No. 681,109. Patented Aug. 20, 1901.

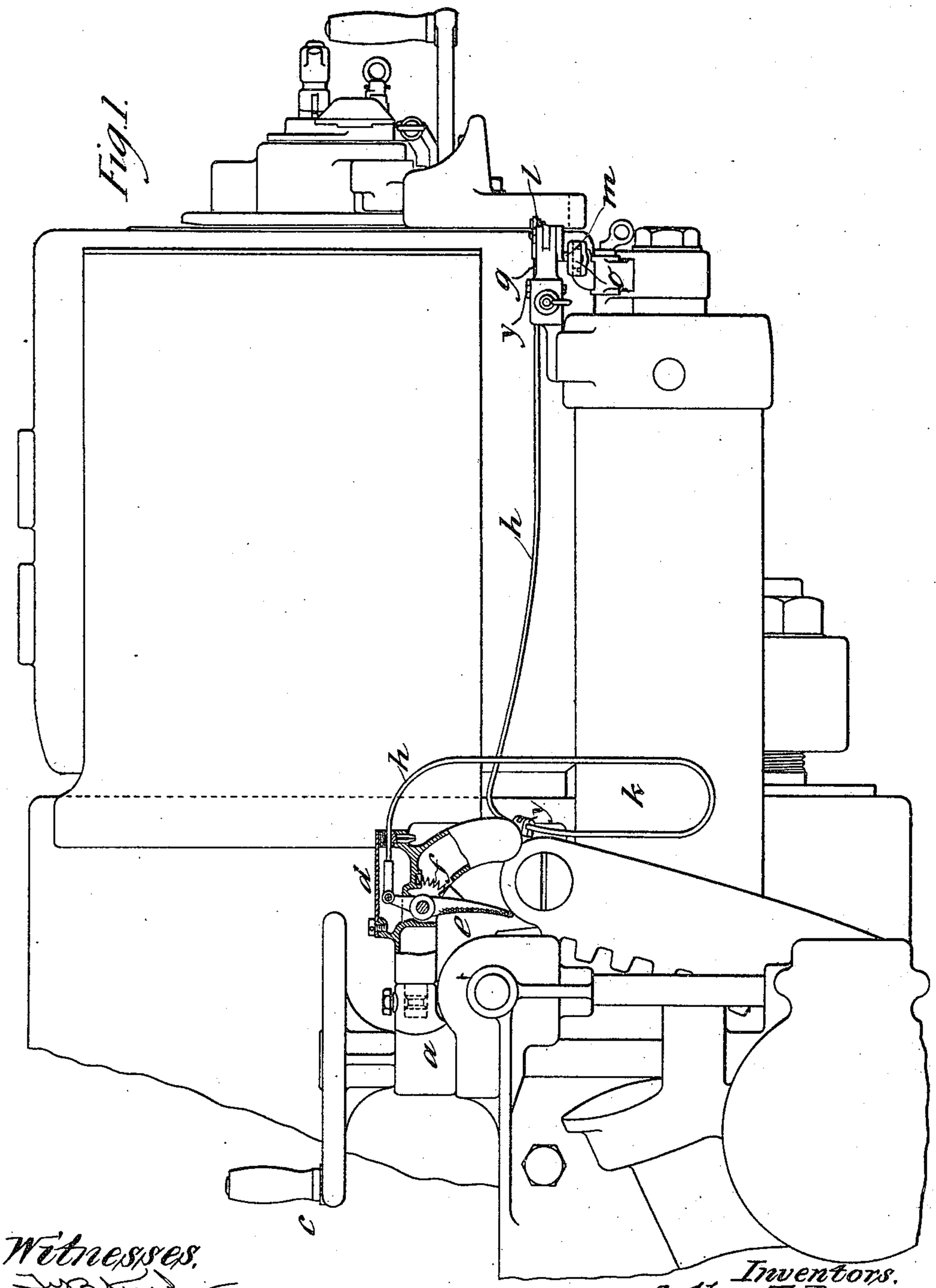
A. T. DAWSON & G. T. BUCKHAM.

PERCUSSION FIRING GEAR FOR BREECH LOADING ORDNANCE.

(Application filed Apr. 6, 1901.)

(No Model.) 5 Sheets—Sheet 1.

Fig. 1.



Witnesses.
W. B. Kaufer
Robert Gwath.

Inventors.
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By James L. Norris.
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(No Model.) 5 Sheets—Sheet 2.

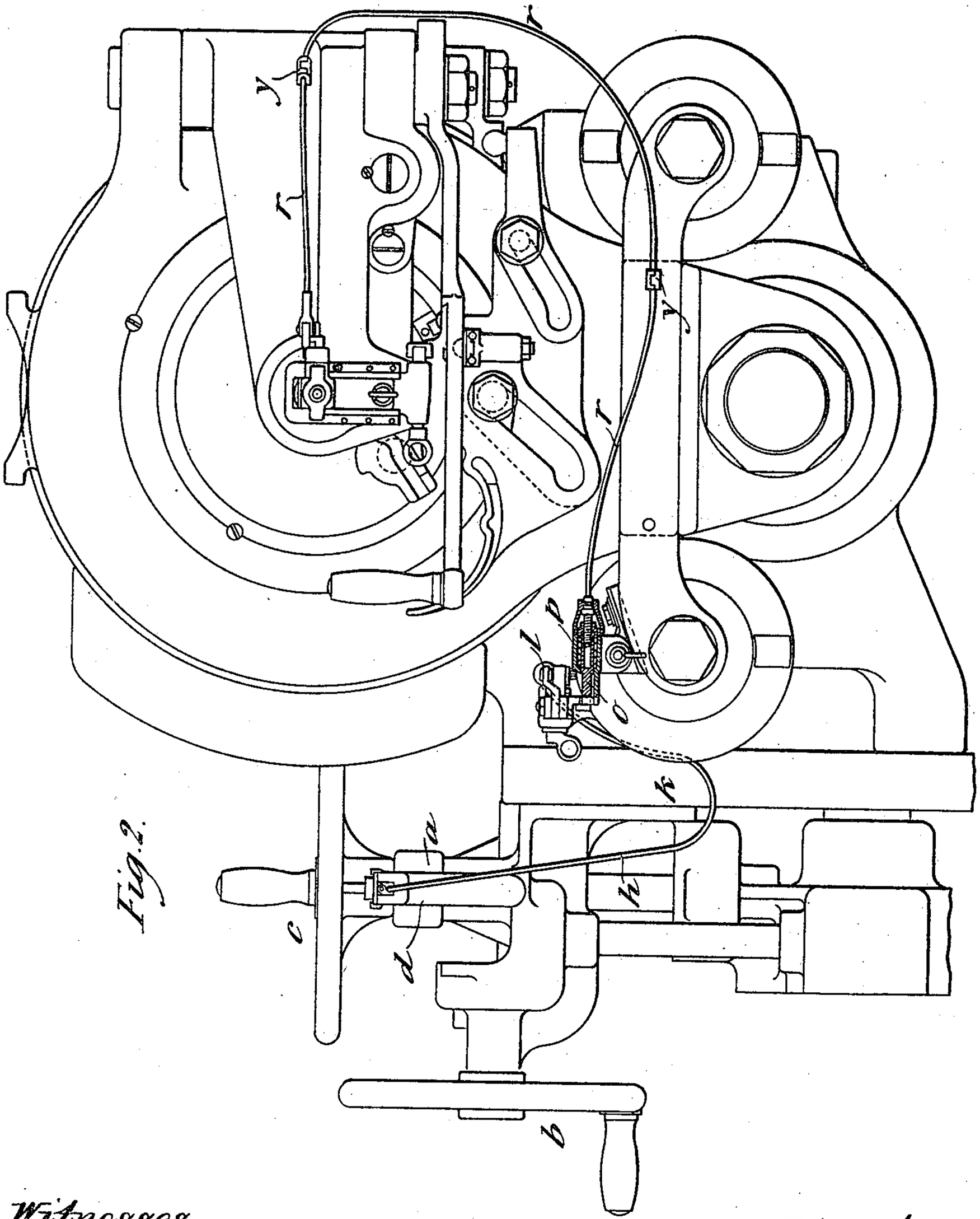

Fig. 2.

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(No Model.) 5 Sheets—Sheet 3.

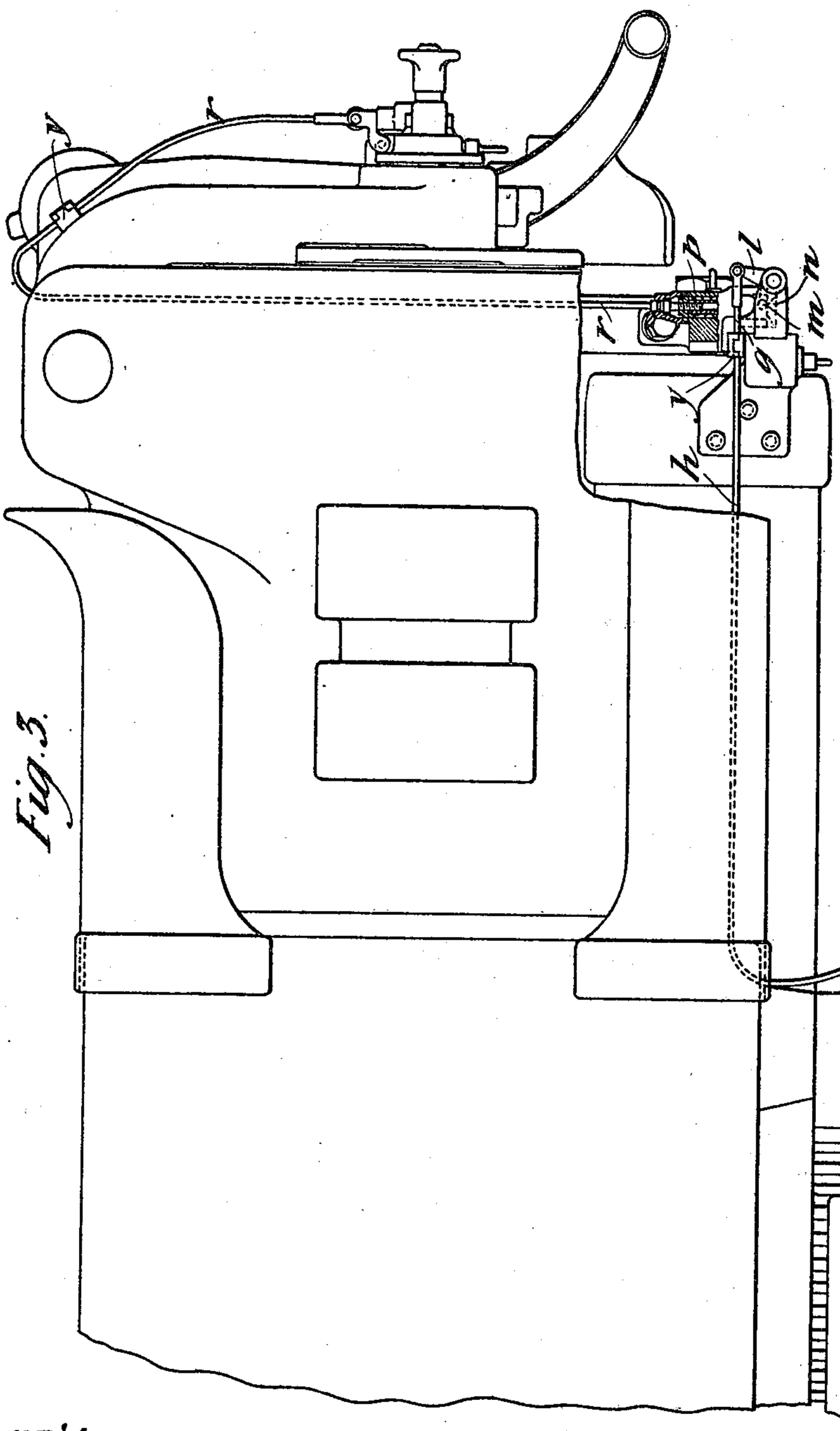

Fig. 3.

Witnesses.
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(No Model.) 5 Sheets—Sheet 4.

Fig. 5.

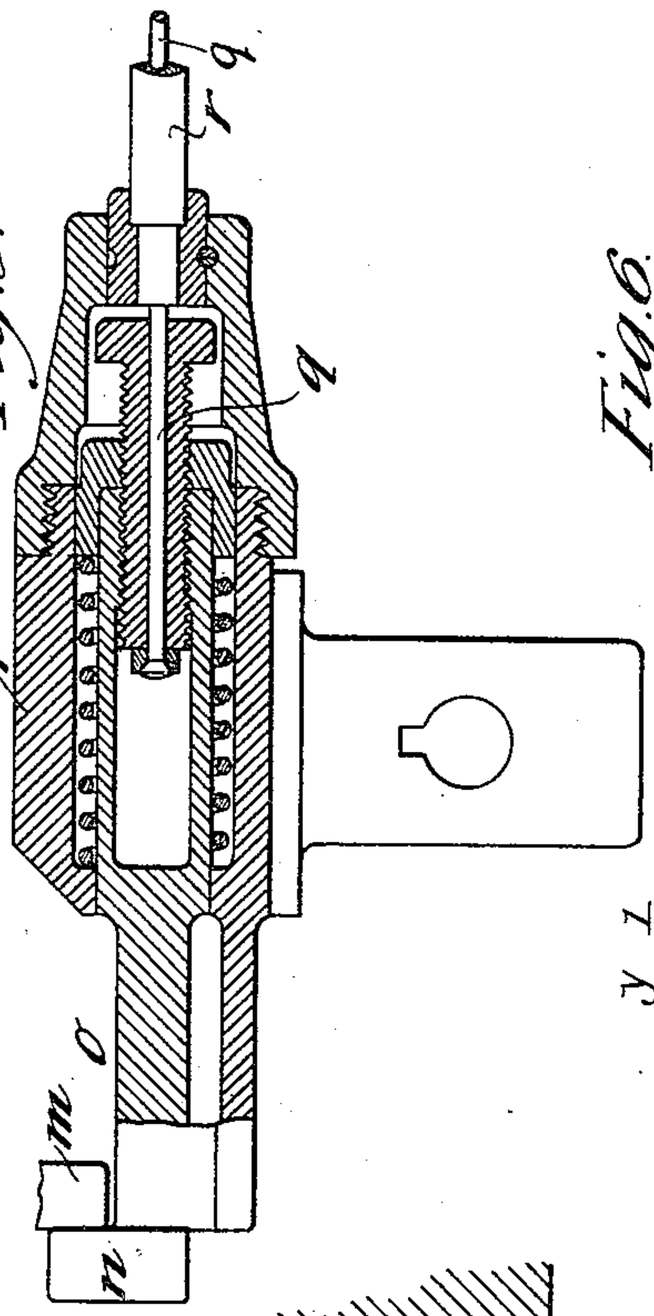


Fig. 6.

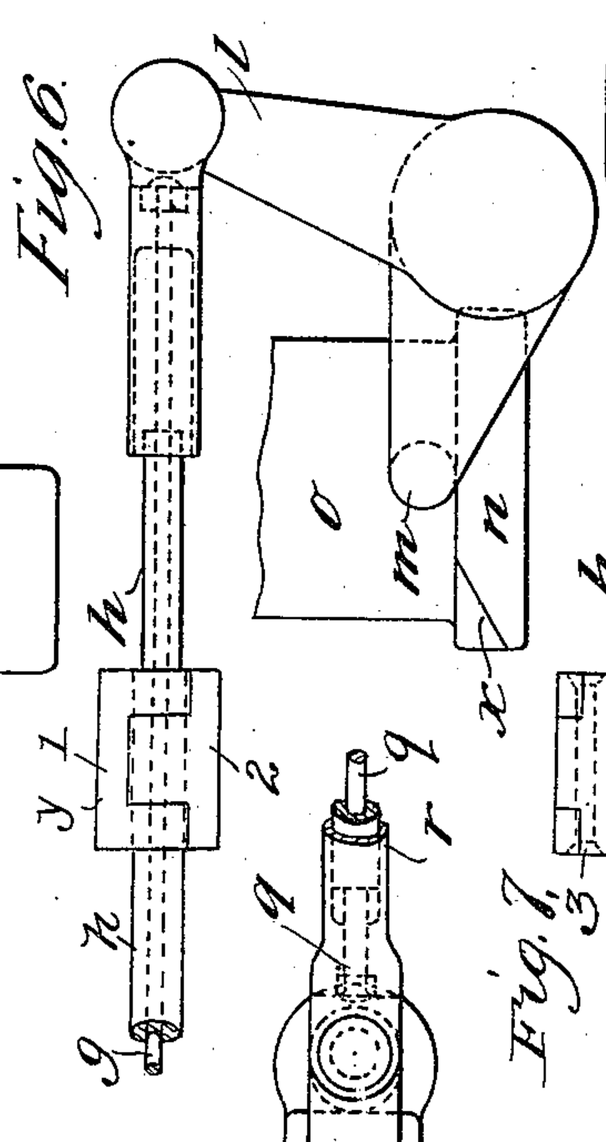


Fig. 7.

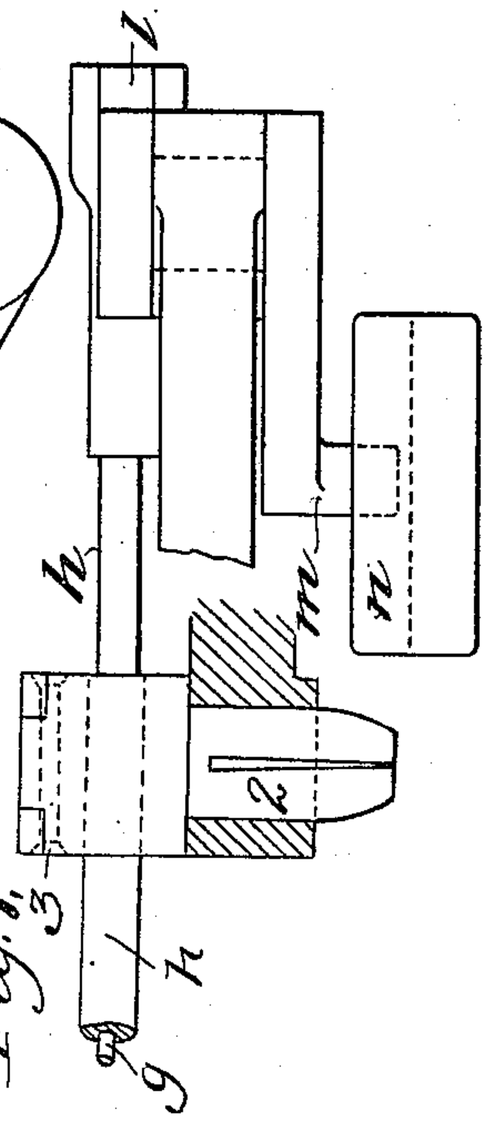
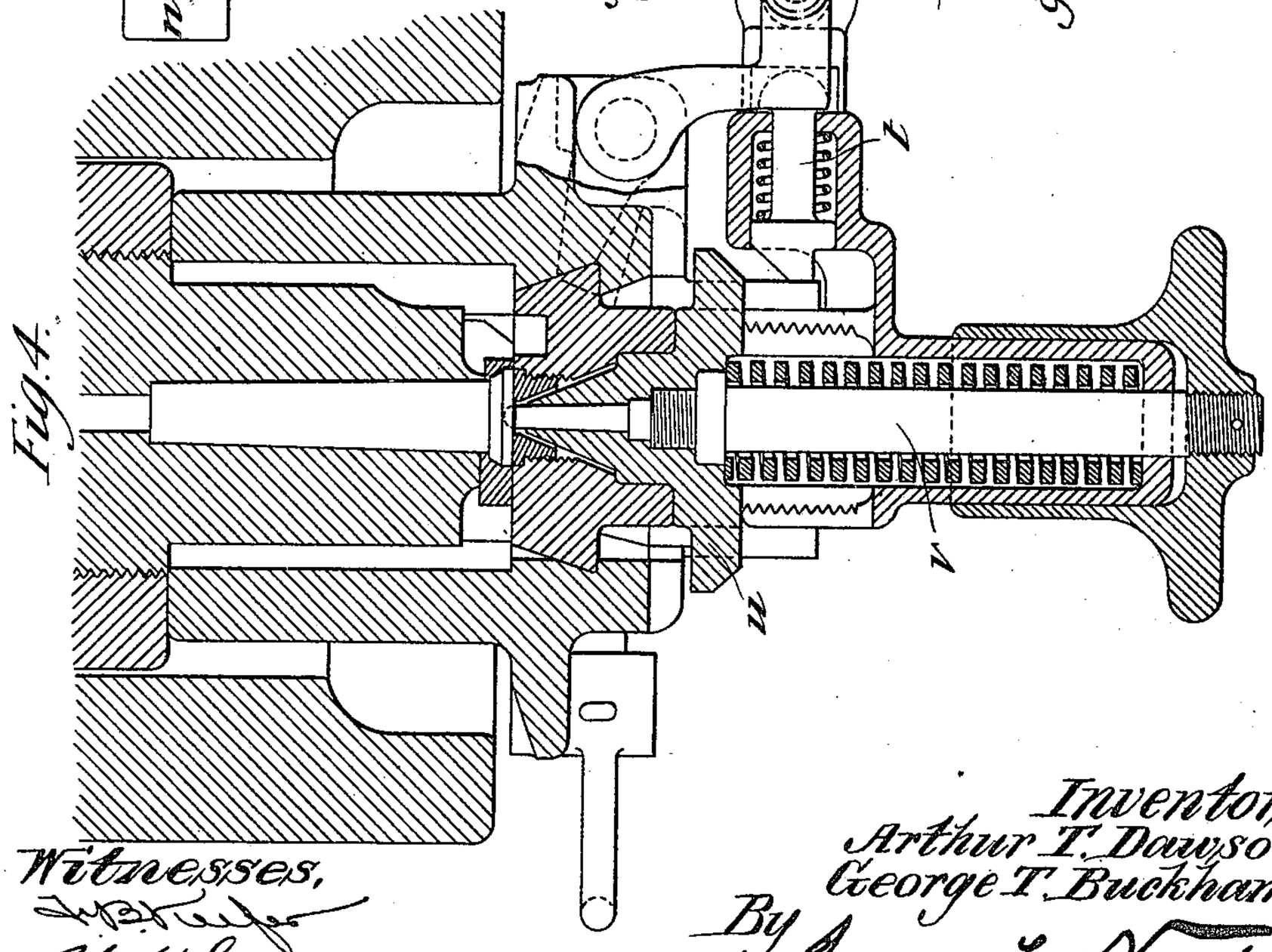


Fig. 4.



Witnesses,
W. B. Tulloss
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Inventors.
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No. 681,109. Patented Aug. 20, 1901.

A. T. DAWSON & G. T. BUCKHAM.

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Fig. 8.

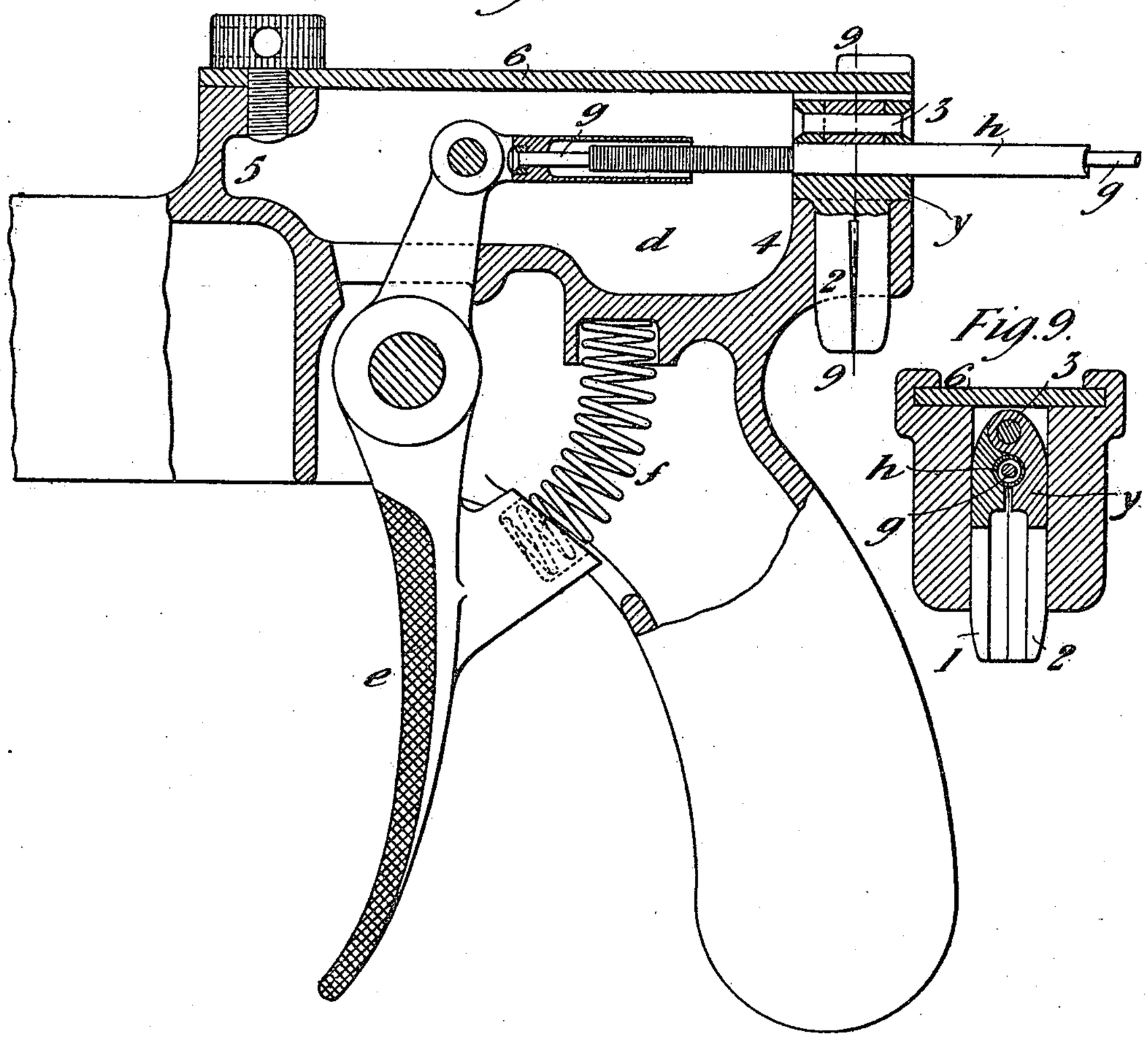

Fig. 9.

Witnesses:
Dennis Sumby.
C. D. Kesler

Inventors
Arthur T. Dawson
George T. Buckham
By James L. Norris
Atty

UNITED STATES PATENT OFFICE.

ARTHUR TREVOR DAWSON AND GEORGE T. BUCKHAM, OF WESTMINSTER, ENGLAND, ASSIGNORS TO VICKERS SONS & MAXIM, LIMITED, OF SHEFFIELD, ENGLAND.

PERCUSSION FIRING-GEAR FOR BREECH-LOADING ORDNANCE.

SPECIFICATION forming part of Letters Patent No. 681,109, dated August 20, 1901.

Application filed April 6, 1901. Serial No. 54,663. (No model.)

To all whom it may concern:

Be it known that we, ARTHUR TREVOR DAWSON and GEORGE THOMAS BUCKHAM, citizens of England, residing at 28 Victoria street, Westminster, in the county of London, England, have invented certain new and useful Improvements in Percussion Firing-Gear for Breech-Loading Ordnance, (for which we have applied for a patent in Great Britain, dated September 8, 1900, No. 16,003,) of which the following is a specification.

Our invention has for its object improvements in percussion firing-gear of guns in which the charge is fired by means of a primer or cap, the firing-needle being urged by a spring and released for firing by a sear, and is applicable to guns mounted either on position-carriages or field-carriages. It is usual in the case of such guns to pull the trigger by the intervention of a lanyard. In some cases the lanyard is attached previous to each round of firing and in other cases the lanyard, although detachable, is not loosened when the gun is in use. In the first case a loss of time ensues and in the second the lanyard is liable to foul the breech mechanism during operation of the same. In our invention these difficulties are obviated and the gunner can fire without moving away from his position when laying and sighting the gun. We effect the necessary movement of the sear by means of a flexible wire guided through a tube. One extreme end of the wire is in engagement with the trigger-pull mounted on a handle or grip, the other extreme being in engagement with the sear.

We fix the firing-handle, in the form of a pistol-grip, on some convenient part of the carriage, so that it is not affected by the recoil or by the elevation of the gun, and we divide the connecting-wire into sections according to the local conditions of the installation. When the connecting-wire is divided into sections, each intermediate end of the wires is secured to a catch, the catches being introduced to allow for disconnection consequent on the recoil of the gun in its cradle or saddle and to allow for disconnection on opening and closing the breech. Such disconnections allow the wire to be as short as possible and also make it impossible to fire the gun except when it is sufficiently far run out after recoil and the breech is safely closed.

We shall describe gear according to our invention for firing a breech-loading gun, referring to the accompanying drawings, in the several figures of which the same characters of reference are employed to denote the same part.

Figure 1 is a side view, partly in section, of the breech part of a breech-loading gun having firing-gear according to our invention applied thereto. Fig. 2 is an end view, and Fig. 3 is a plan. Figs. 4, 5, 6, and 7 show details on an enlarged scale, Fig. 4 being a sectional plan of the percussion-gear on the gun-breech; Fig. 5, a section of the connection, which is detachable when the breech is opened; Fig 6, a plan, and Fig. 7 is an end view of the bell-crank for this connection. Fig. 8 is a longitudinal section of the pistol-grip drawn to an enlarged scale, and Fig. 9 is a transverse section on the line 9 9 of Fig. 8.

On a stationary part *a* of the mounting near the elevating and training handles *b* and *c* we fix a pistol-grip *d*, having a trigger-lever *e*, the long arm of which is urged forward by a spring *f*, while the short arm is connected to a flexible wire *g*, which can slide within a flexible guiding-tube *h*. The tube and wire are bent in several directions at *k*, so that the same can serve for guns requiring different lengths.

The end of the wire *g* is attached to one arm *l* of a bell-crank, which is mounted on the end of one of the recuperating cylinders. The short arm has a stud *m*, which engages behind a flange *n* on a slide *o*, which can move within a sleeve *p*, which is fixed on the plunger of the recuperator. The slide *o* is subject to a spring within the sleeve and is adjustably connected to one end of the wire *q*, which is guided through the tube *r*, which is carried under the breech mechanism and up beyond it, then back over it to the spring sliding sear *t*, which on being pulled releases the spring firing-pin *v* of the ordinary known firing mechanism.

When the gunner, standing by the elevating and training handles, with his eye on the

sights, pulls the trigger-lever *e*, he pulls the wire *g*, which can slide within its guide-tube *h*, and he thus pulls forward the arm *l* of the bell-crank lever. The stud *m* on its other arm, acting on the flange *n*, pulls the slide *o* and with it the wire *q*. This wire, sliding within its guide-tube *r*, withdraws the spring-sear *t*, disengaging the flange *u* and allowing the spring firing-pin *v* to advance, firing the charge. As the gun recoils the slide *o* moves rearward with the sleeve *p* and its flange *n* escapes the stud *m* of the bell-crank. The spring in the sleeve *p* moves the slide *o* to its former advanced position, loosening the wire *q* and allowing the sear *t* to be advanced by its spring, so as to be ready to engage again the flange *u* when the firing-pin is pulled back or cocked. Also the trigger *e*, being released, is returned by its spring *f* to its original position, loosening the wire *g*. When the recuperator-plunger again advances, it brings with it the sleeve *p* and slide *o*, and then an incline *x* on its flange *n* acts on the stud *u*, restoring the bell-crank to its original position. All parts of the firing-gear are thus restored to position for firing again.

The guide-tubes for the wires are conveniently made in lengths jointed together at convenient points; but as the tube and its joints are of a kind well known and form no part of our invention we do not show them in detail in the drawings.

The guide-tube *h* is held firmly at various points by clamps *y*, each of which is of the kind shown in Figs. 8 and 9. It consists of two arms 1 and 2, jointed together by a pin 3, each arm having a semicircular recess to receive the tube *h* and having its arms 1 and 2 split up for some distance. The two arms being opened apart, the clamp is passed onto the tube *h* until it is lodged in their semicircular recesses. The arms are there closed together and then taper ends are inserted into a round hole, which is of such size that when they are pressed down into it they are squeezed together, so as to clamp the tube *h* between them at the same time. Owing to the spring of their split parts they are held firmly in the hole. The clamp on the pistol-grip, which has to sustain the pull of the trigger, is held in a hole of a bracket 4, projecting from the rear of the grip, this bracket and the space between it and a front bracket 5 being covered by a flat bar 6, fixed by a screw on the front bracket.

Having thus described the nature of this invention and the best means we know of carrying the same into practical effect, we claim—

Percussion firing-gear for a breech-loading gun comprising a pistol-grip with spring trigger-lever attached thereto, one end of a flexible wire extending through a guide-tube to a bell-crank to one arm of which the wire is attached, its other arm being provided with a stud, a spring-urged slide having a flange engaged by the said stud, another flexible wire the one end of which is attached to the said slide, and which extends through a guide-tube and has its other end attached to the spring-sear of the firing-gear on the gun-breech substantially as described.

In testimony whereof we have hereunto set our hands in presence of two subscribing witnesses.

ARTHUR TREVOR DAWSON.
GEORGE T. BUCKHAM.

Witnesses:
C. A. SEARLE,
HENRY KING.