

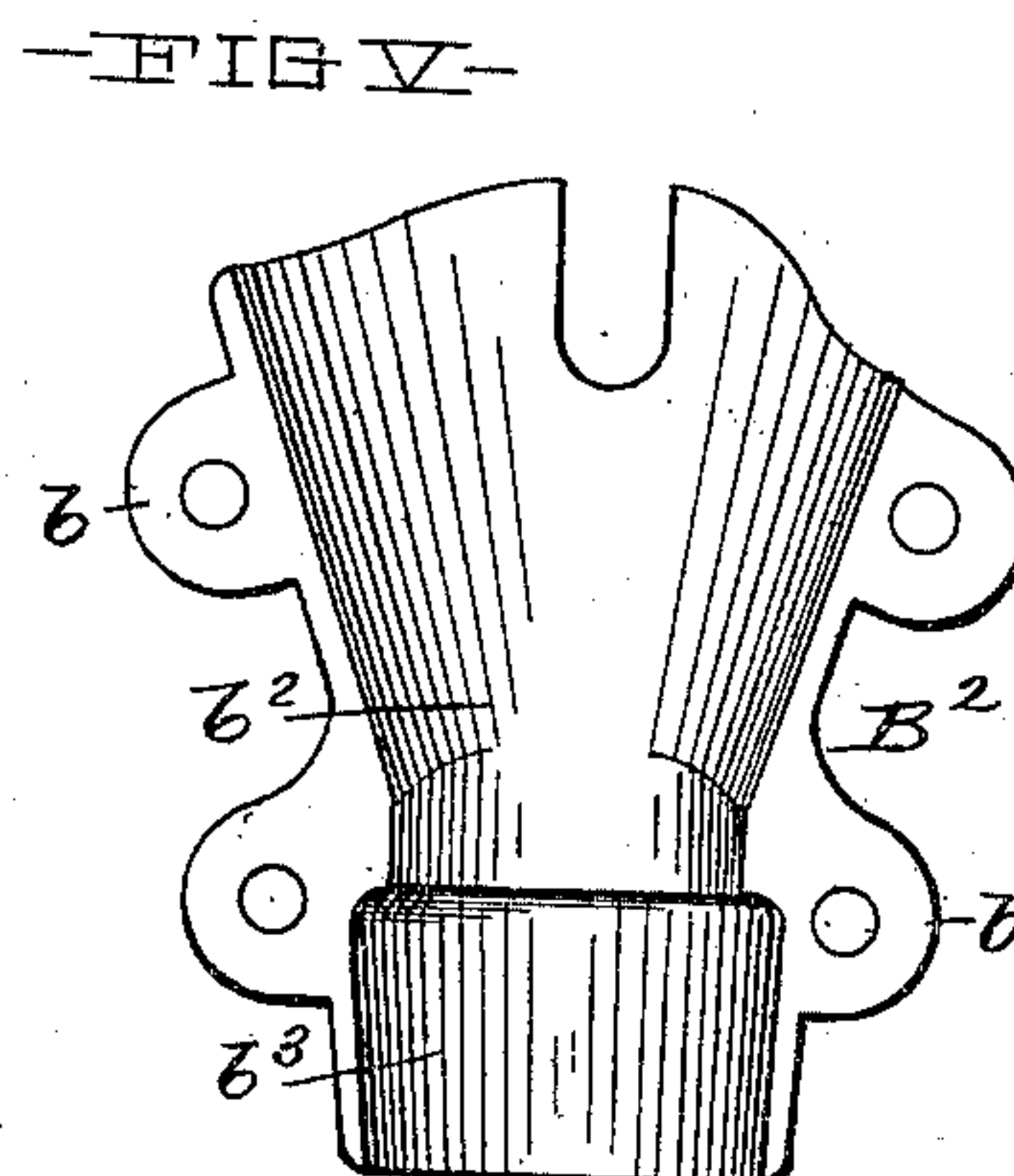
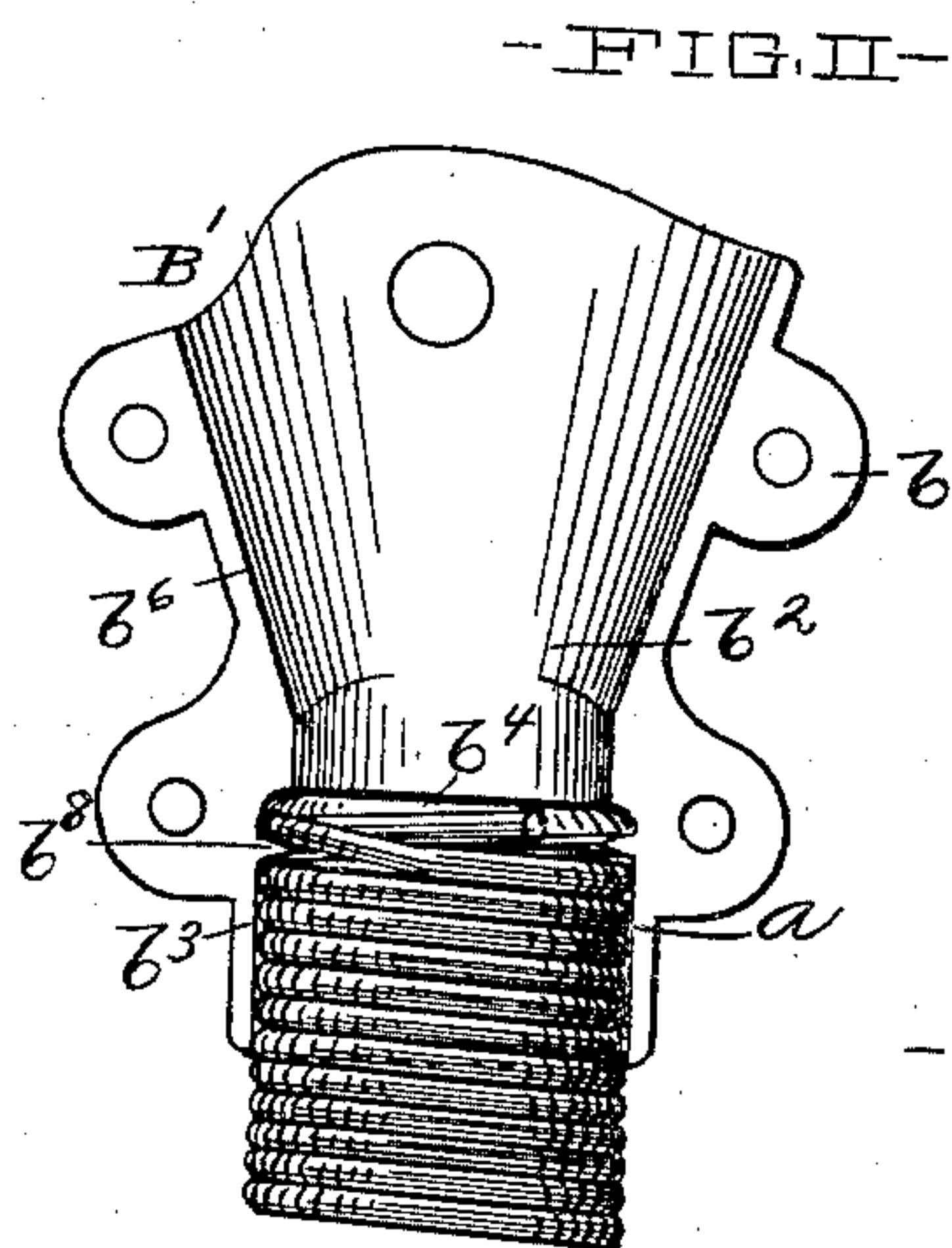
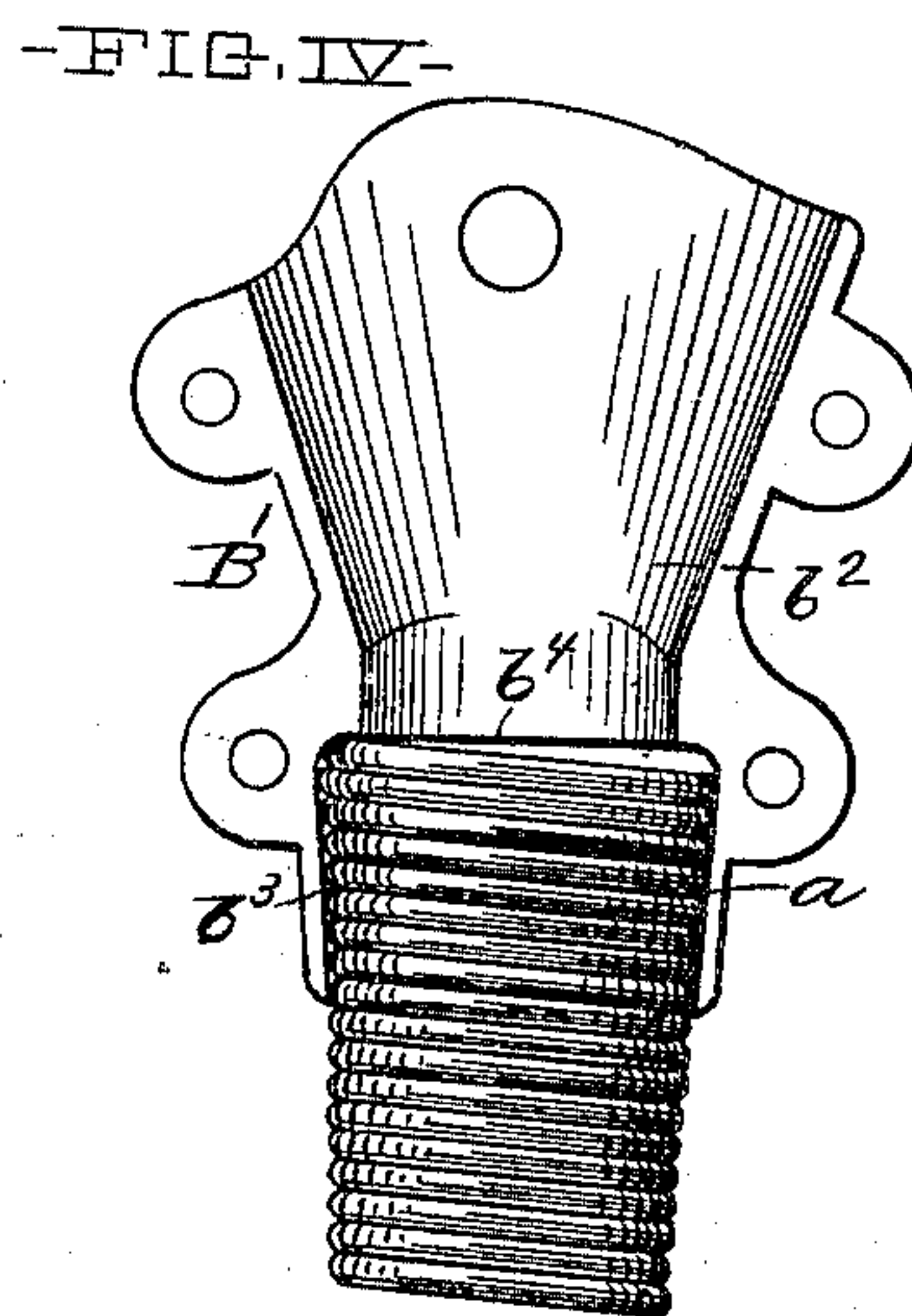
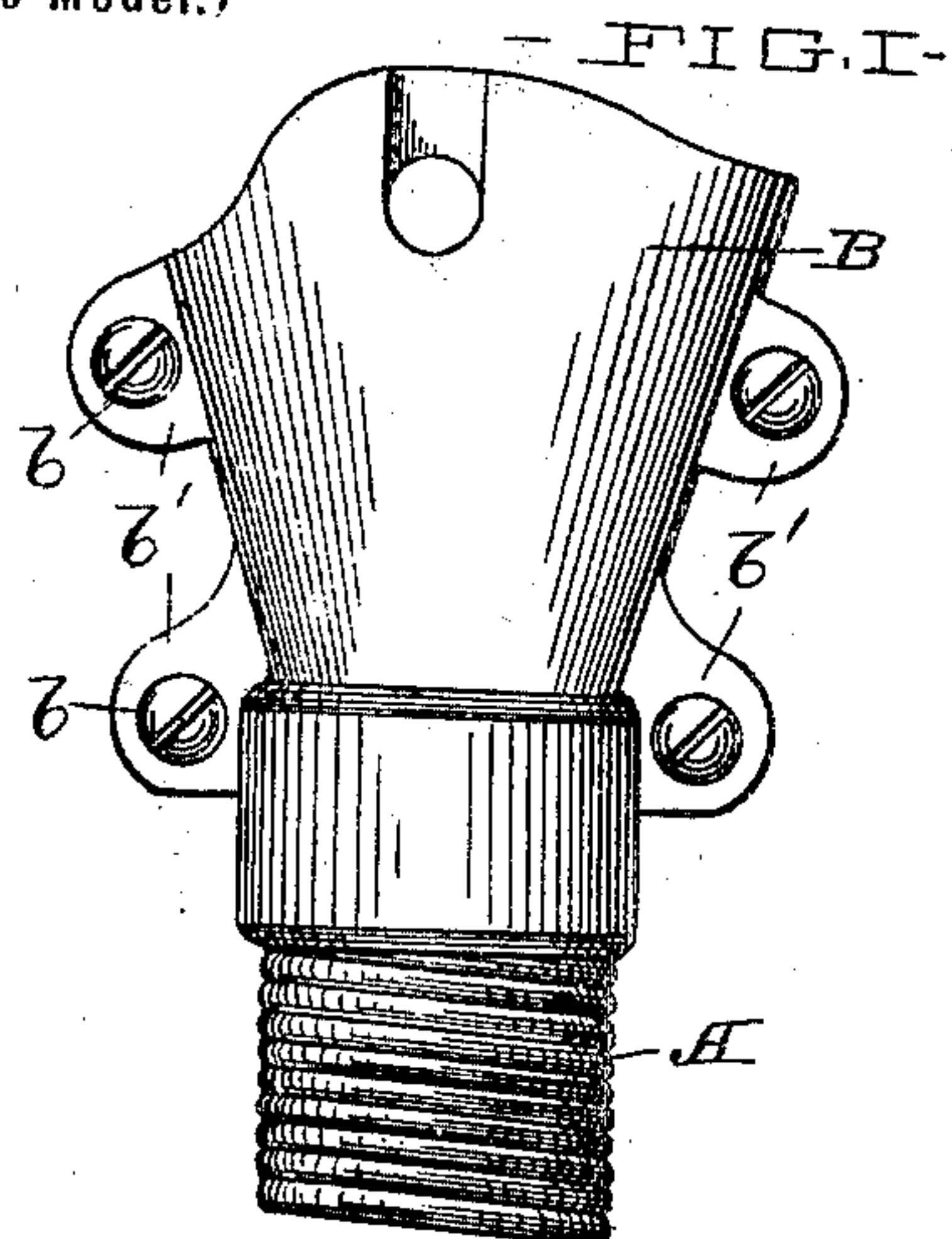
No. 709,649.

Patented Sept. 23, 1902.

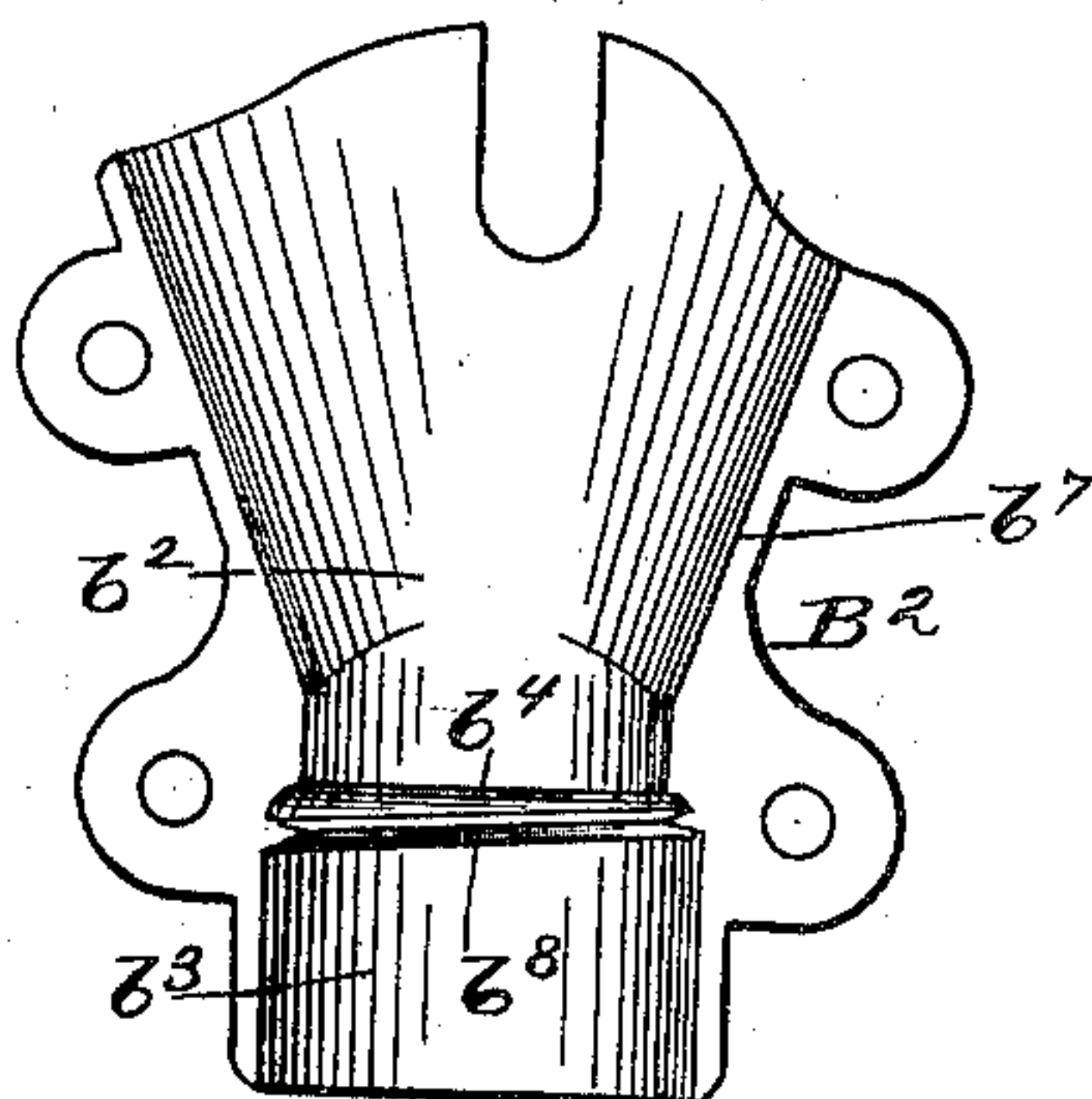
L. J. SANKER & J. H. SULLIVAN.
TUBE FOR GRAIN DRILLS.

(Application filed Sept. 30, 1901.)

(No Model.)



-FIG. III-



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UNITED STATES PATENT OFFICE.

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TUBE FOR GRAIN-DRILLS.

SPECIFICATION forming part of Letters Patent No. 709,649, dated September 23, 1902.

Application filed September 30, 1901. Serial No. 77,048. (No model.)

To all whom it may concern:

Be it known that we, LEONARD J. SANKER and JOSEPH H. SULLIVAN, citizens of the United States, and residents of Cleveland, county of Cuyahoga, and State of Ohio, have invented a new and useful Improvement in Tubes for Grain-Drills, of which the following is a specification, the principle of the invention being herein explained and the best mode in which we have contemplated applying that principle, so as to distinguish it from other inventions.

Our invention relates to a combined grain duct and cup secured to the receiving end thereof and commonly referred to as a "grain-drill tube," its object being to combine such two elements in an economical and efficacious manner.

Said invention consists of means hereinafter fully described, and specifically pointed out in the claims.

The annexed drawings and the following description set forth in detail certain mechanism embodying the invention, such disclosed means constituting but one of various mechanical forms in which the principle of the invention may be used.

In said annexed drawings, Figure I represents a front elevation of the upper end of a grain-drill tube embodying our invention wherein is employed a cylindrical duct. Fig. II represents a similar view with one part of the cup removed. Fig. III represents an elevational view of that part of said cup which is shown removed in Fig. II. Fig. IV represents a front elevation of the upper end of a grain-drill tube embodying our invention, in which a tapered or conical duct is employed; and Fig. V represents a similar view showing one of the cup parts removed.

The duct A is constructed of a helically-wound strip or wire, such construction as applied to grain-drill tubes being old and well-known and forming no part of this invention.

The cup B is formed of two symmetrical parts B' and B², placed in juxtaposition and secured to each other by means of screws b, passing through ears b', formed upon the parts, as shown. The interior of each part is formed with a conical concavity b², which forms a funnel-shaped opening when the two parts are in juxtaposition and form the re-

ceiving-opening of the grain-drill tube, as will be readily understood. The lower portion of each such part is formed with a concavity b³, of cylindrical form when a cylindrical duct is employed, Fig. II, and of conical form when a conical duct is employed, Fig. V, such two concavities when juxtaposed forming a bore for the reception of the duct end a. These concavities are formed so as to leave a shoulder b⁴ intermediate the bore and funnel-shaped opening in the upper portion of the cup, the depth of such shoulder being substantially equal to the thickness of the strip or wire forming the tube. The adjacent faces b⁶ and b⁷ of the two parts B' and B² are planed off, so as to slightly reduce the cross-sectional area of the duct-receiving bore and concavity b², whereby such parts may be drawn tightly upon the duct end by means of the screws b, and the cup thereby fastened securely thereon. When in such secured position, Fig. I, the shoulder b⁴ overlaps the duct sufficiently to prevent the walls of the latter from offering obstruction to the passage of the grain from the cup to the duct.

When a cylindrical duct is employed, means additional to those above described are used to prevent the separation of the cup and duct. To this end we form upon the interior of the duct-receiving bore a helical web b⁸ of a pitch substantially equal to that of the duct convolutions, a part of such web being formed upon each cup part, as shown in Figs. II and III. This web is formed with a beveled edge, so as to be readily capable of insertion between adjacent duct convolutions. When the two parts are placed upon the cylindrical duct end, these web parts are inserted between the adjacent convolutions and so securely hold the duct against longitudinal displacement when the two parts are secured to each other by means of the screws b. When a conical duct and bore are employed, such web is not a necessary part of the construction, since the conical form effectually prevents displacement, as will be readily understood from Fig. IV.

The form of cup shown in Figs. III and IV may be used in connection with a solid-metal duct or a duct having a tapered non-resilient receiving end. When it is desired to use a cylindrical tube of such character, the form

shown in Figs. I and II may be used, omitting, however, the helical web, as will be readily understood. The construction shown in Figs. I and II may be varied by constructing a one-piece solid cup having an integral continuous thread or thread portion cast or otherwise formed in the bore b^3 , the two-part construction being particularly adapted to the use of a tapered tube.

Other modes of applying the principle of our invention may be employed instead of the one explained, change being made as regards the mechanism herein disclosed provided the means stated by any one of the following claims or the equivalent of such stated means be employed.

We therefore particularly point out and distinctly claim as our invention—

1. A grain-drill tube comprising the combination with a tubular duct, of a two-part cup secured upon the outside of one end thereof.

2. The combination with a duct constructed of a helically-wound strip, of a cup secured upon the outside of one end thereof and provided upon the interior with a helical web forming an integral part of the cup and

adapted to project between adjacent convolutions of such duct.

3. The combination with a duct constructed of a helically-wound strip, of a two-part cup secured upon the outside of one end thereof, each cup part provided with a helical web adapted to project between adjacent convolutions of such duct.

4. The combination of a duct constructed of a helically-wound strip, a two-part cup adapted to receive one end of said duct, and means for securing said two cup parts, whereby said cup is secured upon said duct.

5. The combination of a duct constructed of a helically-wound strip, a two-part cup adapted to receive one end of said duct, each part provided with a helical web adapted to project between adjacent convolutions of said duct, and means for securing said two parts whereby said cup is secured upon said duct.

Signed by us this 23d day of September, 1901.

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Attest:

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