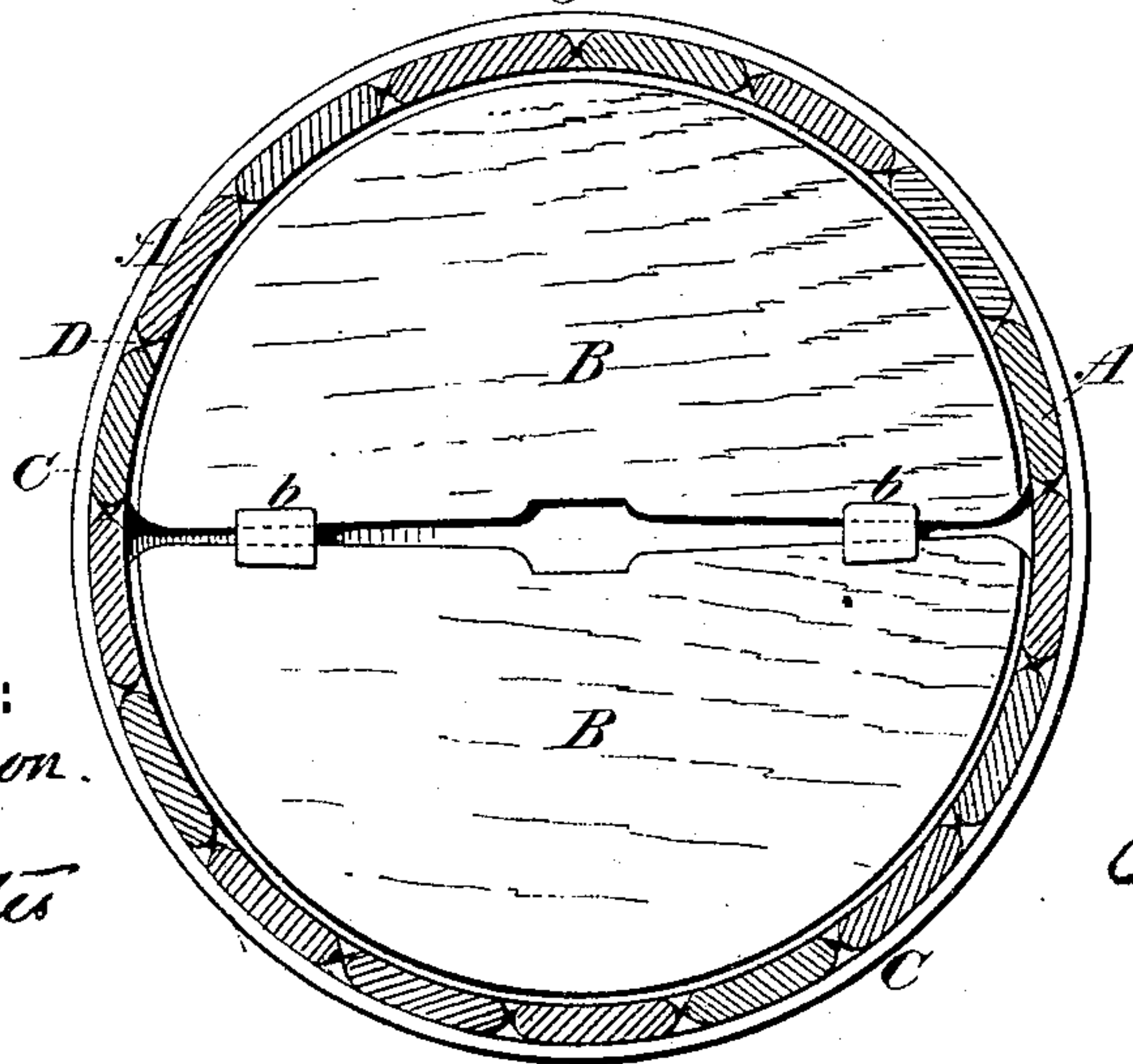
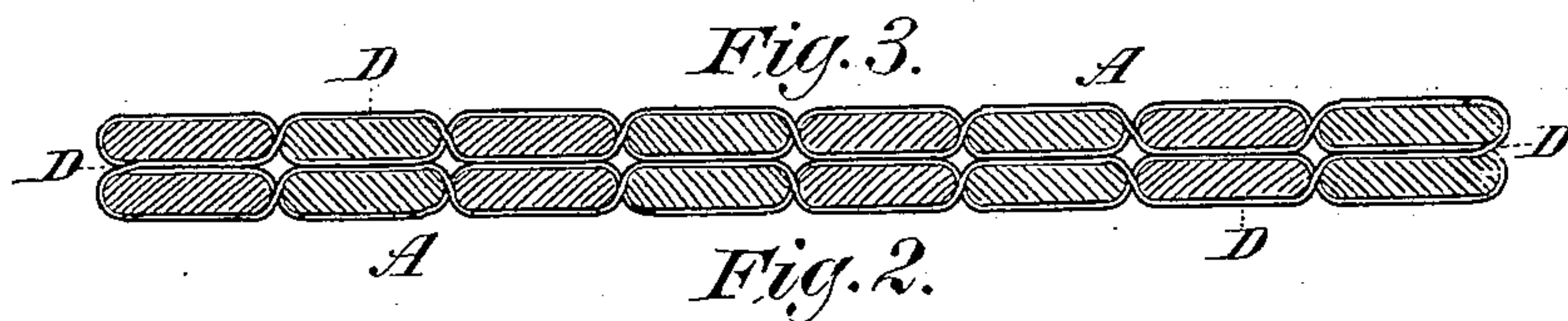
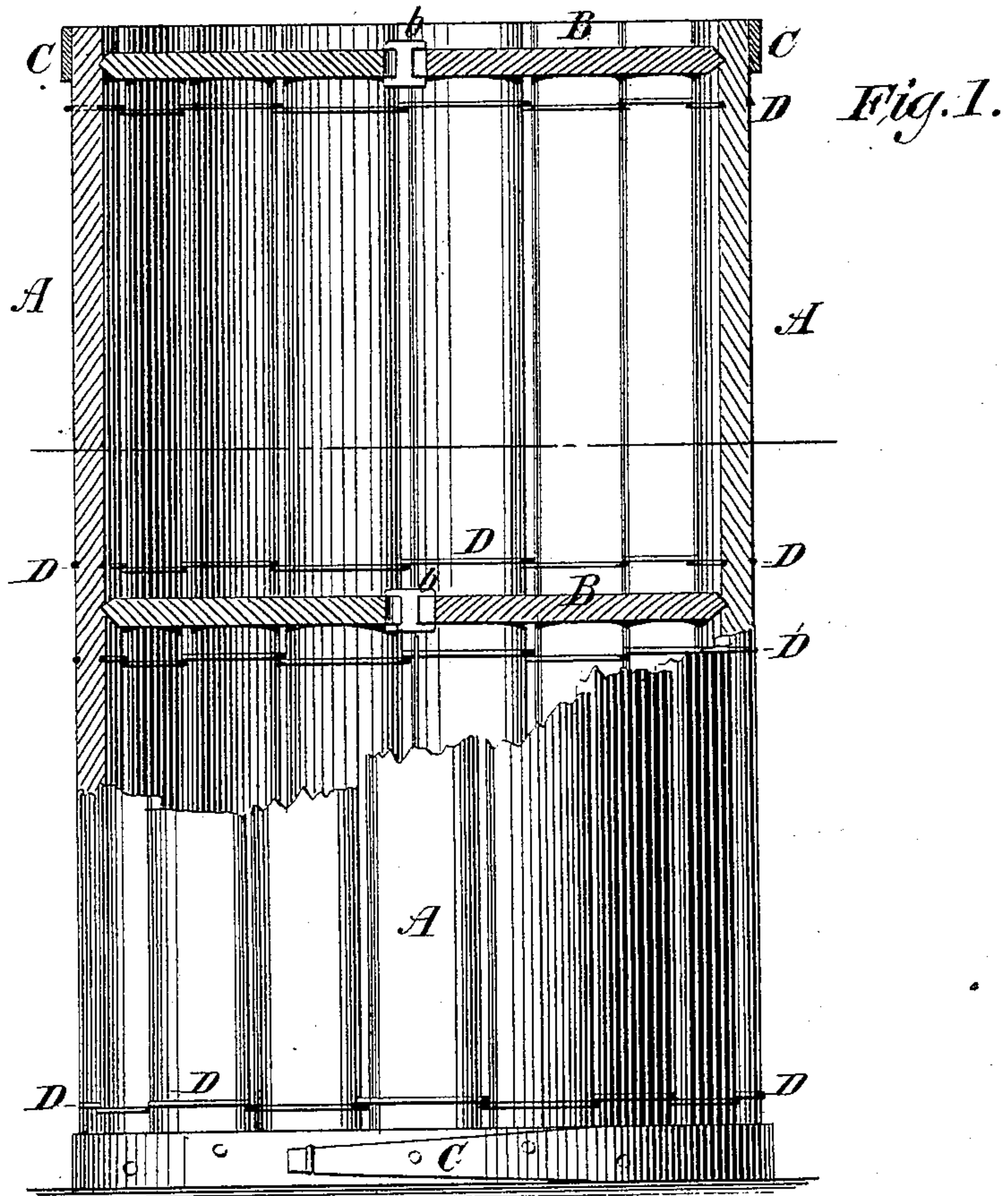


(No Model.)

F. G. JOHNSON.  
VENTILATING PACKAGE.

No. 246,955.

Patented Sept. 13, 1881.



WITNESSES:

R. E. Johnson.  
A. L. Bates

INVENTOR:

Frank G. Johnson



# UNITED STATES PATENT OFFICE.

FRANK G. JOHNSON, OF BROOKLYN, NEW YORK.

## VENTILATING PACKAGE.

SPECIFICATION forming part of Letters Patent No. 246,955, dated September 13, 1881.

Application filed August 7, 1880. (No model.)

*To all whom it may concern:*

Be it known that I, FRANK G. JOHNSON, of the city of Brooklyn, in the county of Kings and State of New York, have invented new and useful Improvements in Ventilating Packages, which improvements are fully set forth in the following specification, reference being had to the accompanying drawings.

The objects of my invention are to provide a packing barrel or case for the transportation and preservation of fruits, vegetables, &c., of such peculiar construction that it will afford free circulation of air throughout its entire dimensions, and which, when it is empty, can be knocked down to save room in storage and transportation.

Another object of my invention is to provide convenient means of dividing such barrels or cases into two or more compartments for the better preservation of the contents packed and transported in such barrels or cases.

Figure 1 represents an elevation, the upper portion as seen on the inside, and the lower portion as seen on the outside, of a barrel. Fig. 2 represents a transverse or horizontal section and a face view of one of the heads of the barrel. Fig. 3 represents a transverse or end view of the staves or sides of the case when it is in a knocked-down condition.

My invention is more particularly described as follows:

A A A are straight staves or strips of wood with rounded edges, standing with their adjacent edges more or less apart from each other, to admit free circulation of air between them, and which constitute the sides of the barrel. These strips may be round or flat, but preferably flat, and about from two to three inches wide, and for round cases they may be suitably concave on the inside and convex on the outside; but this is not essential. These strips or staves A A A are united and bound together by wires D D D, arranged and combined with the staves in the following manner: A string of wire sufficiently long being bent upon itself, a stave, A, is placed within the loop or bend of the wire; then the two strands are crossed or passed by each other, and between them is placed another stave, which is driven up near the first stave, when the two strands of wire are again crossed or passed by each other and a third stave placed between, and so on, until a

sufficient number of staves are employed to make the sides of the barrel. In this manner of uniting the staves each strand of the wire alternately passes over and under the staves, so that they (the strands of wire) cross each other between the staves. To keep the staves from sliding longitudinally out of position, a groove is cut across their edges to receive the binding wires D D D. The staves A A A thus woven between the binding-wires D D D are free to be folded upon each other, so as to enable or allow the sides of the barrel to be compressed or knocked down together, as represented in Fig. 3, which admits of the barrel, when empty, being transported or packed away with the least possible loss of space. Instead of wire for binding the staves together, suitable flat bands, or even cords, may be employed.

As a method of providing for and securing the heads (and, when employed, also partitions) for such barrels, I first place a hoop of iron, wood, or other proper material, C C, at the top and bottom of the staves, of suitable diameter to just pass over and around the staves without any driving force, which bands are to resist the expansion of the distending heads B B. The heads, being distended or expanded with great force, securely bind the ends of the staves A A A between the edge of the heads and the resisting hoops C C, which makes the barrel very stiff and rigid.

The heads and partitions B B B are composed of two equal and similar sections, with their adjacent edges cut away, so as to leave between the two sections a tapering space or an inclination toward each other of the adjacent edges, this space being the widest at central part of the head. The points or angles of the said sections are slightly cut away, so as to diminish the diameter of the head in both directions, to allow or admit of the head being inserted into the croze of the staves, as shown by Fig. 2. When the head is contracted (by bringing the adjacent edges of the two sections thereof together) and inserted into the croze, it is distended and firmly held in place by driving the staves A A A against the hoops C C by means of the wedges or keys b b being driven along in the tapering space between the adjacent edges of the two sections of the head. To allow the keys b b to be inserted between the adjacent edges of the head, a small



portion of the central part of the head is cut away, as shown in Fig. 2. The keys *b b* are provided with a double flange at top and bottom, to keep them in place and to combine together the strength of the two sections of the head B B.

In the center of the barrel, and, if needed, at other positions, I provide in the staves a croze for inserting partitions, which are made, inserted, and fastened in the same manner as the heads proper.

The spaces between the adjacent edges of the staves A A A may be narrow or wide in different barrels, according to the intended uses of the barrels.

The hoops C C may be dispensed with by the employment of wire to bind the staves together of sufficient strength to resist the expansion and pressure of the heads; but I prefer the employment of the hoops C C, as by their use the barrel is rendered much stronger.

To compress the barrel or put it in the knocked-down condition, it is only necessary to remove the fastening-keys *b b*, which liberates the heads, and the heads being removed the hoops C C are liberated and removed, and then the staves or sides of the barrel can be collapsed and laid down flat, as shown by Fig. 3.

In the construction of cases or flat-sided packages the same method of making up is pursued as with barrel shapes, taking care that the number of slats is such as to form the four sides of the package, the ends and division-partitions being rectangular, or otherwise, instead of round, without other change.

The hoops at either end may be of iron or wood, and one or more may be employed in each locality, and in place of wire to unite and confine the slats twine may sometimes be used, or even grape-vine, rattan, or other proper vege-

table substance, with a strong hoop at each end to take the distending force of the head.

I am aware that ventilating packages have heretofore been made by binding slats together with wires, the wires between the adjacent slats being twisted around each other, so that when the package is flattened, the wires being thus twisted together are necessarily bent upon themselves at a sharp angle, and thus rendered liable to break off, whereas in my invention the wires which bind the slats together are not twisted together between the slats, but they simply pass by each other between the adjacent slats as they alternately pass over and under the same, thus permitting the wires to slide one against the other and forming an X-shaped slipping joint, whereby the package can be flattened or folded upon itself without causing the wires to be bent at a sharp angle upon themselves between the slats, and thus preventing them (the wires) from being broken by use.

Therefore I do not claim, broadly, a ventilating package formed of slats and wires; but

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

A ventilating knock-down package the sides of which are composed of slats held and confined by wires, each of which passes alternately over and under adjacent slats, so that the wires cross between the slats, forming an X-shaped slipping joint, whereby when the fabric is rolled up or flattened out the wires will slide one against the other without twisting, substantially in the manner and for the purpose set forth.

FRANK G. JOHNSON.

Witnesses:

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