

W. O'BRIEN.

Devices for Keeping Steam-Boilers Clear of Scales and Sediment.

No. 153,012.

Patented July 14, 1874.

Fig: 1.

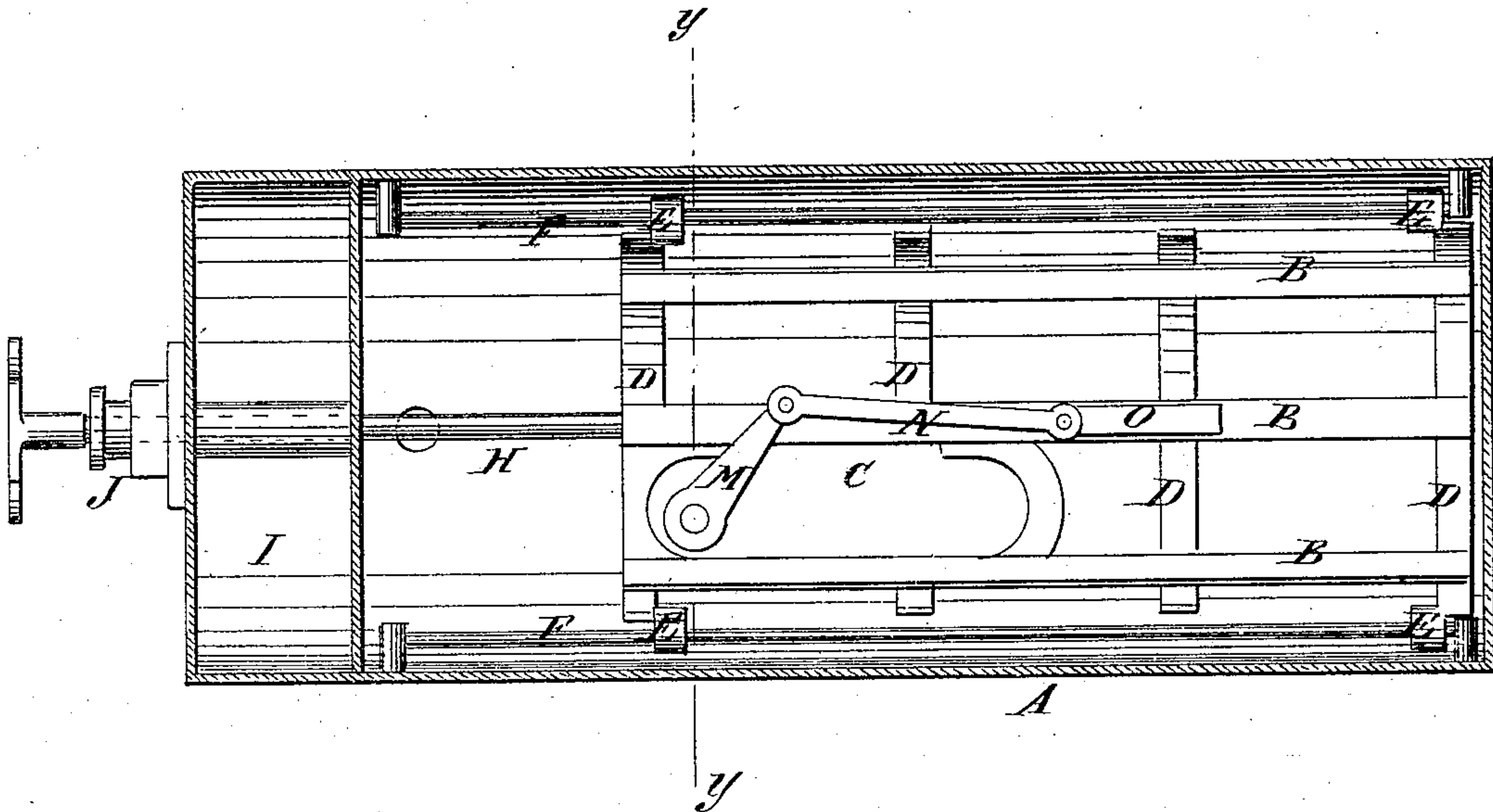
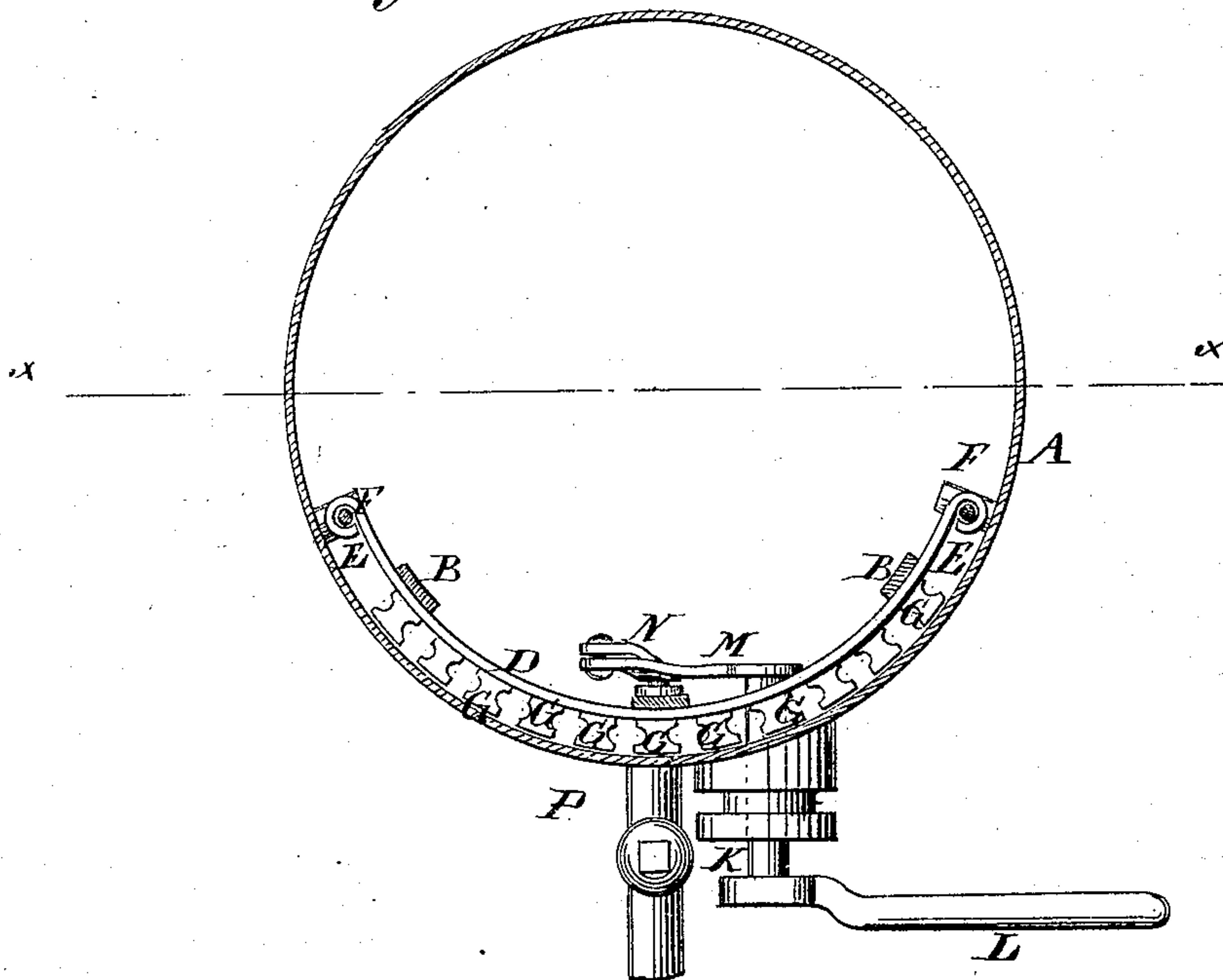


Fig: 2.



WITNESSES:

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UNITED STATES PATENT OFFICE.

WILLIAM O'BRIEN, OF MATTOON, ILLINOIS.

IMPROVEMENT IN DEVICES FOR KEEPING STEAM-BOILERS CLEAR OF SCALE AND SEDIMENT.

Specification forming part of Letters Patent No. **153,012**, dated July 14, 1874; application filed May 29, 1874.

To all whom it may concern:

Be it known that I, WILLIAM O'BRIEN, of Mattoon, in the county of Coles and State of Illinois, have invented a new and useful Improvement in Device for Keeping Steam-Boilers Clear of Scale and Sediment, of which the following is a specification:

The invention will first be fully described, and then pointed out in the claim.

In the accompanying drawing, Figure 1 represents a horizontal longitudinal section of a cylinder-boiler on the line *xx* of Fig. 2, showing my scraping-frame applied. Fig. 2 is a vertical section of the cylinder-boiler on the line *yy*.

Similar letters of reference indicate corresponding parts.

A is the boiler. C is the scraping-frame. This frame is composed of two or more longitudinal bars, B, having four (more or less) cross-bars, D, firmly riveted or bolted to them. The two cross-bars at the ends of the frame are provided with eyes E. F F are stationary rods attached to the sides of the boiler which support the frame by means of these eyes E. The frame as a whole is an arc of a circle of a diameter corresponding with the boiler. G represents scrapers attached to the bottom of each cross-bar D, which, as the frame is moved back and forth, are placed so as to just clear the bottom of the boiler and scrape therefrom any sediment or scale which may settle on the bottom. This frame is operated from the front of the boiler by means of the rod H, which passes through the smoke-box I of the locomotive-boiler or through the head of the ordi-

nary cylinder-boiler with a stuffing-box, J, as seen in the drawing. This frame may also be operated from the bottom of the boiler by means of the vertical shaft K, which turns in a stuffing-box attached to the bottom of the boiler. L is a lever-wrench on the shaft K. M is an arm on the upper end of the shaft. N is a connecting-rod jointed to the arm and to the piece O, which latter is made fast to the frame. By working the lever L back and forth it will be seen that the frame will partake of the same motion. The sediment at the bottom of the boiler being thus loosened and agitated is readily blown off, and the boiler left clean and in good condition for generating steam. P is the feed-water cock attached to the bottom of the boiler. This it is claimed is a new arrangement of the feed-water pipe. By introducing the feed-water at the bottom of the boiler the effect is to wash the sediment from the bottom and prevent the deposition of scale. By these means the sediment is detached from the bottom and stirred up, so as to be readily blown off, thus preventing the burning of the boiler and greatly economizing fuel.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

The sliding frame B D, having subjacent scrapers G and side eyes E, combined with rods F F H, as and for the purpose specified.

WILLIAM O'BRIEN.

Witnesses:

J. W. HAWLEY,
O. P. KIMMEL.