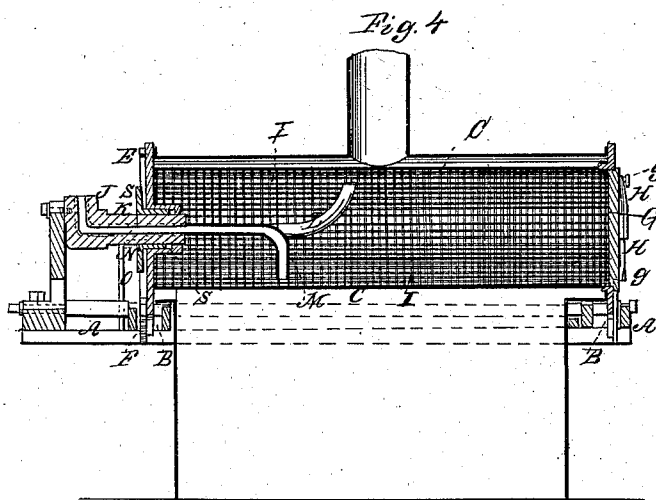
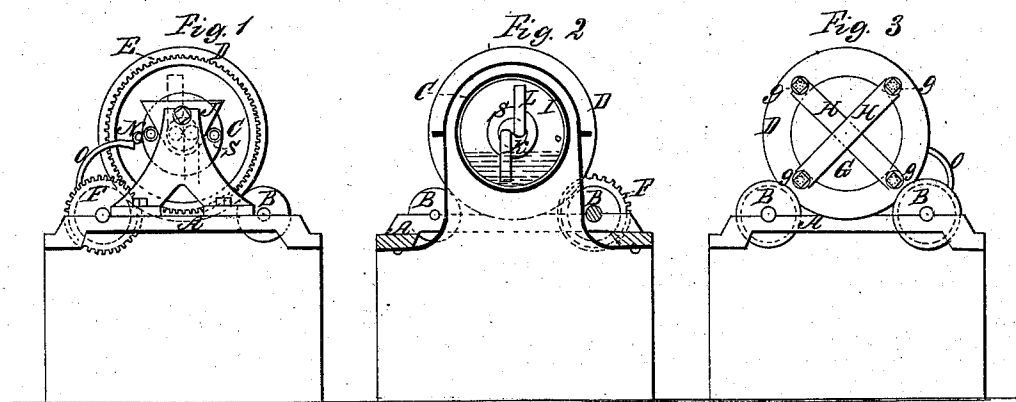


C. Anderson,
Rotary Steam Engine.
No 8,169. Patented June 17, 1851.



UNITED STATES PATENT OFFICE.

CHARLES ANDERSON, OF WARREN, PENNSYLVANIA.

IMPROVEMENT IN REVOLVING BOILERS.

Specification forming part of Letters Patent No. 8,169, dated June 17, 1851.

To all whom it may concern:

Be it known that I, CHARLES ANDERSON, of Warren, in the county of Warren and State of Pennsylvania, have invented a new and useful Improvement in Revolving Steam-Boilers; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a front end view of a revolving steam-boiler. Fig. 2 is a transverse vertical section of the same. Fig. 3 is a back end view of the same. Fig. 4 is a longitudinal vertical section.

Similar letters of reference indicate corresponding parts in each of the several figures.

My improvement consists in lining the inside of the heating-surface of the boiler with wire-cloth gauze or any perforated or pervious metal work for the purpose of gathering up the water during the motion of the boiler, and by giving a great evaporating-surface converting it quickly into steam.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

A is a strong frame or bed-plate, of cast-iron or other material, supported above the furnace and carrying friction-rollers B, whose axes run in suitable bearings on the said frame or bed-plate.

C is the shell of the boiler, having a strong circular flange, D, at each end resting on the friction-rollers B. The front end of the boiler is fixed secure and has a toothed wheel, E, secured to it, gearing into a pinion, F, which receives a rotary motion and transmits it to the boiler.

G is the back end or head of the boiler, which is fitted to the shell in any convenient way, so as to form a steam-tight joint.

H H are two bar-springs passing across the end or head and secured at its end by bolts g, screwed into the flange D. The ends of the springs are formed and fitted under the heads of the bolts g in such a manner as to be released by any great pressure on the head or end G. These springs are made and adjusted so as to be capable of sustaining a certain given amount of pressure on the head or end greater than is ever intended to be carried in

the boiler, unless by some accident it is increased, but less than the other parts of the boiler are capable of carrying.

I (see Figs. 2 and 4) is the pervious lining, represented as made of wirework fitting close or nearly close round the inside of the boiler. It may be made in the form of a tube or in a sheet and inserted in any convenient manner.

J is a stationary head secured at any convenient distance from the front end of the boiler and having a cylindrical neck, K, attached to it, which passes through a stuffing-box, S, into the boiler, being concentric to its axis of motion. In this head J and through the neck K there are two passages leading into the boiler—one communicating with a pipe, L, turned upward, being the steam-pipe, and another with a pipe, M, turned downward, being the feed-pipe, the steam-pipe leading to the engine or any place where the steam is used, and that leading to the force-pump which supplies the boiler being connected to the head outside the boiler.

N is an escape or alarm valve or gage-cock placed in the front end of the boiler.

O is an arm standing up from the frame A and having its upper end placed in such a position and its point inclined (see Figs. 1 and 4) so that the escape or alarm valve or cock N shall strike it once during every revolution of the boiler—always when it is at about the required elevation of the water-line—and open itself so as to allow an escape of steam or water, or both steam and water, from the boiler, thereby forming an alarm-gage calling the attention of the person in charge of the boiler, who will be capable of judging by the sound produced the state of the pressure of steam or height of water in the boiler.

The boiler is intended to have the fire below it, with flues circulating along or about the sides in any desirable direction, and is intended to be only about one-third filled with water, or only to have that part in contact with the fire sufficiently covered to prevent overheating. By the revolution of the boiler water is collected upon the sides and also upon the pervious lining and between it and the boiler, the object of the lining being to collect a larger quantity of water and to obtain a greater evaporating-surface. The fire under the bottom of the boiler, where the water

remains, is effective as in a common boiler, and the water collected upon the surface of the shell and lining, being brought in contact with the heat of the flues, is rapidly converted into steam, rendering the boiler capable of raising a large quantity of steam at a high pressure with less fuel and from a smaller quantity of water than an ordinary boiler.

A revolving boiler constructed on this plan will require to be very much smaller for an engine of a given power than a boiler constructed on any plan now in general use, which renders it particularly suitable for river navigation, owing to the reduction of weight both of the boiler and the quantity of water and to the reduction of the space occupied by it.

Having thus fully described my invention, I will proceed to state what I claim as new and desire to secure by Letters Patent:

Lining the inside of that part of a revolving boiler which comes in contact with the fire or heat with wire gauze or cloth or any perforated or pervious metal work, I, in the manner and for the purpose substantially as herein described.

CHARLES ANDERSON.

Witnesses:

O. A. SMITH,
WILLIAM FRY.