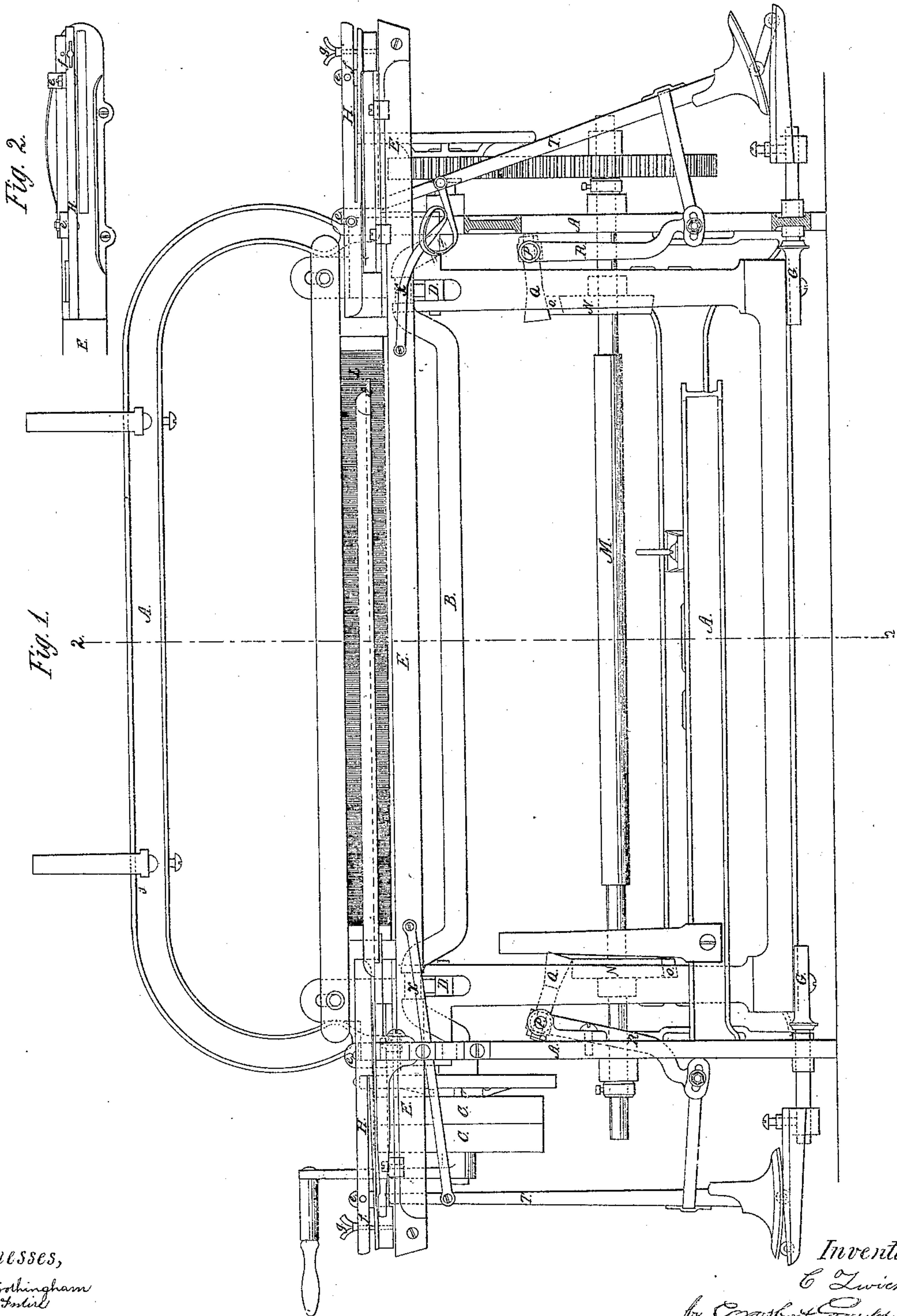


C. Zwicki
Loom.

No 63353

Patented Mar. 26, 1867



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C. Zwicky
Loom.

No 63,353.

Patented Mar. 26, 1867.

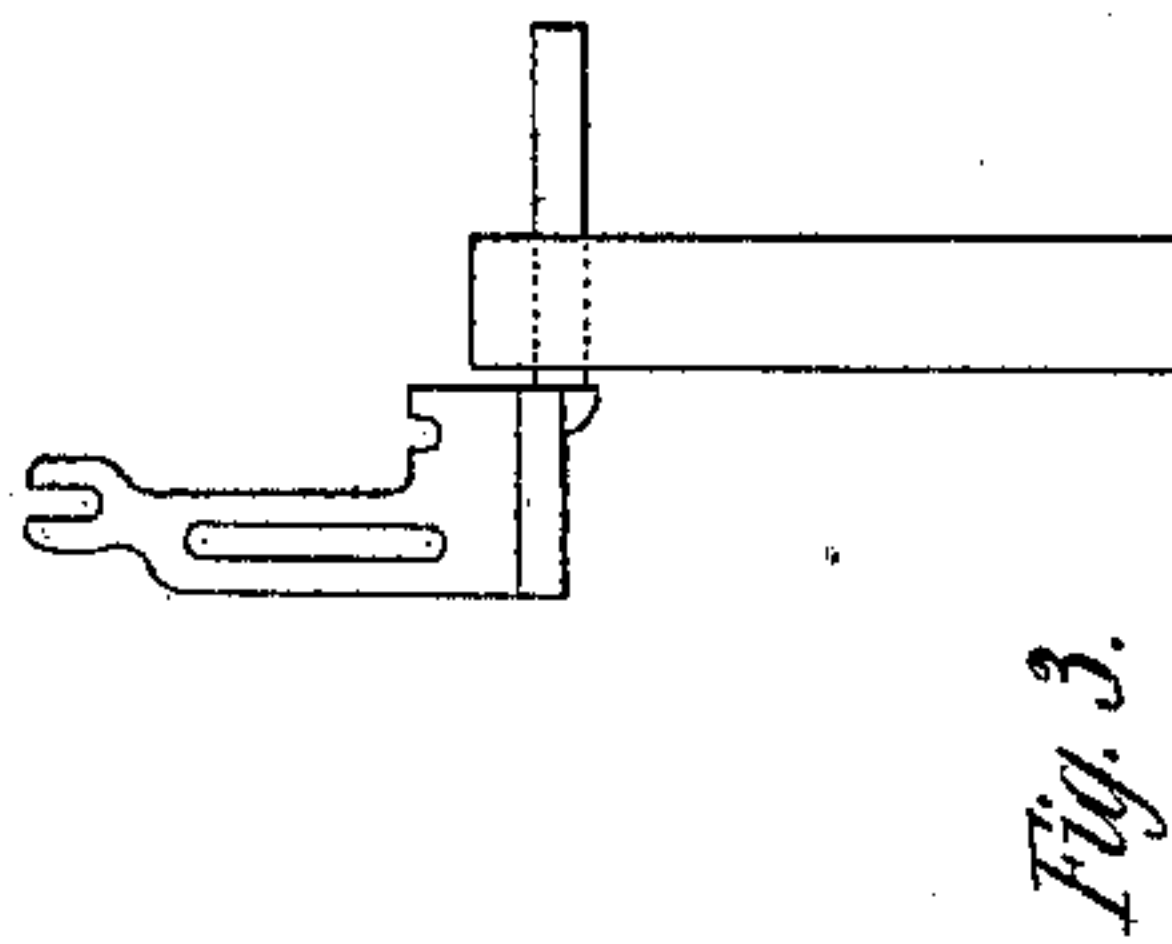
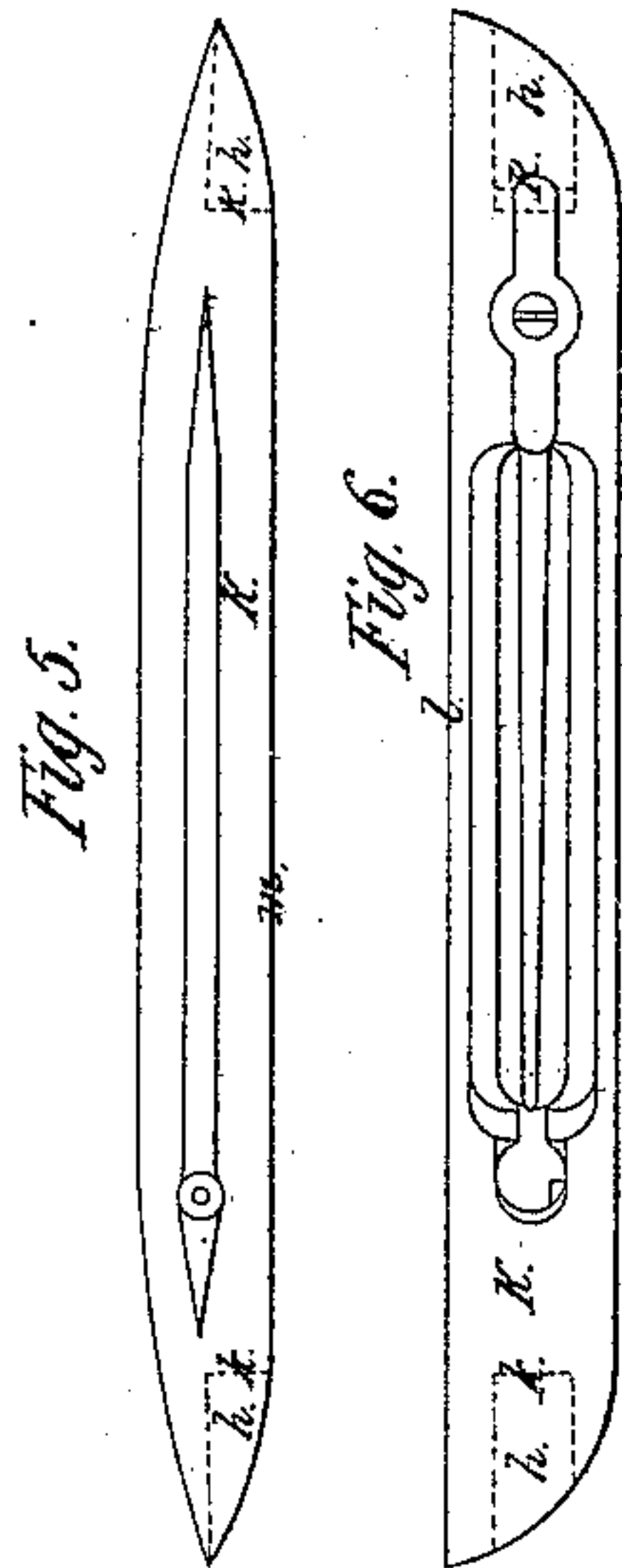
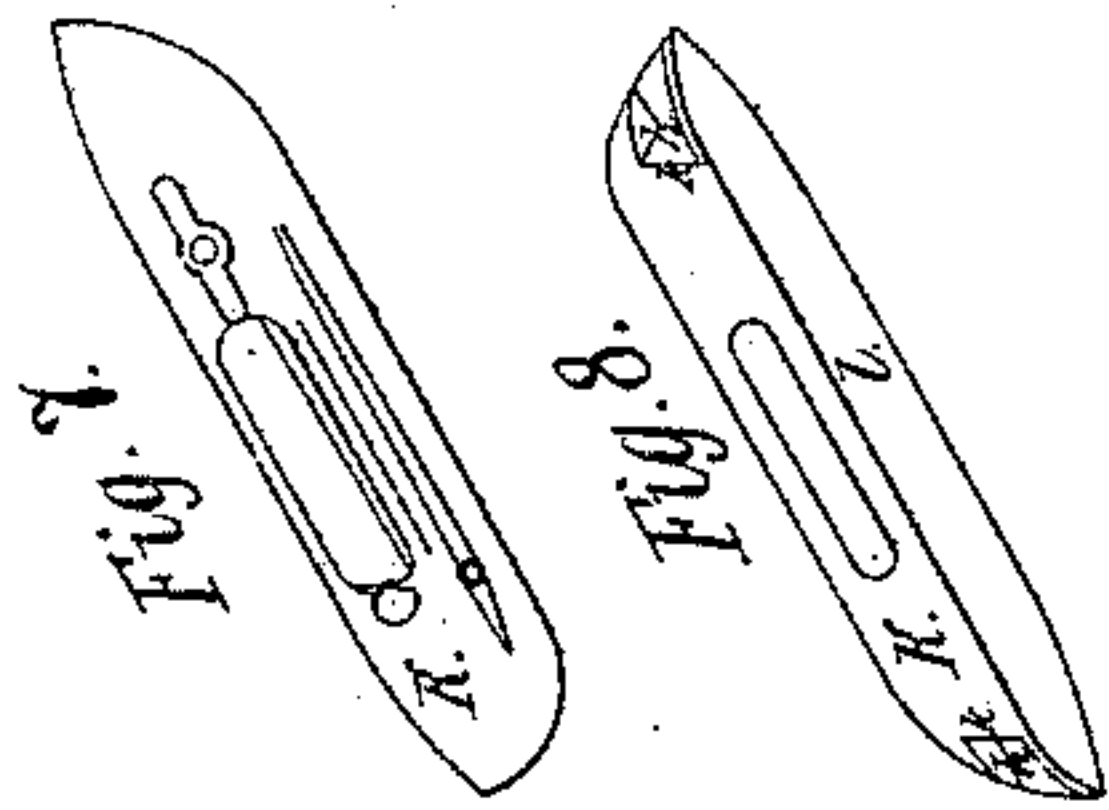
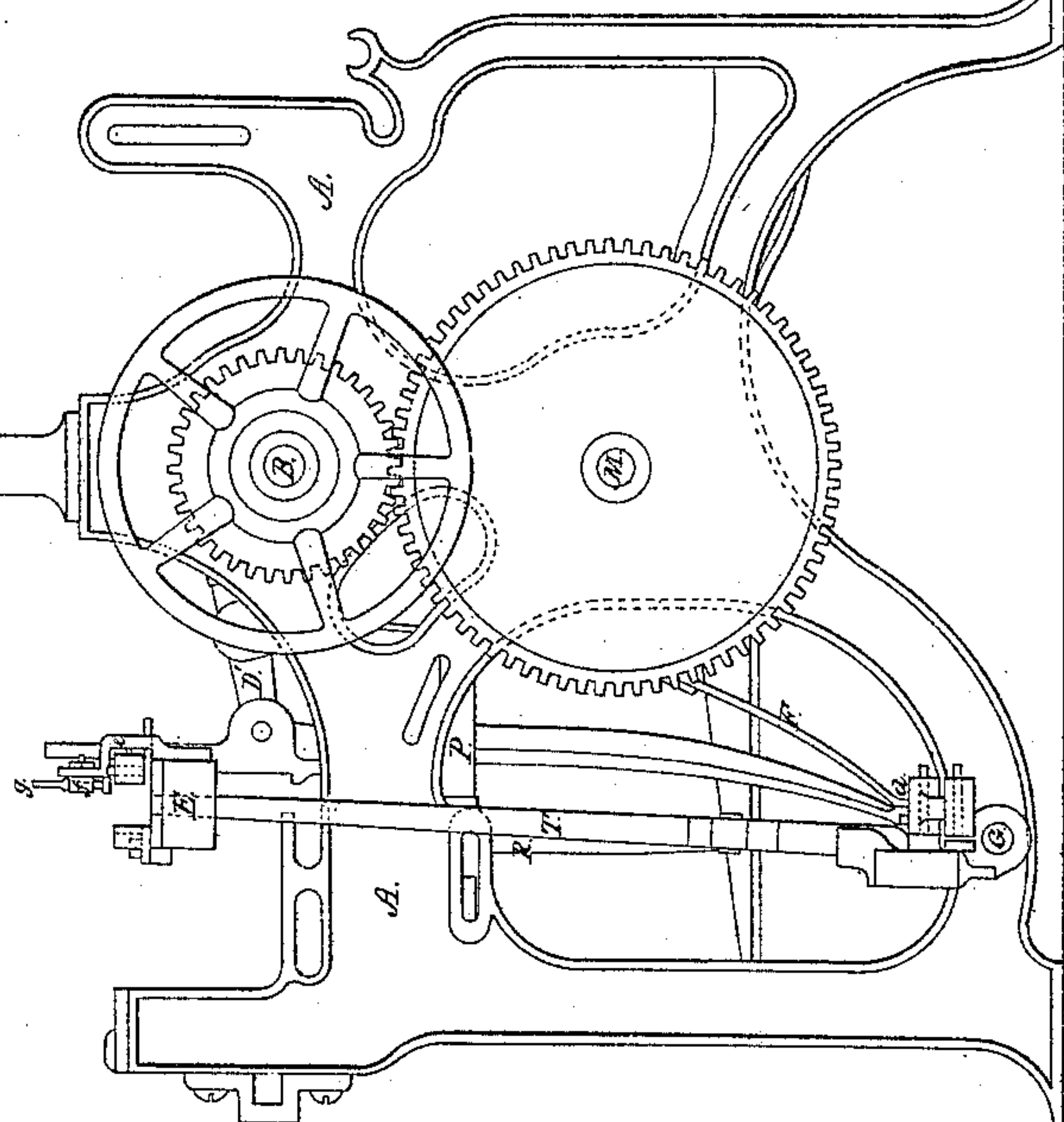
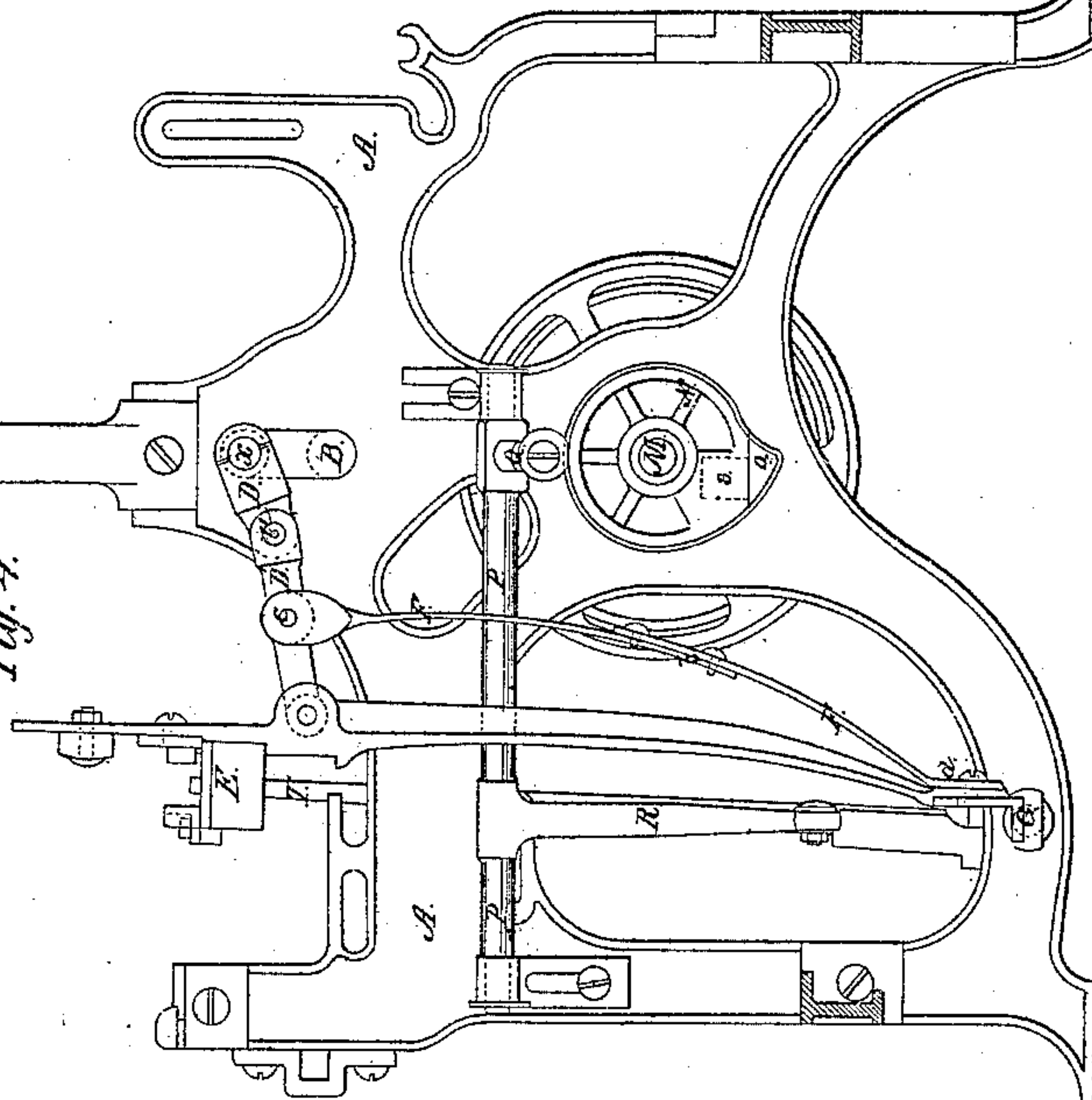


Fig. 4.



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CASPAR ZWICKI, OF CHICAGO, ILLINOIS, ASSIGNOR TO JAMES J. WORTH AND GUSTAVUS E. BASCHICK.

Letters Patent No. 63,353, dated March 26, 1867.

IMPROVEMENT IN LOOMS.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, CASPAR ZWICKI, of Chicago, in Cook county, State of Illinois, but formerly of Pittsburg, Pennsylvania, have invented certain new and useful Improvements in Looms; and I do hereby declare that the following, taken in connection with the drawings, which accompany and form part of this specification, is a description of my invention sufficient to enable those skilled in the art to practise it.

My invention relates, first, to the detail of construction by which sufficient elasticity is obtained to prevent jar of the parts when the loom is run at a high rate of speed, and by which slight but needed adjustments of the shuttle-race may be obtained; secondly, to the construction of an adjustable spring catch at each end of the shuttle-race operating to stop the flight of the shuttle and to retain it in its proper position in the shuttle race and preventing it from flying out of the race on receiving a blow from either picker staff when the loom is operated at a high speed; thirdly, to the combination with devices for operating the picker staff of a cam, which, by adjustment, is capable of regulating the blow of the picker staff. Of the drawings—

Figure 1 shows in front elevation a loom embodying my invention.

Figure 2 is a plan of one end of the shuttle-race.

Figure 3 is an end view of the loom aforesaid.

Figure 4 is a cross-section taken through the loom on the line *z z*, fig. 1.

Figures 5 and 6 are respectively a side view and a plan of my shuttle; and

Figures 7 and 8 are perspective views of the same.

A represents the frame of the loom, and B the main shaft, which is rotated by belting upon the pulleys C. In this shaft B are the cranks *x*, which operate to vibrate the shuttle-race E through the connecting-rods D and the spring-supported links D', the connecting-rods D taking hold of the crank *x* and being pivoted to the links D' by the pins *a*, the other ends of the links D' being pivoted to the radius arms to which the shuttle-race E is fixed and with which it vibrates on the fulcrum G. The links D' are upheld and are kept from falling by spring-supports or braces, F, which are made in two pieces, each so connected by bolts and slotted holes for the same, as shown at *b*, that each spring-brace, F, can be lengthened or shortened so as to raise or lower the links D' and thus nicely adjust either or both ends of the shuttle-race relatively to the cranks *x*. The function of the spring-braces F is to yield slightly when the connecting-rods D act upon the links D' at a considerable angle so as to give an elasticity to the movement of the shuttle-race and to avoid jar and strain of the machine when it is made to move at a high rate of speed, and is designed as an improvement upon looms using, to drive the shuttle-race, connecting-rods, which are of very short length as compared with the radii of the shuttle-race driving-cranks. The consequence of using such short connecting-rods is, that when the shuttle-race is drawn back from the lay it rests or remains nearly or quite still at the time when the shuttle is driven through the shed of the warp threads, which are then fully open, so that the shuttle in its passage cannot touch or break any of said threads. Above each end of the shuttle-race E are springs, H, each fastened to holding pieces *e*, on the side of the race, so that they can be adjusted in a vertical direction, and provided with a set or thumb-screw at *f*, for the purpose of further adjustment of the free end of said spring H in a vertical direction. The function of these springs H is to stop the shuttle gradually and without recoil, and to keep it in its proper position on the shuttle-race to receive the blows of the picker staffs T. The ends of the cavities *h* in the lower sides of each end of the shuttle K are square or right angular to the line of the shuttle's flight, which line is parallel with the face *l* of the shuttle bearing against the reed L, and is also parallel with the lower surface of the shuttle which rests upon the upper surface of the shuttle-race E, the cavities being of sufficient depth and width to admit freely therein the ends of the picker staffs T, which project above the upper surface of the shuttle-race. On the lower shaft M, which is driven by gearing from the main shaft B, are the picker-staff driving-cams N, having therein blocks, *o*, made to slide so as to be adjustable, being fastened in any desirable position by a clamp-screw at *s*. The length of stroke given by the picker staffs is regulated by adjusting the block *o* either from or toward the centre of the shaft M, as may be required.

I claim combining with the shuttle-race, and with the cranks and connecting-rods which actuate it, the links D', when upheld by spring braces capable of vertical adjustment, and which, acting by their elasticity, ease the movements of the shuttle-race, substantially as described.

Also, in combination with the shuttle-race, the springs H at either end, arranged over the top of the shuttle-path, and provided with means for vertical adjustment, substantially as described.

And, in combination with the picker staff of a loom, the cam N, when provided with the adjustable piece *o*, substantially as described.

CASPAR ZWICKI.

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CONRAD L. DIEHL.