

No. 720,493.

PATENTED FEB. 10, 1903.

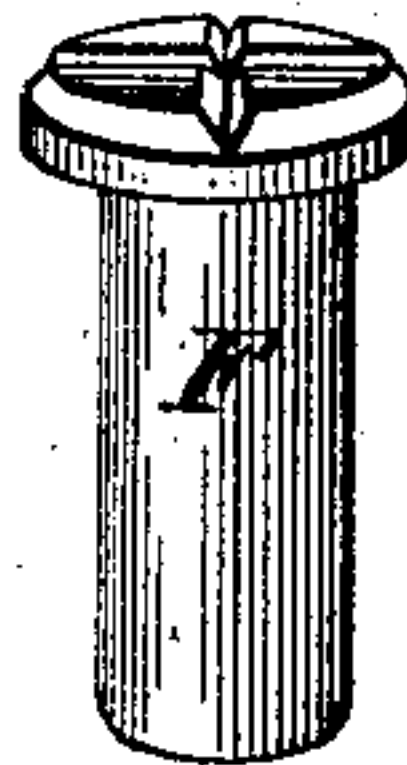
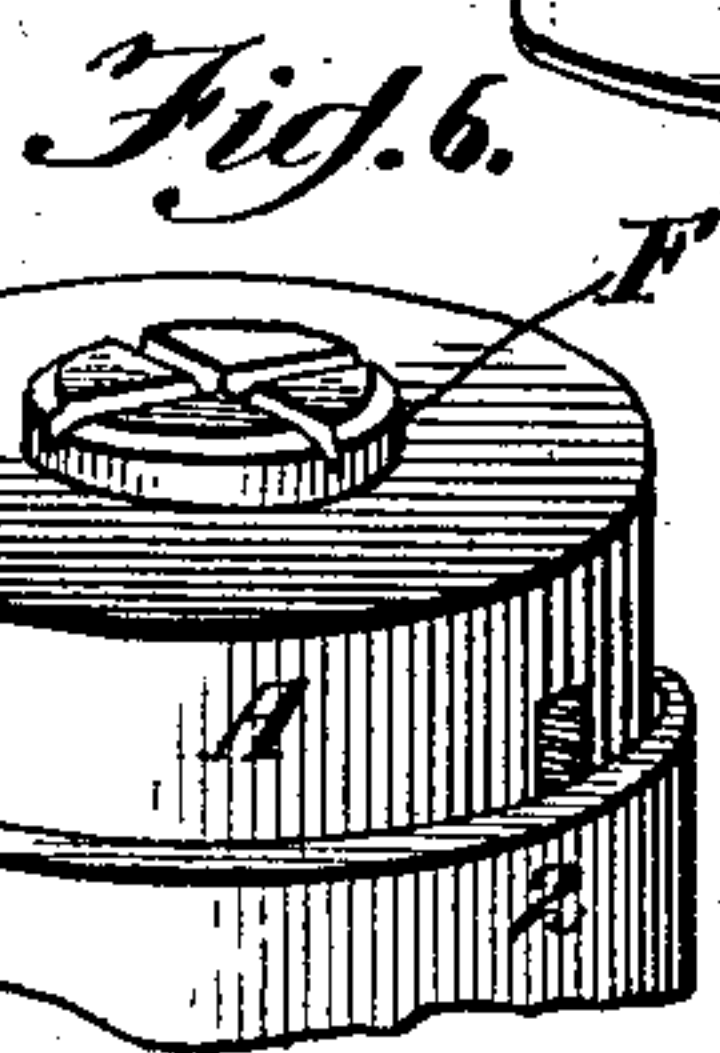
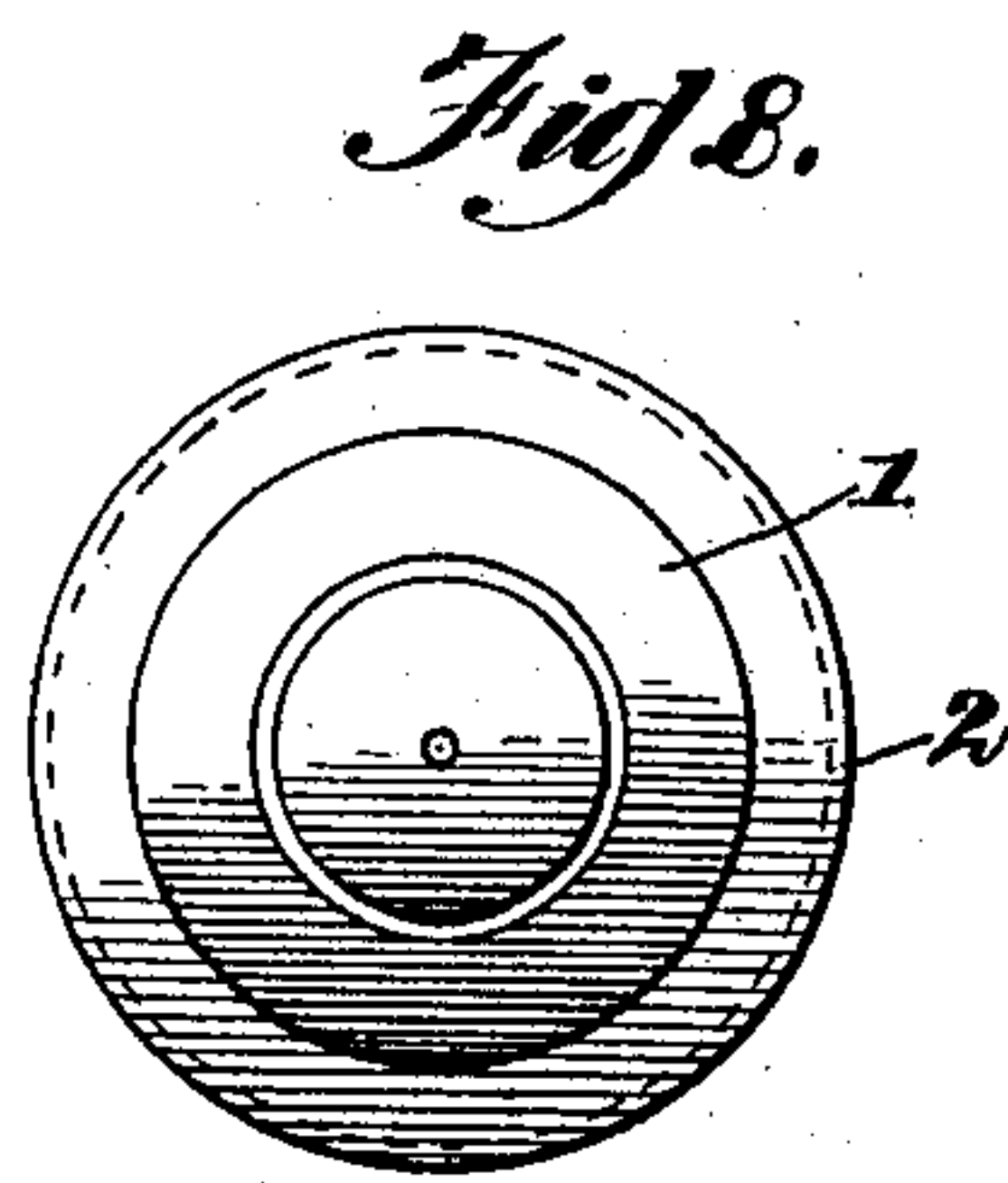
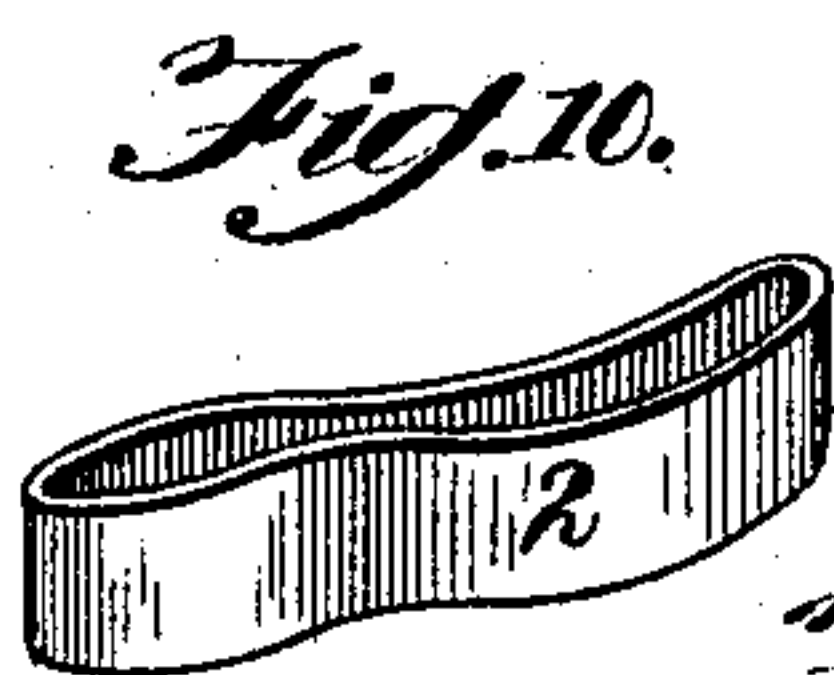
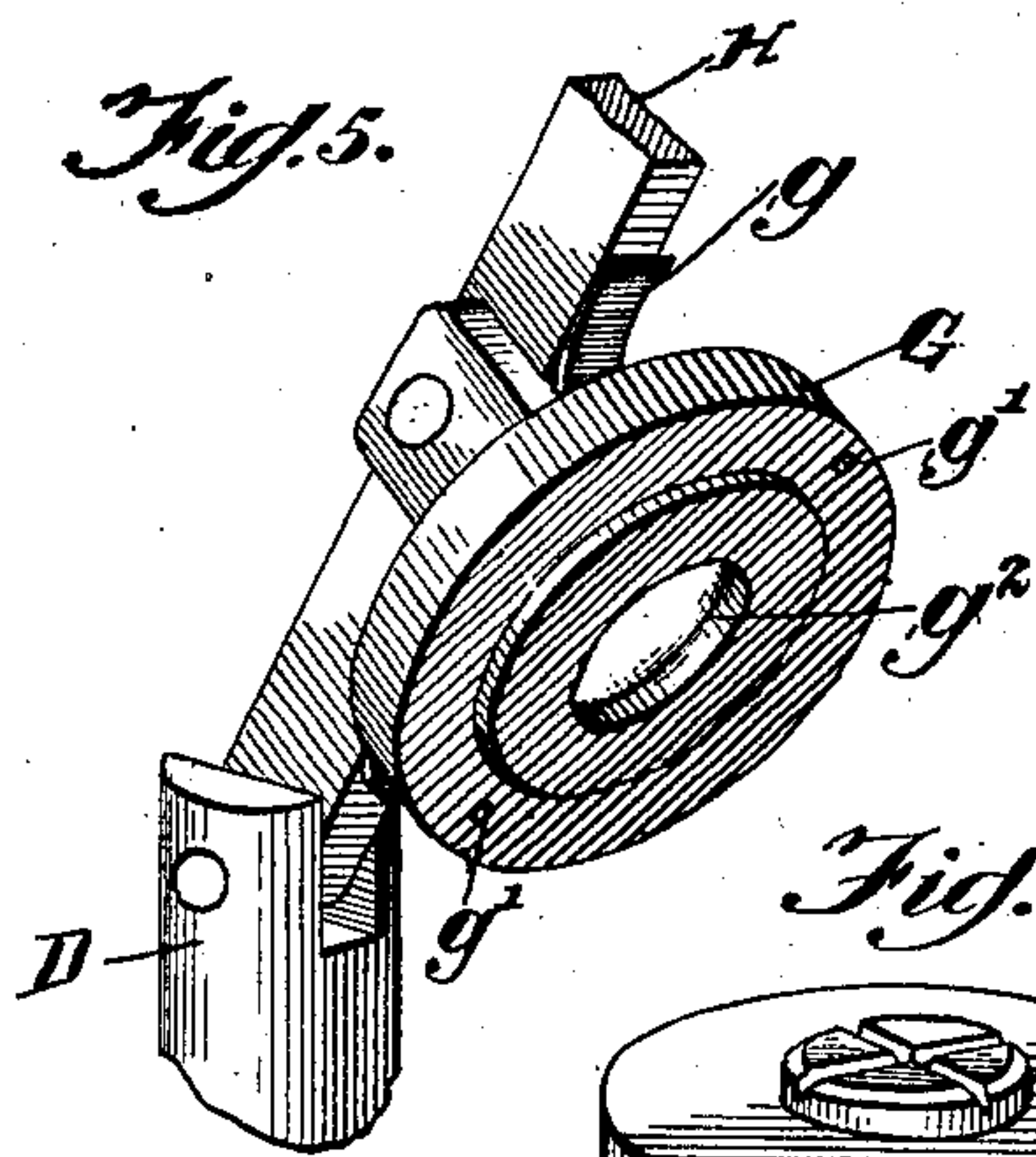
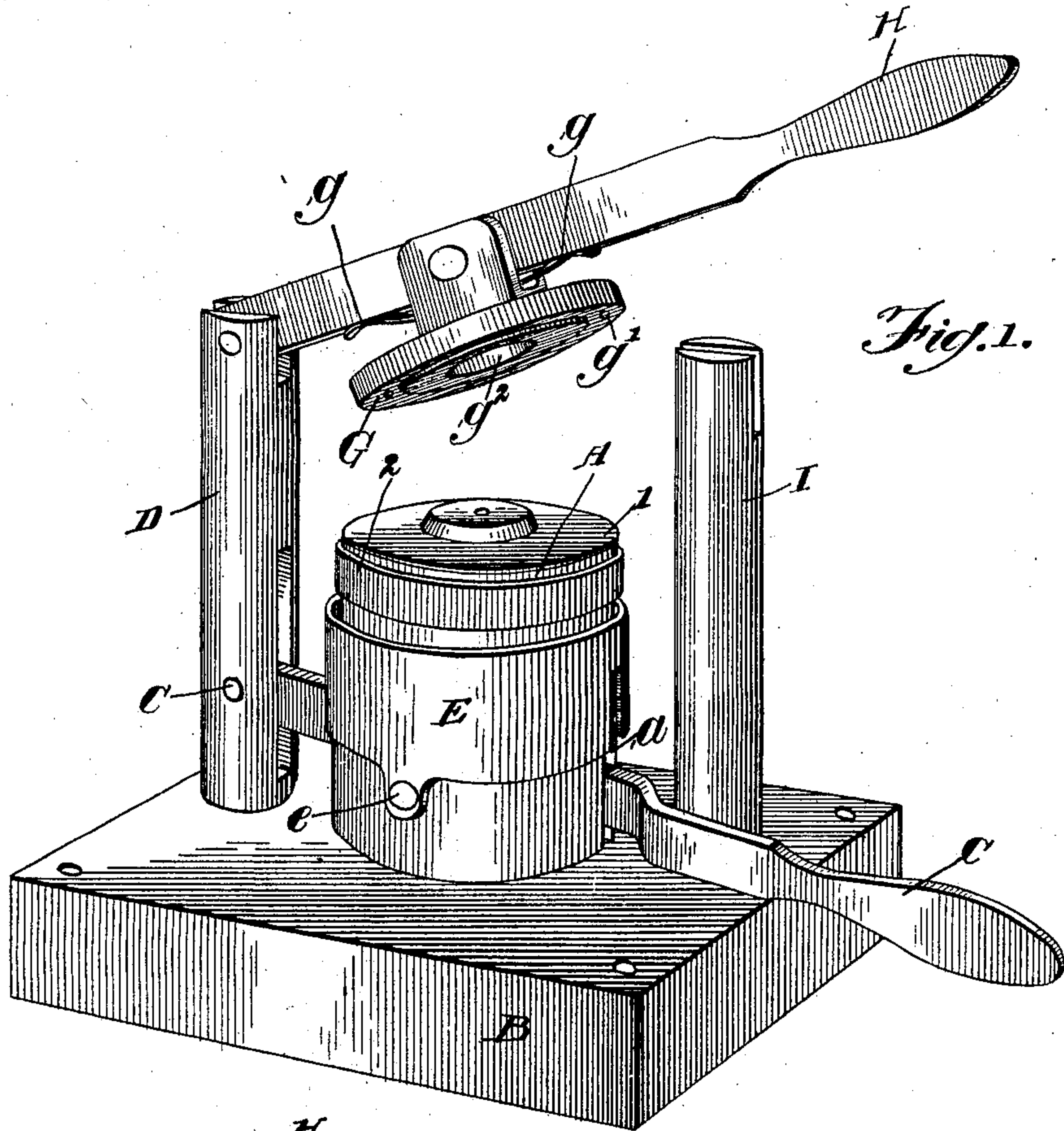
M. SETTER.

MACHINE FOR APPLYING ELASTIC BANDS TO ARTICLES OF MANUFACTURE.

APPLICATION FILED FEB. 21, 1902.

NO MODEL.

2 SHEETS—SHEET 1.



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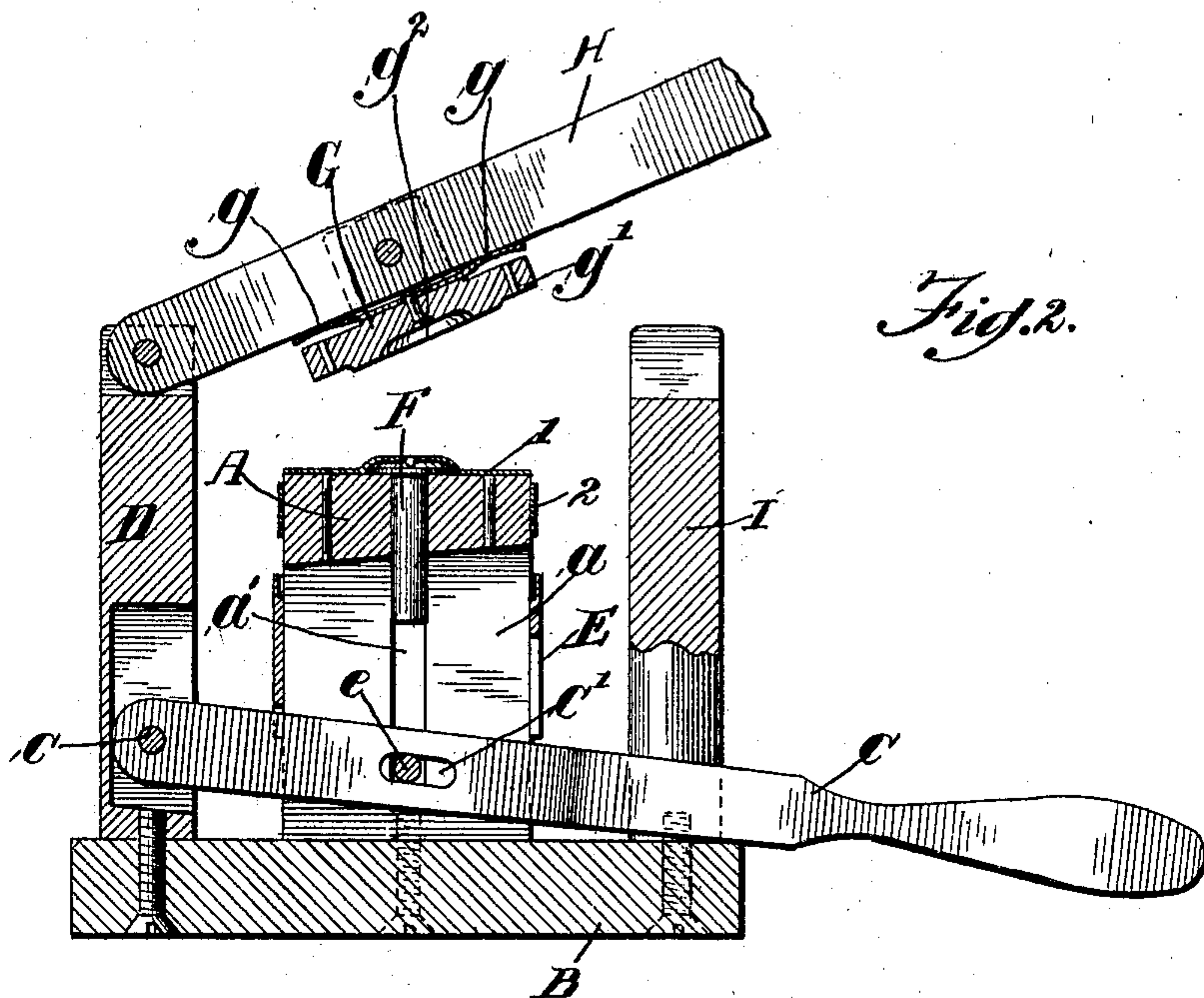


Fig. 2.

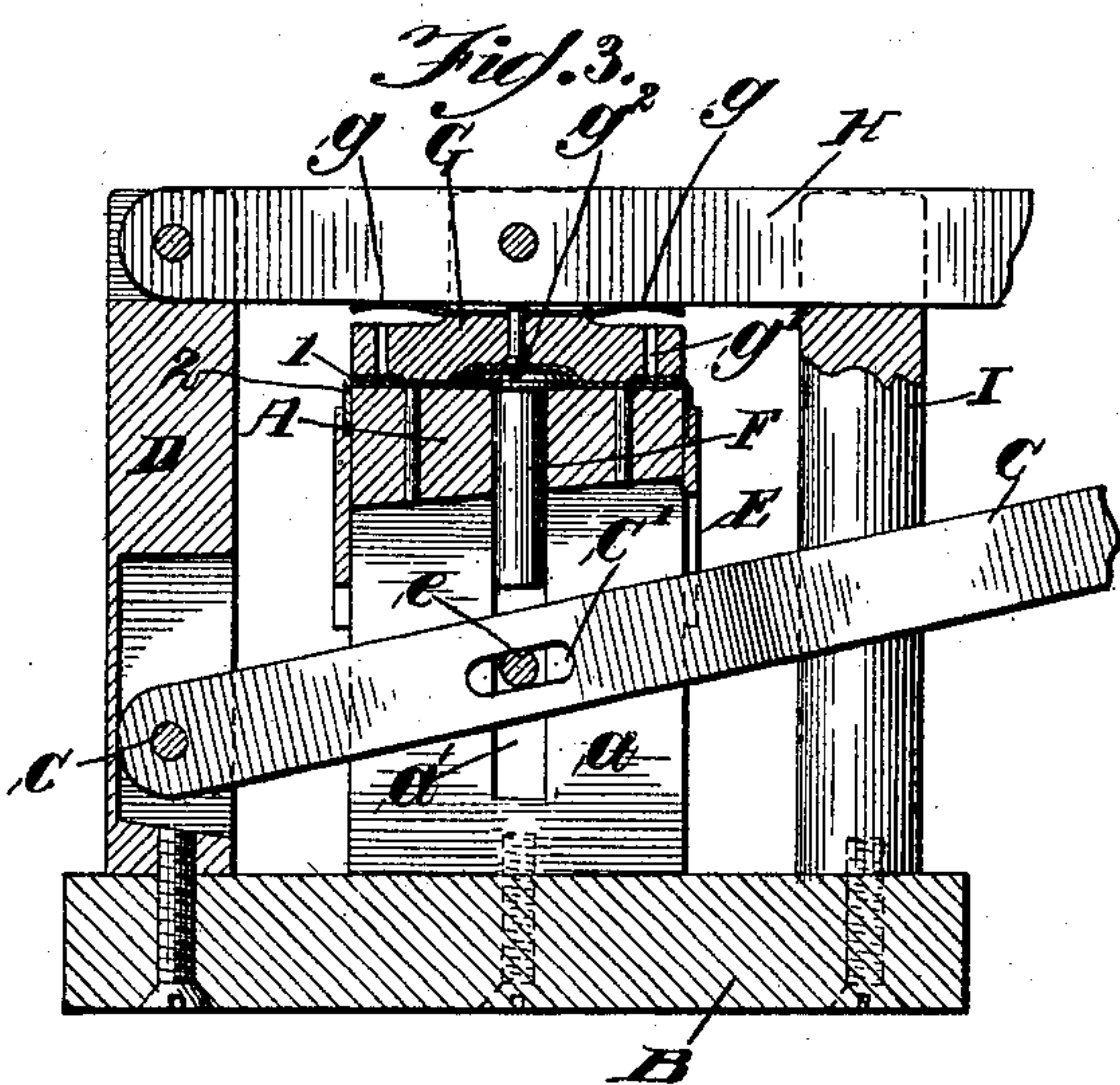


Fig. 3.

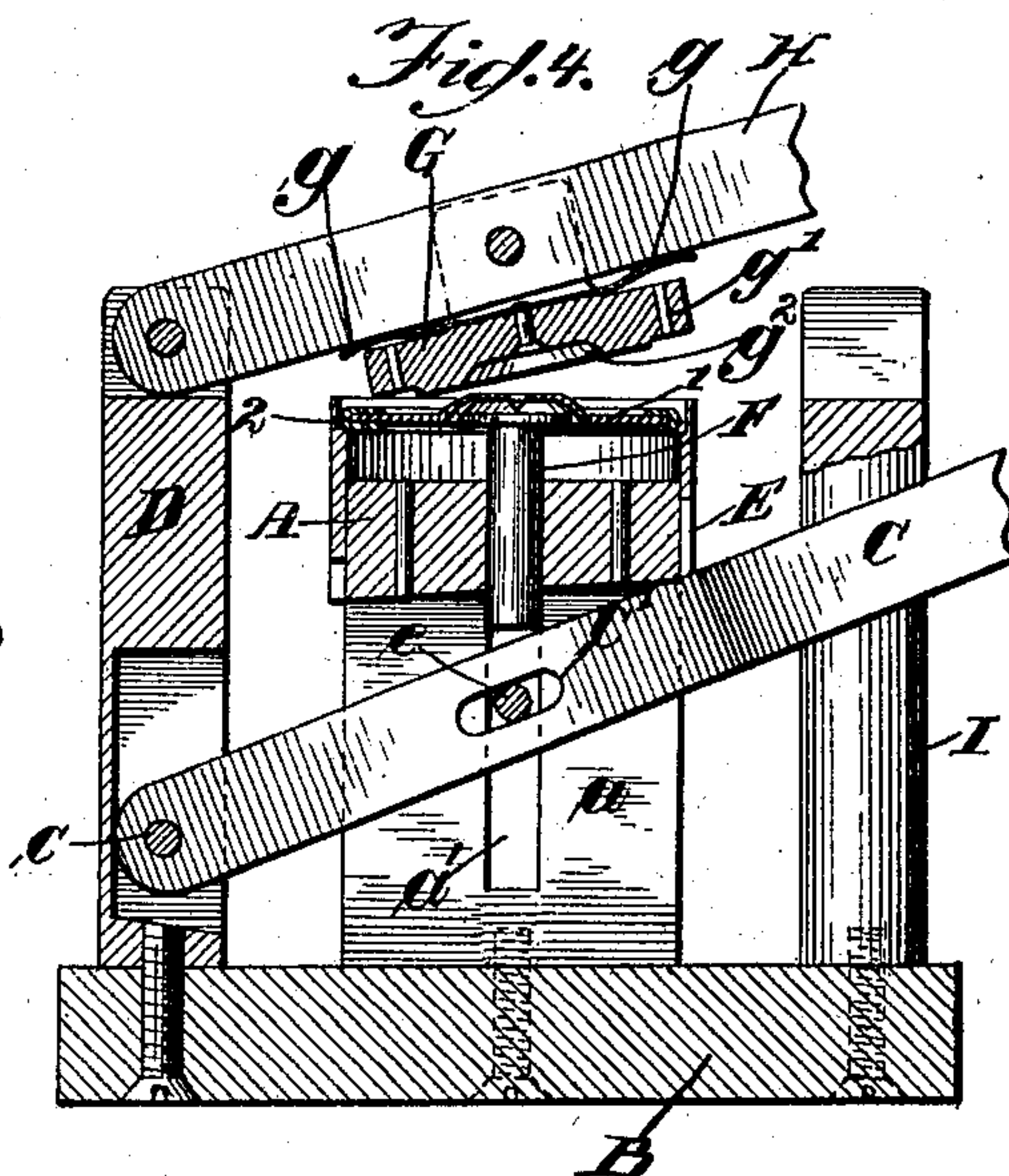


Fig. 4.

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UNITED STATES PATENT OFFICE.

MICHEAL SETTER, OF CHICAGO, ILLINOIS, ASSIGNOR TO AMERICAN ELECTRIC TELEPHONE COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION.

MACHINE FOR APPLYING ELASTIC BANDS TO ARTICLES OF MANUFACTURE.

SPECIFICATION forming part of Letters Patent No. 720,493, dated February 10, 1903.

Application filed February 21, 1902. Serial No. 95,043. (No model.)

To all whom it may concern:

Be it known that I, MICHEAL SETTER, a citizen of the United States of America, and a resident of Chicago, Cook county, Illinois, have invented certain new and useful Improvements in Machines for Applying Elastic Bands to Articles of Manufacture, of which the following is a specification.

My invention contemplates a machine for applying elastic bands to articles of manufacture—as, for instance, annular or disk-like objects, such as the diaphragms of telephone-transmitters.

In the manufacture of telephone-transmitters it is the practice in certain constructions to affix a rubber band to the edge or marginal portion of the diaphragm, so as to provide the latter with a marginal portion which will effectually insulate it from the balance of the transmitter structure. Prior to my invention these rubber bands have been applied to transmitter-diaphragms by hand and with considerable difficulty. It is necessary and desirable that the bands be adjusted accurately upon the edge or marginal portion of the diaphragm and that it be thus affixed without in any way injuring the band. Consequently, as stated, prior to my invention more or less difficulty has been experienced in affixing these rubber bands to the transmitter-diaphragms. Furthermore, in applying the bands by hand the operation is so slow as to render the manufacture of transmitters more or less expensive.

Generally stated, it is therefore the object of my invention to provide a machine for applying rubber bands to transmitter-diaphragms or other like articles of manufacture so as to insure a more accurate and satisfactory adjustment of the bands upon the diaphragms and for the further purpose of reducing the cost of manufacture.

A special object is to provide a machine of this character which will perform the operation without marring the bands or in any way injuring either the latter or the diaphragms.

A further object is to provide a machine which will perform the operation in a rapid and satisfactory manner and with the least effort on the part of the operator of the machine.

In addition to these it is also an object to provide certain details and features tending to increase the general efficiency and to render a machine of this character serviceable and reliable.

In the accompanying drawings, Figure 1 is a perspective of a machine embodying the principles of my invention. Fig. 2 is a vertical longitudinal section through the machine shown in Fig. 1. Figs. 3 and 4 are like sectional views, but showing the operative parts in different positions. Fig. 5 is a perspective of the upper clamping member for holding the article down upon the support. Fig. 6 is a perspective of the said support upon which the article rests during the operation. Fig. 7 is a perspective of the plunger or the lifter for raising the article from the said support, so as to allow the remaining portion of the band to draw into place upon the margin of said article. Fig. 8 is a view of a transmitter-diaphragm with a rubber band applied to its edge or marginal portion. Fig. 9 is a perspective of such a transmitter and diaphragm before the band is applied. Fig. 10 is a perspective of a rubber band.

As thus illustrated, the machine comprises a suitable support or table A, which is preferably cylindric and mounted upon a base B. This table or support, it will be observed, is preferably provided with a slot or recess *a*, through which the lower operating-lever C extends, and also with side slots or openings *a'*. The said lever is pivoted to the standard D at *c*. The said supporting-table A also serves as a guide for the sleeve or collar E, which is mounted thereon and adapted for vertical reciprocation. This vertical reciprocation is preferably obtained by connecting the sleeve or collar with the lever C—as, for example, by providing the said sleeve or collar with a pin *e*, adapted to extend through a slot C' in said lever. It will also be seen that this pin is adapted to work or play in the slots *a'*. With this arrangement the lever C can be employed for moving the sleeve or collar E upwardly upon the support or table A for the purpose to be hereinafter more fully described. The upper end of said support or table A is adapted to afford a resting-place for the diaphragm 1 or other disk-like

article to which the rubber band is to be applied. The upper end portion of this table A is also adapted to serve as a mandrel for the rubber band—that is to say, the rubber band 2 can be stretched over the upper end of this table or support and in this way held in position to be engaged by the upwardly-moving sleeve or collar E. It will also be observed that a vertically-disposed plunger F is seated in a centrally-arranged opening in the top of the table and is provided with a head which normally rests upon the top of said table. The lower end of this plunger, it will be observed, is held in position to be engaged by the lever C when the latter moves upwardly.

The holder or clamping member G, which rests upon and holds the diaphragm during the operation of applying the rubber band, is preferably pivoted to the upper lever H and is preferably yieldingly held against movement relatively to the said lever by means of springs *g*. The under side of this holder or clamping member G is, it will be observed, provided with a marginal depression *g'*, whereby only the central or raised portion of said member will bear upon the diaphragm when the lever H is depressed. It will also be seen that the said member is provided at its center with a depression *g''*, adapted to receive the upwardly-bulging portion of the diaphragm. The lever H is preferably adapted to engage a notch in the upper end of the standard I and to rest in said notch while the lower lever is being manipulated for the purpose of causing the rubber band to creep over the upper surface of the diaphragm.

With the construction and arrangement of parts shown the operation of the machine is as follows: In Figs. 1 and 2 the diaphragm is shown resting upon the top of the table and the rubber band is held at a point immediately below the edges of the diaphragm, so as to be in position to creep over the latter when the lower end of the lever is lifted. In Fig. 3 the upper lever is shown depressed, so that the holder or clamping member G rests upon the diaphragm. In this view it will also be seen that the lower lever has been elevated to an extent to cause the sleeve to engage the rubber band 2 and that the said lever C has been raised to an extent to cause the upper portion of the band to creep over the marginal portion of the diaphragm and under the marginal portion of the holder or clamping member B. At this juncture it will be understood that the rubber band is stretched more or less when placed upon the upper end or mandrel portion of the support or table A. Continuing the operation, as illustrated by Fig. 4, both levers are now raised to an extent to cause the lower lever C to strike the lower end of plunger F, thereby causing the latter to lift the diaphragm upwardly away from its resting-place upon the top of the support or table A. This, it will be observed, leaves the lower edge portion of the

rubber band free to draw inwardly by its elasticity and to lie flat against the under side of the diaphragm. The band being applied under tension tends to maintain the condition shown in said Fig. 4 and also shown in Fig. 8. In other words, when applied in this manner the rubber band provides the diaphragm with a thickened marginal portion of insulating material, whereby it can be mounted in the transmitter and insulated from the balance of the transmitter structure. The relative arrangement of parts is such, it will be seen, that substantially half the band first creeps over the upper surface of the diaphragm and that the remaining portion is then free to draw inwardly and lie flat against the under surface of the diaphragm. The sleeve or collar E and the holder or clamping member G cooperate to secure an even and proper adjustment of the rubber band upon the diaphragm, and the relative formation is such that the operation is performed without marring or in any way disfiguring the band.

Thus it will be seen that I provide a machine which is capable of manipulating band-like objects and of applying or affixing them to annular or disk-like articles. Preferably, as stated, the machine is adapted for applying rubber bands to transmitter-diaphragms, so as to obviate the necessity of following the laborious hand method heretofore employed in constructing transmitters of this character. Broadly considered, therefore, my invention contemplates a machine for applying elastic bands to annular or disk-like objects.

I claim as my invention—

1. A machine for applying elastic bands to disk-like articles, comprising a support or table upon which the disk-like article rests, a collar or sleeve adapted to reciprocate upon said support or table, a lever for shifting said sleeve or collar, a plunger arranged to be engaged by said lever and adapted to lift the disk from its resting-place upon the table or support, and a holder or clamping member adapted to bear upon the disk-like article and hold the same in place while a band stretched over the upper portion of said support or table is being crowded over the edge of the article by the upward movement of said sleeve or collar.

2. In a machine for applying rubber bands to articles of manufacture, the combination of two members between which an article is held, a collar on one member for partially crowding an elastic band upon the edge portion of the article, and shifting connections for causing the article and member upon which the collar is mounted to separate, so as to allow the remaining portion of the band to draw into place upon the article.

3. In a machine for applying rubber bands to disk-like articles, the combination of a support for the article, a movable holder or clamping member adapted to hold the article in place, a shifting member for first crowd-

ing the rubber band partially upon the edge of the marginal portion of said article, and a plunger or lifter for then lifting the disk-like article, so as to allow the remaining portion of the band to draw into place upon the margin of said article.

4. In a machine for applying rubber bands to disk-like articles, the combination of a support for the article, a lever provided with a holder or clamping member for holding the article in place, a second lever provided with an annular member for crowding a rubber band over the upper portion of said support, and partially over the edge or marginal portion of said article, and a plunger or lifter adapted to be operated by the extreme upward movement of said second lever, said lifter when operated removing the disk-like article from its resting-place and causing the remaining portion of the rubber band to draw inwardly upon the under surface of said article.

5. A machine for applying rubber bands to disk-like articles, comprising opposing members between which the article is held, a plurality of successively-shifted members for successively partially crowding the rubber band over the edge of the article and lifting the latter from its resting-place, and levers for operating the said members.

6. A machine for applying rubber bands to disk-like articles, comprising a cylindric support having an upper end or surface adapted to provide a resting-place for the article, a sleeve or collar adapted to reciprocate upon said support, a holder or clamping member for holding the article in place, a shifter for causing said sleeve or collar to move upward, so as to partially crowd a rubber band from off the upper end of said support and over the edge or marginal portion of said article, a plunger or lifter arranged to be engaged by said shifter after the latter is moved upward to a certain extent, the plunger or lifter when engaged moving upward and lifting the disk-like article away from its resting-place, so as to allow the remaining portion of the

band to draw inwardly against the under surface of said article.

7. A machine for applying rubber bands to disk-like articles, comprising a support for the disk-like article, a holder or clamping member adapted for holding the article in place upon said support, a surface adapted to receive and hold a rubber band under tension at a point adjacent to said article, an annular member adapted to force the band over the surface upon which it is stretched and to crowd the band over the edge of the disk-like article, and a lifting device for then raising the disk-like article from its resting-place, so as to allow the remaining portion of the band to draw inwardly against the under surface of said article.

8. In a machine for applying rubber bands to telephone-transmitter diaphragms, the combination of a cylindric part having its upper end adapted to afford a seat or resting-place for said diaphragm, a vertically-disposed plunger having a head located beneath said diaphragm, a sleeve or collar mounted for vertical reciprocation upon said support, an upwardly-movable member for shifting said sleeve or collar, so as to crowd a rubber band from off the upper end of said support and cause the same to creep over the marginal portion of the diaphragm, a movable holder or clamping member for holding the diaphragm in place during the first stages of the application of the band to a diaphragm, said upwardly-movable member being adapted to engage the said plunger near the upward limit of its movement, so as to lift the diaphragm from its resting-place and permit the remaining portion of the rubber band to draw inwardly against the under surface of the diaphragm.

Signed by me at Chicago, Cook county, Illinois, this 11th day of February, 1902.

MICHEAL SETTER.

Witnesses:

ARTHUR F. DURAND,
HARRY P. BAUMGARTNER.