

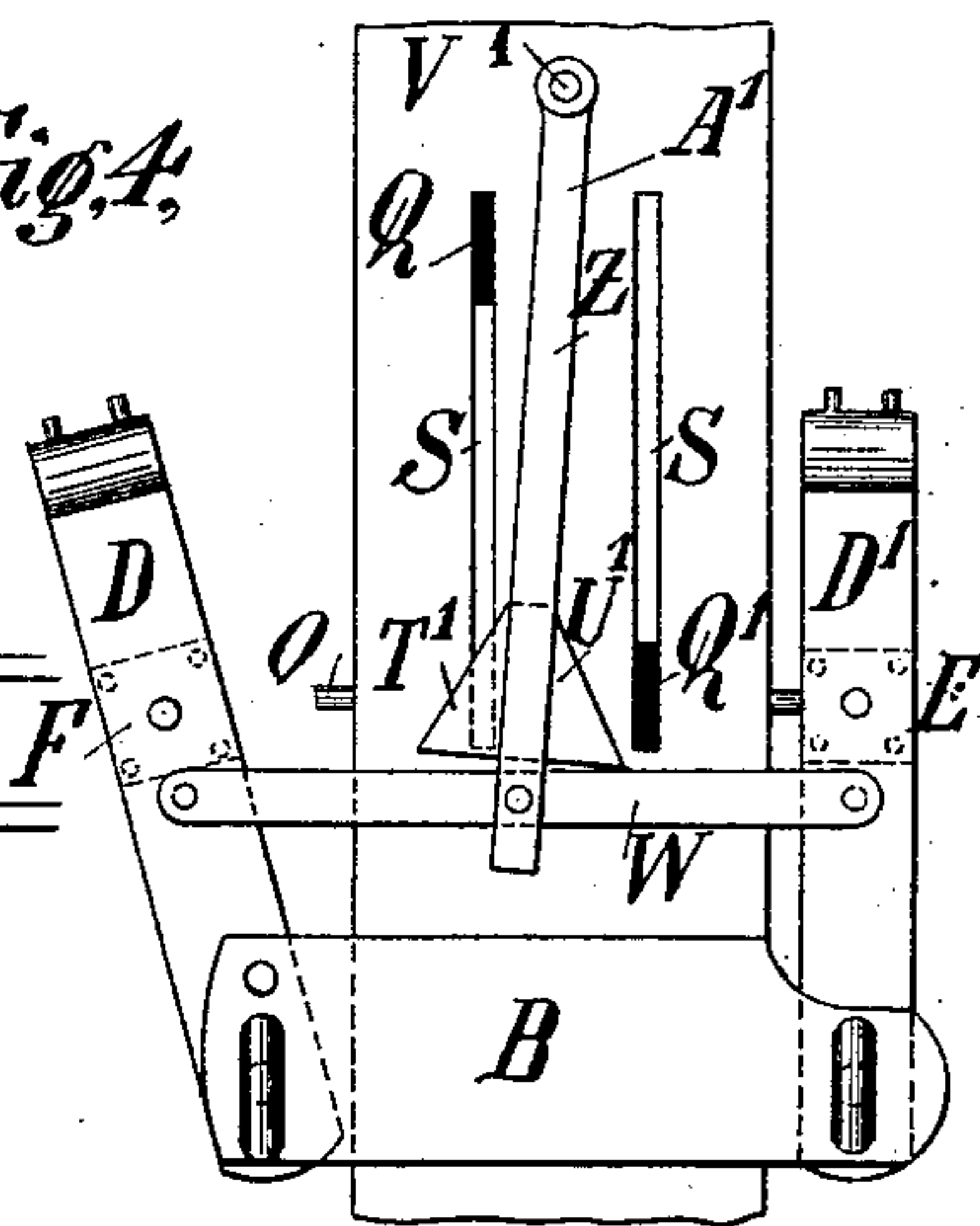
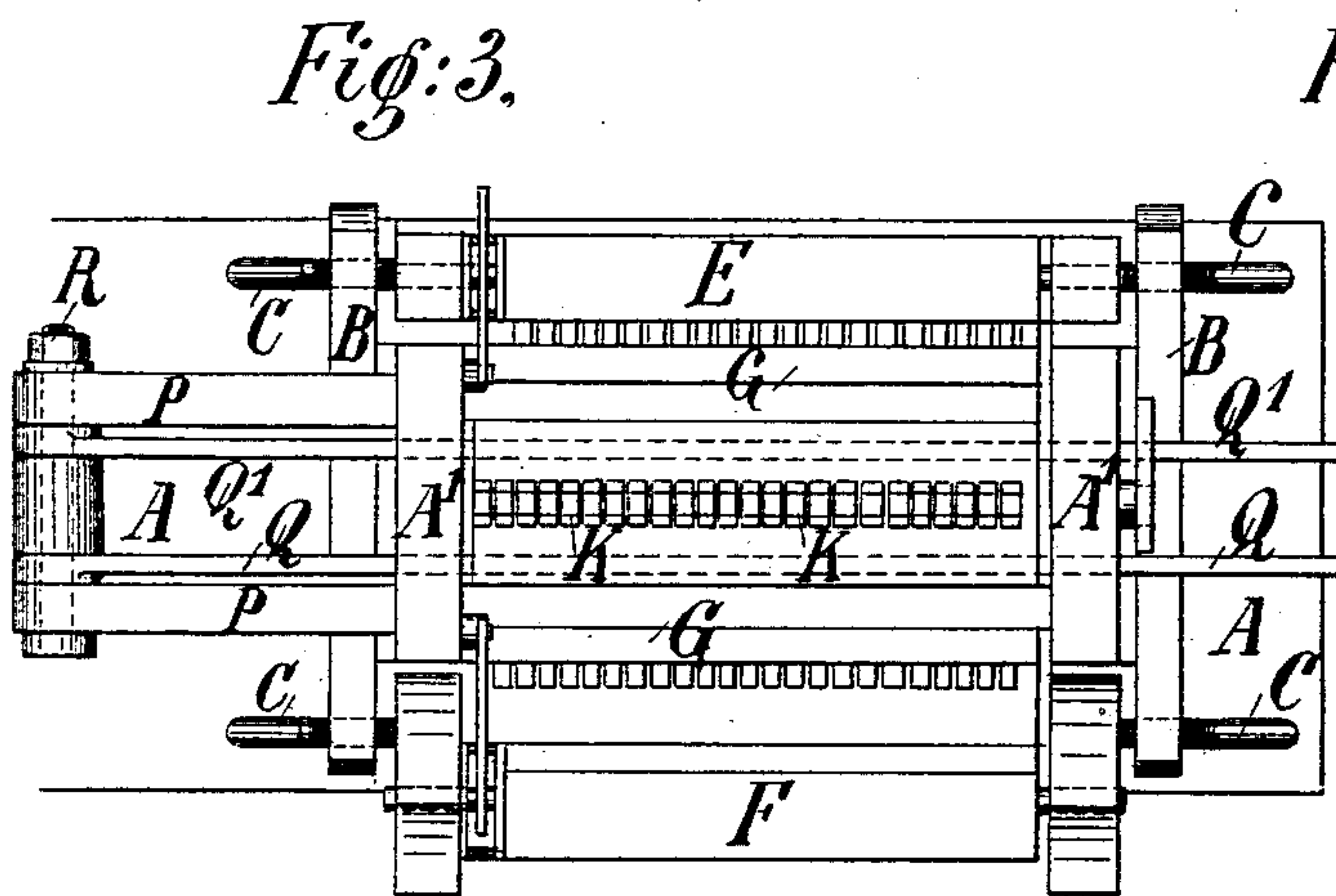
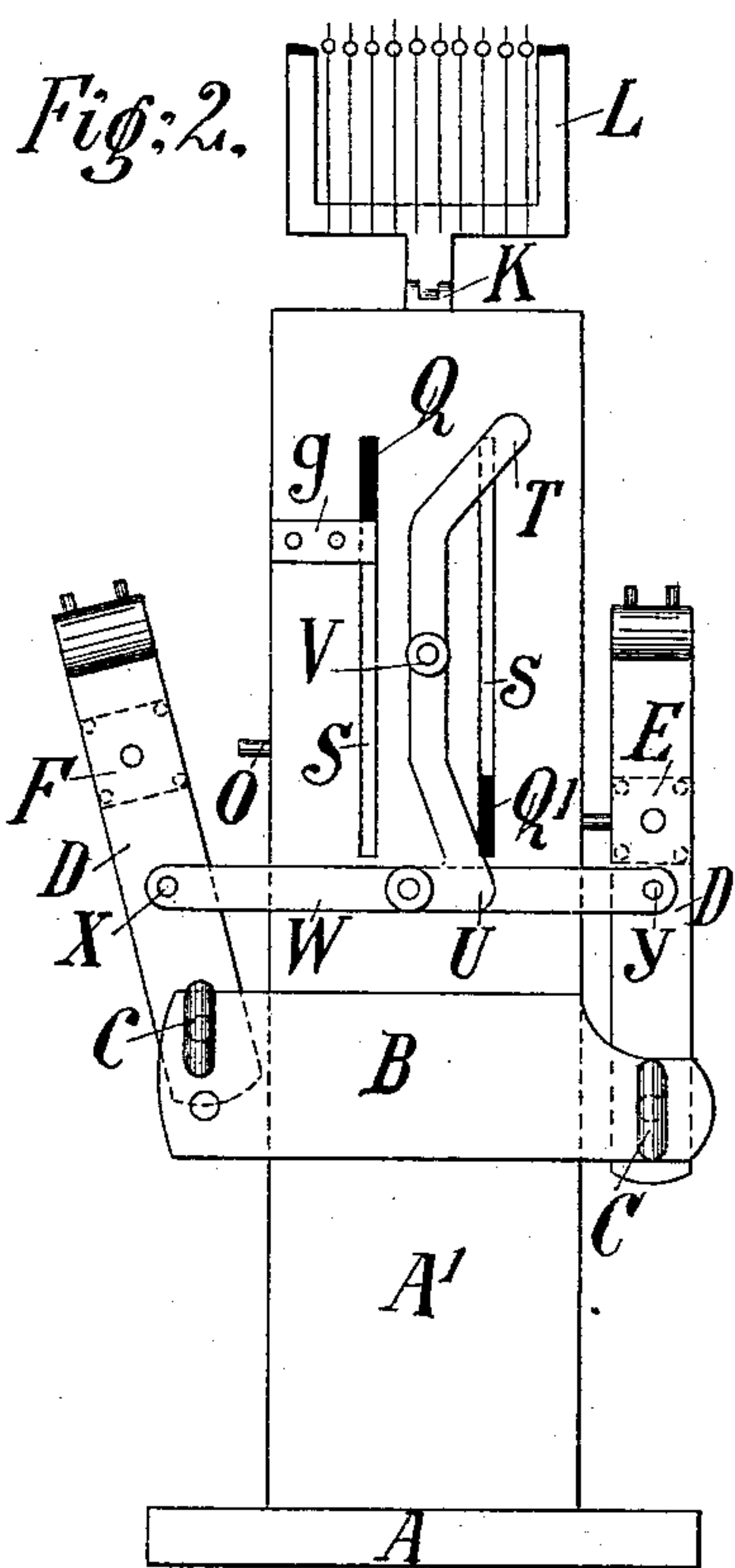
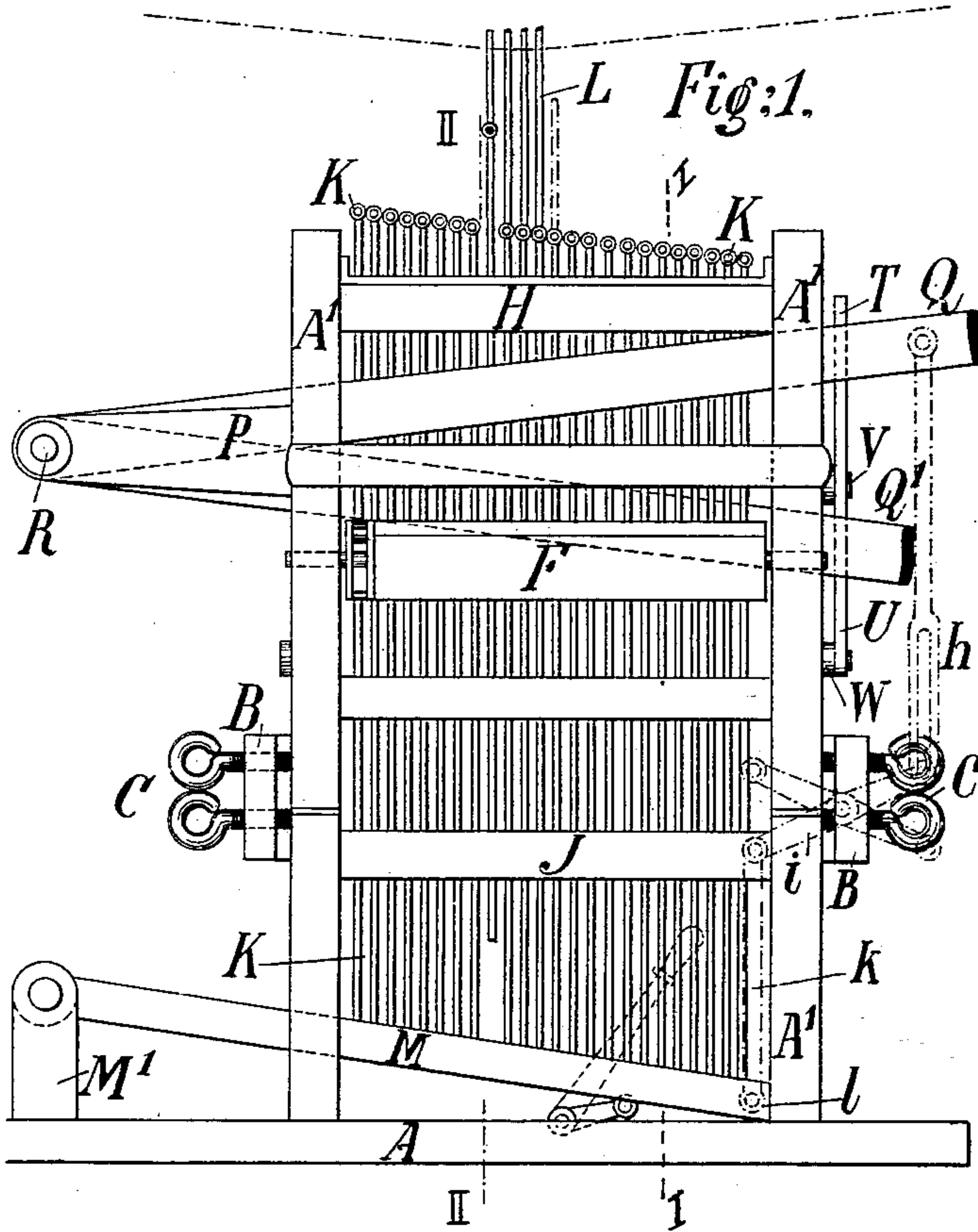
(No Model.)

2 Sheets—Sheet 1.

B. BOSSE.
LOOM.

No. 591,734.

Patented Oct. 12, 1897.



Witnesses:

R. E. Jahn
A. Strauss

Inventor:

Bernhard Bosse

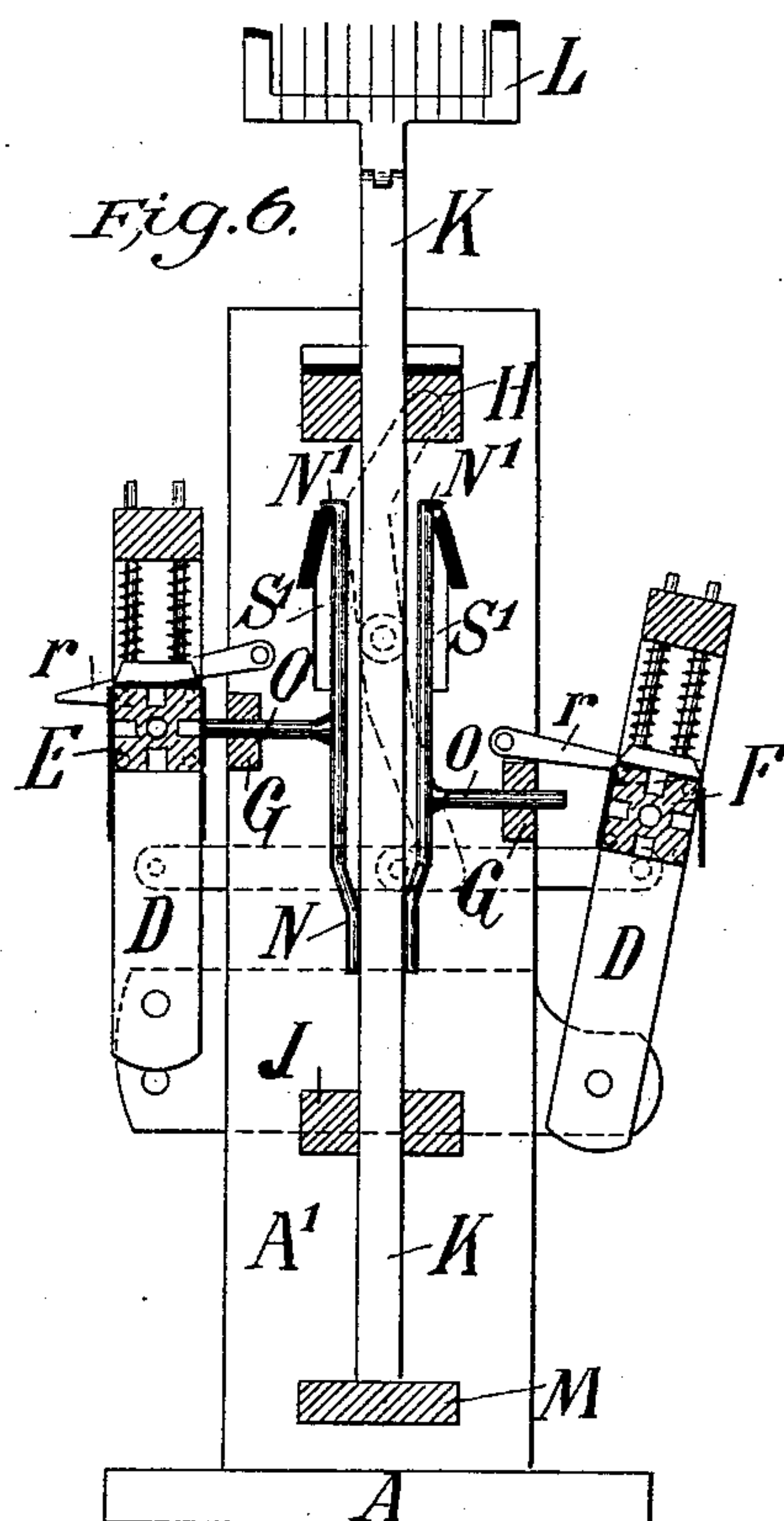
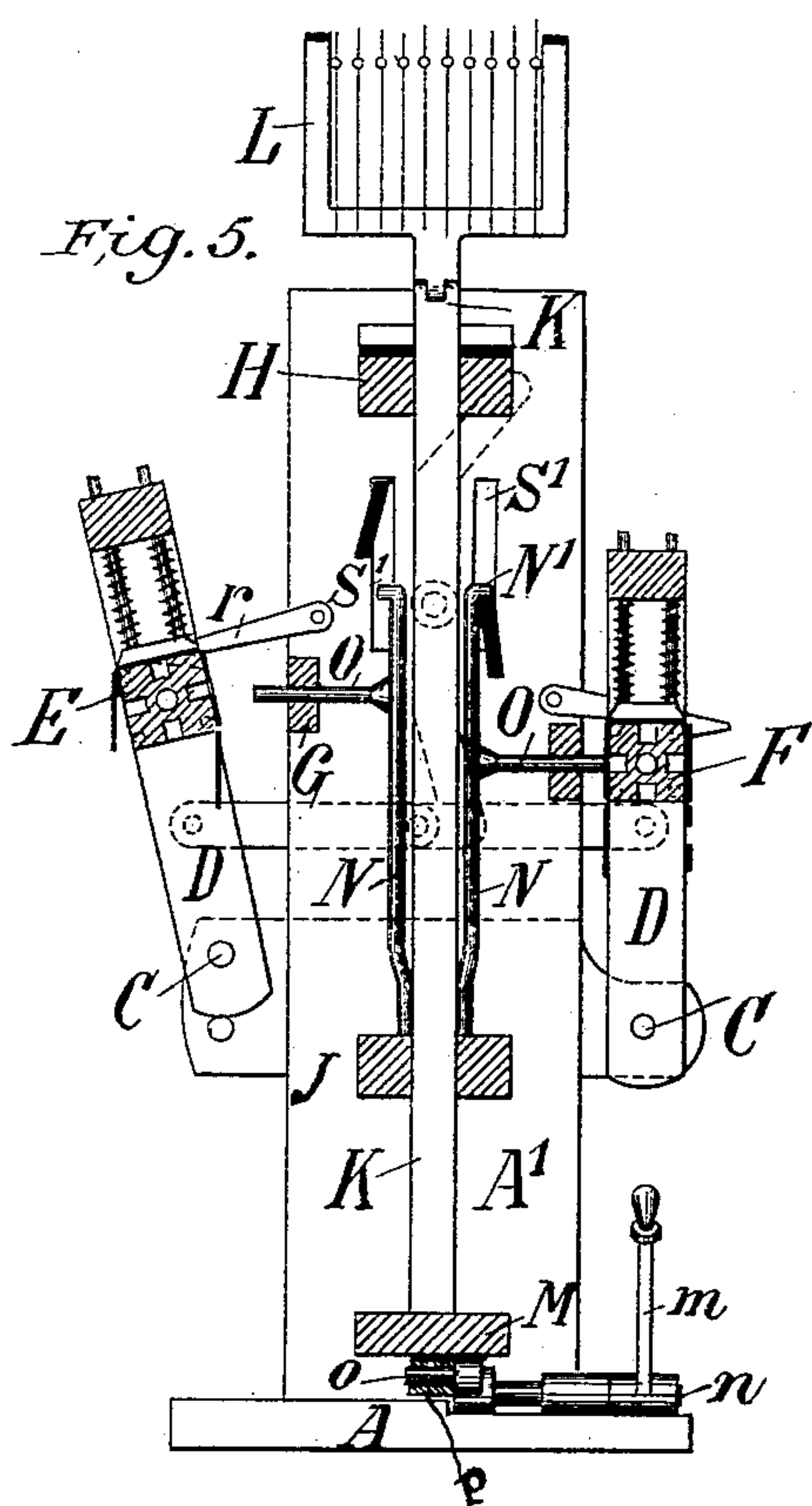
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UNITED STATES PATENT OFFICE.

BERNHARD BOSSE, OF BARMEN, GERMANY, ASSIGNOR TO BIERNATZKI & CO., OF HAMBURG, GERMANY.

LOOM.

SPECIFICATION forming part of Letters Patent No. 591,734, dated October 12, 1897.

Application filed December 16, 1895. Serial No. 572,339. (No model.) Patented in Germany April 16, 1894, No. 16,033.

To all whom it may concern:

Be it known that I, BERNHARD BOSSE, a subject of the German Emperor, residing at Barmen, Rhenish Prussia, Germany, have invented a new and useful Improvement in Looms, (for which I have obtained a patent in Germany, No. 16,033, dated April 16, 1894,) of which the following is a specification.

My invention relates to that class of devices in looms by means of which the shed is formed—as, for instance, the Jacquard machine or the shaft device—and especially to that class of shaft-machines in which the leaves are arranged on standing legs operated from below instead of being suspended in cords, as has been the general practice heretofore.

The invention has for its object to enable the weaver to accomplish by its means nearly all the variations in the binding which have been rendered possible by the Jacquard machine, and I attain this object by the mechanisms illustrated in the accompanying drawings, in which—

Figure 1 is an elevation of the new shaft-machine seen from the front. Fig. 2 is an elevation seen at right angle to Fig. 1 from the right side of it and arranged for working with one lifting-blade only. Fig. 3 is a top view of Fig. 1. Fig. 4 is an elevation corresponding to Fig. 2 arranged for working with both lifting-blades, the left cylinder being thrown out. Fig. 5 is a vertical section of Fig. 1 along line I I, showing the left cylinder thrown out and the heddles lowered. Fig. 6 is a vertical section of Fig. 1 along line II II, showing the right cylinder thrown out and the heddles raised.

My new shaft-machine is built as a double-cylinder and double-lifting machine, and it can be easily arranged so as to work only as single-lifting or open-shed machine or as one working with upper shed and lower shed. The lifting-wire board can be arranged thereby as a fixture or may go up and down and assist in forming the shed.

On a bed-plate A are erected the two side standards A', and at both outer sides of these are fixed the cross-pieces B, holding on pins C the swinging frames D D, carrying each a cylinder E and F, respectively. Opposite to

each cylinder are fixed between the two standards the needle-boards G, serving to guide the needles O. These needles are different from the needles of ordinary Jacquard and shaft machines. They resemble ordinary wire nails without points, and they are not provided with spiral springs which push them back in their normal position after having been pushed forward or inward by a cylinder-card. Cross-bars H and J, arranged between the two standards A', serve for guiding the legs K, carrying the leaves L at the top of them, to which they are joined by hinges x, as seen in Figs. 1 and 2. The legs K of the leaves rest on the lifting-wire board M at the bottom of the machine. Said board is hinged to a standard M' of the bed-plate A. Right and left to each leg K—that is, to the edges facing the cylinders E and F or the needle-boards G—are fixed the elastic lifting-wires N, ending in hooks N' at their upper end. Two arms or brackets P, projecting from one of the standards A', are connected by a bolt R, which serves as fulcrum for the lifting-blades Q and Q'. The lifting-blades pass through and are guided by slots S and S' in the standards A'. The slots S' in the standard near the fulcrum of the blades may of course be shorter in length than the slots S on the other standard. The lengths of the blades between the two standards are arranged at an angle, as seen in the section thereof in Figs. 5 and 6, so as to present a sharp edge to the hooks N' of the lifting-wires.

The lowering and raising of the blades may be done by any suitable device. The up-and-down motion of the lifting-blades may cause the to-and-fro movement of the cylinder-frames and the cylinders toward and away from the needle-board in either of the following ways—namely, when arranged as a single-lifting or open-shed machine by striking against the obliquely-bent upper and lower ends of the exchangeable swivel-lever T U, turning on a bolt V, fixed against the right side standard A'. The oblique ends of said lever reach over the slot S, that guides the blade Q', and it will thus be understood that the blade Q' when going down turns the lever in the right direction and when going up in the left direction. Now at the lower end it is

fixed to a horizontal cross-bar W, connecting together, by bolts X and Y, the two cylinder-frames F and E, and thus the frames are moved to and fro by the up-and-down stroke of the blade Q'. The other blade Q in this case is held immovably in its upper position by a rail g, screwed under it against the frame, as shown in Fig. 2, and it serves as an open-shed blade, holding all the lifting-wires which have been raised in their raised position until they are pushed off from it by the needles O, according to the perforations in the card of the cylinder.

Now in order to change the machine into a double-lifting one the rail g is taken off and the swivel-arm T U is replaced by a one-sided pendulum-lever Z, suspended by its upper end at a pin V' and linked by its lower end to the cross-bar W. To the pendulum-lever Z is fixed above the bar W a triangular piece, the oblique sides T' U' of which reach over the slots S alternately, so that when the blade Q', for instance, is going down it strikes upon U' and pushes the lever Z, and with it the bar W and the cylinder-frames, toward the left, and when Q is going down (Q' then rising) it strikes upon T' and pushes the said parts toward the right, and thus the machine works as a double-lifting machine, making upper shed and lower shed.

As stated above, the lifting-wire board, or rather the supporting-board for the legs of the leaves, is hinged on a bolt passed through standards M', which stand on the bed-plate A. It therefore can be turned on this bolt and raised and lowered. The lifting of the said supporting-board is done by the following means: When the machine is arranged as a single-lifting open-shed machine, a rod h is linked with its upper end to the active lifting-blade. I beg to observe that in Fig. 1 it seems as if the rod h were fixed to the machine lifting-blade Q. The reader, however, must in the present case assume that the

blade Q' had been raised and now stands in a level with blade Q, and the lower end of said rod takes hold of one end of a double-armed lever i, the other end of which is connected to a rod k, which at its lower end is fastened to the supporting-board M, and it will thus be seen that when the lifting-blade is going up to make the upper shed the supporting-board is going down, forming by shafts standing upon it the lower shed, and vice versa. A hand-lever m on a bolt n, carried in a bracket p, allows, by means of a crank o fixed to said bolt, of raising the supporting-board or lowering it and fixing it in the raised position when it is not required to help in making the shed.

The turning of the cylinders is done, as usual, by hooks v.

I am aware that double-cylinder machines have been in use before my invention, and also that machines working with leaves resting on standing legs are not new, and I do not claim such machines, broadly, as my invention; but

What I do claim, and wish to secure by Letters Patent, is—

In a loom, the combination of the arms P, P, and connecting-bolt R, the lifting-blades Q, Q', having angular parts, as described, the legs K provided with leaves L and supporting-board M, the elastic lifting-wires N having hook N' adapted to be engaged by the angle parts of the lifting-blades, the frames D, D' provided with perforated cylinder-cards E, F, the needle-boards G, and needles o and a pivoted hand-lever and crank, to operate the supporting-board M and the mechanism connected therewith substantially as set forth.

BERNHARD BOSSE.

Witnesses:

R. E. JAHN,
A. STRAUSS.