

(No Model.)

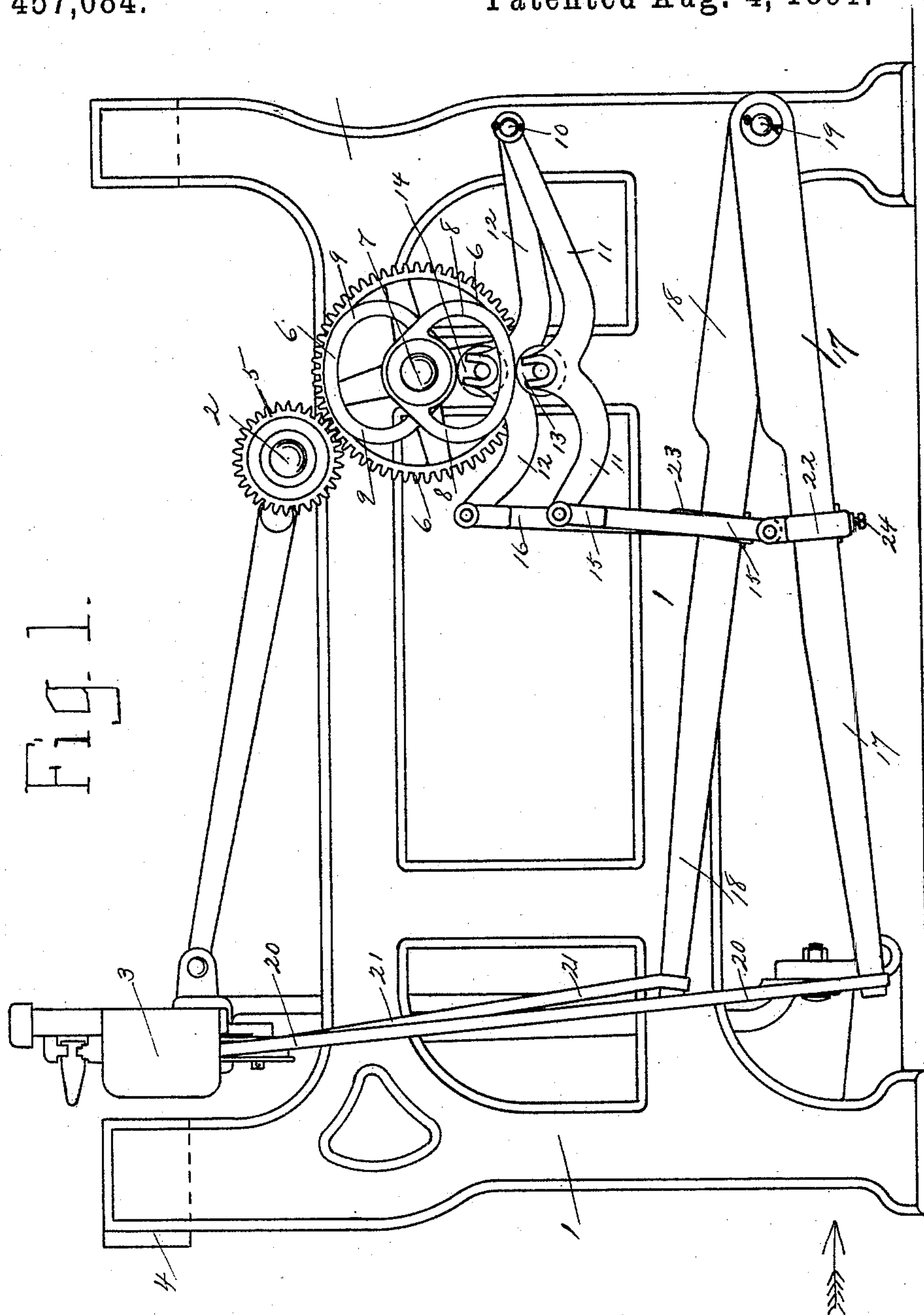
2 Sheets—Sheet 1.

G. F. HUTCHINS.

POSITIVE SHUTTLE OPERATING MECHANISM FOR LOOMS.

No. 457,084.

Patented Aug. 4, 1891.



Witnesses

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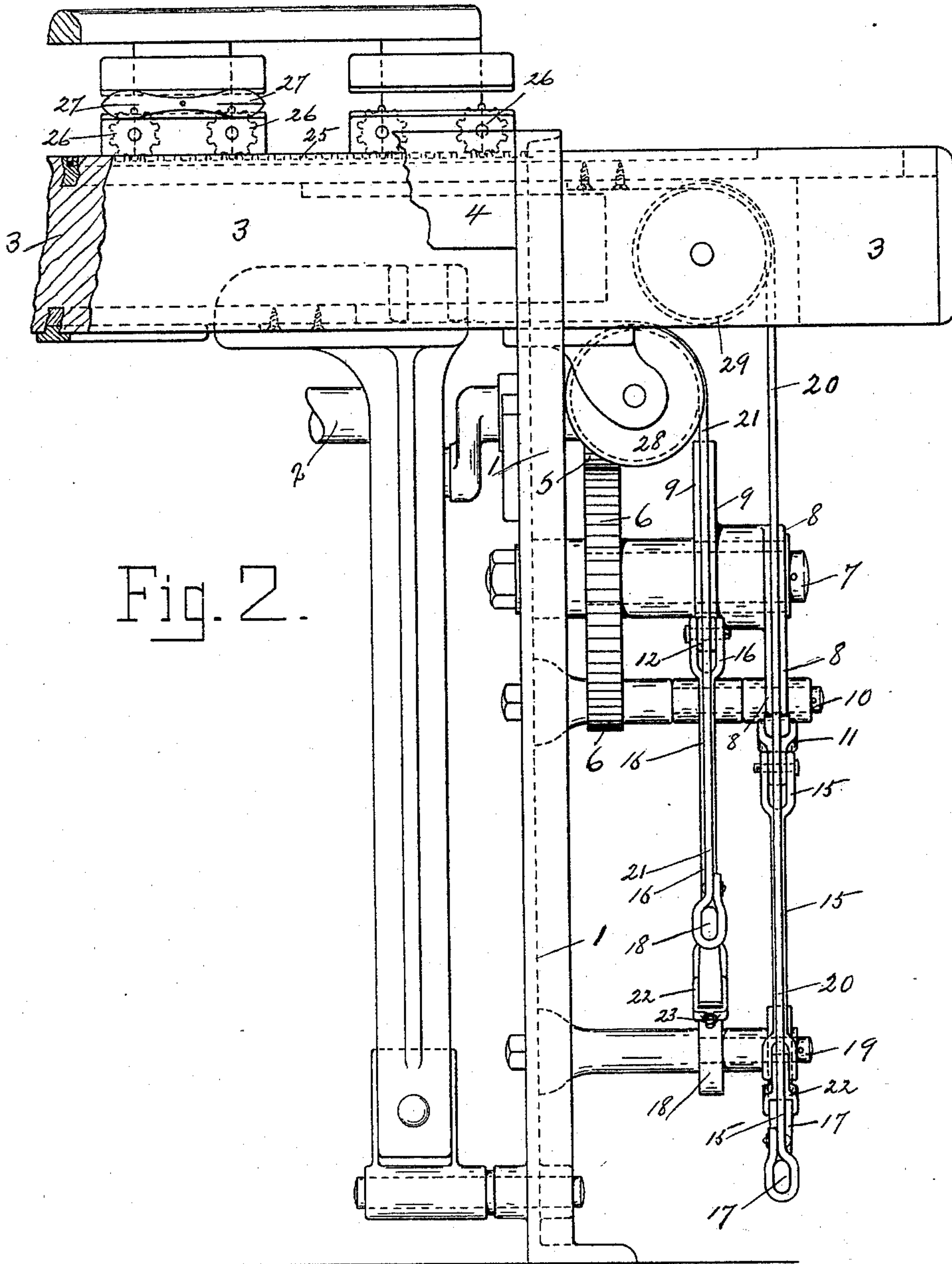


Fig. 2.

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UNITED STATES PATENT OFFICE.

GEORGE F. HUTCHINS, OF WORCESTER, MASSACHUSETTS, ASSIGNOR TO THE
KNOWLES LOOM WORKS, OF SAME PLACE.

POSITIVE SHUTTLE-OPERATING MECHANISM FOR LOOMS.

SPECIFICATION forming part of Letters Patent No. 457,084, dated August 4, 1891.

Application filed October 25, 1890. Serial No. 369,298. (No model.)

To all whom it may concern:

Be it known that I, GEORGE F. HUTCHINS, a citizen of the United States, residing at Worcester, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Looms; and I do hereby declare that the following is a full, clear, and exact description thereof, which, in connection with the drawings making a part thereof, will enable others skilled in the art to which my invention belongs to make and use the same.

My invention relates to looms, and more particularly to the shuttle-operating mechanism of narrow-ware looms.

The object of my invention is to improve upon the shuttle-operating mechanism of narrow-ware looms now ordinarily used, and to simplify the construction thereof and make more effective the operation of the same.

My invention consists in certain novel features of construction and operation of the shuttle-operating mechanism of narrow-ware looms, and more particularly in combining with two cams two sets of levers, one set of levers working on the cams and the second set of levers receiving motion from the first set and giving motion to the shuttle-rack mechanism by connecting-straps. The movement of the second set of levers is adjusted by changing the point of attachment of the connection to said levers, moving the same nearer to or farther from the fulcrum of said levers, all as will be hereinafter fully described.

Referring to the drawings, Figure 1 is a side elevation of a portion of a loom with my improvement applied thereto; and Fig. 2 is a front view, partly sectional, looking in the direction of arrow, Fig. 1.

I have shown in the drawings sufficient parts of a narrow-ware loom with my improvements applied thereto to clearly illustrate the nature of my invention.

In the accompanying drawings, 1 is the loom side; 2, the crank-shaft; 3, the lay, and 4 the breast-beam, all as ordinarily constructed and arranged in narrow-ware looms. On the crank-shaft 2 is fast the gear 5, which meshes with the gear 6, having twice the number of teeth and loose on a stud 7, fast on the

loom side 1. Secured to the gear 6 are two cams 8 and 9. On a stud 10, fast on the loom side, are hung the levers 11 and 12, carrying the rolls 13 and 14, which engage with and work on the cams 8 and 9, respectively. From the free ends of the levers 11 and 12 extend the connectors 15 and 16 to the levers 17 and 18, hung on the stud 19 on the loom side below the stud 10. From the free ends of the levers 17 and 18 run the straps 20 and 21, which give motion to the shuttle-rack in the lay 3, which operates the shuttles in the ordinary way. The connectors 15 and 16 between the levers 11 and 12 and levers 17 and 18 are preferably attached at their lower ends to the levers 17 and 18 by means of clamps 22 and 23, which may be moved on said levers toward or away from their fulcrum and secured in place thereon by set-screws 24.

The operation of my improved shuttle-operating mechanism for narrow-ware looms will be readily understood by those skilled in the art from the above description in connection with the drawings, and is as follows: The crank-shaft 2 revolves once in every beat of the lay, and as the gear 6 has twice the number of teeth of the gear 5 the cams 8 and 9 will revolve with the gear 6 once in every two beats. The two levers 11 and 12 work, respectively, with the two cams 8 and 9, one lever being on the high part of its cam when the other lever is on the low part of its cam, as shown in the drawings. The free ends of levers 17 and 18, operated by the levers 11 and 12, through the connections 15 and 16, are given more or less motion by adjusting the clamps 22 and 23 nearer to or farther from the fulcrum 19 of said levers. The lay 3 is made in the ordinary manner, with the rack-bar 25 and pinions 26 to drive the shuttles 27. The straps 20 and 21 pass over pulleys 28 and 29 to draw the shuttle-rack 25 first in one direction and then in the other. When the lever 11 is forced down by cam 8, the shuttle-rack 25, through connector 15, lever 17, and strap 20, is pulled one way, and when cam 9 forces down lever 12 the shuttle-rack 25, through connector 16, lever 18, and strap 21, is pulled the opposite way, and the lever 11 is drawn up onto the lower part of

cam 8 in the opposite position from what is shown in the drawings. It will thus be seen that the shuttle-rack 25, which operates the pinions 26 and the shuttles 27, is moved positively first in one direction and then in the other.

The details of construction of the several parts of my improvements may be varied somewhat from what is shown and described, if desired.

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

1. In a narrow-ware loom, the combination, with the shuttle-rack, two straps connected therewith and two levers connected to said straps, of two connectors adjustably attached at their lower ends to said levers and connected at their upper ends to two other levers, and said levers and two cams, each of said cams acting on one of the last-mentioned levers, and means for operating said cams to cause said levers to have a positive up-and-down motion, for the purpose stated, substantially as set forth.

2. In the shuttle-operating mechanism of a narrow-ware loom, the combination, with two

oppositely-arranged cams and means for operating the same, and two levers, each of said levers receiving motion from one of said cams, of two connectors from said levers to two other levers, said connectors adjustably attached at their lower ends to said last-mentioned levers, and said levers and two straps leading from said levers to the shuttle-rack, and said shuttle-rack for driving the shuttles, substantially as set forth.

3. In a narrow-ware loom, the combination, with a crank-shaft, a gear fast thereon driving a second gear, and said second gear and two oppositely-arranged cams moved with said second gear, of a pair of levers driven by said cams, connectors to a second pair of levers, said connectors adjustably attached at their lower ends to said second pair of levers, and said second pair of levers connected with and operating the straps connected with the shuttle-rack, and said straps and shuttle-rack, substantially as set forth.

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