

H. Burt, Boiler Feeder.

No. 94,395.

Patented Aug. 31. 1869.

Fig. 2

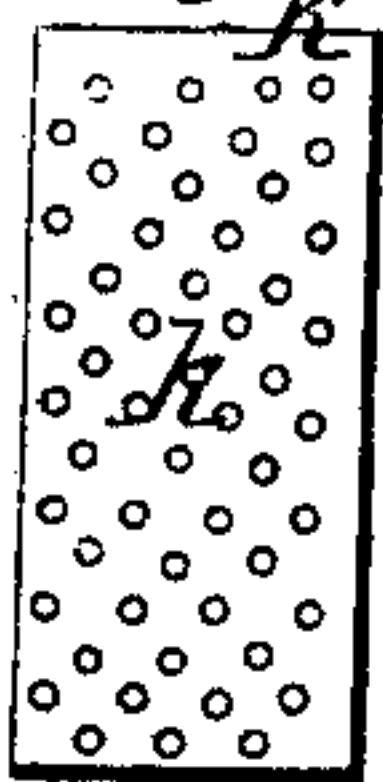


Fig. 3

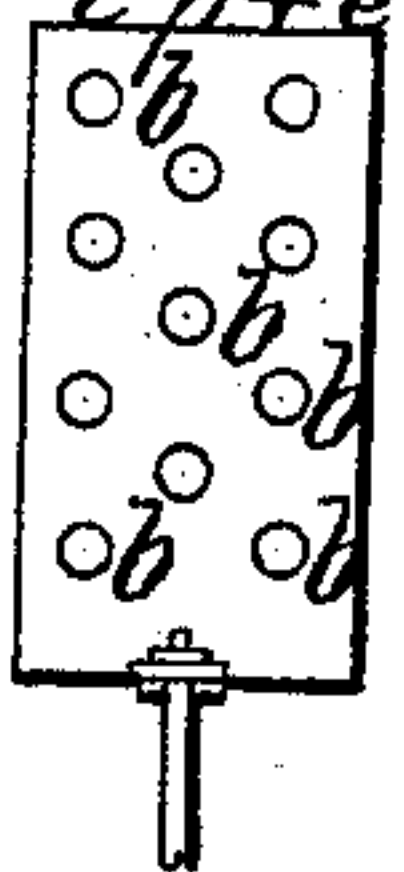


Fig. 4

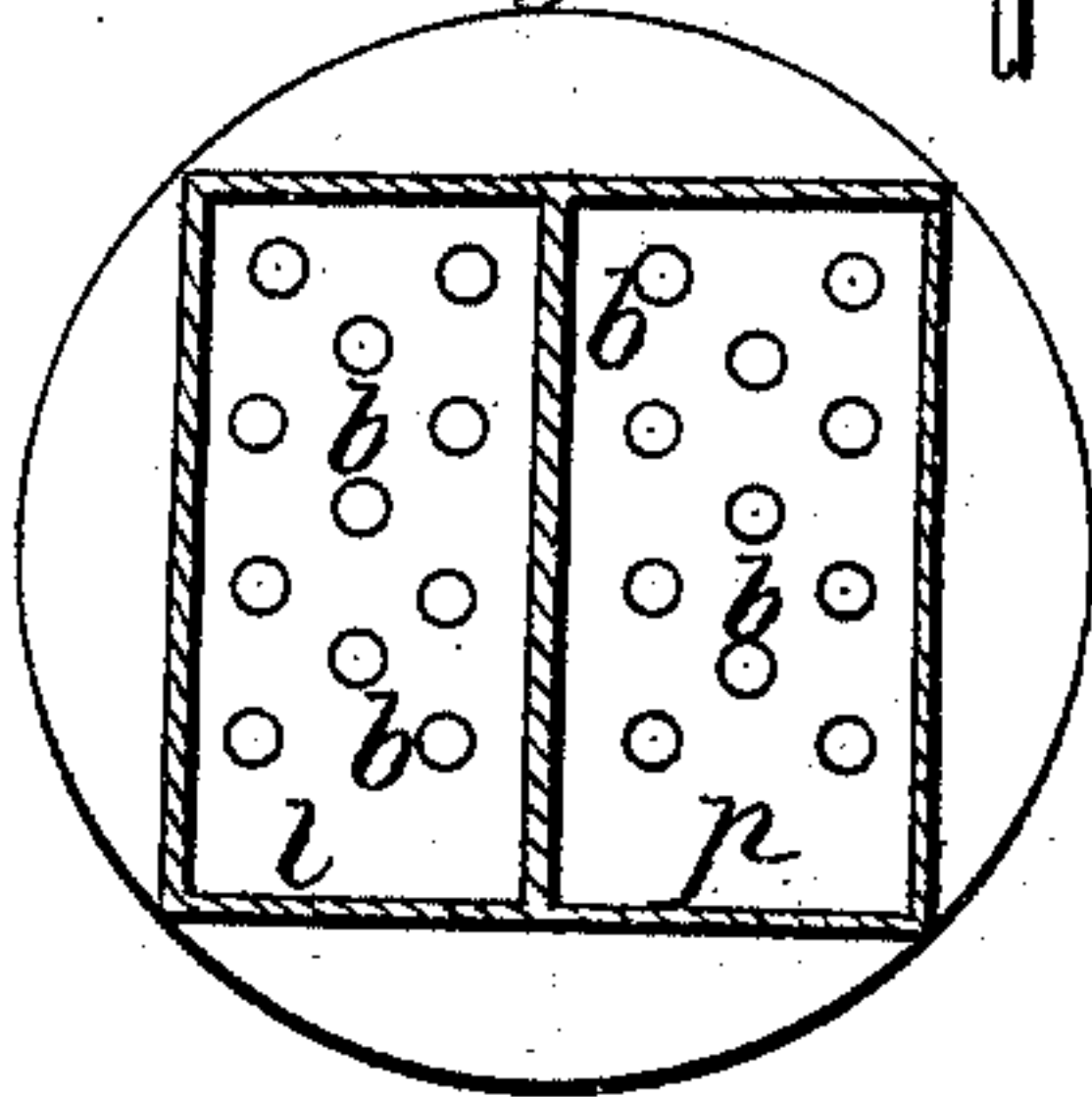


Fig. 5

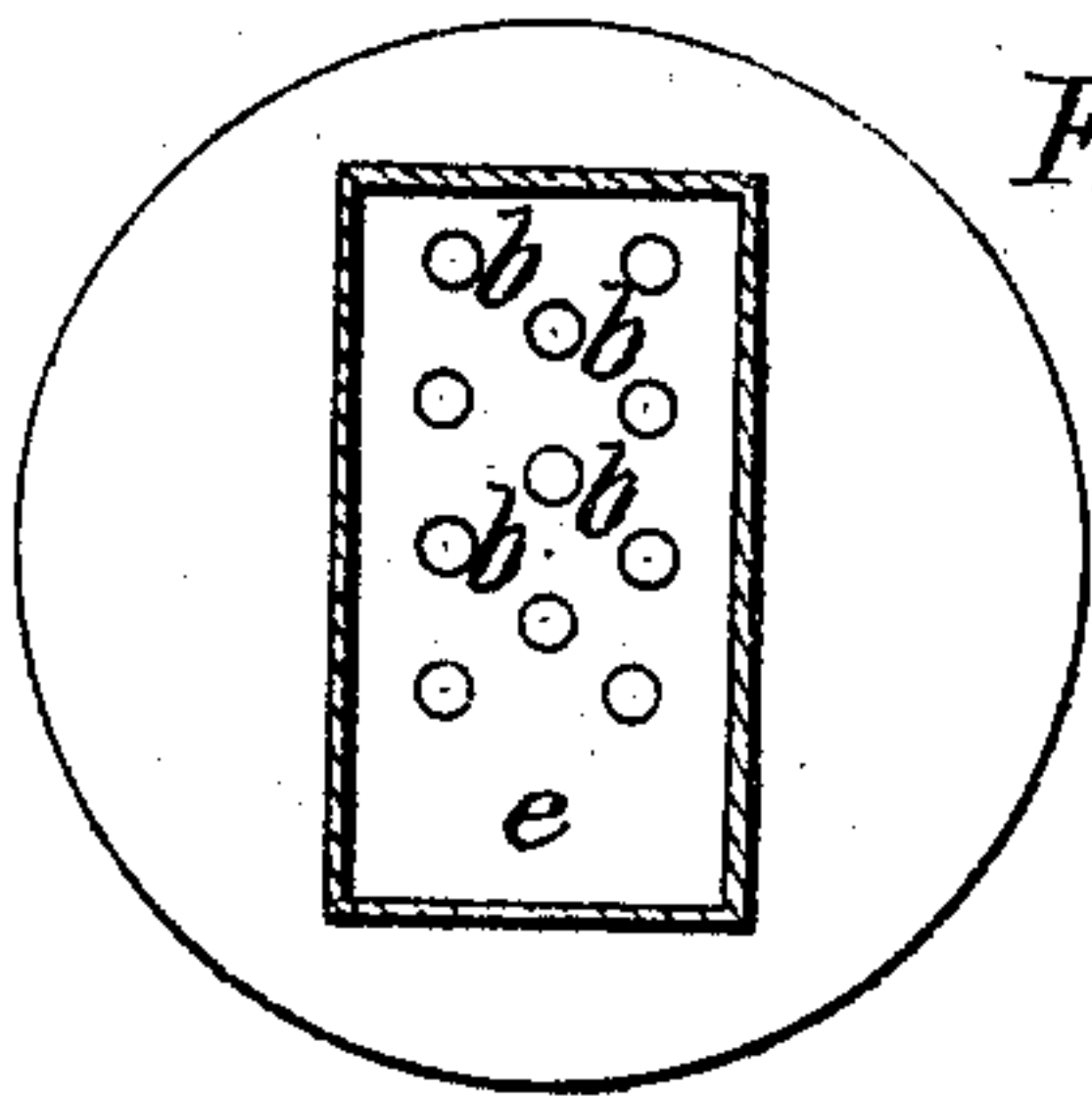


Fig. 1

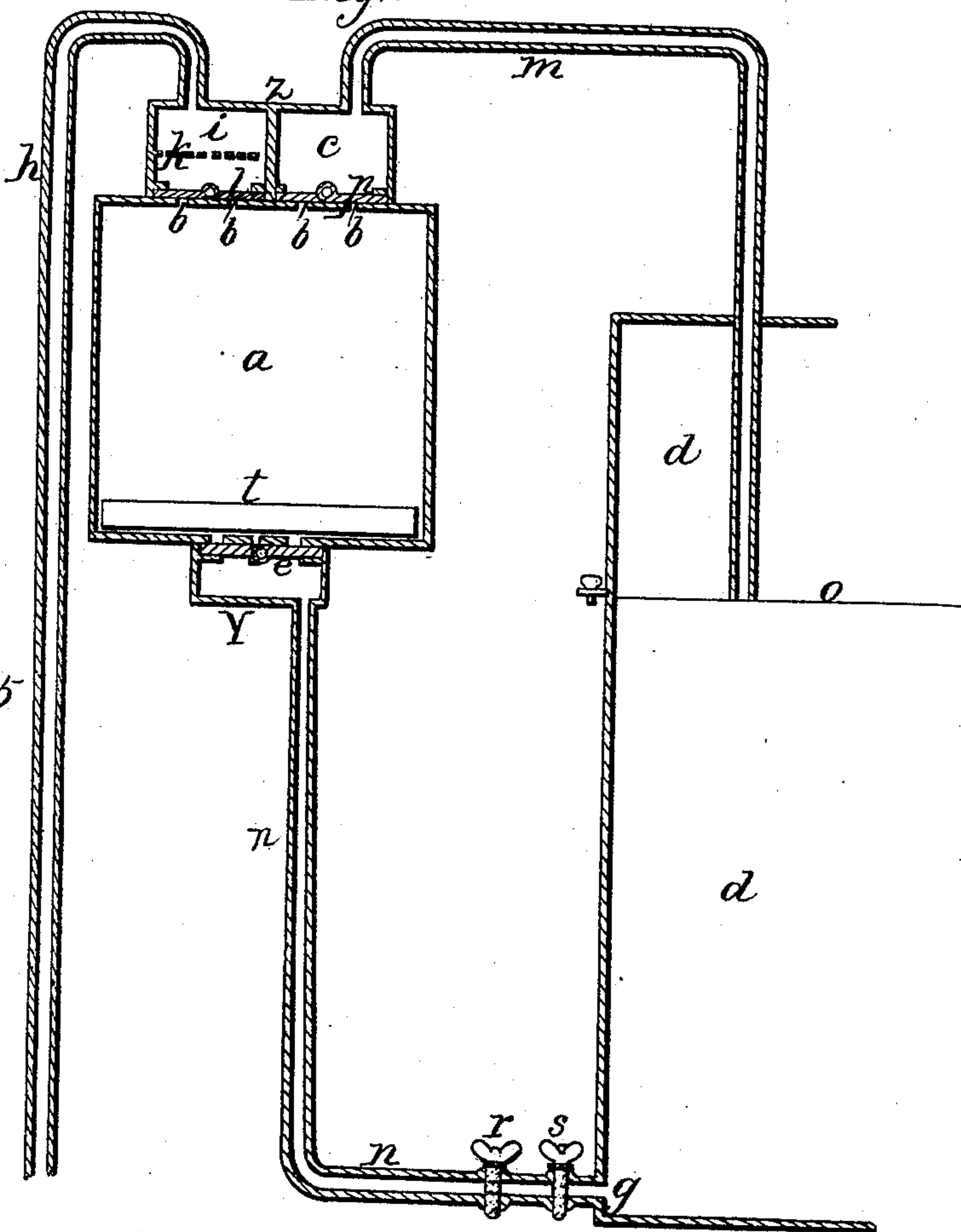
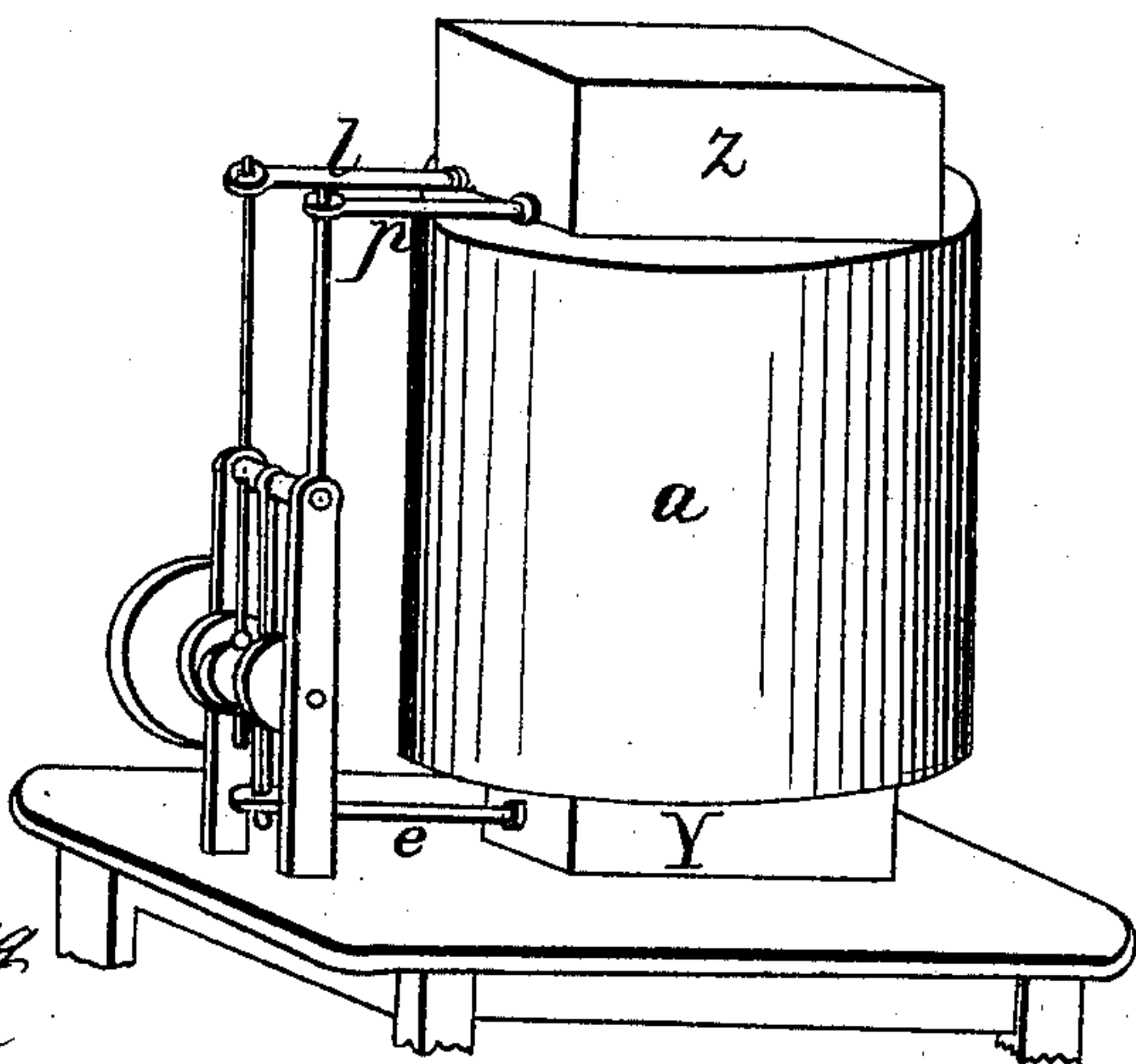


Fig. 6



Witnesses
Wm. Gooding
Edward Colburn

Inventor
Henry Burt

United States Patent Office.

HENRY BURT, OF NEWARK, NEW JERSEY, ASSIGNOR TO HIMSELF
AND LOVIAS D. TOWSLEY, OF SAME PLACE.

Letters Patent No. 94,395, dated August 31, 1869.

IMPROVEMENT IN BOILER-FEEDER.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, HENRY BURT, of the city of Newark, in the county of Essex, and State of New Jersey, have made certain Improvements in Automatic Boiler-Feeders; and affirm the following, taken in connection with the drawings accompanying this specification, to be a full and exact description of the same.

The nature of my improvement consists in the construction and arrangement of the devices hereinafter described for feeding water into boilers.

In the drawings—

Figure 1 is a sectional view of the feeder, chambers, valves, and pipes, connected with the feeder and the boiler;

Figure 2 is the intermediate perforated plate;

Figure 3, a perforated valve;

Figure 4 is the top of the cylinder or condenser, showing the position of the cold-water and steam-chambers thereon, and the admitting-perforations under the valves;

Figure 5 is the bottom, with the position of the chamber and ingress from the condenser, for the water to pass to be injected into the boiler; and

Figure 6 is a perspective view of the whole of the feeder, with a means of giving motion, by belting, to the valves thereof.

The same letters refer to the same parts in each figure.

A cold-water-supply pipe, *h*, leads from reservoir, cistern, or well, into the chamber *i*. About midway in this chamber is placed the perforated plate *k*, to cause the water to fall in streamlets into the lower part of the chamber. In the bottom of the chamber *i* are also perforations into the cylinder *a*, over which is the side-valve *l*, for the double purpose of the descent of the water and the ascent of the steam, meeting in streamlets to facilitate condensation.

A steam-supplying pipe, *m*, leads from the boiler to the chamber *c*, the bottom of the chamber being like that of *i*, with port-perforations and valve. The pipe enters the boiler above the water-line, and its end *o* is secured upon the required line of height of water in the boiler, so that the rise of the water will close the end of the pipe, shutting off the steam, and the fall of the water will allow the steam to pass through *m* into the chamber *c*, and thence into the cylinder *a*.

The pipe *n* leads from the chamber *y* to below the water-line in the boiler. The chamber has port-perforations and valve, connected with the cylinder *a*, the

same as *i* and *c*. In the pipe *n*, close to the boiler, when convenient to do so, I place the two cocks *r s*.

The cylinder *a* is about ten inches in diameter, and the same in length.

The float *t*, when the cylinder is full of water, closes the port-perforations of the chamber *i*, and prevents the heat of the interior from rising into *i*, when the steam and water are not flowing.

The cold-water receiver *i* is calculated to hold a sufficiency of water to condense the steam in the cylinder, when full.

The valves are moved by cams, or other mechanical means, in such a manner that the valve *p*, admitting steam, opens ahead of the valve *e*, both *p* and *e* opening and closing while the cold-water-admitting valve *l* continues closed, and *l* opens and closes while *p* and *e* are closed.

The cylinder *a* being full of water, the opening of the valve *p* admits steam above it, and forces the water, as soon as *e* opens, through the pipe *n*, into the boiler *d*, at *g*. As soon as the valve *l* opens, the steam meets the water, as the streamlets fall through the port-perforations, and the portion of steam that forces its way into the chamber *i* is condensed, by meeting the streamlets that fall through the perforated plate *k*, and this operation facilitates the condensation of the steam in the cylinder, producing the required vacuum more quickly than the ordinary ports of valves.

Although the belting keeps the valves in continual motion, it will be seen that when the water in the boiler rises, and closes the end of the pipe *m*, and shuts off the steam, the cylinder being full of water, there can be no flow into the boiler. The action is indicated by audible pulsations, which cease when the steam ceases to flow.

When necessary to cleanse the feeder, close the cock *s* and open *r*, and there will be a rush of steam and water out therefrom, bringing with it the sediment or dirt that may have gathered therein.

What I claim as my improvements, and desire to secure, is—

The construction and arrangement of the cylinder *a*, pipes *h* and *m*, chests *i* and *c*, pipe *n*, chamber *y*, the valves *l*, *p*, and *e*, and cocks *r* and *s*, substantially as hereinbefore described.

HENRY BURT.

Witnesses:

W. M. GOODING,
EDWARD COLLVER.