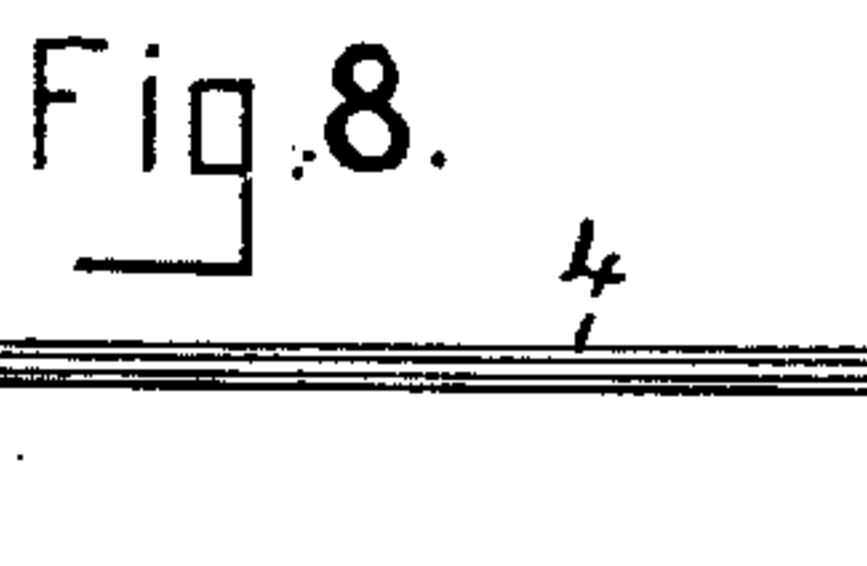
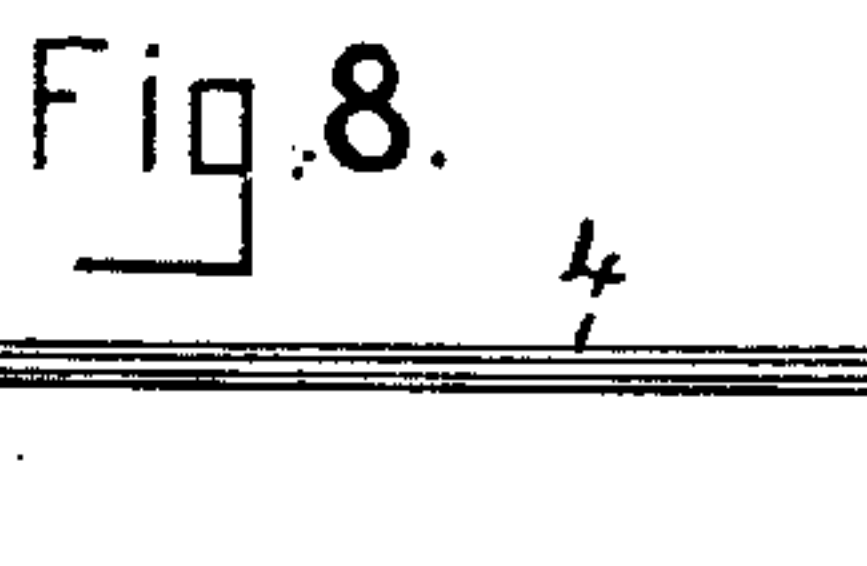
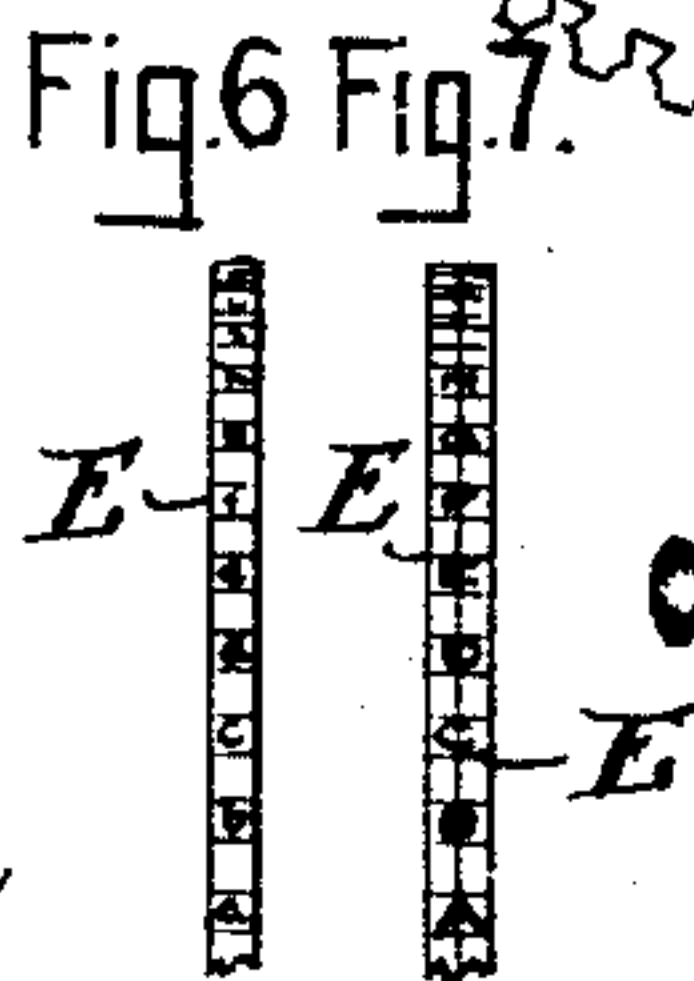
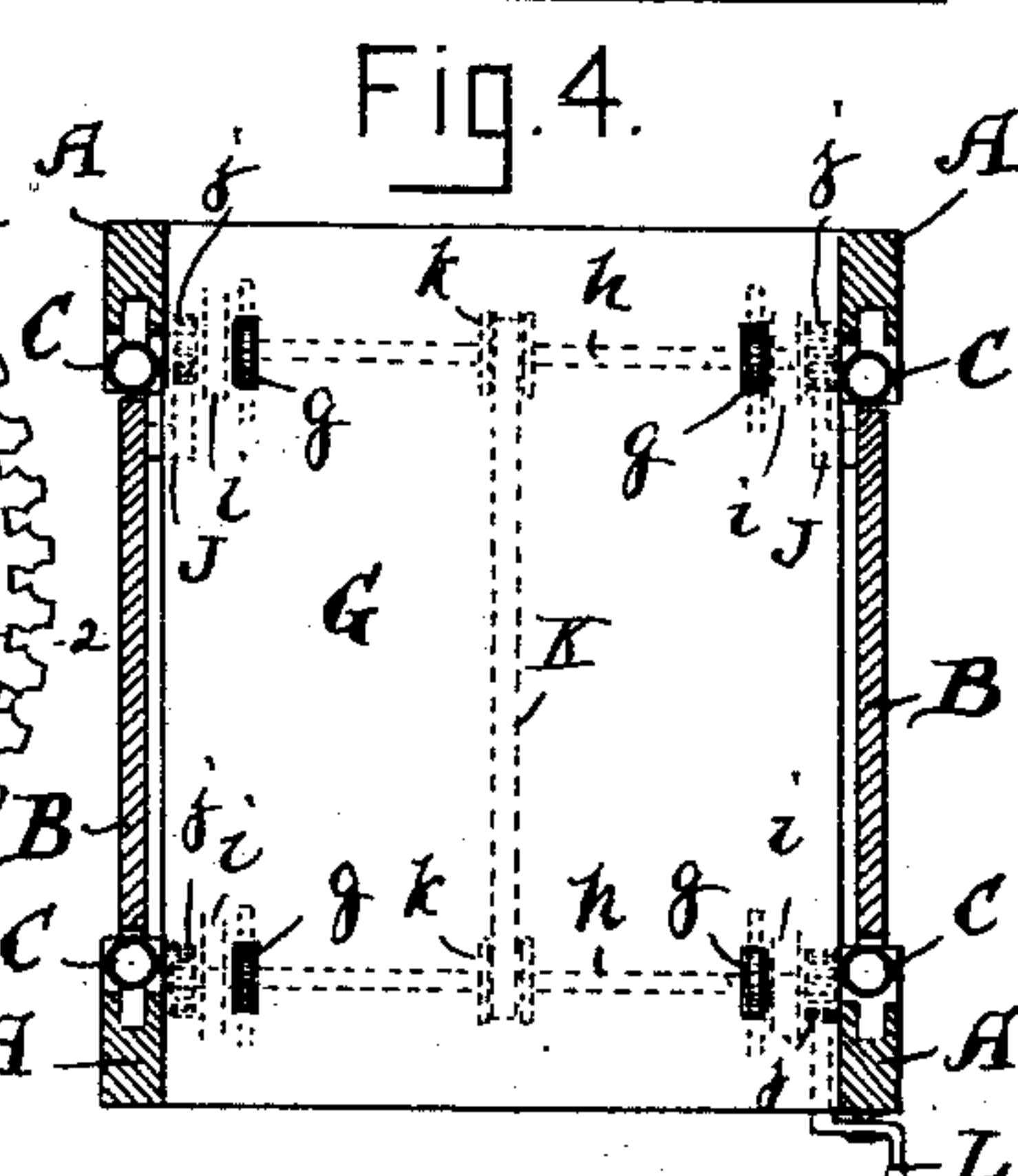
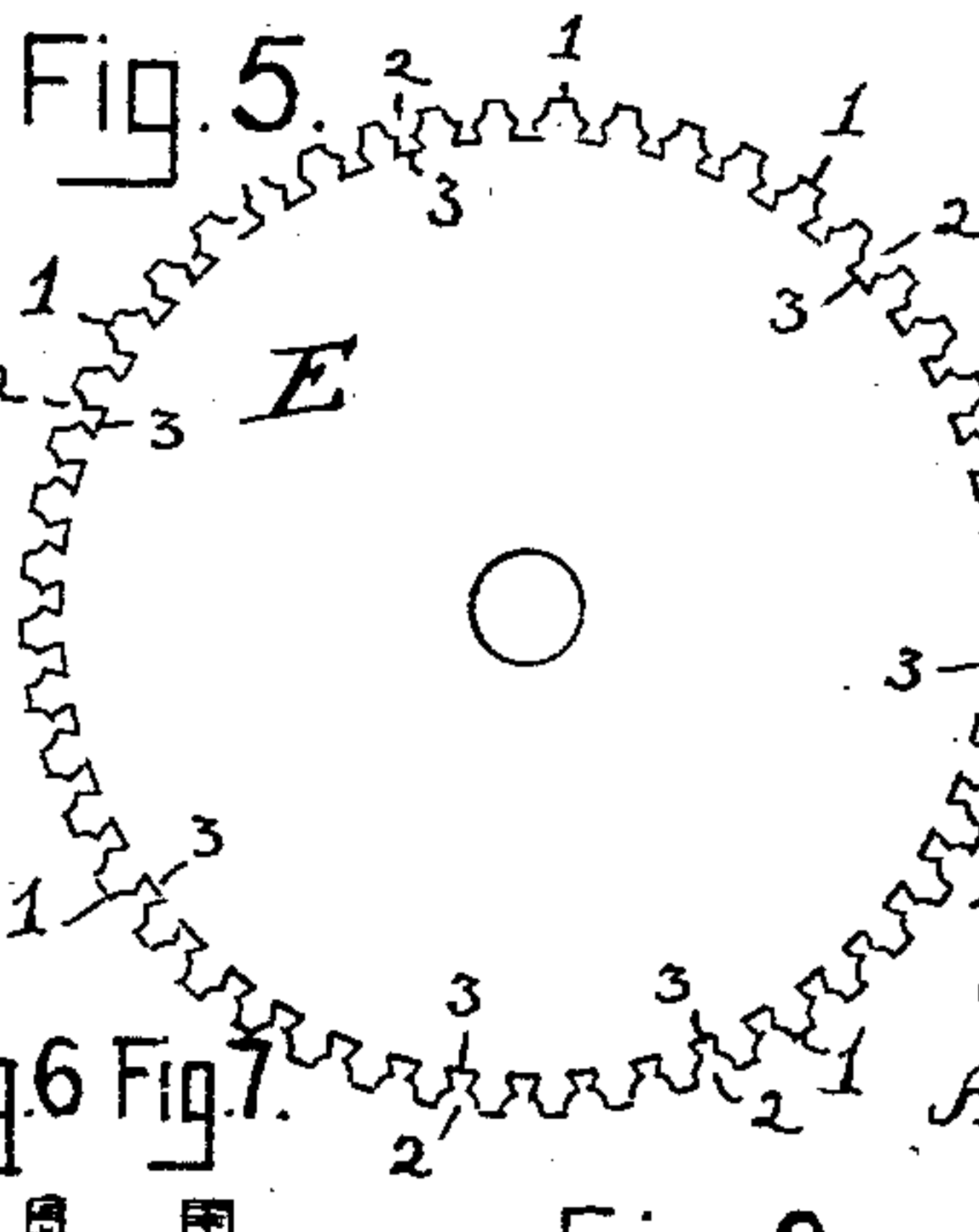
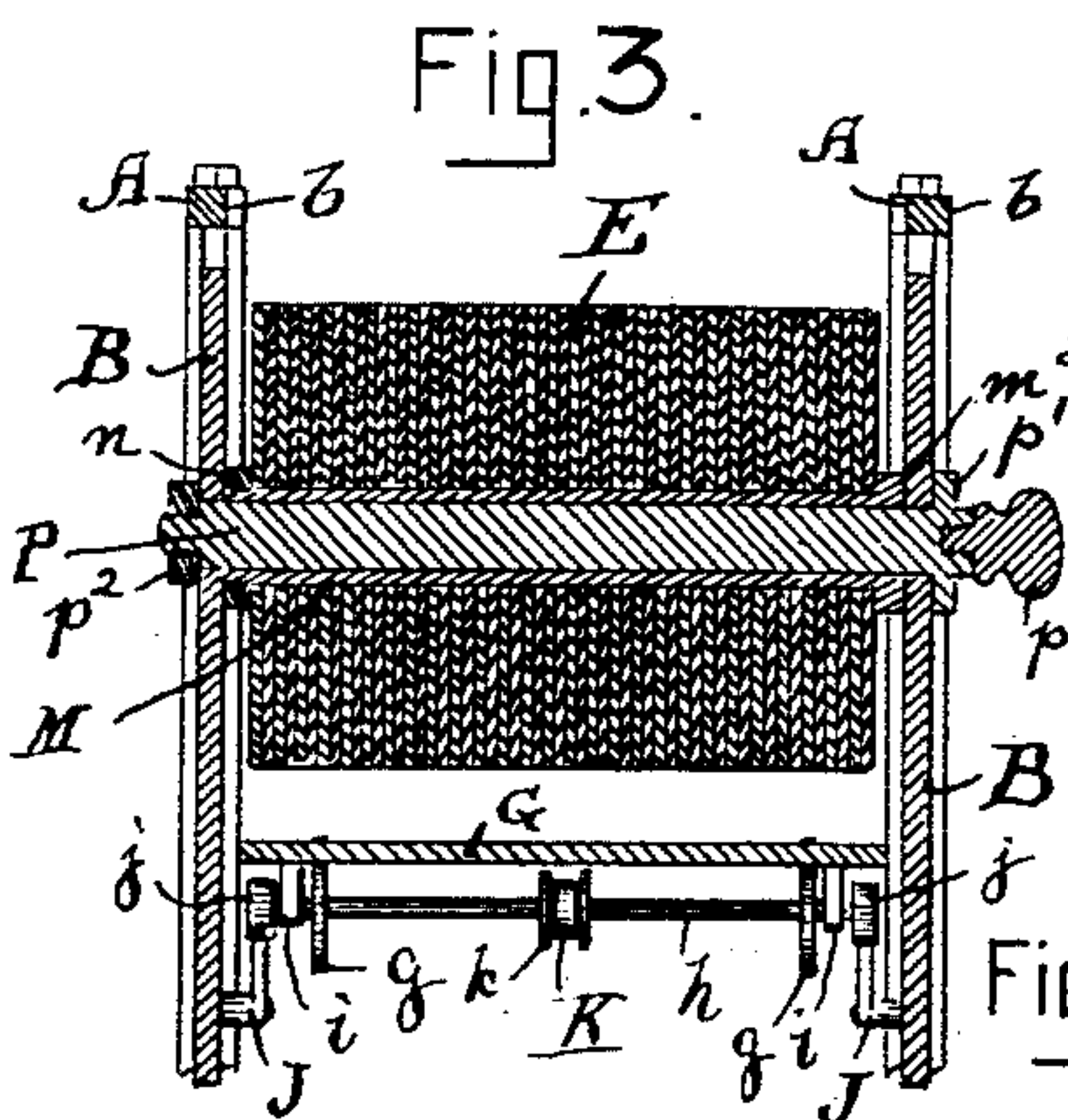
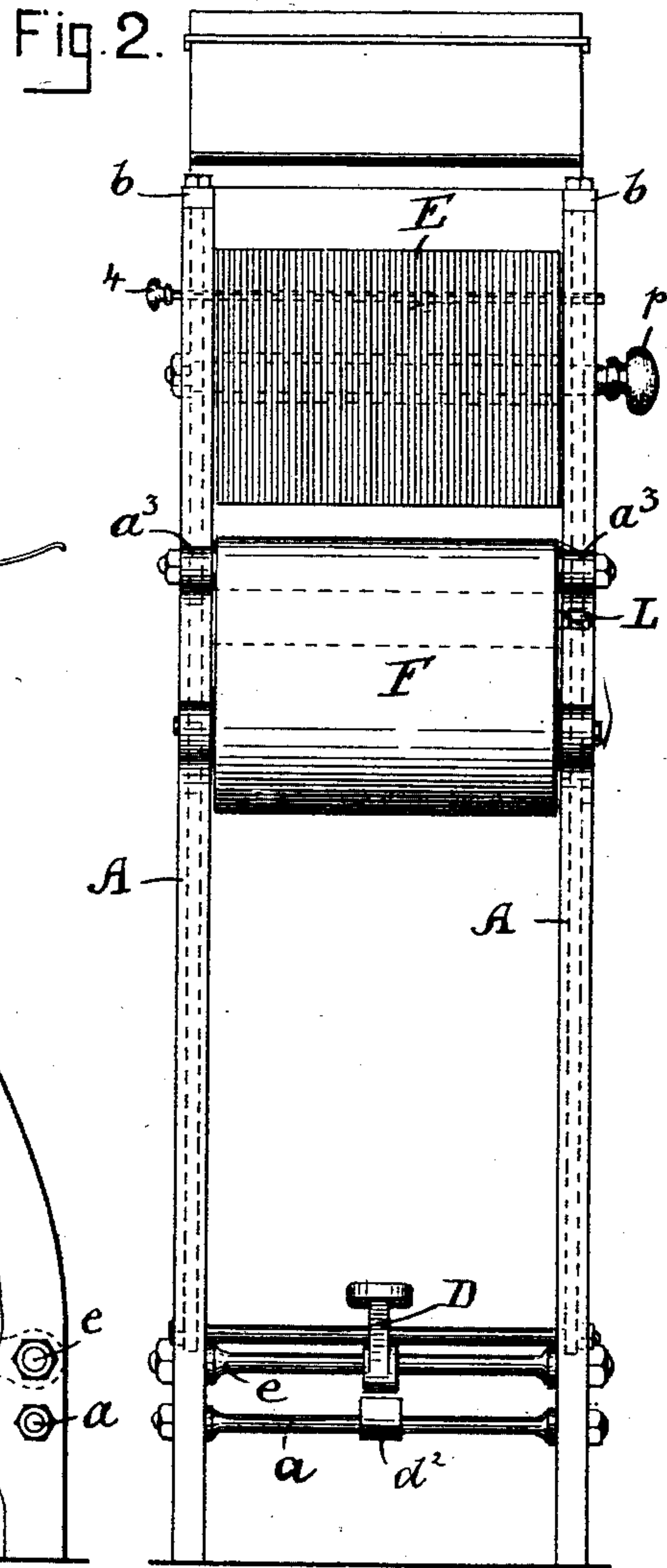
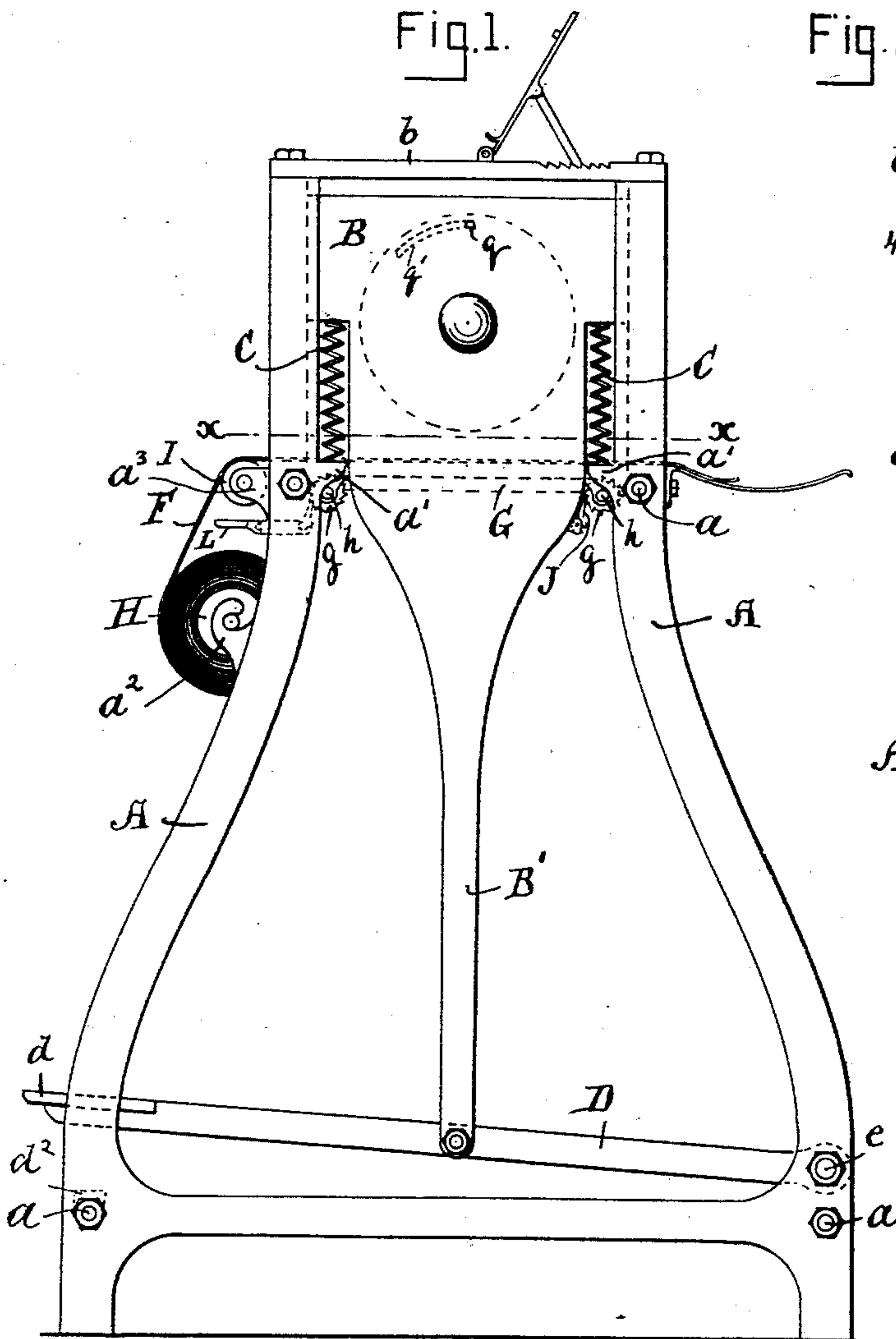


(No Model.)

H. W. LIBBEY.
TYPOGRAPH.

No. 520,238.

Patented May 22, 1894.



UNITED STATES PATENT OFFICE.

HOSEA W. LIBBEY, OF BOSTON, MASSACHUSETTS.

TYPOGRAPH.

SPECIFICATION forming part of Letters Patent No. 520,238, dated May 22, 1894.

Application filed January 13, 1892. Serial No. 417,938. (No model.)

To all whom it may concern:

Be it known that I, HOSEA W. LIBBEY, a citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Typographs, of which the following, taken in connection with the accompanying drawings, is a specification.

The object of my invention is to produce a typograph or apparatus whereby a line of type can be set and then brought into contact with the surface of a suitably prepared paper so as to form a matrix.

The invention consists in certain details of construction of a frame and a series of wheels or disks having upon their peripheries letters or characters and mechanism for operating them, the said wheels or disks being so mounted that they can be readily turned by the operator, and locked when in the desired position, and after the line is completed the whole series of wheels or disks is brought into a proper position to be brought down and make an imprint upon a strip of impressionable paper that is to form the matrix, line after line being thus impressed upon the paper until a full page or column has been impressed when the paper is cut off and is ready to receive the metal to form the electrotype for printing.

The invention also consists in certain other details of construction as hereinafter fully described and pointed out in the claims.

Referring to the accompanying drawings: Figure 1—represents a side view of an apparatus embodying my invention. Fig. 2—is a front elevation of the same. Fig. 3—is a longitudinal section through the type wheels or disks, and the upper portion of the apparatus. Fig. 4—is a longitudinal section taken on the line x, x , of Fig. 1. Fig. 5—is a side view of one of the type wheels or disks. Fig. 6—is an edge view of a portion of one of the type wheels or disks. Fig. 7—is a similar view showing the capital letters half on one wheel or disk, and the other half on the next adjacent wheel or disk. Fig. 8—is a side view of the locking pin.

A, A, represent the side frames of the apparatus secured together by bolts a, a , and at their upper ends by cross bars b , the upper straight portions of these side frames are formed with a groove in which a sliding plate

B, is free to work on each side, said plates being retained in their normal position by springs C, the lower ends of which rest upon lugs a' , formed upon the frames A, the sliding plates are each formed with an extension B' , which at its lower end is connected to a treadle bar D, fulcrumed on a bar or bolt e , secured to rear legs of the side frames A, the forward end of this treadle bar is formed with a foot rest d , so that when the foot of the operator is placed upon the rest d , and forced down, it carries with it the side plates B. A stop d^2 , is secured upon the front bar a , so that when the treadle D, is depressed it will always be brought to the same point.

E, E, are a series of wheels or disks, preferably of brass, and having upon their peripheries, in duplicate, letters or characters representing the entire alphabet both capitals and small letters as well as stops and other signs used in printing, that is to say, one set of letters and signs are on one side of the said disks, and corresponding letters or signs diametrically opposite, so that when one line of reading matter is set by the operator near the upper portion of the disks, which would be at about an angle of forty-five degrees from the center the corresponding letters or signs will be immediately opposite so that by turning the disks a slight distance say one-eighth of a diameter from him so as to bring the line that has been set perpendicularly over the center of the wheel the corresponding letters will be brought to the center of the machine so that when the treadle D, is depressed, the dies or disks will be brought down and come into contact with a strip of paper F, that is caused to travel over a table or bed plate G.

The characters are not assembled at the printing point in the first place for the reason that they can be more readily seen before the disks are turned to bring the characters to such point.

The paper F, is wound upon a roller H, the spindle of which runs in bearings a^2 , cast in one with or secured to the front portion of the side frames A. This paper passes over a loose roller I, carried in bearings a^3 , also formed in one with or secured to the front portion of the frames A. The paper is fed along automatically in any convenient man-

ner. In the drawings I have shown four feed wheels g , mounted upon the shafts h , carried by brackets i , secured to the under side of the table G ; on each end of the shafts h is secured a pawl wheel j , those at the rear portion of the machine being operated by a pawl J , secured to the sliding plates B , so that when the plates B , are drawn down the pawls will not operate the ratchet wheels but when the sliding plates B , are by the springs C , returned to their normal position then the pawls will come into contact with the teeth of the rear ratchet wheels and cause them to be rotated sufficient to move the paper F , the required distance between one line and another. The front and rear shafts h , are caused to operate simultaneously by a belt or chain K , passing around a pulley or sprocket wheel k , secured on each of the shafts h ; as thus described the front feed wheels j , are only operated when the rear ones are actuated by the pawls J , on the sliding plates B , but sometimes it is required to leave more than one ordinary space between the lines, to accomplish this I secure to the front frame of the machine a pawl lever L , which is free to be actuated by the operator; thus by the movement of the pawl lever L , the paper F , may be fed forward without receiving an imprint from the type disks or wheels E .

The type wheels or disks E , are recessed out between each letter or character as will be best seen in Fig. 5, in which the surfaces 1, each bear a letter or character, and 2 are recesses between such letter or character. In the surfaces immediately under each of the recesses 2, is formed a recess 3, preferably of triangular form as shown into which a locking bar 4, is pushed by the operator as he sets the wheels E , in position. A curved slot is cut in the left hand side plate B , as shown in dotted lines in Fig. 1, so that after the plates have been locked together they can be moved the required distance as above described. As the type wheels are set in place the locking bar is pushed through them until all of the plates are in place and the locking bar extends through all of them, then by the knob on the end of said bar the plates are shifted or rotated about one-eighth of a circle, and the end of the locking bar is then pushed through a hole q , in the right hand sliding plate B . I prefer to form a groove in the inner side of this plate—shown in dotted lines at q' in Fig. 1—so that when the locking bar has been pushed through all of the type wheels it will enter the said groove and the wheels can then be turned until the pin strikes the end of the groove when it will be in place to be pushed through the hole in said plate, and hold the plates in the proper position to be brought down upon the prepared paper.

In order to facilitate the removal from and replacing one set of wheels for another set of a different style of type, I mount them upon a tube M , having an enlargement m , at one

end and a nut n , at the other end; this tube is of a length just sufficient to fit between plates B ; the type plates E , are first mounted upon said tube M , and secured by the nut n , then lowered into position and a round bar or spindle P , inserted through said tube and the side plates B . One end of this bar is provided with a handle p , and a collar p' , to form a stop, and the other end is formed with a screw upon which is a nut p^2 , which when screwed up tight holds the said bar rigid between the two plates B , 70

The type wheels may be made of a thickness sufficient to receive the small and capital letters, or of such a thickness as to receive only the small letters in which case half of the capital letters would be upon one wheel and the other half on the wheel next adjacent in which case when a small letter is required only one wheel would have to be set but when a capital letter is required a wheel bearing half of said letter would be set and then the next adjacent wheel turned so that the corresponding half of said letter will be brought opposite to the portion of the wheel already set. 75

It will be seen that the wheels as they are adjusted are locked by the locking bar 4, and after the line is complete they are turned so as to bring the corresponding line on the under side of the disks immediately in the center of the machine; then the treadle D , is depressed so as to bring the type wheels or disks into contact with the paper and form an imprint therein, and by the travel of the treadle being regulated by the stop d^2 , all imprints made in the paper will be of a uniform depth. After the imprint of one line has been made the locking bar 4 is withdrawn thus unlocking the wheels which are then free or loose upon the spindle P , and are free to be turned round either way upon said spindle by the operator as may be required to form another line. 80

What I claim is—

1. In a typograph, the combination, with a frame, of a pair of vertically movable plates therein, the lower ends of the plates being extended and provided with a treadle and one of the plates being provided with a curved slot terminating in a hole at one end, a series of type wheels journaled between the plates, provided with registering notches, and a locking bar for engaging with the notches, said bar having one end adapted to move in the slot and enter the hole, substantially as set forth. 85

2. In a typograph, the combination, with a frame provided with lugs, two movable plates within the frame, each plate being provided with extensions to register with the lugs of the frame, a spring between each extension and its lug, a series of type wheels journaled between the plates, means for locking said wheels against rotation, a plate below the wheels for the reception of a sheet of impressible material, and means for moving the 90

wheels toward the plate, substantially as set forth.

3. In a typograph, the combination, of a frame, movable plates therein provided with type wheels, a table below the wheels, shafts journaled below the table, each of which is provided with feed wheels and a ratchet wheel for rotating it, a pawl on the frame for engaging with one of the ratchet wheels, and a lever for engaging with the other ratchet wheel, and means for causing said shafts to turn in unison, substantially as set forth.

4. In a typograph, a series of wheels or disks having letters or characters upon their peripheries and integral therewith said wheels or disks being mounted upon a shaft carried by sliding plates that are brought down when an imprint is to be made in combination with a strip of impressible paper, feed wheels arranged on shafts at each end of the bed plate, ratchet wheels on the ends of one of said shafts and pawls on the sliding plates for imparting a rotary motion to the feed wheels whereby the paper is automatically fed forward as the disks are being raised after the type wheels have been brought into contact with the paper substantially as set forth.

5. In a typograph, wheels or disks each having a series of letters and characters upon one half of its periphery and a corresponding series of letters and characters upon the other half the two corresponding letters being diametrically opposite each other said wheels or disks having openings between each pair of characters but in the rear of said letters or characters in combination with a locking bar adapted to fit into said openings and hold the wheels as they are adjusted, substantially as set forth.

6. In a typograph a series of wheels each having on its periphery a full alphabet of small letters, figures and signs and half sections of a capital alphabet so arranged that when two adjacent disks are properly adjusted they will form a complete alphabet of capital letters substantially as set forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, on this 23d day of December, A. D. 1891.

HOSEA W. LIBBEY.

Witnesses:

CHAS. STEERE,
EDWIN PLANTA.