

No. 885,021.

PATENTED APR. 21, 1908.

R. CROMPTON.
WEFT REPLENISHING LOOM.
APPLICATION FILED JAN. 18, 1907.

4 SHEETS—SHEET 1.

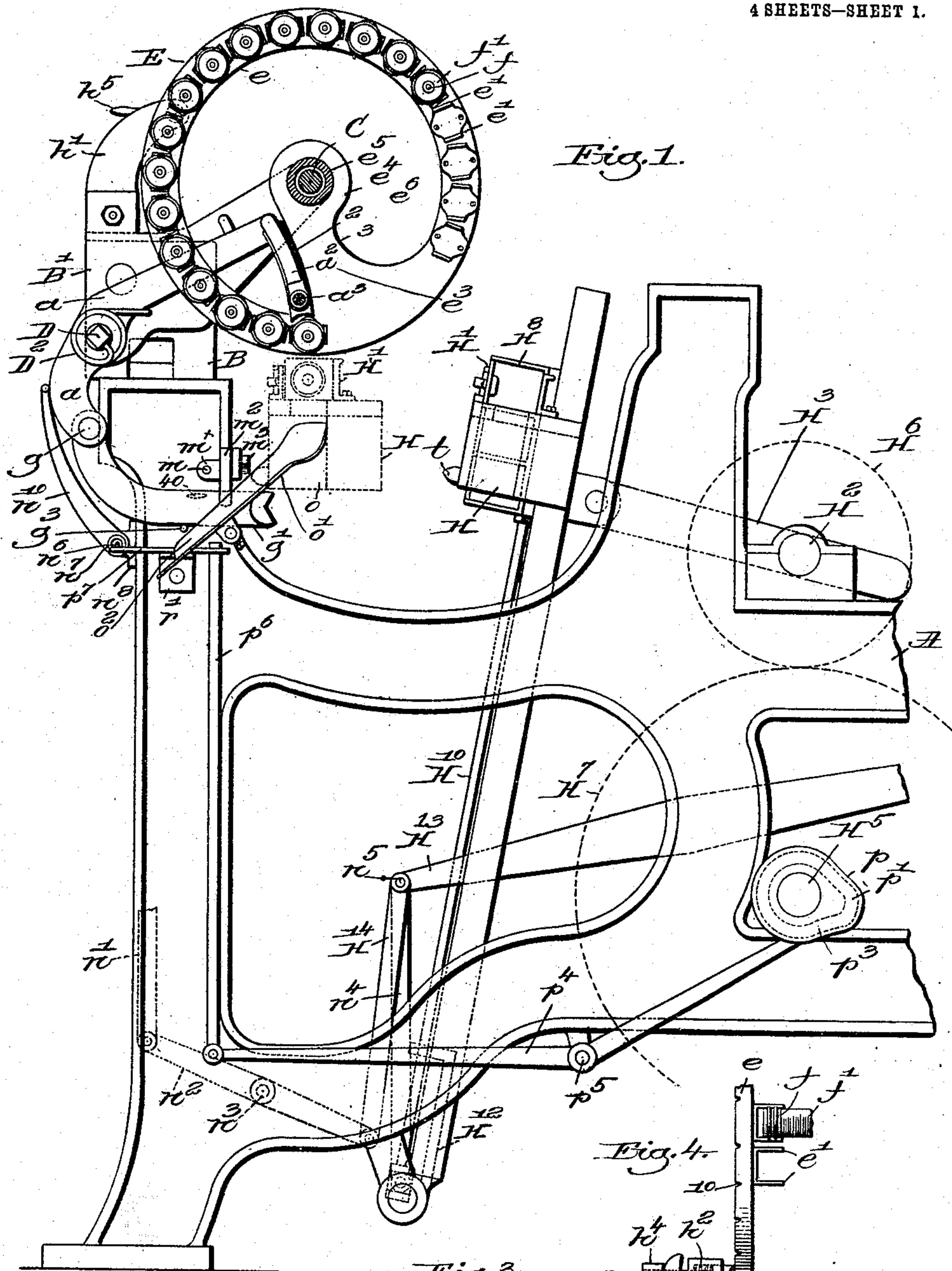


Fig. 1.

Fig. 2. 6
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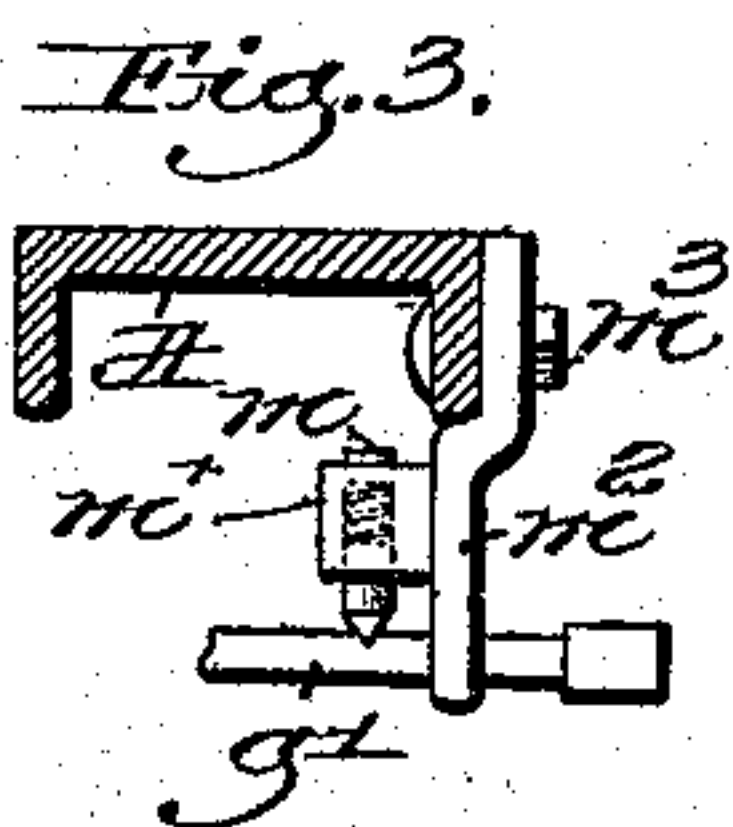


Fig. 3.

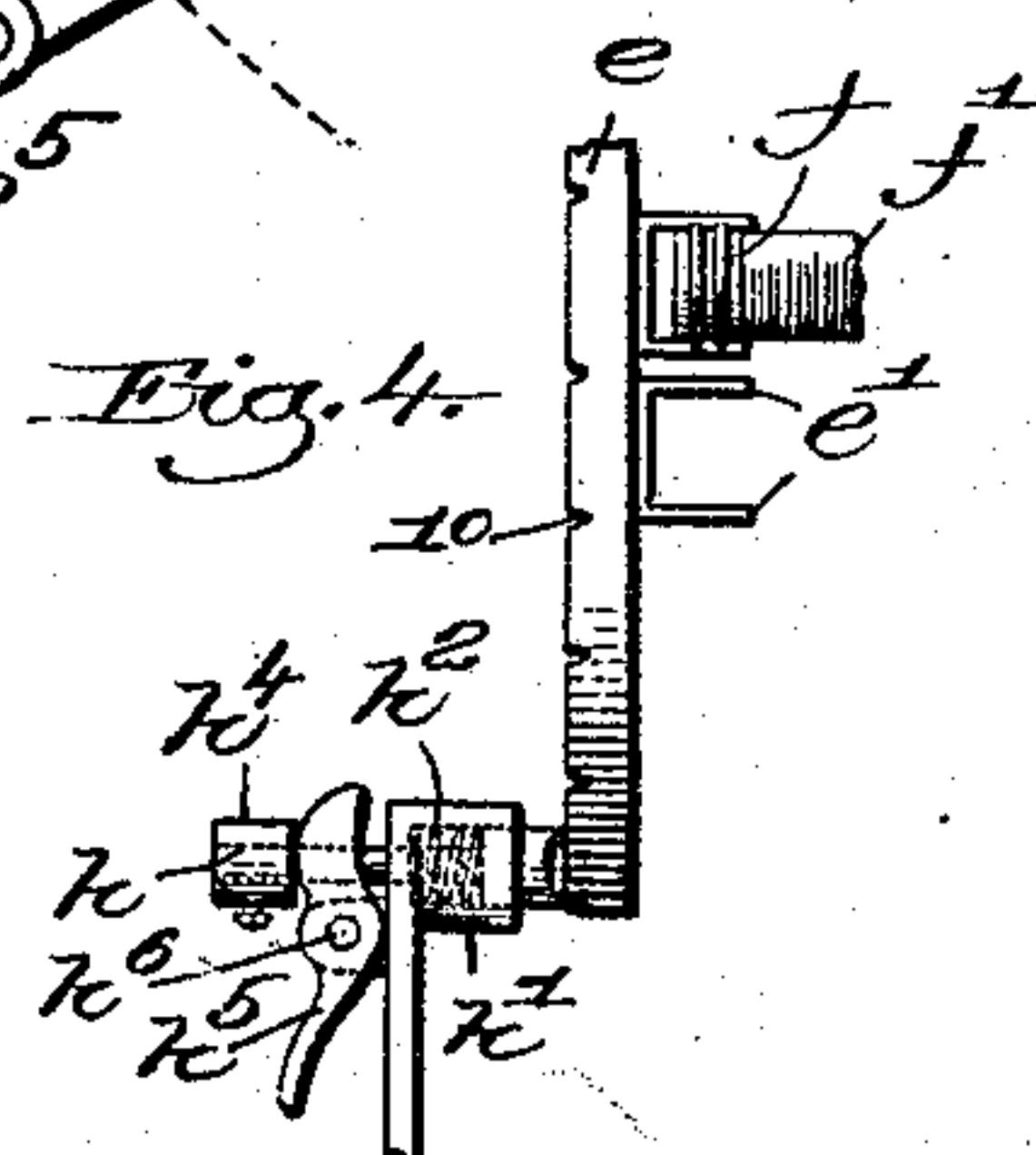


Fig. 4.

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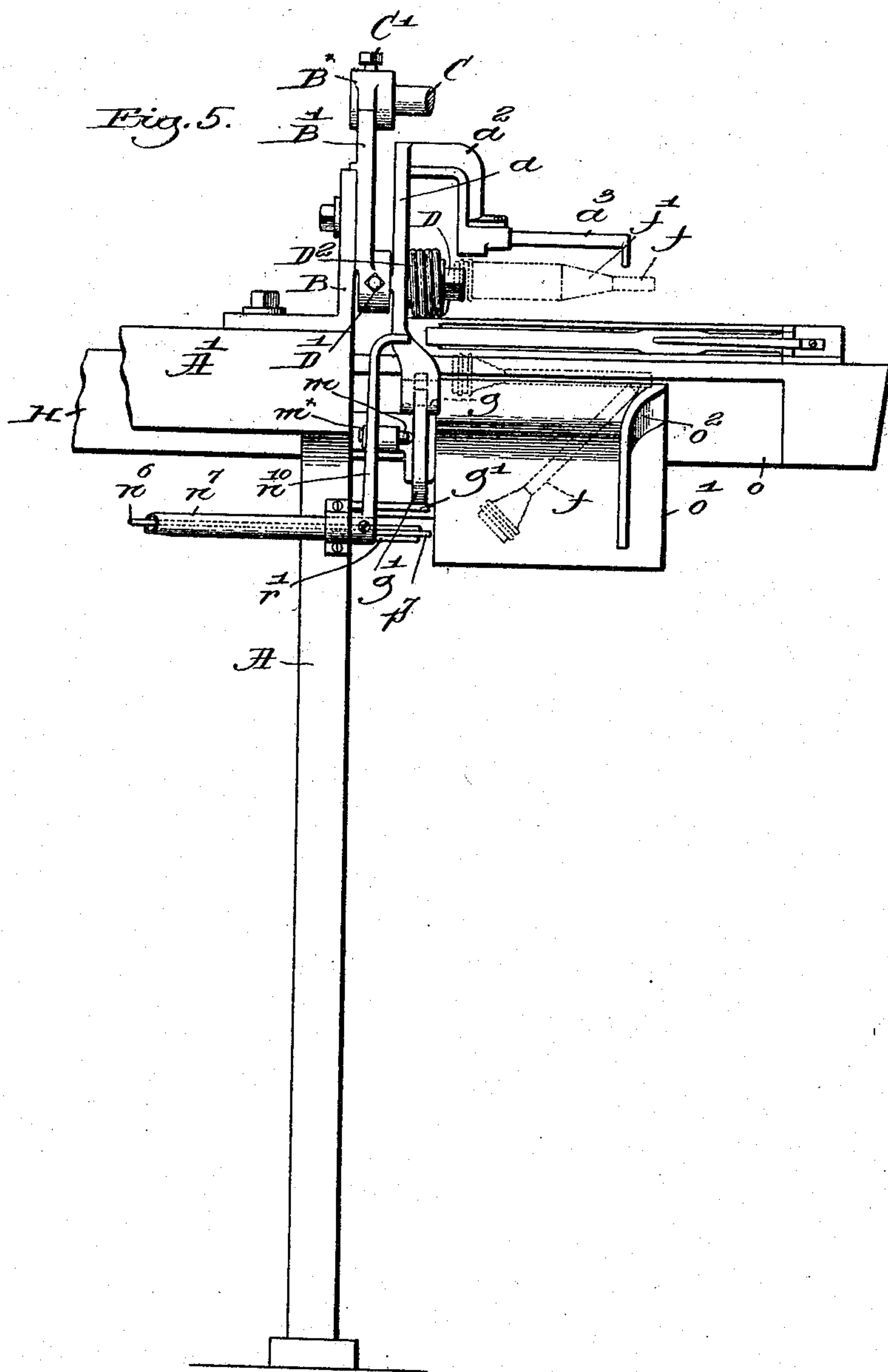
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4 SHEETS—SHEET 2.



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4 SHEETS—SHEET 3.

Fig. 6.

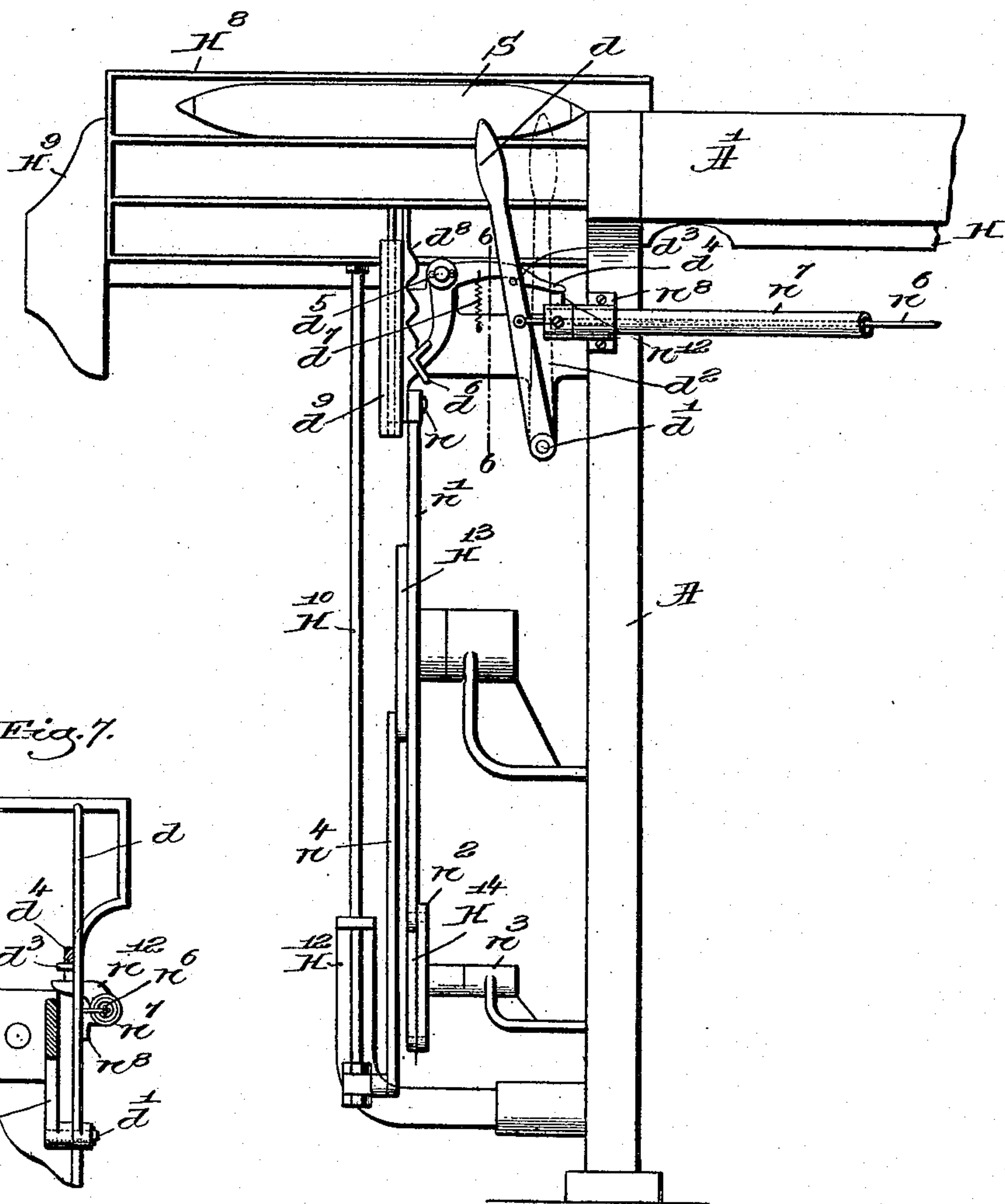
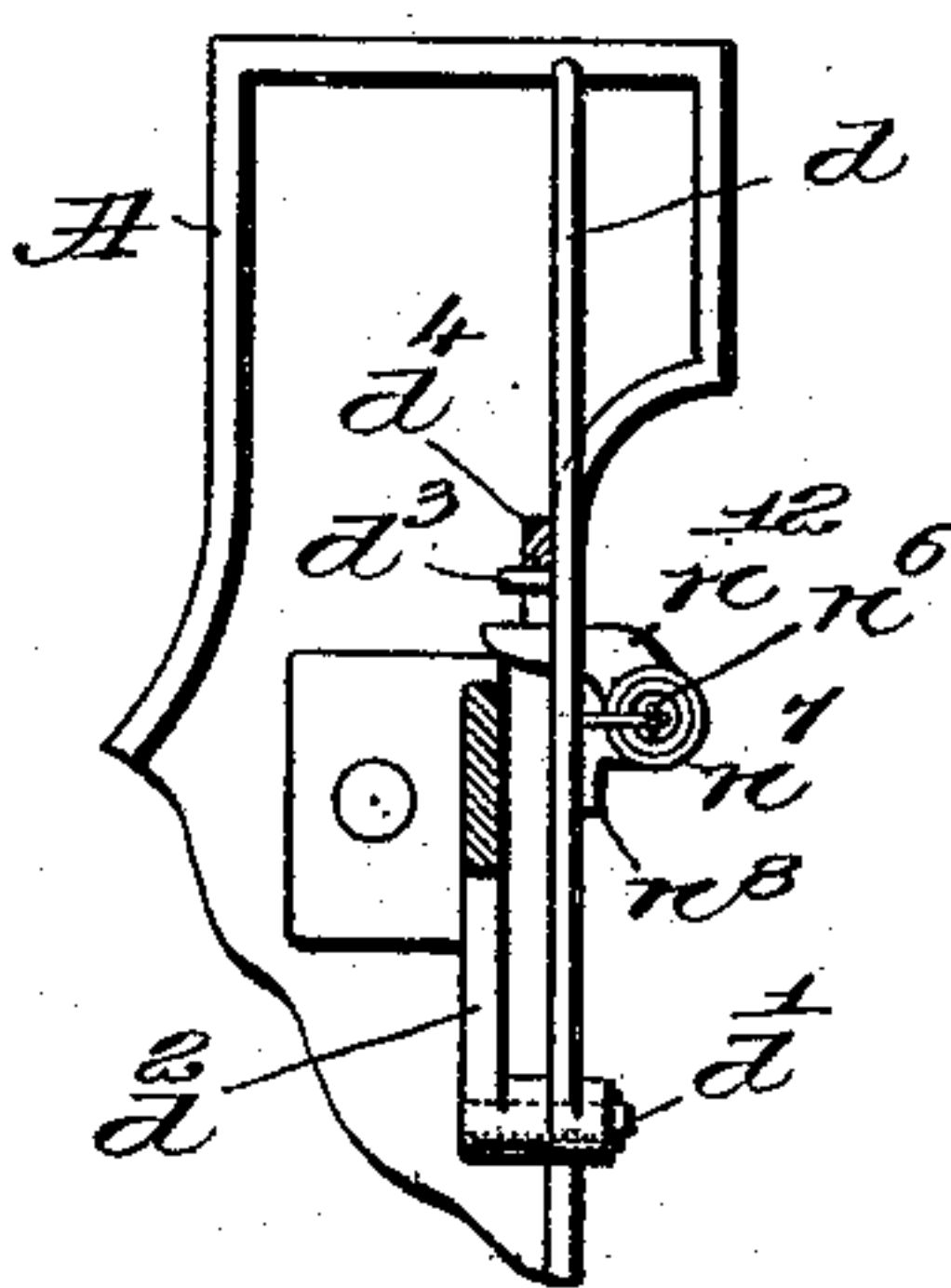


Fig. 7.



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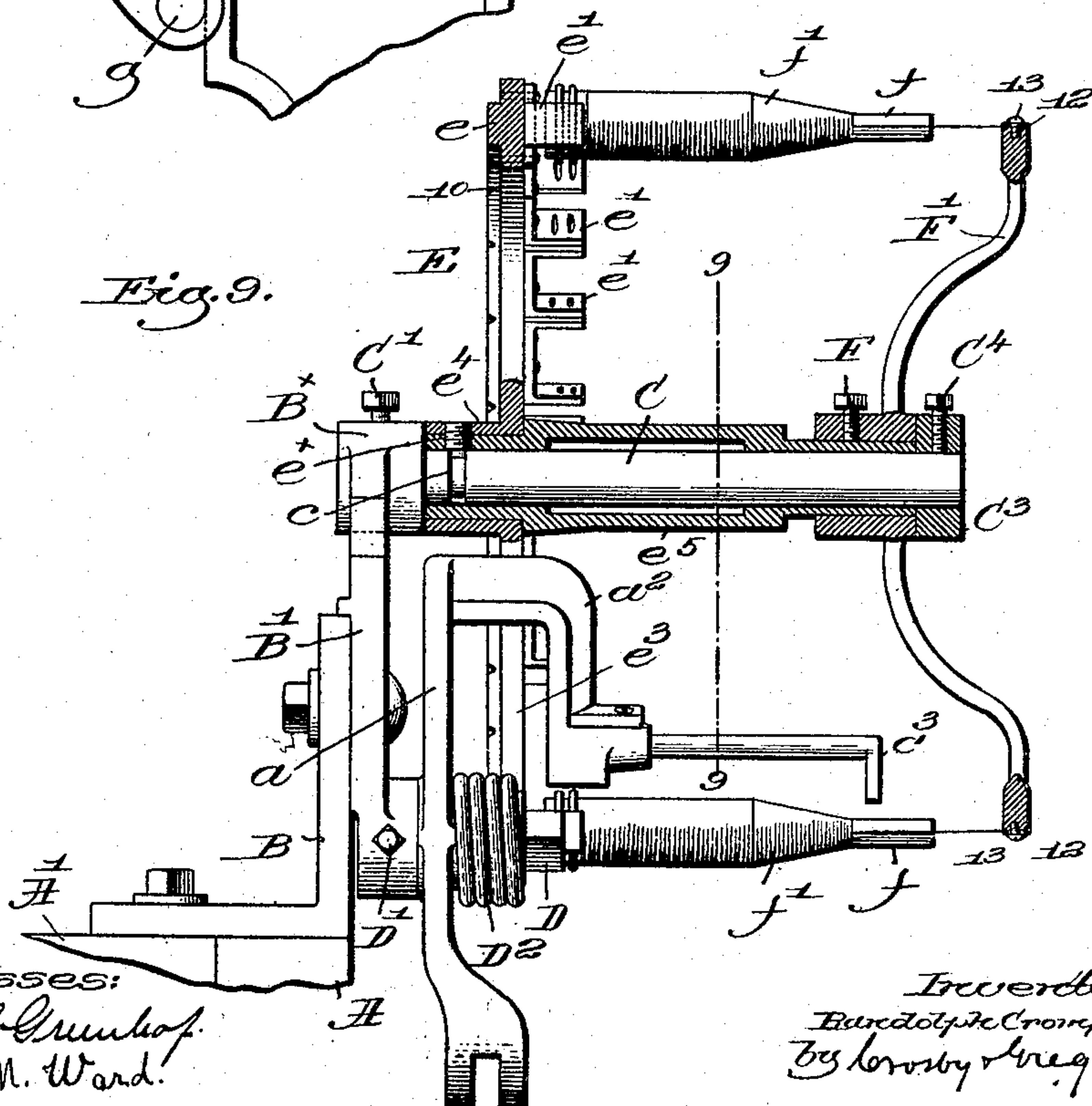
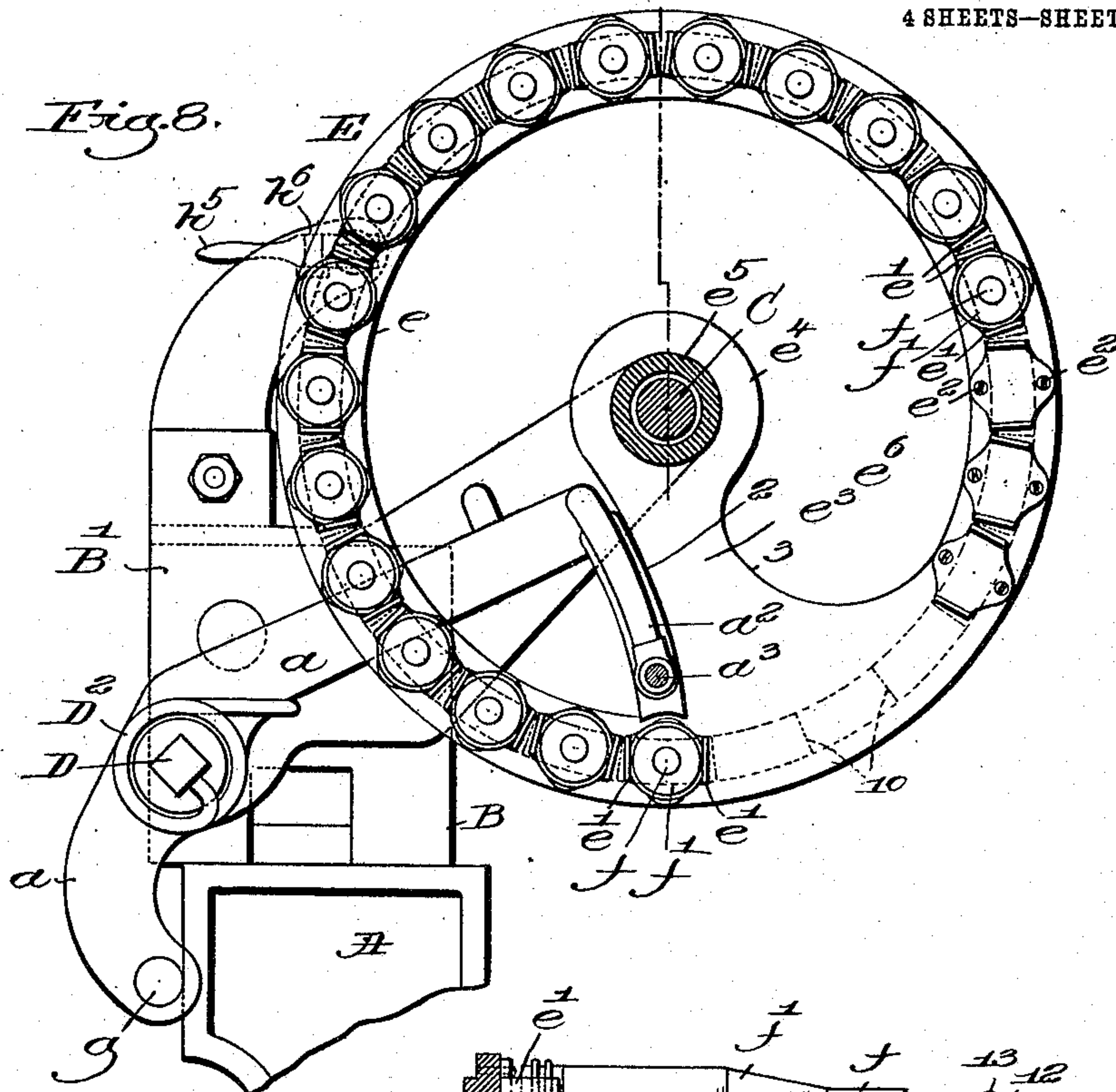
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4 SHEETS—SHEET 4.



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UNITED STATES PATENT OFFICE.

RANDOLPH CROMPTON, OF WORCESTER, MASSACHUSETTS, ASSIGNOR TO CROMPTON & KNOWLES LOOM WORKS, OF WORCESTER, MASSACHUSETTS, A CORPORATION OF MASSACHUSETTS.

WEFT-REPLENISHING LOOM.

No. 885,021.

Specification of Letters Patent.

Patented April 21, 1908.

Application filed January 18, 1907. Serial No. 352,911.

To all whom it may concern:

Be it known that I, RANDOLPH CROMPTON, a citizen of the United States, residing in Worcester, county of Worcester, and State of Massachusetts, have invented an Improvement in Weft-Replenishing Looms, of which the following description, in connection with the accompanying drawing, is a specification, like letters on the drawing representing like parts.

This invention has for its object the production of a novel filling-carrying magazine adapted to be used in that class of loom for supplying fresh filling-carriers in the path of movement of a pusher constituting part of any usual filling-carrier transferring mechanism to supply a shuttle with filling.

United States Patent No. 529,940, November 27th, 1894, shows a magazine of circular form comprising two disks each having a central hub mounted on a stud, the pusher and its carrying arm being located between said disks, the peripheries of said disks receiving one the butts of the filling-carriers and the other the tips thereof, the magazine being capable of being rotated intermittently in the same direction for a like distance.

United States Patent No. 600,053, dated March 1, 1898, shows a cage comprising a hollow sleeve provided at one end with a circular head adapted to receive the tips of a series of bobbins, said head having a series of connected inwardly extended horizontally arranged arms supporting at their free ends an open-centered externally toothed ring provided at its periphery with notches to receive the heads of the filling-carriers supplied with filling differing in color or character, the hub of the cage being mounted to turn about a stud. The arm carrying the pusher of the transferring mechanism used in the loom shown in Patent No. 600,053, is represented as extended through the open-centered ring, into the center of the cage between said horizontally extended arms, the cage or magazine besides being capable of being moved in the same direction rotation after rotation, being also capable of being moved to-and-fro a number of times during each full rotation.

In the invention to be herein described the magazine will be provided with filling-carriers having filling differing in color or

character, such as required in weaving colored goods wherein differences in color or figure are due to filling of different color or character.

My novel magazine, manually-controlled as to the time and extent of its movements comprises essentially, as I have chosen to illustrate the same herein, a circular rim having an inwardly extended radial arm shaped at its end to be sustained by a suitable bearing, said rim being adapted to receive and hold frictionally the butts or large ends of a series of bobbins or filling-carriers. Looking at the side of the rim of my novel magazine it presents an arc-shaped space inside the exterior of the rim, the space being terminated by the edges of the radial arm, the pusher being extended through said space that it may be placed in position to act on the filling-carriers sustained by the magazine, the extent to which said magazine may be rotated being limited by the pusher or other suitable device meeting one or the other edge of said arm. The operator may by hand move said magazine in one or the other direction for less than a full rotation to place any filling-carrier sustained therein and having filling of the desired color or character, in line with the path of movement of the pusher so that when said pusher is actuated after a movement of said manually controlled device, any desired filling-carrier then in the path of movement of said pusher may be discharged from the magazine into the shuttle in the usual shuttle-box at the end of the lay, the incoming filling-carrier ejecting the filling-carrier then in the shuttle through the underside of the shuttle and through a slot in the floor of the shuttle box, as commonly done.

The magazine herein shown has a connected hand-wheel provided with means for holding the ends of the filling-threads. Herein I have combined with the magazine checking means to check and maintain the magazine in any position where it may be left by the operator prior to the action of the pusher. I have combined with the loom frame a trough or conductor into which is discharged the spent filling carriers as the cranks of the lay are moving in front of the longitudinal axis of the crank shaft. I have also combined with the manually-controlled device and

forming a part thereof an operative member located at the end of the loom where is located the drop shuttle-boxes that said member may be moved whenever the weaver or operator, viewing a filling-carrier in a running shuttle in one of the cells of the drop shuttle box, considers that the filling-carrier should be replaced, the movement of said operative member placing the manually-controlled device in a position to effect the operation of the pusher at a subsequent pick or after the observed shuttle is thrown from its cell in the shuttle box across the race of the lay.

In case the operative member should be moved to effect a change of filling in the running shuttle at a subsequent pick and the shuttle box pattern surface should call immediately for a change of position of the shuttle box, then the operative member will be restored to its normal inoperative position by a restoring device moved in unison with the shuttle-boxes.

I have combined with the pusher releasing mechanism which is made operative as the pusher is moved to eject a bobbin from the magazine to release the operative member after a change of filling has been effected in the desired shuttle.

Figure 1 is a right hand end elevation of a loom with which I have embodied my improvements, the magazine supporting stud being in section in the line 9—9, Fig. 9, the dotted lines showing in outline some devices shown fully in Fig. 6, and the lay in its forward position; Fig. 2 shows part of the manually-controlled means for calling into operation the pusher of the filling-carrier transferring means; Fig. 3 is a detail of the dagger; Fig. 4 is a detail showing one form of magazine checking means; Fig. 5 in front elevation shows part of the right hand end of the loom, the magazine being omitted, the figure showing the pusher and the filling-carrier conductor, a filling-carrier being shown by dotted lines in position to be struck by the pusher when moved; Fig. 6 in front elevation shows the operative member and co-acting parts that I have applied to the left hand end of the loom where are located the drop shuttle boxes; Fig. 7 a sectional detail in the line 6—6, Fig. 6; Fig. 8 on an enlarged scale shows my novel magazine in end view and looking at the same from the right, Fig. 1, the stud and part of the pusher being in section on the line 9—9, Fig. 9, and Fig. 9 is a partial section of the parts shown in Fig. 8 in a line parallel with the magazine sustaining stud.

The loom frame A, breast-beam A', stand B having bolted to it a casting B' from which is extended a horizontal stud C secured in a hub B^x of said casting by a set-screw C', the casting B' having at its lower end a stud D fixed in position by a screw D', the stud hav-

ing connected with it a spring D² one end of which acts against a laterally extended arm a, having a portion a² provided with a finger a³, said portion a² and finger constituting part of the pusher or filling-carrier transferring mechanism adapted to act on whatever filling-carrier f' is located directly below it when the said transferrer and pusher are actuated, the lay H, its single shuttle-box H', the crank-shaft H², connecting rod H³, cam-shaft H⁵ and gears H⁶, H⁷ connecting the same, are and may be as usual in weft-replenishing looms.

The series of drop shuttle-boxes H⁸, Fig. 6, the guideways H⁹ attached to and forming part of the lay at its end opposite that having the single box with which the pusher coacts, the shuttle S, but one being shown in Fig. 6 by full lines and by dotted lines in Fig. 1, the shuttle-box rod H¹⁰, the box rod guide H¹² the shuttle-box lever H¹³ connected with the box rod by a link H¹⁴ are and may be as commonly employed in looms of the type shown in United States patent granted to me No. 739,611, dated Sept. 22, 1903 and the shuttle-box lever in practice may be moved by any common or usual mechanism controlled by any usual or suitable pattern surface.

It will be understood that the shuttle has usual jaws that grasp the butt or ringed end of the filling-carrier, the shuttle being slotted at its under side to enable the filling-carrier to be ejected from said jaws through the bottom of the shuttle and thence out through the usual slot in the floor of the shuttle-box.

Referring now especially to features to be herein claimed, I have provided a novel magazine E, it comprising a circular rim e having as shown a series of filling-carrier clamps e' arranged in pairs, clamps substantially such as provided for in U. S. Patent No. 794,377, dated July 11, 1905, said clamps embracing the ringed buffs of the filling-carriers f having filling f'. The rim of the magazine has an inwardly extended arm e³, presenting side edges 2, 3 that constitute the ends of the arc-shaped space e⁶ within the rim, the inner end of said arm having a hub e⁴, that, as shown, fits the reduced inner end, see Fig. 9, of a quill or hollow sleeve e⁵, the outer end of said hub being shown as abutting one side of the hub B^x, the hub of the magazine being secured to said quill by a screw e^x extended through said hub and a hole in the quill, the inner reduced end of said screw entering an annular groove c in the stud C, so that said quill and magazine may be turned freely by the operator about said stud to place any filling-carrier of the series in the magazine under or in line with the pusher according to which particular filling-carrier of the series it is desired to eject from the magazine into the one or the other of the series of shuttles controlled by the drop shuttle-boxes, it being understood that the filling in said shuttles

differs in color or character, and that some of the filling-carriers in the magazine have filling of the same color or character.

In order to retain the magazine in any position in which it may be left by the operator, I have devised and combined therewith checking means, the same consisting, as herein shown in one good form, see Fig. 4, of a bolt h extended through a hole in a stand h' , the enlarged inner end of the bolt engaging one or the other of a series of notches 10 in the rim e , the rim having a notch for each filling-carrier. The shank of the bolt is surrounded by a spring h^2 contained in the stand h' that acts normally to cause the head of the bolt to engage a notch and check the magazine in any position in which it may be turned by the weaver prior to the movement of the pusher. The outer end of the bolt has a collar h^4 , and to withdraw the bolt when it is desired to move the magazine, I have provided a lever h^5 , mounted on a stud h^6 , see Fig. 4. In this way it will be readily understood that the magazine may be checked and held frictionally in any position in which it may be turned by the weaver.

To the outer end of the quill e^5 is secured by a screw F the hub of a hand-wheel F' provided at its periphery with a series of filling-holders shown as spring plates 12 held in place by screws 13. The outer end of the stud C is provided with a collar C^3 held in place by a screw C^4 .

The pusher arm a has a stud g on which is pivoted a dagger g' forked at its end. The dagger normally sustained at its lower edge on a rest g^3 is provided at its rear side with a shallow notch 40 and the free end of the dagger is guided in its movements by a slot in a plate m^2 having a boss m^x and secured to the loom and by a bolt m^3 . The notch 40 is entered by a temporary sustaining device shown as a spring pressed pin m , Fig. 3, when the dagger is elevated, as will be described, into its operative position. The dagger lifting mechanism comprises a cam plate p secured to cam shaft H^5 and provided with a cam groove p' that receives a stud p^3 at one end of a lever p^4 mounted on a stud p^5 of the loom end, the end of said lever nearest the breast beam having connected with it as shown in Fig. 1, a rod p^6 , the upper end of which is extended through a hole in the manually controlled device p^7 Figs. 1 and 2, shown as a lever erected on a stud r of a bracket r' connected with the loom end, a spring r^2 connected with said loom end and with said device acting normally to retain said device in its inoperative dotted line position, Fig. 2, in contact with a stop 15 on said bracket, said rod p^6 being reciprocated in said manually-controlled device as said cam plate p is rotated, it rising at every other beat of the lay and passing the inner side of said dagger without moving the same. When,

however, the operator desires to eject a filling carrier from the magazine into the shuttle open at its top and bottom and occupying a position in the single shuttle-box of the lay, having a slot in its floor as provided for in said patents, he will first turn the magazine by hand in one or the other direction to place under the pusher that particular one of the filling-carriers having filling of the color or character desired that it is wished to put into the shuttle in the single shuttle-box to replace a filling-carrier more or less exhausted, the same coming, it may be, from any cell of several cells of a series of drop shuttle-boxes, each shuttle containing filling of a particular color or character.

When the manually-controlled magazine has been placed in its desired position, the operator will move the manually-controlled device p^7 into the full line position, Fig. 2, against the stress of spring r^2 to place the end of the rod p^6 in line with the under side of the dagger g' so that as the lay next comes forward with the shuttle in the single shuttle-box, the rod will lift the dagger into the path of movement of the bunter t carried by the lay, and the pin m will enter the notch 40, so that when said bunter in its forward movement meets the dagger, it will move the same to actuate the pusher and eject from the magazine the filling-carrier then in line with the acting end of the pusher. As the bunter moves the dagger, as described, to move the pusher, the notch 40 in the dagger is carried beyond the pin m and as the lay is moved away from the breast beam and the bunter retires from the dagger the latter drops by gravity onto the rest g^3 while the spring D^2 immediately raises the pusher into its normal inoperative position. By the term "manually-controlled means" I mean a device or devices, the movement of which depends on the weaver or operator as distinguished from a device or devices moved wholly by the machine parts.

The lever p^7 may be moved directly by the operator when standing at the end of the loom at which the magazine is located, but in order that the lever p^7 forming part of the manually-controlled means may be moved by the operator standing at the end of the loom occupied by the drop shuttle boxes, I have provided an operative member or hand piece d Fig. 6, pivoted on a stud d' of a bracket d^2 fixed to the loom end, said hand piece having a stud d^3 that may be engaged by a projection of a latch d^4 pivoted at d^5 and having at one end a foot d^6 that is normally held by a spring d^7 against a notched carriage d^8 that is moved vertically in a guideway d^1 forming part of the bracket d^2 . The carriage d^8 has as many notches as there are cells in the drop shuttle-box, a notch for each cell, and the carriage is moved up and down as the shuttle-box is moved in placing one or

another cell thereof at the level of the race of the lay. To move the carriage vertically, I have connected with a stud n thereof, a link n' , the lower end of which is attached to the outer end of a lever n^2 pivoted at n^3 , the inner end of said lever being jointed by a link n^4 with the pin n^5 that connects the link H^{14} with the shuttle box lever H^{13} . The hand piece d is connected by a light rod or wire n^6 extended across the loom with one end of the lever p^7 , the rod being extended through a tubular rock shaft n^7 sustained in suitable bearings n^8 . The rock shaft n^7 has attached to it at its end next said pusher an arm n^{10} that is held by a suitable spring in contact with the lower end of the pusher arm, see Figs. 1 and 5, while said rock shaft at its opposite end has a hub provided with a disengaging device shown as a finger n^{12} , said device when the pusher occupies its normal inoperative position crossing under the latch d^4 .

After moving the operative member d from its normal dotted position, Fig. 6, into its full line position which will be done manually to place the lever p^7 in position to bring about the action of the pusher that it may be moved to eject a filling-carrier from the magazine into the shuttle in the single shuttle-box end of the lay, the shuttle coming, as herein shown, into said box from the top cell of the drop box, see Fig. 6, the latch d^4 will engage the pin d^3 and hold the hand lever and the lever p^7 in their operative positions until the pusher is actuated, first lifting the dagger as before provided for. As the pusher is moved to eject a filling-carrier from the magazine into the shuttle then in the single box of the lay, the lower outer end of arm a will be moved to the left, Fig. 1, and will turn the rock shaft n^7 , causing the finger n^{12} to rise, meet the inner end of the latch d^4 , and release the hand lever that it may be turned into its inoperative or dotted line position, Fig. 6, by the spring r^2 .

If, after the hand lever d which forms a part of the manually-controlled means, has been pulled prior to a pick of the shuttle which has a filling-carrier that it has been determined to change, the usual shuttle-box pattern surface, not shown, should call for a change of position of the drop shuttle box, the change of filling-carrier will not be made for the reason that the latch d^4 will be automatically released whenever the shuttle boxes are shifted between the time that the hand lever d is changed to effect a change of filling-carrier and the time that the pusher is actuated to make such change. For illustration, let it be supposed that the weaver has just pulled the lever d to the left, Fig. 6, because he sees that the filling-carrier in the shuttle in the upper cell of the drop boxes should be changed as it arrives, after having been again struck by the usual picker in the single shuttle box at the opposite end of the

lay. Let it be supposed that immediately after or as the lever d was pulled to the left, as shown in Fig. 6, the shuttle box was raised, it will be seen that the carriage d^8 will be drawn down by the mechanism previously described and the rounded protuberance of the carriage in contact with the foot of the latch d^4 will turn the latch and release the hand lever so that the spring r^2 will act immediately to restore the lever p^7 into its normal or inoperative position and the pusher will not be actuated. The operator having decided that the filling should be changed in the shuttle whose home is in the upper cell of the drop-box will watch when the box is again fully lowered and will again pull the lever, and this time if the drop-box stands in its lowest position for two or more picks the pusher will be moved to effect a change of filling. It will be understood that the lever d will commonly be pulled while there is yet sufficient filling on a filling-carrier for quite a number of picks. That the filling-carriers ejected from the shuttle through the slot in the floor of the lay be conducted out of the lay, I have cut away the front side of the lay under said slotted floor to leave a space o , see Fig. 5, and to the frame of the loom I attach a conductor o' provided at its outer side with a deflector o^2 , the inner end of said conductor occupying a position substantially as shown in Fig. 1, so that its inner end stands in the space o of the lay under the floor of the shuttle box when the lay arrives fully forward toward the breast beam, the position in which the pusher acts to eject a filling-carrier from the magazine into the shuttle and discharge the filling-carrier then in the shuttle through the bottom of the shuttle and the slot in the floor of the lay. As a filling-carrier is discharged its tip end meets the deflector o^2 which arrests the tip and permits the butt of the filling-carrier to lead in its travel over the conductor which is a matter of considerable advantage in the use of the loom.

This invention is not limited to the precise shape, construction or location of the checking means; nor is my invention to be limited in all instances to the employment with the magazine of the particular clamps shown for holding the filling-carrier, as I believe that I am the first to employ for a magazine a rim sustained by an inwardly extended arm revoluble about a stud and therefore I desire to claim broadly my novel magazine whatever means may be employed to hold the filling-carriers therein.

In practice, the loom will be stopped in usual manner by or through a filling-fork mechanism when the filling breaks or fails in the shed.

I further believe that I am the first to construct a magazine to sustain filling-carriers, said magazine being provided with locking

means to check and lock and maintain said magazine in any position where it may be left after the operator has moved the magazine manually to place any particular filling-carrier having filling of the desired color in position to be ejected from the magazine.

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

1. In a filling-changing loom, a manually-controlled magazine to sustain filling-carriers, the same comprising a centrally-supported ring, checking means to hold said ring in various positions in which it may be left after manual movement thereof, and filling transferring means, the latter also limiting the extent of movement of said ring in both directions of its movement.

2. In a filling-changing loom, a manually-controlled magazine comprising a centrally supported butt - sustaining ring provided with clamps to embrace and hold the butts only of filling-carriers, combined with filling-transferring means entering said ring, the latter being manually rotated in either direction to bring any one of the series of filling-carriers in the magazine in position to be acted upon by the filling-transferring means.

3. In a filling-changing loom, a manually-controlled filling carrier magazine, checking means to maintain said magazine in any position where it may be placed by the operator, and filling-carrier transferring means to transfer a filling-carrier from said magazine into a shuttle, actuating means for moving said transferring means, and a manually-controlled device to make effective the movement of said actuating means when it is desired to transfer a filling-carrier from said magazine into a shuttle.

4. In a filling-changing loom, a manually-controlled centrally-supported filling-carrier magazine, combined with filling-carrier transferring means, and a manually-controlled device to effect the operation of said filling-carrier transferring means.

5. In a filling-changing loom, a magazine comprising a centrally-sustained ring having an arc-shaped space, and a stud constituting the axis for said magazine, the ends of said space limiting the movement of the magazine in one or the other direction.

6. In a filling-changing loom, a magazine comprising a centrally-sustained ring having an arc-shaped space, and a stud constituting the axis for said magazine, a quill movable with said magazine, and a hand-wheel connected with said quill to rotate the magazine about said stud.

7. In a filling-changing loom, a magazine comprising a centrally-sustained ring having an arc-shaped space, a stud constituting the axis for said magazine, a quill movable with said magazine, and a hand-wheel connected with said quill to rotate the magazine about

said stud, said hand-wheel having means for holding the ends of filling outside the masses of filling on the filling-carriers.

8. In a filling-changing loom, a manually-controlled magazine having means to receive and hold a series of filling-carriers, combined with checking means to hold said magazine in the position in which it may be left after manual movement, with any desired filling-carrier in a position in which it is to be discharged from the magazine.

9. In a filling-changing loom, a magazine to sustain filling carriers, the same comprising a radial arm sustained at its inner end and carrying at its outer end a ring adapted to receive and hold the butts of bobbins or filling-carriers leaving an open space between the inner sides of said rim and the opposite edges of said radial arm, said opposite edges forming stops to limit movement of the magazine in either direction.

10. In a filling-changing loom, a stud, a manually-controlled magazine for sustaining filling-carriers, the same comprising a radial arm sustained at its inner end on said stud and carrying at its outer end a ring adapted to receive and hold the butts of bobbins or filling-carriers leaving an open space between the inner side of said rim and the opposite edges of said radial arm, and checking means to maintain the magazine in any position that it may be left after having been moved by the operator.

11. In a filling-changing loom, a manually-controlled magazine to sustain filling-carriers, combined with manually-controlled filling-carrier transferring means.

12. In a filling-changing loom, a manually-controlled magazine to sustain filling-carriers, the same comprising a radial arm sustained at its inner end and carrying at its outer end a ring adapted to receive and hold the butts of bobbins or filling-carriers leaving an open space between the inner side of said rim and the opposite edges of said radial arm, combined with manually-controlled filling-carrier transferring means.

13. In a filling-changing loom, a magazine to sustain filling-carriers, combined with checking means to maintain the magazine in any position in which it may be left by the operator, and with filling-carrier transferring means manually controlled at the will of the operator to remove from said magazine any bobbin or filling-carrier therein wherever located.

14. In a filling changing loom, a manually-controlled filling-carrier magazine containing a plurality of filling-carriers having filling differing in color or character, combined with filling-carrier transferring means, and a manually-controlled device operable from both ends of the loom, to effect the operation of said transferring means.

15. In a filling changing loom, a manu-

ally-controlled filling carrier magazine containing a plurality of filling-carriers having filling differing in color or character, combined with filling-carrier transferring means, 5 a manually-controlled device operable from both ends of the loom, to effect the operation of said transferring means, means for locking said device, a series of drop shuttle-boxes, 10 and means for releasing said manually-controlled device if a change of shuttle-box takes place after the locking of said manually-controlled device for effecting a movement of the pusher to remove a specific filling-carrier from the magazine.

15 16. In a filling-changing loom, a lay having at one end a series of drop shuttle-boxes and at its other end a single box, and a manually-controlled magazine comprising a centrally sustained ring, combined with filling-carrier transferring means, and a manually-controlled device to effect the operation of 20 said filling-carrier transferring means.

17. In a filling-changing loom, a lay provided with a shuttle-box having an open 25 floor, filling-carrier transferring means, and a fixed conductor located in front of the lay, the lay in its forward movement covering the inner end of said conductor that an ejected filling-carrier may be delivered on said conductor, and filling transferring means to 30 eject a filling-carrier from a shuttle onto said conductor, said conductor having a deflector to arrest the tip of the filling-carrier as the latter is deposited on said conductor permitting descent of the filling-carrier butt foremost. 35

18. In a filling-changing loom, a lay having a shuttle-box, a magazine, filling-carrier transferring means to effect the transfer of a 40 filling-carrier from said magazine into a shuttle in said shuttle-box, manually-controlled means to start into operation said filling-carrier transferring means, and means acting automatically to maintain said manually-controlled means in locked position during 45 the transfer of filling from said magazine into said shuttle.

19. In a filling-changing loom, a lay having a shuttle-box, a magazine, filling-carrier 50 transferring means to effect the transfer of a filling-carrier from said magazine into a shuttle in said shuttle-box, manually-controlled means to start into operation said filling-carrier transferring means, and means acting 55 automatically to maintain said manually-controlled means in locked position during the transfer of filling from said magazine into said shuttle, and means to automatically un-

lock said locking means when the transfer of a filling-carrier has been effected. 60

20. In a filling-changing loom, a lay having a single shuttle-box at one end, a series of drop shuttle-boxes at the opposite end of the lay, means to move said drop boxes, a magazine, coacting filling transferring means, 65 manually-controlled means for insuring the action of said transferring means, locking means for holding said manually-controlled means in operative position, and means connected with and moved in unison with the 70 drop shuttle-boxes to release said locking means and prevent the operation of said transferring means if the drop boxes should be changed after locking said manually-controlled means and before the shuttle in the 75 box at the level of the race when the manually-controlled means was locked has been thrown from said box.

21. In a filling-changing loom, a lay having at one end a single shuttle box, a series of 80 drop shuttle-boxes at the opposite end of the lay, a manually-controlled magazine sustained by the loom frame opposite the single box end of the lay, and sustaining filling differing in color or character, filling-carrier 85 transferring means coacting with said magazine, manually-controlled means capable of being set and locked when any cell of the drop shuttle boxes is at the level of the race of the lay that the filling-carrier in the shut- 90 tle whose home is in said box may be changed when it arrives in the single box at the opposite end of the lay, and means moved by the drop box mechanism to unlock said manually-controlled means if the shuttle boxes are 95 changed prior to throwing from its cell the shuttle having the practically exhausted filling-carrier.

22. In a filling-changing loom, a lay having at one end a series of drop shuttle-boxes 100 and at its other end a single box, and a manually-controlled magazine for filling-carriers, combined with filling-carrier transferring means, a manually-controlled device to effect the operation of said transferring means, 105 and means to automatically prevent the operation of the transferring means if a change of shuttle-box takes place after the actuation of the manually-controlled device.

In testimony whereof, I have signed my 110 name to this specification, in the presence of two subscribing witnesses.

RANDOLPH CROMPTON.

Witnesses:

GEO. W. GREGORY,
EVANGELINE C. BROWN.