

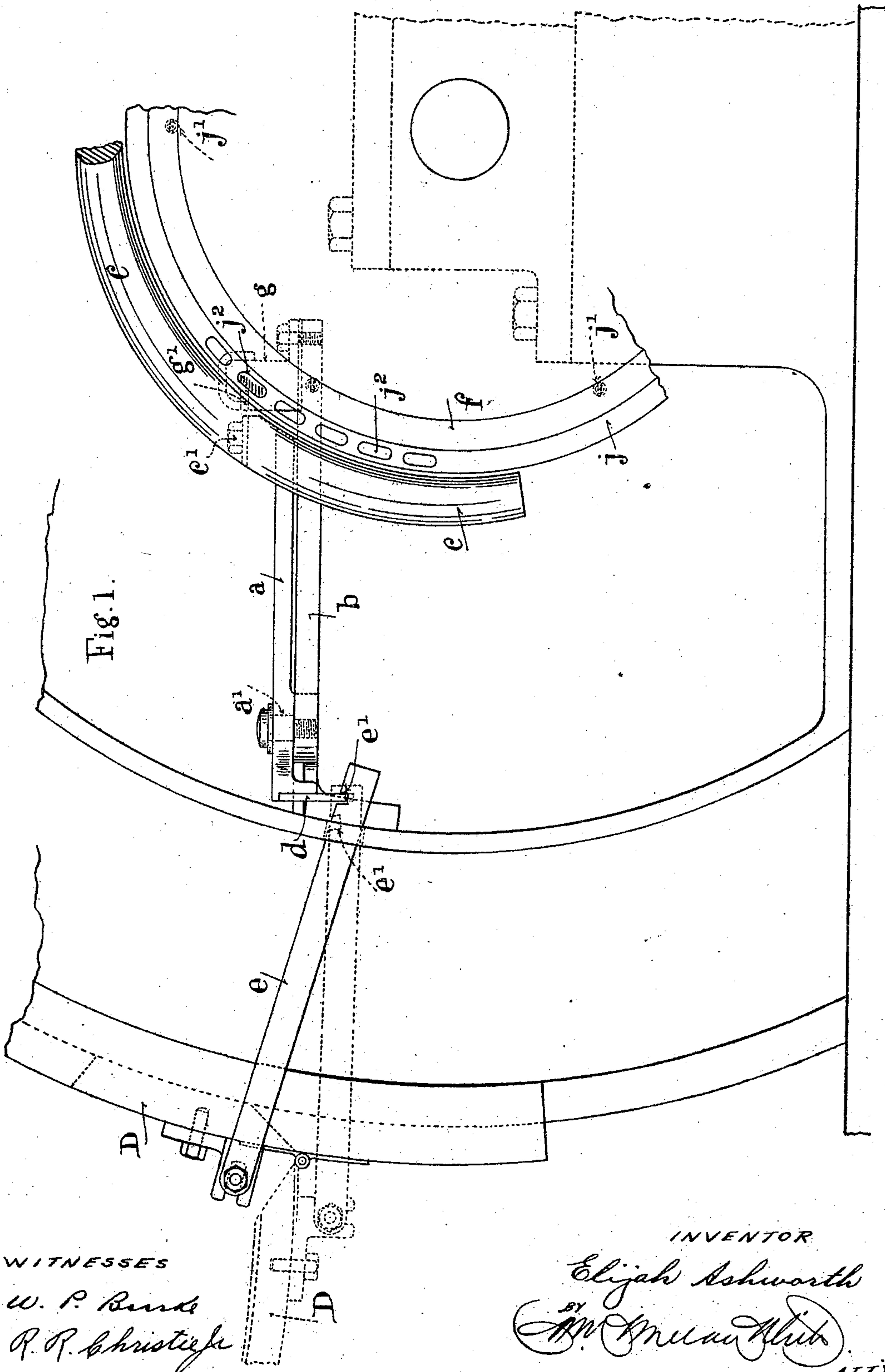
944,168.

E. ASHWORTH.  
CARDING ENGINE.

APPLICATION FILED APR. 3, 1909.

Patented Dec. 21, 1909.

3 SHEETS—SHEET 1.



WITNESSES

W. P. Burke  
R. R. Christie

INVENTOR

Elijah Ashworth  
BY *Wm. M. M. M. M.* ATT'Y.

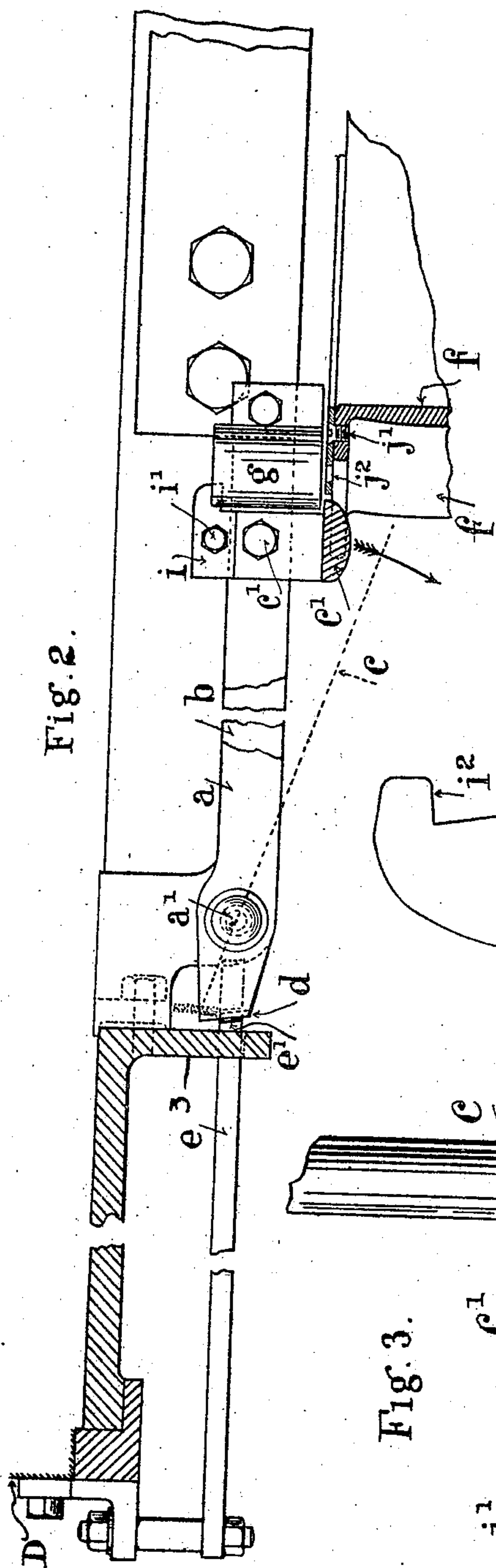
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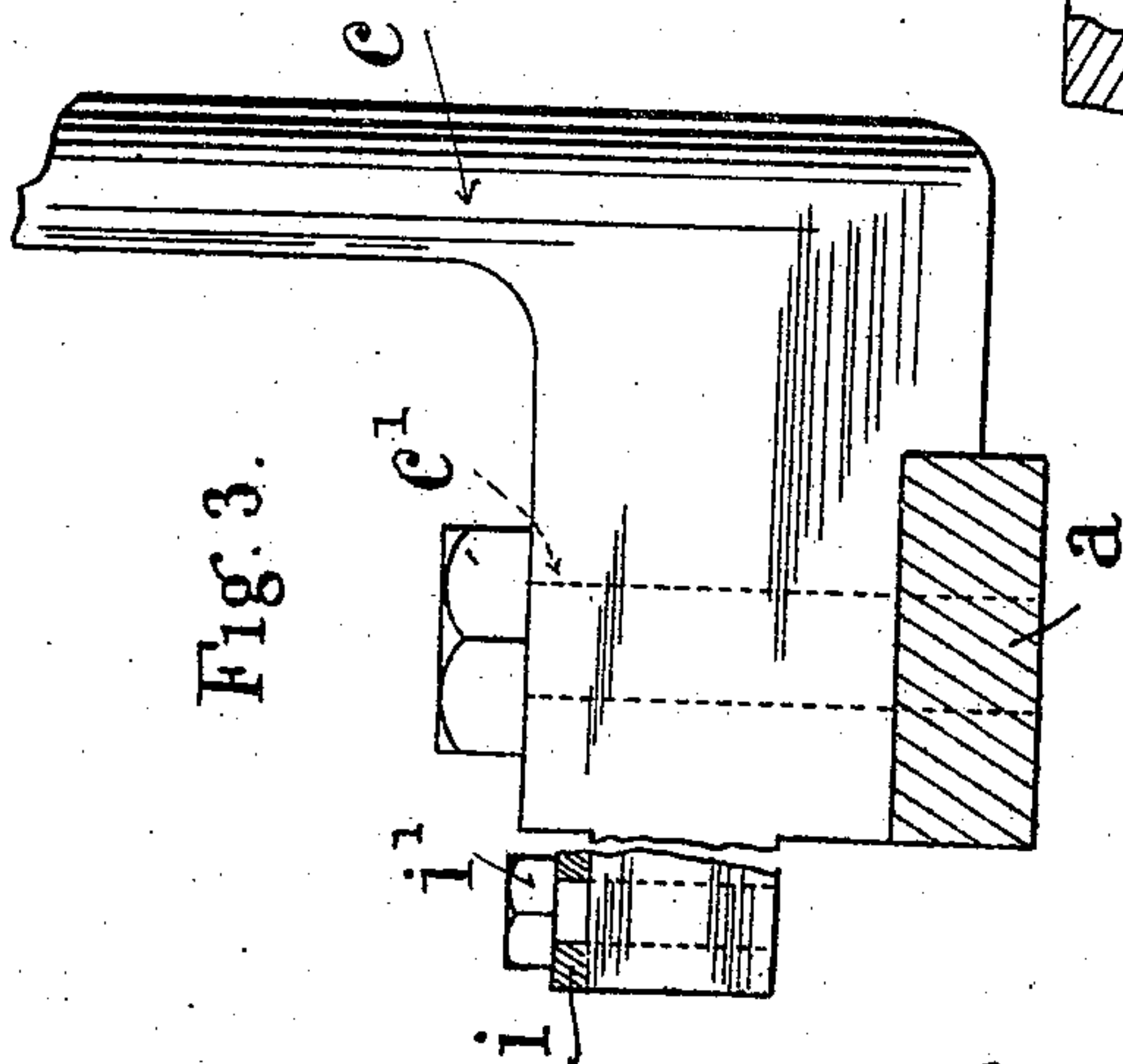
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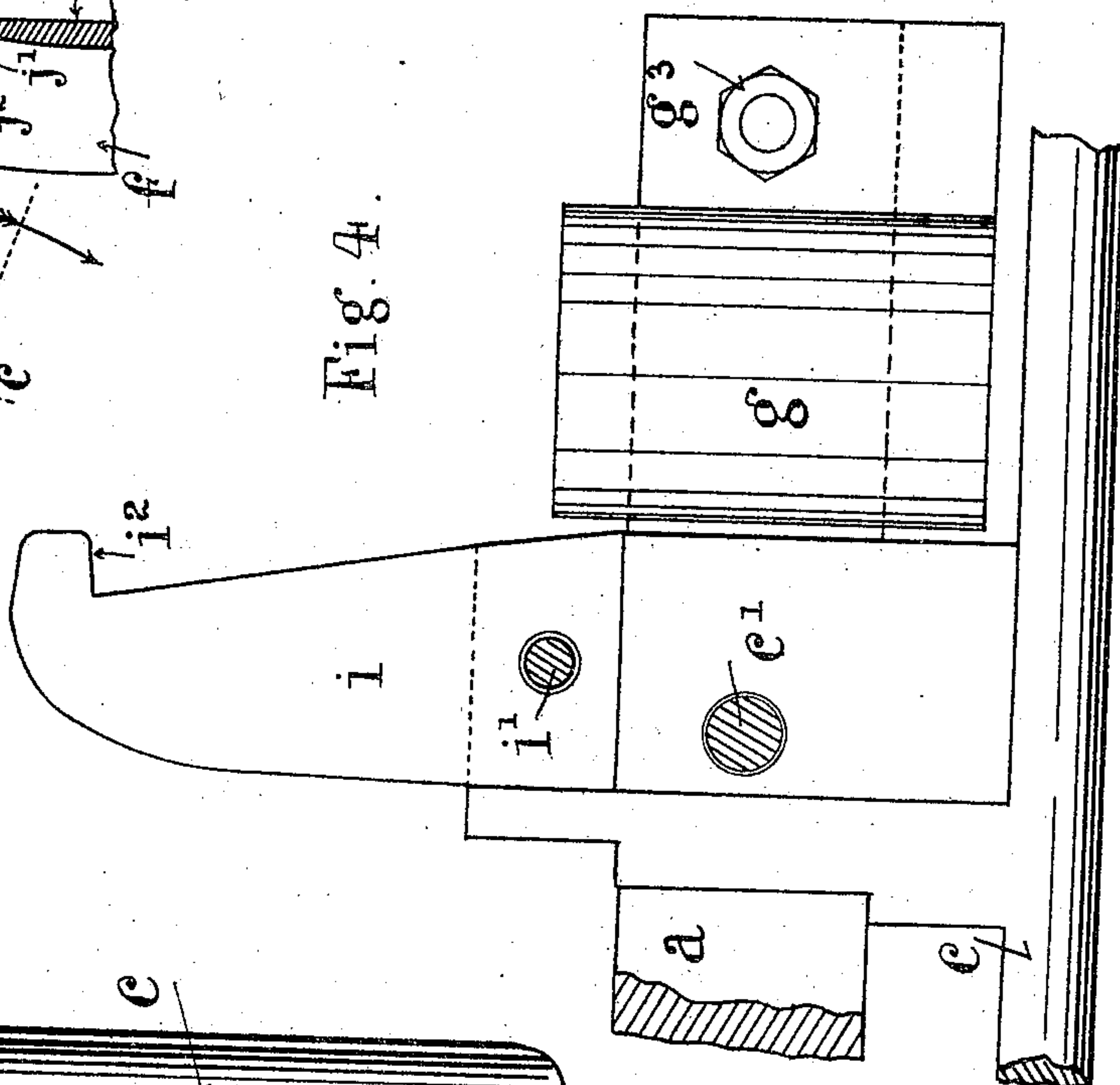
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WITNESSES

W. P. Burke

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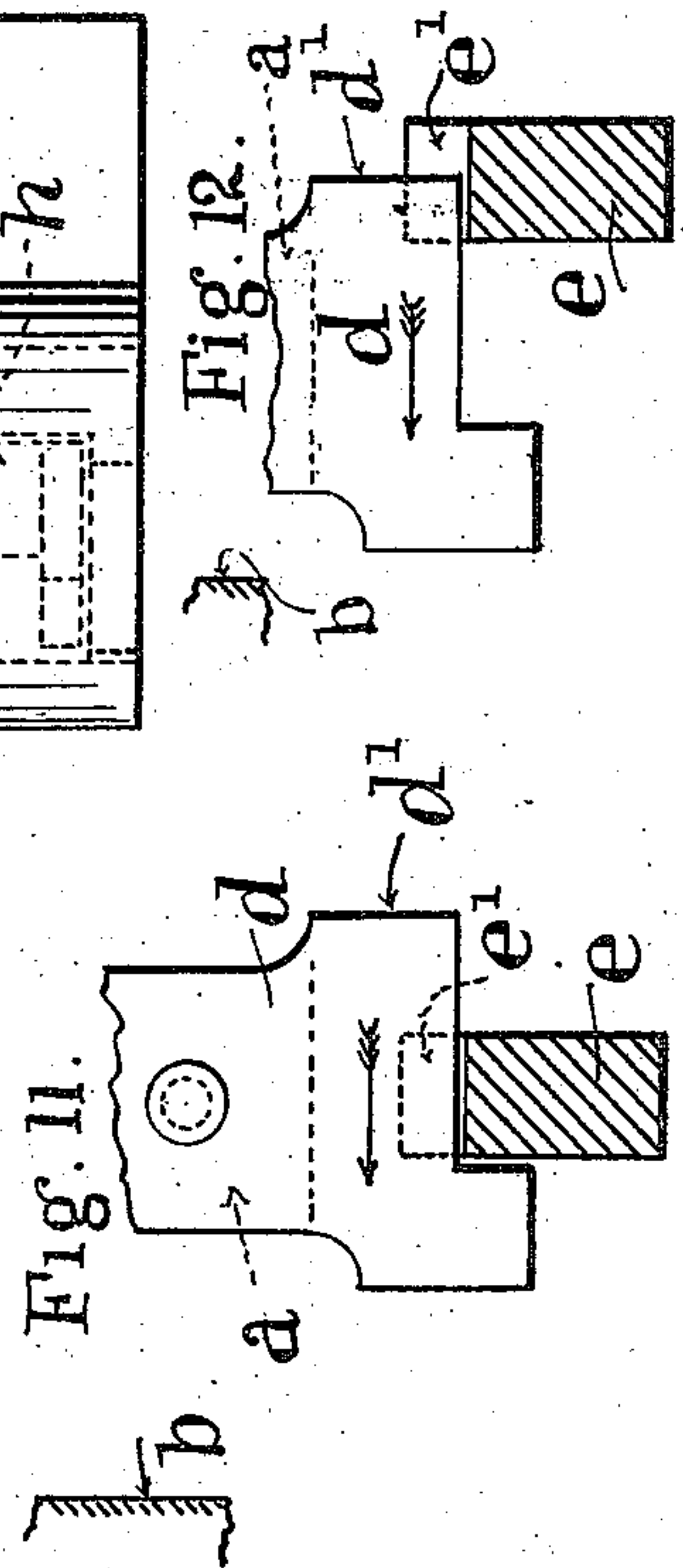
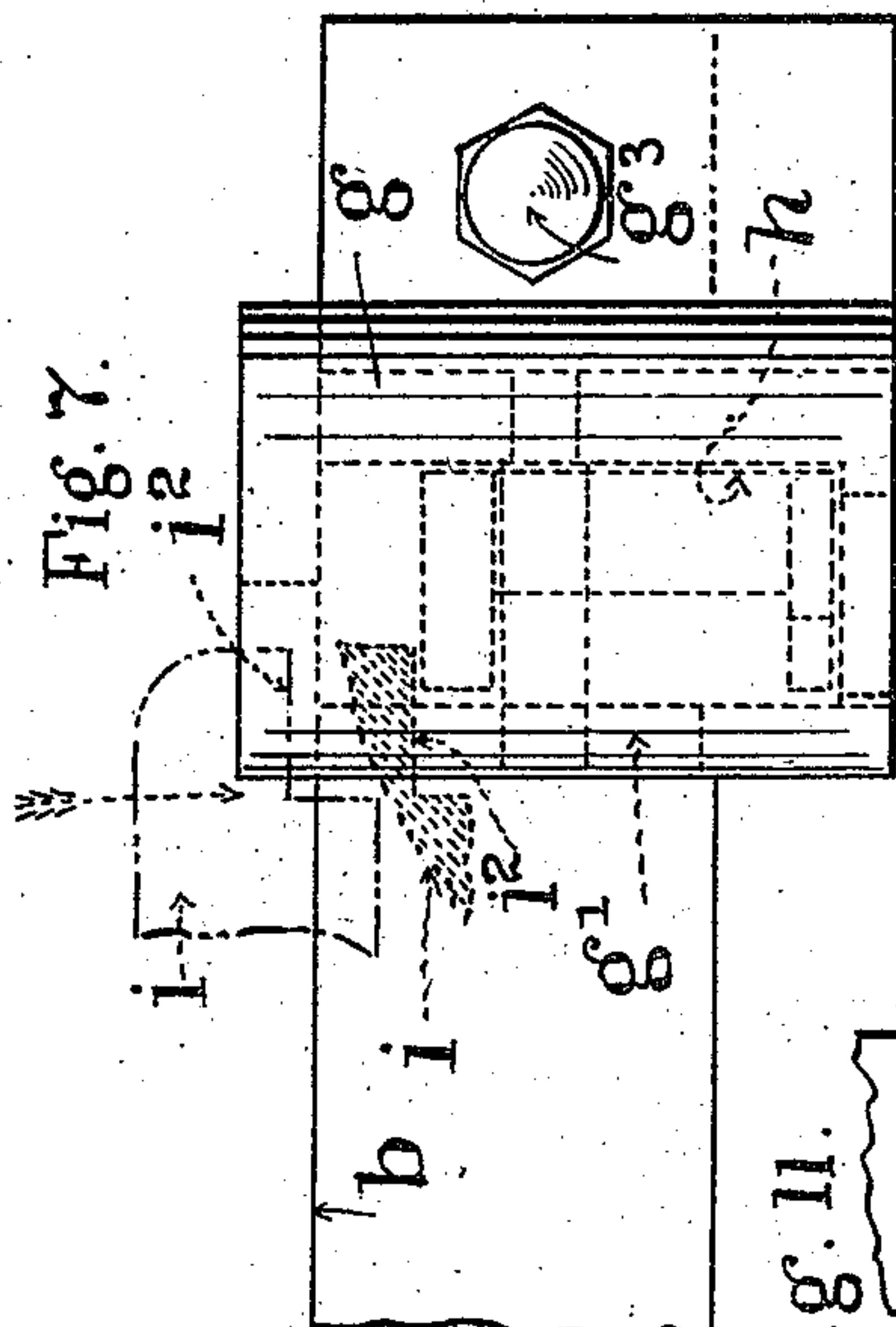
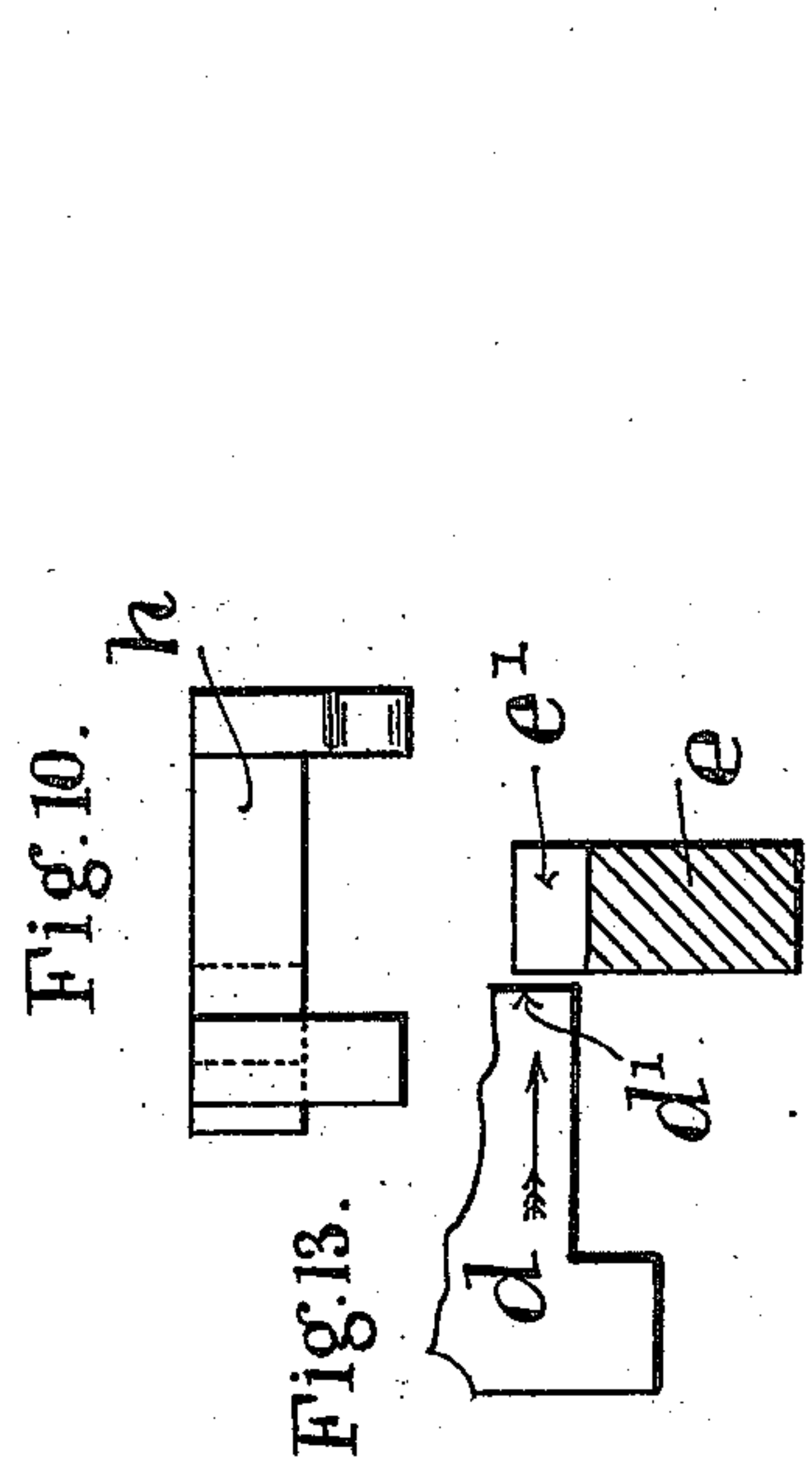
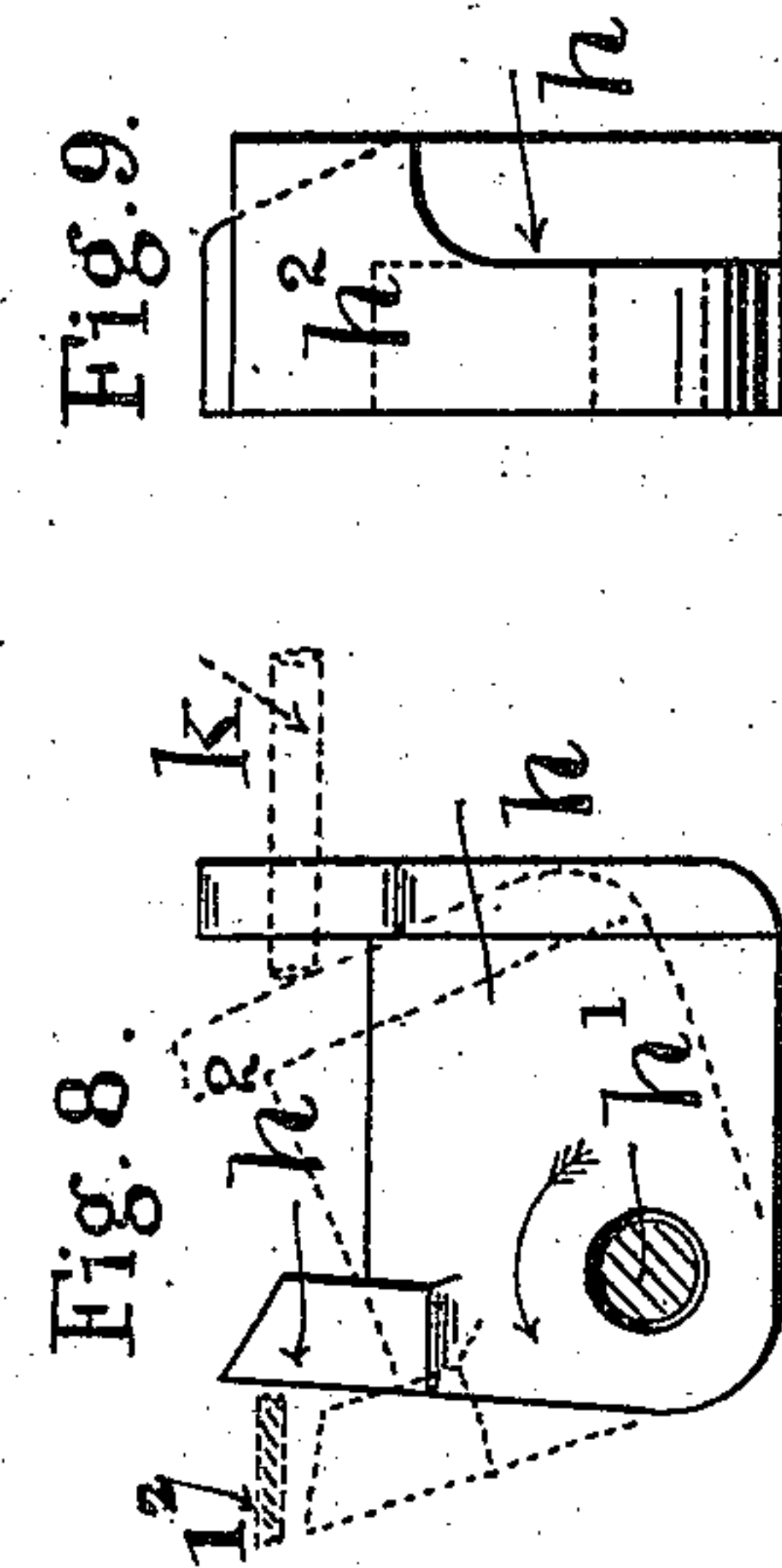
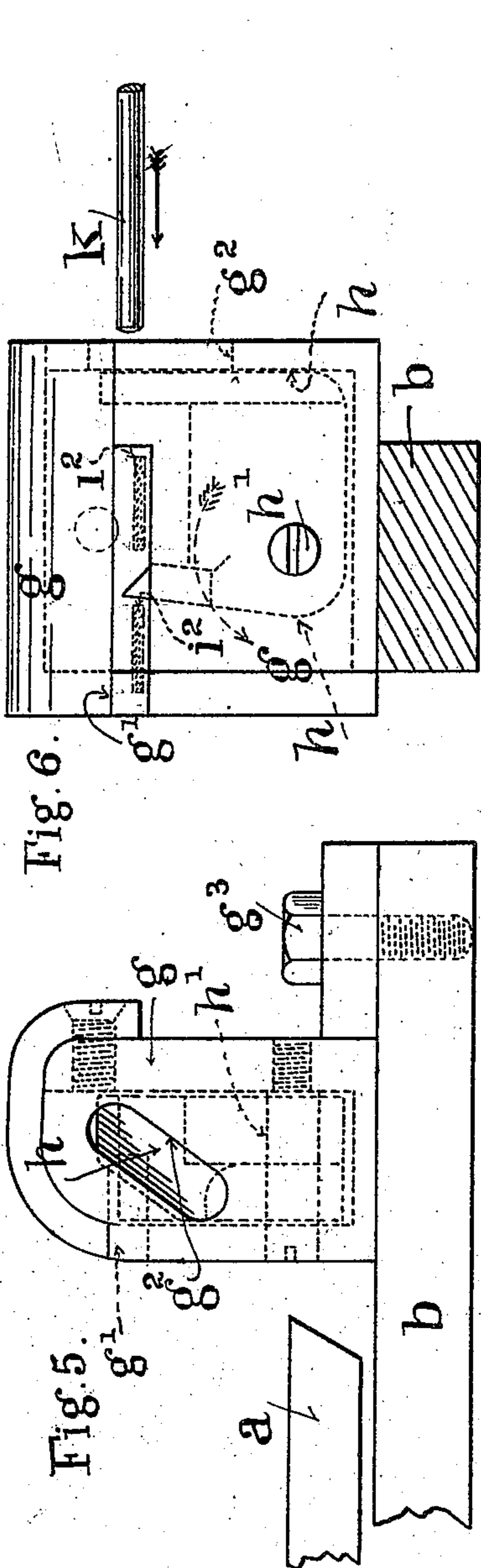
Elijah Ashworth  
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INVENTOR

Elijah Ashworth  
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# UNITED STATES PATENT OFFICE.

ELIJAH ASHWORTH, OF MANCHESTER, ENGLAND.

CARDING-ENGINE.

944,168.

Specification of Letters Patent.

Patented Dec. 21, 1909.

Application filed April 3, 1909. Serial No. 487,775.

*To all whom it may concern:*

Be it known that I, ELIJAH ASHWORTH, a subject of the King of Great Britain and Ireland, residing at the Moss Brook Works, Collyhurst, Manchester, in the county of Lancaster, England, machine-maker, have invented new and useful Improvements in and Applicable to Carding-Engines, of which the following is a specification.

My invention relates to carding engines and has reference to improved means for insuring the closing and for controlling the unlocking of the door which gives access to the main cylinder, and by which means I can prevent opening of the door until revolution of the wire covered main cylinder has ceased.

It is an object of this invention to simplify the locking arrangements and to make same more compact, and I propose to have incorporated with the lock mechanism but one locking lever and to permit a partial movement thereof when the strap is shifted to the loose pulley but to resist, by obstructing means, a full movement until rotation of the cylinder has ceased. In other words partial unlocking only is possible so long as the cylinder revolves, because the locking lever cannot make its required full movement due to the presence of the obstructing means.

An important point resulting from the use of the mechanism to be described lies in the fact, that, in the event of complete unlocking, the door itself always remains free and can be opened and closed at will from either side of the card, no locking hold resulting on the mere shutting of the door so long as the locking lever remains fully out.

The drawings illustrate and serve to explain the invention.

Figure 1 is a front elevation indicating so much of a carding engine as is requisite and shows my locking means in position. Fig. 2 is a plan view partly in section. Fig. 3 shows in end view a modified form of segmental bar mounted on the locking lever. Fig. 4 shows in plan view the locking lever, a form of segmental bar and a modified form of attached plate necessary where the segmental bar has to make considerable movement prior to encountering the obstructing device. Fig. 5 shows the housing

inclosing the obstructing device. Fig. 6 is a side view, and Fig. 7 a plan of parts seen in Fig. 5. Figs. 8, 9 and 10 show in side, end, and plan view the obstructing tumbler. Figs. 11, 12 and 13 are diagrams, the first (Fig. 11) indicating the locking lever finger in the position it occupies when the door is fully locked, the second (Fig. 12) a partial unlocking permissible with the belt on the loose pulley, and the third (Fig. 13) a complete unlocking only possible with the belt on the loose pulley and with the cylinder absolutely at rest.

According to my invention I use a locking lever *a*, pivoted at *a'* to a bracket *b* bolted to the wall of the "bend" or otherwise. This locking lever *a* has bolted to it at *c'* a segmental bar *c* and has also a pendent finger *d* riveted or otherwise secured in position at the opposite extremity. I use a sliding bar *e* passing through the flange 3 (or otherwise guided) and having a notch or gap *e'* with which notch or gap *e'* the pendent finger *d* coöperates. Toward the other end of the bracket *b* and at the back of and near the rim of the fast pulley *f*, I secure a housing *g* having an entrance slot *g'* the housing being attached to the bracket *b* by a stud *g<sup>3</sup>* or otherwise. Within the housing *g* is an obstructing tumbler *h*, pivoted at *h'*, and spring-pressed or loaded to normally resist a full movement of the locking lever *a* such as would wholly disengage the pendent finger *d* from the notch or gap *e'* in the bar *e*. The locking lever *a* has formed on or attached to it a small flat plate *i* which may be adjustable and is secured by the stud *i'* and has a nose or operating piece *i<sup>2</sup>* which, when the locking lever is drawn forward by the attendant, enters the slot *g'* in the housing and so meets the obstructing tumbler *h* in its normal position which accordingly checks further advance (see Figs. 6 and 8). The left hand position of the plate in Fig. 6 is the position it occupies upon meeting the obstructing tumbler in the normal position of said tumbler. The little housing *g* has a front aperture or entrance slot *g<sup>2</sup>* which may be masked or shrouded by the flange of the fast pulley *f* but preferably by a slotted ring *j* applied thereto, and secured by screws *j<sup>1</sup>* or otherwise, and so long as the main cylinder and



fast pulley  $f$  revolve this aperture or slot  $g^2$  in the housing  $g$  cannot be got at. When the motion of the main cylinder ceases, access can be had, and a nail or pencil such as  $h$  (Fig. 6) can be passed through one of the slots  $j^2$  in the ring  $j$  and the aperture or slot  $g^2$  in the housing  $g$ , to encounter the obstructing tumbler  $h$  and upset or tilt the tumbler. When this occurs, and the obstructing tumbler is tilted, its nose  $h^2$  is lowered, out of the way, and the nose  $i^2$  of the small plate  $i$  can be moved forward or advanced to such an extent that the pendent finger  $d$  is moved entirely clear of the notch or gap  $e'$  in the bar  $e$  and thus the door  $D$  is left entirely free. The right hand position of the plate  $i^2$  in Fig. 2 is the position it assumes after the nose  $h^2$  of the obstructing tumbler is removed from its path.

It will be seen that the arrangement proposed is most compact and neat, and sums itself up practically into one locking lever  $a$  with bar segment  $c$ , its supporting bracket  $b$ , and parts carried thereby, and with the addition of the slotted masking ring  $j$ . A point of importance lies, in the fact, that, after a full unlocking, and so long as the segmental bar remains obstructing the strap on the loose pulley, the door  $D$  is entirely free and can be opened and closed from either side by a mechanic just as though no locking means were present.

It is obvious that I may vary the form of obstructing tumbler  $h$  which normally resists the complete disengagement of the pendent locking finger  $d$ .

The Fig. 12 shows the relative positions of the bar  $e$  and the pendent finger  $d$ , with the segmental bar drawn out or advanced and the strap on the loose pulley. Fig. 13 goes farther than Fig. 12 and shows the complete disengagement of sliding bar  $e$  and pendent finger  $d$ . Opening of the door  $D$  on release, results in the forward edge  $d'$  of the pendent finger  $d$  getting in the rear of the bar  $e$  and so it becomes apparent the door must be closed before the pendent finger  $d$  can again enter the notch or gap  $e'$ , and, until such finger  $d$  does enter the notch  $e'$  the segmental bar  $c$  cannot retreat or be pushed back to the position seen in Figs. 2 and 12 and so remains advanced and held and thus acts as a positive obstruction rendering it impossible to put the belt back onto the fast pulley. Upon a due and proper closing of the door  $D$  the pendent finger  $d$  again enters the notch or gap  $e'$  the segmental bar  $c$  can be pushed back and the door is again fully locked and the card ready for starting.

I may make the segmental bar  $c$  carried by the locking lever  $a$  to serve as a strap-fork by applying thereto a rounded or other angle-piece and I may arrange to be able to turn same against the action of a spring

through approximately  $90^\circ$  to facilitate the placing in position of the belt.

It will be understood that the driving belt lies in the path of the segmental bar  $c$  and when this bar is moved outwardly the belt is moved from the fast to the loose pulley.

I declare that what I claim is:

1. Locking means for carding engine doors, comprising a locking lever, means intermediate of the same and the door to be locked, said means being engaged by said locking lever, belt shifting means in connection with said locking lever, and housed obstructing means normally resisting a full unlocking movement of the locking lever a masking device for masking said obstructing means as set forth.

2. Locking means for carding engine doors, comprising a locking lever, means interconnected with the door and engaged by said locking lever, a belt shifting device in connection with said lever, a housing, a device obstructing the said lever inclosed therein, a slotted masking ring safeguarding access to the obstructing device while the cylinder is in motion as set forth.

3. Locking means for carding engine doors comprising a movable locking lever, a movable bar connected with the door, said bar being engaged or disengaged by said locking lever to hold or entirely release the bar, belt engaging means on said locking lever, a projection on said lever, a device engaging with said projection for obstructing said lever, a housing for same, and a slotted ring in connection with the fast pulley preventing access to the obstructing device while the cylinder rotates, substantially as described.

4. In mechanism for the indicated purpose, a locking lever belt engaging means on said lever, housed obstructing means resisting a full movement of the locking lever, and a masking ring preventing access to the obstructing means until the cylinder ceases to revolve, substantially as set forth.

5. Locking means for carding engine doors, having in combination, a locking lever, a pendent finger thereon, a slidable bar having a notch therein adapted to receive the finger, belt engaging means on said locking bar, a plate on the locking lever, supporting means for the lever, a housing, an obstructing device therein engaging with the plate, and a slotted masking device in connection with the fast pulley and revolving therewith preventing access to the obstructing device until the pulley stops substantially as set forth.

6. Locking means for carding engine doors, having in combination, a locking lever, a movable bar connected with the door, a locking connection between the locking lever and the movable bar, belt engaging means on the locking lever, a plate in connection with the locking lever, a support for the



locking lever, a housing having an entrance  
slot for the plate, an obstructing device for  
the plate inclosed in the housing, an aper-  
ture in the housing and a slotted masking  
5 ring on the fast pulley preventing access to  
the obstructing device while the cylinder is  
rotating substantially as set forth.

In testimony whereof I have signed my  
name to this specification in the presence of  
two subscribing witnesses.

ELIJAH ASHWORTH.

Witnesses:

RICHARD WEBSTER IBBERSON,  
ALFRED STUART GATES.