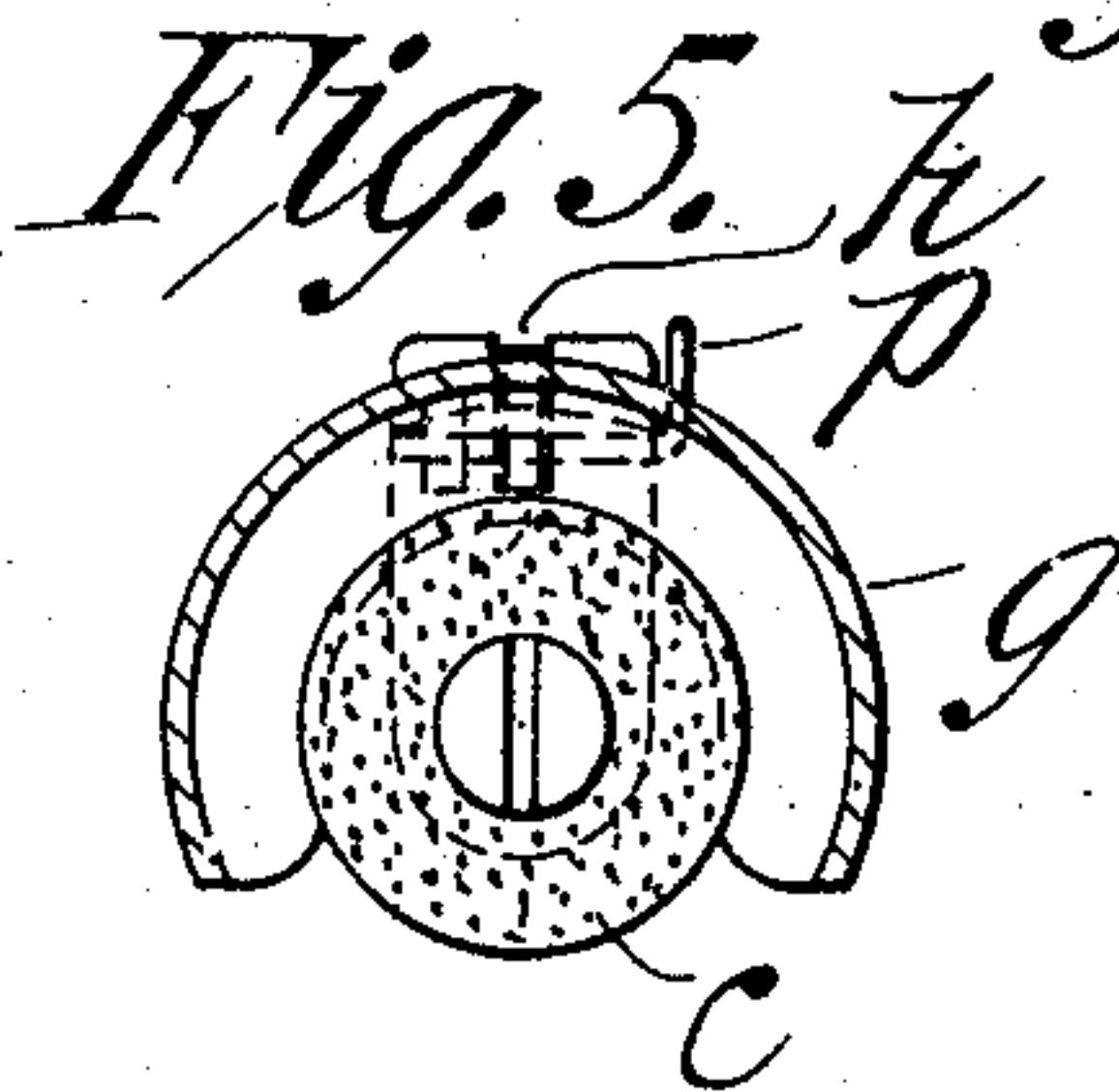
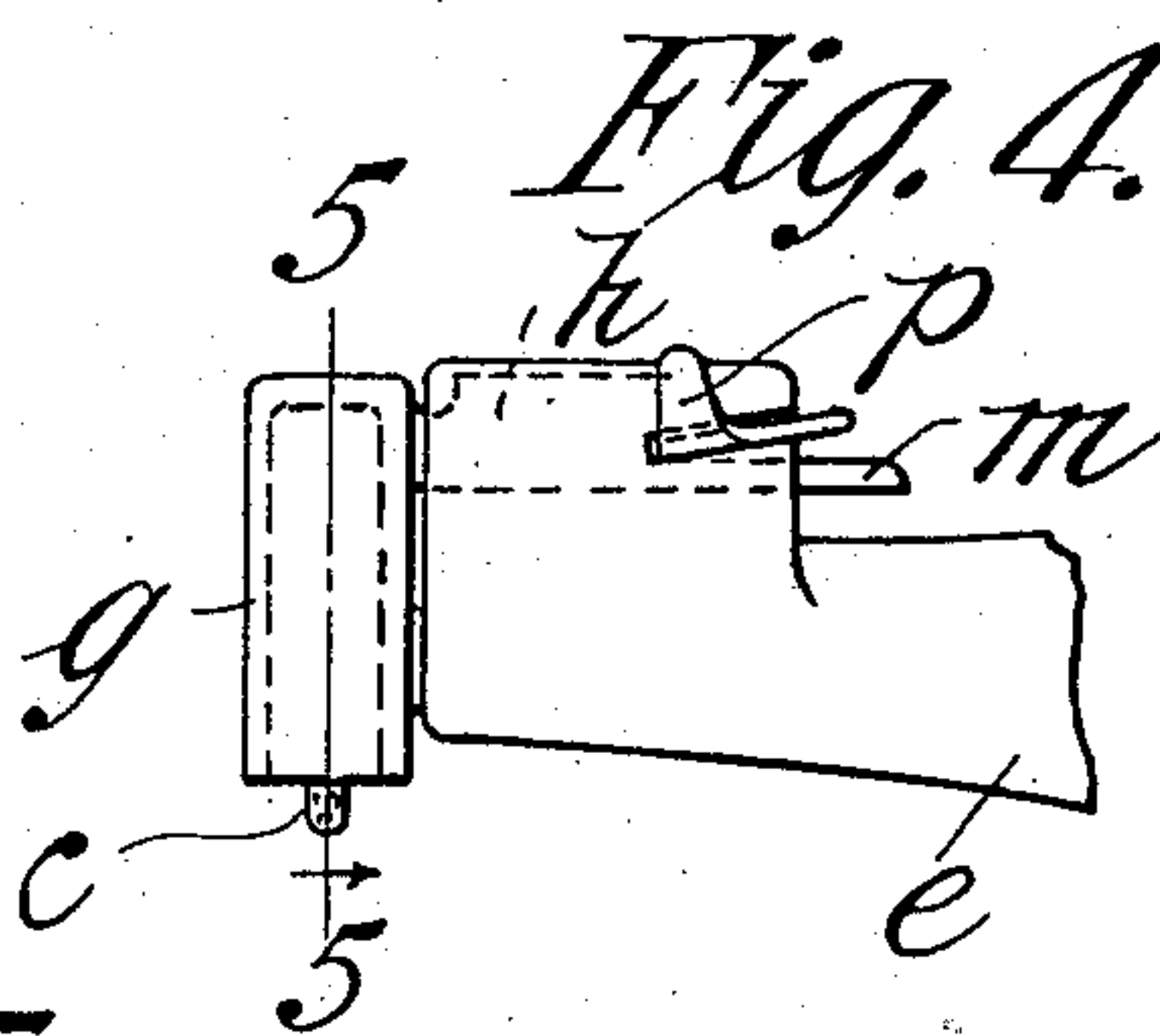
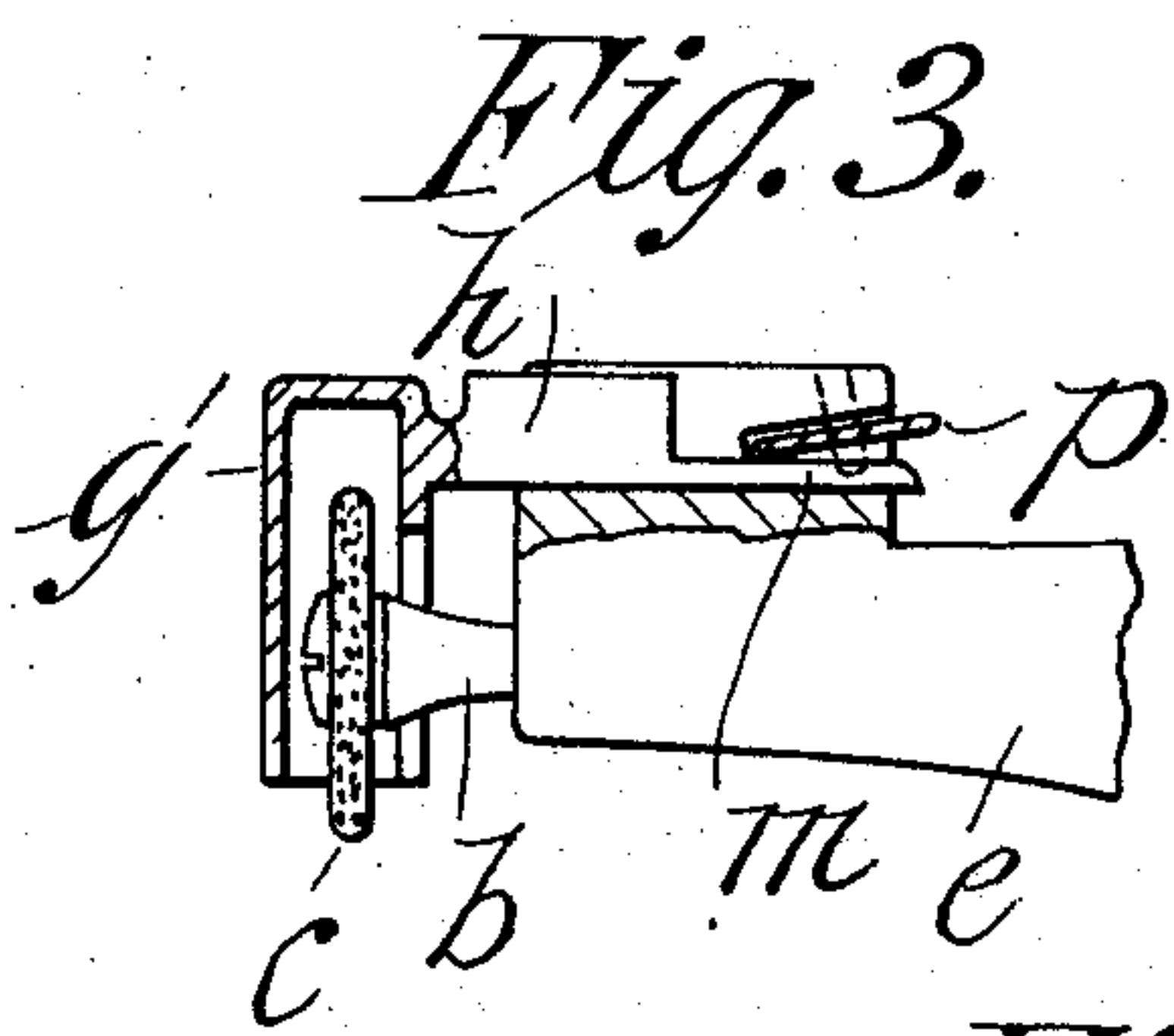
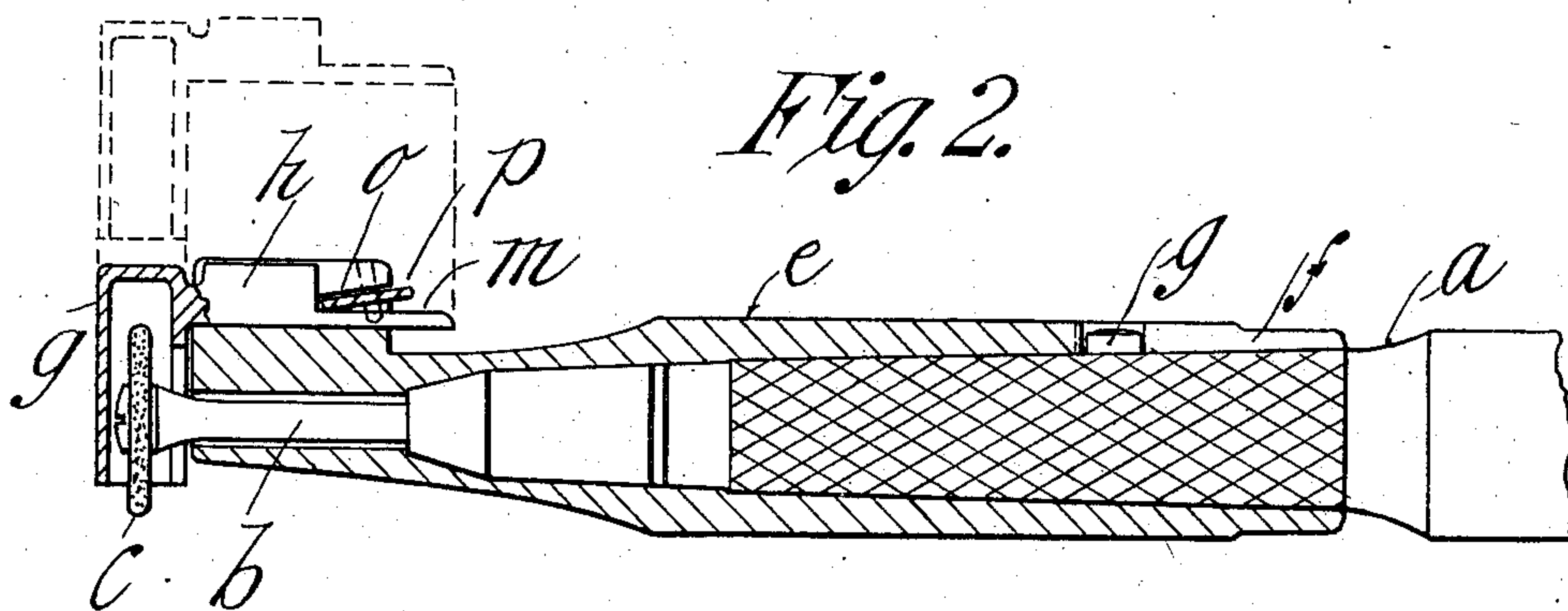
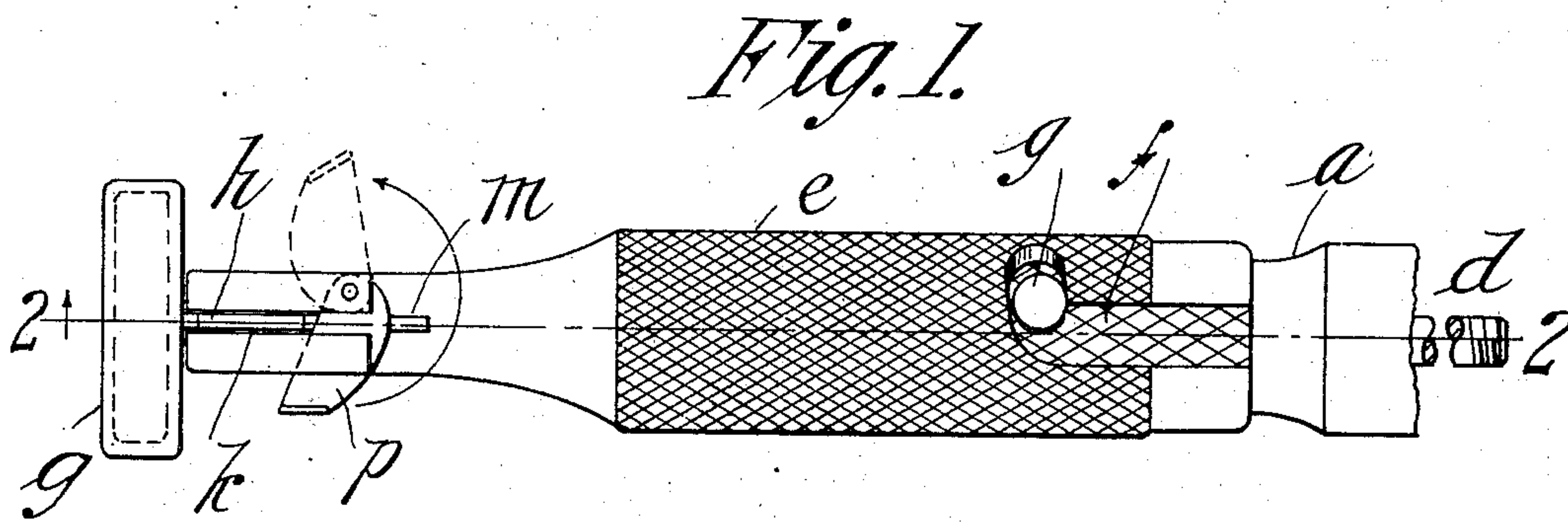


M. H. TOOMEY.
DENTAL INSTRUMENT.
APPLICATION FILED OCT. 27, 1909.

973,894.

Patented Oct. 25, 1910.



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MICHAEL H. TOOMEY, OF GREENFIELD, MASSACHUSETTS.

DENTAL INSTRUMENT.

973,894.

Specification of Letters Patent.

Patented Oct. 25, 1910.

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To all whom it may concern:

Be it known that I, MICHAEL H. TOOMEY, a citizen of the United States of America, residing at Greenfield, in the county of Franklin and State of Massachusetts, have invented new and useful Improvements in Dental Instruments, of which the following is a specification.

This invention relates to dental implements, and more particularly to a protective cap and shield for the rotative abrading tools employed with dental machines.

To this end the invention has in view the provision of a protective cap for the grinding wheel or abrading tool so designed as to leave a portion of the periphery of said wheel exposed to operate the shaft on the tool, while at the same time shielding the balance of the wheel and thereby guarding the mouth therefrom, in combination with an improved means for mounting the said protective cap whereby the same may be properly adjusted and manipulated by the operator.

In the drawings forming part of this application,—Figure 1 is a top plan view of the hand piece of a tool-holder having fitted thereto a support for the protective shield of a tool, the shield being shown in position in its support, a part of the locking device being shown in two positions—one of which is in dotted lines. Fig. 2 is a longitudinal section taken on line 2—2, Fig. 1, the support for the shield and the latter being the only parts shown in section, the shield being shown in dotted lines in separated relation to its support. Fig. 3 is a sectional view of the shield and the forward end of its support, partly in section, and shows the mandrel carrying the cutting stone extending farther beyond the end of the shield support than in Fig. 2. This figure shows the possible longitudinal adjustment of the shield. Fig. 4 is a side elevation of the parts shown in Fig. 3 but with the shield and the stone in the same relation to the shield support as in Fig. 2. Fig. 5 is a sectional view taken through the shield in the plane of the line 5—5, Fig. 4.

Referring to these drawings, *a* indicates the hand piece of a dental instrument adapted to receive a mandrel *b* carrying an abrasive disk *c*, the mandrel being inserted in the hand piece in engagement with a suitable chuck not shown, the chuck being rotated by connection of a suitable kind with a flexi-

ble shaft as indicated conventionally by *d*, Fig. 1. Fitted over this hand-piece is a sleeve *e* having some means for removably securing it to the hand piece, as for example the curved slot *f* engaging the stud *g* on the hand-piece. Any other mode of fastening the sleeve *e* or its equivalent to the hand piece may be substituted for this, the function of the sleeve being only to serve as a support for the protective shield *g*¹ supported on the outer end of the sleeve *e* adjustably in such position as to cover the greater part of the periphery of the wheel *c*. To support the shield *g*¹, a rigid arm *h* is attached to the rear side thereof extending rearwardly in parallelism with the axis of the wheel *c*. As shown in Figs. 1, 2, and 3, this arm is relatively thin, as compared to its width, that portion next the shield being wider than that beyond it toward the end of the arm which is cut down in the shape of a relatively narrow rearward extension of the arm. The arm as a whole is fitted into a narrow groove *k* parallel with the axis of the cutting wheel and open in the upper side of the sleeve *e*, and milled into the solid metal constituting the forward end of the sleeve *e*, and at that point in this receiving groove where the narrowed down end *m* of the arm *h* is located, a transverse groove *o* is milled cutting the groove *k* at right angles and being also forwardly inclined relative to the axis of the wheel *c*. This groove *o* receives a thin metal latch *p* pivoted on one side of the groove *k*, and as this latch is swung into the groove *o* its forward edge will come to a bearing on the top of the tail-like extension *m* of the arm *h*, thus binding said arm down against the bottom of the groove *k* in which it is seated. By throwing out the latch, the cap and the arm *h* attached to it, may be moved in the groove *k* more or less, forward or backward as desired, to adjust the shield to any position relative to the end of its support, or to the sides of the disk *c*. When the desired position of adjustment has been reached, the latch *p* may be swung around into the position shown in full lines in Fig. 1 to bring the edge thereof into binding contact with the arm *h* of the shield as described to secure it.

An operator handling this instrument can at any time actuate the latch, with the thumb of the hand holding the instrument, to release the arm *h* from said latch and thus easily effect the removal of the shield *g*¹ by

the use of one hand only. This is sometimes necessary where the operator is using the wheel *c* in some operation in which the shield would interfere with the convenient use thereof. The shield *g*¹ can also be removed by simply turning the latch *p* with one hand, then by turning the sleeve *e* over, or through an arc of 180°, the arm *h* of the shield will drop or fall out from the groove *k* permitting the operator to use the grinding element without any loss of time, should occasion so arise. The dotted line position shown in Fig. 2 clearly indicates how the shield *g*¹ and its arm *h* is put in place on, and removed from, the groove *k* in the sleeve *e* in a direction transverse to the axis of the tool. This construction enables the shield to be accurately located with reference to the grinding element without disturbing in any way the mandrel which is held by the chuck, which in common practice is of various lengths. The grinding elements are also of varying thicknesses.

What I claim, is:—

25 1. A hand-piece for dental engines, comprising in combination a mandrel, a grinding disk, a sleeve for the mandrel, a guard for the disk, and a friction latch carried by the sleeve and coöperating with the guard to lock the latter in its operative position.

30 2. A hand-piece for dental engines, comprising in combination a mandrel, a grinding disk, a sleeve for the mandrel provided on its outer face with an open-ended longitudinal groove, a guard for the disk pro-

vided with a projection detachably fitted within the said groove, and a friction latch carried by the sleeve and coöperating with the projection to lock the guard in its operative position. 40

3. A hand-piece for dental engines, comprising in combination a mandrel, a grinding disk carried by the outer end of the mandrel, a sleeve for the mandrel provided on its outer face with an open ended longitudinal groove, a guard for the disk having an opening opposite the groove, and provided with a projection fitting within the groove, and a locking device carried by the sleeve and coöperating with the guard to lock the latter in its operative position. 50

4. A hand-piece for dental engines, comprising in combination a mandrel, a grinding disk carried by the outer end of the mandrel, a sleeve for the mandrel provided on its outer face with an open-ended longitudinal groove, a guard for the disk having a projection fitting within the groove, said projection having an inclined upper surface, and a friction latch pivotally mounted on the sleeve and coöperating with the said inclined surface of the projection to detachably lock the guard in its operative position. 60

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Witnesses:

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