

No. 641,872.

Patented Jan. 23, 1900.

J. KRONE.
DISAPPEARING GUN.

(Application filed Nov. 1, 1899.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 2.

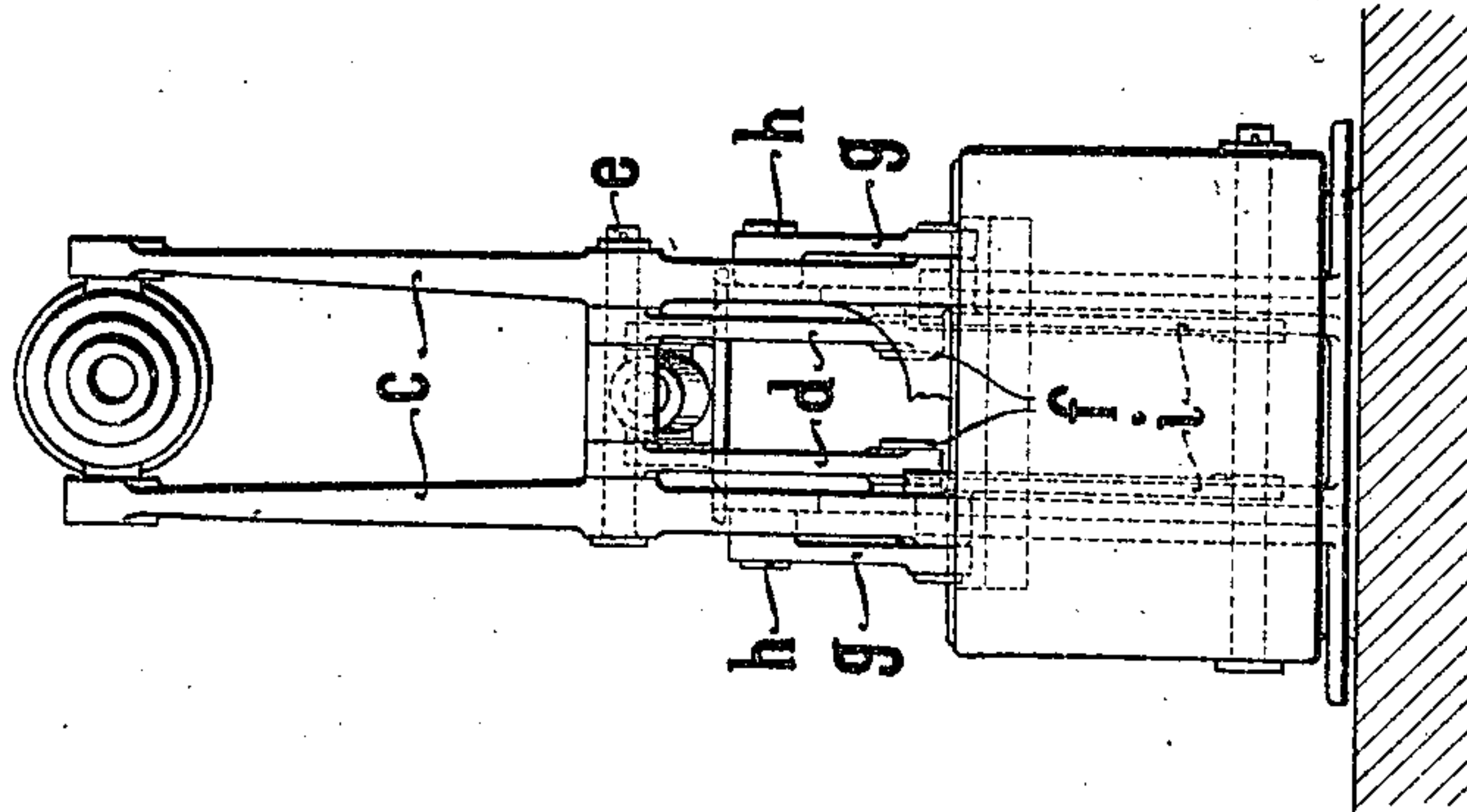


Fig. 1.

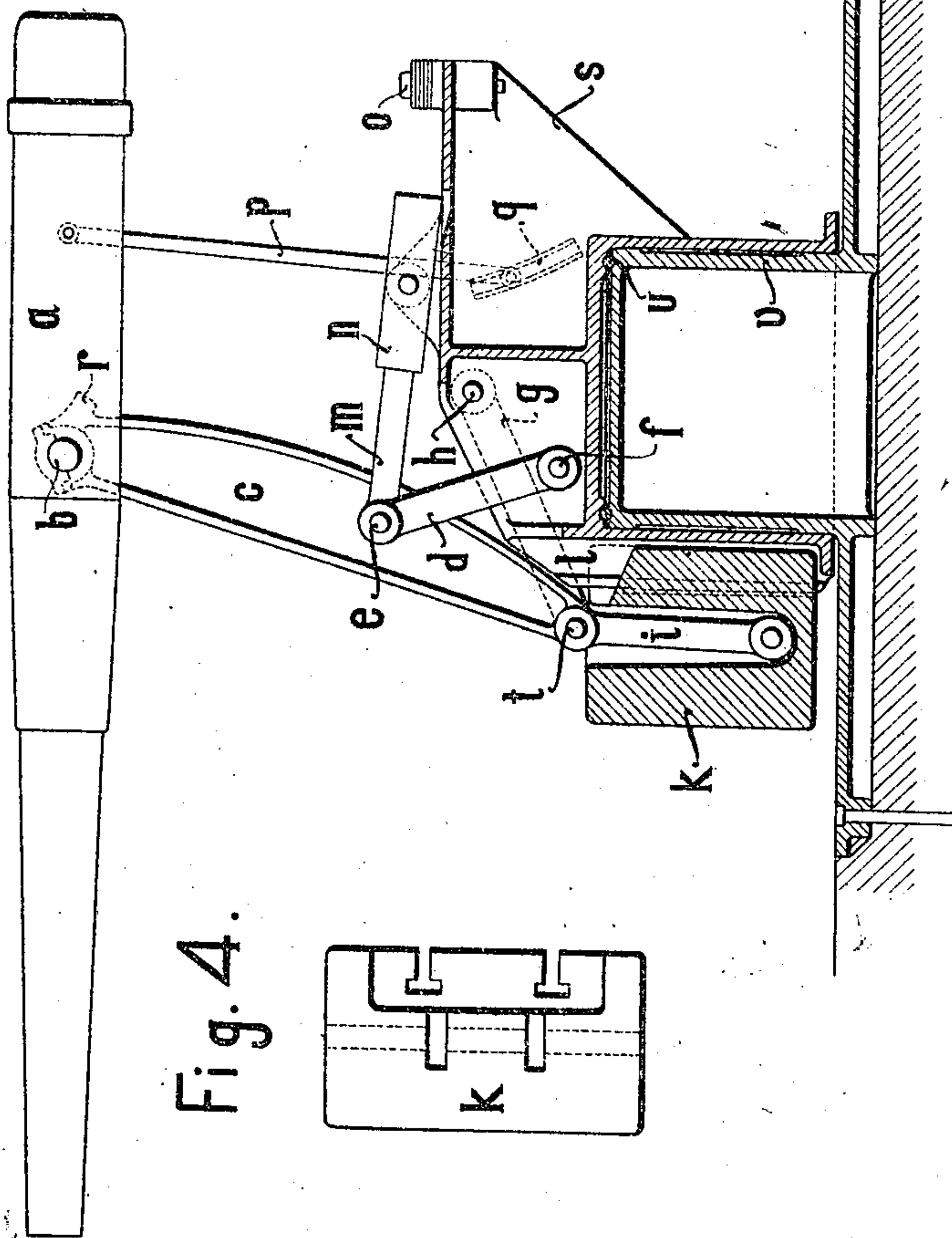
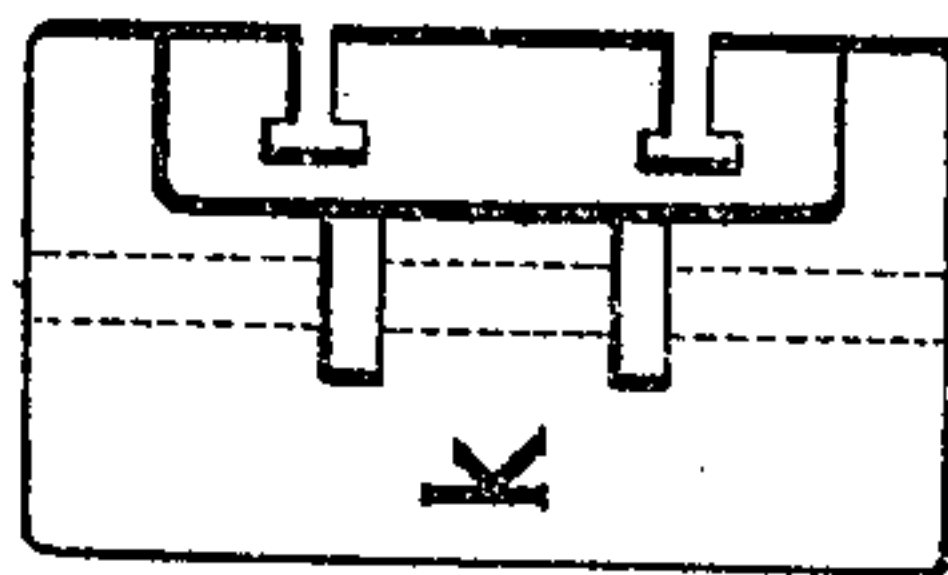


Fig. 4.



Witnesses:
Geo W Eissbraun
R. B. Blumcke

Inventor:
Johannes Krone
by P. F. duRoi
Att'y.

No. 641,872.

Patented Jan. 23, 1900.

J. KRONE.

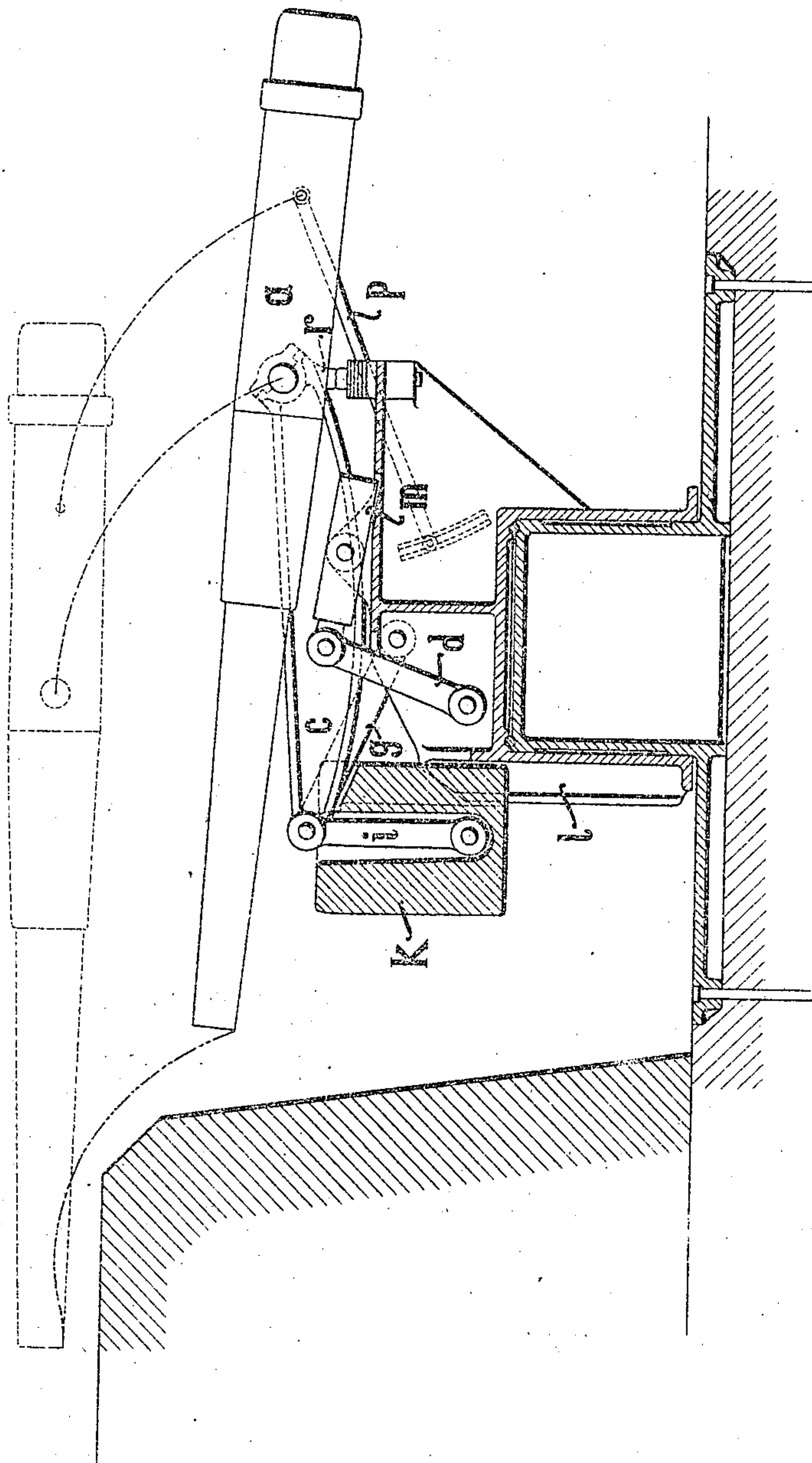
DISAPPEARING GUN.

(Application filed Nov. 1, 1899.)

(No Model.)

2 Sheets—Sheet 2.

Fig. 3.



Witnesses:
Geo. W. Eisenbraun.
R. B. Blumcke

Inventor:
Johannes Krone,
by *Alfred H. H. H.*
Atty.

UNITED STATES PATENT OFFICE.

JOHANNES KRONE, OF ESSEN, GERMANY, ASSIGNOR TO FRIED. KRUPP,
OF SAME PLACE.

DISAPPEARING GUN.

SPECIFICATION forming part of Letters Patent No. 641,872, dated January 23, 1900.

Application filed November 1, 1899. Serial No. 795,453. (No model.)

To all whom it may concern:

Be it known that I, JOHANNES KRONE, a citizen of the German Empire, residing at Essen, Germany, have invented certain new and useful Improvements in Disappearing Guns, of which the following is a specification.

This invention refers to improvements in disappearing guns of the class in which the gun-barrel is supported by a carrier which is automatically turned down by the recoil, its object being to give a convenient form to the recoil curve of the gun-barrel. I accomplish this object by pivotally connecting two points of the gun-barrel support respectively with the ends of links crossing each other and having their other ends pivoted to the carriage-frame in combination with suitable resistances, such as weight, fluid-brakes, &c.

In the annexed drawings I have shown an example of a disappearing gun embodying my invention in which the gun-barrel is held in and respectively raised to the firing position by a weight attached to the lower pivotal joint of the gun-support and link, while at the upper pivotal connection the piston-rod of a recoil-brake is jointed.

In the drawings, Figure 1 is a vertical longitudinal section of the disappearing gun in the firing position, partly in elevation. Fig. 2 is a front elevation of Fig. 1. Fig. 3 is a corresponding vertical longitudinal section in the loading or eclipsed position. Fig. 4 is a top view of the balance-weight.

Similar letters refer to similar parts throughout the several views.

In the drawings the letter *v* designates the pivot, supporting the gun-carriage, and *s* the carriage-frame, supported upon the pivot *v* by ball-bearings *u*.

a is the gun-barrel, supported by its trunnions in bearings at the upper end of a floating support *C*, consisting of two parts *c c*.

g g are links pivoted by bolts *h* to the sides of the carriage-frame and by bolts *t* to the lower ends of the supports *c c*. *d d* are similar links crossing the links *g g* and pivoted to the sides of the carriage-frame by bolts *f* and to the gun-supports *c c* by bolts *e*.

k is a balance-weight suspended on the

lower ends of the floating support *C* by links *z*, pivoted on the weight and on the bolts *t*. This balance-weight *k* is guided by T-shaped ledges *l* on the carriage frame engaging corresponding grooves of the weight.

n is the cylinder of an oscillating recoil-brake, pivoted on the carriage-frame, its piston-rod *m* being pivoted to the supports *c* by the bolt *e*.

The gun-carriage is provided with suitable devices of the usual construction for automatically holding the gun in the loading position.

For reducing the effect of the concussion at the end of the recoil of the gun-barrel buffers *o* are provided on the carriage, against which projections *r* of the supports *c* strike. The gun-barrel is adjusted to the proper elevation in the usual well-known manner by a rod *p*, pivoted at the upper end to the gun-barrel and adjustable at the lower end within a guide *q*.

The above-described arrangement is such that the bolt *e* in the floating support *C* moves in an arc of a circle around the bolt *f* in a nearly horizontal line, while at the same time the supports *c c* are caused to turn on the bolt *e*, because their lower ends *t* are directed by the links *g* in an arc of a circle around the bolt *h* approximately in a vertical direction. These two motions cause the trunnions of the gun-barrel to move in a curve first approximately horizontal and then sloping down, as shown in Fig. 3. The curve described during the recoil by the mouth of the gun is governed by the shape of the recoil curve of the trunnions and by the position of the rod *p* and is shown in Fig. 3 for a horizontal position of the gun. During recoil the weight *k* is lifted and part of the recoil energy stored in lifting the weight, while the remainder is spent on the recoil-brake. Since the gun-barrel supports *c c* are guided in a fixed direction by the links *g g* and *d d*, the guides of the weight *k* are not affected by the recoil and jamming is prevented.

What I claim as new is—

1. In a disappearing gun, the combination with the gun-barrel and carriage-frame, of a

floating gun-barrel support; links hinged to the carriage-frame and to the floating support, and crossing each other; and a suitable resistance to take up the force of the recoil, substantially as specified.

2. In a disappearing gun, the combination with the gun-barrel and carriage-frame, of a floating gun-barrel support; links crossing each other and hinged at their ends to the carriage and to the floating support, and a weight guided in a vertical direction and supported by links pivoted thereto and to the lower end of the floating gun-barrel support, substantially as specified.

3. In a disappearing gun, the combination with the gun-barrel and carriage-frame, of a floating gun-barrel support; links crossing each other and hinged at their end to the carriage and to the floating support, a weight guided in a vertical direction and supported by links pivoted thereto and to the lower end of the floating gun-barrel support, and a recoil-brake connected to the upper cross-link

pivot on the floating support, substantially as specified.

4. In a disappearing gun, the combination with the gun-barrel *a* and carriage-frame *s*, of a floating gun-barrel support consisting of two parts *c*, *c* provided at their upper ends with bearings for the trunnions *b*; links *d* and *g* crossing each other and pivoted to the carriage-frame by bolts *f* and *h* respectively and to the floating support by bolts *e* and *t*; a balance-weight *k* guided vertically on the carriage-frame and suspended on the lower end of the floating gun-barrel support, and a recoil-brake *n* having its piston-rod *w* connected to the bolt *e*, substantially as specified.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

JOHANNES KRONE.

Witnesses:

MICHEL DE DRAZO,
ALEX. P. LETH.