No. 8,411. PATENTED OCT. 7, 1851.

W. SCOTT.
REVOLVING BOILER.

Fig. 2.

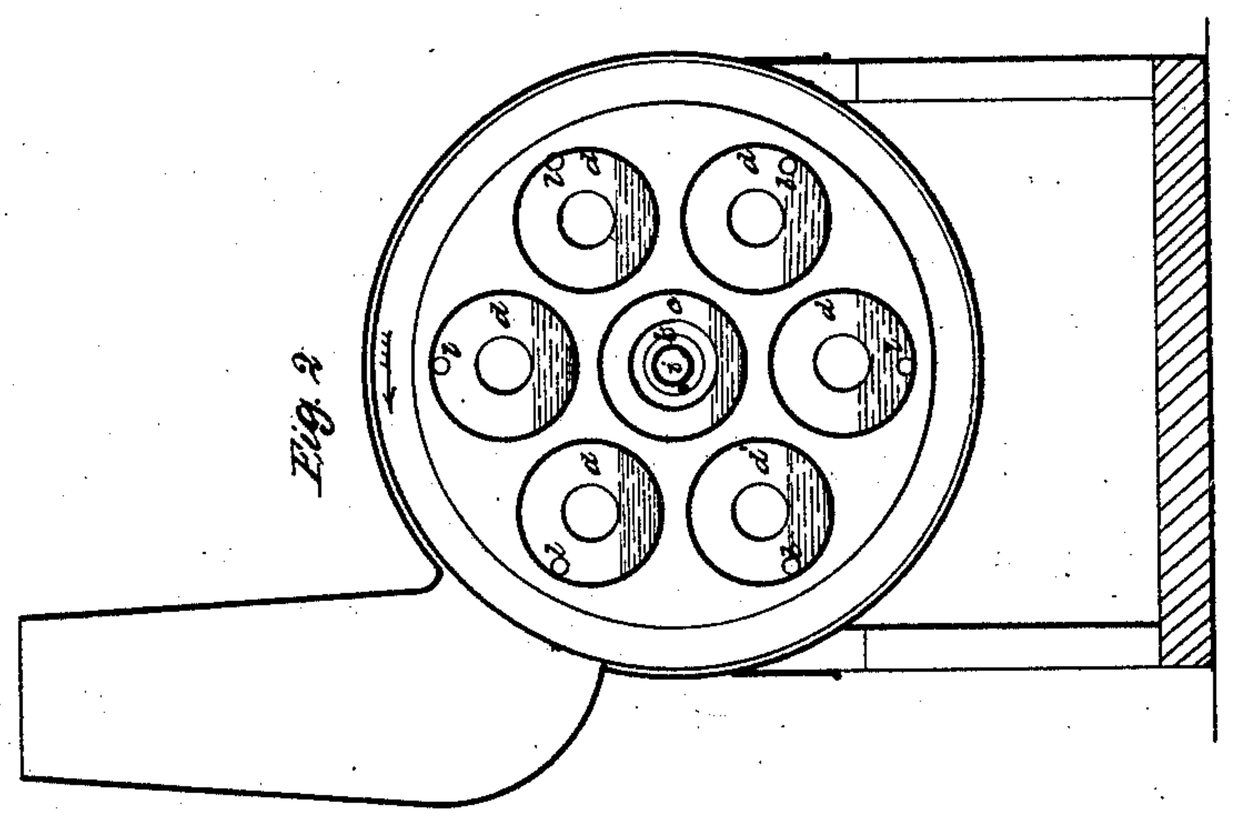
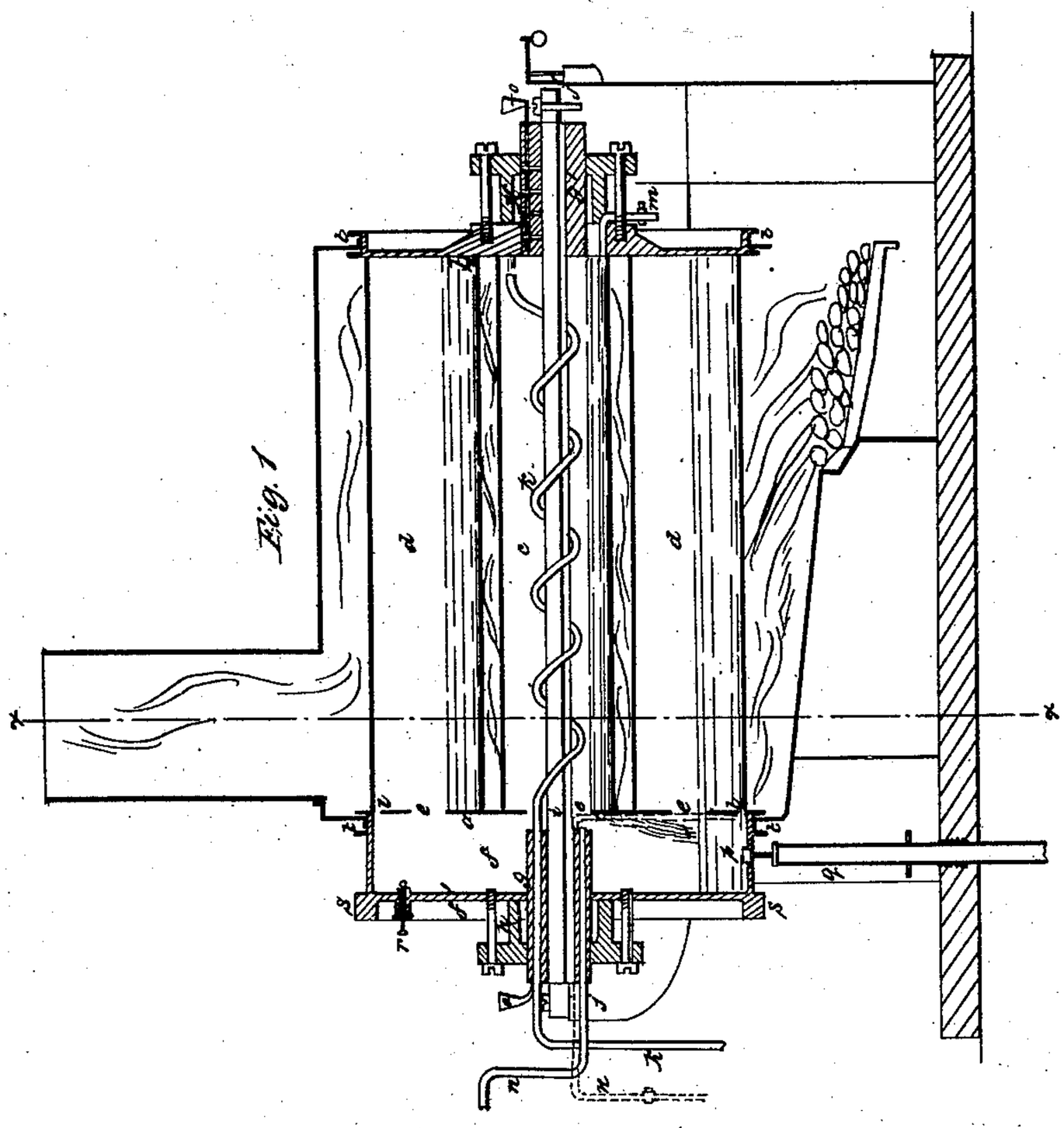


Fig. 1.



UNITED STATES PATENT OFFICE.

WILLIAM SCOTT, OF RISING SUN, INDIANA.

IMPROVEMENT IN REVOLVING BOILERS.

Specification forming part of Letters Patent No. 8,411, dated October 7, 1851.

To all whom it may concern:

Be it known that I, WILLIAM SCOTT, of Rising Sun, Ohio county, Indiana, have invented new and useful Improvements in Steam-Boilers; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the annexed drawings, making part of this specification.

The object of my invention is to construct a boiler that shall, with a facility for the rapid generation of steam, combine great economy both in the size and consequent expense of the apparatus and in the amount of water requisite and avoidance of the danger of explosion by unduly-heated plates.

My improvements have more especial reference to boilers which rotate upon a central shaft or axis.

In the annexed drawings, Figure 1 is a vertical section through the axis of the boiler. Fig. 2 is a transverse section through the line *x x*, Fig. 1.

The same letters refer to like parts throughout.

a b are two circular disks or heads, to which are attached seven large tubes or cylinders, *c d*. In the head *a*, at the center of each tube, is an opening, *e*, affording a communication to the interior of the drum or distributing-chamber *f f'*, which is attached to the head *a* and revolves with the tubes. This drum serves as a steam-chamber. The head *f'* of this drum and the head *b* are journaled upon stationary bushes *g g'*, with which they are made to work tight by stuffing-boxes *h h'*. The entire revolving apparatus is supported upon a central shaft, *i*, which is at its ends firmly secured to bearings *j j'*. The feed-pipe *k* enters the boiler through the bush *g*, and, winding around the shaft *i* in the manner shown, discharges the water against the front head, *b*, about the journal-bearing, which it thus tends to keep cool, and is at the same time very much raised in temperature by the time that it enters the central tube, *c*. From this tube *c* it flows into the drum or distributing-chamber *f f'*, whence it flows successively into each tube *d* as it is brought to the lowermost position. Each tube as it ascends returns to the drum so much water as exceeds that which is held below the rims of its openings. This remaining portion is sufficient to always cover with water one-third of the cylindrical area of each tube, and that third is so disposed as to be that portion which is for the time being most exposed to the furnace-draft. All the tubes rotate about a common axis in the same time, and every portion of their cylindrical surface comes in contact with water once during its revolution and remains in contact during one-third of that time.

It may also be readily seen by reference to the transverse section that the water is nearly balanced upon the two sides of the boiler, so that there is little more to overcome than the inertia of the apparatus and water at starting and the unavoidable friction of the rubbing-surfaces.

The chimney is situated to one side and the tubes are rotated in the direction of the arrow, so as to counteract any tendency of the draft to one side more than to another. The continual circulation of the water tends to prevent any deposition of sediment and also accelerates the heating of the water by the constant intermingling of its particles; but in order to still further facilitate the escape of sediment small apertures *b* are left at the extreme verge of the tubes, and these apertures also serve to supply water to the tubes when the surface of the water in the reservoir is below the rims of their central apertures.

A cock, *m*, serves to enable the engineer to blow off sediment from the middle tube; but it is considered that very little will collect. The steam-pipe *n* is carried through the bush *g* from the steam-chamber *f f'*.

Oil-pipes *o* may be inserted in the bushes to lubricate the journals, and a safety-valve may also be applied.

There are placed in the sides of the reservoir blow-off valves *p*, upon which (the boiler being detained) a discharge-pipe, *q*, is screwed up, so as to open the valve and discharge the contents of the boiler. The blow off can also be accomplished by a pipe, (see red lines,) *u*, which, entering the drum through the bush and descending to the lowest part of the boiler, can be brought into full action while the latter is revolving. The try-cocks *r* enable the engineer to ascertain at any time the exact height of water in the boiler.

The apparatus may have applied at some convenient part, as at *s*, a cog-wheel, by which it is driven. In order to prevent any escape of the furnace-draft, the boiler is furnished with channels *t*, which receive projecting flanges upon the casing. The smallness of the quantity of water employed saves weight and materially accelerates the formation of steam.

For those steamboats which carry a "doctor," there will be but slight additional expense incurred in rotating a boiler.

Having thus fully described the nature of my improvements in steam-boilers, what I claim therein as new, and desire to secure by Letters Patent, is—

The combination of the small cylinders *c d*, provided with apertures and rims, as described, with the distributing-chamber *f f'*, the whole revolving around a common axis and operating substantially as described.

In testimony whereof I have hereunto set my hand before two subscribing witnesses.

WILLIAM SCOTT.

Witnesses:
EDWARD H. KNIGHT,
GEO. H. KNIGHT.