

No. 667,458.

Patented Feb. 5, 1901.

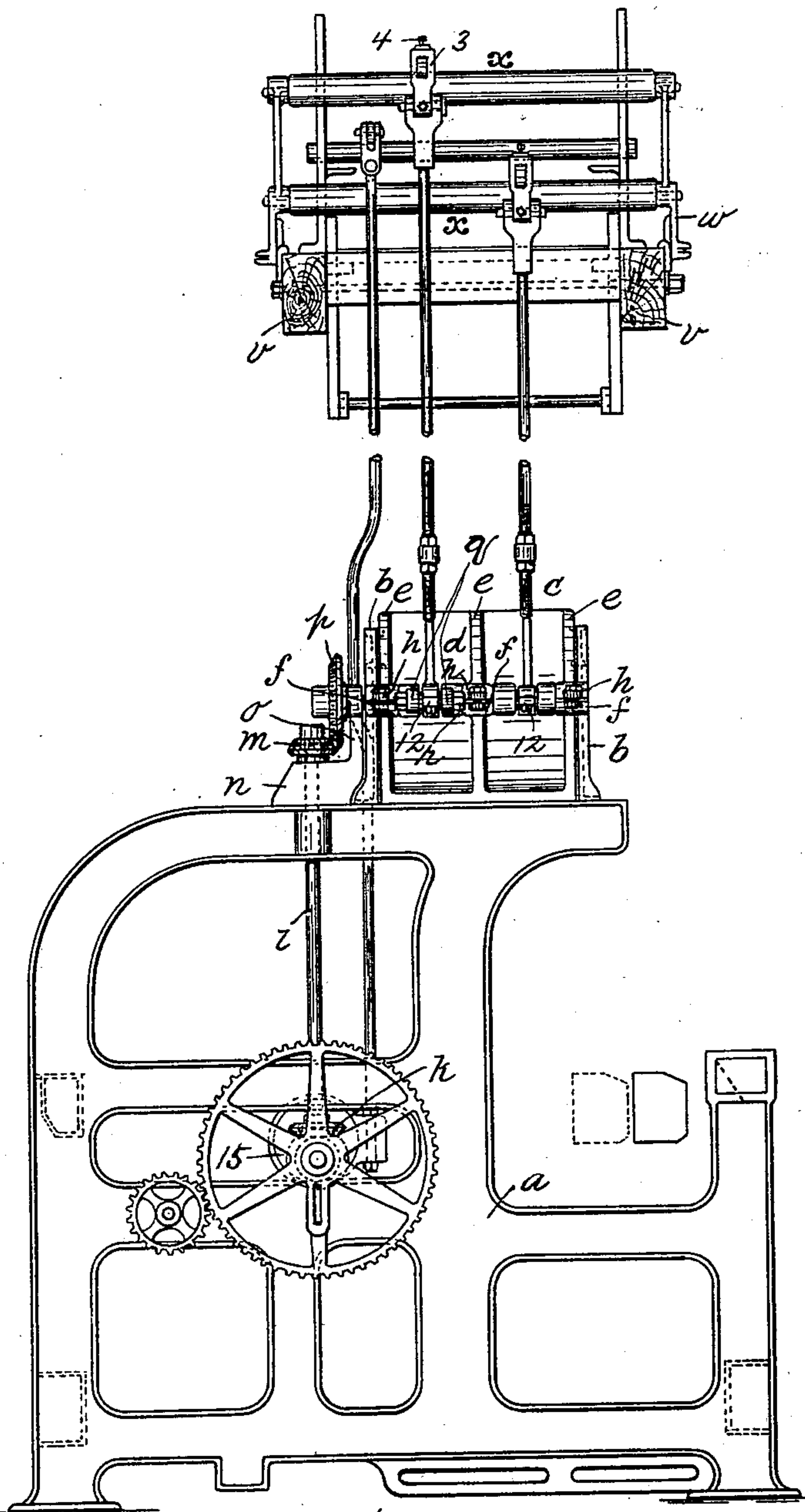
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OPERATING MECHANISM FOR JACQUARD MACHINES FOR LOOMS.

(Application filed May 31, 1900.)

(No Model.)

2 Sheets—Sheet 1.



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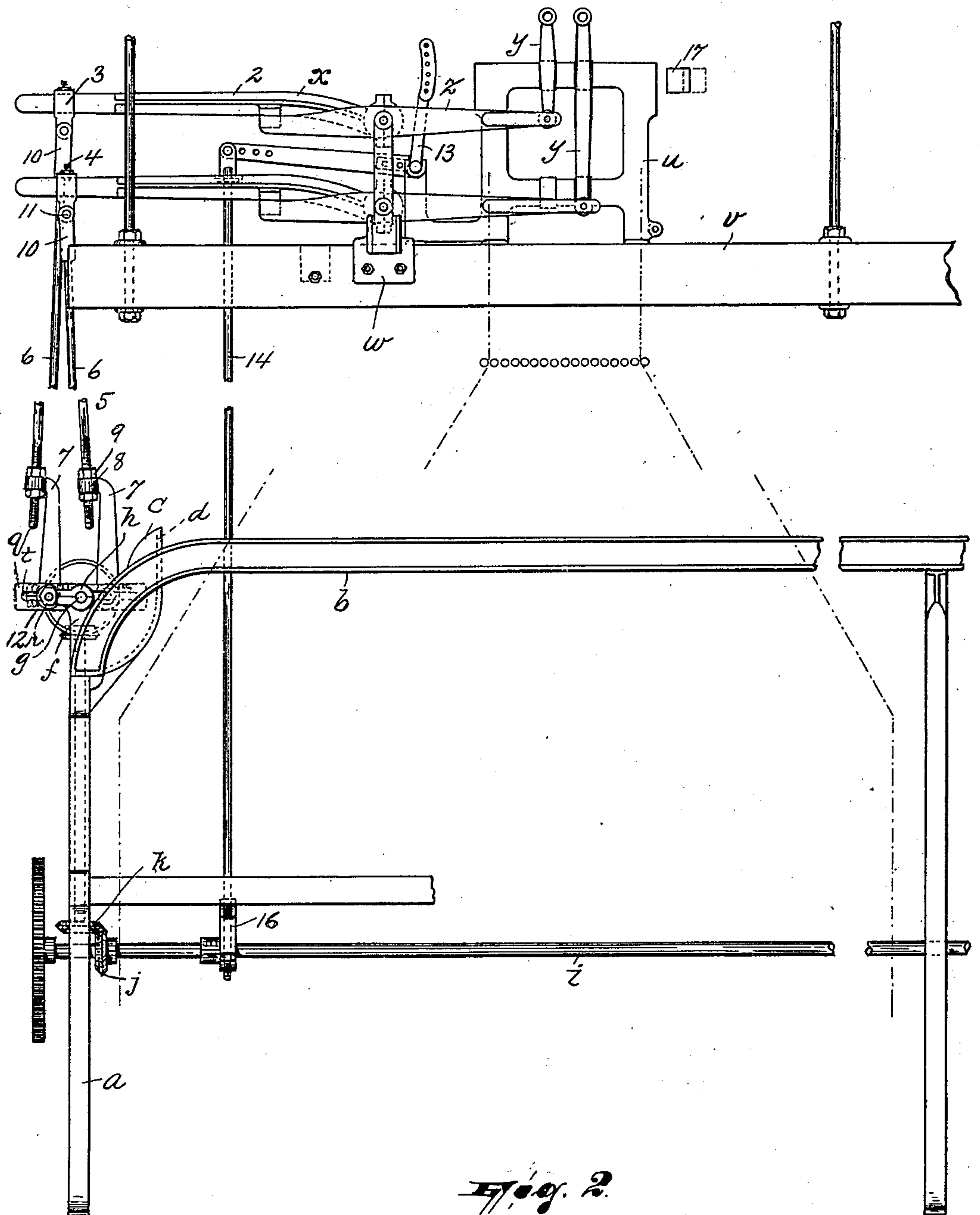
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UNITED STATES PATENT OFFICE.

OTTO W. SCHAUM, OF PHILADELPHIA, PENNSYLVANIA.

OPERATING MECHANISM FOR JACQUARD-MACHINES FOR LOOMS.

SPECIFICATION forming part of Letters Patent No. 667,458, dated February 5, 1901.

Application filed May 31, 1900. Serial No. 18,482. (No model.)

To all whom it may concern:

Be it known that I, OTTO W. SCHAUM, a citizen of the United States, residing in Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Operating Mechanism for Jacquard-Machines for Looms; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters and figures of reference marked thereon, which form a part of this specification.

This invention relates to looms, and it has reference particularly to the shedding mechanism of such machines.

In that form of shedding mechanism which the ordinary jacquard-machine constitutes levers are employed for actuating the griffs. At present in many looms motion is imparted to these levers from cranks or other revolving parts on one of the shafts of the loom, the connection between said levers and the cranks being directly effected through the medium of pitmen or connecting-rods. Now since the shaft extends in one direction, while the axes of the levers extend in another direction, being substantially at right angles to the shaft, the consequence is that the swinging motion of the cranks results in an undesirable lateral swaying or wobbling of the levers, and consequently, also, of the jacquard and, in fact, the whole superstructure of the loom, as said levers are vibrated, and this is more or less increased, of course, according to the length of the lever, which is necessarily considerable owing to the usual relative disposition of this kind of jacquard-machine and the cranks from which it is actuated. In order to obviate this lateral swaying or wobbling of the levers as they are vibrated and also obviate the use of knuckle-joints, I have provided means for transforming the motion which is imparted from the shaft to the connecting-rods or pitmen into one that vibrates each of said connecting-rods in a plane which is substantially coincident with that in which the corresponding lever vibrates, the arrangement at the same time being such as to in-

volve simplicity and the even or smooth working of this portion of the loom generally.

The invention is fully illustrated in the accompanying drawings, wherein—

Figure 1 is a view in end elevation of a loom and a double-lift jacquard-machine therefor, together with my improved mechanism for transmitting power from one of the shafts of said loom to the jacquard-machine; and Fig. 2 is a view in front elevation of substantially what is shown in Fig. 1.

a designates the frame of the loom, which comprises as a part of its structure two or more arched rails *b*, that span the main body of the frame, being sustained upon the several uprights thereof.

c designates a fender, which consists of a curved wall *d* and three other walls *e*, preferably integrally formed with the curved wall, so as to brace the same, and disposed as best shown in Fig. 1, two of said walls being the side walls of the fender and the third one being situated midway between them. The fender is bolted or otherwise secured in position between the arched rails *b*, being partially sustained thereby and by one of the end vertical uprights of the loom-frame. These several walls *e* of the fender are formed with integral projections *f*, which are disposed in horizontal alinement with each other and which provide bearings for a horizontal shaft *g*, bridge-pieces *h* being bolted upon said projections to complete the bearings, and thus keep the shaft *g* in place.

i designates a shaft journaled horizontally in the loom-frame and longitudinally thereof, said shaft being, if desired, the main shaft of the loom. This shaft carries a bevel-gear *j*, with which meshes another bevel-gear *k*, carried upon the lower end of the shaft *l*, that has bearings in the end upright of the frame upon which the fender *c* is partially supported. At its upper end the shaft *l* carries another bevel-gear *m*, which seats upon a bracket *n* on the loom that surmounts the end upright above referred to, said gear thus sustaining the shaft *l*. The bracket *n* has a vertical arm *o*, in the upper end of which the shaft *g* partially has its bearings, the end of the latter shaft which is adjacent the shaft *l* carrying a bevel-gear *p*, whose teeth are in

mesh with the teeth of the gear *m*. Thus as the shaft *i* is rotated the rotary motion is imparted therefrom through the shaft *l* to the shaft *g*.

5 Between the walls of each pair of walls *e* and carried by the shaft *g* is a pair of cranks *q*, the members of each pair of cranks being connected at their ends by bolts *r*, constituting crank-pins. It should be remarked that
10 the pairs of cranks project in diametrically opposite directions. It should also be remarked that the cranks have longitudinal slots *t*, in which the bolts are adjustable radially with reference to the shaft *g*, so as to
15 render variable the throw of the parts which they are adapted to actuate, as hereinafter described.

The jacquard-machine is designated by the reference character *u*, and it is mounted in
20 the usual manner upon suitable supporting-beams *v* above the loom. Upon said beams are secured vertical brackets *w*, in which are fulcrumed the levers *x*, whereby, through the medium of connecting-rods *y*, the griffs (not
25 shown) of the jacquard are adapted to be elevated. Each lever *x* consists of two parts, the main part *z* being fulcrumed between its ends in the brackets *w* and directly connected to the corresponding connecting-rods *y*, and
30 the other part 2 being fulcrumed in said brackets at one of its ends and resting upon some suitable projection at the free end of the part *z*. I make no claim to this construction of the lever in this application.

35 3 designates straps which are carried by the parts 2 of the lever *x* and which are adjustably secured thereon near their free ends by means of set-screws 4, with which said straps are provided.

40 5 designates the connection between each strap 3 and one of the crank-pins *r*. Each of said connections comprises a rod 6 and an arm 7, the rod being threaded at one end and receiving the tubular portion 8 of one end of
45 the arm, which is bent off substantially at right angles to itself, adjusting-nuts 9 being disposed on the rod for securing the rod and arm together. The free end of each rod is provided with a bifurcated coupling 10, which
50 is pivotally connected to one of the straps 3 by means of a pin 11. The free end of the arm 7 is enlarged, and together with the bridge-piece 12, which is bolted to it, receives, and provides a bearing for one of the crank-pins.

55 The mechanism comprised in the bell-crank lever 13, the connecting-rod 14, the eccentric 15 on the shaft *i*, and the eccentric-strap 16 is simply a portion of the means whereby the jacquard-cylinder 17 is adapted to be actuated. As this part of the jacquard-machine
60 is old and constitutes no part of my inven-

tion, further reference thereto is not deemed necessary.

The rotary motion that is imparted, as hereinbefore described, to the shaft *g* is of course 65 directly transferred to the levers *x*, and since said shaft and the fulcrum-axes of said levers are parallel it will be seen that the levers and the connections between the same and the shaft *g* must vibrate in substantially coinci- 70 dent planes, so that all tendency of the levers to vibrate in any degree laterally under the influence of their actuating means at least is obviated.

The jacquard apparatus herein referred to 75 being a double-lift jacquard the mechanism connecting it with the shaft is of course duplicated, as herein described and shown; but it will be understood that where a single-lift jacquard apparatus is used only one set of the 80 connecting mechanism is needed.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a loom, the combination, with the 85 frame, of a revoluble shaft journaled therein, a shedding mechanism, levers for operating said shedding mechanism, the fulcrum-axes of said levers extending transversely relatively to said shaft, another revoluble shaft 90 disposed parallel to said fulcrum-axes of the levers, pairs of slotted cranks carried by said last-named shaft, crank-pins arranged in the slots of, and connecting, said cranks, arms penetrated by said crank-pins, operative con- 95 nection between the shafts, and rods connecting said arms and the levers, substantially as described.

2. In a loom, the combination, with the 100 frame, of a revoluble shaft horizontally journaled therein, a shedding mechanism, levers for operating said shedding mechanism, said levers having their fulcrum-axes extending transversely relatively to said shaft, a fender mounted on said frame, another horizontal 105 shaft journaled in said fender and disposed parallel to said fulcrum-axes of the levers, cranks carried by said last-named shaft, operative connection between said cranks and the levers, a vertical shaft journaled in said 110 frame, and gearing connecting said shafts, said fender being disposed adjacent the portion of the gearing connecting said last-named horizontal shaft and the vertical shaft, substantially as described. 115

In testimony that I claim the foregoing I have hereunto set my hand this 17th day of November, 1899.

OTTO W. SCHAUM.

Witnesses:

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