No. 631,100. Patented Aug. 15, 1899.

E. R. WILLIAMS.

SCALE REMOVER FOR STEAM BOILERS.

(Application filed Feb. 21, 1899.)

(No Model.)

Fig. 1

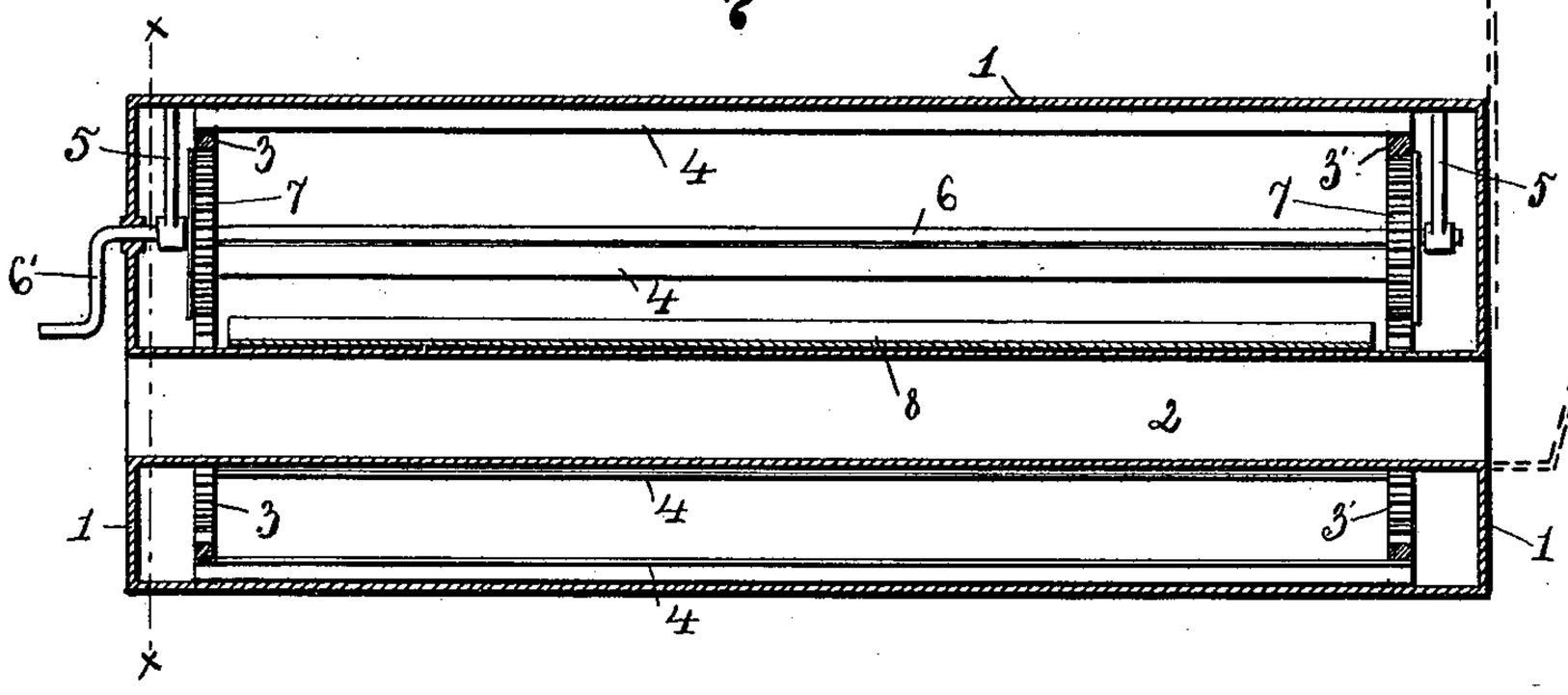


Fig. 3

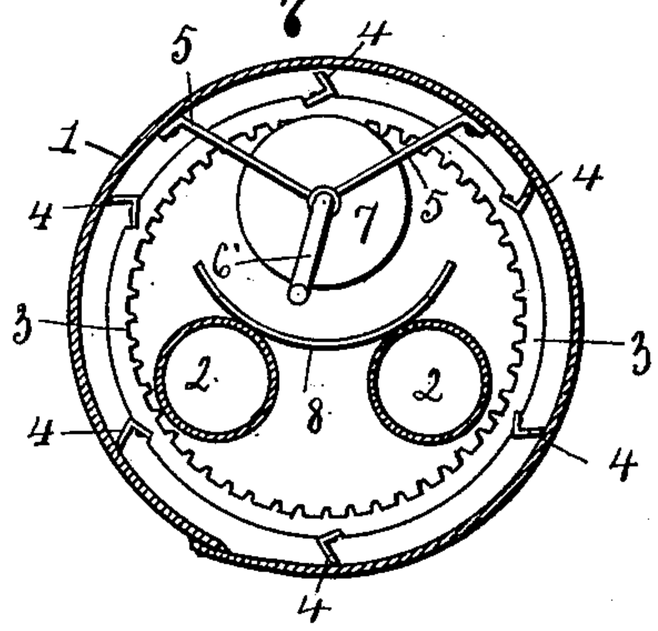
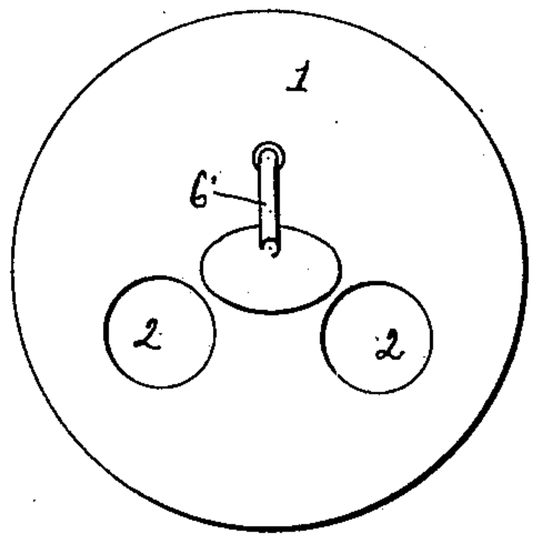


Fig. 2



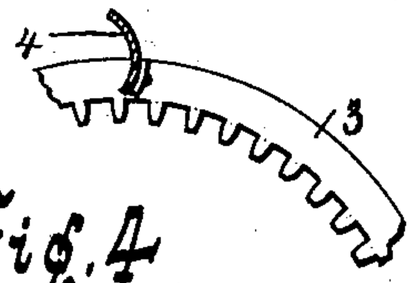


Fig. 4

Fig. 5

Witnesses:
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EVAN R. WILLIAMS, OF KNOXVILLE, PENNSYLVANIA.

SCALE-REMOVER FOR STEAM-BOILERS.

SPECIFICATION forming part of Letters Patent No. 631,100, dated August 15, 1899.

Application filed February 21, 1899. Serial No. 706,304. (No model.)

To all whom it may concern:

Be it known that I, EVAN R. WILLIAMS, a citizen of the United States of America, residing at Knoxville, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Scale-Removers for Steam-Boilers; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings, which form a part of this specification.

This invention relates to certain new and useful improvements in steam-boilers.

The invention has for its object the provision of a boiler having a device arranged therein for removing the scale formation which adheres to the interior thereof.

With the above object in view the invention finally consists in the novel construction, combination, and arrangements of parts in connection with the boiler, as will be hereinafter more fully set forth.

In describing the invention in detail, reference is had to the accompanying drawings, forming a part of this specification, wherein like numerals of reference designate like parts throughout the several views, in which—

Figure 1 is a longitudinal sectional view through the boiler, showing the arrangement of the scale-remover. Fig. 2 is a front elevation of the boiler. Fig. 3 is an end sectional view through the boiler on the line X X of Fig. 1. Fig. 4 is a section of one of the gear-rings 3. Fig. 5 is a section of the pan 8.

Referring now to the drawings for a general description of the various parts, it will be seen that the boiler is designated as 1 and is preferably of the double-flue type, said flues being designated as 2 and 2′. Arranged within the boiler, at each end thereof, are the interior gear-rings 3 and 3′. Connected to the outer periphery of these rings by their ends are the L-shaped scrapers 4, which extend lengthwise along the interior of the boiler and of which any number may be employed. Suspended from the hangers 5 and 5′, which are arranged within the boiler, is the shaft 6, having a crank 6′ formed at one end and projecting out from the front boiler-head. Secured to this shaft are the gear-pinions 7 and 7′, the teeth of which mesh with those of the internal gear-rings. Now it is evident that if a boiler fitted with this contrivance should become coated with scale the turning of the crank 6′ will cause the scrapers to rotate around the interior thereof and remove the scale, and that which does not become deposited within the bottom of the boiler will fall within the pan 8, which rests upon the top of the flues; but this pan may be made of such dimensions as will catch all the scale as it is carried up by the scrapers. The contents of the pan may then easily be removed.

Other forms of scrapers may be used with like results when attached to the gear-rings, and, if it is desired, power other than hand may be employed for rotating the same.

Having thus fully shown and described my invention, what I claim as new, and desire to protect by Letters Patent, is—

The combination with a boiler of a series of scrapers such as 4, arranged along the interior of the boiler and mounted upon the internal gear-rings 3 and 3′, gear-pinions operating within the said rings a means of revolving the same to cause the scrapers to rotate and remove the scale, and a pan for catching the scale as it is scraped from the boiler, substantially as shown and set forth.

In testimony whereof I have hereunto affixed my signature in the presence of two subscribing witnesses.

EVAN R. WILLIAMS.

Witnesses:
E. L. RITCHIE,
L. REECE.