

No. 754,156.

PATENTED MAR. 8, 1904.

G. A. MOWER.
RADIATOR.

APPLICATION FILED FEB. 4, 1903.

NO MODEL.

Fig. 1.

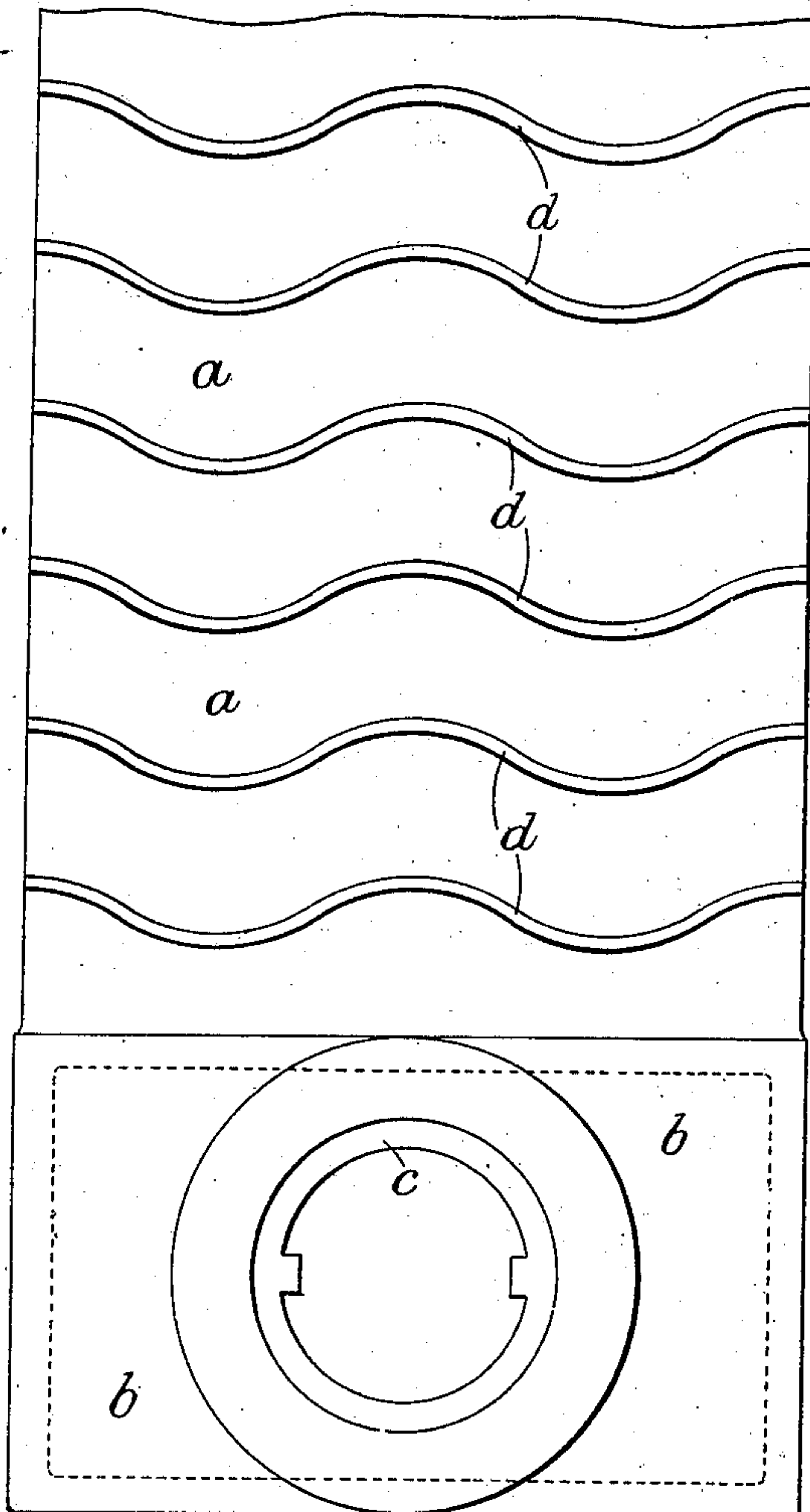


Fig. 2.

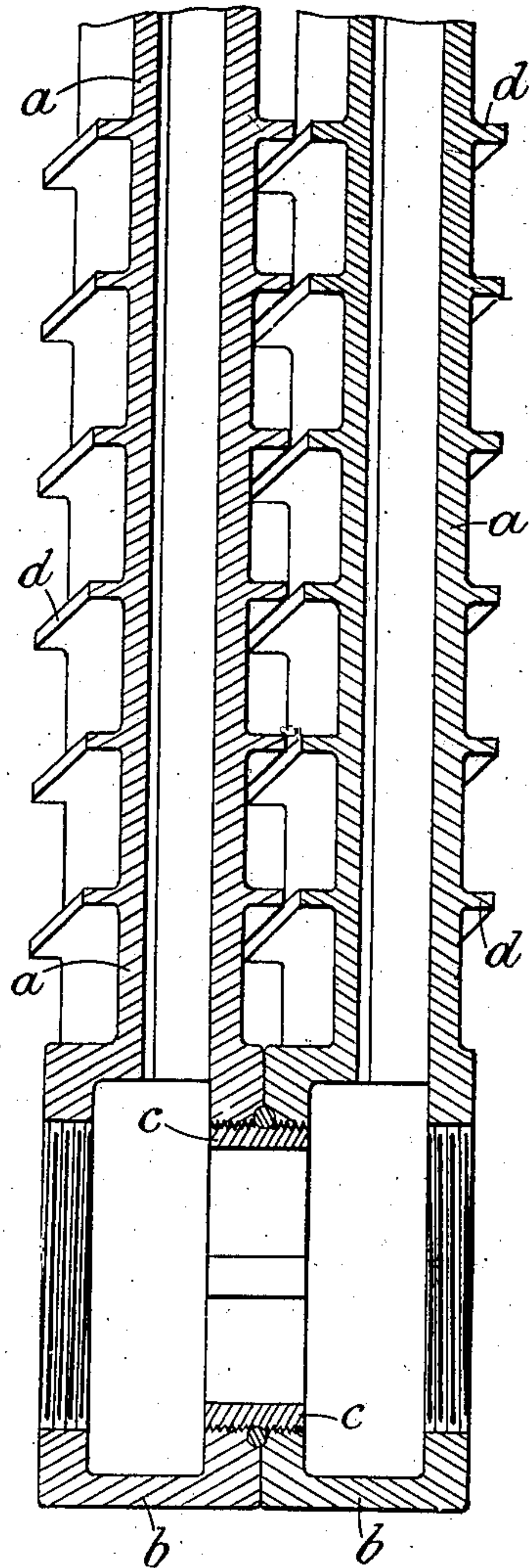
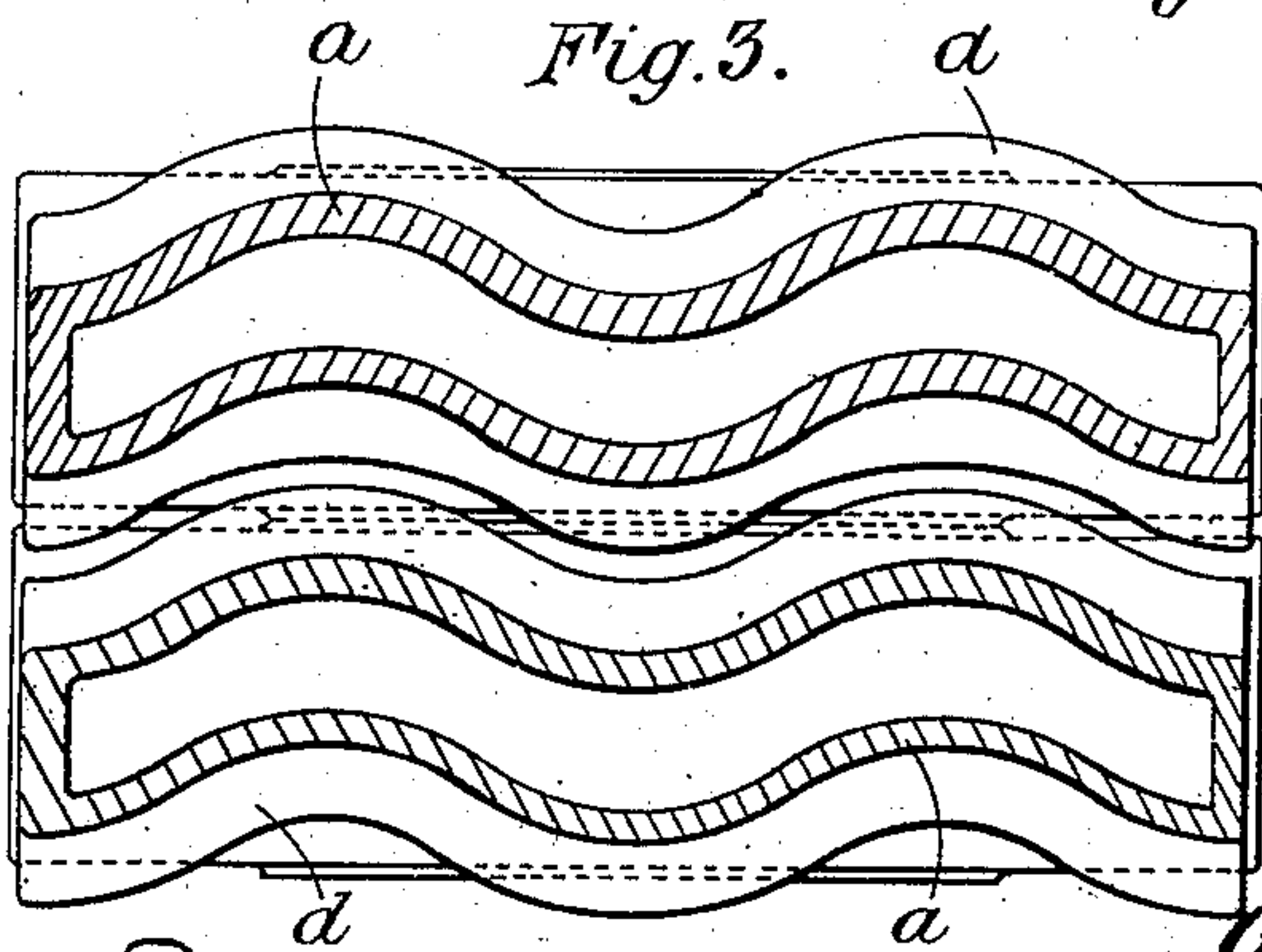


Fig. 3.



Witnesses:

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UNITED STATES PATENT OFFICE.

GEORGE AUGUSTUS MOWER, OF LONDON, ENGLAND.

RADIATOR.

SPECIFICATION forming part of Letters Patent No. 754,156, dated March 8, 1904.

Application filed February 4, 1903. Serial No. 141,908. (No model.)

To all whom it may concern:

Be it known that I, GEORGE AUGUSTUS MOWER, a citizen of the United States of America, residing at London, England, have invented certain new and useful Improvements in Radiators, of which the following is a specification.

This invention relates to improvements in radiators or apparatus for heating or cooling air or other gases.

According to my said invention the radiator or battery is formed of a number of tubes whose transverse section is wavy or curved and each of which is provided with external ribs or in some cases with recesses which are curved or waved in a direction substantially at right angles to the length of the tube. By this construction the air passing between each pair of tubes is caused to follow a compound sinuous path, being deflected in two directions—viz., in the direction of the length of the tubes and in a direction at right angles thereto—whence it follows that good contact is obtained between the air and the walls and ribs of the tubes, and the air or other gas is thus very efficiently cooled or heated, according as the apparatus is used as a cooler or as a heater. The air or other gas may be drawn between the tubes by a fan or by other suitable mechanical means or by gravity, and the interior of the tubes may be heated by hot water or other hot liquids, or by steam, hot air, or gases when used as a heater, or may be cooled by cold liquids or gases when used as a cooler.

In the accompanying drawings, Figure 1 is a side view showing part of one of my improved radiator-tubes. Fig. 2 is a longitudinal section taken through two contiguous tubes. Fig. 3 is a transverse section of said tubes.

Referring to Figs. 1 to 3, *a* is a tube having a wavy transverse section, as indicated in Fig. 3. *b b* are coupling-boxes for connecting the tubes together. There may be such a coupling-box at both ends or in some cases only at one end of the tube. The coupling-boxes may be connected in any convenient manner—for example, by screw-threaded nipples *c*—and are in free communication with parts of adjacent tubes to form headers for conveying the heating or cooling medium to the tubes. Each tube is furnished with a number of external ribs or flanges *d*, which are formed integrally therewith or may be attached thereto, each said rib being curved in a direction at right angles to the length of the tube, as is best seen in Fig. 1.

In the arrangement shown in Figs. 2 and 3 the ribs *d* project a uniform distance from the walls of the tube *a*—that is to say, the edge of each rib follows the contour of the tube.

What I claim is—

In combination, a plurality of radiator-sections each consisting of a substantially rectangular hollow body having its side walls waved in a horizontal manner so as to form vertically-extending channels, each of said sections further provided with ribs waved about a horizontal plane as well as being waved to conform to the waves of the sections, the ribs of one section being located opposite the ribs of an adjacent section so as to form air-channels.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

GEORGE AUGUSTUS MOWER.

Witnesses:

GEORGE HARRISON,
HENRY W. LYNDEN.