

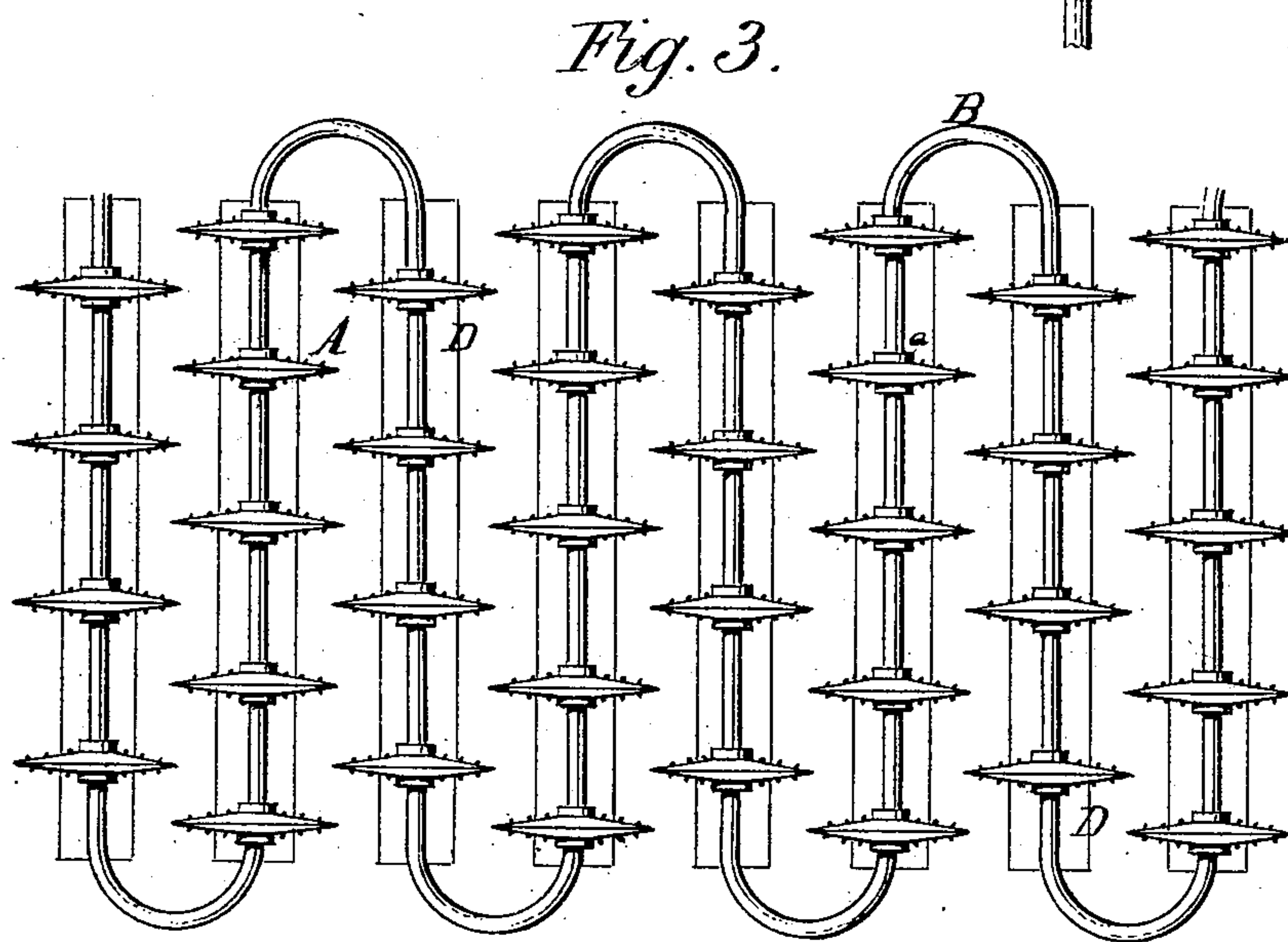
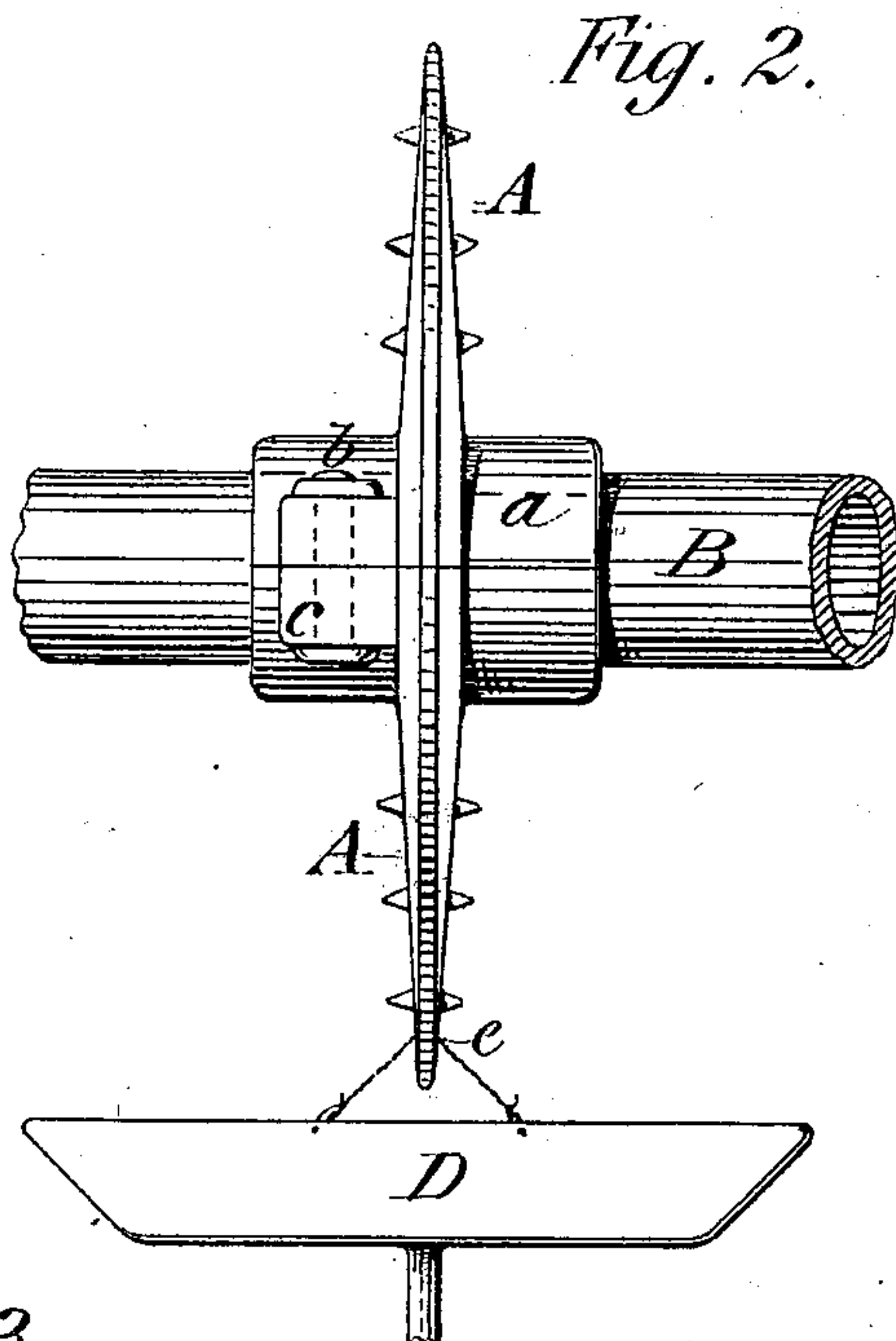
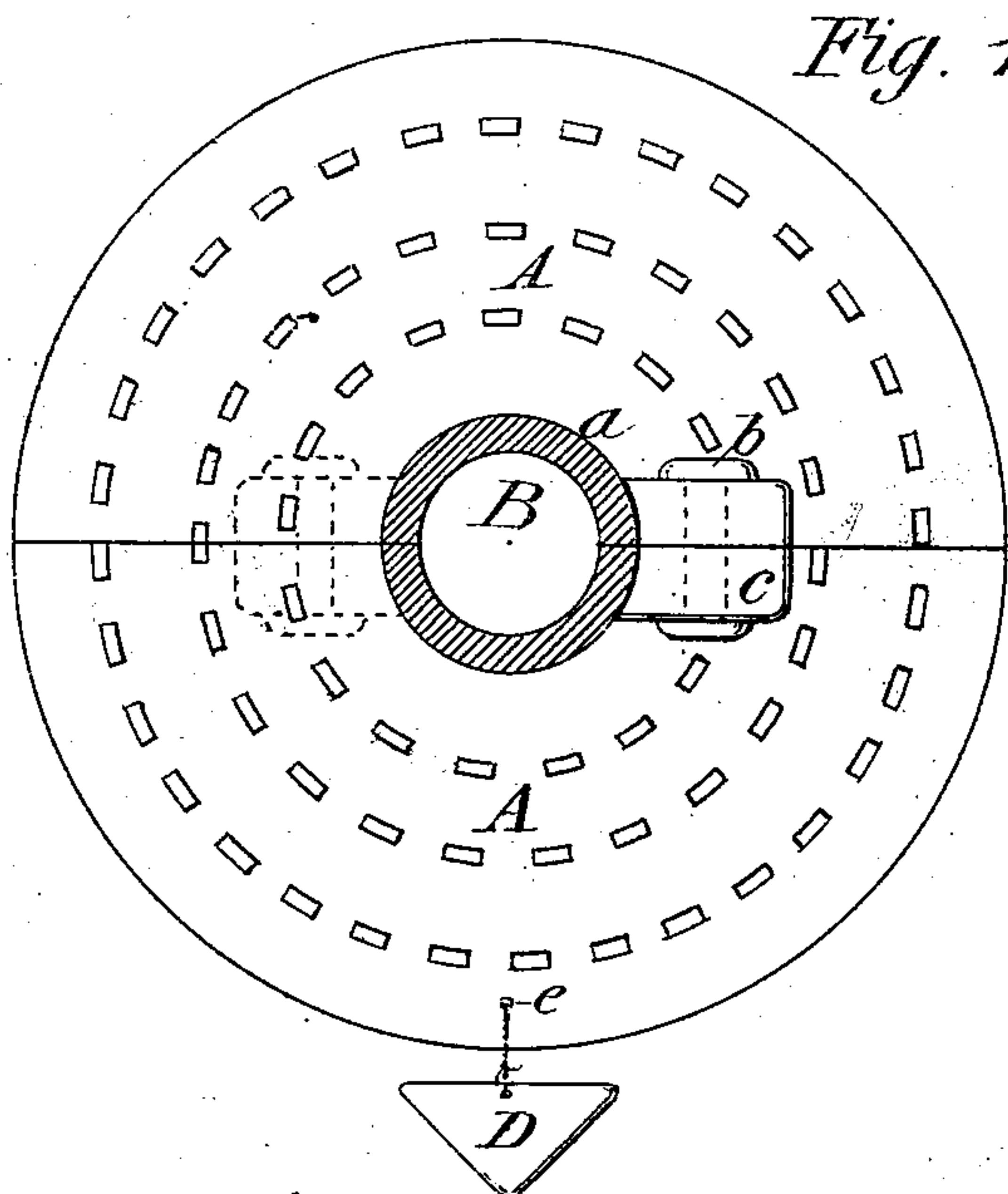
(No Model.)

W. M. MIXER.

HEAT ABSORBING APPARATUS.

No. 253,413.

Patented Feb. 7, 1882.



*Witnesses:*

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*by Irish H. Macy* *Atty*



# UNITED STATES PATENT OFFICE.

WILLIAM M. MIXER, OF NEW YORK, N. Y., ASSIGNOR TO THE DE LA VERGNE  
& MIXER REFRIGERATING COMPANY, OF SAME PLACE.

## HEAT-ABSORBING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 253,413, dated February 7, 1882.

Application filed December 14, 1881. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM M. MIXER, a citizen of the United States, residing in the city, county, and State of New York, have invented certain new and useful Improvements in Heat-Absorbing Apparatus, which is fully set forth in the accompanying specification and drawings.

The object of this invention is to bring a larger surface of heat-conducting material in contact with the air of a chamber to be cooled, and thus not only economize in the amount of pipe otherwise necessary to be used, but by using a large heat-absorbing surface to prevent the excessive accumulation of ice upon the pipes used for the expansion of gas, the circulation of brine, or other refrigerating agent; to economize in the use of such agent; to avoid difficulties encountered in the use of disks made in one piece, and, by carrying off the accumulated moisture, aid in cooling and drying the air of the room being cooled; and to this end the invention consists, first, in combining with ice-making or refrigerating machinery, and one or more pipes adapted for the circulation of a gaseous or liquid refrigerant, one or more disks, when made in sections to admit of being attached to such pipes, and drawn by any well-known means firmly thereupon in a manner conducive to a proper conduction of heat, as will hereinafter appear; second, in combining with ice-making or refrigerating machinery, and pipes adapted for the circulation of a gaseous or liquid refrigerant, one or more tapering disks, when made in sections and attached to such pipes, as above described, as will hereinafter appear; third, in combining with ice-making or refrigerating machinery, and pipes adapted for the circulation of a gaseous or liquid refrigerant, one or more disks, when made in sections having an enlarged bearing in contact with such pipes to increase their power of conduction, and secured thereto in the manner above described, as will hereinafter appear; fourth, in ice-making or refrigerating machinery, pipes adapted for the circulation of a gaseous or liquid refrigerant, heat-absorbing disks, when made in sections and closely secured to such pipes, in combination with gutters attached thereto to

convey the accumulated moisture away and aid in cooling and drying the atmosphere of the room being cooled, as will hereinafter appear.

Reference being made to the drawings, similar letters represent similar parts.

Figure 1 represents a side view of the heat-absorbing apparatus, showing the disk in sections and secured to the pipe by bolts. Fig. 2 represents an end view of the heat-absorbing apparatus, showing the disks fastened upon the pipes, and a gutter attached to convey away the drip. Fig. 3 represents a top or plan view of a number of pipes, showing the disks attached thereto, with gutters suspended beneath and fastened to said disks, but running parallel with the pipes to catch the drip.

A A are sections of a disk for absorbing heat, having near their center an enlarged area or hub, *a*, which incases that portion of the gas or liquid pipe B with which it comes in contact, and is drawn closely thereto by any well-known means. In the drawings bolts *b* are used, which pass through lugs *c*, cast on each side of the disk; or the lugs may be drilled parallel with each other and a staple driven through to bind the two sections together. Another method of fastening them is by shaping the inner side of each lug in a dovetail form and driving a wedge within the dovetailed aperture made by the two sections, thus drawing them together.

D D are gutters suspended beneath the disks by wires passing through small holes *e* in the disks.

In refrigerating machinery where ammoniacal and other gases of considerable tension are used, and the gases are expanded in coils directly in the chambers to be cooled, it becomes imperative to guard against all leakage. The pipes in consequence are put together in the most permanent manner, the joints being screwed and soldered or welded together before the coils are placed in position; or pipes having flanges at each end are used.

To guard against the extraordinary oxidation of the pipes produced by the presence of large quantities of carbonic and other gases, particularly in breweries and other places where rapid fermentation takes place, experi-



ence proves it necessary to protect the pipes at least once a year by some outward coating or an application of paint, which rapidly scales off in consequence of the frequent changes in temperature, or, in other words, the alternate freezing and thawing, leaving the pipes in an exposed condition. Disks made in one piece could not be removed to accomplish this, and could only be placed upon the pipes by having an opening in the center sufficiently large to admit of their passing freely over the irregularities and uneven surfaces of the pipes. It would be necessary to place them before the ends of the pipes were secured, and would add great weight to the coils, making them unwieldy and difficult to manage. The disks would only rest upon or come in close contact with a small portion of the upper part of the expansion or circulating pipes, leaving a considerable space at the sides and lower part of the opening for the passage of a current of warm air, which would in a great measure defeat the object in view. In my invention the disks are made with an enlarged area at the center or hub, where they come in contact with the chilled pipes and are drawn closely thereto to obtain the best conduction of heat. Thin conducting material would not absorb heat with sufficient rapidity to permit the outer edge of the disk to become frosted and present the maximum surface for absorption. The coating of frost will extend toward the outer edge or periphery of the disk a distance in proportion to the thickness of the heat-conducting material in contact with the chill-pipe and the rapidity with which the gas is expanded or the refrigerant circulated.

With an expansion or circulating pipe of known size, experience only can dictate the diameter of the disks, the frost diminishing in quantity as it approaches the outer edge. It is advisable, however, to reduce the metal in them by making them tapering in form and save expense.

The cubic contents of the room to be cooled being known, with pipe of sufficient capacity to supply the gaseous or liquid refrigerant, all that would be required in case of an increase of temperature would be the regulation of the supply of such refrigerant and the proper increase of heat-absorbing surface in the form of disks to absorb the heat and yet prevent an

excessive accumulation of frost or ice upon the pipes, which would be objectionable not only on account of its weight, but on account of its being a non-conductor and retarding the absorption of heat.

Beneath the disks and in line with the pipes to which they are attached are gutters D, suspended by wires to catch the accumulated moisture from said pipes and disks and convey it from the premises, thus aiding in cooling and drying the atmosphere of the room being cooled.

I am aware that disks have long been in use upon cast-iron pipes to increase the radiating-surface for steam-heating, and that they have been used soldered or cast upon vertical pipes for purposes of refrigeration; that they have also been described as made in one piece with an aperture for the insertion of the pipe to be used for refrigeration. Consequently I do not claim broadly the use of a disk; but,

Having fully set forth my invention, what I do claim as new, and desire to secure by Letters Patent of the United States, is—

1. In combination with pipes for the circulation of gas or liquid as a refrigerant, one or more heat-absorbing disks, when made in sections and attached to such pipes, substantially as described.

2. In combination with pipes for the circulation of gas or liquid as a refrigerant, one or more tapering heat-absorbing disks, when made in sections and attached to such pipes, substantially as described.

3. In combination with pipes for the circulation of gas or liquid as a refrigerant, one or more heat-absorbing disks, when made in sections having an enlarged bearing or hub, by which it is firmly attached to such pipes, substantially as described.

4. In combination with pipes for the circulation of gas or liquid as a refrigerant, and a series of heat-absorbing disks made in sections and closely secured to such pipes, one or more gutters, also attached thereto, substantially as described.

In testimony whereof I subscribe my name in the presence of two witnesses.

WILLIAM M. MIXER.

Witnesses:

JOSIAH H. MACY,  
J. C. DE LA VERGNE.