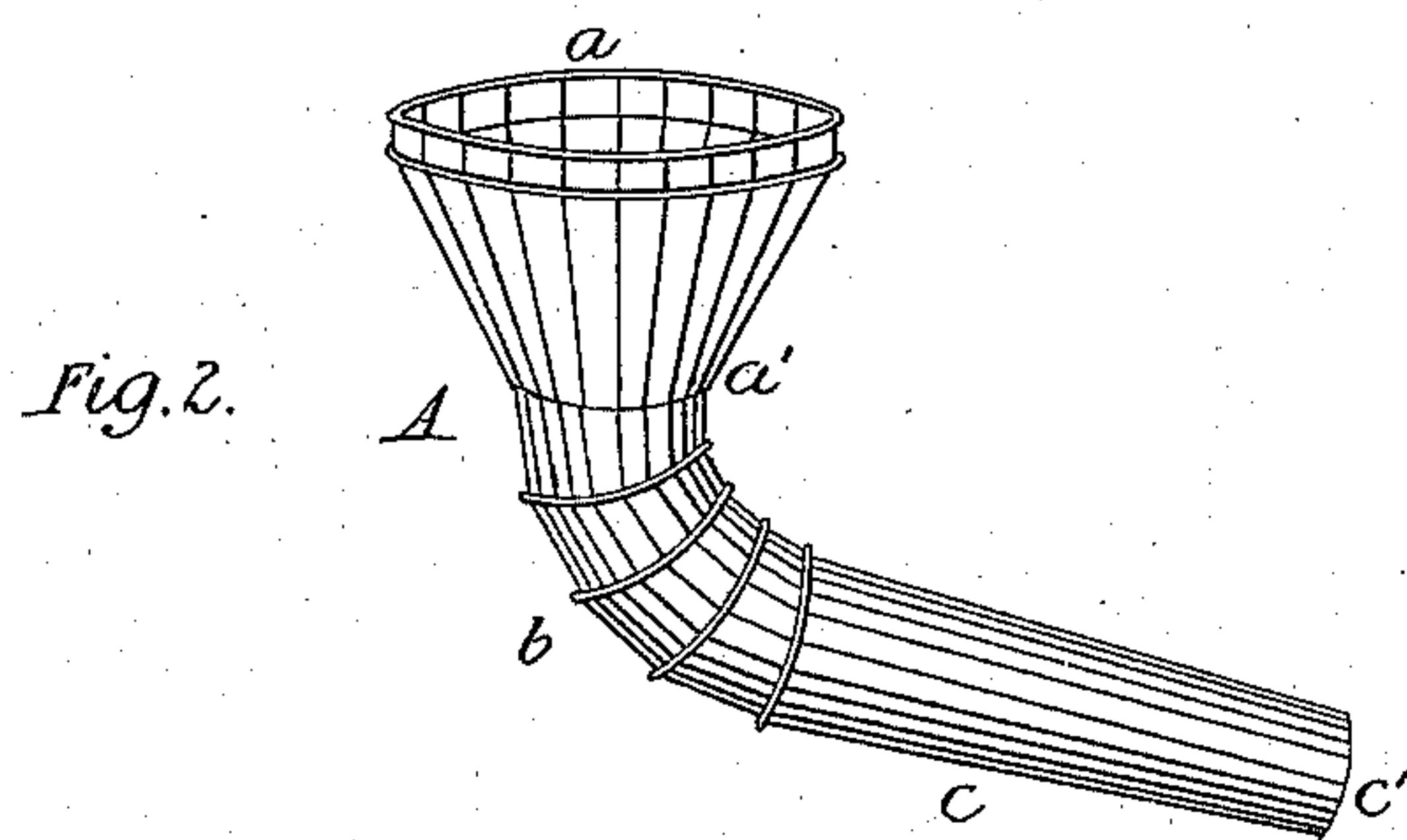
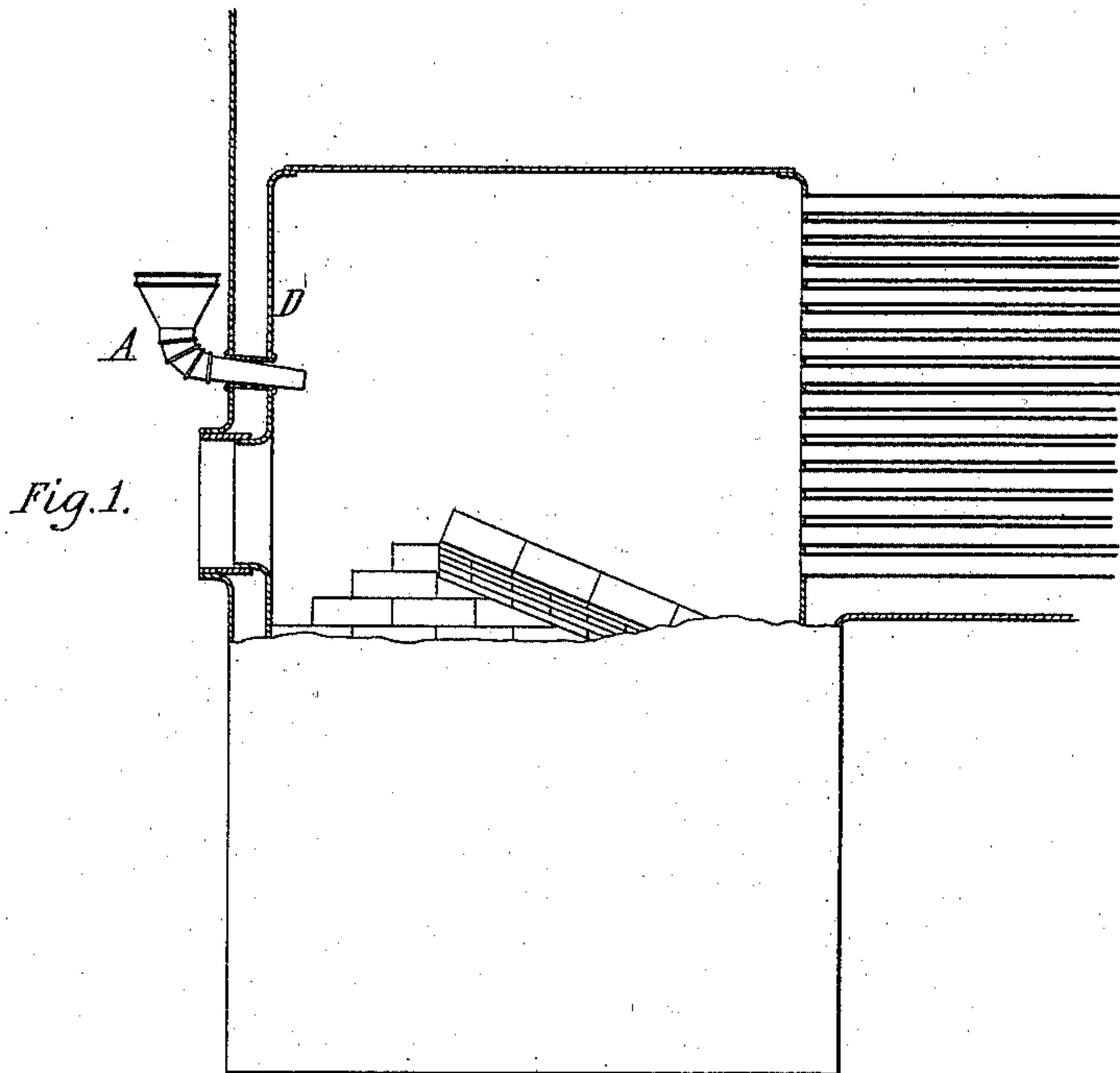


(No Model.)

W. BOOTH & K. H. WADE.  
BOILER FLUE CLEANER.

No. 547,199.

Patented Oct. 1, 1895.



Witnesses

*W. J. Norton*

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# UNITED STATES PATENT OFFICE.

WILLIAM BOOTH, OF SAN BERNARDINO, AND KIRTLAND H. WADE, OF LOS ANGELES, CALIFORNIA.

## BOILER-FLUE CLEANER.

SPECIFICATION forming part of Letters Patent No. 547,199, dated October 1, 1895.

Application filed June 25, 1895. Serial No. 554,047. (No model.)

*To all whom it may concern:*

Be it known that we, WILLIAM BOOTH, residing in the city and county of San Bernardino, and KIRTLAND H. WADE, residing in the city and county of Los Angeles, State of California, citizens of the United States, have invented certain new and useful Improvements in Boiler-Flue Cleaners; and we do 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, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention is directed to improvements in that class of boiler-flue cleaners in which the scale and other deposits are removed by the action of a blast of sand or equivalent material.

The invention consists in the construction, location, and arrangement of the device for effecting the cleansing of the flues and in the operation thereof in connection with other parts, all of which will hereinafter fully appear.

In the accompanying drawings we have shown our invention applied to the fire-box and boiler of a locomotive-engine.

In said drawings, Figure 1 is a vertical sectional view of enough of a boiler and furnace with our device applied to illustrate the invention. Fig. 2 is a perspective view of the device detached.

In the production of our improved cleaner we have attained not only efficiency of operation and increased results, but have simplified the structure to such an extent as to obtain maximum economy both in the cost of manufacture and operation.

In carrying out our invention we first construct a hopper A, preferably from sheet metal, with the mouth *a* and contracted lower end *a'*, to which latter is connected an elbow *b*, preferably made up of sections. Extending from the elbow is a pipe or tube *c*, having a gradual taper to its mouth *c'* and a slight downward inclination, as shown.

In the application of our invention an aperture is made in the end sheet D of the fire-box and the tube *c* is inserted therethrough

from the outside, its mouth *c'* extending well within the fire-box. Sand or other like substance, preferably of a coarse grain, is now deposited in the hopper and falls by gravity into the tube *c*, which, being inclined downward into the fire-box, allows the descent of the sand. The blower or exhaust is now turned on and the sand falling from the tube *c* is impelled by the draft forcibly through the entire number of flues and by its abrading action loosens and removes the scale and other deposits which have collected. By the location and arrangement of the hopper the sand has a range sufficient to include all of the flues, and consequently the entire series are simultaneously cleansed in a short space of time as compared with existing methods and means which contemplate the cleansing of the flues individually or one at a time.

The invention, while susceptible of general use, is especially applicable in fluid-fuel-burning locomotives, in which a deposit is formed in a manner similar to other classes of boilers and furnaces employing solid fuel.

In the operation of the device the hopper is preferably slightly agitated in order to obtain a free feeding of sand, the tube being inserted to such a degree only as will permit of the hopper being moved in the aperture.

The simplicity of the device is apparent, and the facility of operation enables the employment of unskilled labor. Moreover, as before stated, the entire aggregation of flues are cleaned at one operation, thereby saving time and labor.

We claim as our invention—

The combination with a fire box and a flue boiler provided with a blower or exhaust, a flue cleaner comprising a sand hopper and a sand tube leading downward from said hopper and thence forward and passes through the sheet of the fire box, the combination insuring the delivery of the sand within the fire box and to and through the flues, all substantially as set forth.

In testimony whereof we affix our signatures in presence of two witnesses.

WILLIAM BOOTH.

KIRTLAND H. WADE.

Witnesses:

F. B. HENDERSON,

H. F. DODGE.