

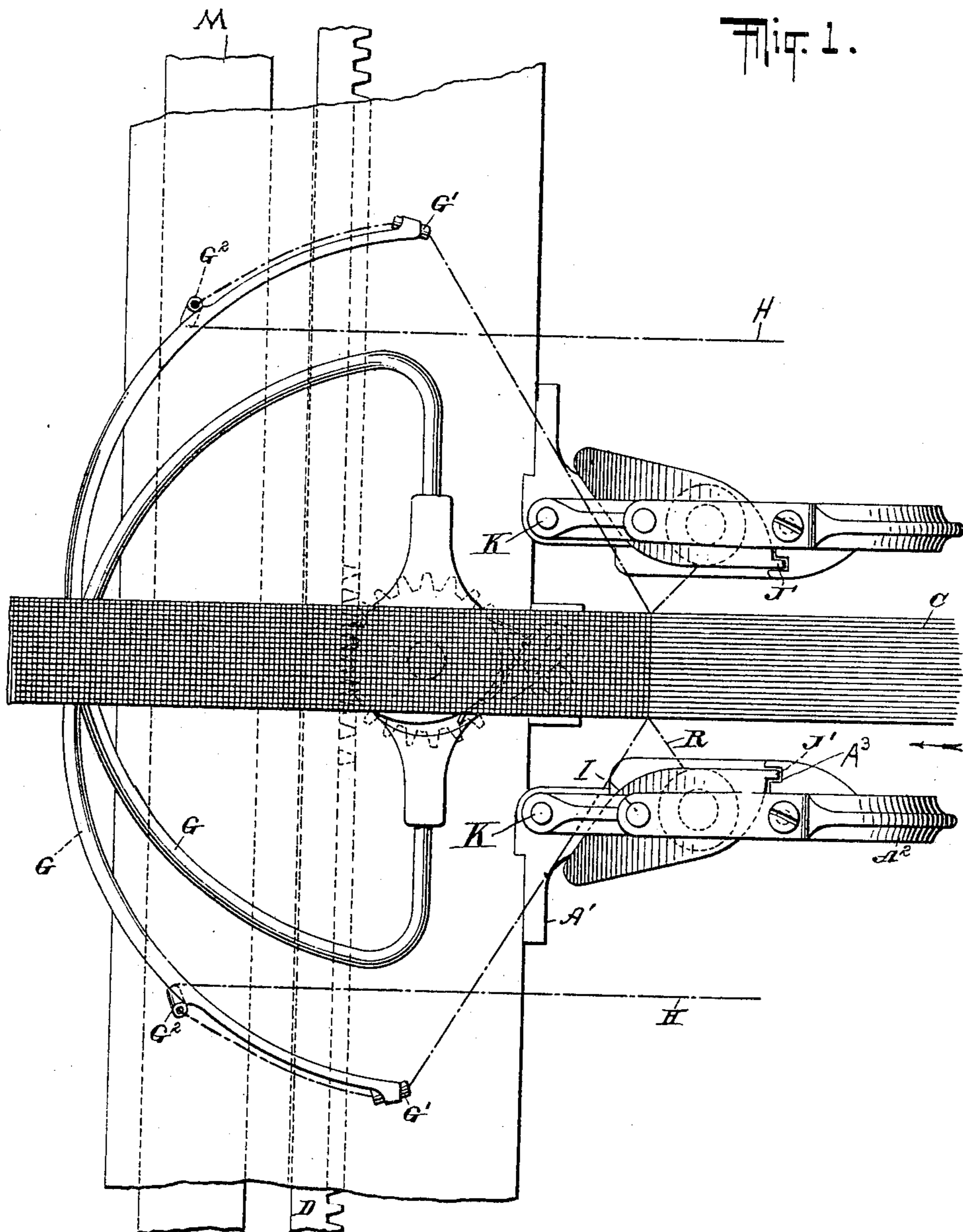
No. 819,138.

PATENTED MAY 1, 1906.

E. HERZIG.
NEEDLE LOOM.

APPLICATION FILED JUNE 11, 1902.

2 SHEETS—SHEET 1.



WITNESSES:

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John Lotka

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2 SHEETS—SHEET 2.

Fig. 2.

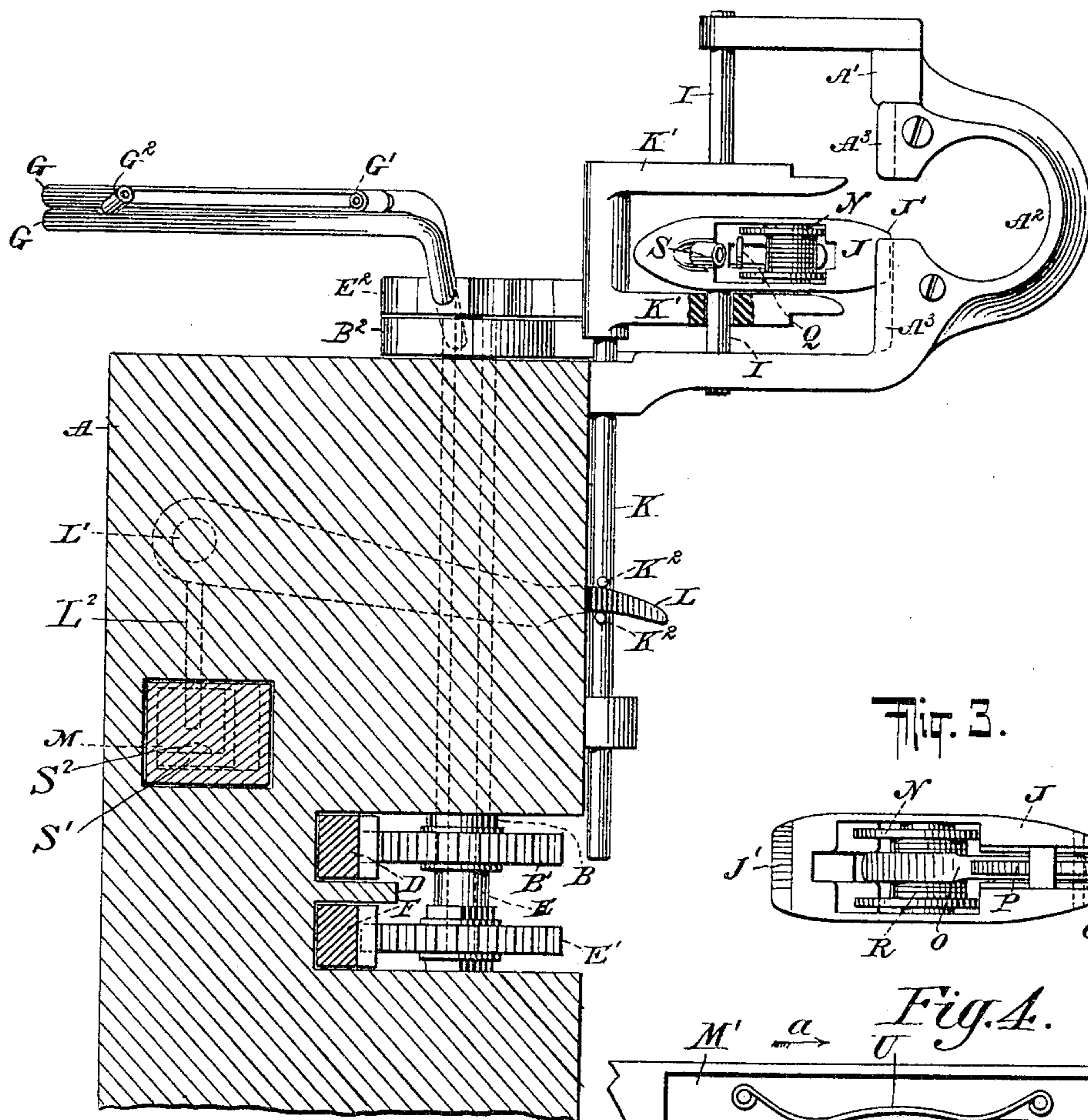


Fig. 3.

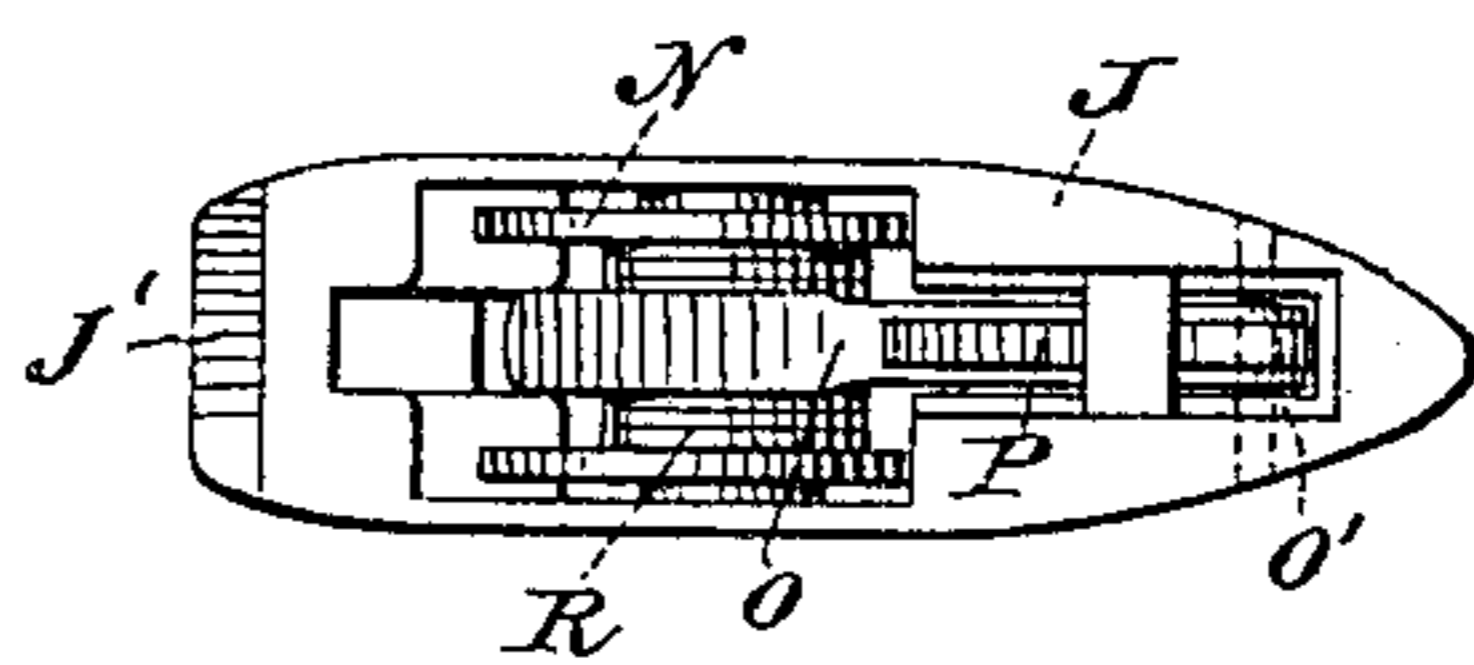
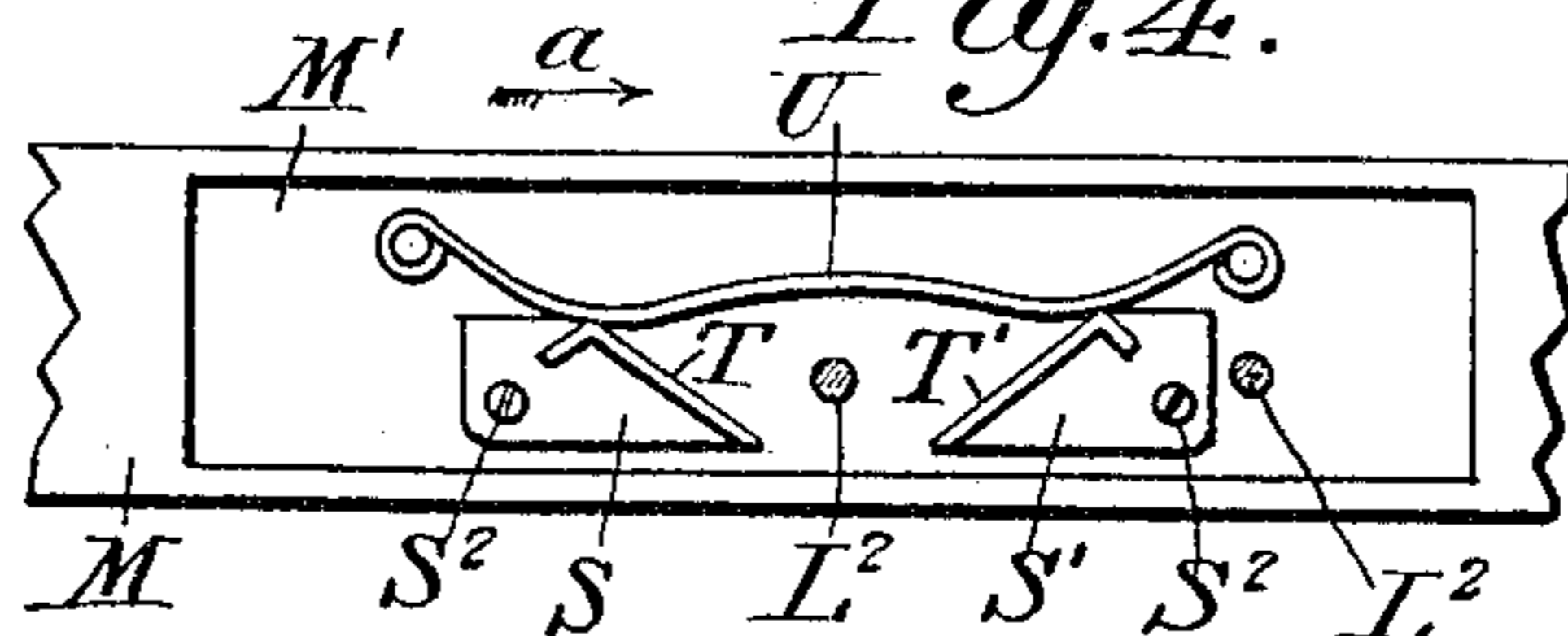


Fig. 4.



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UNITED STATES PATENT OFFICE.

EDUARD HERZIG, OF UNION HILL, NEW JERSEY.

NEEDLE-LOOM.

No. 819,138.

Specification of Letters Patent.

Patented May 1, 1906.

Application filed June 11, 1902. Serial No. 111,107.

To all whom it may concern:

Be it known that I, EDUARD HERZIG, a citizen of the United States, residing at Union Hill, Hudson county, New Jersey, have invented certain new and useful Improvements in Needle-Looms, of which the following is a specification.

My invention relates to looms, particularly of the class intended for weaving narrow fabrics, and has for its object to improve that type of machine in which the weft is inserted by means of transversely-swinging weft-carriers. A loom of this character is disclosed in my United States Patent No. 719,666, dated February 3, 1903.

The purpose of my present invention is particularly to secure a more reliable guiding of the weft and to provide a more positive motion of the spools carrying the selvage-thread.

Reference is to be had to the accompanying drawings, in which—

Figure 1 is a plan of that portion of a loom to which my improvement is applied. Fig. 2 is a longitudinal sectional elevation thereof. Fig. 3 is a detail side elevation of one of the selvage-spool holders, and Fig. 4 is a detail plan view of certain parts of the mechanism.

A indicates a portion of the loom-frame. In this is journaled a tubular shaft B, disposed centrally with respect to the warps C and receiving oscillating motion by any suitable mechanism—as, for instance, a transverse rack D, engaging a pinion B'. Within the shaft B is mounted to turn independently another shaft E, also adapted to receive an oscillating motion—for instance, by means of a rack F, engaging a pinion E'. Each of the shafts B and E carries at its upper end a head B² and E², respectively, and through the medium of said head a weft-carrier G. These carriers are curved spirally, so that their free ends are located at a higher level than their attached inner ends. Each weft-carrier is provided at or near its free end with a thread-guide G' and is also provided with another thread-guide G², located between the attached end of the weft-carrier and the first-mentioned thread-guide G'. These thread-guides are shown in the nature of eyes or short sleeves; but I desire to be understood that my invention is not limited to this specific form of guides. As clearly shown in Figs. 1 and 2, the two guides G' G² are arranged at an angle to each other. The two weft-threads H pass from suitable spools on the

frame of the machine first to what I will term the "inner" guides G², and then to the outer guides G' and are inserted through the shed, so as to be interwoven with the warps by the swinging motion which is imparted to the weft-carriers G. The provision of the inner guide G² is of advantage because it enables the weft-threads to be so guided that they will not come in contact with those parts of the mechanism which are provided for carrying and inserting the selvage-threads. The arrangement of the guides G' G² at an angle to each other, as shown, presents the advantage of properly guiding the thread and keeping it under tension without giving it such sharp bends as would cause excessive friction and expose the thread to the danger of frequent breakage.

Brackets A' are projected from the frame A and are preferably provided with openings A² for the passage of the weft-carriers. These brackets are further made with two pins or guides I, which aline with each other and have their inner ends spaced sufficiently to provide for the passage of one or the other of the weft-carriers between them. On these guides are adapted to slide up and down the selvage-spool carriers J, which are prevented from turning on the said guides by the engagement of projections J' with grooves A³ on the brackets A'. The height of each selvage-thread carrier is somewhat greater than the distance between the adjacent ends of the pins I and of the grooves A³. The selvage-thread carriers are therefore always in engagement with at least one of the said pins or guides. In order to guard against an accidental movement of the selvage-thread carriers, they may be simply fitted so tightly that friction will prevent any accidental movement.

The following mechanism is provided for operating the selvage-spool carriers: A rod K is vertically movable in the bracket A' or parts attached thereto and carries two arms K', which are fitted to slide on the pins I or at least to move in such a manner as to alternately engage the corresponding selvage-spool carrier J. The distance between the two arms K' is greater than the height of the selvage-spool carrier, thus allowing for a limited independent movement of the said arms K'. Any suitable mechanism may be employed for giving the rod K and arms K' a reciprocating up-and-down movement. For instance, a lever L, fulcrumed on the loom-frame A at L' and

receiving an oscillating motion through the medium of a reciprocating bar M, may be engaged between two pins K^2 on the rod K. The bar M may move in a guideway of the loom-frame A, as shown, and is provided with a recessed portion M' . In this recessed portion M' are mounted two members S and S' , fulcrumed at S^2 and S^3 , respectively, and arranged to swing in one direction only, being held against movement in the other direction by the one side wall of the recessed portion M' . The said members S and S' are provided with cam-surfaces T and T' , respectively, arranged to cooperate with pins L^2 on the levers L.

It will be understood that two arms L are provided, each arm L being adapted to alternately operate the corresponding rod K, carrying the arms K' . When the bar M moves in the direction indicated by the arrow marked a , the cooperating pin L^2 will engage the cam-surface T and swing one of the levers L on its pivot L' and through its connections will give the rod K and its arms K' an upward movement until the pin L^2 has passed beyond the cam-surface T, whereupon the rod K and its cooperating parts will return to their initial position by gravity. When the bar M moves in the direction opposite to that indicated by the arrow a , the pin L^2 will pass back of the cam-surface T and will swing the member S on its pivot S^2 without actuating the lever L or its cooperating parts. During this return movement of the bar M the other pin L^2 will be engaged by the cam-surface T' of the member S' in the same manner as just described with respect to the member S, cam-surface T, and the other pin L^2 . This operation is repeated as the bar M is moved back and forth, each pin L^2 and cooperating parts being alternately operated. The members S and S' are returned to their initial position by a spring U. It will be understood that the parts just described are not claimed herein and are taken substantially from my United States Patent No. 719,666, dated February 3, 1903. During its upward movement the rod K will first rise to the position shown in Fig. 2 without shifting the selvage-spool carrier. This initial movement of the arms K' brings the upper one of them out of the way of the weft-carrier G, so that the latter can swing transversely for the purpose of inserting the weft. The same initial movement of the rod K has brought the lower arm K' into engagement with the

weft-spool carrier, so that the further movement of the rod K will cause the said carrier to rise until it engages the upward guide-pin I only. In the upper position the lower arm K' is in the way of the weft-carrier G. Therefore previous to the next movement of the weft-carrier the arm K' is lowered sufficiently to free the central space between the adjacent ends of the pins I, and after the passage of the weft-carrier the downward movement of the rod K is continued, so as to cause the selvage-spool carrier to again pass into its lower position.

The detail construction of the selvage-spool carrier, except as above described, is not claimed herein and may be of any approved type. I have shown a selvage-thread spool N, provided with a brake O, pivoted at O' , and controlled by a spring P, this brake also carrying an eye Q, through which the thread R passes from the spool N to the guide S. The connection of the eye Q with the brake O is preferably by means of a coiled spring, so that the said eye forms a tension device. It will be understood that by the movement of the weft-carrier and of the selvage-spool carriers following each other in the succession described the selvage-threads R and the weft-threads H will be interwoven, it being understood that each weft-thread passes first above and then below a selvage-thread, or vice versa.

What I claim as new, and desire to secure by Letters Patent, is—

In a loom, the combination with swinging weft-carriers, of stationary brackets provided with openings for the passage of the weft-carriers, pins carried by said brackets and spaced so as to leave a clearance in the same plane with the said openings, a selvage-thread carrier arranged to move on said pins and of greater height than the gap between them, and an operating mechanism provided with two arms connected to move in unison and embracing the selvage-thread carrier between them, the distance between said arms being greater than the height of the selvage-thread carrier.

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

EDUARD HERZIG.

Witnesses:

CHAS. W. MULLER,
THOS. H. WALKER.