

No. 632,933.

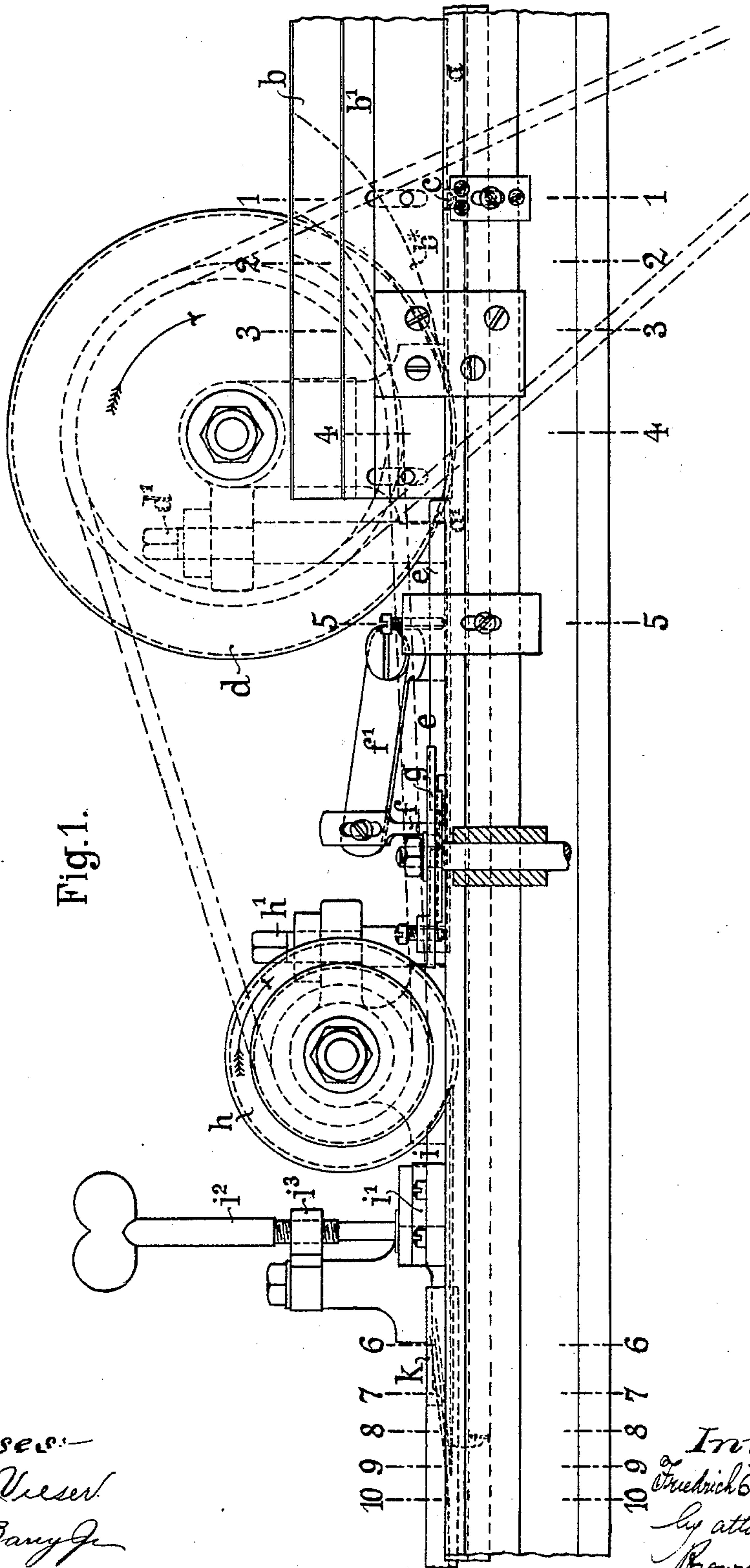
Patented Sept. 12, 1899.

F. E. ZSCHERNIG.
CIGARETTE MACHINE.

(Application filed Dec. 29, 1897.)

(No Model.)

4 Sheets—Sheet 1



Witnesses—
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George Bangs

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by attorneys
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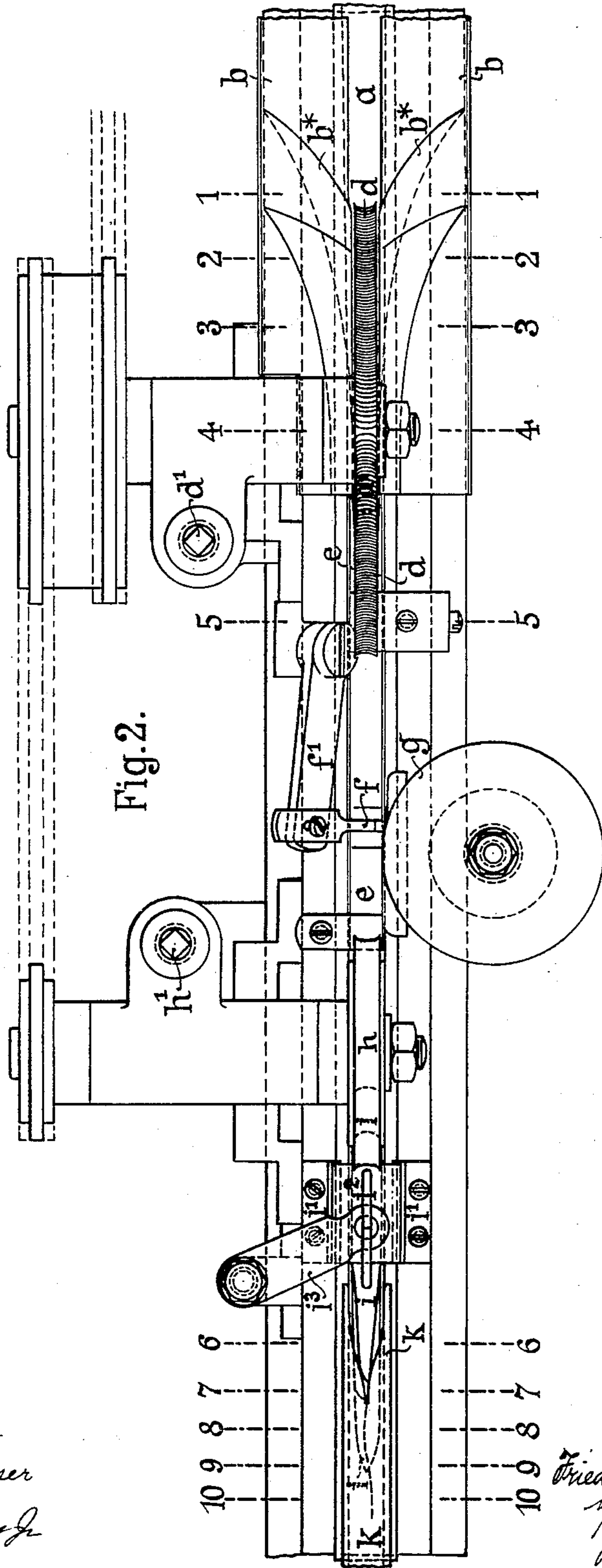
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(No Model.)

4 Sheets—Sheet 2.



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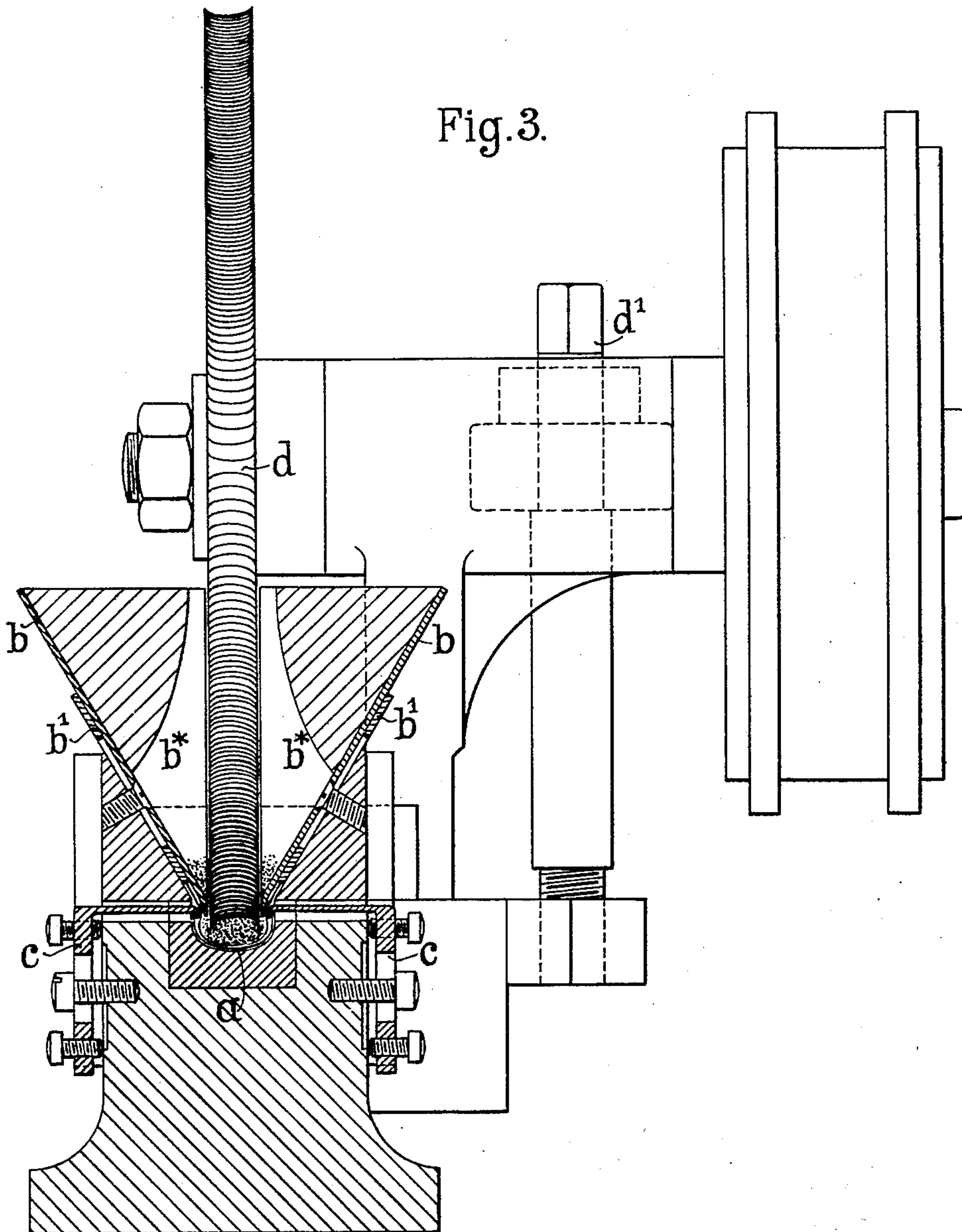
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4 Sheets—Sheet 3.

Fig.3.



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4 Sheets—Sheet 4.

Fig.6.

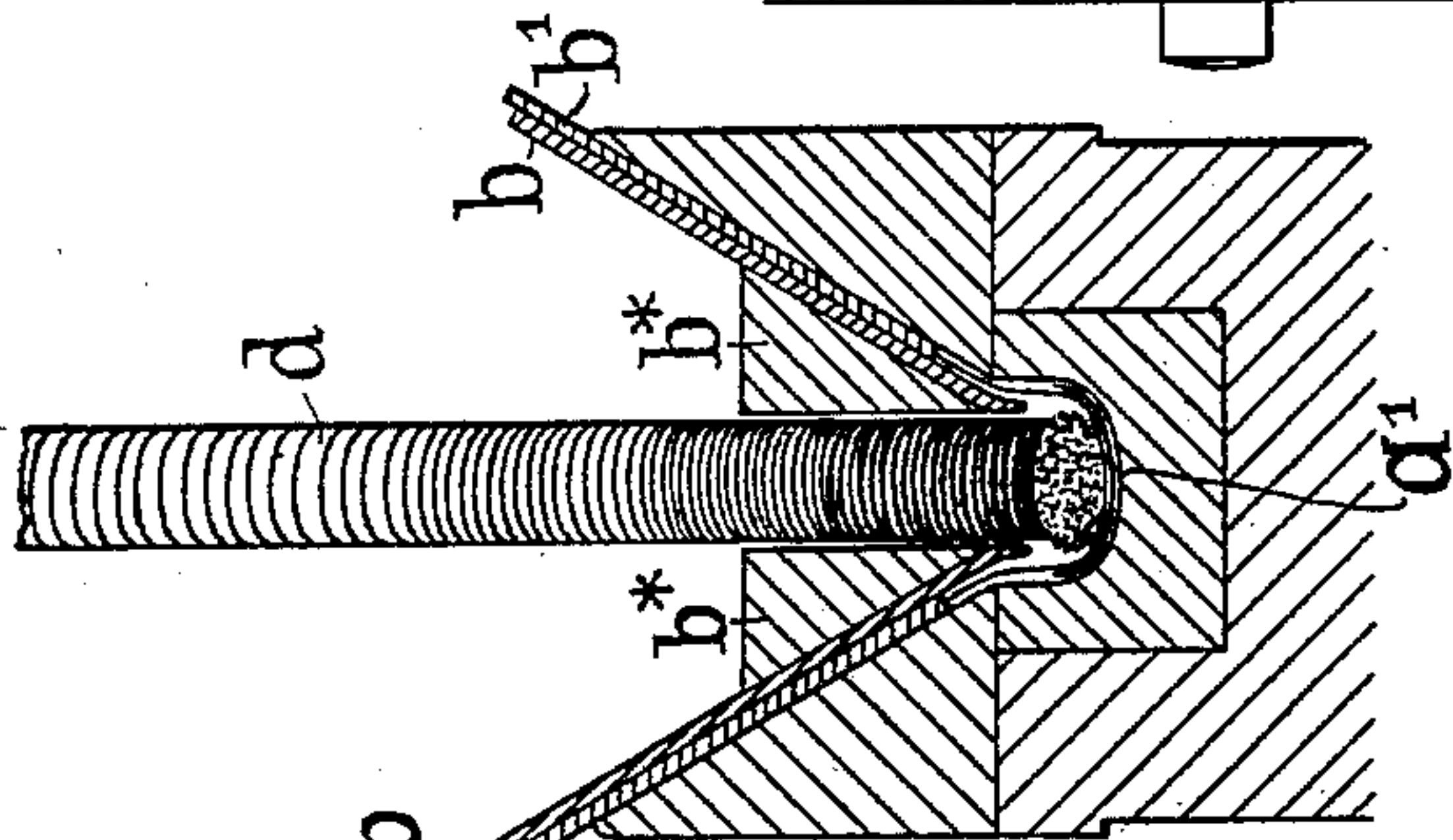


Fig.7.

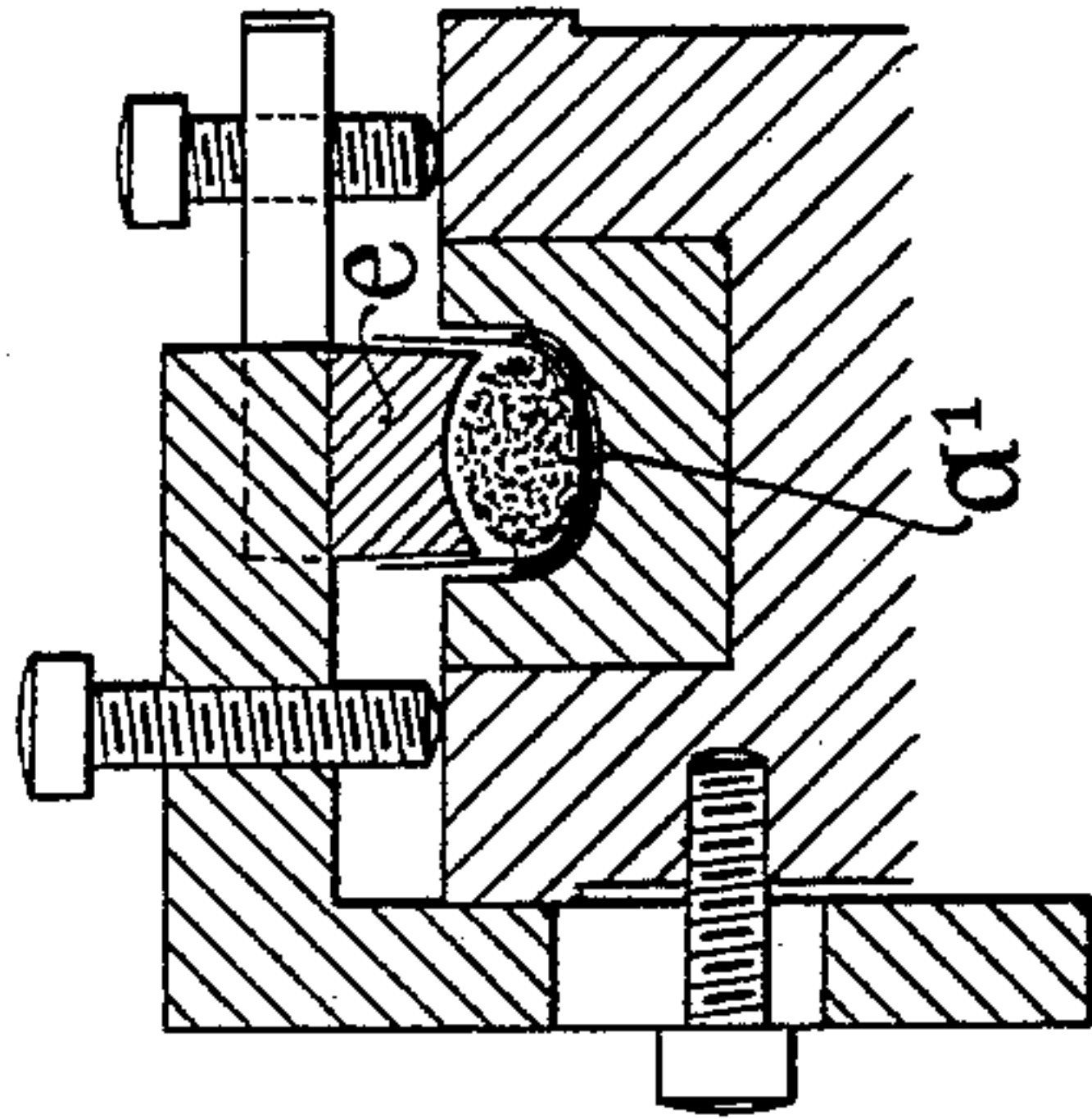


Fig.12.

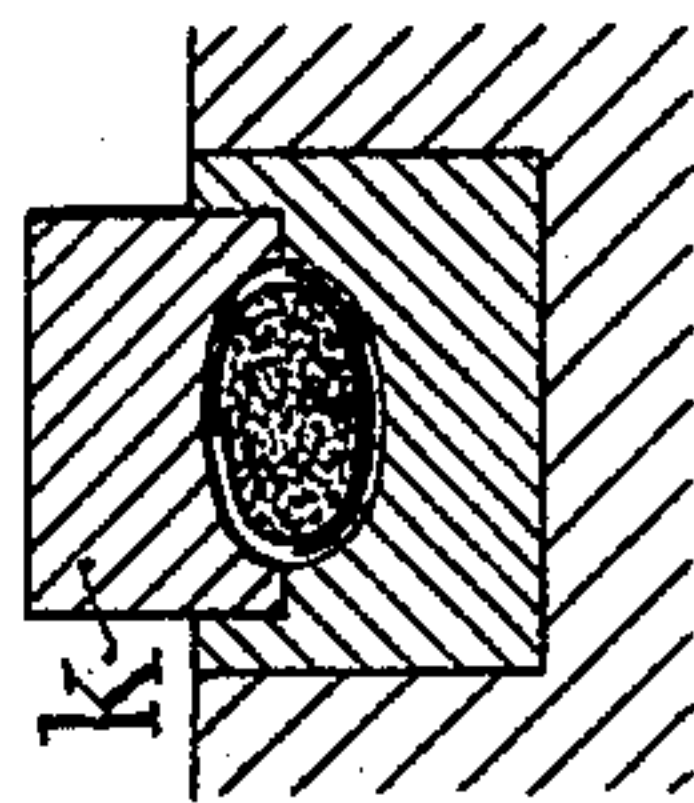


Fig.11.

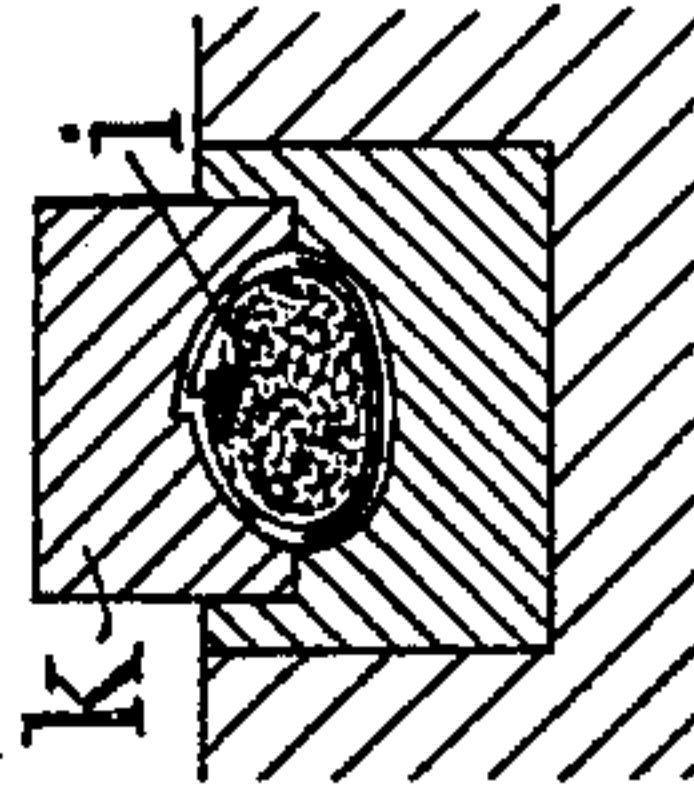


Fig.10.

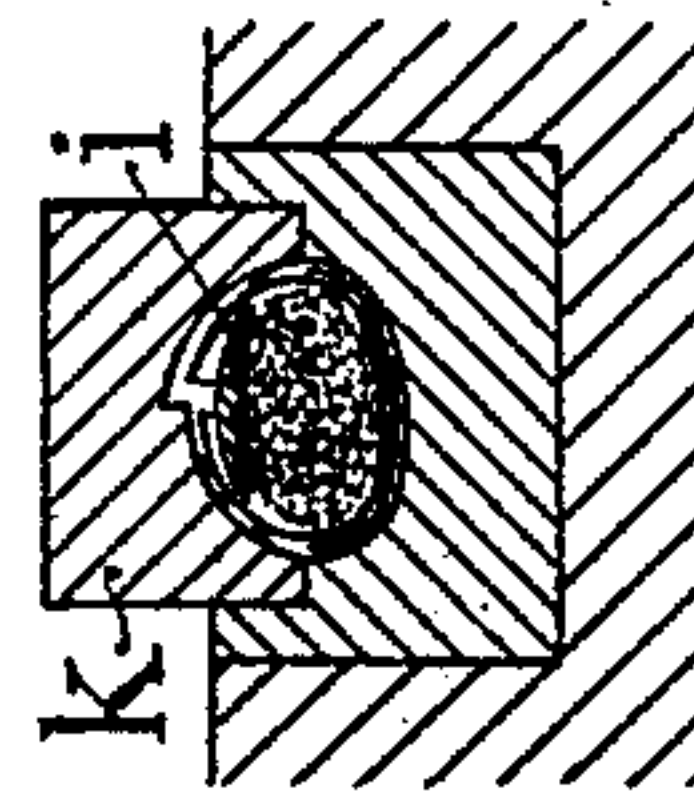


Fig.9.

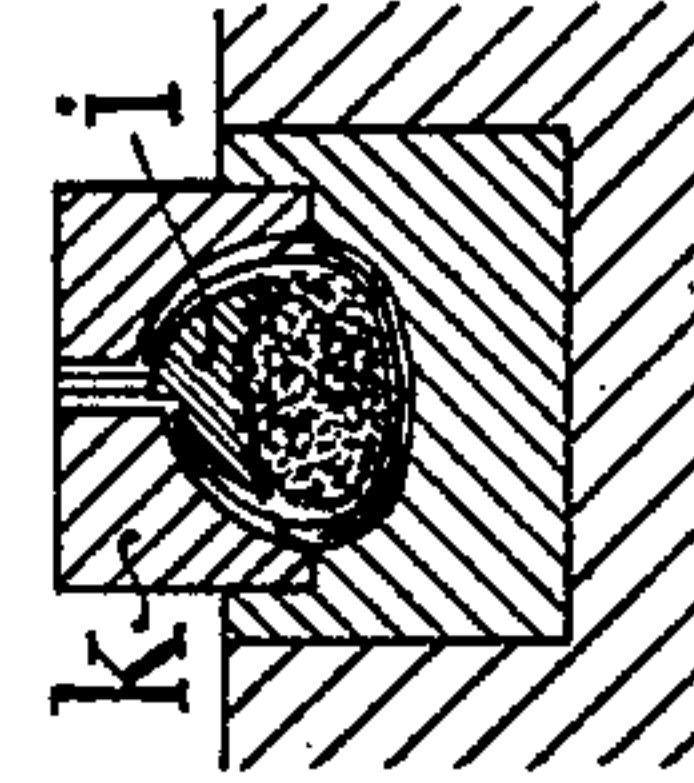


Fig.8.

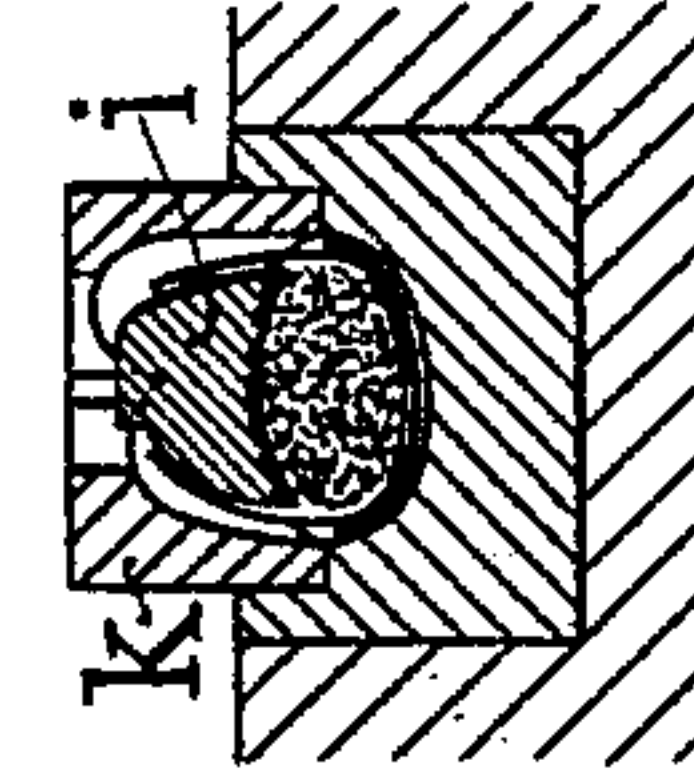
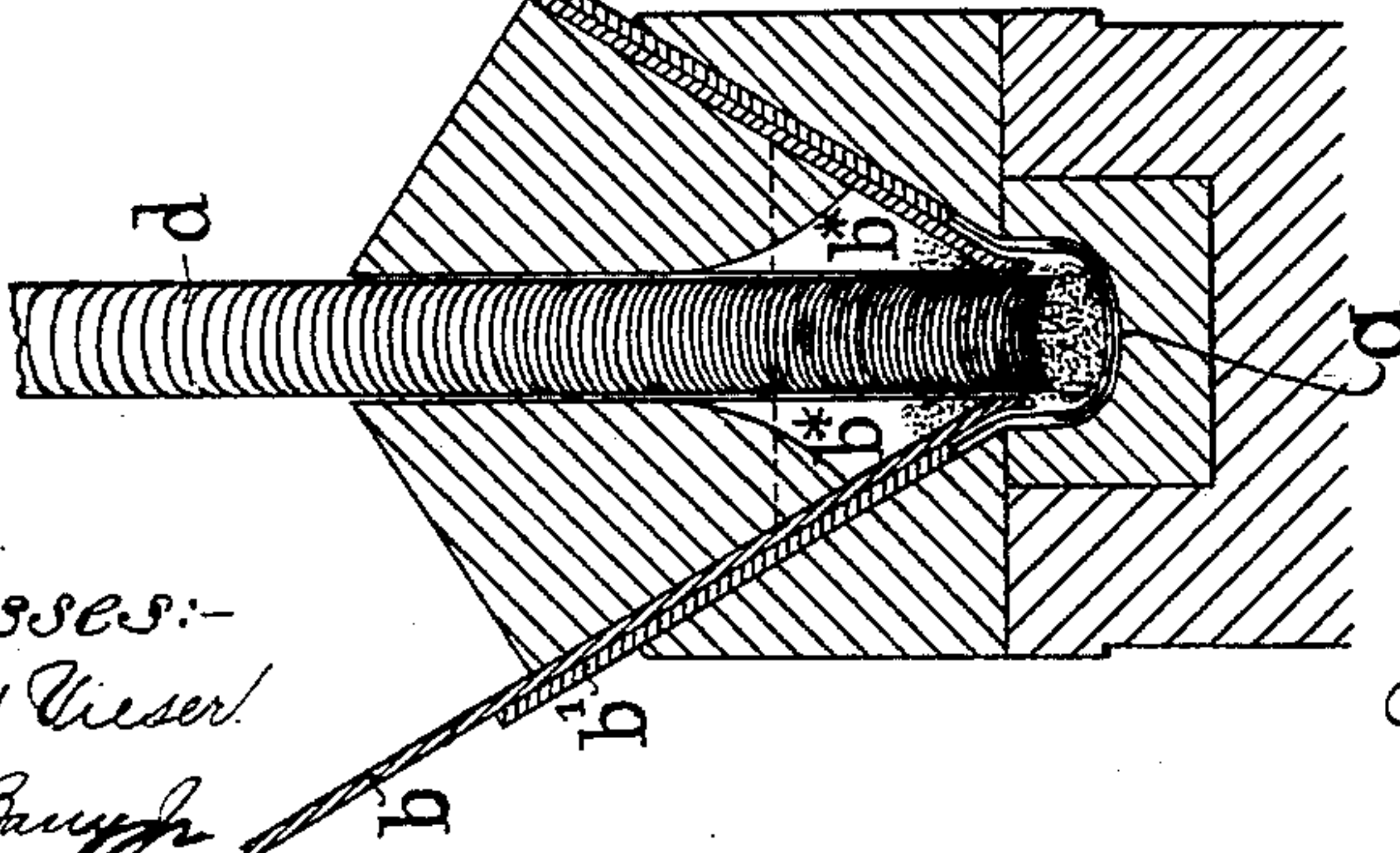


Fig.4.



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UNITED STATES PATENT OFFICE.

FRIEDRICH EDMUND ZSCHERNIG, OF DRESDEN, GERMANY, ASSIGNOR TO
EDUARD SCHÜRMANN, OF COSWIG, GERMANY.

CIGARETTE-MACHINE.

SPECIFICATION forming part of Letters Patent No. 632,933, dated September 12, 1899.

Application filed December 29, 1897. Serial No. 664,459. (No model.)

To all whom it may concern:

Be it known that I, FRIEDRICH EDMUND ZSCHERNIG, machine manufacturer, of Dresden, in the Kingdom of Saxony, German Empire, have invented certain new and useful Improvements in Cigarette - Machines, of which the following is a specification, and for which a patent has been obtained in Germany, No. 93,442, dated February 25, 1896.

10 The present invention has reference to a machine by means of which the tobacco which is shot in loose is turned out as a permanently elliptical paper-wrapped cigarette-rod, which is then cut up into single cigarettes

15 which preserve their elliptical shape after being cut up without any subsequent pressing being required. For this purpose it is absolutely necessary in the first place that the tobacco fibers be laid together in an elliptical form in

20 cross-section at the outset and not first in a cylindrical or quadrangular rod and then afterward converted to an elliptical form by pressure. To produce the rod of elliptical cross-section, I submit the loose tobacco to a drawing

25 action as it passes from the bottom of a trough between guide-plates with tapering grooves underneath a drawing-disk. By the operation of these parts the tobacco for forming the rod is positively brought to an elliptical form in cross-section, the tobacco fibers

30 being under uniform pressure throughout the rod both at the minor and major axes of the ellipse. From this it results that the fibers have no tendency to separate from each other,

35 as is the case when a cylindrical or four-sided rod is formed into an elliptical one by pressure. It is also necessary that the belt-feed for supplying the cigarette-paper, as also this latter itself, should be carefully protected

40 from any lateral motion, in order that the gummed edge of the elliptical cigarette may always be parallel to the sides thereof. The tobacco rod is brought to its elliptical form before the closing of the paper wrapper is

45 effected. The closing down of both edges of the wrapper around the rod being uniform and simultaneous, there is no unequal pressure put upon it, so that the elliptical section of the cigarette-rod is unchanged and the form

50 of the cigarette remains permanent.

In the accompanying drawings there is

shown a construction of cigarette-machine for carrying out the above object.

Figure 1 is a front view, Fig. 2 a plan, and Figs. 3 to 12 sections on the correspondingly-

55 numbered lines shown in Figs. 1 and 2.

The cigarette-paper with the tobacco thereon is drawn in through the charging and shaping troughs a a' , which are of semi-elliptical transverse section by means of an endless

60 band or belt as usual. The charging-trough is somewhat larger than the shaping-trough a' , and these troughs are connected together by slanting lateral walls, as seen in Fig. 2, (plan view.) The charging-trough a is

65 heightened by sloping guide-plates or side walls b , which at their lower edges serve as a guide for the paper as it is drawn through the trough. For this purpose adjustable bars

70 b' are mounted in longitudinal slots between the walls b and the points of attachment, as seen in Fig. 3, and against the lower edges of these bars b' the edges of the paper lie, so that it is effectually prevented from lateral

75 movement during its travel. As the belt also is easily liable to sidewise movement on passing over the tapering junction between the

80 charging and shaping troughs, there are provided at this junction of the troughs adjustable belt-guides c , Figs. 1 and 3, with small

85 hooks projecting into the trough a , which loosely hold the edges of the belt and so prevent any tendency to sidewise motion on the part of the latter.

The walls b are furnished on the lower parts

85 of their interiors with guiding-cheeks b^* , between which runs a drawing-disk d , which receives motion from the machine proportionate to the speed of the belt and the paper, and

90 beneath which disk the charging-trough a merges into the shaping-trough a' . The cheeks b^* are provided in their lower parts with grooves for guiding the tobacco, which grooves

95 by reason of their peculiar form, as will be seen in Figs. 3 to 6, cause the tobacco to be drawn in under the pressing or drawing disk

100 d , which is adjustable by means of a screw. This disk d has a milled groove cut in its periphery corresponding to the shape of the cigarette. By means of this drawing-disk co-

acting with the specially-shaped guiding-grooves in the cheeks b^* the tobacco is at

once brought to the desired sectional form, thus producing a regular feed and shaping the tobacco rod in such manner that the pressure put upon all the tobacco fibers in every direction of the section is absolutely uniform. During the passage of the tobacco fibers through the entrance formed by the drawing-disk *d*, charging-trough *a*, and the grooves of the cheeks *b**, from which the tobacco is now ready to receive its elliptical form, the tobacco fibers massed together in the form of a rod are caused to aggregate in such a way as they pass along that the elliptical shape is actually imparted to them at this particular point. The tobacco therefore arrives in the shaping-trough from the entrance above described already in its elliptical form, so that the chamber in which the wrapping then takes place has only to maintain that shape.

On each side of the disk in the trough *a'* there is sufficient room left to allow any laterally escaping fragments (or grains) of tobacco to remain inside the wrapper without the paper becoming torn in its onward course. Behind the drawing-disk *d* is mounted an adjustable "closer" *e*, Figs. 1, 2, and 7, which bears with its sharpened end against the disk and serves also as a scraper. This closer *e* also serves the purpose of preventing the tobacco from escaping, and the still vertical edges of the paper are also guided by the sides of the closer *e*. One of the projecting edges of the paper is gently pressed against the pasting-disk *g* by a sloping finger *f*, so that the disk may apply an even coating of paste to its outer edge. The finger *f* is mounted on an arm *f'*, movable in one direction sidewise to allow of the finger being thrown out of contact with the paper.

Behind the pasting device is situated a feed-disk *h* adjustable through a screw *h'* and having a smooth groove cut in its periphery corresponding to the form of the cigarette. This disk serves the purpose of maintaining the onward feed of the rod of tobacco formed by the drawing-disk, together with the paper, and also to prevent "jamming" in the wrapping-chamber in front. Against the disk *h* bears the guide-finger *i*, one end of which acts as a scraper on the feed-disk *h* and the other end projects into the tobacco-wrapping chamber. This finger is pushed between two

small blocks *i'* and held in position by a clamping-screw *i²*. The clamping-screw *i²* works in a holder *i³*, pivotally connected to a rigid bracket, so that by unscrewing the screw *i²* and swinging the holder *i³* outward the finger *i* may easily be changed. By reason of the form given to both sides of the finger *i* the simultaneous folding down of both vertical edges of the paper in the wrapping-chamber is insured while the form of the finger at bottom preserves the tobacco in the form which it possesses when entering the trough, so that any alteration of this form during the operation of wrapping by means of the cover-finger or the upper part *k* of the wrapping-chamber cannot take place. By the peculiar form of the grooves provided in the cover-finger *k* the edges of the paper supported by the sides of the guide-finger *i* are so guided that they simultaneously close round the tobacco, as seen in Figs. 8 to 11. It will be seen from these figures that the tobacco, by reason of the simultaneous folding of both edges of the paper, does not receive a one-sided pressure at its edges, and thus the cigarettes to be cut off after the complete closure of the pasted joint behind the guide-finger (see Fig. 12) permanently maintain the elliptical form imparted to them in the machine.

What I claim as my invention is--

In a cigarette-machine for the manufacture of a cigarette-rod of a permanently elliptical transverse section, the combination of a charging-trough *a*, a shaping-trough *a'*, slanting lateral walls *b* connecting said troughs, cheeks *b** contained within said walls and having in them grooves of gradually-converging curved transverse section, adjustable bars *b'* arranged outside of said walls for guiding the edges of the paper, belt-guides *c* adjustable to said walls, a drawing-disk *d* running between said cheeks, and means for rotating said disk, all substantially as herein described.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

FRIEDRICH EDMUND ZSCHERNIG.

Witnesses:

WILHELM WIESENHÜTTER,
GEORG RICHTER.