

H. HEENAN.
METHOD OF BUILDING COOLING OR WARMING DRUMS.
APPLICATION FILED MAY 27, 1911.

1,018,242.

Patented Feb. 20, 1912.

4 SHEETS—SHEET 1.

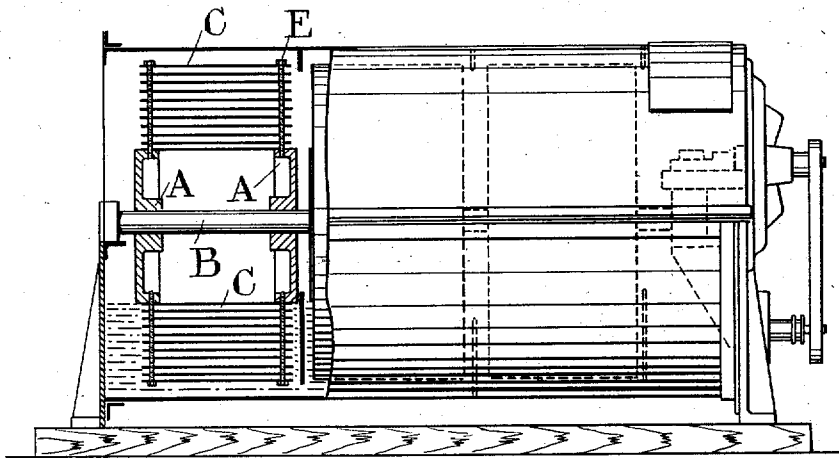


Fig. 1.

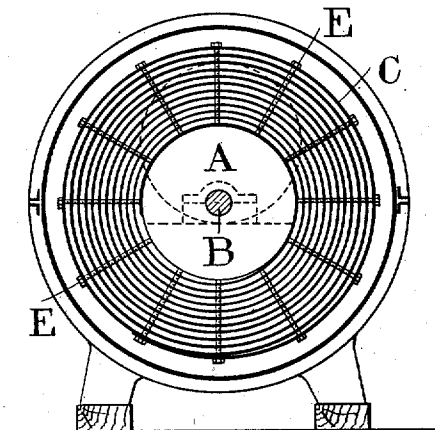


Fig. 2.

WITNESSES.

Edward S. White
E. Kessler

INVENTOR

Hammersley Heenan
by James L. Morris

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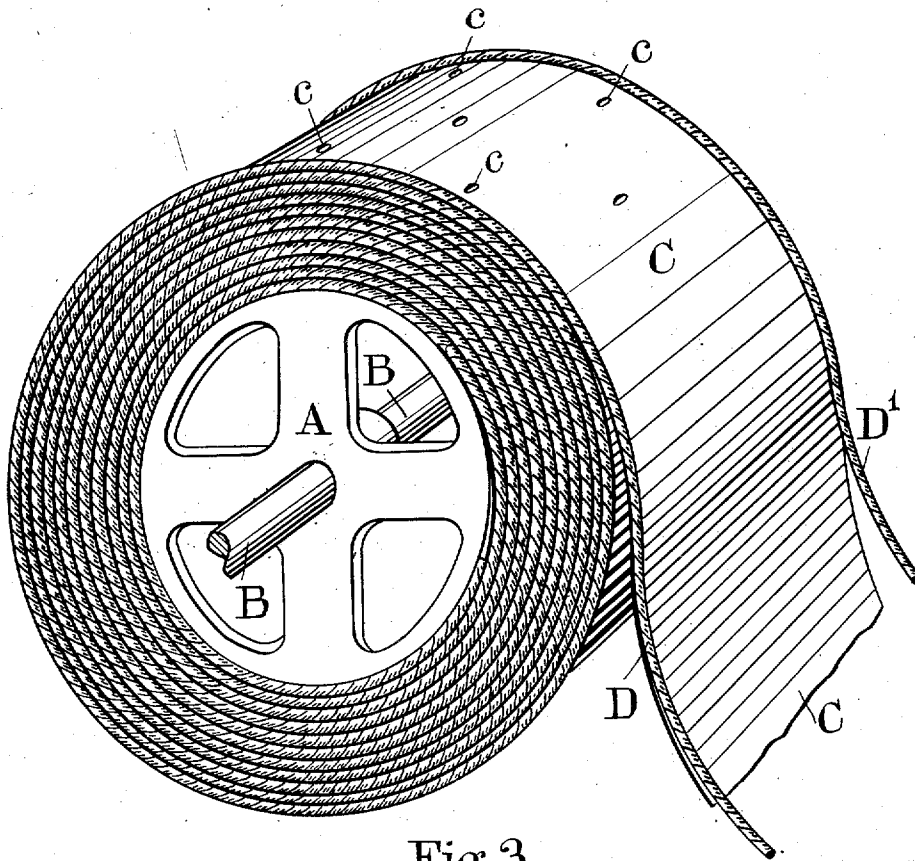


Fig. 3.

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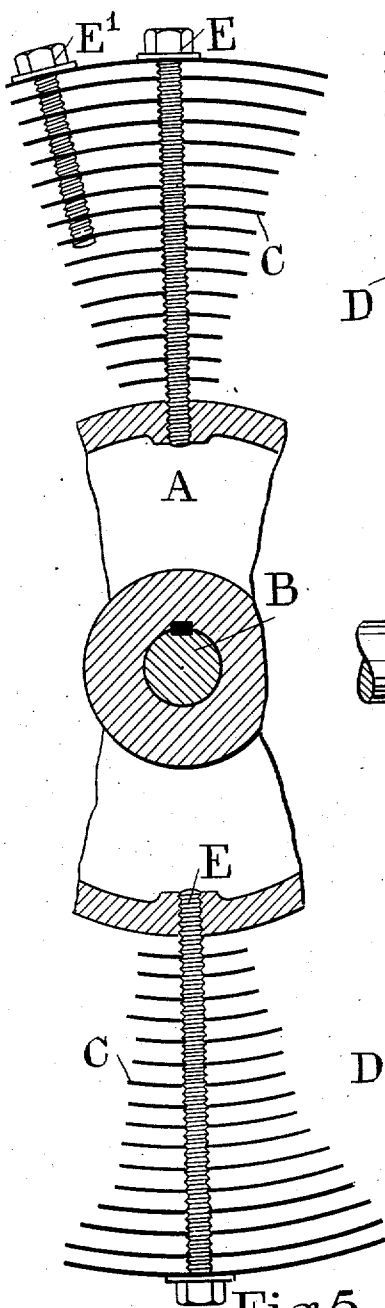


Fig. 5.

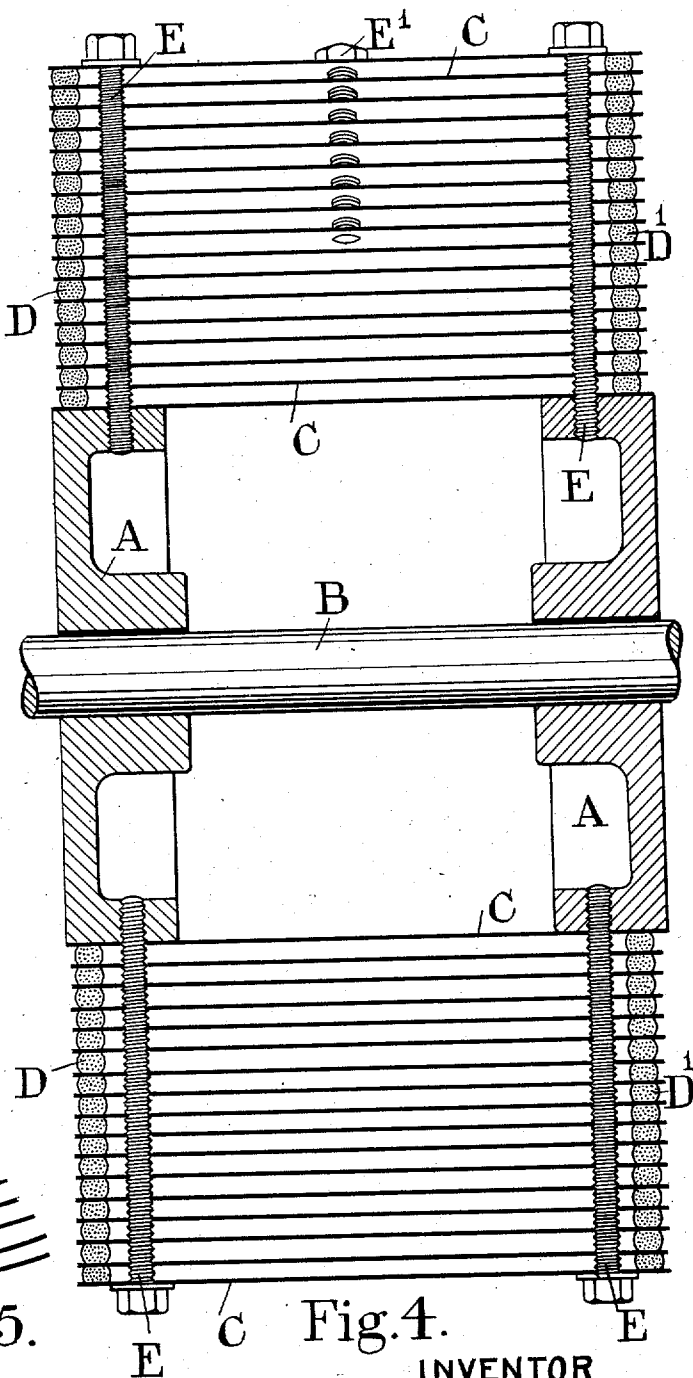


Fig. 4.

WITNESSES
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4 SHEETS—SHEET 4.

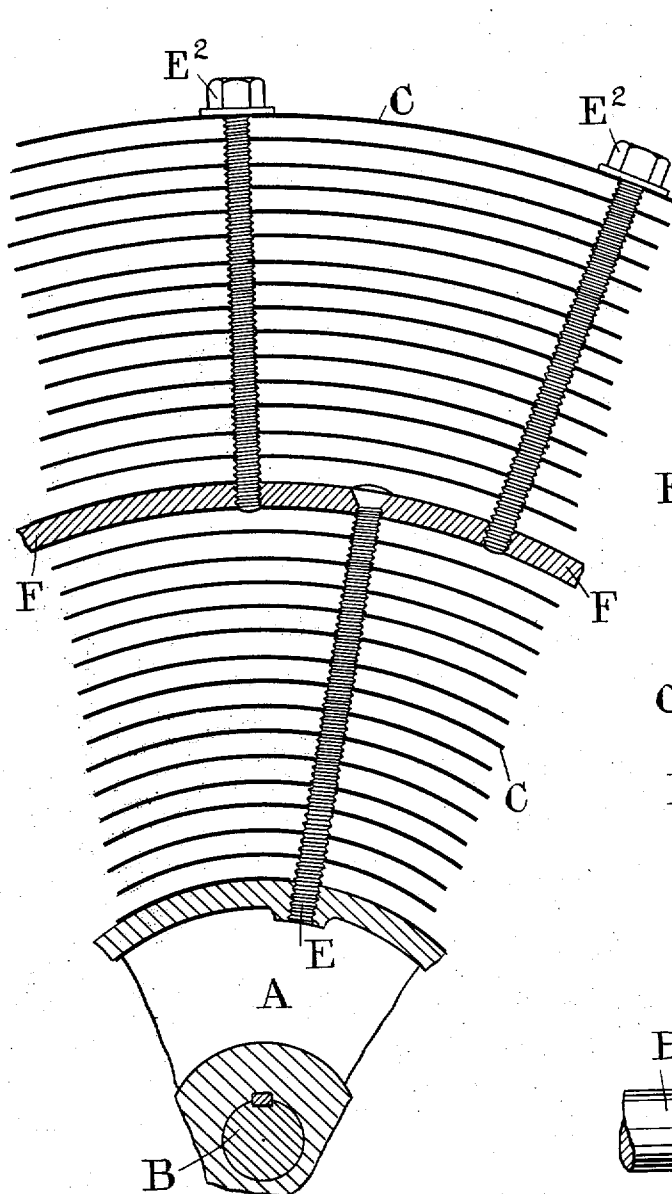


Fig. 7.

WITNESSES.
Edward S. White
[Signature]

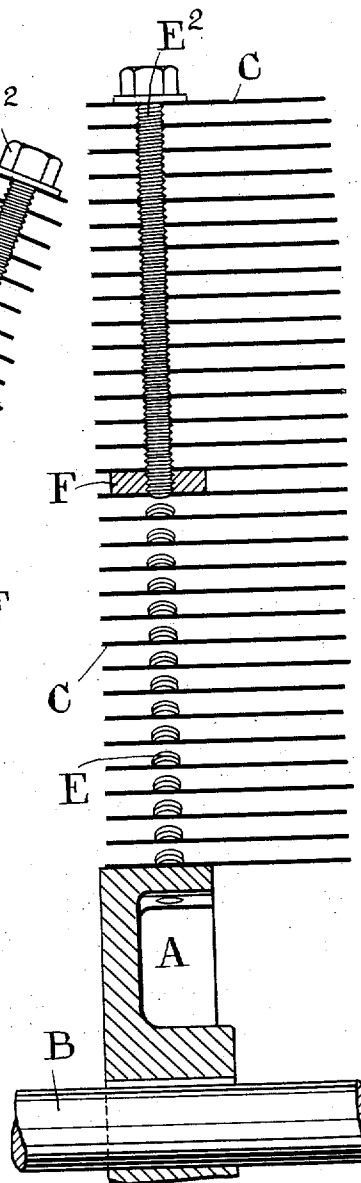


Fig. 6.

INVENTOR

Hammerstey Heenan
64 *James L. Morris*
[Signature]

UNITED STATES PATENT OFFICE.

HAMMERSLEY HEENAN, OF MANCHESTER, ENGLAND.

METHOD OF BUILDING COOLING OR WARMING DRUMS.

1,018,242.

Specification of Letters Patent.

Patented Feb. 20, 1912.

Application filed May 27, 1911. Serial No. 629,783.

To all whom it may concern:

Be it known that I, HAMMERSLEY HEENAN, a British subject, residing at Manchester, county of Lancaster, England, have invented certain new and useful Improvements in Methods of Building Cooling or Warming Drums, of which the following is a specification.

This invention relates to apparatus for cooling or warming water, or for cooling, warming or humidifying air (or which may be applied for other similar purposes) in which a laminated drum rotates with its lower portion immersed in a trough of water or other liquid and air or other gas is blown or drawn through the upper portion of the drum the convolutions or windings being covered with a film of water taken up by the rotation of the drum through the water in the tank. Such drums are made of a number of convolutions of sheet metal wound spirally around a central hub or a pair of disks. Various methods have been proposed of spacing and securing the convolutions of the drum at regular intervals apart such as by passing bolts or studs down through them and inserting washers of the desired thickness between the plates and tightening the bolts thereon. Difficulty and expense attends this method of construction and also others that have been proposed.

This invention comprehends essentially an improved method of building such drums which consists in winding with the sheet metal a flexible removable spacing band at one or both edges to obtain regular spacing of the convolutions of sheet metal, subsequently drilling holes through the metal plates and screwing into each hole a screw the threads of which will engage the edges of the holes in the plates through which they pass and secure and hold the plates rigidly and finally when the plates are thus secured, removing the flexible spacing bands and also in addition thereto building up the drum in a number of sections in a similar manner with a foundation ring between each two sections.

The invention will be fully described with reference to the accompanying drawings.

Figure 1, is a side elevation of the apparatus partly in section. Fig. 2, is a transverse sectional elevation. Fig. 3, is a perspective elevation of the spirally convoluted drum showing the method of winding. Fig.

4, is an enlarged detail section longitudinally of the drum. Fig. 5, is an enlarged detail section transversely of the drum. Fig. 6, is an enlarged detail section longitudinally of the drum showing a modification. Fig. 7, is an enlarged detail section transversely of the drum showing modification similar to Fig. 6.

The drum is built up upon center disks A upon a shaft B with spiral convolutions C of sheet metal wound around them in the usual way.

In winding the spiral convolutions C of sheet metal two flexible spacing bands D D' of rope or other material are wound up with the sheet metal the band D at one edge of the drum and the band D' at the other edge. The ropes D and D' are thus wound tightly up with the sheet metal and the convolutions C accurately and evenly spaced. After the drum has been so built up (see Fig. 3) holes *c* are drilled at intervals around both edges—but inside the ropes D D'—through the convolutions of the sheets C at suitable intervals such holes extending through all the convolutions and into the disks A. Into each hole a screw E of suitable pitch is screwed the threads of the screw engaging with the edges of the holes in each layer or convolution as it passes through. The screws thus secure the convolutions C rigidly and firmly at the desired distance apart without the insertion of washers, distance pieces or other spacing device. For larger drums additional screws E' may be inserted at or near the center to give additional rigidity thereto.

In the modification shown in Figs. 6 and 7 for large sized drums the drums may be built up in two or more sections with foundation rings F between, around which the convolutions of the second section are wound in the manner hereinbefore described. The foundation rings F receive the ends of the screws E². This construction avoids the use of long screws and obviates the difficulty of drilling deep holes through the convolutions C of the plates.

When the drums are built up and all the screws inserted to secure the plates the flexible spacing bands or ropes are removed or pulled out from the edges of the drum as their only function is to assist in the building up of the drum and the spacing of the convolutions at the desired distances apart.

What I claim as my invention and desire to protect by Letters Patent is:—

The method of building a spirally convoluted drum consisting in winding together
5 upon a central hub or disk a sheet of suitable and flexible removable spacing bands, subsequently drilling holes through the convolutions and introducing into each hole a member to secure and hold the convolutions

rigidly in position, and finally removing the 10 spacing bands, substantially as described.

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

HAMMERSLEY HEENAN.

Witnesses:

B. TATHAM WOODHEAD,

J. OWDEN O'BRIEN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."

Correction in Letters Patent No. 1,018,242.

It is hereby certified that in Letters Patent No. 1,018,242, granted February 20, 1912, upon the application of Hammersley Heenan, of Manchester, England, for an improvement in "Methods of Building Cooling or Warming Drums, an error appears in the printed specification requiring correction as follows: Page 2, after the word "suitable" lines 5-6, insert the word *material*; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 2nd day of April, A. D., 1912.

[SEAL.]

C. C. BILLINGS,
Acting Commissioner of Patents.