

A. BRADLEY.

GUILLOTINE PAPER CUTTING AND TRIMMING MACHINE.

No. 567,576.

Patented Sept. 15, 1896.

Fig. 1.

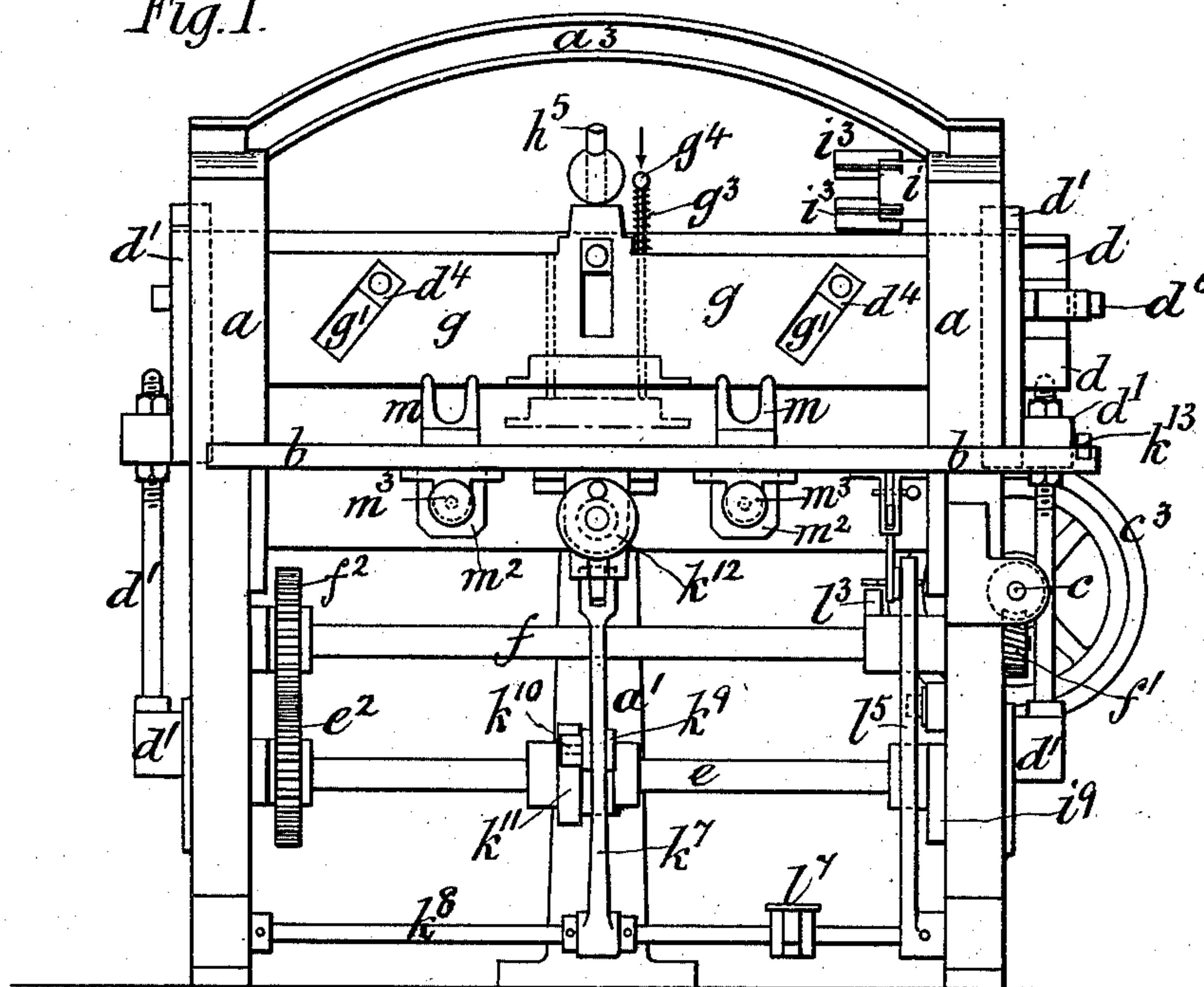
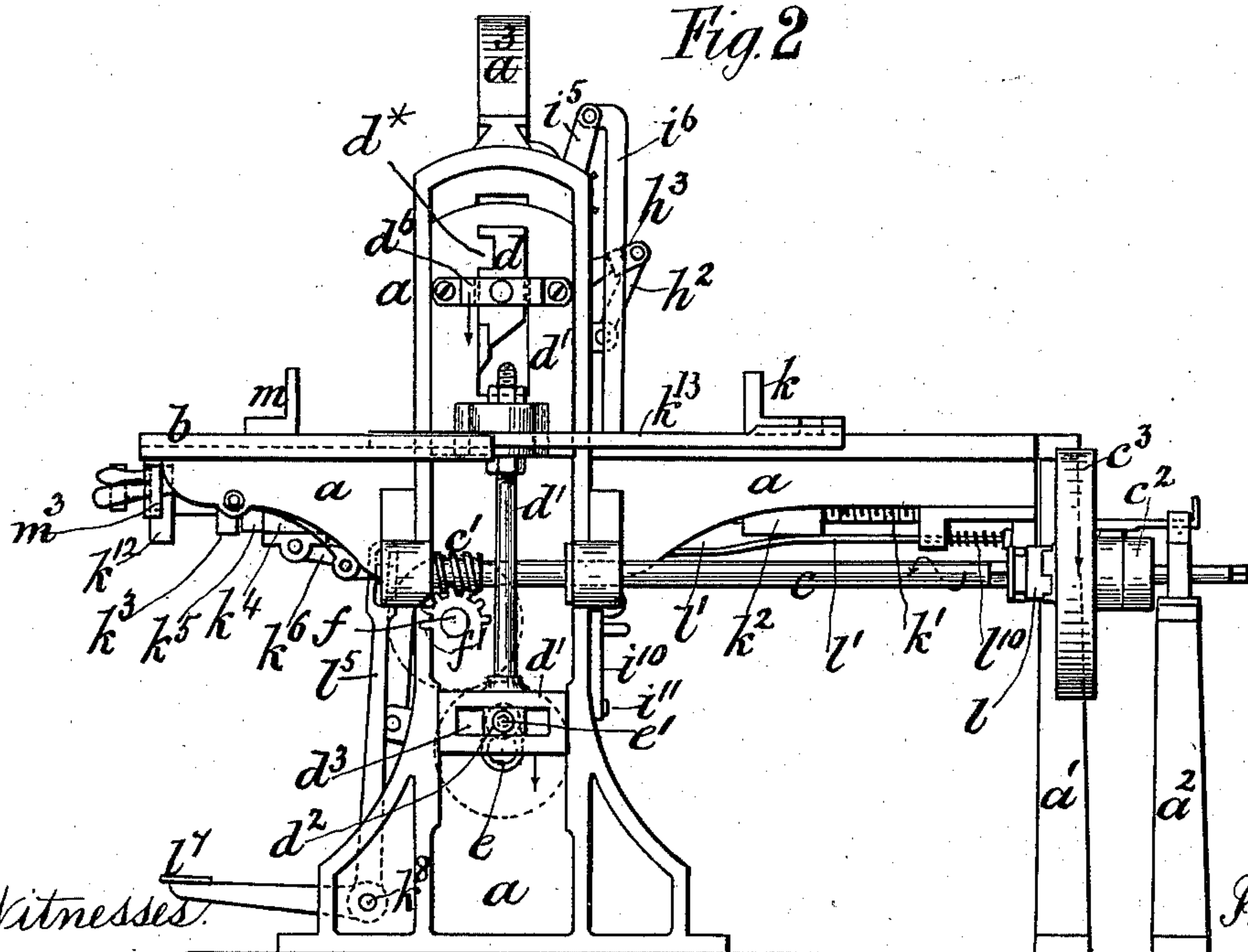


Fig. 2



Witnesses.

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Fig. 3.

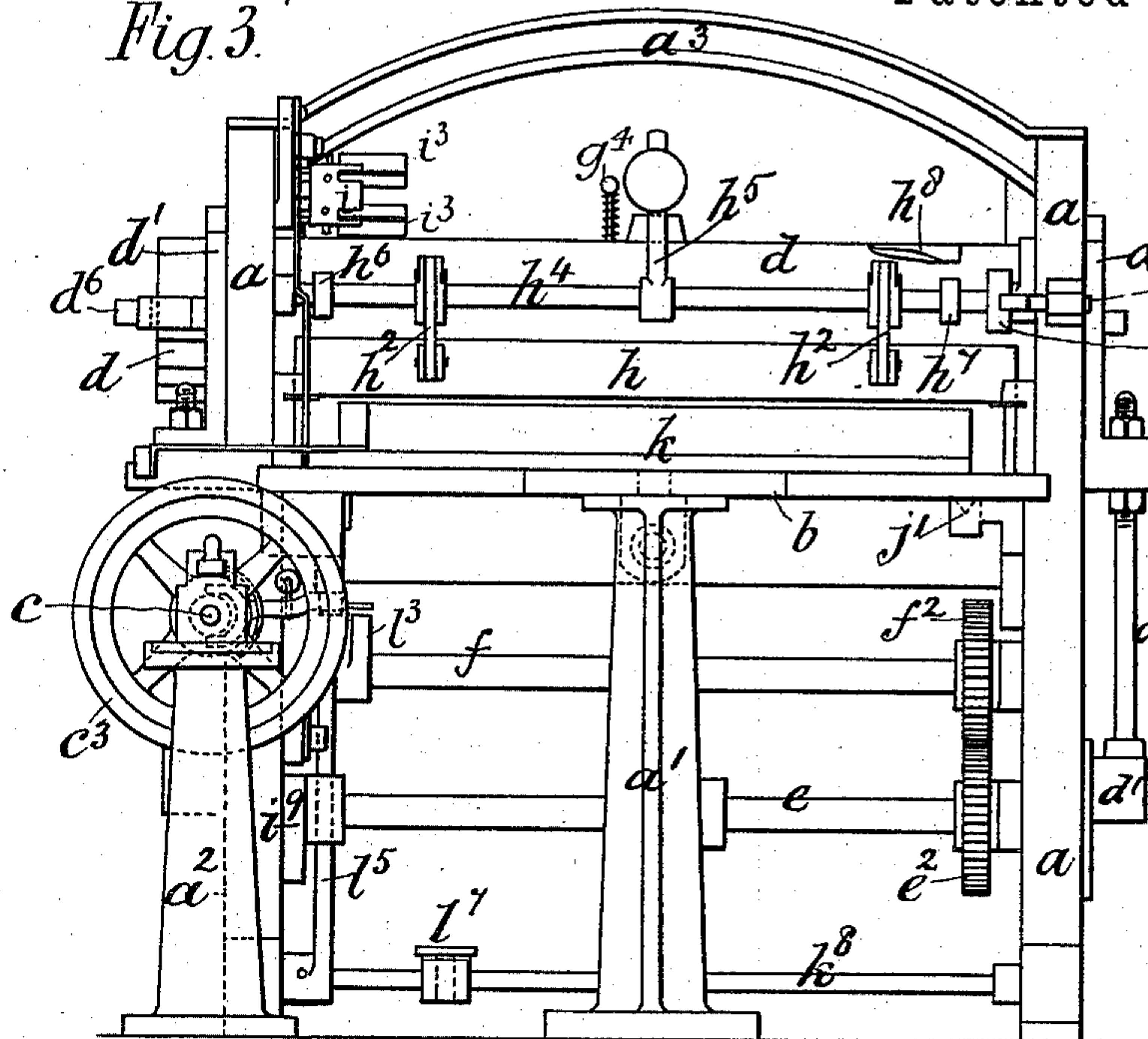


Fig. 5.

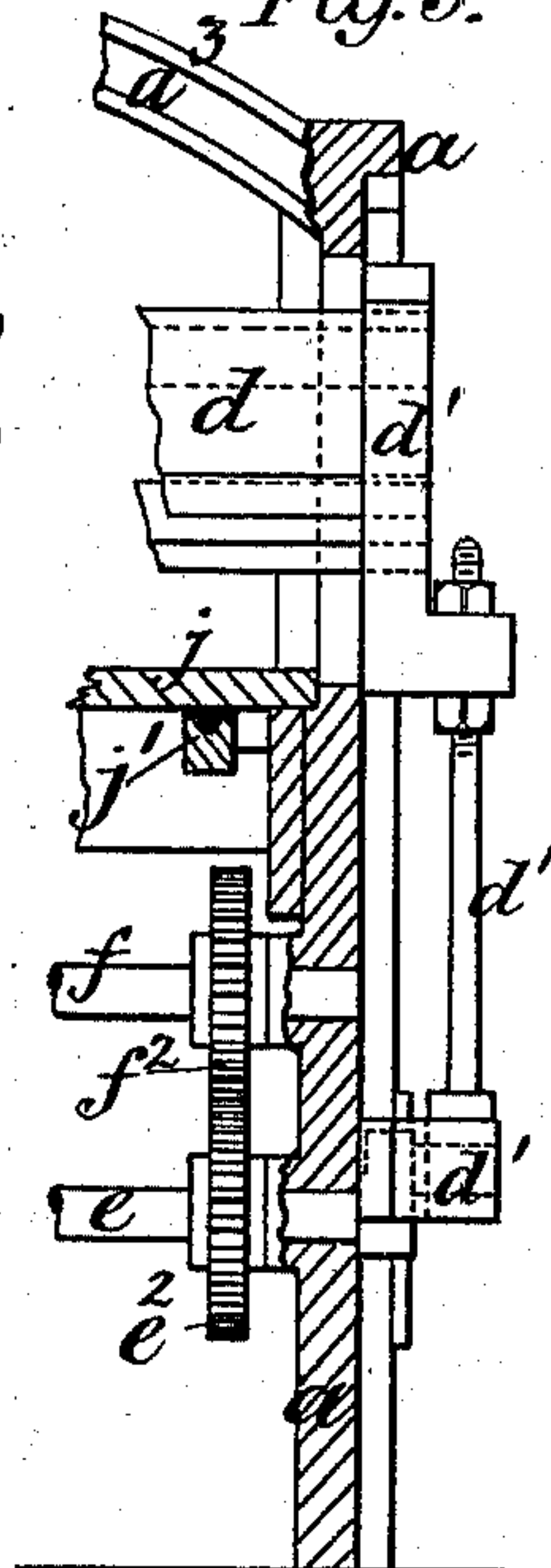
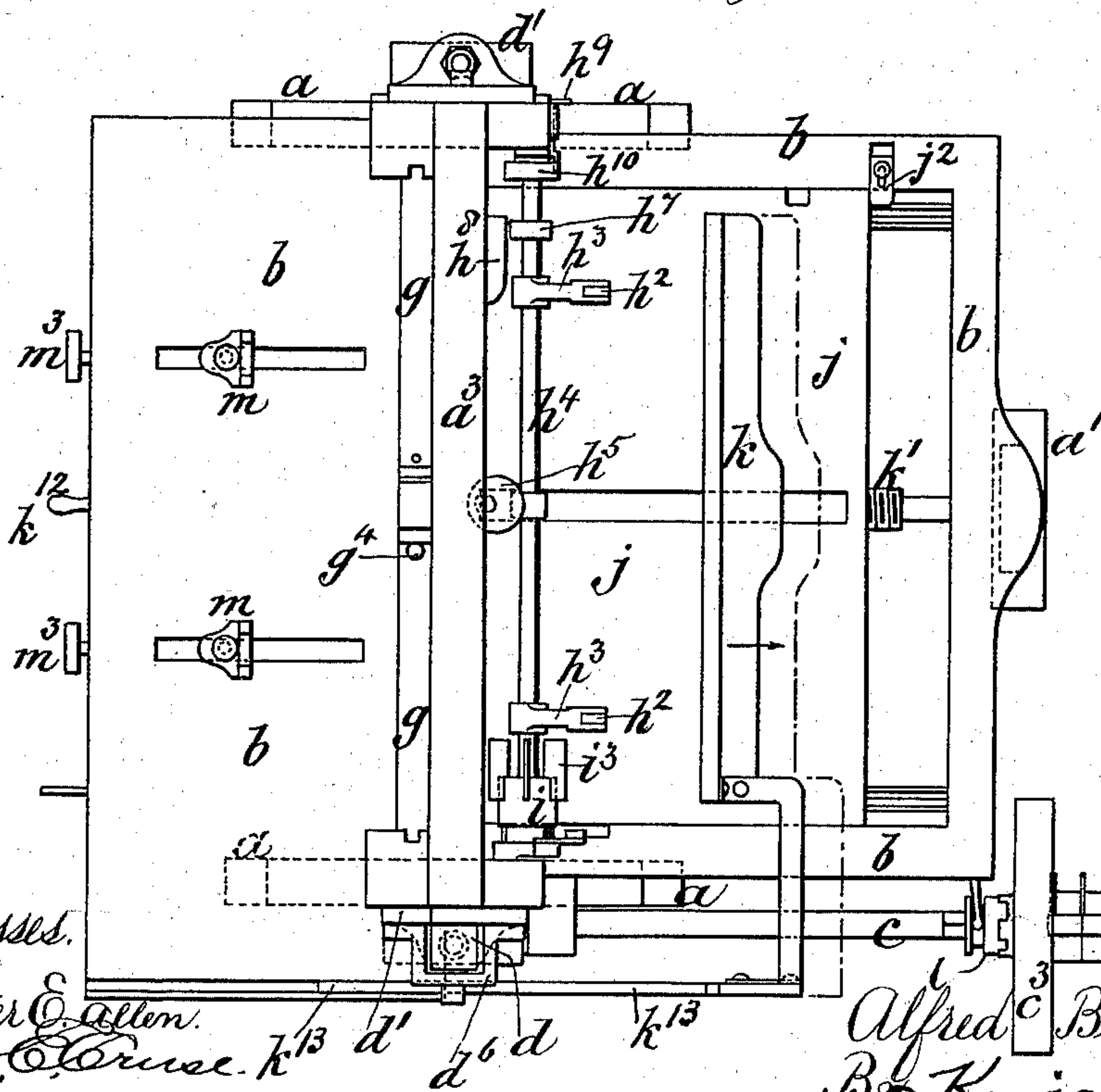


Fig. 4.



Witnesses.

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Fig. 6.

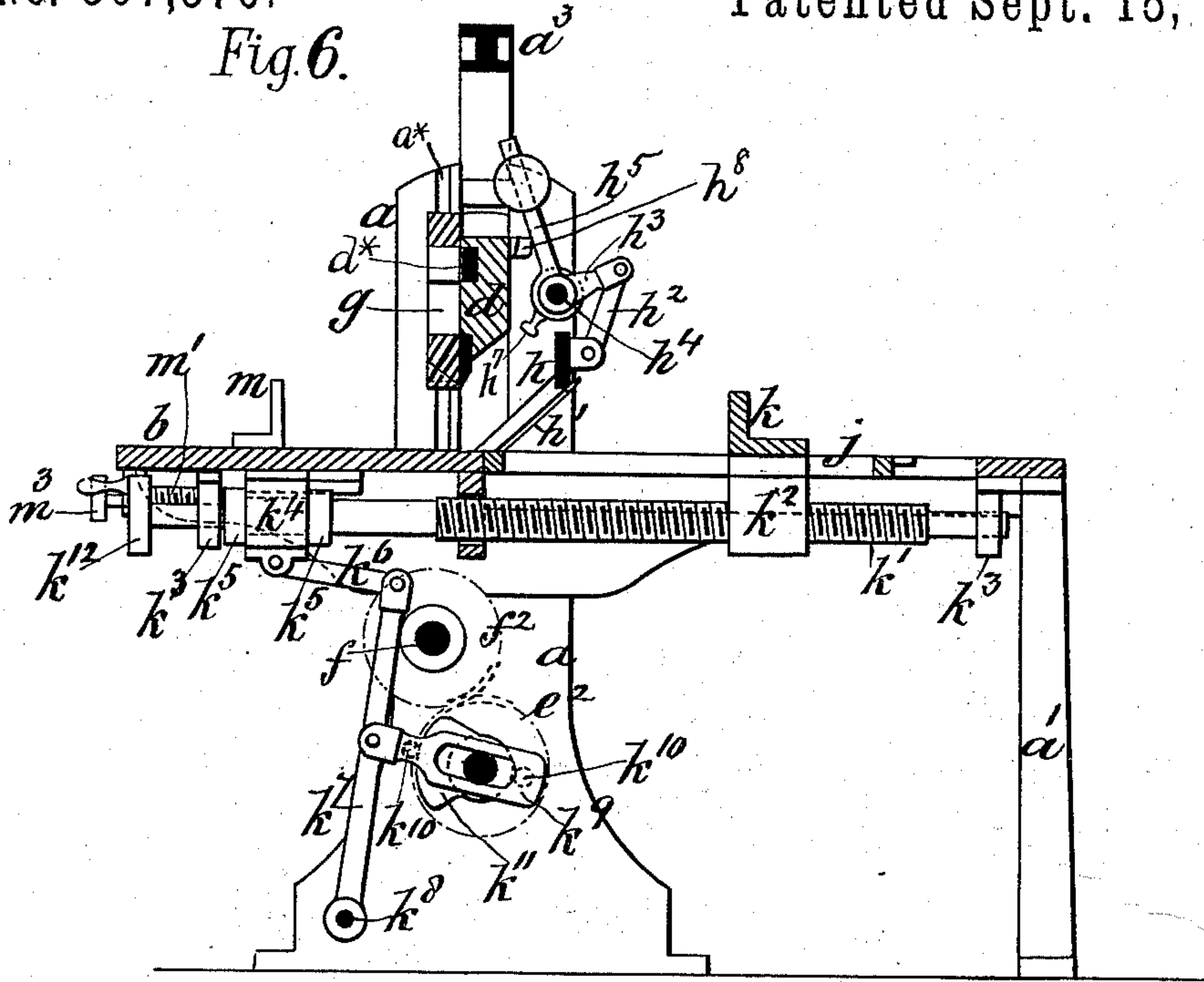
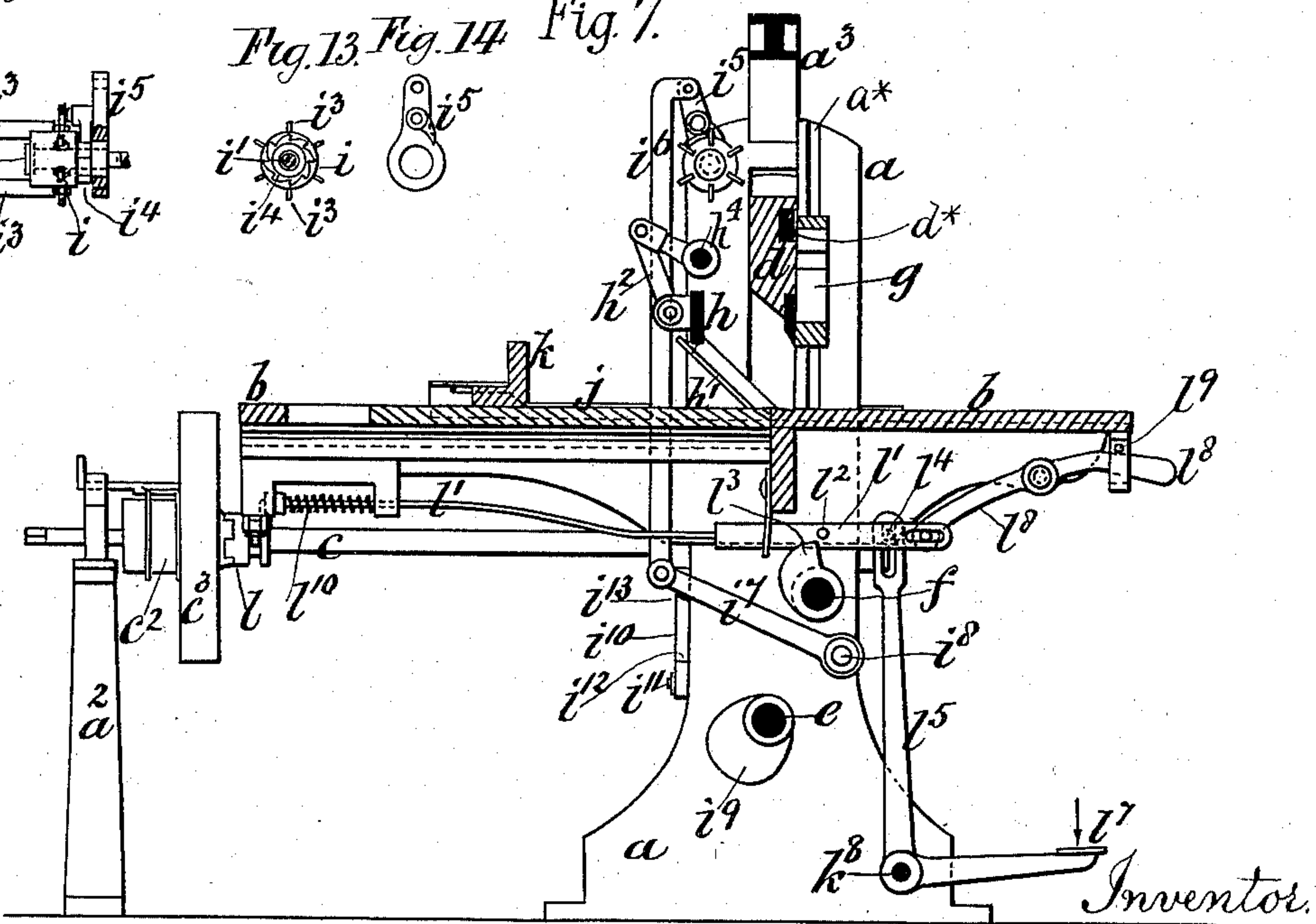
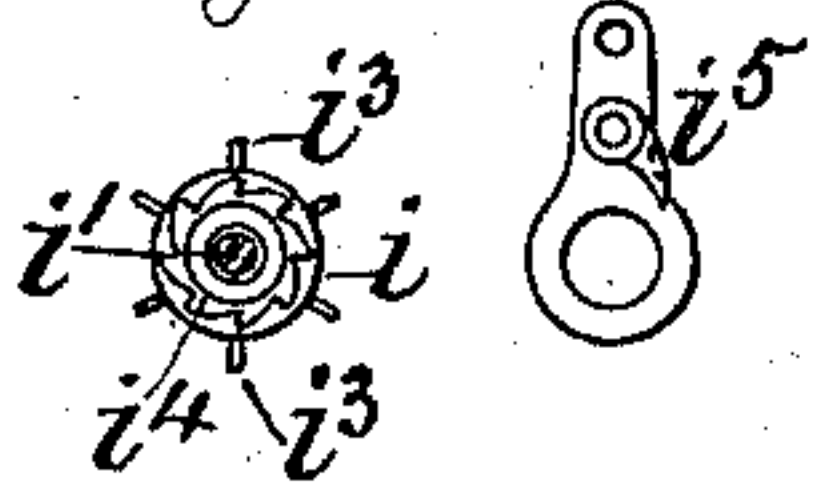
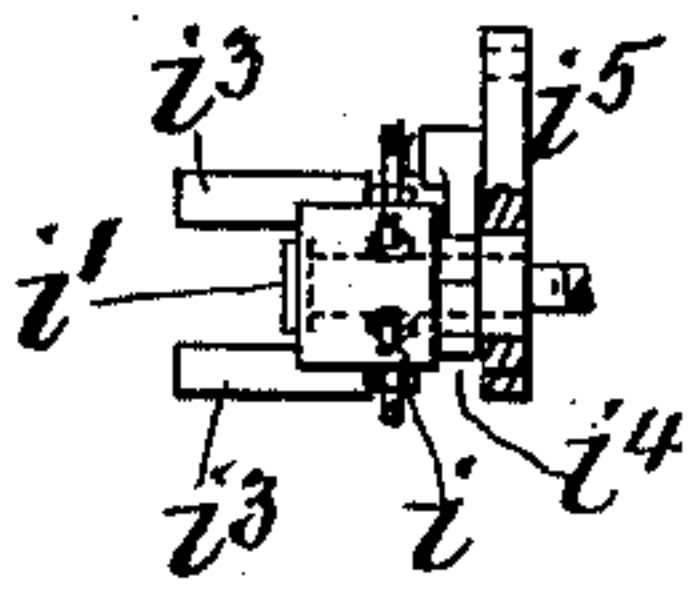


Fig. 12.

Fig. 13. Fig. 14. Fig. 7.



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(No Model.)

7 Sheets—Sheet 4.

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Fig. 8.

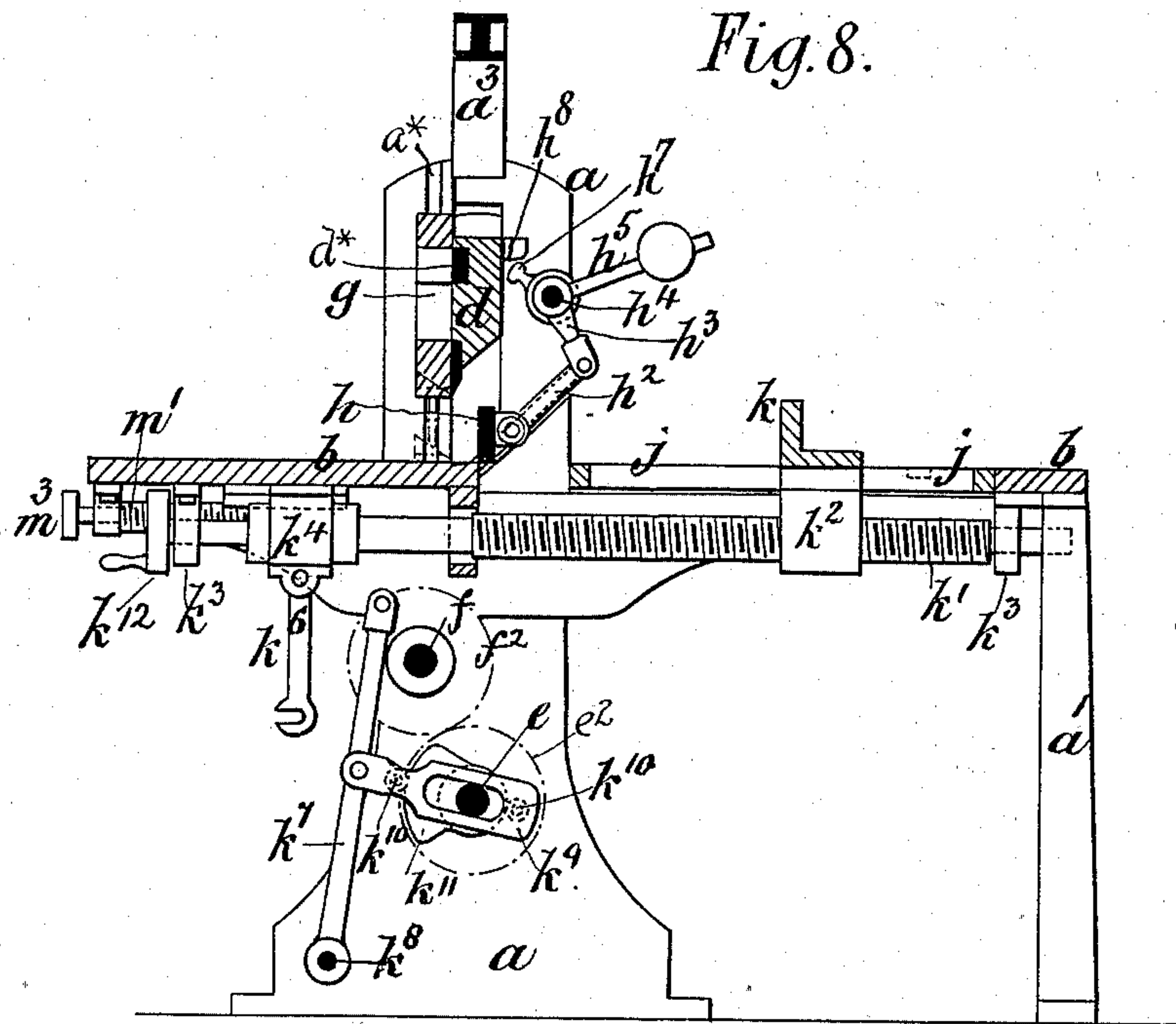
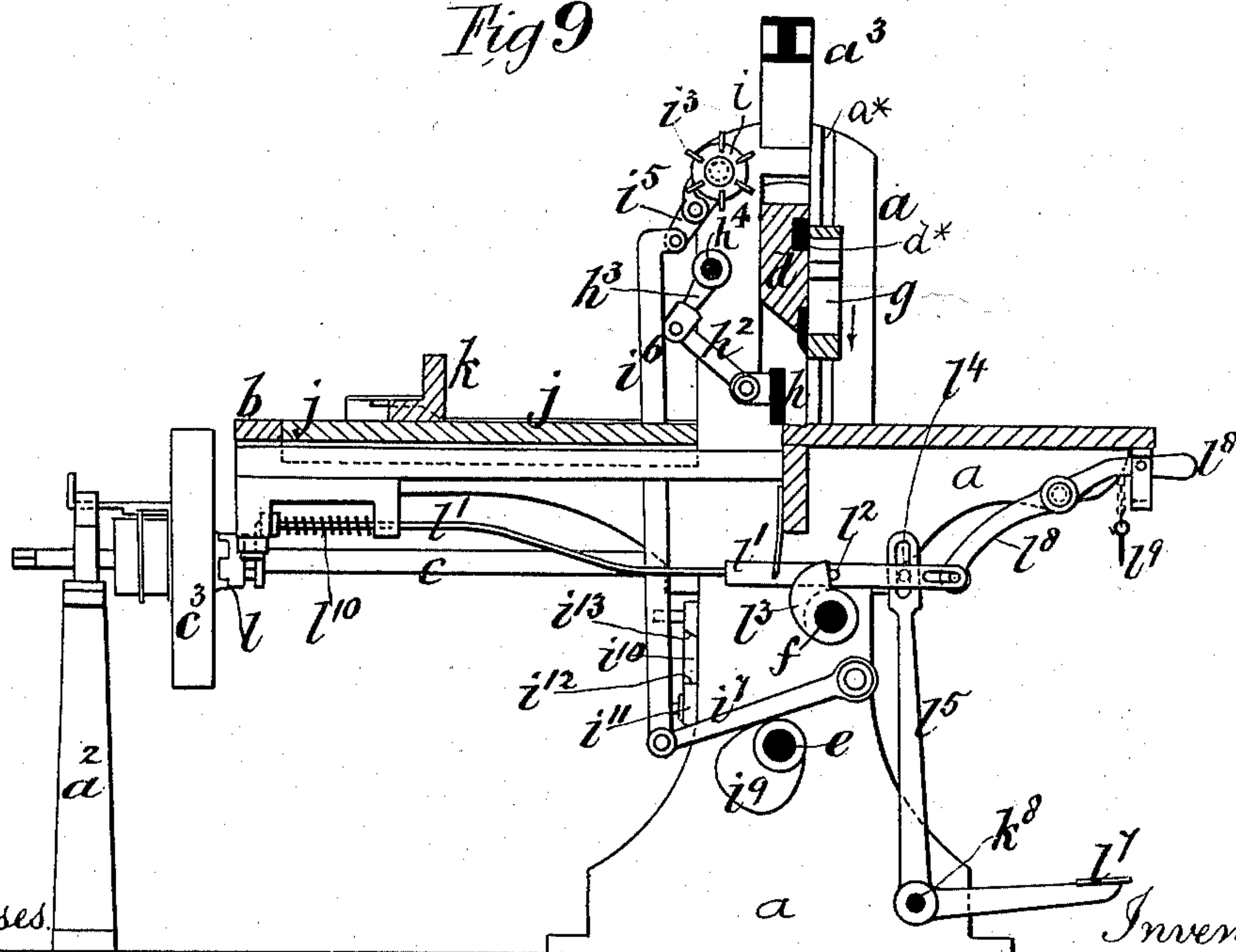


Fig 9



Witnesses.

Walter E. Allen.
Geo. E. Chase

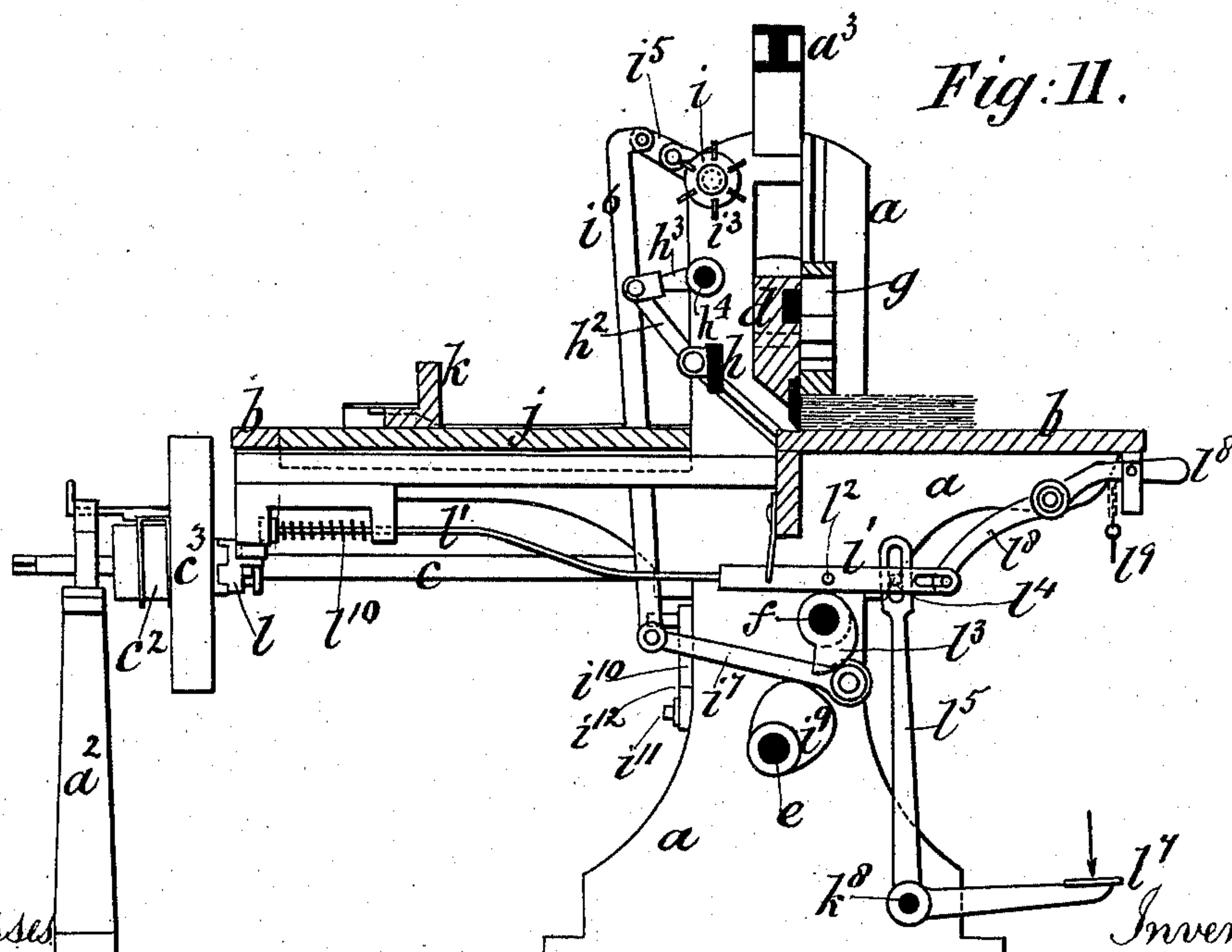
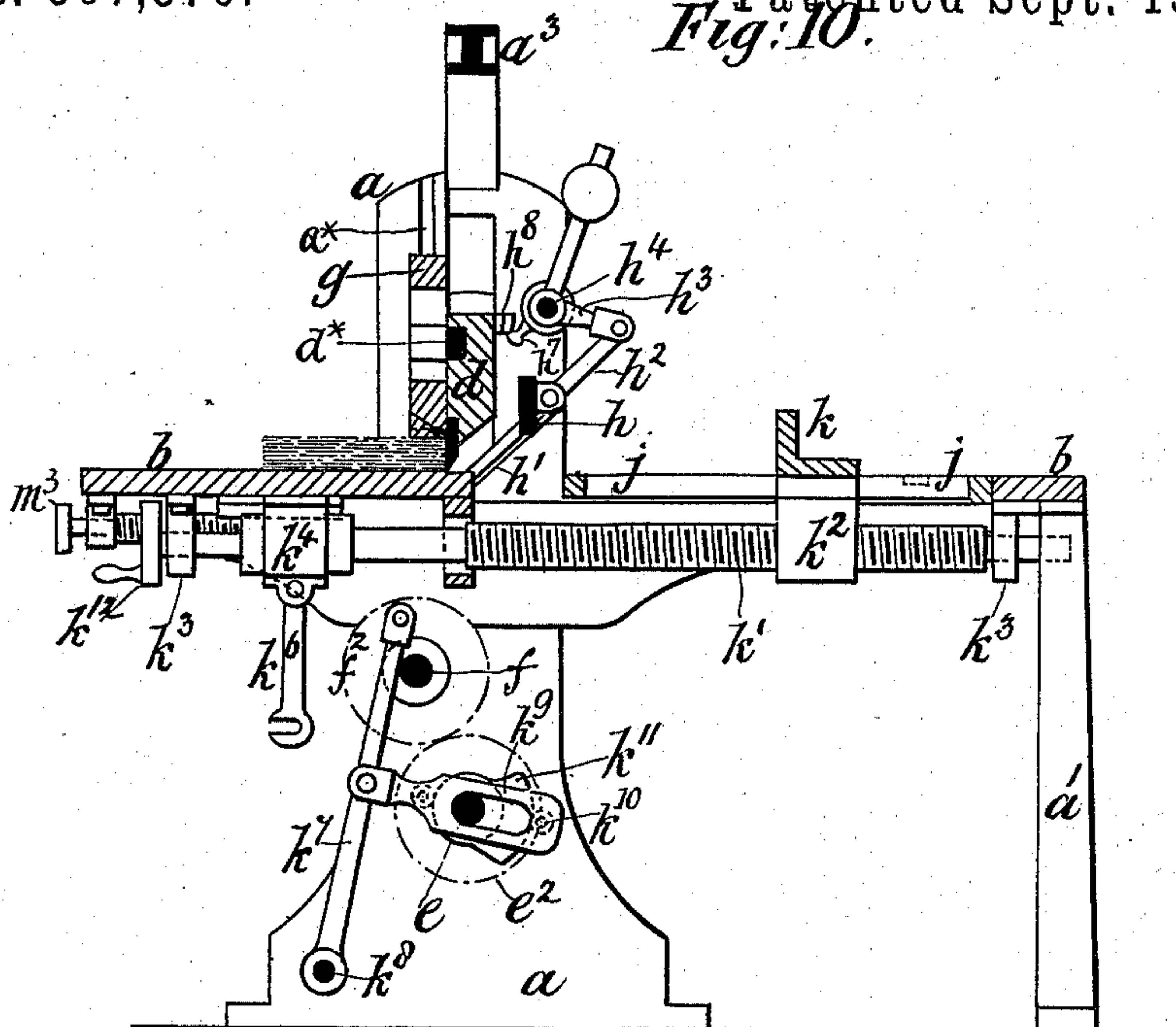
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7 Sheets—Sheet 5.

GUILLOTINE PAPER CUTTING AND TRIMMING MACHINE.

Patented Sept. 15, 1896.
Fig. 10.



Witnesses:

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(No Model.)

7 Sheets—Sheet 6.

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GUILLOTINE PAPER CUTTING AND TRIMMING MACHINE.

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Fig. 15. Patented Sept. 15, 1896.

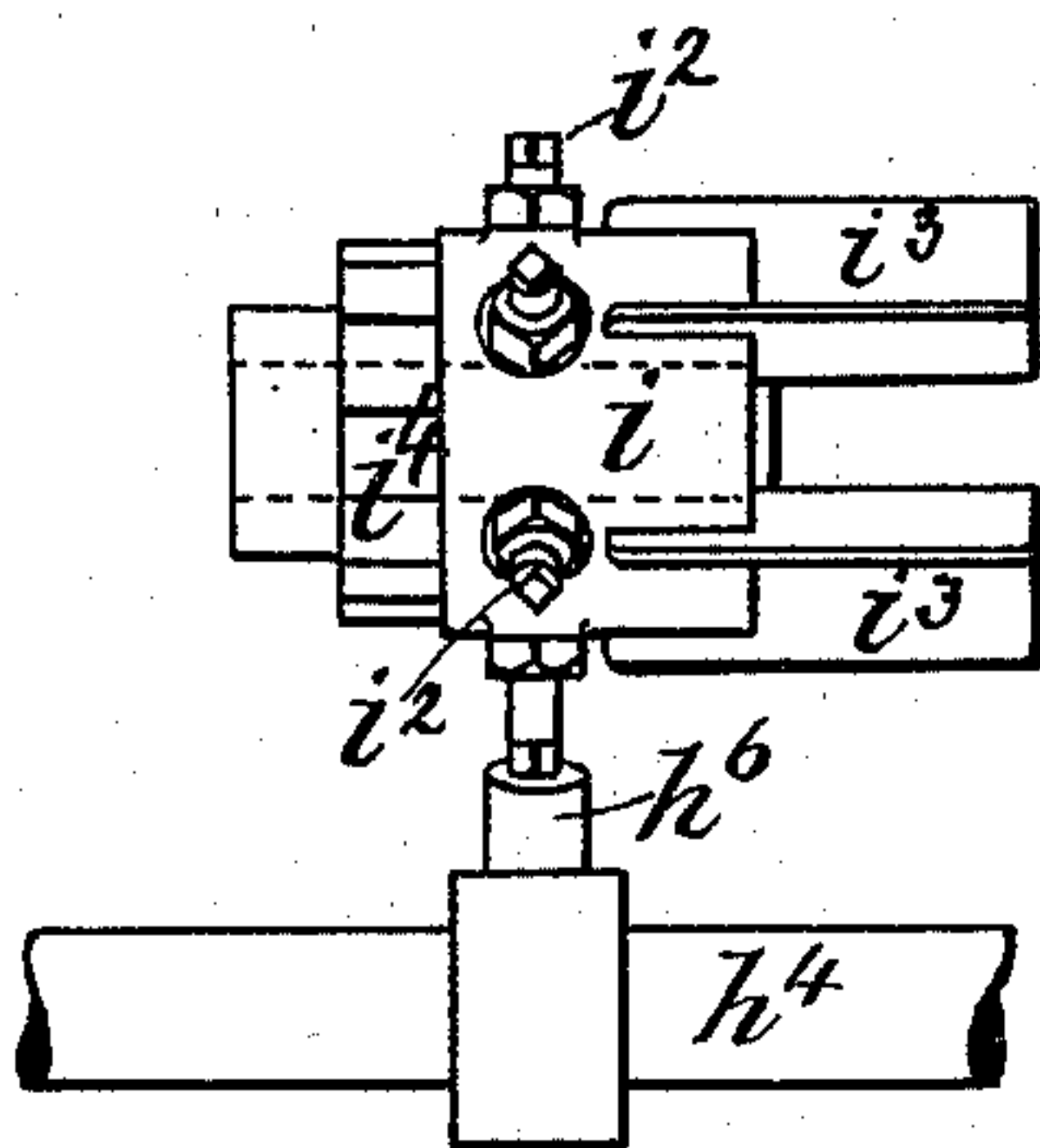
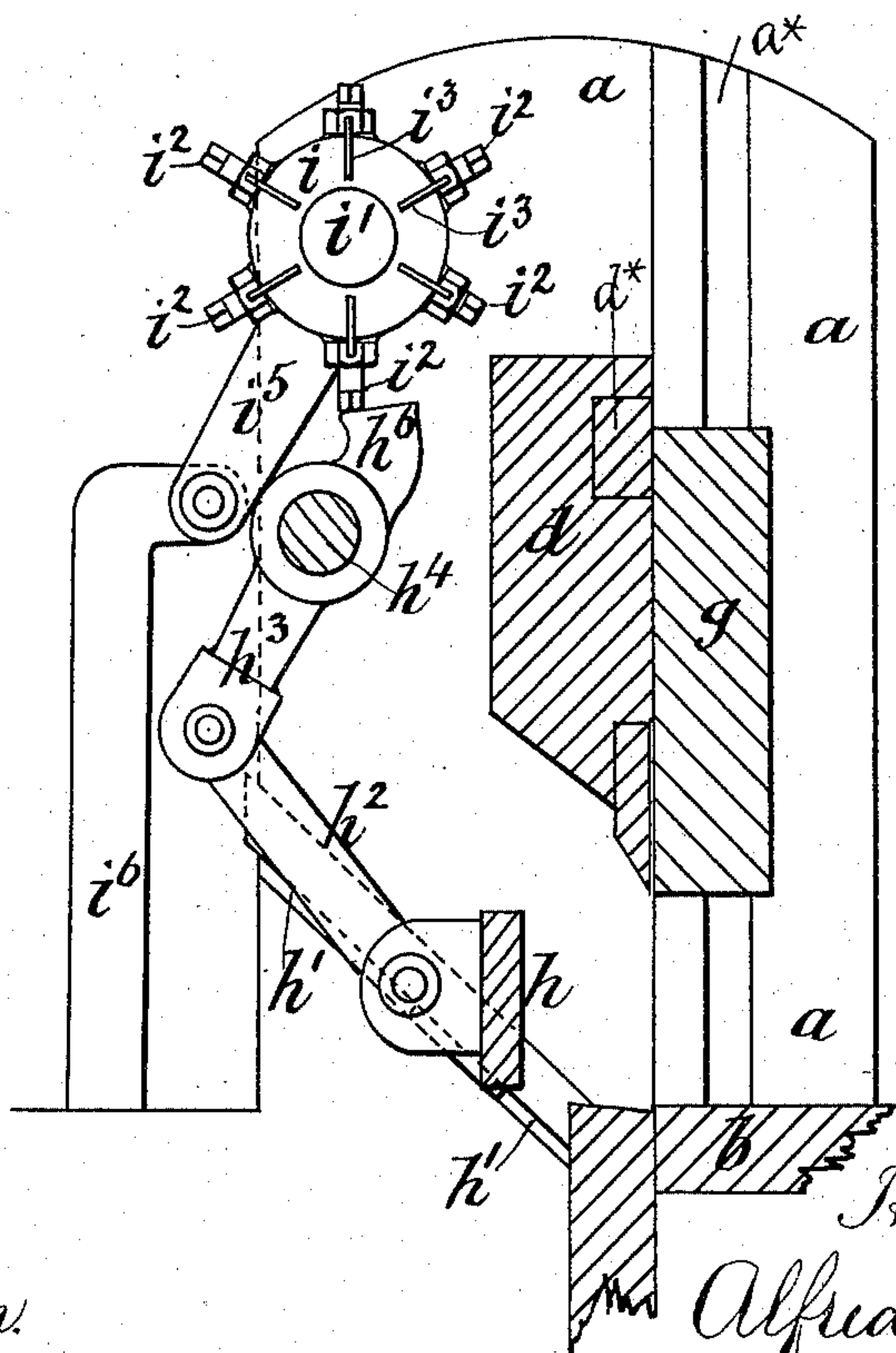


Fig. 16.



Witnesses.

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No. 567,576.

Patented Sept. 15, 1896.

Fig. 17.

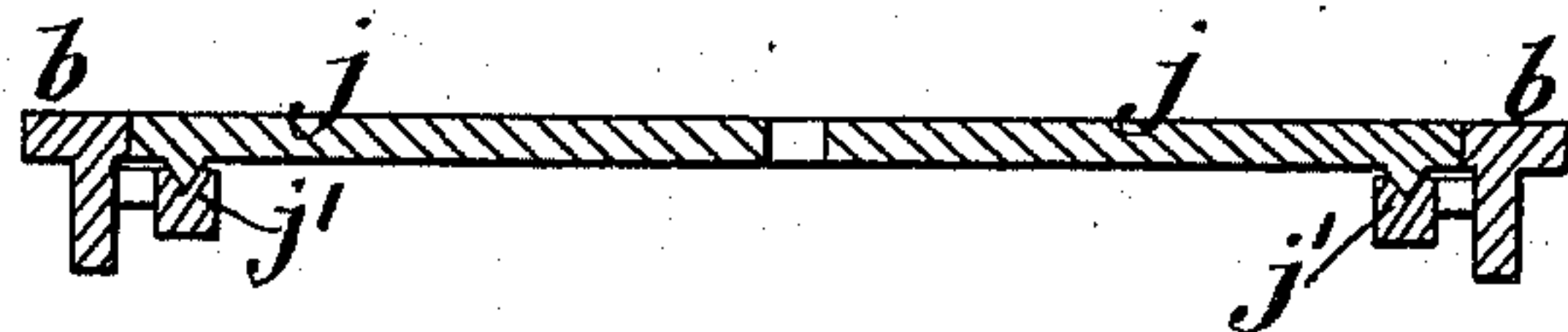


Fig. 18.

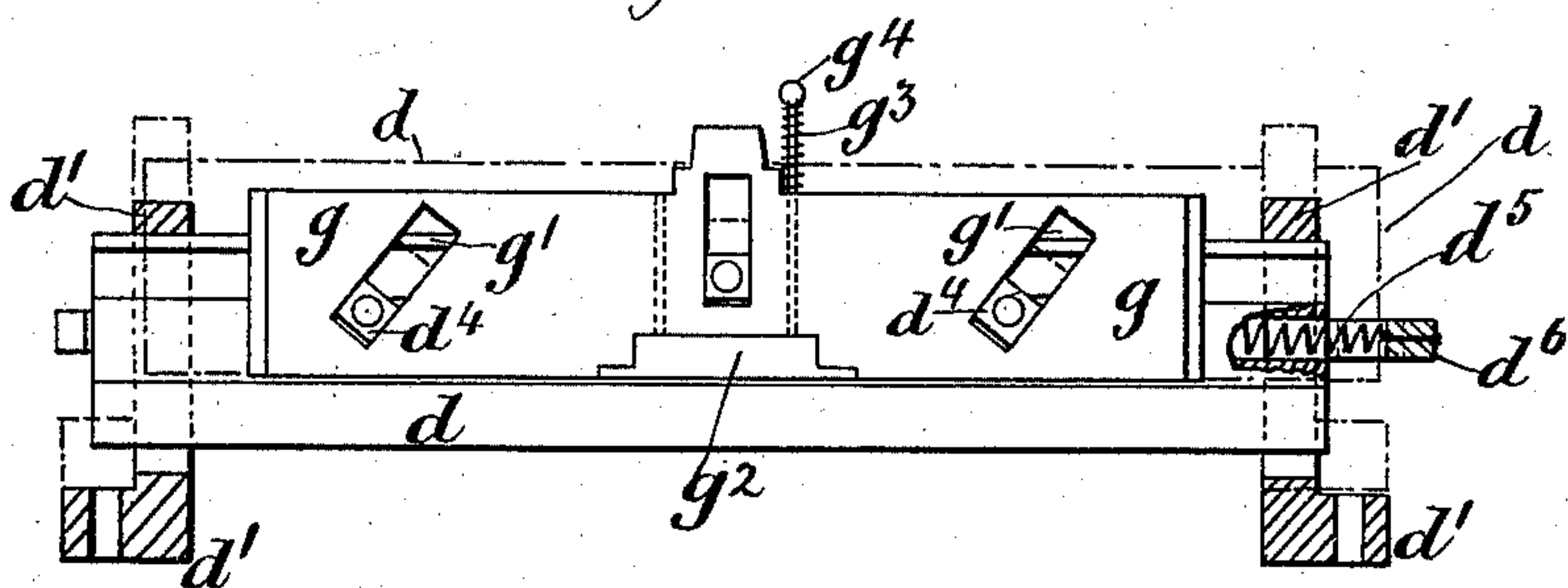


Fig. 19.

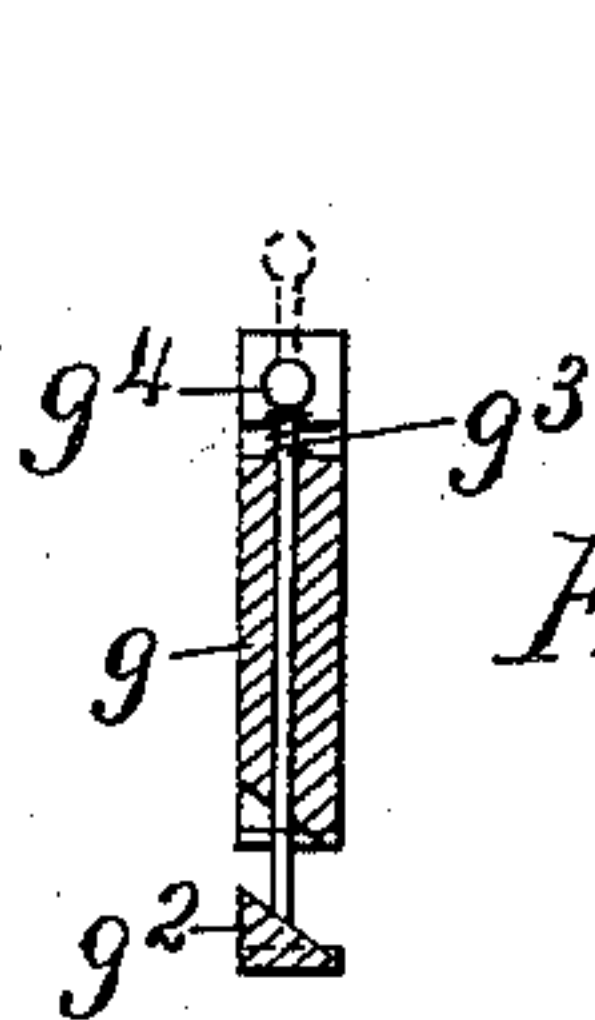
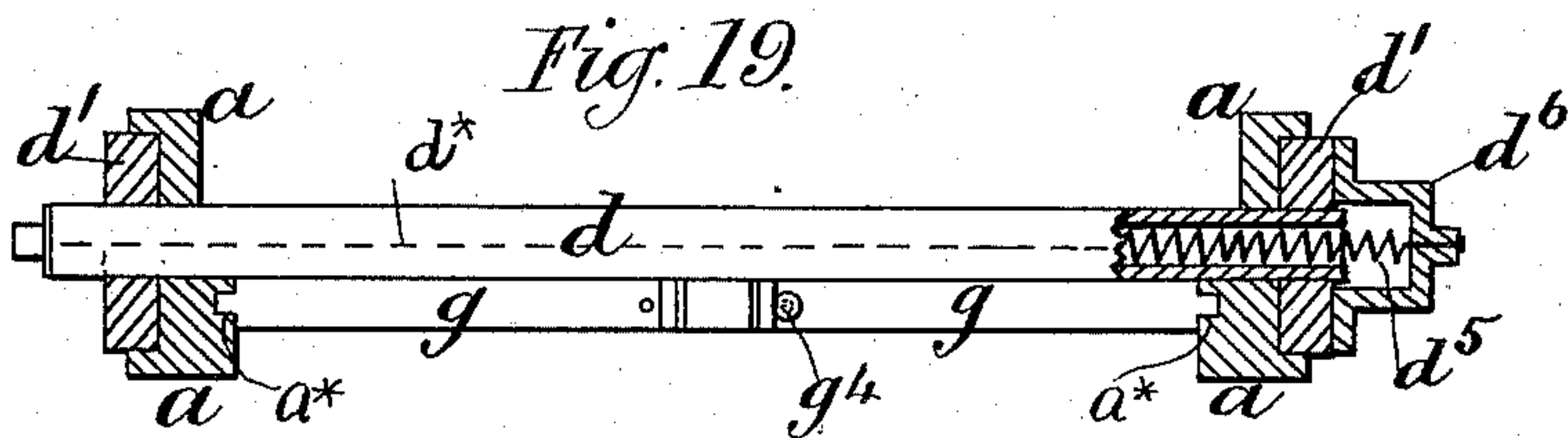


Fig. 23.

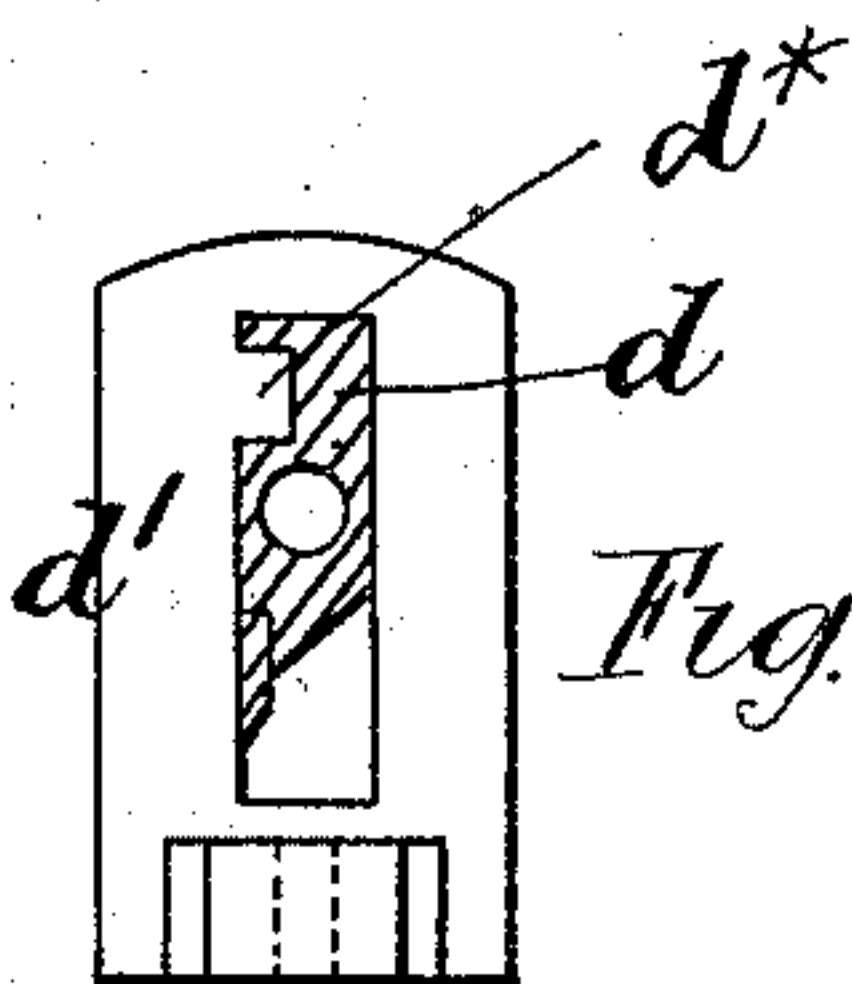


Fig. 20.

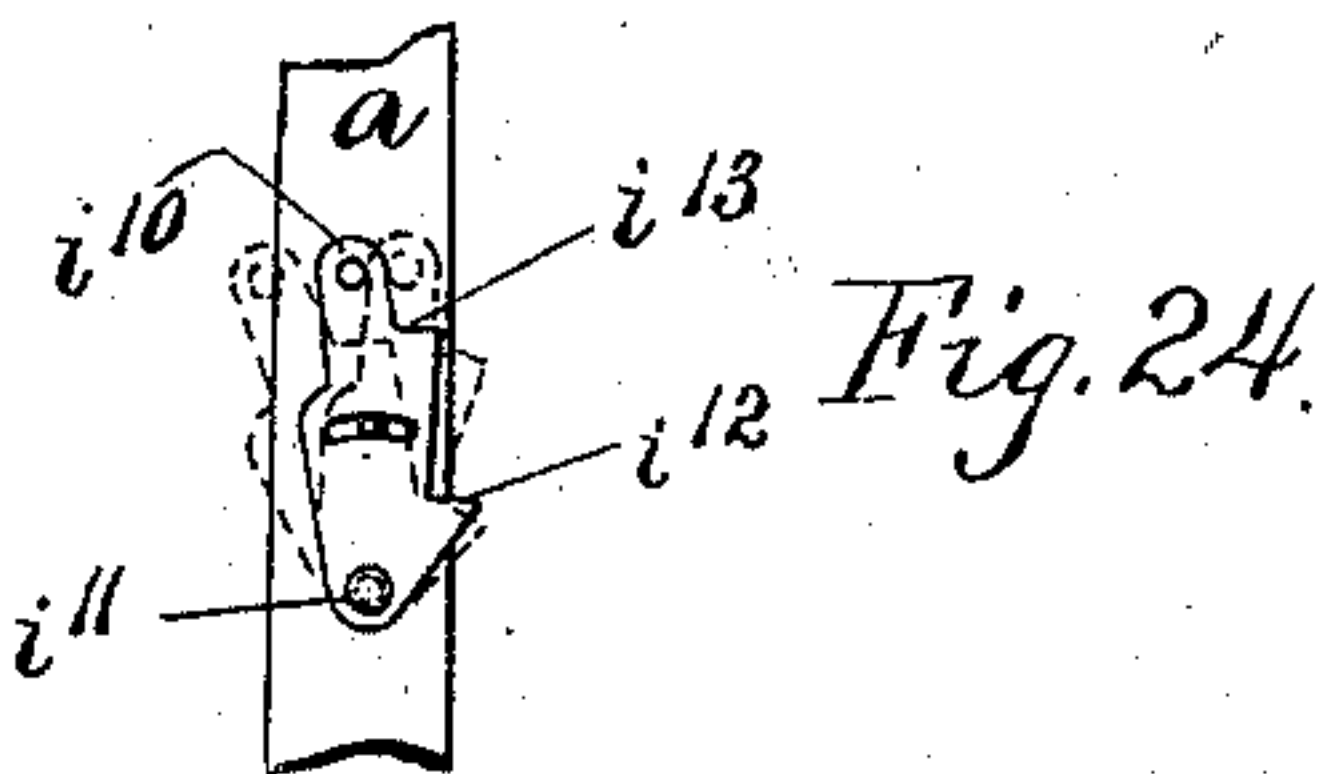


Fig. 24.

Fig. 21.

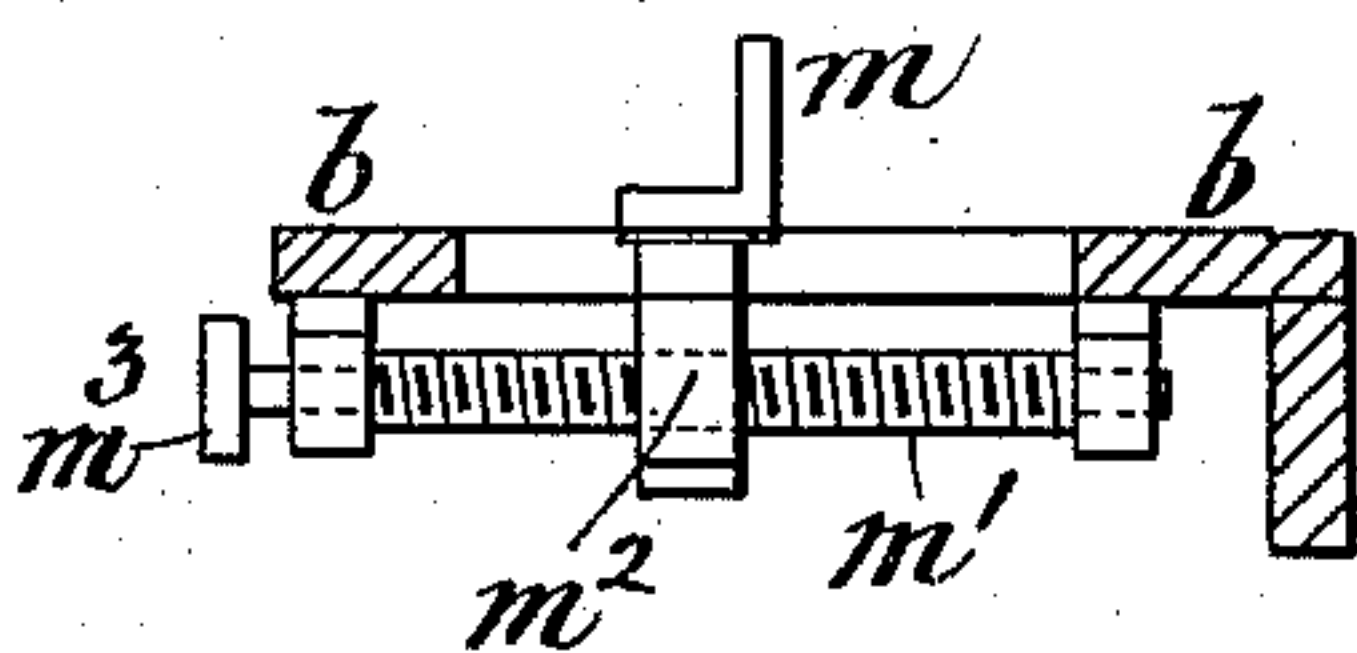
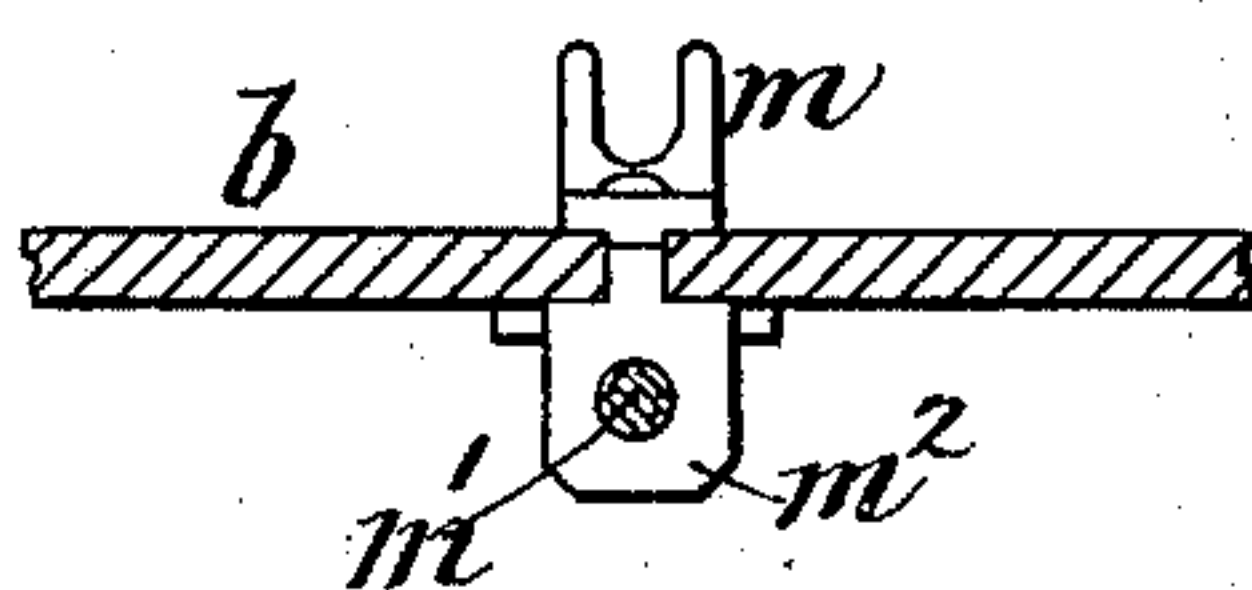


Fig. 22.



Witnesses.

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UNITED STATES PATENT OFFICE.

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GILL, OF SAME PLACE.

GUILLOTINE PAPER CUTTING AND TRIMMING MACHINE.

SPECIFICATION forming part of Letters Patent No. 567,576, dated September 15, 1896.

Application filed May 11, 1895. Serial No. 548,973. (No model.)

To all whom it may concern:

Be it known that I, ALFRED BRADLEY, a subject of the Queen of Great Britain, residing at Elms Road, London, in the county of Surrey, England, have invented certain new and useful Improvements in Guillotine Paper Cutting and Trimming Machines, of which the following is a specification.

The invention relates to a novel arrangement and combination of parts whereby the same machine can be used, according to requirements, either as a divider in the same way as an ordinary guillotine-machine or as a trimming-machine, whereby edges alone are cut.

My invention is represented in the accompanying drawings, in which—

Figure 1 is a front view, Fig. 2 a side view, Fig. 3 a back view, and Fig. 4 a plan view, of my improved machine. Fig. 5 is a sectional elevation of parts shown at Fig. 3. Fig. 6 is a vertical longitudinal section as seen from the right-hand side of the machine. Fig. 7 is a vertical longitudinal section as seen from the left-hand side of the machine. Figs. 8 and 9 are similar views to Figs. 6 and 7, but showing the parts in different positions. Figs. 10 and 11 are similar views to Figs. 8 and 9, showing the platen and cutter down. Fig. 12 is a sectional elevation of the cut-varying cam, indicators, and ratchet driving-gear. Fig. 13 is an end view of Fig. 12 without the pawl-lever, and Fig. 14 is an elevation of the pawl-lever separately. Fig. 15 is a rear view, and Fig. 16 is a cross-section, of parts drawn to a larger scale than the other figures. Fig. 17 is a cross-section showing the sliding table and its supporting-guides. Fig. 18 is a sectional front elevation, and Fig. 19 is a plan, partly in section, showing the platen and knife and operating-slides. Fig. 20 is a sectional end view of the knife-bar, showing one of its operating-slides. Figs. 21 and 22 are sectional views showing one of the small adjustable stops or gages. Fig. 23 is a vertical transverse section of the platen. Fig. 24 is a detail front view of the movable stop. Figs. 1, 2, 3, 4, 6, and 7 show the machine arranged to be used as a divider, and Figs. 8, 9, 10, and 11 show it arranged to be used as a trimmer.

$a a$ are two side frames, and a' is an end upright for supporting the bed or table b of the machine. a^2 is an upright for supporting the rear end of the driving-shaft c , and a^3 is a cross-bar connecting the upper ends of the side frames $a a$.

d is the knife-bar, which is mounted in slots in the upper parts of slides d' , which carry vertically a fixed bar d^* , extending crosswise of the machine to enable the knife-bar d to move endwise thereon. These slides d' work in guides formed in the side frames $a a$, and give the ascending and descending motion to the knife-bar d by means of crank-pins e' , carried by cranks fixed on the cross-shaft e and passing through blocks d^2 , sliding in transverse slots d^3 , formed in the lower parts of the slides d' .

Motion is communicated from the driving-shaft c to the shaft e in the following manner.

A worm c' , fixed on the shaft c , gives motion through a worm-wheel f' to the shaft f , and this latter, by a toothed wheel f^2 thereon gearing into a toothed wheel e^2 , fixed on the shaft e , gives motion to this latter.

g is the platen, which is moved up and down in grooves a^* , provided in the upper part of the side frames a , by means of blocks d^4 on the knife-bar, fitting into inclined slots g' in the platen, the action of which is such that as the knife-bar d descends the blocks d^4 will press the platen g down onto the pile of paper to be cut. Then, as the knife cuts into the pile of paper, leaving the platen behind, the blocks d^4 will, by moving in the inclined slots g' , give an endwise motion to the knife-bar d and produce a draw-cut. In the ascending motion a spring d^5 , fixed at one end to the knife-bar d and at the other to a fitting d^6 , carried by one of the slides d' , pulls the knife-bar d back endwise into position for a fresh cut.

c^2 are the driving-pulleys, and c^3 is a fly-wheel.

h is a traveling gage or stop at the back of the knife. It is formed to travel in inclined slots h' on the inner sides of the side frames a , and it is connected by links h^2 to levers h^3 , fixed on a shaft h^4 , on which is fixed a weighted arm h^5 , which, when the machine is arranged to be used as a trimmer, tends to press the

gage h to its lowest and most forward position. The distance of the gage h to the rear of the knife at the time when it is in its most forward position is regulated by the cut-varying cam, which is constructed and operated

5 in the following manner.
The body of such cut-varying cam consists of a cylinder i , mounted on a stud i' , fixed in one of the side frames a . It is provided
10 around its periphery with six adjustable studs i^2 , the distance of which from the surface of the cylinder i can be arranged to suit the amount to be trimmed off the different edges of the work. These studs i^2 act in connection with an arm h^6 , fixed on the shaft h^4 , by
15 which the extent of rotation of said shaft, and consequently the forward position of the gage h , is regulated to the extent required. The cam-cylinder i is in position to be seen
20 by the operative, and it is provided with indicating-tablets i^3 , each having the word "head," "tail," or "fore-edge" applied thereto to indicate what kind of cut can next be taken.

25 The cam-cylinder i has fixed on its end a ratchet-wheel i^4 , and mounted loosely on its axis is a pawl-lever i^5 , which is connected by link i^6 to a lever i^7 , mounted on an axis i^8 . This lever is acted upon by a cam i^9 on the
30 shaft e to raise it and thereby to give a partial rotation to the cam-cylinder i , and the weight of said lever and parts connected therewith serves to keep it in contact with the cam i^9 . A movable stop or support i^{10} is
35 mounted on an axis i^{11} on the side frame a , adjacent to the lever i^7 , so that when required it may be turned away free from the lever i^7 , in which case the latter will be allowed to follow the surface of the cam i^9 , while, when
40 the said stop or support i^{10} is turned so that the ledge i^{12} is under said lever, the latter is prevented from descending below a certain point, whereby it is acted upon by the cam i^9 during only a portion of its revolution. By
45 these means the pawl is caused to drive the ratchet-wheel i^4 and cut-varying cam i a greater or less distance according as the different parts of the latter are required to be brought successively or at intervals into
50 action.

When the machine is to be used for dividing, the lever i^7 is raised out of reach of the cam i^9 and held in such position by resting on the ledge i^{13} of the stop or support i^{10} . An
55 arm h^7 on the shaft h^4 is acted upon by an inclined projection or cam h^8 , fixed on the knife-bar d , so that when the platen g has descended onto the work the said projection or cam h^8 shall, by depressing the arm h^7 ,
60 gradually move the gage h rearward as the knife is cutting through the paper.

When the machine is to be used as a divider, the traveling gage h is raised out of action in the position shown at Figs. 2, 3, 4,
65 6, and 7 and held in such position by means of a bolt or stop h^9 , acting in connection with a slot or hole in the disk h^{10} , fixed on the

shaft h^4 , and by withdrawing such bolt or stop h^9 the gage h can again be thrown into action.

70 The platen g has a movable portion g^2 , which is to be used as an adjusting-gage to facilitate the placing of the paper on the machine in its correct position for dividing. This part g^2 is normally kept in its raised
75 position, that is, in a line with the bottom face of the platen, by a spring g^3 , but which can be depressed by means of the knob g^4 , as shown in dotted lines in Figs. 1 and 8, and thus enable the pile of paper to be placed at
80 once into the required position without having to move the knife-bar.

I also provide the rear part of the machine with an extended sliding table j , mounted on V-guides j' , to support the sheets of paper to
85 be divided, and, in connection with such extended table j , I use a traveling gage k , which can be set by means of the screw k' to any required position, and it is caused to move away automatically from the edge of the paper
90 as the latter is being divided in order to afford room for the movement of the paper as it is forced forward by the beveled face of the knife and to return to its true position for
95 gaging a fresh cut. For this purpose the screw k' works in a nut k^2 , fixed to the gage k , and its two ends are mounted in bearings k^3 with capability of moving a certain distance endwise therein. The screw-shaft k'
100 also passes through a sliding block k^4 , mounted in guides fixed to the under side of the bed or table b , but is prevented moving in relation thereto by collars k^5 . This block k^4 is,
105 by a fork-ended link k^6 , connected to a lever k^7 , fixed on a shaft k^8 , and it has pin-jointed near the center thereof a slotted arm k^9 , fitting and guided by the shaft e and provided with
110 antifriction-wheels k^{10} , bearing against opposite edges of the cam k^{11} . By these means the gage k is moved into and out of its gaging position and is retained for a certain time at its
115 foremost and rearward positions. The screw k' is rotated by a small hand-wheel k^{12} on the front end thereof.

The gage k can be thrown out of action
115 when it is required to use the machine as a trimmer by separating the forked end of the link k^6 from the pin at the upper end of the lever k^7 , as shown at Figs. 8 and 10, when the
120 said lever can move without imparting motion to the screw k' and gage k .

The sliding table j is capable of being placed in contact with the rear edge of the fixed table b , as shown at Figs. 2, 4, 6, and 7, to
125 form a convenient support for the paper to be divided and of being placed at a distance therefrom, as shown at Figs. 8, 9, 10, and 11, when the machine is to be used for trimming edges, and a bolt j^2 is employed, as shown at
130 Fig. 4, for locking such table in either its forward or rearward positions.

I also employ a simple arrangement of parts whereby the clutch l for throwing the machine into and out of action can be thrown

out of gear automatically after each cut, can be kept continuously in gear, and can be thrown out of gear, when desired, by the foot. For this purpose the clutch-rod l' has a pin l^2 , acted upon by a rotating arm or wiper l^3 , fixed on the shaft f , to throw the machine automatically out of gear after each cut. This rod l' has a pin l^4 , passing through a vertical slot in the upper end of a lever l^5 , fixed on the treadle-shaft k^8 , which is capable of being operated by the treadle l^7 at any desired time to throw the machine out of action, and such rod l' has a longitudinal slot at its front end through which passes a pin at the rear end of a lever l^8 , by depressing the outer end of which the pin l^2 is raised above the reach of the wiper l^3 and the machine set in action at any desired time, and by the aid of this lever l^8 and a locking-pin l^9 the machine can be kept continuously running until such locking-pin is removed or the treadle l^7 is depressed. A spring l^{10} around the clutch-rod l' acts to force the latter rearward and to place the two parts of the clutch l in gear with each other when the said rod is not pulled forward by the wiper l^3 or treadle l^7 .

It will be understood from the foregoing that when the machine is to be used for trimming the gage h and parts acting therewith will, as shown at Figs. 8, 9, 10, 11, 15, and 16, be in position for use, while the table j is in its rearward position and the gage k and screw k' disconnected from their operating-lever k^7 by disconnecting the link k^6 from the upper end of said lever, and that when the machine is to be used as a divider the gage h and parts acting therewith will, as shown at Figs. 1 to 7, be out of action, while the table j is in its forward position and the gage k and screw k' connected with their operating-lever k^7 by means of the link k^6 .

The gage k has connected thereto a gage-bar k^{13} , which slides in a groove in the table b and acts in connection with divisions on the sides of the groove to regulate the position of said gage. By constructing the gage k and parts connected therewith so as to enable it to be set near to the knife it may be used both when trimming and dividing paper.

m m are gages working in slots in the table b and adjustable by means of screws m' , working in tapped lugs m^2 , fixed to such gages, the said screws being capable of rotation by means of disks m^3 on the ends thereof.

Having fully described my invention, what I desire to claim and secure by Letters Patent is—

1. In a guillotine paper-cutting machine, the combination of a knife, a fixed table underneath and extending in front of the knife, a movable table at the rear of the knife capable of being placed in contact with or at a distance from the forward fixed table, means for locking such movable table in or out of position for use, an adjustable sliding gage to be used with the movable table when the ma-

chine is to be worked as a dividing-machine, mechanism for adjusting and operating said sliding gage, and means for readily connecting and disconnecting the sliding gage and its operating mechanism; substantially as herein shown and described.

2. In a guillotine paper-cutting machine, the combination of the table, the dividing-gage, the trimming-gage and its operating parts, and means for holding the trimming-gage and its operating parts out of use when the dividing-gage and table are in use.

3. In a guillotine paper-cutting machine, the combination of the table, the dividing-gage, the trimming-gage, and its operating parts, and means for holding the dividing-gage and table out of use when the trimming-gage and its parts are in use.

4. In a guillotine paper-cutting machine, the combination of the clutch-rod, means for acting on the clutch-rod to throw the machine automatically out of action after each cut, a treadle and parts connecting it with the clutch-rod to enable the machine to be thrown out of action at any time by depressing the treadle, a lever connected with the clutch-rod to enable the machine to be thrown into action by hand when desired, and a locking-pin in connection with such lever whereby the machine can be kept continually running until the locking-pin is removed or the treadle is depressed.

5. In a guillotine paper-cutting machine, the combination with the cutter and means for operating the same, of a movable gage to be used for trimming, a movable gage and movable table to be used for dividing, and means for holding either of such movable gages and the movable table either in or out of position for use according as the machine is to be used for trimming or dividing paper.

6. A guillotine paper-cutting machine comprising a dividing mechanism, a sliding gage, and a trimming mechanism; substantially as described.

7. A guillotine paper-cutting machine comprising a dividing mechanism, a sliding gage, a trimming mechanism, and means for rapidly converting the machine to either use; substantially as described.

8. A guillotine paper-cutting machine comprising a dividing mechanism, a trimming mechanism, a movable rear table and a sliding gage; substantially as described.

9. A guillotine paper-cutting machine comprising a movable rear table having a sliding gage, and mechanism for operating the sliding gage; substantially as described.

10. A guillotine paper-cutting machine comprising a movable table and sliding gage and means for disconnecting the gage from the working parts of the machine; substantially as described.

11. The combination, with the indicator-cam-operating lever; of the pivoted stepped stop or support adapted to be moved into a

position for retaining the lever, or into a position for intercepting the play of said lever or into a position out of the path of the lever; substantially as described.

- 5 12. The combination, with the traveling gage of the trimmer, of a collar having a recess and secured to the working shaft of the

gage, and a bolt adapted to lock into said recess; substantially as described.

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Witnesses:

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