

(No Model.)

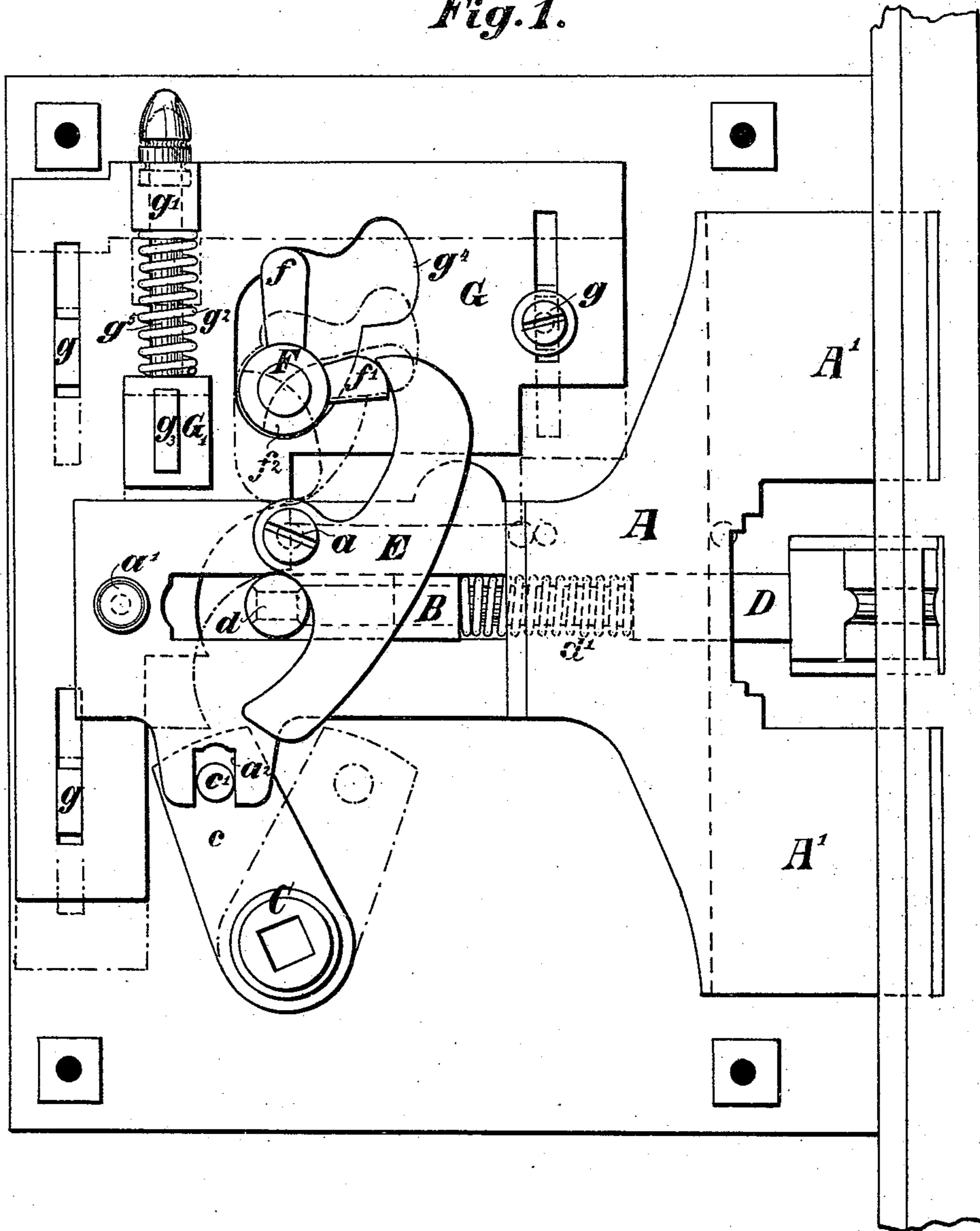
H. LUDWIG.  
LOCK.

4 Sheets—Sheet 1.

No. 446,101.

Patented Feb. 10, 1891.

*Fig. 1.*



Witnesses:  
Wilhelm Hirst.  
Theodor Händel

Inventor:  
Heinrich Ludwig  
By: Gerson & Sachse  
his Attorneys.

(No Model.)

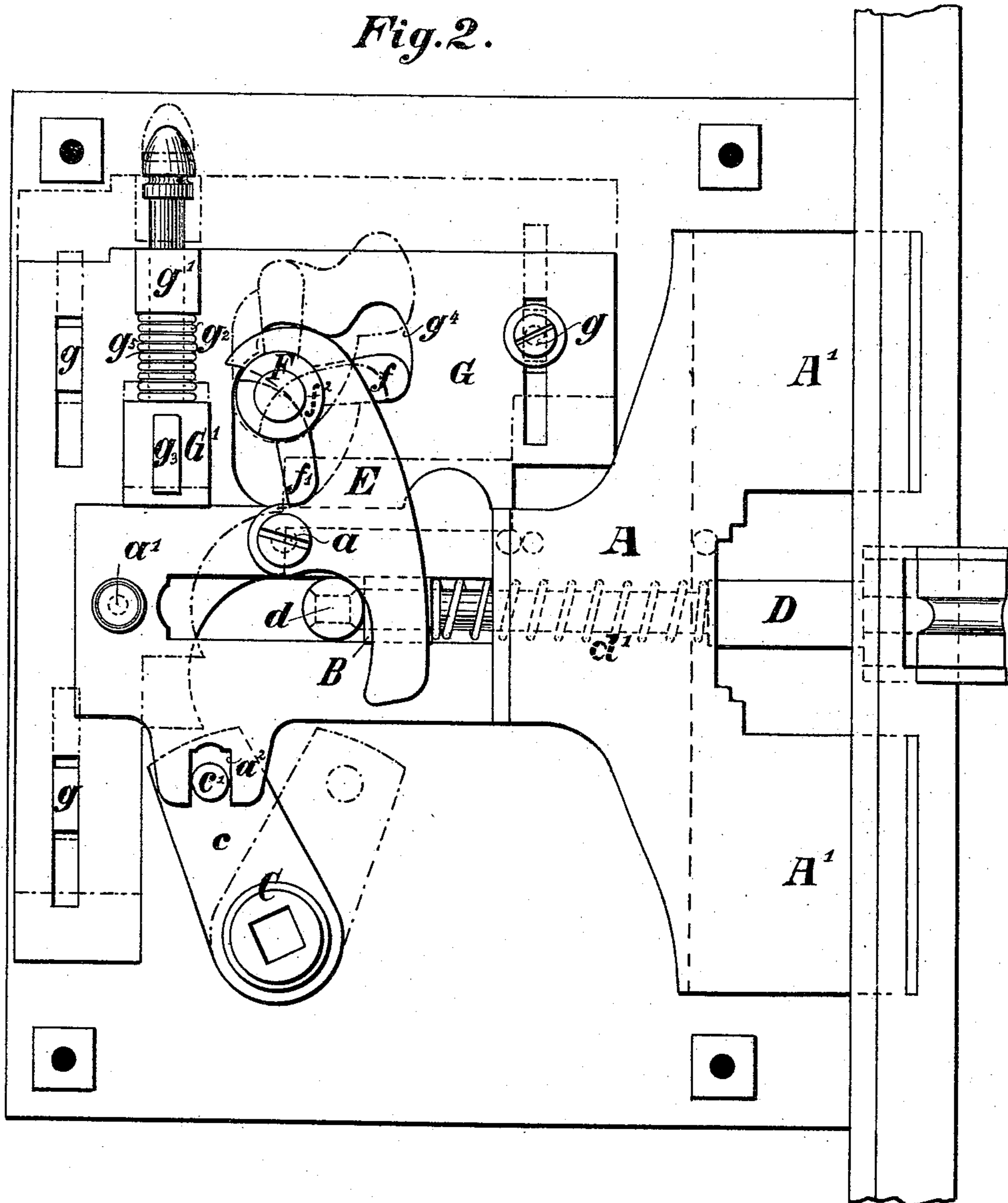
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H. LUDWIG.  
LOCK.

No. 446,101.

Patented Feb. 10, 1891.

*Fig. 2.*



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Wilhelm Kriest.  
Theodor Stendel.

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per: Gersons, Sackse  
his Attorneys.

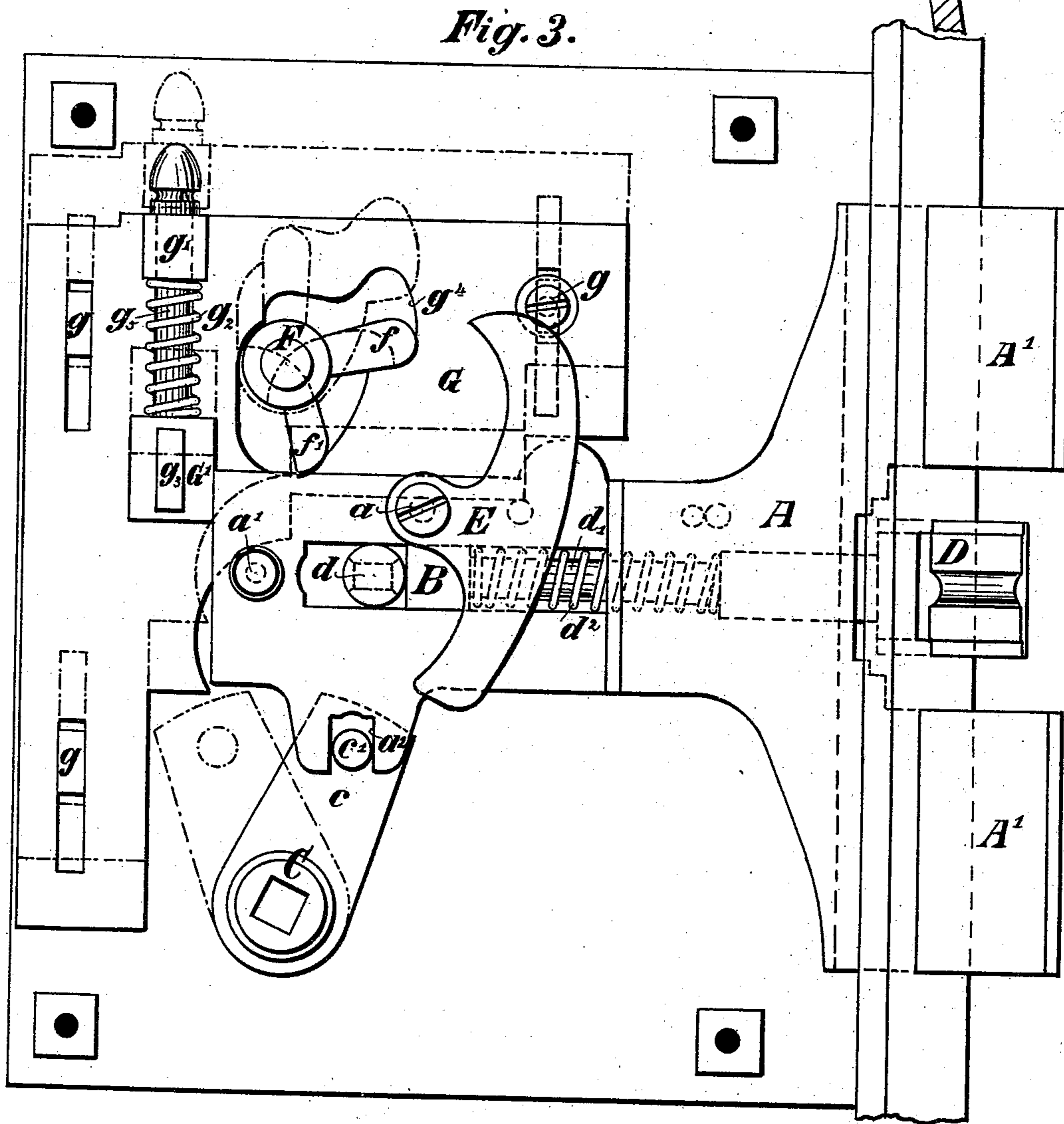
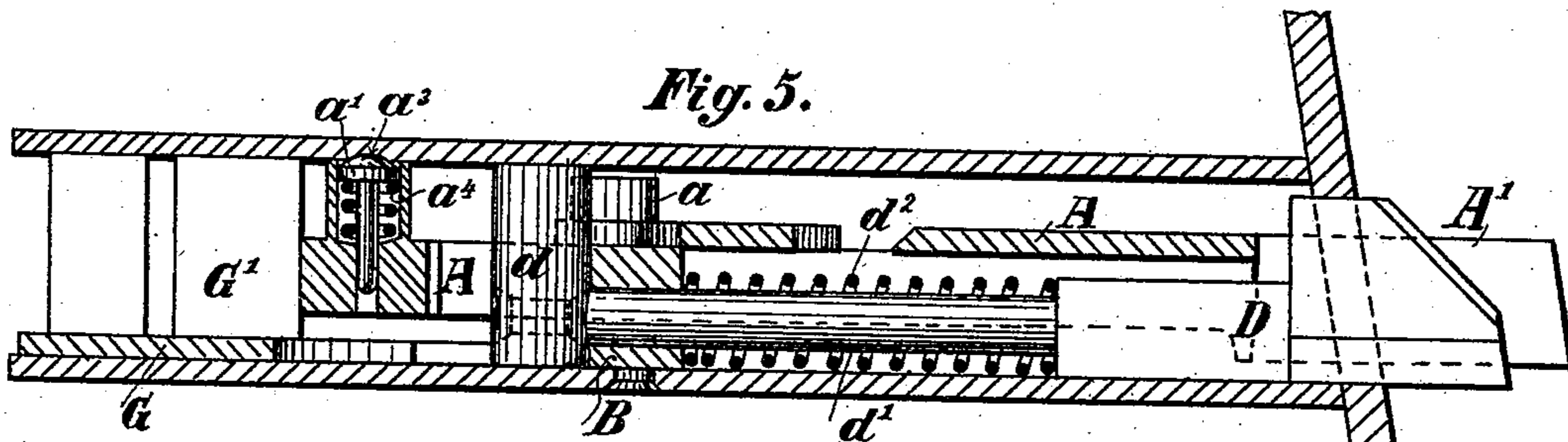
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H. LUDWIG.  
LOCK.

4 Sheets—Sheet 3.

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Witnesses:  
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(No Model.)

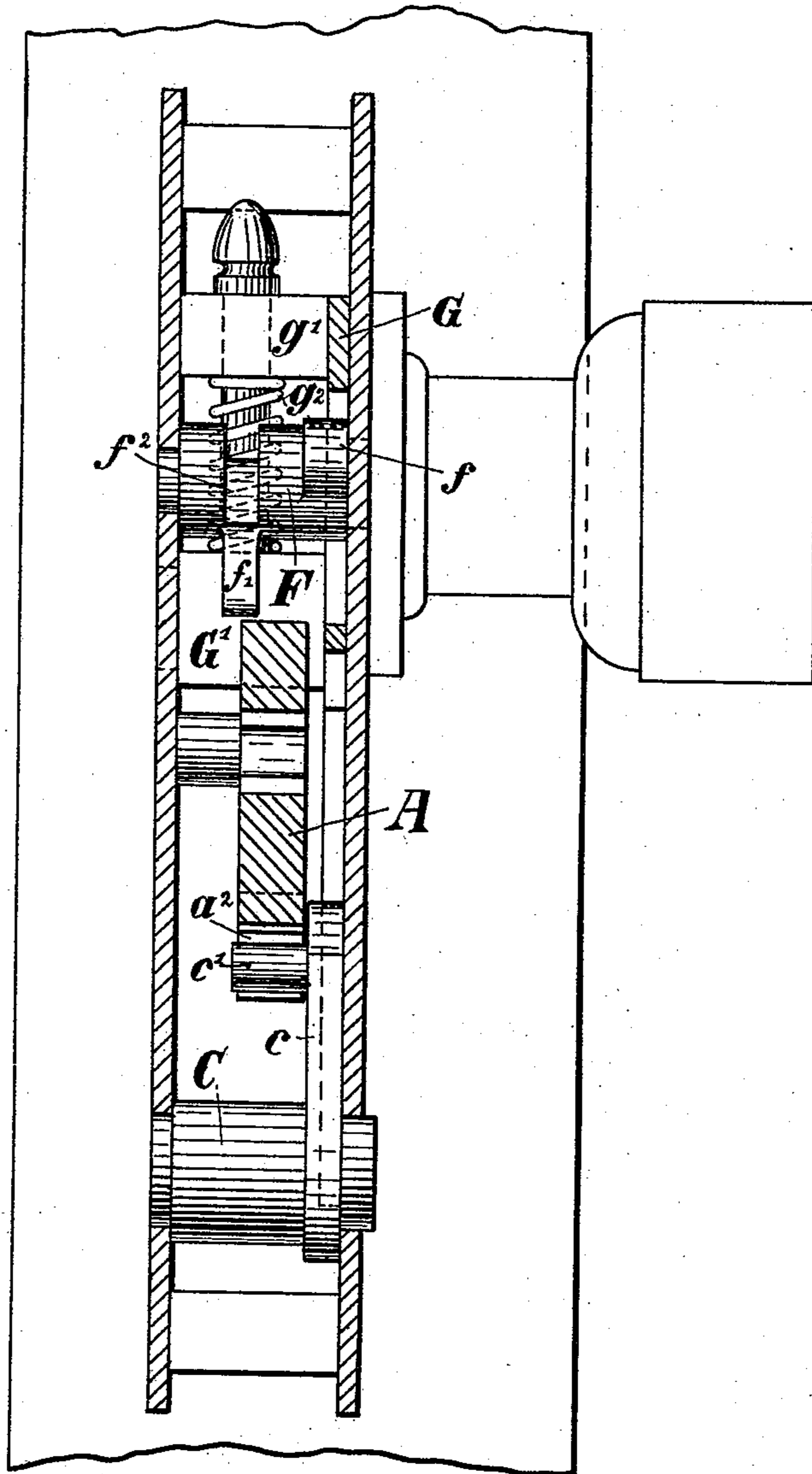
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No. 446,101.

Patented Feb. 10, 1891.

*Fig. 4.*



Witnesses:  
Wilhelm Kist.  
Theodor Kist.

Inventor:  
Heinrich Ludwig  
per Geronlachse  
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# UNITED STATES PATENT OFFICE.

HEINRICH LUDWIG, OF SCHWEINFURT, GERMANY.

## LOCK.

SPECIFICATION forming part of Letters Patent No. 446,101, dated February 10, 1891.

Application filed January 15, 1890. Serial No. 336,992. (No model.) Patented in Germany December 15, 1888, No. 48,201; in Austria-Hungary April 15, 1889, No. 19,792/36,154; in England May 3, 1889, No. 7,411, and in Belgium May 7, 1889, No. 86,145.

*To all whom it may concern:*

Be it known that I, HEINRICH LUDWIG, a subject of the Emperor of Germany, residing at Schweinfurt, in the Empire of Germany, have invented a new and useful Lock, (for which I have obtained a patent in Germany, No. 48,201, bearing date December 15, 1888; in Austria-Hungary, No. 19,792/36,154, bearing date April 15, 1889; in Great Britain, No. 7,411, bearing date May 3, 1889, and in Belgium, No. 86,145, bearing date May 7, 1889,) of which the following is a specification.

The invention relates to improvements in locks, and more particularly to locks of safes; and has for its object to afford means to move two distinct bolts, which may be respectively termed the "locking-bolt" and the "latch-bolt" at option, simultaneously or separately. The locking-bolt is bifurcated at the end, the two ends so formed projecting from the front rim of the lock-case. The latch-bolt is guided in the body of the main bolt. Its beveled edge projects from the rim between the bifurcated ends of the main or locking bolt, and is held projected by a spring. The locking-bolt may be moved back and forth by hand through a rocking lever having a pin engaging in a notch in the bolt and moved by the square of the usual knob or handle.

The improved lock is represented in the accompanying drawings.

Figure 1 shows the lock when open; Fig. 2, with the latch-bolt advanced. Fig. 3 shows the lock when shut. Fig. 4 is a vertical section of the lock in the position of Fig. 3. Fig. 5 is a horizontal section of the lock in the position of Fig. 3.

The bolt A, provided with the bifurcated heads A' and A<sup>2</sup>, is moved to and fro by means of the hub C. The rotation of the hub C depends upon the tumbler, which consists of a bed-plate G and the stop-bolt G'. Upon the tumbler the rocking pin F acts when turned within the lock, the tappet f of the rocking pin resting within the notch g<sup>4</sup> of the bed-plate G of the tumbler, and serving to shift up and down along the guiding-pins g of the ground-plate G with its vertical slots. This pin F, situated within the lock, cannot be reached direct from without. Its rotation is derived in

an optional manner from the motion of some special lock forming no part of this present invention and arranged without, for which may be used an ordinary key which can be withdrawn. The pin F has also a second tappet f', which operates the double-arm lever E. This lever E revolves on a pin a, secured to bolt A, and it is used at the corresponding position of the tappet f' to withdraw the latch D and to keep back the same. The head of the latch D is situated between the bolt-heads A and A', while its shaft is partly inserted into the bolt A and finishes with an arm I, upon which acts the lever E. The spiral spring d' rests partly upon a projection of the latch D and partly on the guiding-pin B of the bolt and tends to push forward the latch D.

If, as represented in Fig. 1, the lock is opened the tappet f keeps the bed-plate G of the tumbler in its highest position. The stop-bolt G' has a cylindrical projection g<sup>5</sup>, with which it can be moved within a hole in the pin g', arranged in the bed-plate G. The spiral spring g<sup>2</sup> presses the stop-bolt G' away from the pin g'. The stop-bolt G' has, besides, two opposite projections g<sup>3</sup>, one of which is guided in a slot in the lock-box cover, while the other one is guided in a slot of the bed-plate G.

The slot in the bed-plate G only reaches so far below that in the position shown by Fig. 1. The stop-bolt G' is some distance above the bolt A. The bolt A is shifted quite back in Fig. 1 by the rotation of the hub C. The arm c connected thereto carries a pin c', which is inserted into the slot a<sup>2</sup> of the bolt A. The bolt A is secured in its withdrawn position by the domed head of the pin a', forced by a spring a<sup>4</sup> against the lock-plate, and entering a cavity a<sup>3</sup>, Fig. 5, of the lock-plate.

The latch D is kept entirely back because the upper arm of the lever E presses itself against the almost horizontal tappet f', and in consequence thereof the lower part of the lever E presses back the arm d' of the latch D. On turning the wards of the pin F, as indicated by dotted lines in Fig. 1, downward about ninety degrees, the spring d shifts forward the latch D, the arm d' presses against the lever E, so that its upper arm enters the notch f<sup>2</sup>, Fig. 4, of the key F and the bed-

plate G is lowered into its lowest position. The stop-bolt G' can only follow partly in this motion because it presses against the bolt A and rests upon the same. In this position of the mechanism (explained by Fig. 2) the latch D only acts and the lock can be shut by slamming in the known manner. In order to then withdraw the latch D by the action of the lever E the tappets  $f f'$  are turned back into the dotted position in Fig. 2. If it is wished to push forward the latch D and the bolt-heads A A' to shut thoroughly the lock, as represented in Fig. 3, the bolt A is moved forward by turning the hub C, and the tappets  $f f'$  are turned down. The stop-bolt G' is then pressed behind the bolt A by the spring  $g^2$  and secures the same against withdrawal.

The withdrawal of the bolt A and of the latch D by means of the hub C can only be effected when the tappets  $f f'$  have been previously turned upward into the position indicated in Fig. 1.

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

In a lock, the combination of the rocking pin F, provided with two wards  $f$  and  $f'$ , the tumbler consisting of a bed-plate  $g$  and the stop-bolt G', the double-arm lever E, acting upon the arm  $d$  of the latch D, the bolt A, provided with the bifurcated heads A' and A<sup>2</sup>, the hub C, the spiral spring  $g^2$ , pressing down the stop-bolt G', the spiral spring  $d'$ , resting upon a projection of the latch D, and the pin  $a'$ , entering by the pressure of a spring  $a^4$  the cavity  $a^3$ , as described.

In testimony whereof I signed this specification in the presence of two subscribing witnesses.

HEINRICH LUDWIG.

Witnesses:

HENRY F. E. HESS,  
JEAN GRUND.