

J. F. Collins.

Rectifier & Condenser.

N^o 87,144.

Patented Feb. 23, 1869.

Fig. 1.

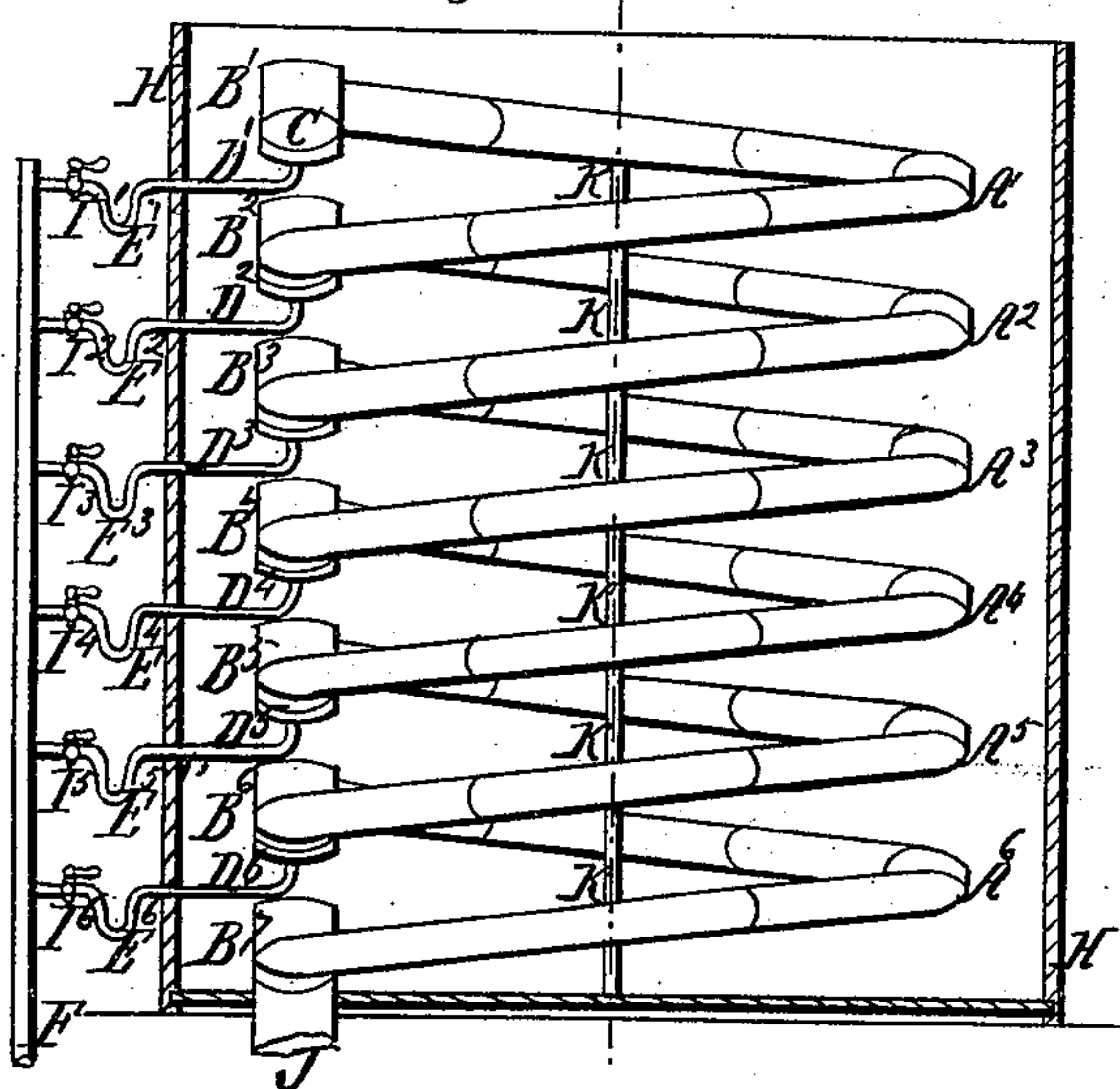


Fig. 2.

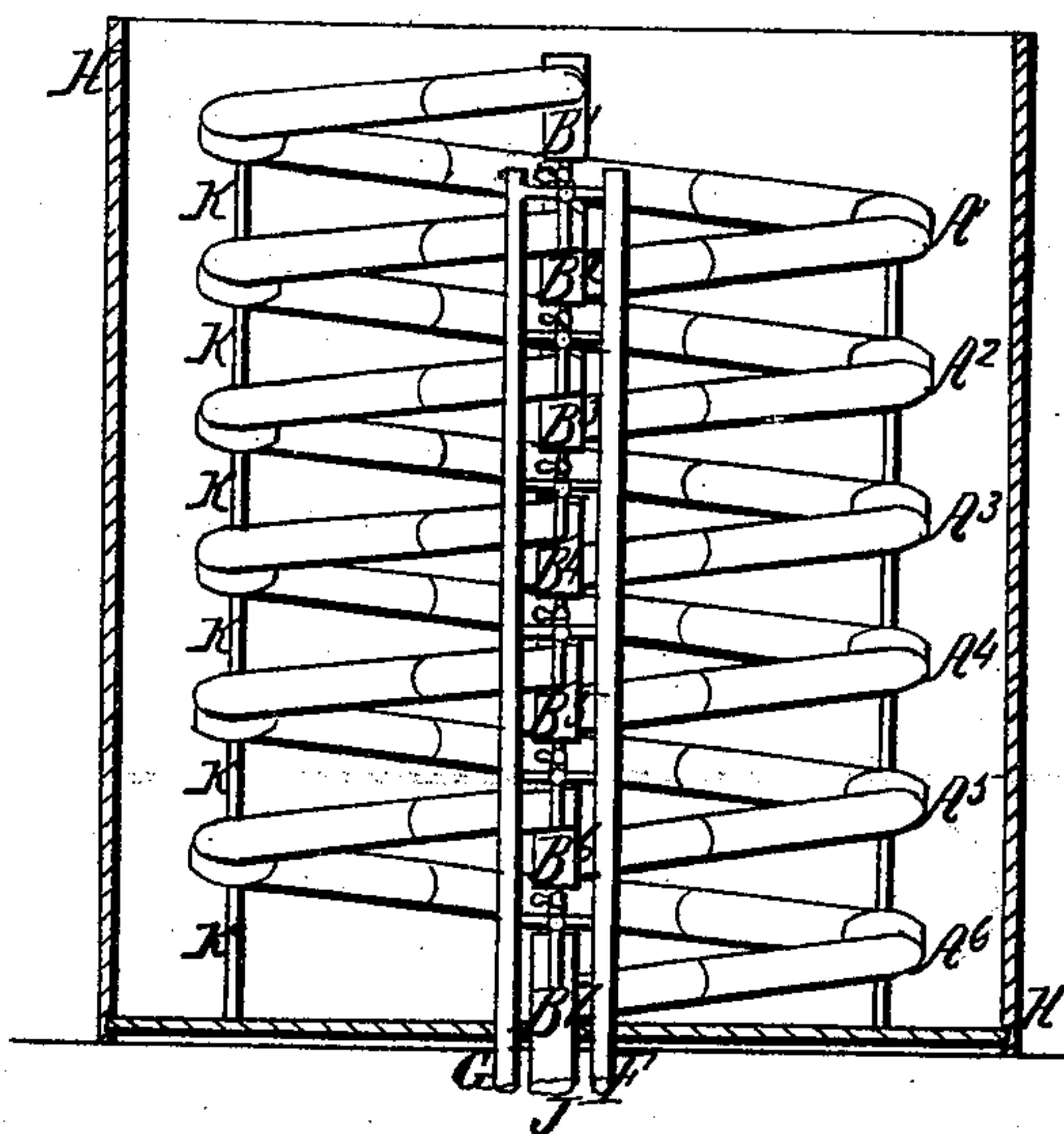


Fig. 3.

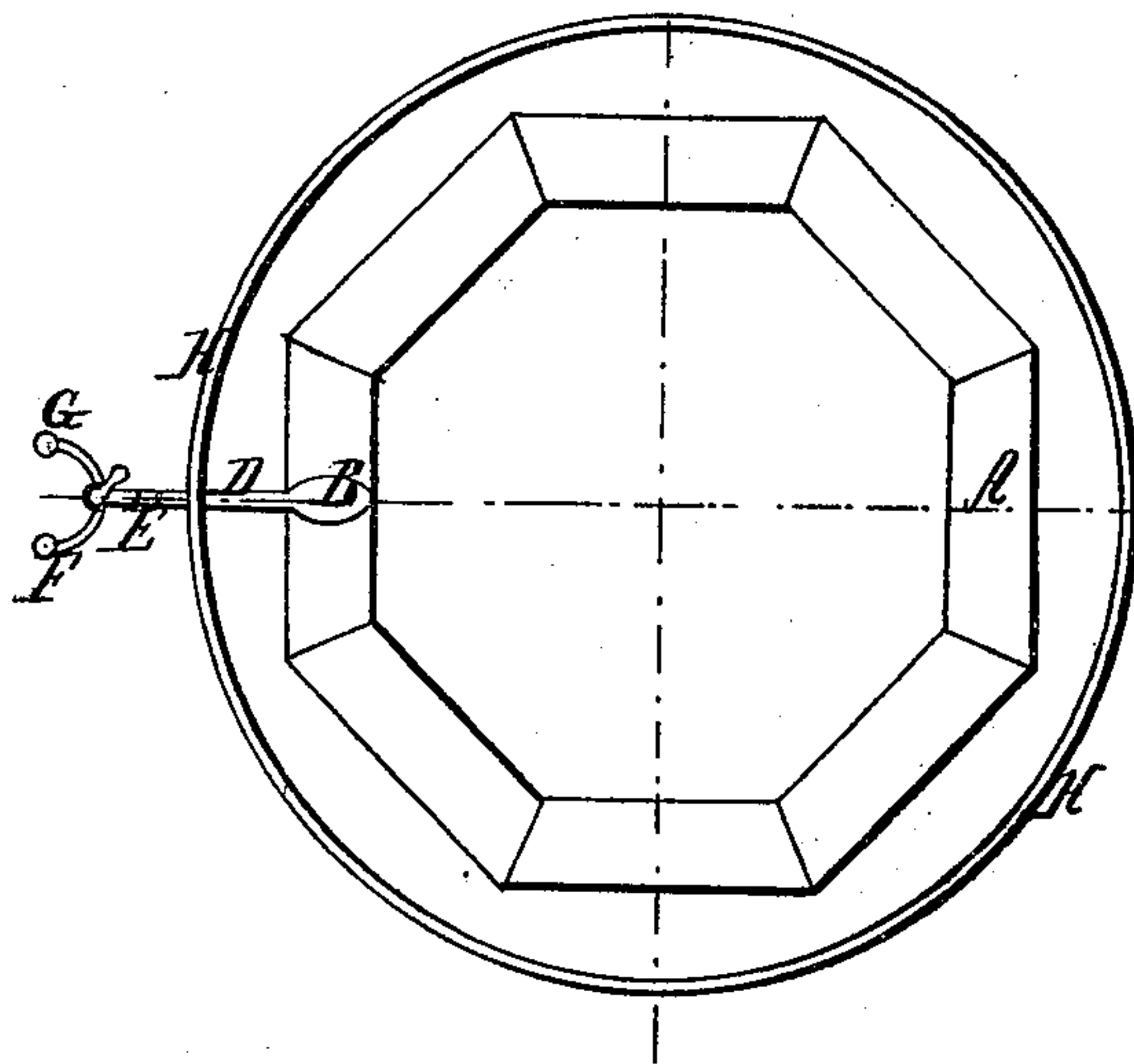
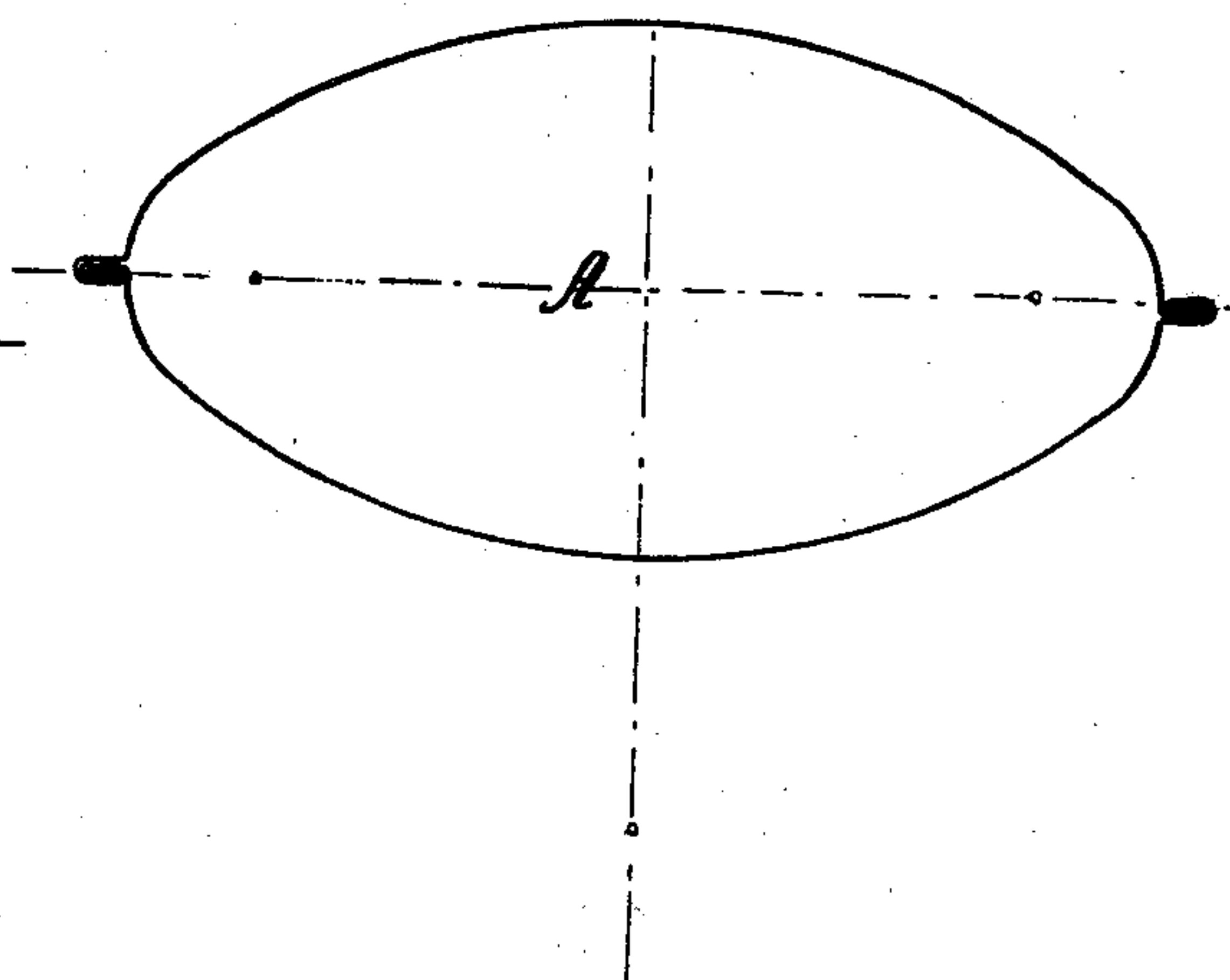


Fig. 4.



Witnesses;
Wm. H. Keller.
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United States Patent Office.

JOHN F. COLLINS, OF NEW YORK, N. Y.

Letters Patent No. 87,144, dated February 23, 1869.

IMPROVED RECTIFIER AND CONDENSER FOR ALCOHOLIC AND OTHER SPIRITS.

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, JOHN F. COLLINS, of the city, county, and State of New York, have invented a new and useful Improvement in Rectifiers and Condensers for Treating Alcoholic or other Volatile Spirits; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing, making part of this specification, in which—

Figures 1 and 2 are elevations of the rectifier and condenser.

Figure 3, a plan or top view of the same.

Figure 4, a transverse section of the polygonal pipes or sections.

This invention relates to a novel form and construction of an apparatus for rectifying and condensing alcoholic and spirituous vapors, and also the separation of all vapors of low from those of higher specific gravity.

It consists of a series of pipes, polygonal in horizontal form, and elliptical in transverse section, placed one above the other, and united together by vertical and similarly-formed connections, so as to form a continuous pipe.

This form of construction is employed for the purpose of agitating or breaking up the vapors, by contact with the angularities of the apparatus in their descent, whereby a rapid condensation and rectification are acquired, and separation of the condensed from the uncondensed vapors secured, with much less water than is usually employed.

In the drawings—

Figs. 1, 2, and 3, A A¹ A², &c., represent the series of horizontal polygonal and elliptical-shaped pipes, placed one above the other, and united together by means of the vertical sections, B¹ B² B³, &c., which are elliptical in form, the upper vertical connection, B¹, having a flange, C, for the purpose of connecting the apparatus with the still, while the lower vertical pipe, B⁷, connects the end of the series with the receiver, by means of a pipe, leading from the flange or coupling J.

The horizontal pipes A¹ A², &c., are not complete polygons, but represent broken rings, connected together as follows:

A¹, figs. 1 and 2, starts from the highest point of B¹, and terminates at the lowest point of B². In like manner A² starts from the highest point of B², and terminates at the lowest point of B³, and so on to the end of the series at B⁷.

The purpose of using the vertical and elliptical sections and connections B¹ B², &c., is to overcome the difficulty hitherto experienced in uniting the several rings by means of elbow-joints, and also to create a more rapid flow of the condensed vapors from A¹ into B², and from A² into B³, and so on to the end.

D¹ D², &c., are pipes, leading from the bottom of the vertical sections B¹ B², &c., through which all con-

densed vapors are withdrawn, and either returned to the still or to receivers, as may be desired, by means of the pipes F and G, and the two-way cocks I¹ I², &c.

E¹ E², &c., are traps, introduced for the purpose of preventing the escape of any uncondensed vapors.

H is the tank, in which the apparatus is placed, and supplied with water, in the usual manner.

K K K, &c., are stays, for the purpose of sustaining the rings in proper place.

Having described the nature and construction of my invention, I will now describe its operation.

The rectifier and condenser being attached to the still by means of the flange C, and connected with the receiver for finished spirits, by a pipe, leading from the flange J, and also by the pipe G, the pipe F being connected with the still, or to a low-wine receiver, when desired, as the vapors are eliminated from the still, they pass into the upper ring A¹, making the circuit of the apparatus to the bottom ring A⁶, the vapors condensed in the sections or rings above A⁶ being constantly withdrawn, at the termination of each, through the pipes D¹ D², &c., and by means of the two-way cocks I¹ I², &c., returned to the still, or delivered into a low-wine receiver, by the pipe F, or delivered into the finished-spirit receiver by the pipe G.

The desired proof is established by these two pipes, F and G, in this manner: The condensed vapors of as many of the upper rings are directed into F as are below the desired proof, while the rest are delivered into the proper receiver, by the pipe G and by the bottom ring A⁶. The proof of the vapors condensed in each ring can be readily ascertained by means of small bib-cocks, introduced at the lowest points of the traps E¹ E², &c., if desired.

The distinguishing difference between this and other appliances for similar purposes is, that the vertical sections present surfaces to which the ends of the polygonal rings may be readily and securely attached, and in its use the vapors are forced downward instead of upward, during rectification, which, I find, greatly facilitates the operation, and has also the advantage of dispensing with a worm, and the consequent additional supply of water.

Having described my invention,

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

The construction and use of a rectifier and condenser for alcoholic or other spirituous vapors, in the manner and form substantially as described and set forth.

In testimony whereof, I have hereunto set my signature, this 2d day of September, A. D. 1868.

JOHN F. COLLINS

Witnesses:

WM. A. MILLER,
E. L. COLLINS.