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COMPLETE SPECIFICATION.

“Improved Means in connection with Fire Arms for Indicating the Loading Condition of the same”.

I, GEORG LUGER of No. 34 Weimarer Strasse, Charlottenburg (Germany) Engineer, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

5 This invention relates to means, whereby it can be ascertained on the exterior of fire arms whether a cartridge is contained in the cartridge chamber of the barrel or not. The drawback of not being able to see on the outside of the ordinary military fire arms the loading condition of the same is very annoying, especially in connection with fire arms having an automatic loading device, as
10 for instance, the known recoil loading fire arms, because they are regularly reloaded after every discharge and therefore in the event of carelessness, there is danger of an unintentional discharge of the cartridge.

This invention is chiefly characterized by a peculiar arrangement of levers or equivalent means, which inwardly extend with a correspondingly wedge-shaped
15 extremity into the side-wall of the cartridge chamber of the barrel, so that when there is a cartridge in the barrel, or when a cartridge is inserted in the cartridge chamber, i.e. when closing the breech, by the cartridge striking against the wedge surfaces, an outward movement or other suitable shifting of the levers or members is effected, in consequence of which sufficiently long or wide
20 and very conspicuous parts on the outside of the fire arm reliably indicate the loading condition of the latter. It is essential that the part extending into the cartridge chamber is formed with a wedge-shaped surface and bears laterally upon the outer surface or rim of the cartridge, whereby the requisite conspicuous and possibly also touchable marks can be produced for indicating the loading
25 condition of the fire arm.

The invention is preferably carried out in such a manner that the indicating levers or their equivalent members may also serve as cartridge extractors, or that the extractors are so peculiarly constructed and arranged that they also indicate the loading condition of the fire arm.

30 The object of the invention to produce a very striking indication of the loading condition of the fire arm can also be fulfilled by lever mechanism, by means of which a small indicating movement of the members, which are adjusted during the insertion of the cartridge, produces an increased movement of the special indicating parts.

35 Reverting to the accompanying drawing, Fig 1 and 2 show the principle of the improvement, each figure representing a horizontal section through the cartridge chamber and adjoining parts of a fire arm and also the arrangement of a laterally oscillating indicating lever for indicating the empty and loaded condition of the cartridge chamber. Figures 3 and 4 show in vertical section the
40 arrangement of an indicating lever combined with an extractor and also in the position for indicating the empty and loaded condition of the cartridge chamber. Figs 5 and 6 show in contour lines the differentiating side elevation resulting from the positions according to Figures 3 and 4.

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Luger's Improved Means for Indicating the Loading Condition of Fire Arms.

The indicating means, for which is used a lever or equivalent member, such as, a pawl, a slide and the like, with indicating-plate projection, may be provided both on the receiver or in combination with a fixed corresponding part of the fittings and on the movable breech-part or breech cylinder of the fire arm.

For the construction shown in Figures 1 and 2, it is assumed that the indicating lever *i* is mounted in a slot of the fixed receiver *w* behind the cartridge chamber *b*; the lever is pivoted at *c* and the front wedge-shaped projection *k* engages laterally on the cartridge chamber where it bears against the casing or rim of the cartridge when a cartridge is contained in the chamber. By means of the spring *f*, the lever *i* tends to move inwards. If no cartridge is in the chamber *b*, the projection *k* occupies the position, as shown in Fig. 1 and in this inward position, the projection *j* of the lever *i* serving as indicating mark is lowered in such a manner that it does not form a projecting part on the receiver *w*. But as soon as a cartridge is inserted in the chamber *b*, the lever *i* must, in consequence of the sideways pressure of the wedge-shaped projection *k*, move outwards against the action of the spring and finally assume such a position that the part *j* of the lever *i* projects from the receiver (Fig. 2). Consequently, this serves as a true indication that a cartridge is contained in the cartridge chamber; it is obvious that the cartridge case with its outer surface or rim edge forms the support for the projection *k*. The latter has a flat supporting surface; a conical surface arranged at its rear side permits the free insertion of the cartridge. An indicating lever the arrangement of which on the receiver has just been described, can also be combined with the movable breech-part or the breech cylinder; in this case, the inclined surface must be disposed at the front (instead of behind) on the end of the lever, whereby in consequence of the lever impinging against the cartridge when advanced in the cartridge chamber, the outwardly directed indicating movement of the indicating lever is produced during the closing of the breech cylinder.

The indicating lever or equivalent member must be arranged on the movable breech or breech cylinder in that form of construction, in which the indicating lever is used as an extractor. This construction is shown in Figures 3—6. In this case, the lever is subjected to the action of the spring *v*, so as to oscillate inwardly on the pivot *u* in the breech cylinder *r* and is of a form suitable for the indicating purpose, as described in reference to Figures 1 and 2; instead of the flat supporting surface, the said lever has a hook-shaped extremity at *n*. If the cartridge (Fig. 3) is located in the cartridge chamber *b* and consequently the hook-shaped projection *n* engages with the rim of the cartridge, the projection *z* of the lever *a* provided as indicating mark will project far enough upwards or outwards in order to show that a cartridge is in the cartridge chamber *b*. The modification, which the extractor undergoes, in order to act as indicator according to the invention consists essentially in the fact that the angular stroke or play is adequately increased or at any rate, is larger than is necessary for the extraction. As soon as the cartridge is removed from the barrel and when closing the breech, the projection *n* is no longer raised outwards, the extractor lever *a* assumes the inward position according to Fig. 4, so that the part *z* descends into the breech in such a manner that it indicates, that the cartridge chamber is empty. The two different positions are moreover shown in profile-contour in Figs 5 and 6. The projection *z* (Fig. 5) may be provided with an indicating inscription.

In order to render the indicating position as conspicuous as possible, the indicating lever may be provided with widening pieces, such as lateral strips or laths, which extend in grooves of the receiver or breech.

According to another construction of the invention, a lever mechanism is provided for increasing the difference of movement. This construction is shown by way of example in Fig 7 of the drawing. The lever *i* (Fig. 1 and 2), which is adapted to oscillate within narrow limits, actuates by means of an outwardly directed projection *g* in form of a short lever-arm, the indicating lever *h* proper,

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which oscillates on the fixed pivot *s* and carries on the free end a suitably shaped indicator (with inscription or other kind of mark). The lever *h* tends under the action of a spring *o* to move into the position indicated by dotted lines, whilst for indicating that the cartridge chamber is empty, the said lever together
5 with the inwardly pressed lever *i* is lowered against the cheek of the receiver. When a cartridge enters the barrel, the lever *i* is oscillated a certain distance laterally and produces by a system of levers a comparatively increased outward movement of the indicating lever *h* so that the position of the parts, which conspicuously indicates the loading condition, results therefrom as shown in
10 Fig 7 in full lines.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is;—

1.—In improved means in connection with fire arms for indicating the load-
15 ing condition of the same, the arrangement of levers or equivalent means such as cartridge feelers connected to indicating members and extending into the cartridge chamber with a wedge-shaped projection over the outer surface or the lateral periphery of the cartridges, which levers, when a cartridge is contained in the barrel, effect an outwardly indicating movement in such a manner that
20 the loading condition of the fire arm is rendered visible by a conspicuous projection or change of position of the approaching indicating member, substantially as described and shown in the drawing.

2.—In improved means in connection with fire arms for indicating the loading condition of the same, the construction and arrangement of the extractors
25 in such a manner that they may act, instead of separate cartridge feelers, as indicators for indicating the loading condition of the fire arm substantially as described and shown in the drawing.

3.—In improved means in connection with fire arms for indicating the loading condition of the same, the arrangement whereby the movement of the cartridge feelers is increased and transmitted to special indicating members, substantially as described and shown in the drawing.

Dated this 10th day of June 1904.

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FIG. 1.

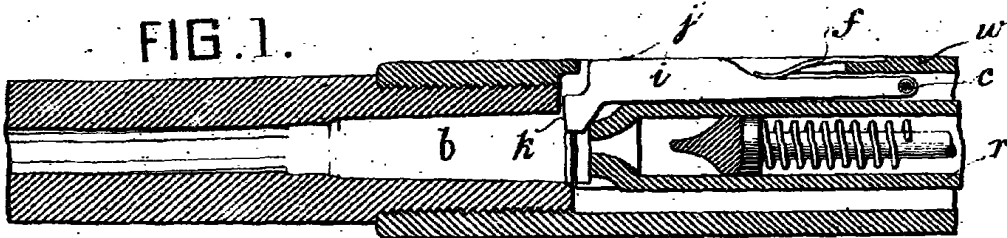


FIG. 2.

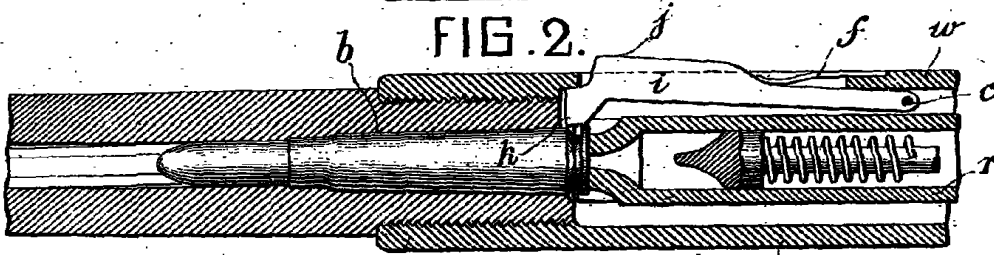


FIG. 3.

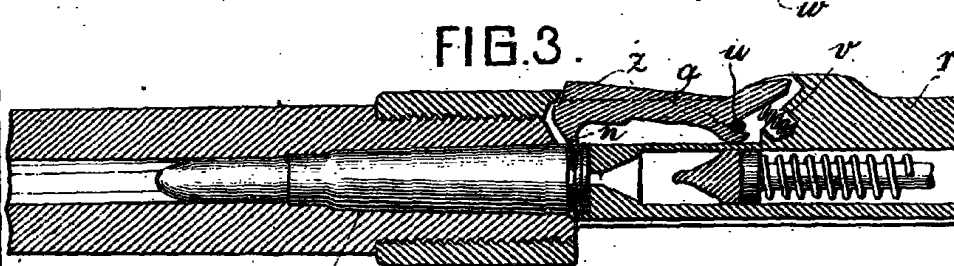


FIG. 4.

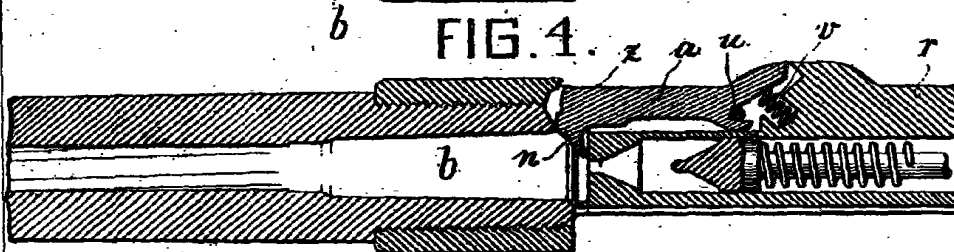


FIG. 5.

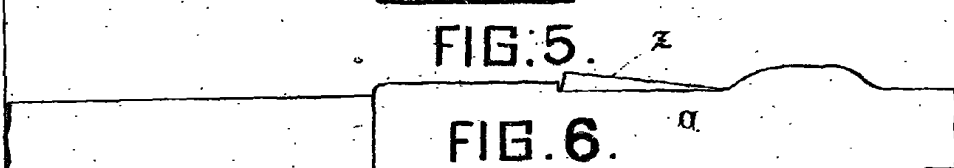


FIG. 6.

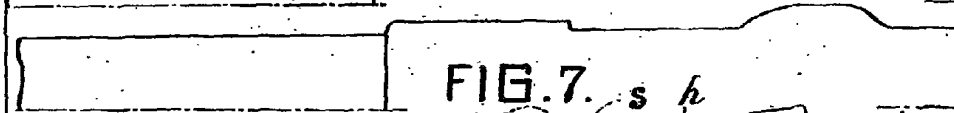
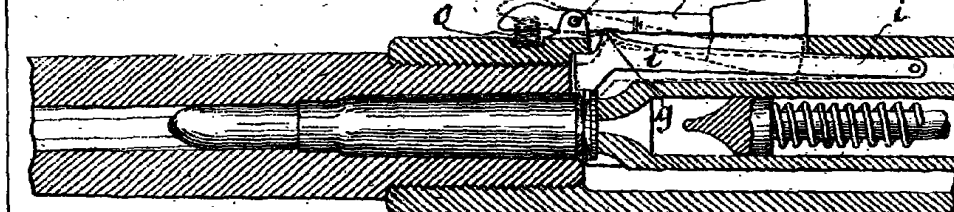


FIG. 7.



[This Drawing is a reproduction of the Original on a reduced scale.]

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