

No. 782,687.

PATENTED FEB. 14, 1905.

E. NOELLE.
SELF FASTENING BUTTON.
APPLICATION FILED AUG. 24, 1904.

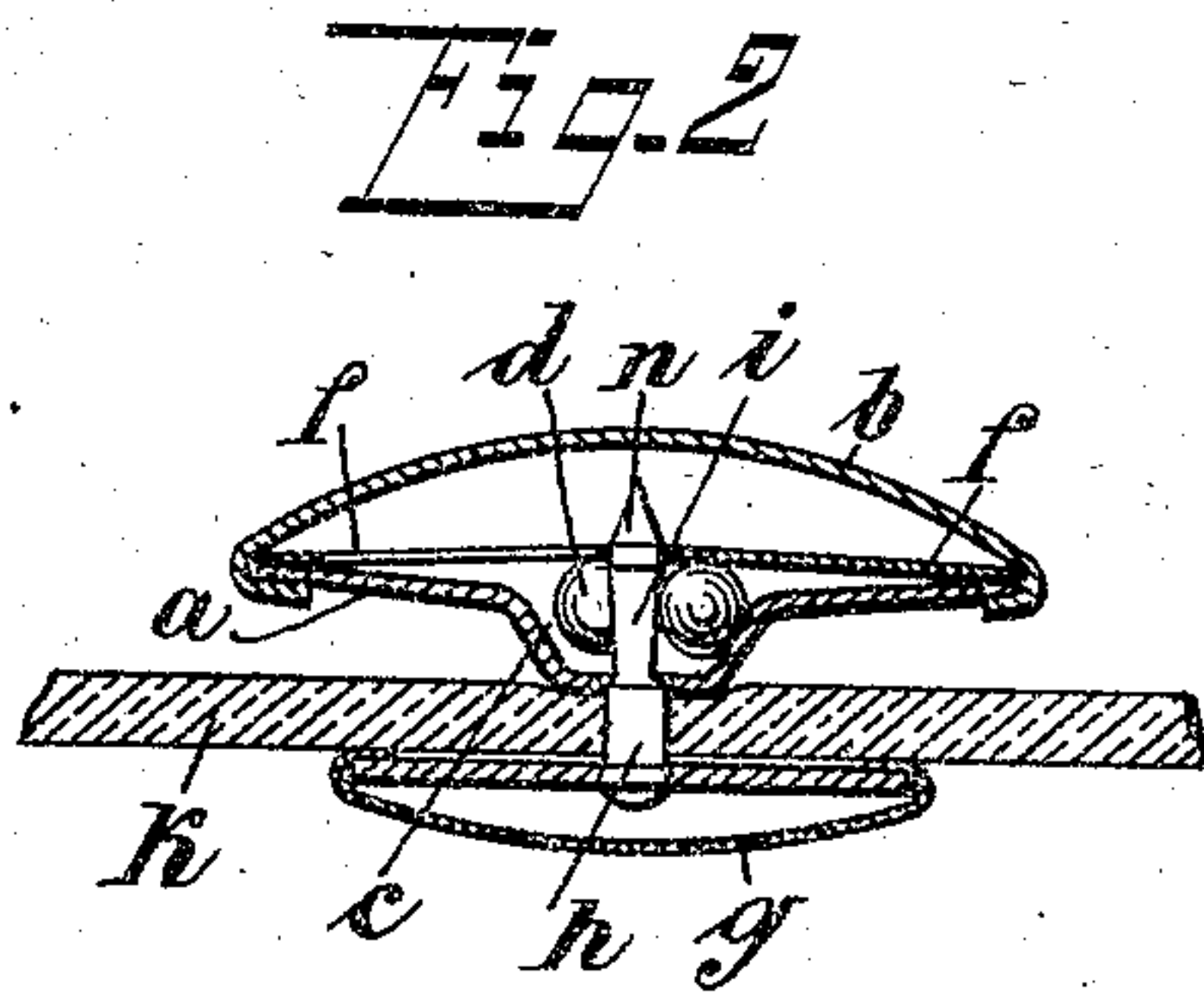
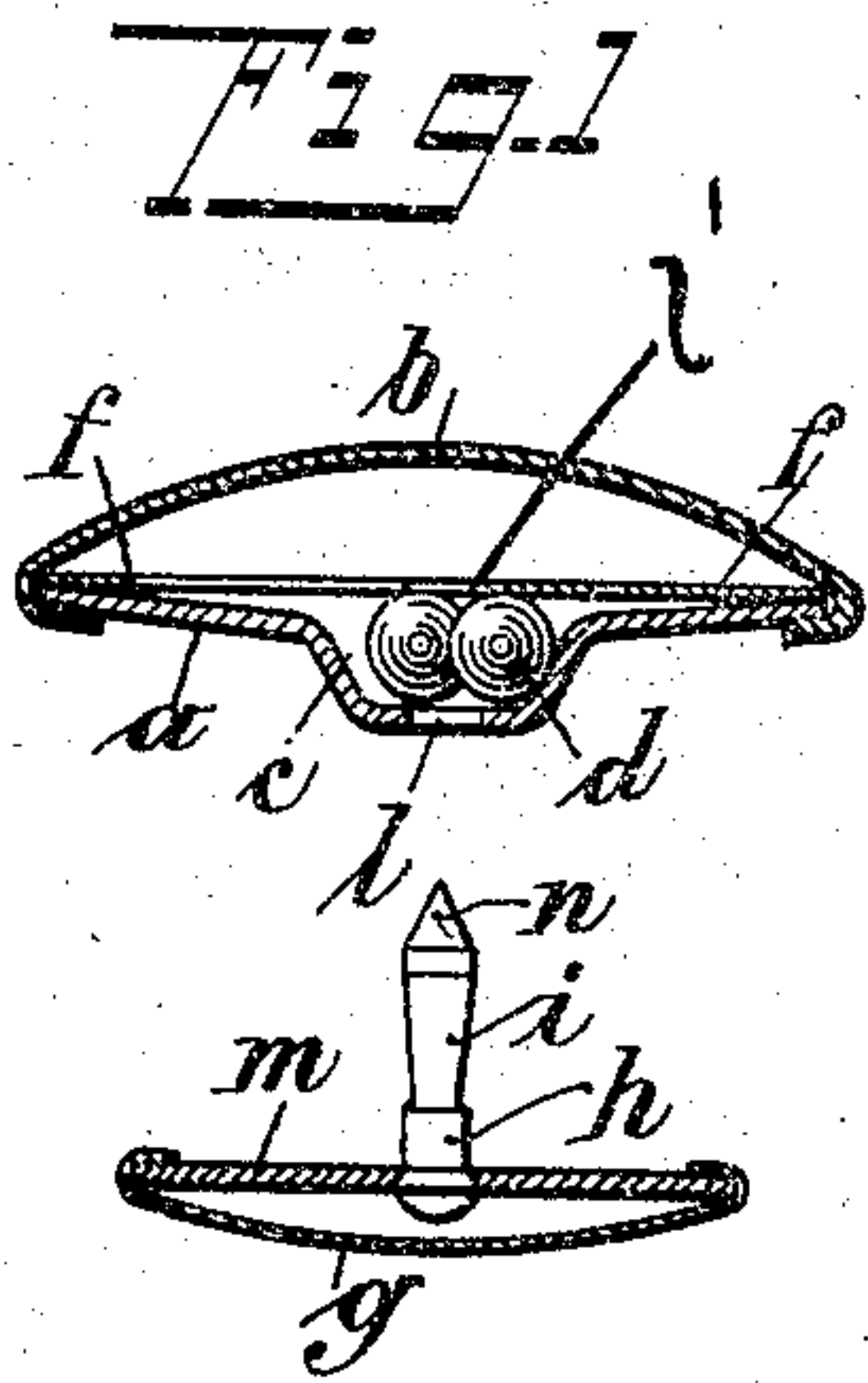


Fig. 3

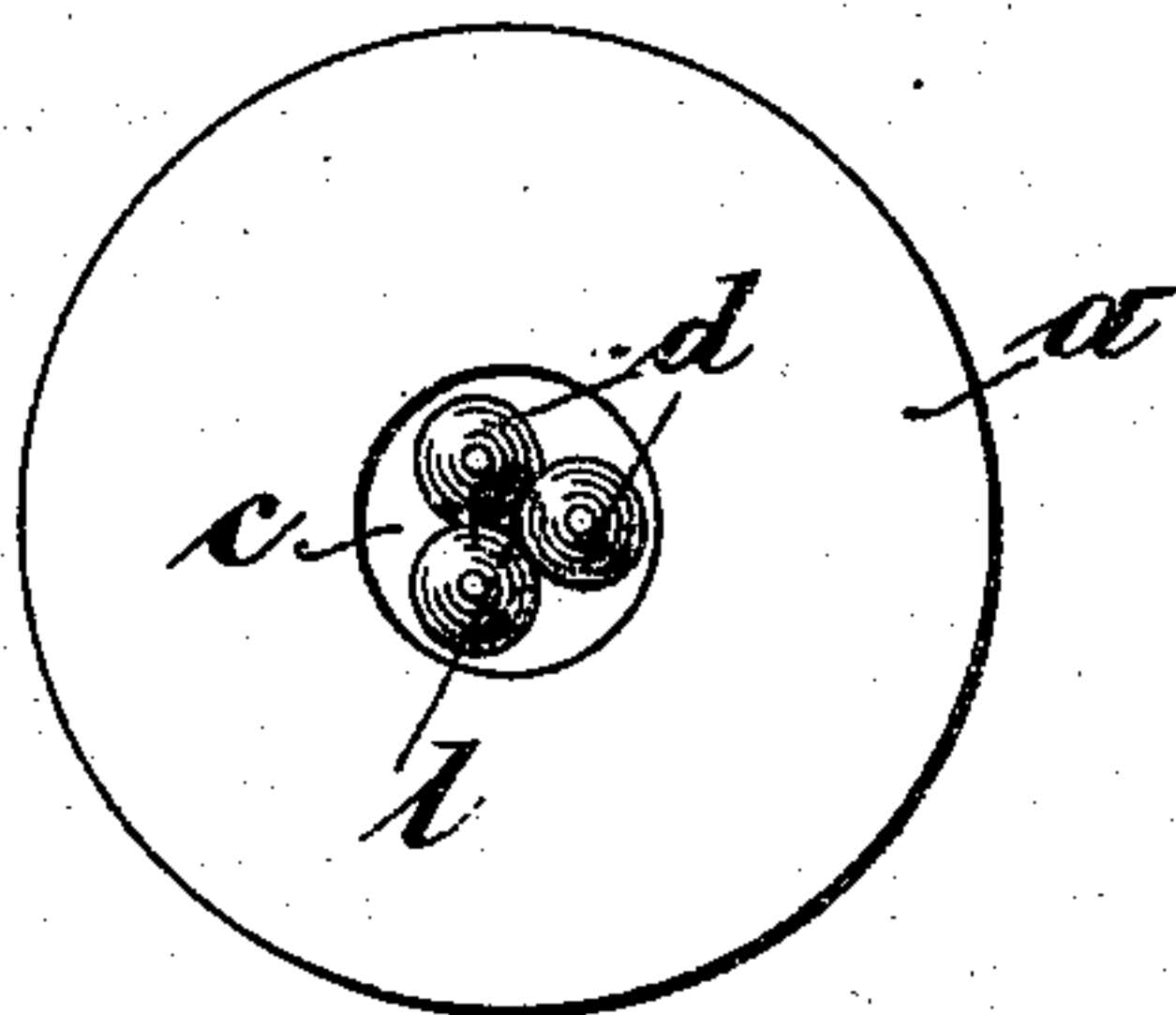


Fig. 4

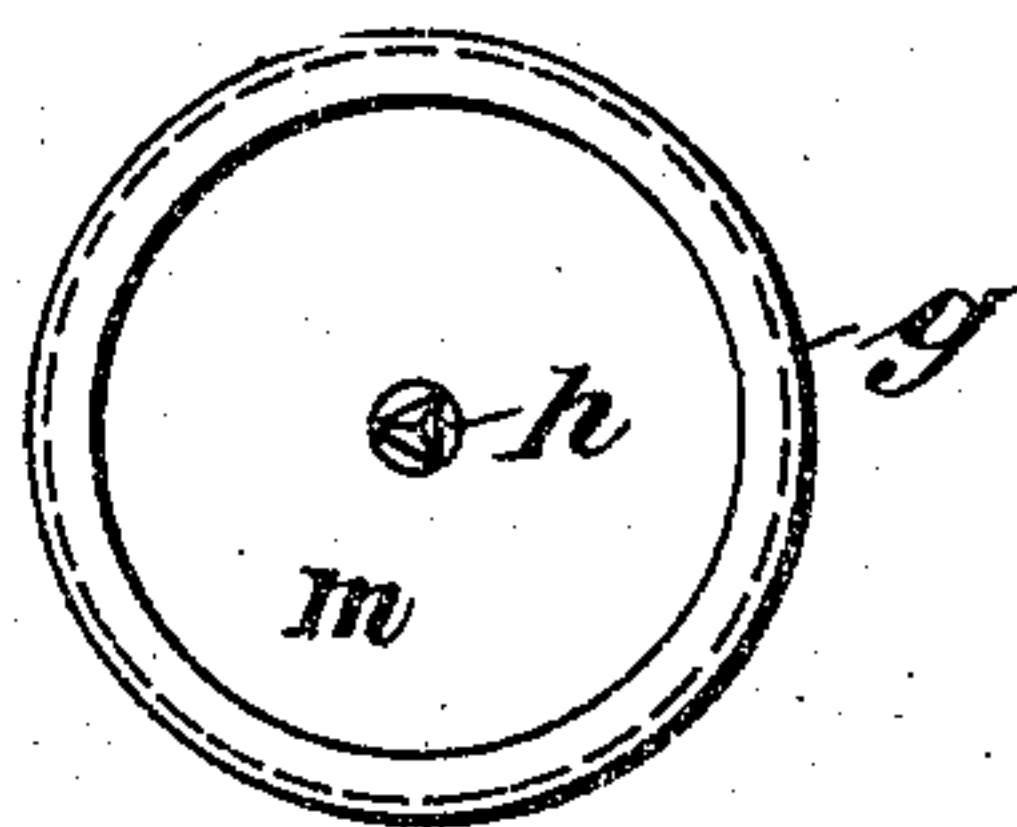


Fig. 5

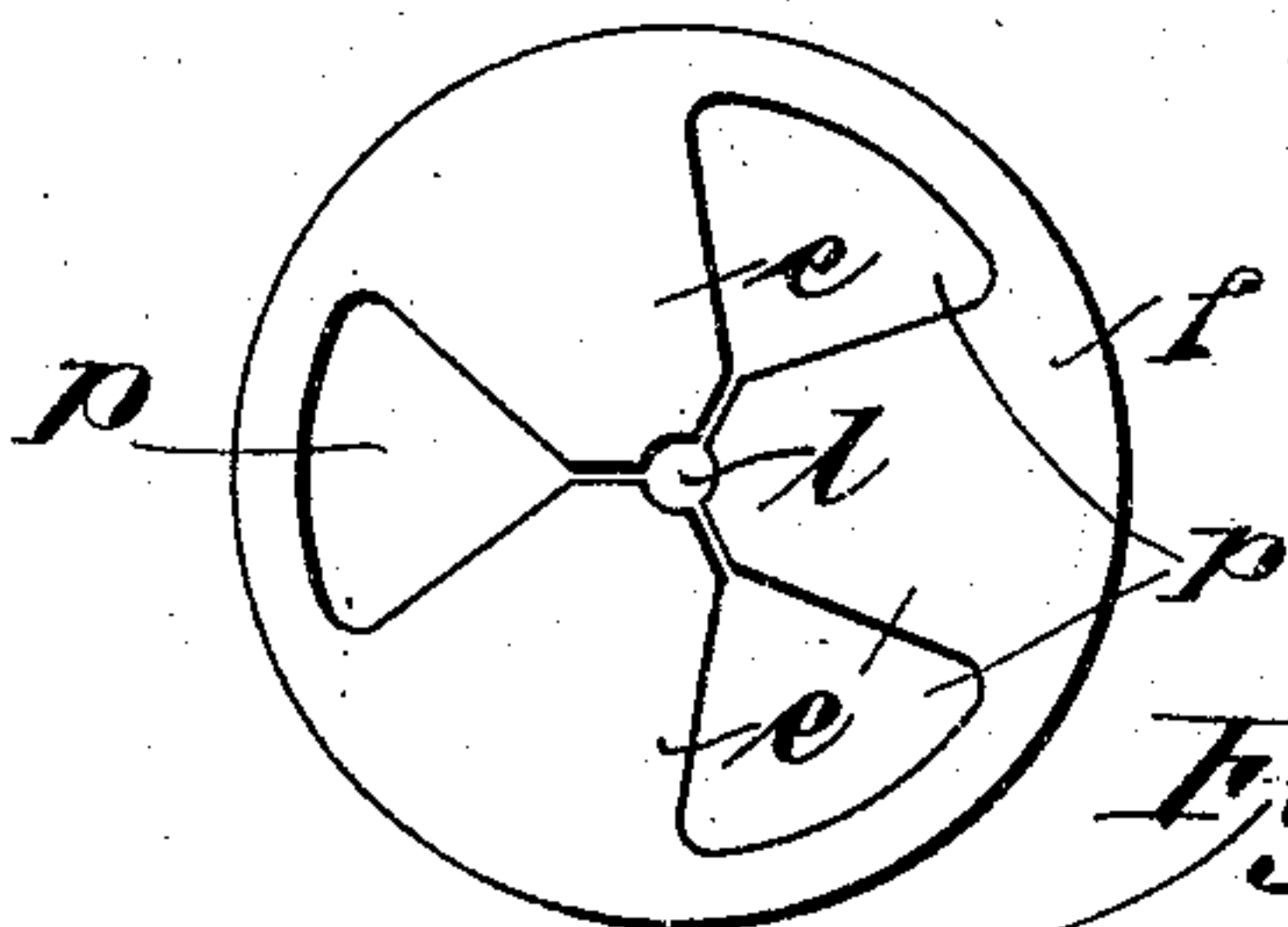


Fig. 6

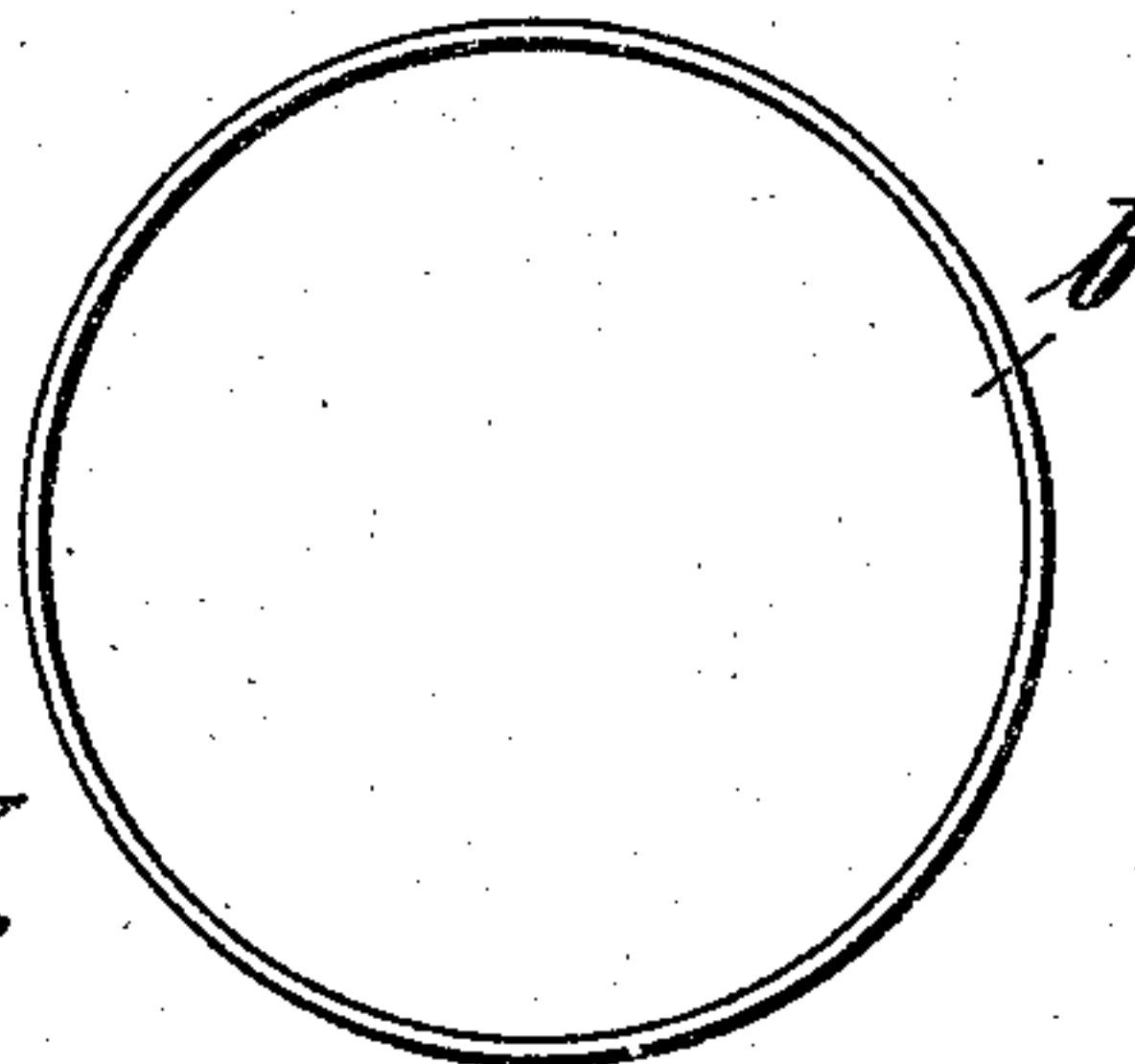
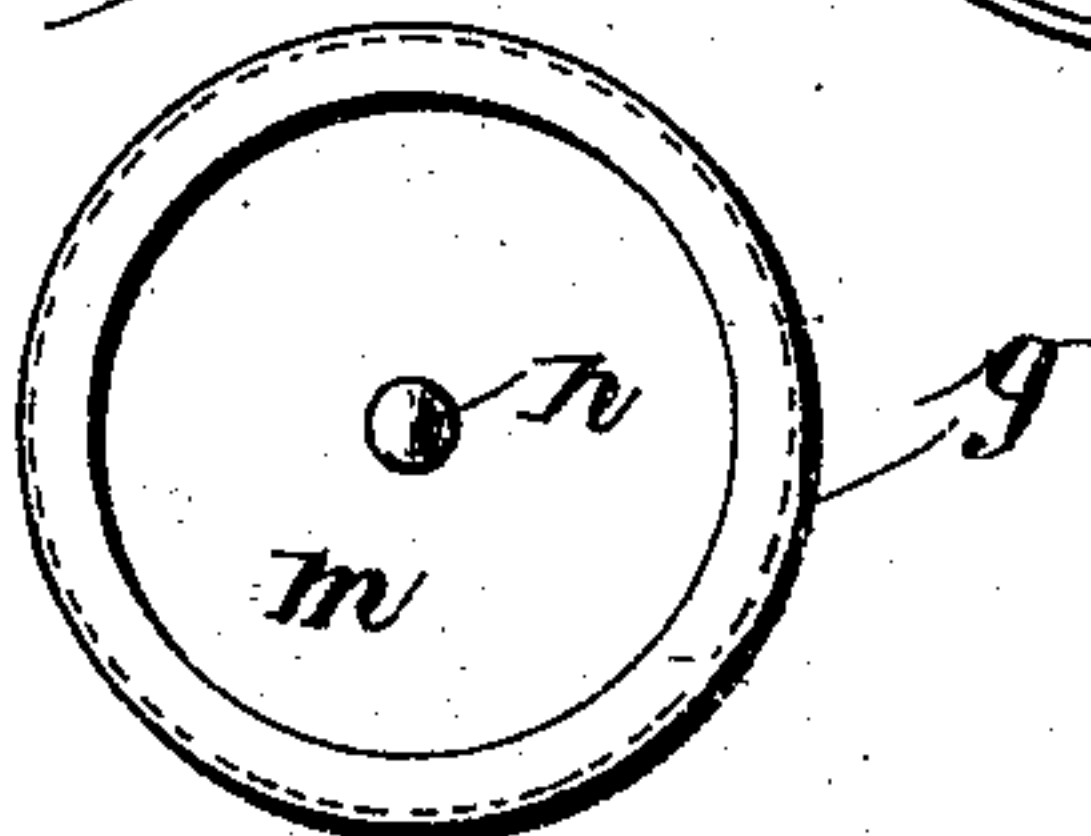


Fig. 7.



Witnesses:

W. M. Avery

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Inventor.

Ewald Noelle

By *[Signature]*

Attorneys.

UNITED STATES PATENT OFFICE.

EWALD NOELLE, OF LÜDENSCHIED, GERMANY.

SELF-FASTENING BUTTON.

SPECIFICATION forming part of Letters Patent No. 782,687, dated February 14, 1905.

Application filed August 24, 1904. Serial No. 221,969.

To all whom it may concern:

Be it known that I, EWALD NOELLE, a citizen of the Empire of Germany, residing at Lüdenscheid, in the Empire of Germany, have invented a new and useful Self-Fastening Button, of which the following is a specification.

My invention relates to improvements in self-fastening buttons of that kind which can be attached quickly to the fabric without needle and thread and without requiring special appliances for connecting the head to the shank of the button; and the objects of my improvement are, first, to make the head member of the button of two shells united by bending the edge of the one over that of the other and to so form the rear shell that it receives an internal central conical recess diverging inwardly and having in its rear wall a central opening; second, to secure between the two shells of the head member an even spring-plate which is centrally perforated and radially slitted and cut out, so as to form a plurality of radial leaf-springs; third, to place a plurality of clamping-balls within the conical recess and the spring-plate, so that they engage with the internal ends of the leaf-springs and normally with each other and with the side wall of the recess, and, fourth, to provide the rear member of the button with a central shank which is adapted to pass through the central openings of the rear shell and the spring-plate, respectively, of the head member between the clamping-balls and has a pointed outer end and an intermediate body tapering rearwardly. I attain these objects by the construction illustrated in the accompanying drawings, in which—

Figure 1 is a vertical central section through the two detached button members. Fig. 2 is a vertical central section through the two united button members and the fabric between them. Fig. 3 is a plan of the rear shell of the head member to show the central conical recess and three clamping-balls therein. Fig. 4 is a plan of the rear member in its finished state. Fig. 5 is a plan of the spring-plate of the head member. Fig. 6 is a view from below of the face-shell of the head member prior to the bending of its edge, and Fig. 7

is a plan of the rear member with a modified shank.

Similar characters of reference refer to similar parts throughout the several views.

The head member of the button is shown as circular and comprises a rear shell *a*, a spring-plate *f*, a face-shell *b*, and three clamping-balls *d d*. The rear shell *a*, made of sheet metal, is so pressed or stamped as to form an internal central conical recess *c*, diverging inwardly and provided with a central opening *l* in its rear wall. The spring-plate *f* is even and circular and may have substantially the same diameter as the rear shell *a*. It has a central opening *l'* and is radially slitted at *o o* and cut at *p p* to form three radial leaf-springs *e e*. The three clamping-balls *d d* are loosely placed in the conical recess *c* and so proportioned that on uniting the parts of the head member by bending the edge of the face-shell *b* over that of the rear shell *a* the three balls *d d* normally engage with each other and with the internal ends of the three leaf-springs *e e* and with the conical side wall of the recess *c*, while they leave between them a central space which is smaller than the central openings *l* and *l'* of the rear shell *a* and the spring-plate *f*, respectively, as is clearly shown at Fig. 3.

The rear member of the button is shown as comprising a bottom *m*, a cover *g*, and a shank *h*. The shank *h* is suitably fastened in the bottom *m* and made to snugly fit in the two central openings *l* and *l'* of the head member. The external end *n* of the shank *h* is pointed to enable it to engage between the three clamping-balls *d d* and to move them apart. Beneath the point *n* the shank *h* is made at *i* to taper rearwardly. In Figs. 1, 2, and 4 I have shown the point *n* and the tapering body *i* to have each three inclined faces; but it may also be made circular in cross-section throughout. (See Fig. 7.) The cover *g* and the bottom *m* are shown as united by bending the edge of the former over that of the latter; but this construction is immaterial. Of course the face-shell *b* of the head member requires to be so curved or shaped as to leave sufficient space for the pointed end *n* of the shank *h*. (See Fig. 2.)

The self-fastening button can be applied to any part of the clothing or garment without stitching, as follows: The pointed end *n* of the shank *h* of the rear member is stuck into the fabric *k*, which in Fig. 2 is assumed to be single, and while the cover *g* is supported with the fingers or otherwise the head member is put over the point *n* of the shank *h* and forced downward, when the three inclined faces or the conical face of the point *n* will push apart the three balls *d d*, so that the latter rise on the conical wall of the recess *c* and bend the three-leaf springs *e e* upward. The moment the balls *d d* leave the point *n* and roll on the inclined faces or conical face of the body *i'* they will under the action of the springs *e e* force the shank *h* inwardly and secure it by pinching. (See Fig. 2.)

The construction of the self-fastening button described so far may be varied without deviating from the spirit of my invention.

What I claim as my invention, and desire to secure by Letters Patent, is—

In a self-fastening button, the combination with a convex face-shell, of a rear shell with a central conical recess and a central open-

ing, an even spring-plate with a central opening, radial slits and cuts, whereby a plurality of inwardly-projecting leaf-springs are formed, said spring-plate being secured at its edge between said convex face-shell and said rear shell and forming therewith the head member of the button, in which the conical recess is inside and diverges inwardly, a plurality of balls in said conical recess and normally engaging with each other and with the side wall of the recess and the leaf-springs while leaving between them a central opening smaller than that of said rear shell and that of said spring-plate, and a rear member of the button formed with a projecting shank which fits in the central opening of said rear shell and that of said spring-plate and is pointed at the end to push apart said balls while bending upward the leaf-springs and has an intermediate part tapering rearwardly.

In witness whereof I have hereunto set my hand in presence of two witnesses.

EWALD NOELLE.

Witnesses:

OTTO KÖNIG,

ADOLF GROSSGEBAUER.