

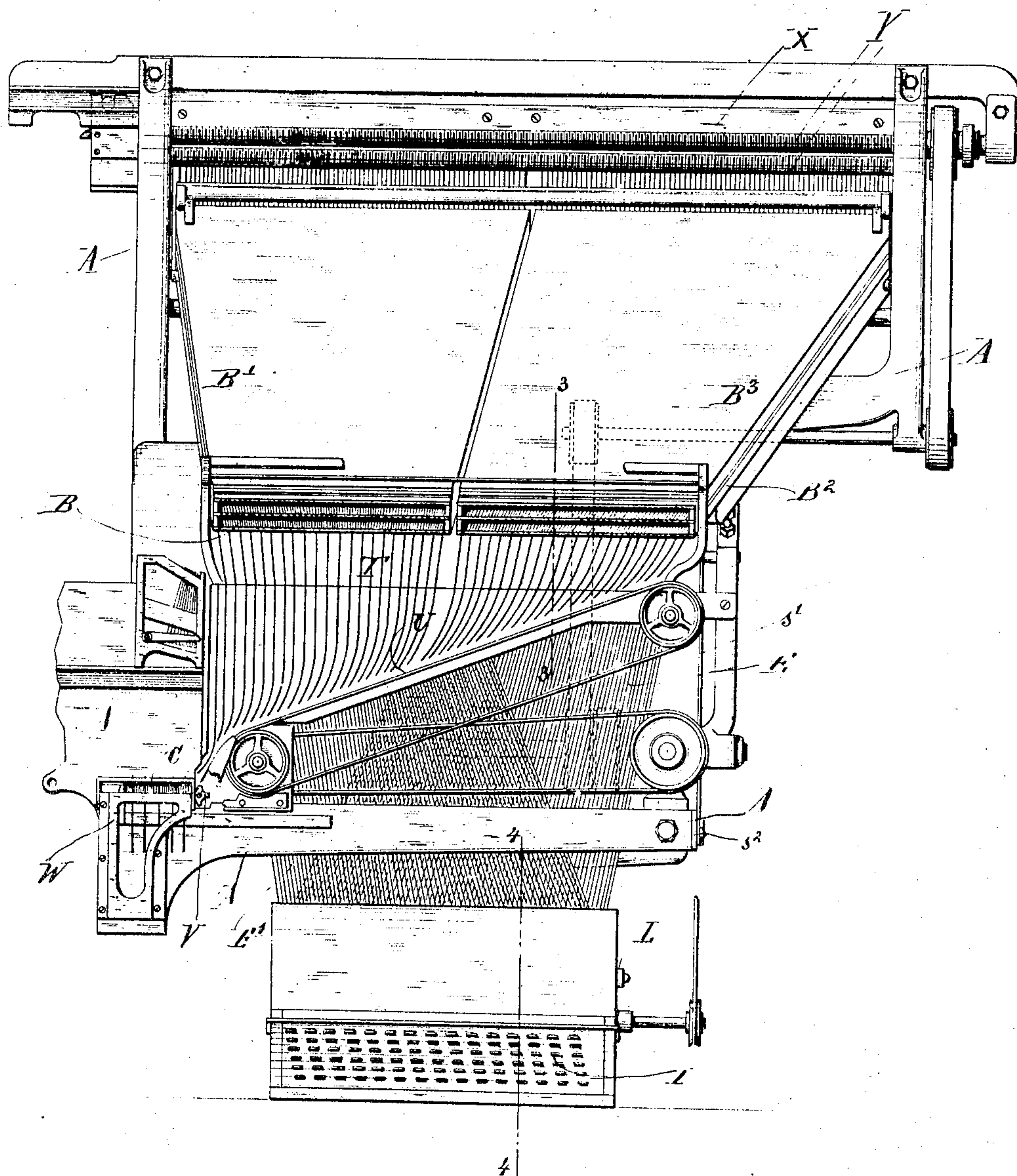
No. 812,586.

PATENTED FEB. 13, 1906.

C. MUEHLEISEN.
LINOTYPE MACHINE.
APPLICATION FILED OCT. 30, 1905.

3 SHEETS—SHEET 1.

Fig. 1.



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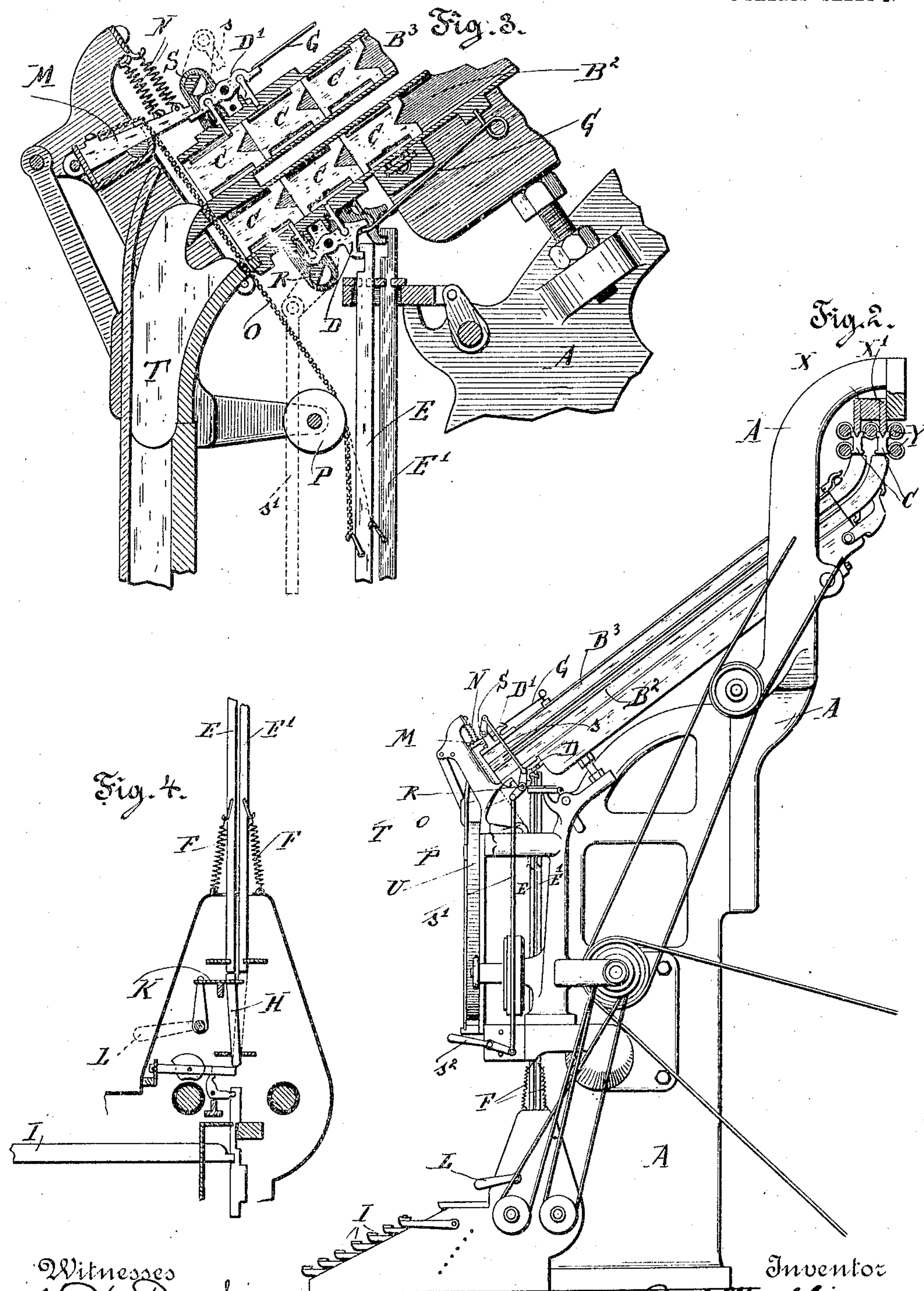
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3 SHEETS—SHEET 2.



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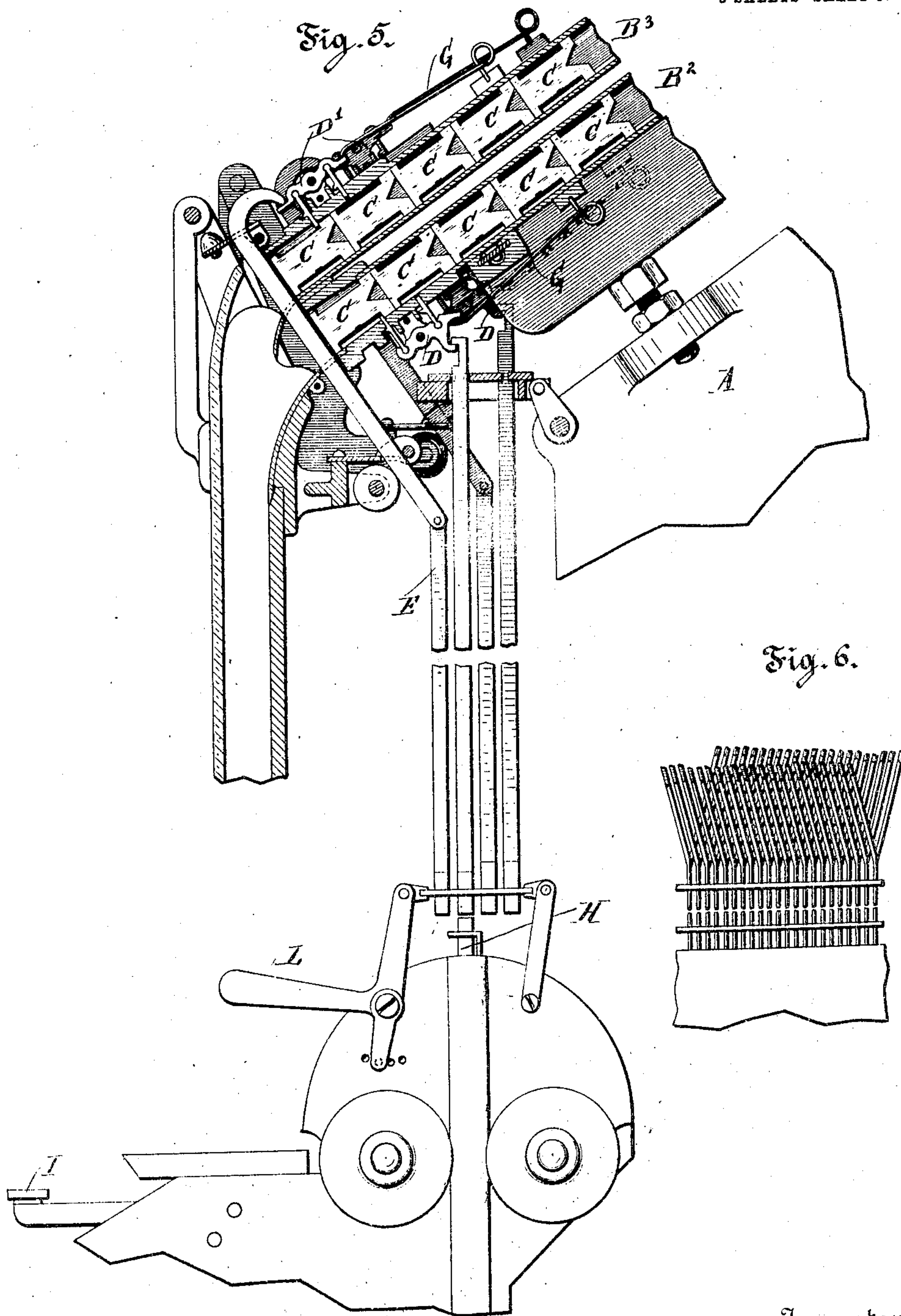
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LINO TYPE MACHINE.

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3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

CARL MUEHLEISEN, OF BERLIN, GERMANY, ASSIGNOR TO MERGENTHALER LINOTYPE COMPANY, A CORPORATION OF NEW YORK.

LINOTYPE-MACHINE.

No. 812,586.

Specification of Letters Patent.

Patented Feb. 13, 1906.

Application filed October 30, 1905. Serial No. 285,209.

To all whom it may concern:

Be it known that I, CARL MUEHLEISEN, of Berlin, Germany, have invented a new and useful Improvement in Linotype-Machines, of which the following is a specification.

My invention relates to linotype-machines of the general character represented in Letters Patent of the United States No. 557,000, wherein circulating matrices held in a magazine are released therefrom by finger-keys assembled in line in the order in which their characters are to appear in print, the composed lines transferred to close the face of a mold in which the linotypes or slugs are cast, and the line thereafter elevated and the matrices returned through the distributing mechanism to the upper end of the magazine.

The aim of the invention is to adapt the machine to produce at will any one of several type-faces or lines containing different faces in combination.

To this end it consists in a novel arrangement of four magazines, each adapted to carry a distinct font or set of matrices, with a single keyboard controlling the delivery of matrices therefrom and a single assembling mechanism, the arrangement of the parts being such that the matrices may be delivered at will from either one of the magazines.

With the exception of the details hereinafter claimed the machine may be of the same construction as the commercial linotype-machines of the present day or of any other suitable construction.

Figure 1 represents a front elevation of the magazines, keyboard, and assembling mechanism of my machine. Fig. 2 is a side elevation of the same, the distributor being shown partly in section. Fig. 3 is a vertical section from front to rear through the forward end of the magazines and attendant parts on the line 3 3, Fig. 1. Fig. 4 is a vertical section through the keyboard mechanism on the line 4 4, Fig. 1. Fig. 5 is a vertical section from front to rear through a modified or alternative form of the mechanism. Fig. 6 is a front elevation of the two series of converging reeds and the single series of keyboard-bars for actuating them, as arranged in Figs. 1, 2, and 3.

Referring to the drawings, A represents a rigid main frame.

B and B' represent a pair of stationary inclined magazines located at the left side of

the magazine and one overlying the other. B² and B³ represent a second pair of magazines, arranged on the right side of the machine alongside those above referred to. This second pair consist, like the first, of a lower magazine B² and an overlying magazine B³. These magazines may be of any suitable construction provided they are adapted to receive the matrices C at the upper end, hold them in storage, and deliver them at the lower end. In the form shown they consist each of an upper and a lower plate secured to intermediate spacing-bars and provided in their inner faces with longitudinal grooves to receive and guide the upper and the lower ends of the matrices C. Each magazine is provided, as usual, with a series of escapements, equal in number to its channels, to effect the delivery of matrices one at a time. These escapements are of the form commonly used in linotype-machines, consisting each of a centrally-pivoted lever carrying at opposite ends pawls or dogs, which are projected alternately into the magazine.

Referring to Figs. 1, 2, 3, 4, and 6, the escapements D of the lower magazines B and B² are located on the under side of the magazine, as shown in Fig. 2, while the escapements D' of the upper magazines are located on their upper sides. The escapements of the lower magazines are directly actuated by vertically-guided reeds or bars E and E', urged constantly downward by springs F of sufficient strength to overcome the springs G. The reeds E are lifted to release the matrices by underlying vertical slides H, which in turn receive motion by power-driven devices controlled by the finger-keys I, representing the various letters and fixed spaces, which are preferably classified and arranged in like manner in the several magazines. The finger-key mechanism for lifting the slides H is of the ordinary construction used in linotype-machines, as shown in United States Letters Patent No. 530,931 and need not, therefore, be described herein. The arrangement is such that whenever a key is depressed the corresponding slide H is raised momentarily, so as to actuate the reed E above it, and thereby discharge a single matrix from the magazine. The number of channels in each magazine equals the total number of finger-keys. In order, therefore, that the one keyboard may operate the escapements of either of the

lower magazines at the will of the operator, the reeds E of the lower left-hand magazine as they pass downward are deflected to the right and the reeds E' of the lower right-hand magazine B² deflected to the left, so that one series crosses behind the other. The lower ends of the two series are arranged in parallel vertical planes, or, in other words, in two vertical rows, the lower ends of the forward reeds terminating directly in front of those reeds in the rear row which represent ordinarily like characters. The actuating-bars H are mounted at their upper ends in a horizontally-movable guide K, controlled by a hand-lever L, by which the slides may be adjusted to stand beneath and actuate the reeds E of the lower left-hand magazine or shifted backward to the position shown in dotted lines in order to actuate the reeds E' of the lower right-hand magazine. Thus it will be seen that the shifting of the lever L causes the keyboard to deliver matrices from the magazine B or the magazine B², as demanded. The reeds E and E' serve also to actuate the escapements D' of the upper magazines in the manner following: Each of the upper escapements is acted upon by one end of a lever M, pivoted at the opposite end in the frame and urged upward by a spring N. Each of these levers M is connected by a wire or chain O or equivalent flexible connection with one of the reeds. This flexible connection extends from the reed over a suitable pulley or other guide P and then upward between the matrix-paths to the lever above. Owing to the above connections, the operation of a reed would cause the action of an escapement in the lower magazine and also of the corresponding escapement in the upper magazine; and two matrices would be delivered were no provision made to the contrary. This action is prevented and the delivery of a single matrix secured by locking the escapements of one magazine or the other out of action. This is effected by extending across the respective series of escapements rock-shafts R and S, flattened on one side, so that when in one position each shaft will lock the adjacent series of escapements and when in the other position will permit them to move. The rock-shafts are provided at their ends with crank-arms and connected by a bar s, Fig. 2, whereby they are caused to operate in unison and occupy reverse positions, so that when the upper escapements are locked the lower escapements are inactive, and vice versa. The lower rock-shaft is connected, through a crank-arm and a rod s', with a hand-lever s². By moving this lever all the upper or all the lower escapements of the machine will be rendered inoperative.

From the foregoing it will be understood that the lever s² determines whether the matrices shall be delivered from an upper or a lower magazine, while the lever L determines

whether they shall be delivered from a right-hand or a left-hand magazine.

The matrices when delivered descend through upright channels T, extending across the entire front of the machine to an inclined assembling-belt U, which is constantly driven and which delivers the matrices downward to the left in front of a constantly-rotating star-wheel V, by which they are carried one after another into the channeled assembler W, in which they arrange themselves in line side by side.

The matrices after being assembled and used at the casting mechanism are elevated and the matrices delivered individually to the respective channels of the magazines by suitable distributing mechanism. I prefer to use two ordinary linotype-distributors X X', lying in parallel lines over the respective magazines, each extending the entire width of two magazines. The distributors shown are of the ordinary linotype pattern, consisting of fixed bars toothed in their inner edges to sustain the matrices, which are moved along them by screws Y. The details of the distributors may be of ordinary construction, and means of any suitable character may be employed for disintegrating the matrix-lines and delivering the individual matrices to the respective distributor-bars. As this part of the machine is foreign to the present invention and mechanism suitable for the purpose is already known in the art, a detailed description is unnecessary.

Fig. 5 illustrates a slightly-modified or alternative construction of the parts. The magazines, their escapements, and the reeds E E' are constructed as arranged in the preceding figures. In place of the connections O for operating the upper escapements, as shown in the preceding figures, the bars O' are extended downward from the escapements between the paths of the outgoing matrices and connected to the vertically-sliding reeds E² and E³. The lower ends of all the reeds are carried in the horizontally-removable guide K', controlled by the hand-lever M, so that either series of reeds may be brought over and in operative relation to the actuating-bars H, connected with the finger-key mechanism, as hereinbefore explained. By moving the lever L one set of reeds or another may be brought in operative relation to the actuating devices.

What I claim as my invention is—

1. In a linotype-machine, two pairs of inclined magazines, arranged side by side, each pair comprising an upper and a lower magazine, in combination with a series of escapements for each magazine, a single keyboard and means whereby the keyboard may be connected at will with the escapements of either pair of magazines, and means for preventing at will the delivery of matrices from either magazine of said pair.

2. In combination, two lower magazines arranged side by side, two upper magazines thereover, means for locking the escapements of the upper or the lower magazines at will, a
5 single keyboard and means substantially as shown for connecting the keyboard at will with the escapements of the two left-hand magazines or with the escapements of the two
10 right-hand magazines, whereby the matrices may be delivered from any one of the magazines at will.

3. In combination with two upper magazines and two lower magazines, each provided with a series of escapements, the con-
15 nected devices for locking the upper and lower escapements respectively, a single keyboard mechanism, reeds extending thence right and left to the respective magazines, and shifting connections whereby the key-
20 board may be caused to actuate one set of reeds or the other.

4. In a linotype-machine, two magazines arranged side by side, and two overlying magazines arranged in like manner, a single assembler-belt and a series of channels T, 25 constructed and arranged to deliver matrices from all the magazines to the one belt.

5. In a linotype-machine, two pairs of inclined magazines, arranged side by side, in combination with a single keyboard, means 30 coöperating with the keyboard to cause the discharge of matrices from any one of the magazines at will, and means to prevent the discharge of matrices from the other magazines. 35

In testimony whereof I hereunto set my hand, this 27th day of September, 1905, in the presence of two attesting witnesses.

CARL MUEHLEISEN.

Witnesses:

HENRY HASPER,
WOLDEMAR HAUPT.