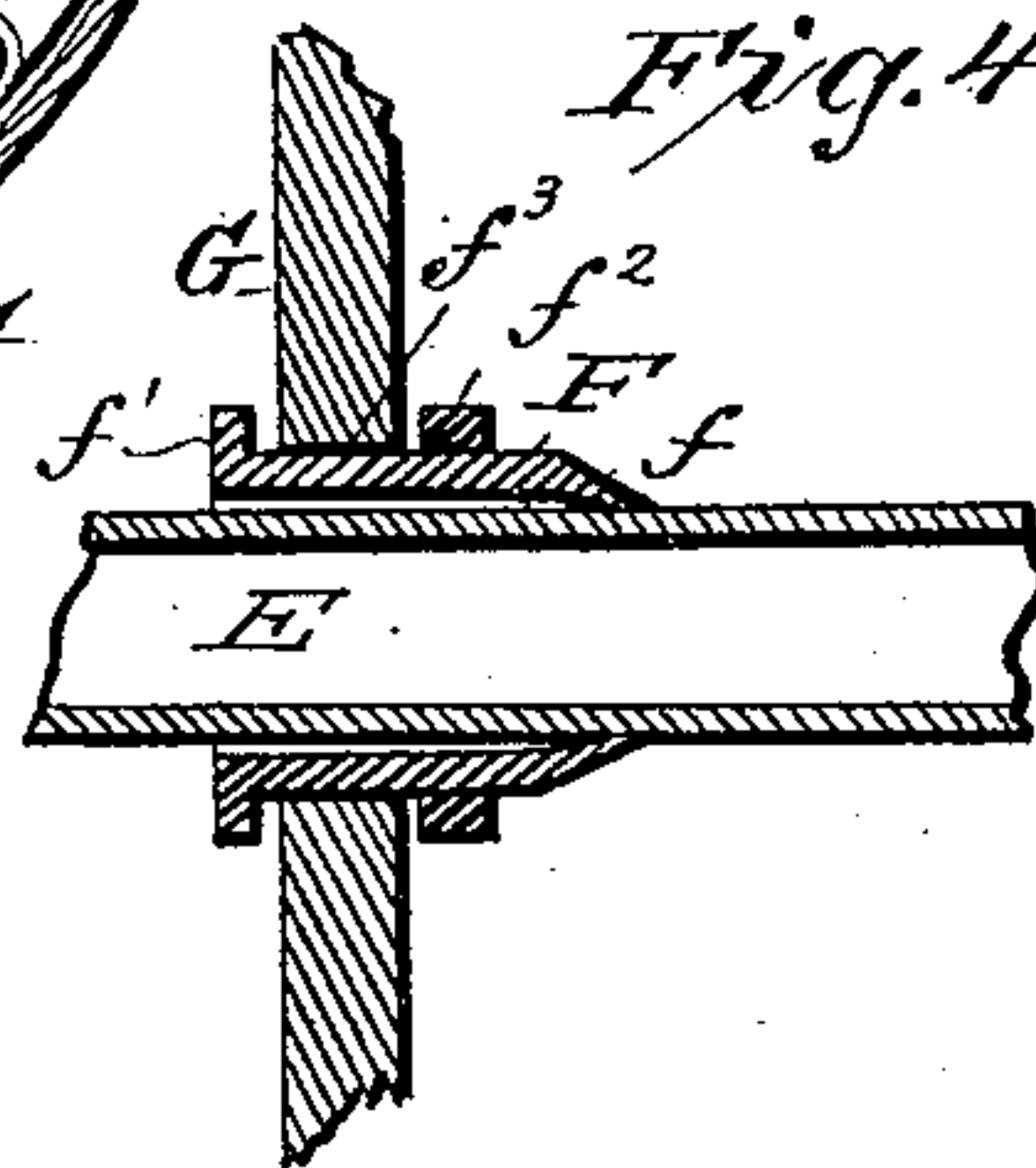


Fig. 4.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

ROBERT SPENCER SMITH AND JOHN MEIKLEJOHN, OF ST. THOMAS,  
ONTARIO, CANADA.

## BOILER-CLEANER.

SPECIFICATION forming part of Letters Patent No. 374,502, dated December 6, 1887.

Application filed October 12, 1886. Serial No. 216,081. (No model.) Patented in Canada July 16, 1886, No. 24,507.

*To all whom it may concern:*

Be it known that we, ROBERT SPENCER SMITH and JOHN MEIKLEJOHN, subjects of the Queen of Great Britain and Ireland, at present residing at St. Thomas, in the Province of Ontario, Canada, have invented a new and useful Improvement in Boiler-Cleaners, of which the following is a specification.

This invention is an improved cleaner for the tubes of tubular boilers; and it consists in certain features of construction and novel combinations of parts, as will be described and claimed.

In the drawings, Figure 1 is a longitudinal section of a boiler provided with our improvements. Fig. 2 is a cross-section of the same. Fig. 3 is a detail view of the threaded plug. Fig. 4 is a detail view of one of the cutters, and Fig. 5 is a detached section showing the plug flue-plate and one of the carrier-plates, as when the boiler is in use.

The boiler A may be of ordinary construction, having a flue-plate, B, separating the smoke-box C from the flue or tube chamber D. The tubes or flues E may also be of ordinary construction. On these tubes we arrange tubular or substantially tubular cutters F, having a cutting-edge,  $f$ , at one end. Manifestly both ends of the cutter may be edged, if desired. In the construction shown a number of these cutters are secured to plates G, and by preference a number—usually three—of such plates are used for each boiler.

The special construction of the cutters is most clearly shown in Fig. 4. Each cutter has a fixed flange,  $f'$ , at its rear end, and a flange,  $f''$ , in front of and separated from the flange  $f'$ , forming between them a groove,  $f^3$ , in which the plate G is held.

In practice the cutters are made with flange  $f'$ , and are inserted through the openings in the plate G. The collar or flange  $f''$  is then heated and placed when hot on the cutter on the side

of plate G opposite flange  $f'$ , and after it has cooled such flange  $f''$  will fit tightly on the body of the cutter. These plates have openings, into which are threaded the ends of rods H, which extend through openings in the flue-plate, and may have suitable hand-holds,  $h$ , as shown. By means of the rods the plates and their cutters may be moved along the tubes, and the latter be cleaned of all accumulation of all corrosive deposits, sediment, and the like.

To close the openings in the flue-plate, and for the further purpose presently described, we employ the plugs I, having portions 1, fitted to close the openings in the flue-plate, and portion 2, threaded to enter the openings in the carrier-plates and secure the latter close up against the flue-plate when the boiler is in use. Thus it will be seen when the boiler is not in use the plugs may be removed, the handle-rod passed through the openings in the flue-plate and threaded into those of the carrier-plates, and the latter with the cutter be moved along the tubes for the desired purpose.

It may be stated that by preference the cutters are secured loosely to the carrier-plates to enable them to adjust to slight irregularities in the tubes. This is preferably effected by providing the cutters with annular circumferential grooves, in which the carrier-plates are secured, as shown most clearly in Figs. 4 and 5.

In the construction shown the carrier-plates and their attached cutters constitute the cleaner proper, and such construction, as well as the other construction shown, is preferred; but manifestly it would involve no departure from the broad principles of the invention to employ detached cutters for each tube and to operate the same independently.

Having thus described our invention, what we claim as new is—

1. In a boiler-cleaner, a flue-cleaner consisting of a tube having a sharpened edge or end and provided with an annular circumferential groove, combined with the carrier-plate held in said groove, substantially as set forth.

2. The combination, with the boiler-flue plate having a perforation, of the cleaner plate or carrier having a threaded opening in line with the opening of the flue-plate, and the plug having a portion fitting the opening of the flue-plate, and a threaded portion for enter-

ing the cleaner plate or carrier, substantially as set forth.

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