

*Patented Mar. 13, 1866.*



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# UNITED STATES PATENT OFFICE.

J. R. WIDGEON, OF BUCYRUS, OHIO, ASSIGNOR TO HIMSELF AND FRED. E. FREY, OF SAME PLACE.

## IMPROVEMENT IN AUTOMATIC BOILER-FEEDERS.

Specification forming part of Letters Patent No. 53,238, dated March 13, 1866.

*To all whom it may concern:*

Be it known that I, J. R. WIDGEON, of Bucyrus, Crawford county, Ohio, have invented a new and Improved Automatic Boiler-Feeder; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 represents a vertical section of this invention, taken in the plane indicated by the line *x x*, Fig. 2. Fig. 2 is a plan or top view of the same. Fig. 3 is a front elevation of the driving-gear detached. Fig. 4 is a face view of the seat detached. Fig. 5 is an inside elevation of the revolving chamber.

Similar letters of reference indicate like parts.

This invention relates to a boiler-feeder of that class in which a revolving chamber is used, which is brought in communication at stated intervals with the water-tank and with the open atmosphere, and then with the steam and water space of the boiler to be fed.

This present improvement consists in making the motion of the revolving chamber intermittent by cutting away a portion of the cogs of the driving-wheel in such a manner that said chamber stops when filling and also when discharging, and the requisite time is given for these operations.

A represents a chamber, made of metal or any other suitable material, and provided with a solid bottom, *a*, and top *b*, and also with a toothed rim, *c*. This chamber revolves on a center-pin, *d'*, and its bottom *a* works steam-tight against the seat B, which is composed of a thick flat plate perforated with four holes, *d e f g*, as seen in Fig. 4. The opening *e* communicates, through the pipe *h*, with the steam-space, and the opening *g*, through a pipe, *i*, with the water-space of a steam-boiler. From the hole *d* leads a pipe, *j*, to the open atmosphere, and another pipe, *k*, leading from the hole *f* to the water-tank, serves to introduce the requisite supply of water into the cham-

ber A. Said chamber is provided with the ports *l m*, one diametrically opposite the other, and as said chamber revolves these ports alternately coincide with the holes *d* and *f*, and then with the holes *e* and *g* in the seat.

The revolving motion of the chamber A is produced by a cog-wheel, which gears in the toothed rim *c* of said chamber. Said cog-wheel is mounted on a shaft, *o*, which has its bearing in a standard, *p*, rising from the plate which forms the seat B, and the cogs of said cog-wheel are partially cut away, as shown in Fig. 3, so that the motion of the chamber is intermittent, the blank spaces of the cog-wheel being so arranged that said chamber stops a short time while it is filling and a little longer while it is discharging. By this segmental cog-wheel the operation of my boiler-feeder is rendered uniform and safe, whereas, if the chamber A has a continuous revolving motion, the time for charging and discharging is so short that the apparatus fails to work.

The operation of my apparatus will be readily understood. When the ports *l m* are opposite the holes *e g* the upper part of the chamber fills with steam and a portion of the water in the chamber runs down in the boiler, and this operation continues until the water in the boiler rises to the same level with that in the chamber A. When the ports *l m* are opposite the holes *d f* the steam contained in the chamber exhausts through the pipe *j* and a fresh supply passes into the chamber through the pipe *k*. This operation continues as long as the boiler is in operation and the motion of chamber is not interrupted.

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

The segmental cog-wheel *n*, in combination with the chamber A, having ports *l m*, and with the seat B, provided with holes *d e f g*, substantially as and for the purpose described.

J. R. WIDGEON.

Witnesses:

W. M. SCROGGS,  
JOHN HOWARD.