

(No Model.)

2 Sheets—Sheet 1.

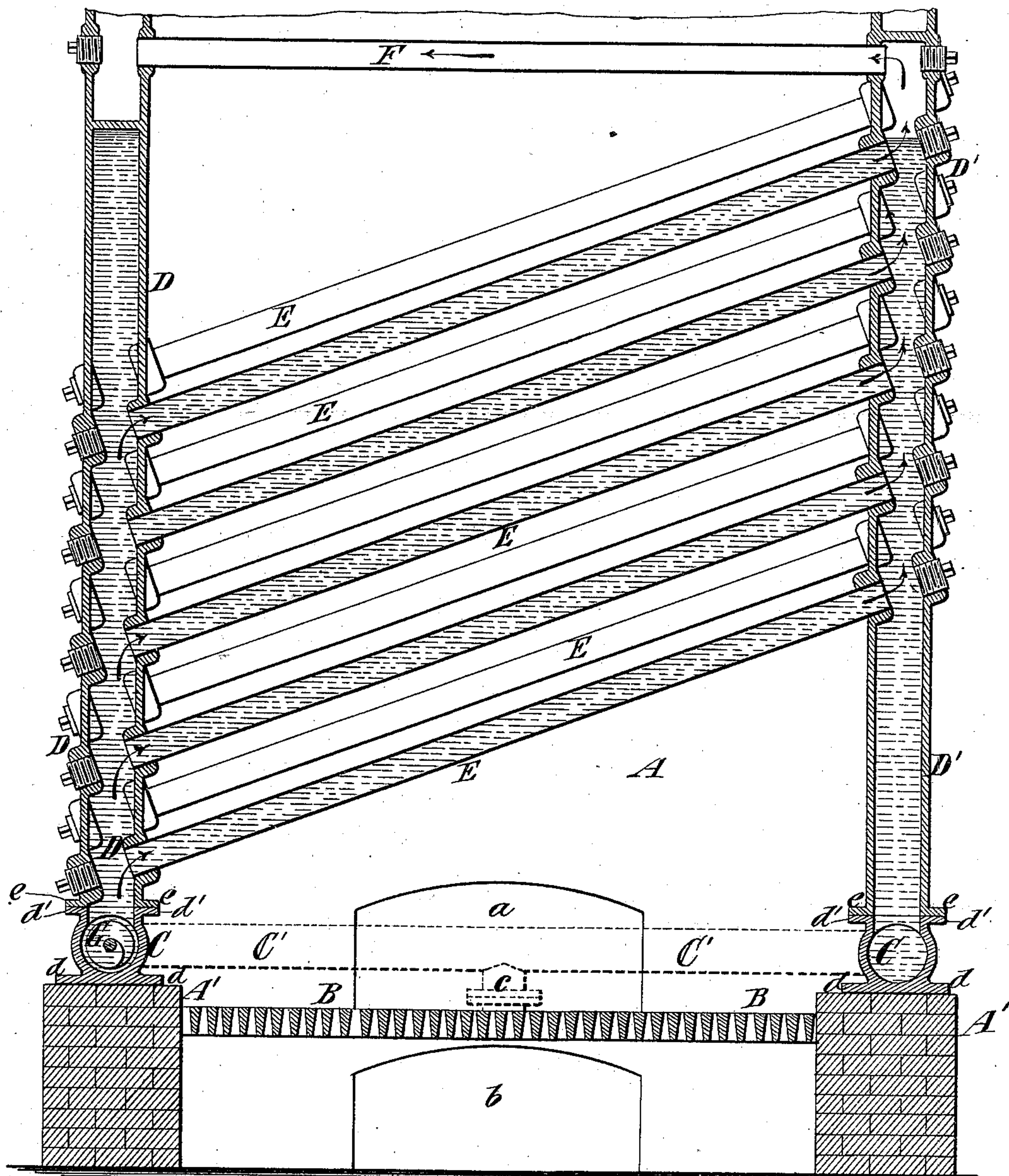
B. T. BABBITT.

APPARATUS FOR CLEANING STEAM GENERATORS.

No. 309,283.

Patented Dec. 16, 1884.

Fig. 1



Witnesses:—

Louis M. F. Whitehead.
Fred Wagner

Inventor:

Benjamin T. Babbitt
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(No Model.)

2 Sheets—Sheet 2.

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Fig. 2.

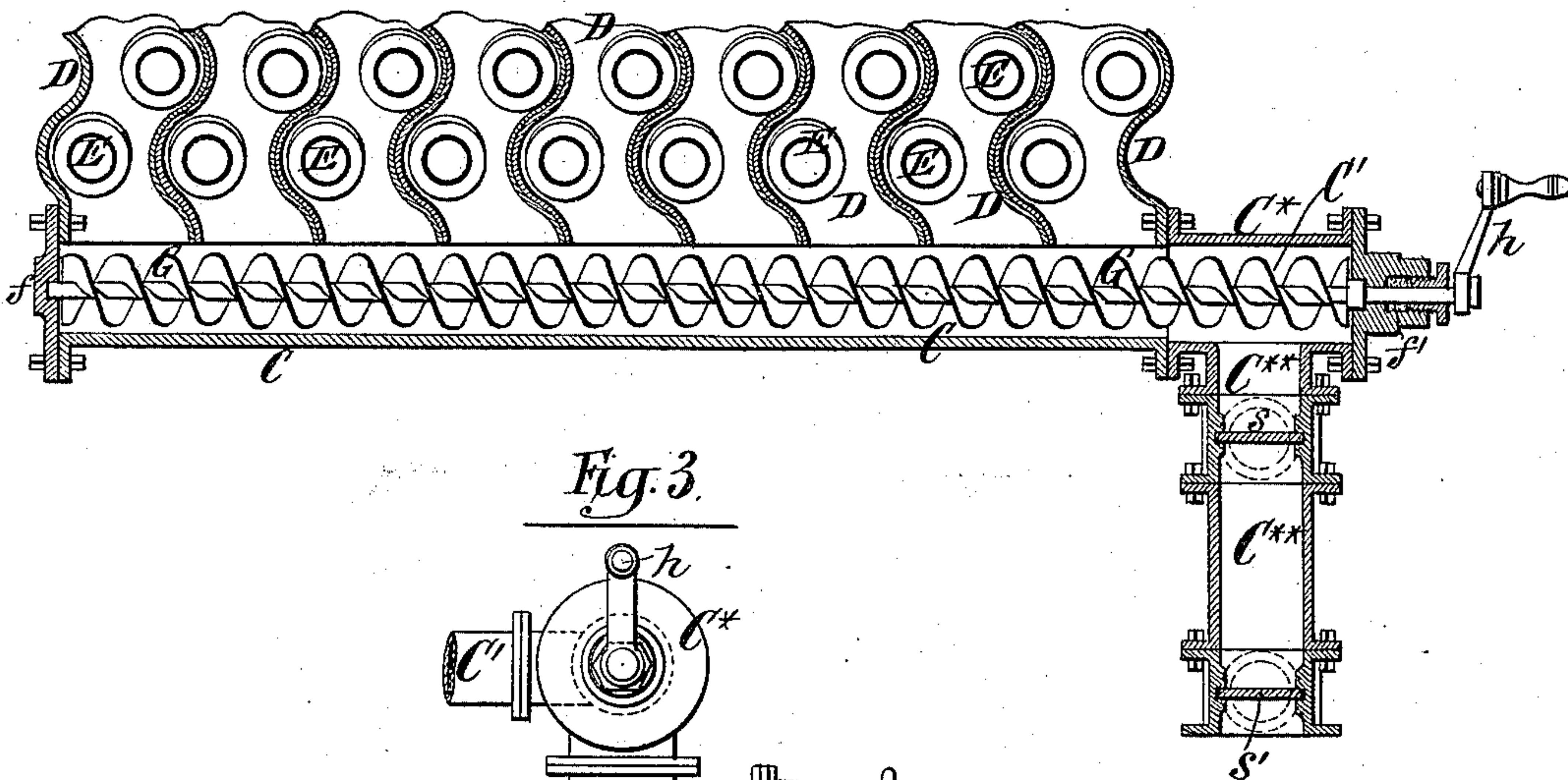
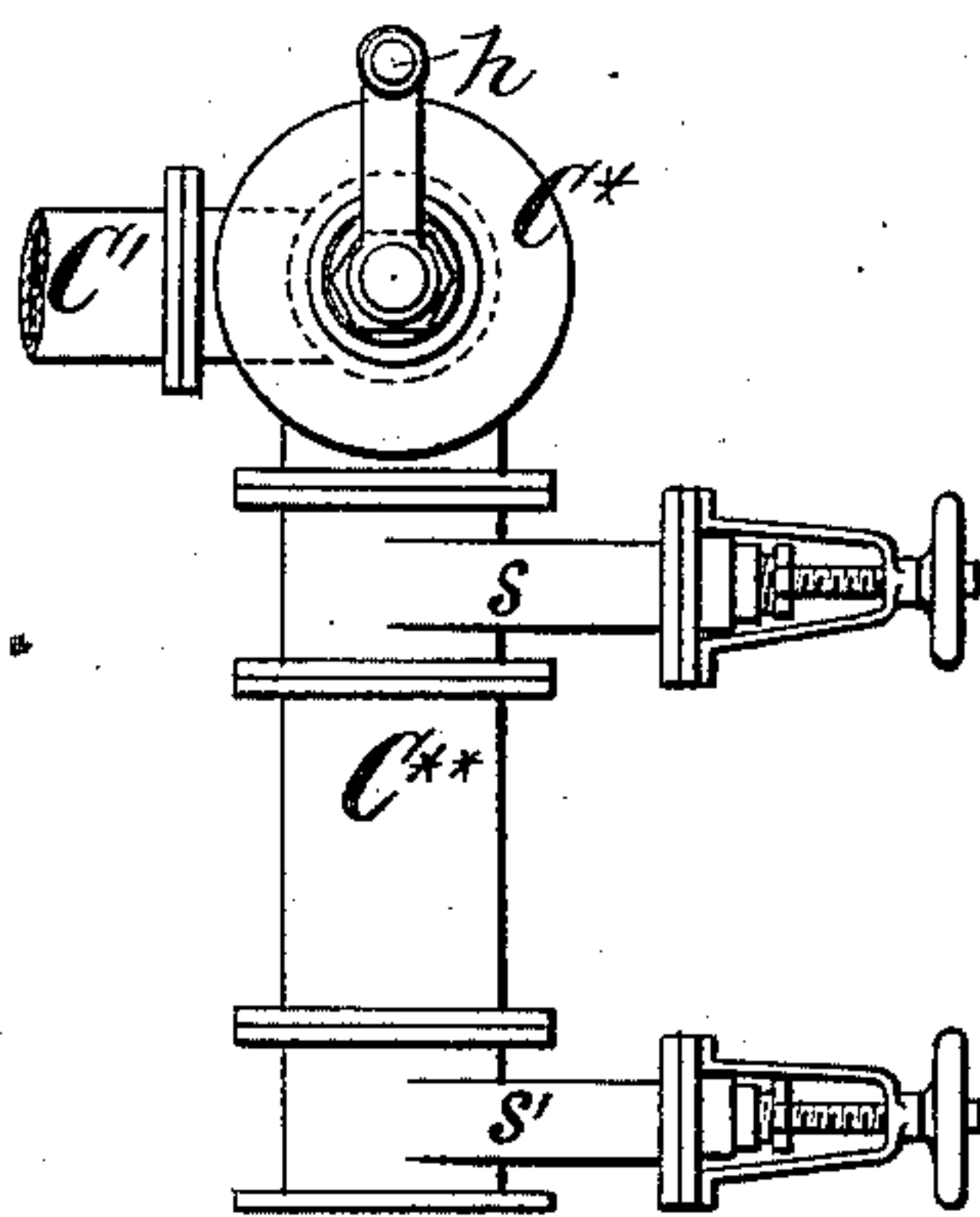


Fig. 3.



Witnesses:-

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Inventor:-

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UNITED STATES PATENT OFFICE.

BENJAMIN T. BABBITT, OF NEW YORK, N. Y.

APPARATUS FOR CLEANING STEAM-GENERATORS.

SPECIFICATION forming part of Letters Patent No. 309,283, dated December 16, 1884.

Application filed July 2, 1884. (No model.)

To all whom it may concern:

Be it known that I, BENJAMIN T. BABBITT, of the city and county of New York, in the State of New York, have invented a new and useful Improvement in Apparatus for Cleaning Steam-Generators, of which the following is a specification.

My invention is applicable to steam-generators wherein are employed a header arranged in an approximately-horizontal position, a number of upright headers erected thereon and communicating therewith, and tubes for the circulation of water extending at an upward inclination from said upright headers and exposed to the heat of the furnace; but the invention relates more particularly to generators of the kind illustrated in my application for patent filed March 8, 1884, and of which the serial number is 123,489. In the generator last referred to the inclined water-tubes communicate at their higher and opposite ends with a second series of upright headers mounted upon and communicating with a second horizontal header on the opposite side of the fire from that above referred to.

In generators of the kind above referred to the sediment and solid matter of various kinds will deposit largely in that horizontal header which communicates with the lower ends of the inclined water-tubes, and an important object of my invention is to provide convenient and effective means for cleaning said horizontal header of sediment while the generator is in full operation; but, if desired, a similar apparatus may be applied to that horizontal header which is at the higher ends of the inclined water-tubes.

My invention will be hereinafter described, and then pointed out in the claims.

Figure 1 represents a vertical section of a generator embodying my invention in a plane parallel with the inclined water-tubes above referred to. Fig. 2 is a partly-sectional elevation of one of the horizontal headers and portions of the series of upright headers supported thereon, and Fig. 3 is an end view of the parts shown in Fig. 2.

Similar letters of reference designate corresponding parts in all the figures.

The generator here chosen for illustrating my invention closely resembles that which forms the subject of my aforesaid application

for patent, and a brief description thereof will suffice. Opposite walls of the generator are or may be formed of brick-work, A, in which are fire-doors *a* in opposite sides and above the grate B, and below the fire-doors and grate are ash-pit doors *b*, as shown in Fig. 1. The other two opposite walls are formed of brick-work A' to a point slightly above the grate B, and on the brick-work A' rest two horizontal or nearly horizontal headers, C, which are connected at their ends by a pipe, C', into which water is delivered by a pipe, *c*. The pipes C' and *c* are shown dotted in Fig. 1. The horizontal or nearly horizontal headers C are approximately U-shaped in transverse section, open at the top, and provided at the bottom with feet or base-flanges *d*, which are supported on brick walls A'. As here shown, they have continuous flanges *d'* at the top. Upon the headers C are erected two series of upright headers, D D', which are of cast metal, and arranged side by side to form tight walls for the generator. The headers D D' have at their lower ends flanges *e*, and are bolted fast to the tops of the headers C.

E are water-tubes, which extend at an inclination from the headers D across to the headers D', and through them water will circulate from the headers D upward and across to the headers D'. I have here shown the headers D D' as broken off at their upper ends; but they may be continued upward and connected by tubes F in order to form a superheater, as shown and described in my application above referred to.

As before stated, sediment will deposit to a greater extent in the horizontal header C, which is under the upright headers D, and in that header I arrange a screw-conveyer, G. (Best shown in Fig. 2, also in Fig. 1.)

As shown in Fig. 2, one end of the header C is closed by a head, *f*, and at the other end thereof is a T piece or connection, C*, from the side of which extends the pipe C', and from the bottom of which extends a well, drop, or downwardly-projecting delivery-throat, C**. In the well or drop C** are two sluice-gates or straight-way valves, *s s'*, arranged one above another, as shown in Fig. 2. The shaft of the conveyer is supported at one end in a bearing in the head *f* and at the other end in a stuffing-box in the head *f'* of the piece or

connection C*. The conveyer is thus held against lengthwise movement, and it may be turned by a crank or handle, *h*. During the operation of the generator the conveyer is
 5 turned from time to time by its handle, and by its rotation all sediment will be moved along the header C and deposited in the well or drop C**. The upper and lower slides or valves, *s s'*, enable the sediment deposited in the drop
 10 or well to be withdrawn while the generator is in operation. By opening the slide or valve *s* the deposit of sediment descends onto the slide or valve *s'*, and when desired to remove it the valve or slide *s* is closed and the lower
 15 valve or slide, *s'*, is opened.

Although my clearing apparatus is very advantageous in a generator of the kind shown, it may be employed with advantage in other generators wherein a number of upright head-
 20 ers are supplied from a horizontal header.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination, with an approximately-
 25 horizontal header and upright headers mounted thereon and communicating therewith, of a screw-conveyer arranged within and extending from end to end of said horizontal header, bearings wherein said conveyer may turn, and which prevent longitudinal movement thereof,
 30 and a drop or well at the end of said horizontal header, wherein the matter moved along by the conveyer will be deposited, substantially as herein described.

2. The combination, with an approximately-
 horizontal header and upright headers mount- 35
 ed thereon and communicating therewith, of a screw-conveyer arranged within said horizontal header, and a well or drop at one end of the horizontal header for the reception of material moved along by the conveyer, and
 40 valves or gates arranged one below another in said well or drop, and capable of being separately opened and closed, substantially as herein described.

3. The combination, with the horizontal U- 45
 shaped header C, open at the top, and the flanged upright headers D, secured thereon side by side, of the conveyer G and the well or drop C** at the end of said header C, provided with valves or gates *s s'*, all substan- 50
 tially as herein described.

4. The combination, with the two horizontal headers C, and a pipe, C', connecting them, of the series of upright headers D D', mount- 55
 ed upon and communicating with the headers C C, inclined water-tubes E, extending from the headers D upward and across to the headers D', the screw-conveyer G in the header C, which supports the headers D, and a well or drop, C**, at the end of that horizontal 60
 header C provided with gates or valves, substantially as herein described.

B. T. BABBITT.

Witnesses:

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