

No. 754,649.

PATENTED MAR. 15, 1904.

E. GESSNER.
CLOTH HOLDING DEVICE.
APPLICATION FILED JULY 15, 1902.

NO MODEL.

6 SHEETS—SHEET 2.

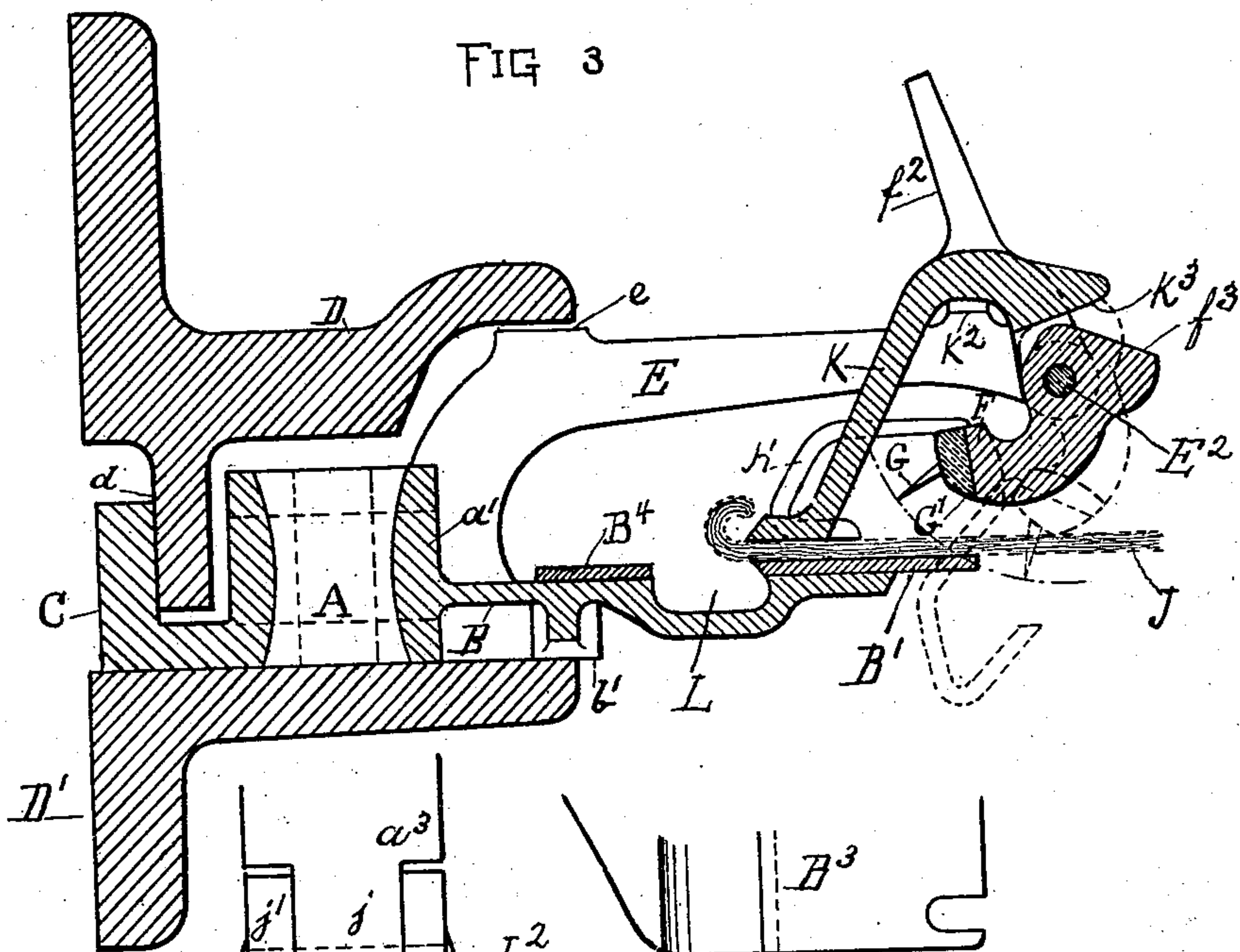
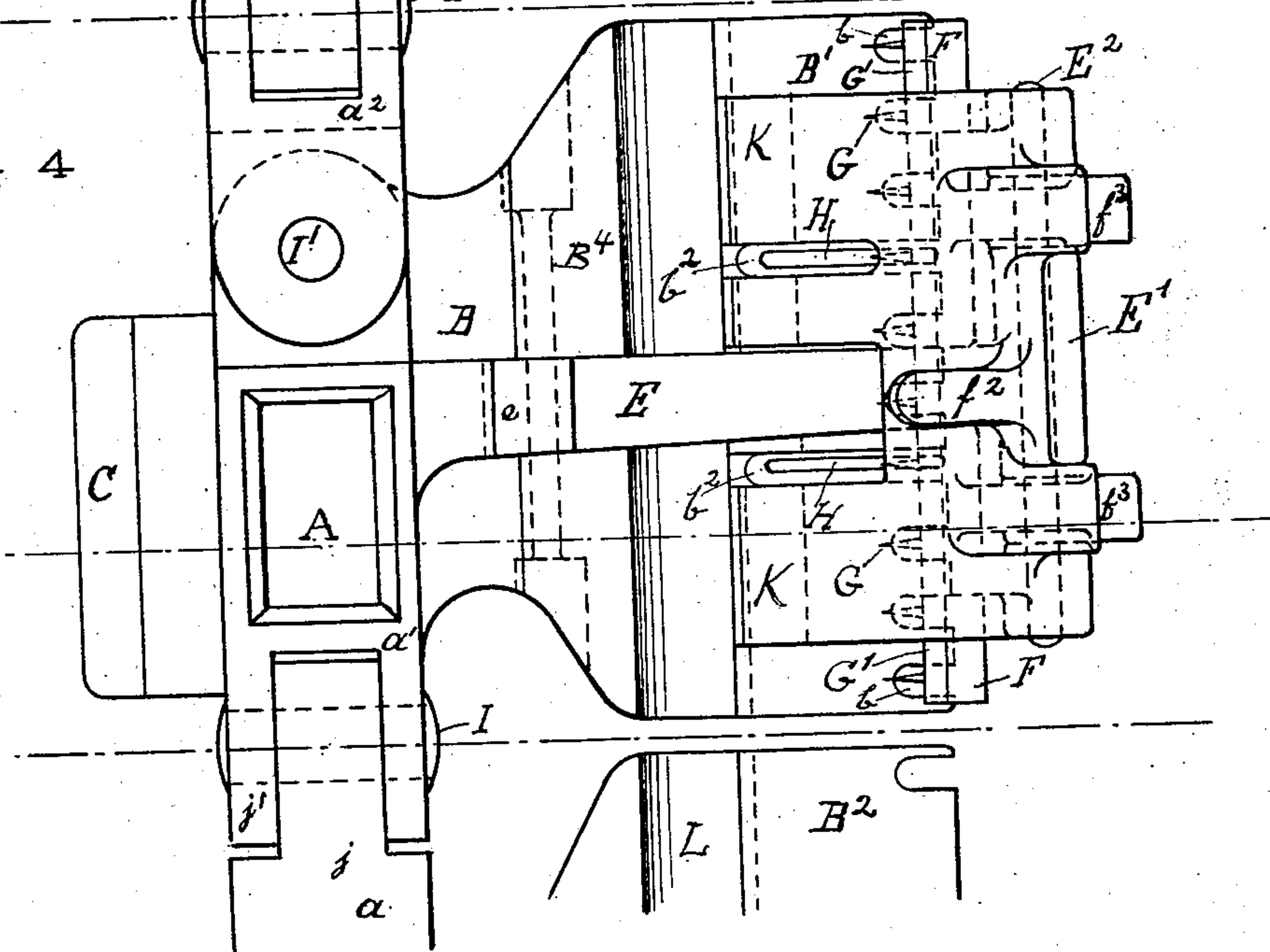


FIG 4



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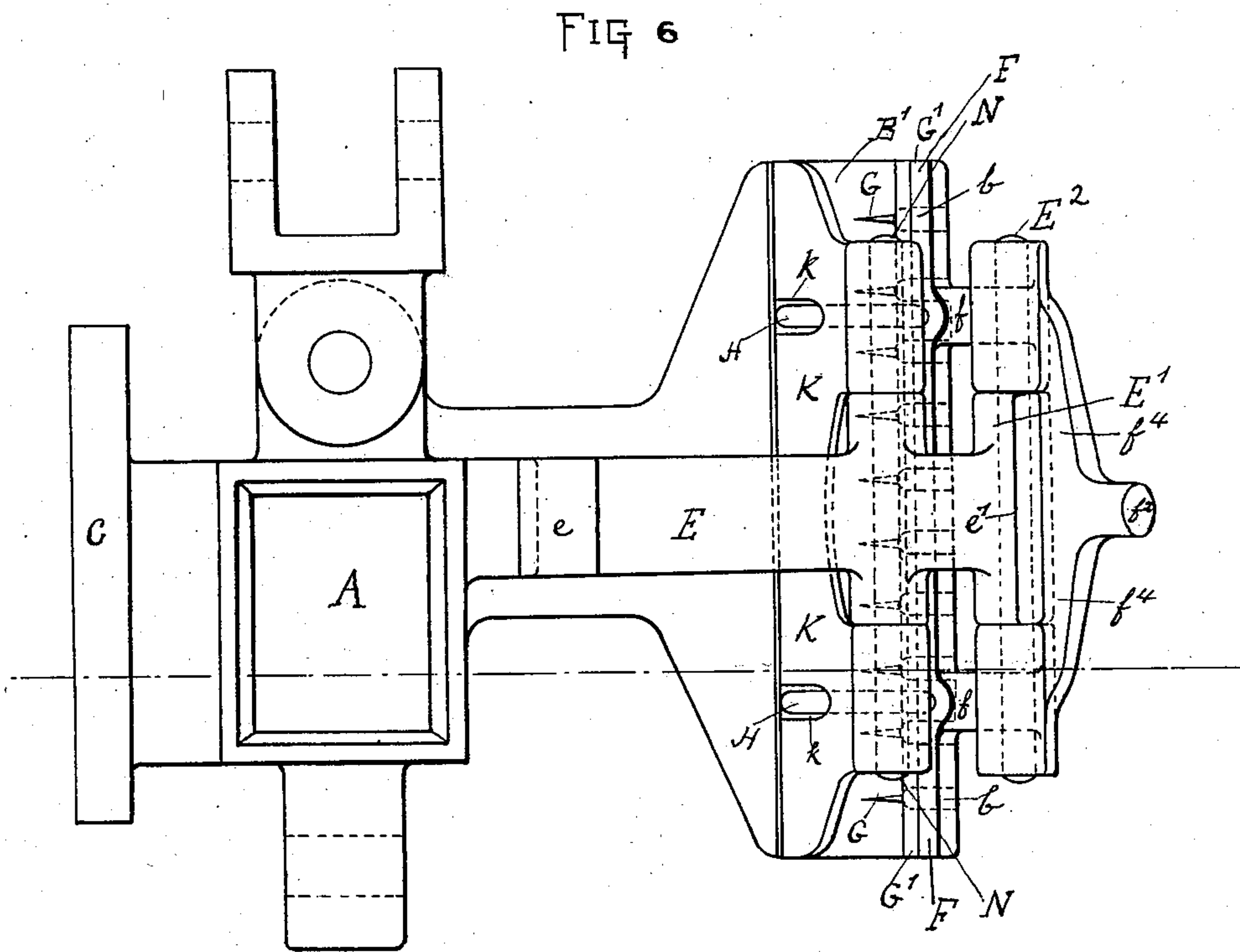
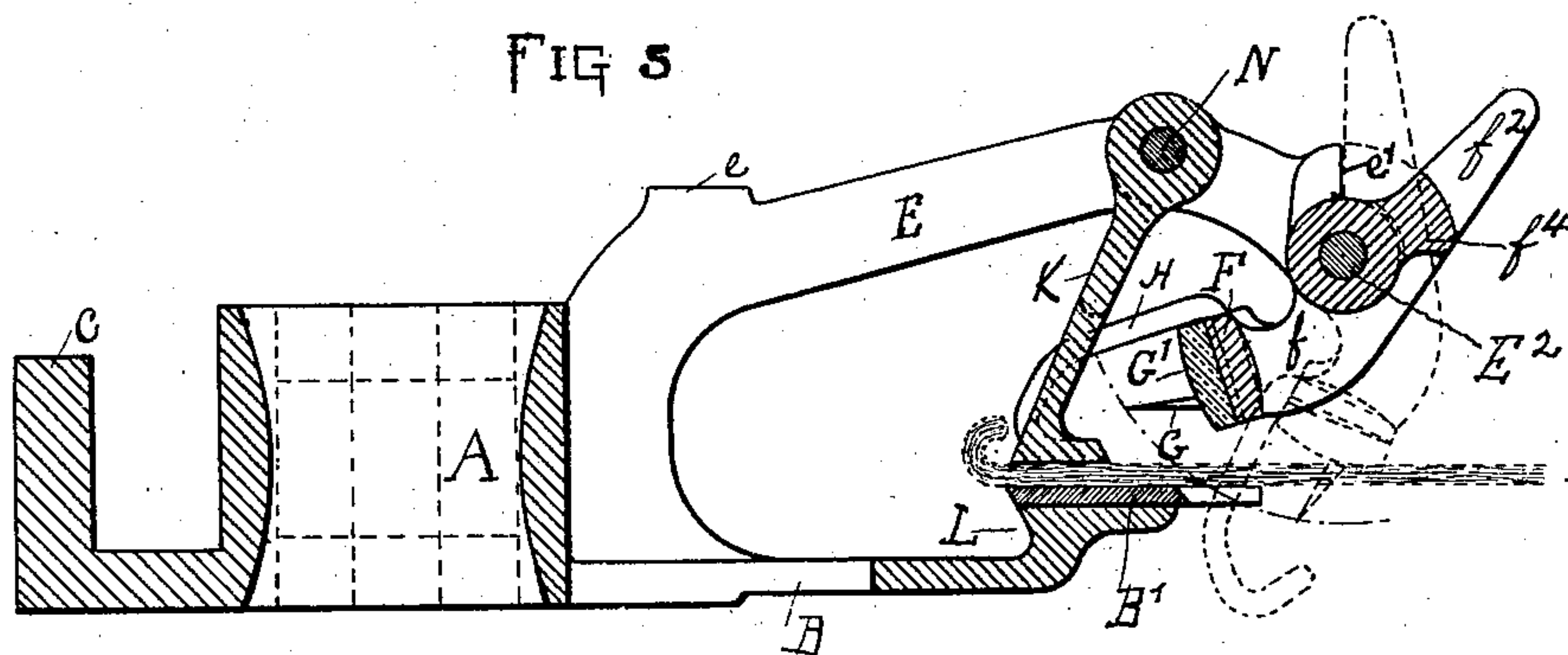
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6 SHEETS—SHEET 3.



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6 SHEETS—SHEET 4.

FIG 7.

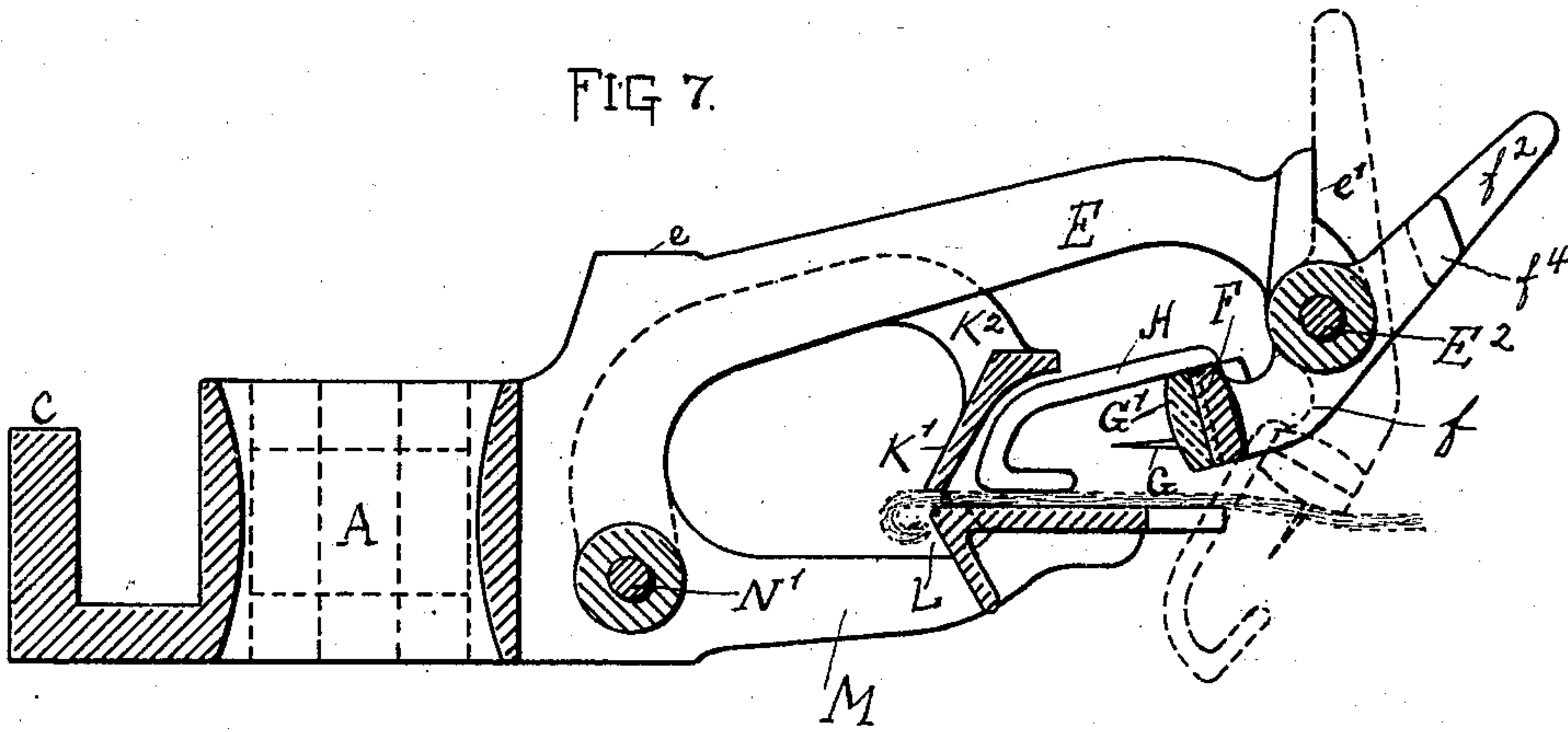
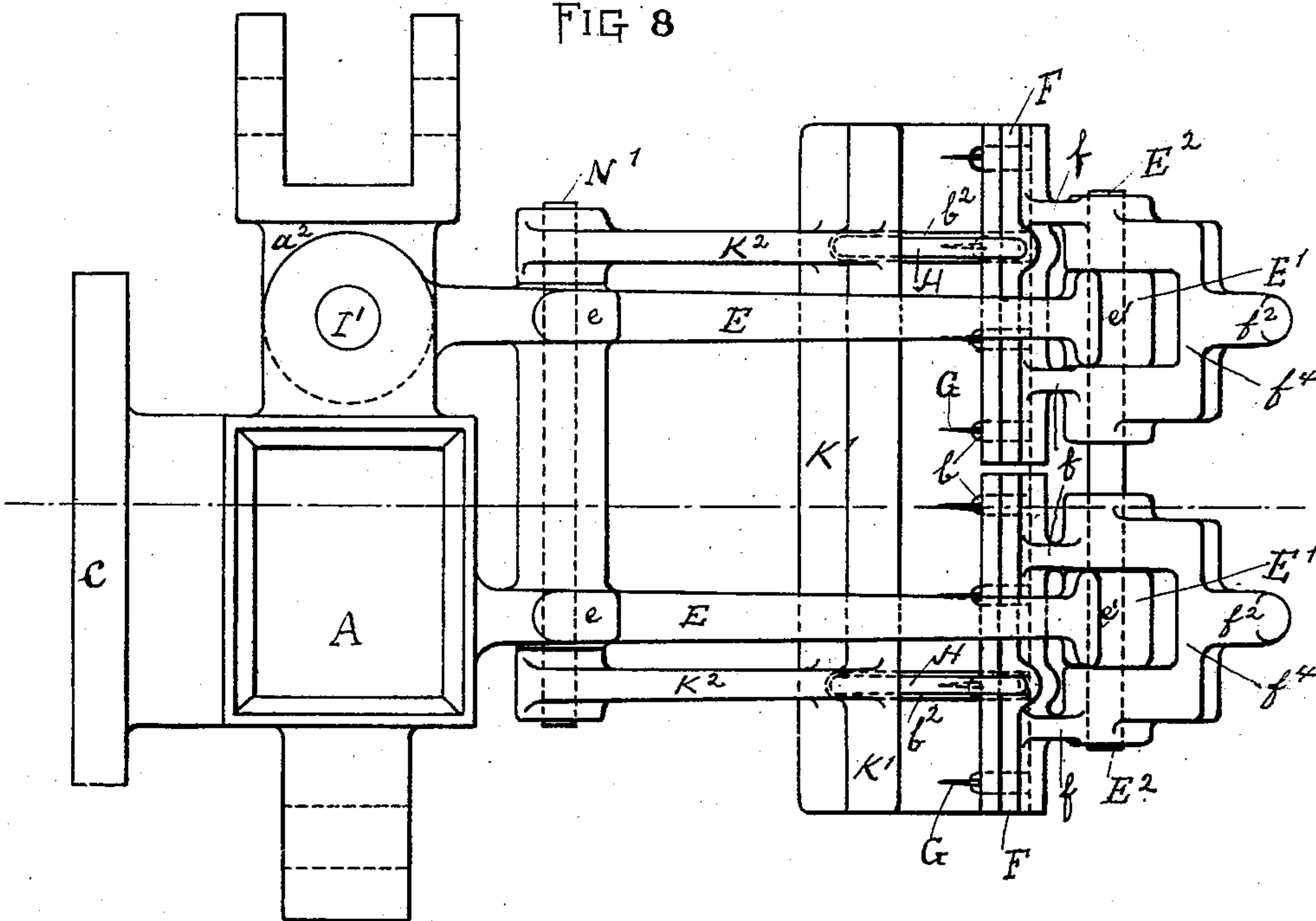


FIG 8



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6 SHEETS—SHEET 5.

FIG 9.

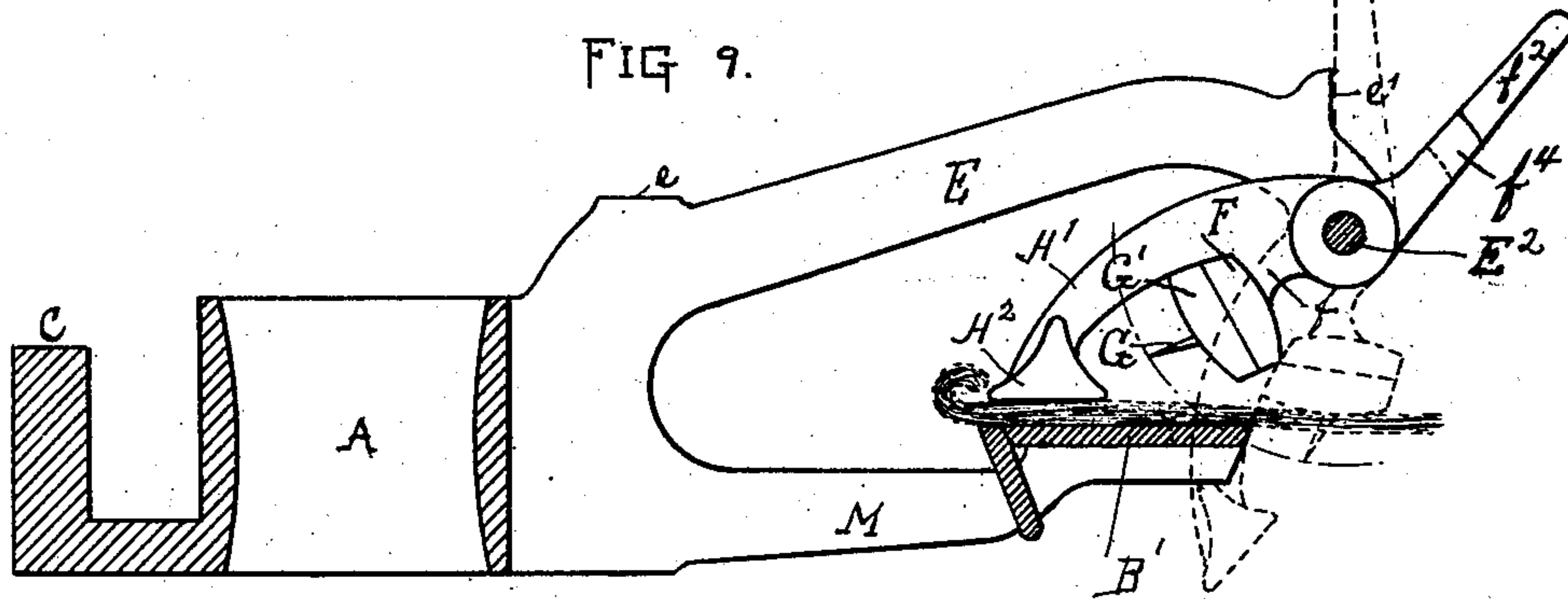
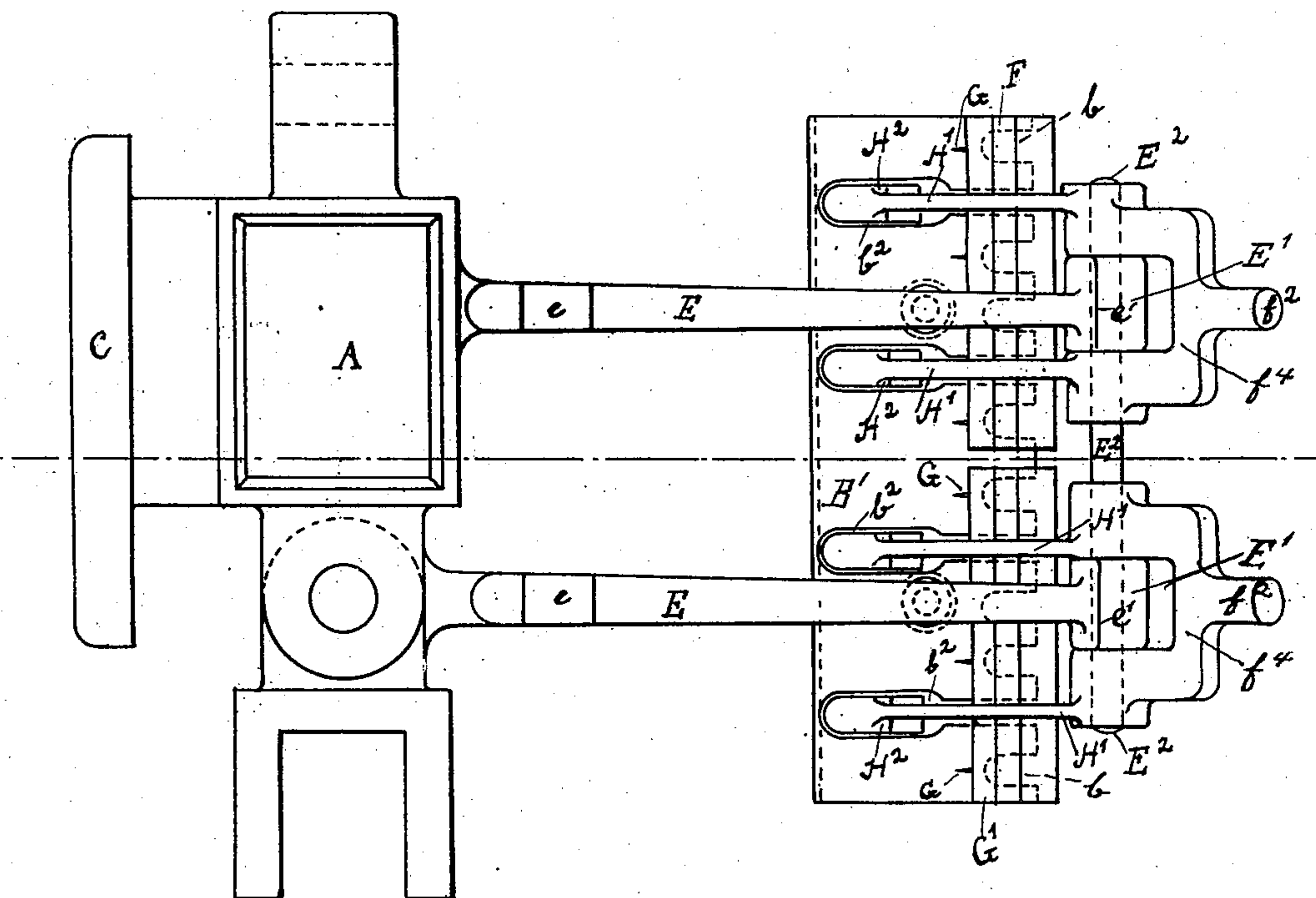


FIG 10.



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6 SHEETS—SHEET 6.

FIG 11

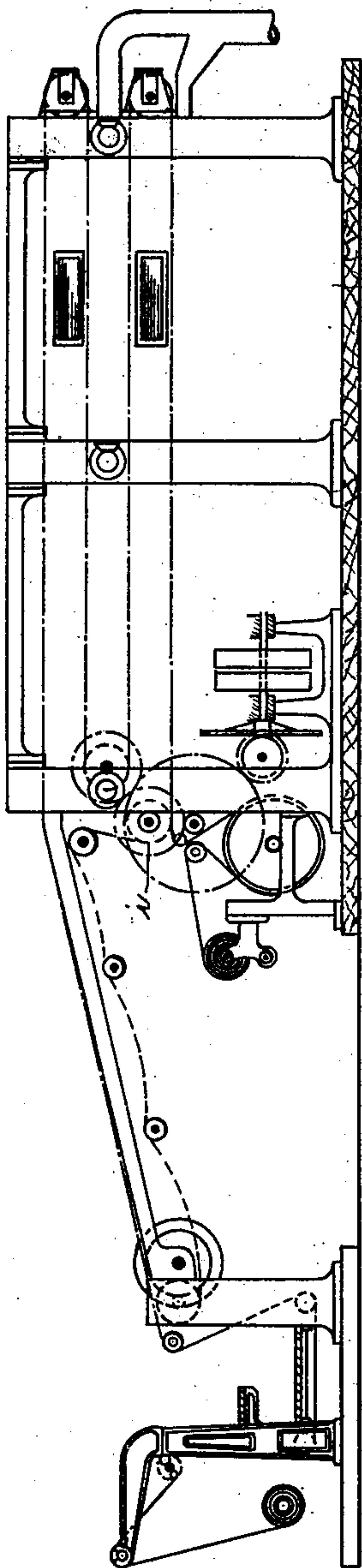
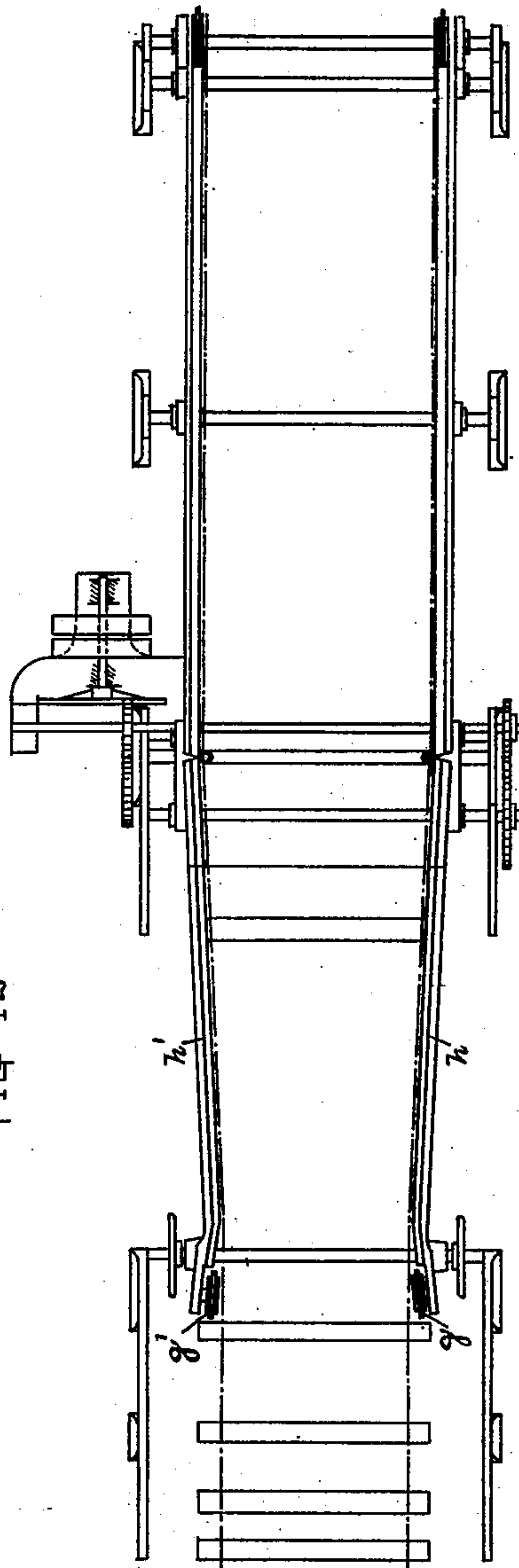


FIG 12



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UNITED STATES PATENT OFFICE.

ERNST GESSNER, OF AUE, GERMANY.

CLOTH-HOLDING DEVICE.

SPECIFICATION forming part of Letters Patent No. 754,649, dated March 15, 1904.

Application filed July 15, 1902. Serial No. 115,642. (No model.)

To all whom it may concern:

Be it known that I, ERNST GESSNER, a subject of the Emperor of Germany, and a resident of the city of Aue, Kingdom of Saxony, Empire of Germany, have invented a new and useful Improvement in Cloth-Holding Devices for Textile Machinery.

Heretofore in machines for tentering and drying cloth the mechanism for holding the cloth has generally consisted of two chains each of which was armed with upright pins upon which the selvage edges of the cloth were impaled. At the entrance to the machine the chains were comparatively near together, so that the selvage edges could be conveniently placed upon the pins by hand. From this entrance-point the chains diverged from each other, so as to stretch the cloth to the requisite width for the drying or tentering operation. Although the attendant could by hand place the edges of the cloth upon the pins, he had not sufficient time to impale the cloth upon the pins, and for this purpose pressure-wheels were located along the path of the chains to produce the impaling before the diverging of the chains commenced to stretch the cloth. The placing and impaling of the cloth upon the pins in this manner was open to serious difficulties, as well as the holding of the cloth in this way during the drying or tentering operation.

I have discovered that the impaling of the cloth upon the pins may be automatically accomplished by the pull of the cloth itself, and one part of my invention consists of a device for utilizing this discovery. This device satisfactorily overcomes the objections attendant upon the old method and also satisfactorily holds the cloth during the drying or tentering operation and also is of such a character as to permit of the ready disimpalement of the cloth from the pins as the chains converge toward each other at the exit of the cloth from the machine. Other features of my invention will be pointed out in the claims.

In the accompanying drawings, Figure 1 is a cross-section of sufficient of the machine to represent a simple form of my invention. Fig. 2 is a plan of the same. Figs. 3, 5, and 7 are cross-sections of sufficient of the ma-

chine to represent each a modified and additional form of my invention. Figs. 4, 6, and 8 are corresponding plan views of the same. Figs. 9 and 10 represent a modification. Figs. 11 and 12 are diagrammatic views in elevation and plan of the machine in which my invention is employed.

My device is shown in its simplest form in Figs. 1 and 2, which form will be first described.

a a' a^2 a^3 are links of the chain of a drying or tentering machine, every alternate link of which is provided with an opening A to receive the sprockets of the wheels by which the chain is supported and driven. The links of this chain have tongues j and clevis j' , forming pivots which are so arranged that the connecting-pins I I' I^2 are alternately at right angles with each other. The chain is supported and guided from below by guide-bar D' and is guided in the desired vertical plane by the tongue d extending downward from the guide-bar D into a groove formed between the outer edge of each alternate link a' a^3 and a flange C , fixed to such outer edge.

The mechanism which I will next describe is duplicated on each of the alternate links a' a^3 , &c., of the chain, a description of one answering for all.

B is a flange extending horizontally from and fixed to the inner side of the link a' and having a foot-piece b' to rest upon the guide-bar D' .

B' is a cloth-plate resting and secured in any suitable manner upon the flange B at such an elevation that its upper surface is in substantially the same plane as the axes of the pins I and I^2 . This cloth-plate B' has diverging sides, so that its greatest length is nearly equal to the distance between the centers of the pins I I^2 . The effect is that the series of cloth-plates B' B^2 B^3 form a nearly continuous cloth-bearing surface and enable the series of pins upon which the cloth is impaled to be substantially continuous and equidistant from each other.

E is an overhanging arm fixed to the inner edge of the link a' and extending inwardly toward the opposite chain farther than the cloth-plate B' . The extremity of this over-

hanging arm is provided with a cross-piece E' , in which is journaled the pin E^2 . Fixed to the ends of this pin are the downwardly and outwardly inclined arms $f f'$, which carry at their extremities the cross-bar F , to which is secured the pin-plate G' , carrying the series of pins G . The series of pins carried by each link a' is sufficiently extended to form a substantially continuous series with the adjacent series of pins supported on other links.

$H H$ are two fingers or feelers fixed to the bar F , which are capable of oscillating around the center E^2 through the slots $b^2 b^2$ in the cloth-plate.

f^2 is a finger fixed by a yoke f^4 to the arms $f f'$ and extending upwardly above the overhanging arm. e' is a stop on the overhanging arm, whereby the motion of the finger f^2 is limited.

$b b$, &c., are a series of slots or notches in the edge of the cloth-plate through which the series of pins G may oscillate around the center of E^2 .

The operation is as follows: At the entrance to the machine, where the chains are comparatively near together, the selvage edge of the cloth goes onto the cloth-plate in the position shown at J , Fig. 1. The presence of the cloth in this position supports the feeler H , and consequently the series of pins G , in the position shown in full lines in Fig. 1. As the cloth and chain advance from the entrance toward the drying or tentering chamber the recession of the chains from each other causes the edges of the cloth to slip toward the inner edge of the cloth-plate until the cloth edge slips from under the feelers H and permits the feelers to drop into the slots $b^2 b^2$ and permits the series of pins G to rest upon the surface of the cloth. In this position the edge of the cloth is still supported from below by the cloth-plate B' and the series of pins rests on top of it. As now the recession of the chains from each other is continued the opposition of the cloth to being stretched will pull the edge of the cloth still farther inward over that portion of the cloth-plate containing the series of slots b . This movement, however, carries with it the series of pins resting upon the cloth, which, moving around the center of E^2 , pass down through the slots b , and therefore are compelled by the pull of the cloth itself to thoroughly impale the cloth. As the inward movement of the edge of the cloth proceeds still farther, owing to the further divergence of the chains, the edge of the cloth will fall off of the inner edge of the cloth-plate by the time that the series of pins reaches the position shown in dotted lines in Fig. 1, so that by the time the chains have reached their greatest distance apart and begin to run parallel with each other the edge of the cloth will be held exclusively upon the series of pins G . The stop e' holds the series of pins at each edge of the cloth in the outwardly inclined or diverging

position, (shown in dotted lines in Fig. 1,) so that as the cloth passes through the drying or tentering chamber the cloth tends to hold itself securely upon the series of pins by its own tendency to shrink or oppose the stretching. As soon as the cloth has passed out of the drying or tentering chamber and the chains begin to converge toward each other the slack thereby produced crosswise of the cloth will enable it to be readily stripped by the pull of any suitable draft-roll from the series of pins at each edge. Thereafter any suitable device engaging the arm f^2 returns the parts to the position shown in full lines of Fig. 1 and retains them there, ready to receive a new portion of the cloth at the entrance of the machine. During all of this operation the cloth is protected from being spotted by oil or grease by the location of the guiding-tongue d and its engaging groove exclusively on the opposite side of the chain from the cloth. This location of said guide also enables the wearing-surface to be increased.

In the modification shown in Figs. 3 and 4 the parts already referred to are, with the exceptions below noted, substantially as already described; but in addition thereto means is provided for straightening out the list-curl of the cloth, if such occur. This consists of an uncurling-plate K , which is pivotally mounted upon the pin E^2 . It rests upon a stop k^2 , fixed to the overhanging arm, and is therefore capable of being raised above but not lowered below the position shown in Fig. 3, where the distance between its lower edge and the upper face of the cloth-plate is just sufficient to accommodate the thickness of the cloth. This stop can be made adjustable, as by a set-screw, if desired. As the edge of the cloth is, as before described, drawn inwardly over the cloth-plate any curled list, such as that shown in Fig. 3, will be straightened out by the plate K preparatory to being impaled by the series of pins. The plate K is preferably held in the position shown in Fig. 3, inclined to the surface of the cloth. In Fig. 3 the function which in Fig. 1 was performed by the stop e' is performed by the engagement between the projection f^3 on the arm f^2 with the projection k^3 on the uncurling-plate K , as shown by dotted lines in Fig. 3. To insure straightening of curled lists if they happen to turn under, I form a recess or groove L , the edge thereof which engages the curl in the cloth lying beneath the corresponding edge of the uncurling-plate K , the edges of both the uncurling-plate K and of the cloth-plate B' toward which the curled list is drawn being preferably beveled, as shown in Fig. 3. Preferably the groove or recess L extends entirely across the cloth-table, thus dividing the cloth-plate into two parts B' and B^4 . Ribs or connecting-bars might be used; but a clear open space provides room for the roll to drop down in better position to be uncurled than if there were ribs to

hold portions thereof at the level of the cloth-plate.

The construction shown in Figs. 5 and 6 is substantially like that shown in Figs. 3 and 4, the principal difference being that the uncurling-plate K is hinged on special pivots N, carried by the arm E nearer to the chain than the pivot E². Slots $\frac{1}{2}$ in the plate K accommodate the feelers H. The plate K is raised by engagement with the feelers H. In this construction the arm f^2 is connected with the arms f and f' .

In Figs. 7 and 8 the construction shown differs from that shown in Figs. 5 and 6 in having the smoothing or uncurling plate K' provided with arms K², pivoted at N' entirely outside of the cloth or between the cloth and the chain. The ends of the feelers H extend beneath the plate K' and lift it when the pin-plate is swung inward and upward or toward the chain. In Figs. 7, 8, 9, and 10 the flange B of the other figures is replaced by arms M, which are shown as directly beneath the arms E, although this is not an essential position.

In Figs. 9 and 10 the feeler-arm H' is an extension of the arm f , and the feeler H² is made of such shape that it acts as the smoothing or list-uncurling member.

Figs. 11 and 12 are side and plan views of sufficient of a cloth-drying machine to show how the chain, guide-wheels, and trackway may be set to take hold of, hold, and release the edges of the cloth in proper relative position. This machine is adapted for combination with the clamps above described, but has also other features of invention, hereinafter claimed, which may be used with said clamps or others. The entering wheels g g' , by which the chain is led to the point of attachment, are on separate studs or shafts set at an angle to each other, so that the planes of the wheels g g' converge and cause the chains to converge as they rise from below to the point of attachment. h h' are the trackways, the general trends of which diverge to the drying-machine proper and thence extend parallel back and forth through the machine. From the wheels i , at which the cloth is detached, each chain extends loosely, as shown, to its entering wheel.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent—

1. In a cloth-holding device for textile machinery, in combination, a cloth-support, a series of pins and means whereby said pins are forced to impale said cloth by the pull of the cloth on said pins.

2. In a cloth-holding device for textile machinery, in combination, a cloth-plate, a series of pins and means whereby the support of the cloth is automatically transferred from said plate to said pins.

3. In a cloth-holding device for textile ma-

chinery, in combination, a cloth-plate, a series of pins and means whereby the support of the cloth is transferred from said plate to said pins by the pull of the cloth on said pins.

4. In a cloth-holding device for textile machinery, in combination, a cloth-plate, a series of pins inclined toward the selvage edge and means whereby the support of the cloth is automatically transferred from said plate to said pins.

5. In a cloth-holding device for textile machinery, in combination, a support on one side of the cloth, a series of pins on the opposite side of the cloth and a connection admitting of movement of said pins from a position opposite said support to a position not opposite the same.

6. In a cloth-holding device for textile machinery, in combination, a cloth-support and a series of pins which in holding position are inside of the edge of said support.

7. In a cloth-holding device for textile machinery, in combination, a cloth-support, a series of pins and means for mounting the same whereby said pins commence to engage the cloth opposite to said support and move to a holding position not opposite the same.

8. In combination, two chains, means whereby the same are guided in diverging directions, inwardly-extending cloth-plates attached to said chains and underlapping the edges of said cloth before divergence, and a series of pins located between opposite cloth-plates whereby the edges of the cloth are held after divergence.

9. In combination, a chain adapted to be bent in a plurality of planes, a cloth-plate attached thereto on one side of the cloth, a series of pins on the opposite side of the cloth and means whereby the support of the cloth is automatically transferred from said plate to said pins.

10. A cloth-holding device for textile machinery comprising a table or cloth-plate having its edge notched, a series of pins and a support permitting the same to move in an inclined direction through said notches.

11. A cloth-holding device for textile machinery comprising a table or cloth-support having its edge notched, a series of pins adapted to move in an inclined direction through said notches, and cloth-controlled means for determining the engagement of said pins with the cloth.

12. A cloth-holding device for textile machinery comprising a table or cloth-support having its edge notched, a series of pins adapted to move in an inclined direction through said notches, and a finger interposed between cloth and pin-bar and determining the engagement of pins and cloth.

13. A cloth-holding device for textile machinery comprising a table or cloth-support, a pin-bar pivoted so that the arc described by

the pins intersects the cloth; said pins being inclined to the radius of said arc toward the selvage edge of the cloth.

14. A cloth-holding device for textile machinery comprising a table or cloth-support, a pin-bar guided to move the pins in paths intersecting the cloth and pins inclined at the points of intersection toward the selvage edge of the cloth.

15. A cloth-holding device for textile machinery comprising a table or support for the reception of the cloth, an arm extending out over said table, a series of pins pivoted upon said arm and swinging between the arm and table so that the arc described by the pins intersects the cloth; said table being notched to permit passage of the pins and a stop limiting the swing of the pins after passing out of said notches.

16. A cloth-holding device for textile machinery comprising a table or cloth-support and a pin-bar pivoted so that the arcs described by the pins intersect the cloth at points where the radius of said arcs inclines toward the selvage edge of the cloth.

17. In a cloth-holding device for textile machinery, the combination with members adapted to engage the cloth to hold it and feelers resting upon the cloth and operating said holders, of two opposed surfaces between which the selvage is drawn and smoothed.

18. A cloth-holding device for textile machinery comprising a table or cloth-support, the outward edge of which the selvege edge overhangs and a smoother opposed to said support adjacent to said edge whereby the

selvage edge is smoothed whether it curls down or up as it is drawn between the edges of said table and smoother.

19. In a cloth-holding device for textile machinery, the combination with a cloth-holding device and of a member engaging the cloth and controlling the engagement of said holding means with the cloth of a selvage-smoothing device presenting an abrupt edge toward the curl.

20. In a cloth-holding device for chains of textile-machines, a cloth-support having its inner edge notched, a series of pins pivoted to swing through said notches, and a stop limiting the inward swing of the pin-bar to a point inside of the edge of the cloth-support.

21. In a cloth-holding device for textile machinery the combination with a cloth-support having a recess extending across the same and adapted to receive the rolled edge of the cloth, of a smoothing member adapted to engage the upper side of the cloth.

22. In a cloth-holding device the combination with the cloth-securing members, and cloth-smoothing members adapted to engage opposite sides of the cloth, of a separate member controlling the engagement of the cloth-securing members and the separation of the cloth-smoothing members.

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

ERNST GESSNER.

Witnesses:

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H. THIELE.