

No. 775,351.

PATENTED NOV. 22, 1904.

J. W. HARTMANN.

BINDING DEVICE FOR COLUMNS OR OTHER ARTICLES.

APPLICATION FILED AUG. 2, 1904.

NO MODEL.

Fig. 1.

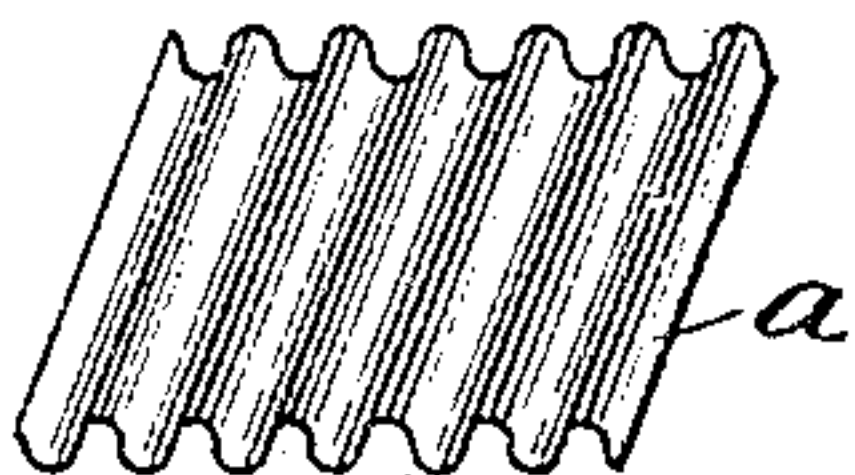


Fig. 2.

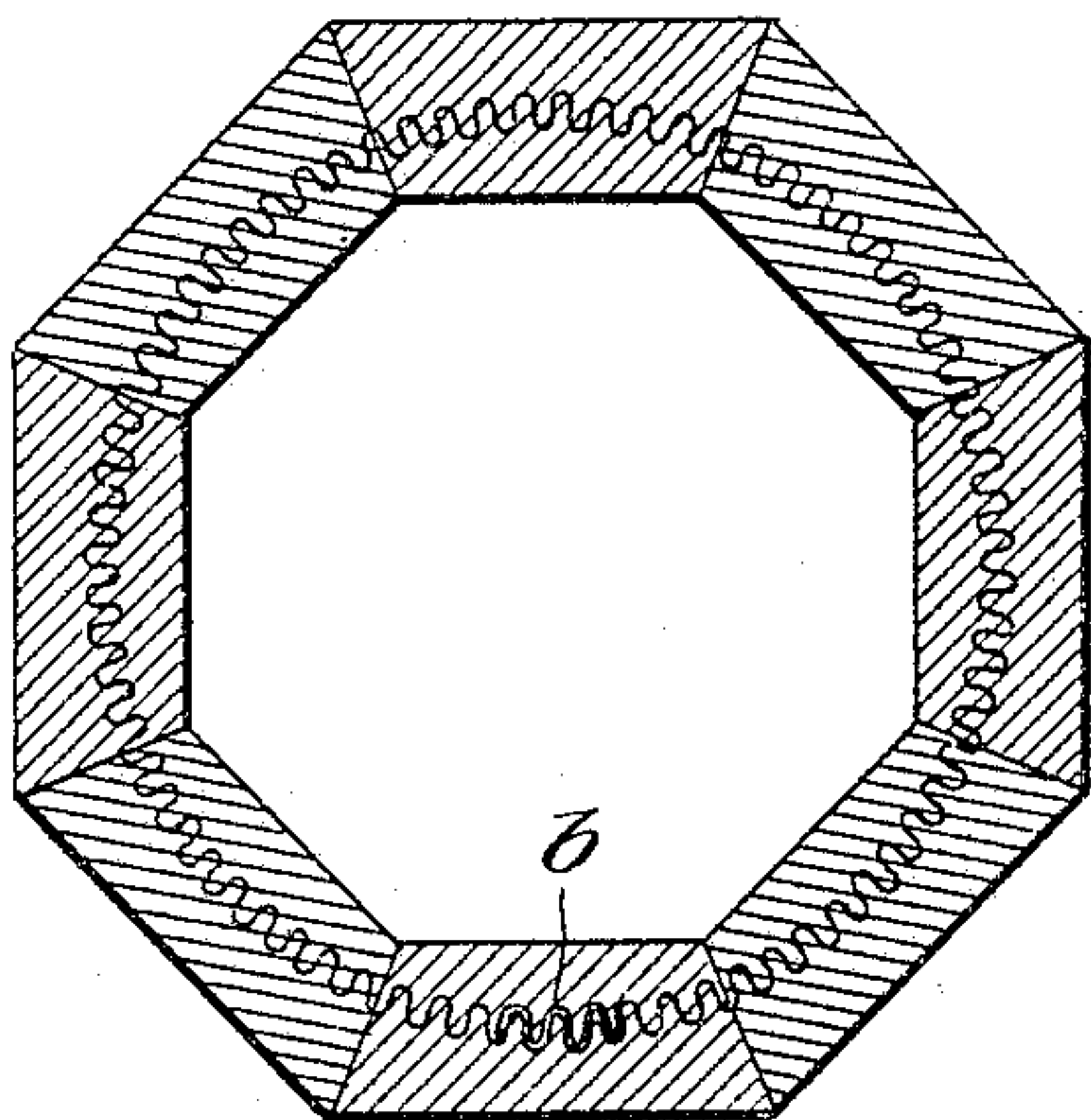


Fig. 3.

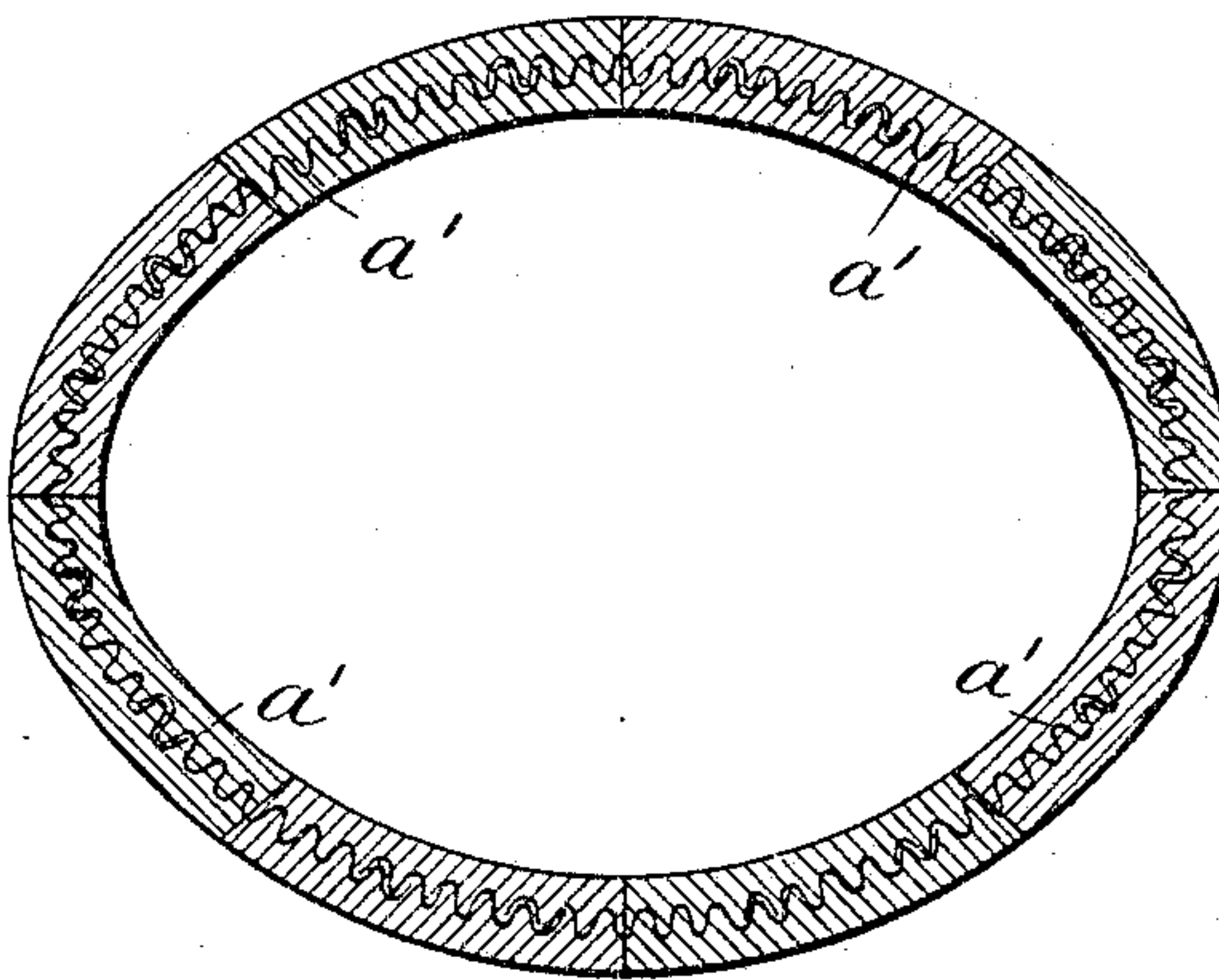


Fig. 4.

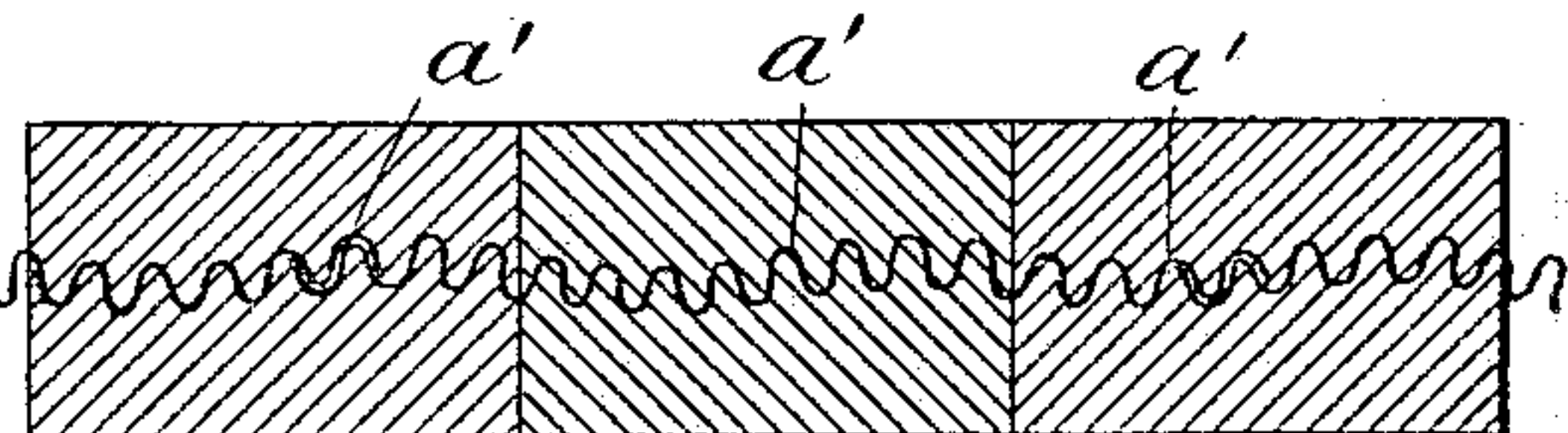


Fig. 5.

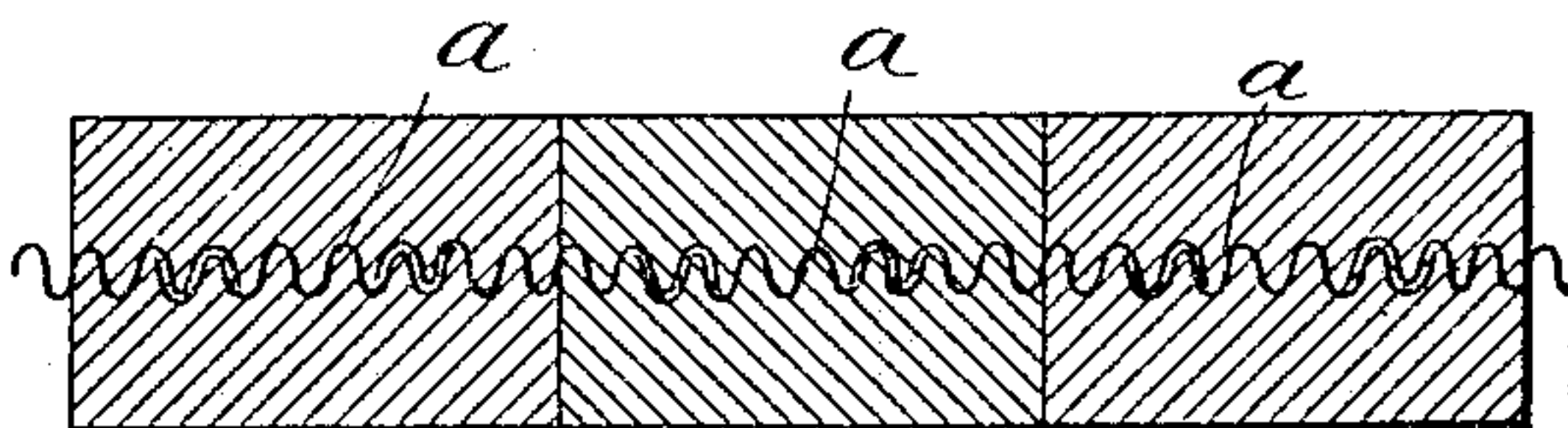
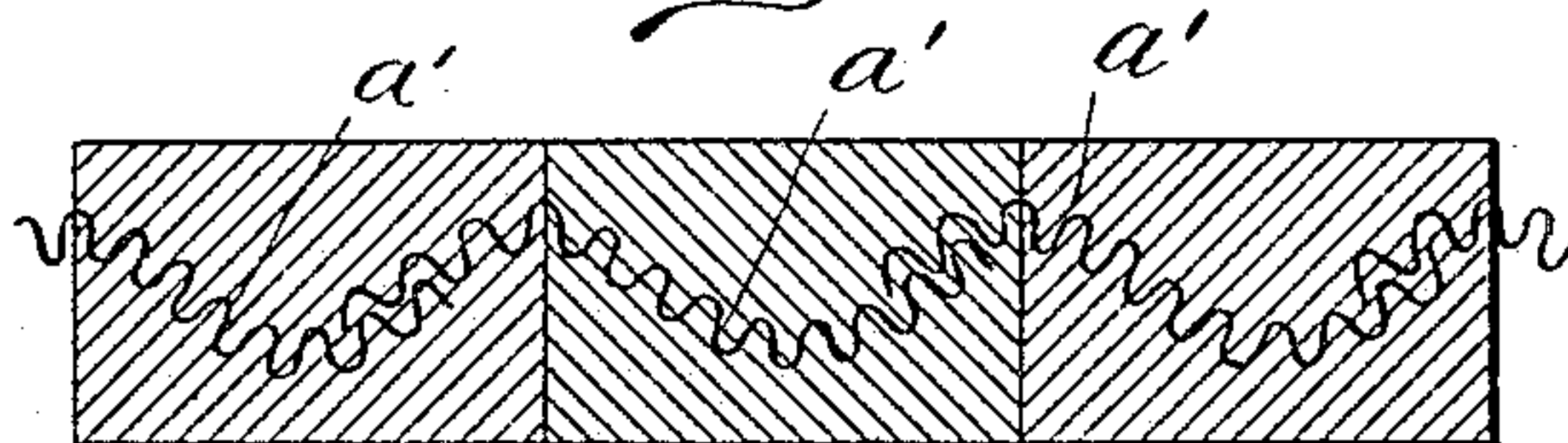


Fig. 6.



Witnesses.

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BINDING DEVICE FOR COLUMNS OR OTHER ARTICLES.

SPECIFICATION forming part of Letters Patent No. 775,351, dated November 22, 1904.

Application filed August 2, 1904. Serial No. 219,245. (No model.)

To all whom it may concern:

Be it known that I, JOHN W. HARTMANN, a citizen of the United States, residing at Mount Vernon, in the county of Westchester and State of New York, have invented new and useful Improvements in Binding Devices for Columns or other Articles, of which the following is a specification.

This invention relates to the manufacture of hollow columns, tubes, vessels, and such other articles as are formed of staves or boards having matched edges and means for uniting the same.

The object of my invention is to provide auxiliary means for securing together the ends of the adjoining staves or boards of manufactured articles so as to effectually prevent any separation of the parts either in transportation or when in use and exposed to changing temperature, inclement weather, or for any other cause whatsoever.

The nature of my invention and its application to different articles is clearly shown in the accompanying drawings, whereon—

Figure 1 is a perspective view of my auxiliary locking or binding device. Fig. 2 is an end view of an eight-sided or unturned column provided with the auxiliary locking device in annular form and engaging all the staves of the column. Fig. 3 is a transverse view of one end of an oval tube or vessel with separate auxiliary locking devices for the adjoining edges of adjacent staves, and Figs. 4, 5, and 6 are end views of flat boards joined together and provided with my auxiliary fastening devices.

My locking or binding device consists of a strip of metal, preferably of flexible nature, that it may yield to the slight expansion or contraction of the article which it is desired to reinforce.

The device is made in different sizes to suit articles of various constructions and dimensions. In some cases they are made straight, as at *a* in Figs. 1 and 5. In other cases they are curved, as shown at *a'* in Figs. 3, 4, and 6. While in other cases the binder is bent and so shaped as to engage all the staves of the article which is to be strengthened thereby, as at *b*, Fig. 2, and thus it not only serves to

secure the staves together, but prevents any shakes or cracking of the material of which the staves are formed.

Heretofore in the construction of columns they have been reinforced by metal bands or wires encircling same. These not only mar the appearance of the article, but tend to injure the material of which they are composed. Especially is this the case when in exposed places and subject to inclement weather, the rusting of the bands or wires discoloring the material and causing the same to decay. In the application of my invention the device is driven into the ends of the staves or boards to its full depth, and thus in no manner is it exposed to the weather or changing atmosphere, and in addition to its serving as a means for strengthening the article permits of a certain amount of elasticity or yielding of same to changing temperatures.

I do not desire to confine myself to the particular and preferred form of corrugated flexible band or strip to be embedded in the staves at the termini of the column for the purpose of securing together adjoining staves in columnar form, so as to effectually prevent any separation of the parts either in transportation or when in use, as hereinbefore described, but reserve the right to employ any or all forms or shapes of flexible joining bands or strips which may be selective to the particular character of the staves employed without departing from the spirit of my invention, which consists of a multiplicity of staves united in columnar, circular, oval, or analogous forms provided with a flexible band or strip embedded in the ends of the staves in such a manner as to form a substantially continuous band or belt; neither do I desire to confine myself to the use of a single unbroken or flexible continuous strip embedded in the ends of the column or analogous article, but include as modifications thereof any broken or sectional form of belt, strip, or band which might be composed of sections of embedded sectional pieces so long as the ends of the said sections overlap in such a manner as to substantially form a continuous embedded belt within the end or ends of the article to which applied.

This form of joining or reinforcing embed-

ded belts is particularly advantageous when embedded in the lower end of upright columns, for the reason that water and moisture which is liable to accumulate at the base of the columns, thereby softening the glue or other adhesive uniting or binding substance and causing the stave to swell, whereby the joints crack and become open and exposed to the disintegrating action of inclement weather, is prevented, while at the same time corrosion of the strip or belt is prevented by the fact that it is embedded within the body of the column and out of contact with the oxidizing influences of air and moisture, and, also, being thus embedded it does not stain the column from these otherwise obvious causes.

I am aware that wooden columns have been reinforced or bound by inserting or embedding circumferentially within their ends strips of wood; but it is found by employing such devices that the wooden binding-strips swell by the action of moisture and split the staves of the columns. By the use of my device, however, consisting of a flexible metal strip or belt, the difficulty of splitting the columns is avoided, while at the same time the corrugated form of the strip allows of its longitudinal expansion, extension, and contraction to conform with the shrinking or swelling of the staves in the column from the action of moisture or other causes.

My improved binding device can also be readily driven into the ends of columns, while the employment of strips of wood as binding elements requires the ends of the columns to be rabbeted to fit the binding-strip inserted, thus necessitating the employment of more labor and requiring more time to construct.

It will be noted that my locking device is self-anchoring, since the pieces of transversely-corrugated metal resist the tensile strain to which they are subjected, not only by being embedded in the wood, but because

of the fact that the corrugations at the ends of the metal interlock with each other. This is important, for, as is obvious, the interlocked metal is less likely to yield to strains than is metal which is merely embedded in the wood.

Having now described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination with a structure composed of staves, of a self-anchoring end locking or binding device consisting of metal having overlapping and interlocking portions embedded in the ends of its staves.

2. The combination with a structure composed of staves, an end locking or binding device consisting of transversely-corrugated metal having overlapping and interlocking portions embedded in the ends of its staves.

3. The combination with staves of a column, of an end locking or binding device bent to the form of the column, and consisting of transversely-corrugated metal having end locking and overlapping portions embedded in the ends of its staves.

4. The combination with staves of a column, of an end locking or binding device consisting of metal strips transversely corrugated, and having overlapping and end locking portions embedded in the ends of its staves.

5. The combination of a column of staves, an end locking or binding device consisting of transversely-corrugated metal bent to the form of the column and embedded in the ends of its staves in such manner that the ends of the corrugated metal will interlock with each other.

In testimony whereof I have hereunto set my hand this 16th day of April, A. D. 1904.

JOHN W. HARTMANN.

Witnesses:

WILLIAM G. HADDEN,
FREDERICK W. HOLD.