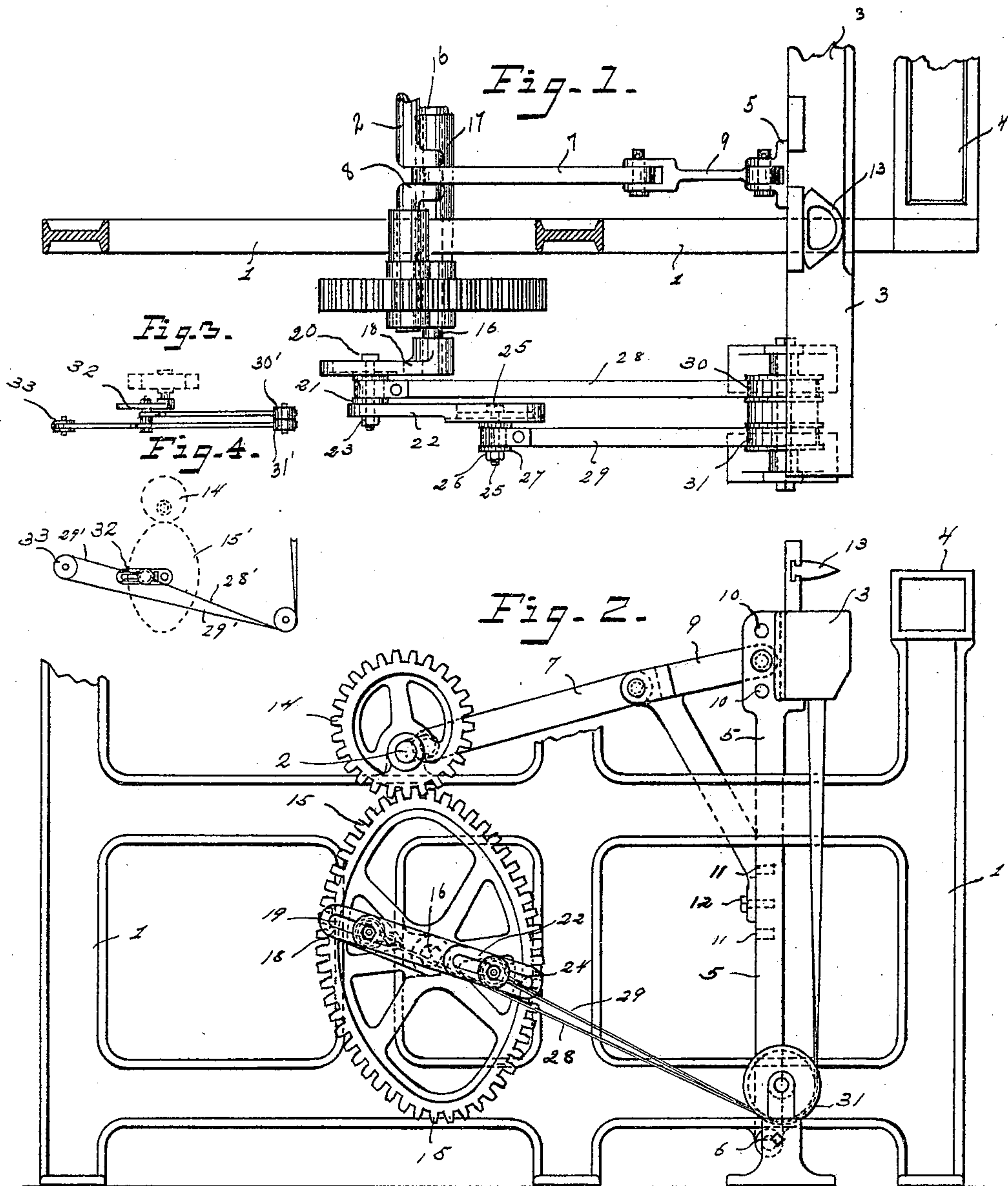


(No Model.)

O. W. SCHAUM.
NARROW WARE LOOM.

No. 460,662.

Patented Oct. 6, 1891.



Witnesses:

Clinton Alvord
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OTTO W. SCHAUM, OF PHILADELPHIA, PENNSYLVANIA.

NARROW-WARE LOOM.

SPECIFICATION forming part of Letters Patent No. 460,662, dated October 6, 1891.

Application filed November 28, 1890. Serial No. 372,768. (No model.)

To all whom it may concern:

Be it known that I, OTTO W. SCHAUM, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia, State of Pennsylvania, have invented certain new and useful Improvements in Narrow-Ware Looms; and I do hereby declare that the following is a full, clear, and exact description thereof, which, together with the drawings making a part of this specification, will enable others skilled in the art to which my invention belongs to make and use the same.

My invention relates to the shuttle-driving motion for narrow-fabric looms, such as tape and ribbon looms; and it consists of a gear on the crank-shaft in mesh with and driving a gear having twice the number of teeth of the first gear, the larger gear being provided with an adjustable double crank. This double crank is connected by two straps to the rack for driving the shuttles in the lay, and the rotation of the double crank draws the shuttle-rack first one way and then the other, as will be hereinafter fully described, and the nature thereof pointed out in the claim.

Referring to the drawings, Figure 1 is the plan view, partly in section, of my improved shuttle-motion, also showing the connection of the lay to the crank-shaft. Fig. 2 is a side elevation of the same. Fig. 3 is a partial plan view of a modification of my shuttle-motion. Fig. 4 is a side elevation of Fig. 3. Figs. 3 and 4 are drawn on a reduced scale.

1 represents the loom-frame, upon which the various pieces are hung; 2, the crank-shaft; 3, the lay or batten, and 4 the breast-beam, all in the usual positions. The lay 3 is carried on the lay-swords 5, which swing from the rockers 6, and is driven forward and back in each pick of the loom by the crank-connector 7, running from the crank 8 to the extension 9, fast on the lay-sword 5 of the lay 3. The sweep of the lay may be varied by adjusting the extension 9 up or down in the holes 10 in the lay-sword, there being corresponding holes in the lay-sword 5 to receive the screw 12. The shuttles 13, of which only one is shown, are driven across and back by means of a rack and pinion in the usual manner. The gear 14 is fast on the crank-shaft 2 and is in mesh with the gear 15, fast on the shaft 16, running in bearings 17, fast on the loom-

frame 1. On the extreme outer end of the shaft 16 is made fast the crank 18, provided with the slot 19. The bolt 20 passes through the slot 19, and by the pressure of the nut 23 holds the bushing 21 and the crank-arm 22 firmly up against the crank-arm 18. The crank-arm 22 is provided with a slot 24, through which passes the bolt 25, and by means of the nut 26 the bushing 27 is made fast to the crank-arm 22 at any desired point of the slot 24. The strap 28 is attached loosely around bushing 21, which is fast against crank-arm 18, and the strap 29 is attached loosely around the bushing 27, and these straps, after passing, respectively, over the pulleys 30 and 31, pass upward to the batten 3, where they are attached to the rack (not shown) for driving the shuttles 13.

The operation of my loom is as follows: The motion of the crank-shaft 2 is transmitted through the gear 14 to the gear 15, which is fast on the shaft 16, and consequently to the crank-arms 18 and 22. The crank-shaft 2 revolves once in every pick of the loom, and as the gear 15 has twice the number of teeth of the gear 14 the crank-arms 18 and 22 will revolve once in every two picks of the loom. The two crank-arms 18 and 22 are set opposite each other, and consequently when the arm 18 is pulling on the strap 28 and drawing the shuttle-rack one way the arm 22 is letting up on the strap 29, and vice versa, thus causing the shuttles 13 to travel either way either pick.

I have shown the gear 14 as eccentric and the gear 15 as made elliptic, so as to hurry up the motion of the shuttles when they are passing through the shed, and this is especially necessary on silk-ribbon looms, where the shed remains open for a short time only. The shuttles pass through the shed when the crank and batten are on the back center, and at that time the long part of gear 14 is working with the short part of gear 15, giving the crank-arms 18 and 22 a quick motion.

It is a well-known fact that a short crank connection will give quite a dwell on the batten when the crank is passing the back center, and the extension 9 can be made longer or shorter, and the connection 7 correspondingly shorter or longer, as may be desired, to get as much dwell as required. The extra

5 dwell on the batten thus acquired is useful in giving more time at the back center of crank 8 for the passage of the shuttles. This dwell motion on the batten is used almost exclusively on silk goods.

10 In Figs. 3 and 4 I have shown a modification of my shuttle-motion. In this case I have only one adjustable crank 32, and while one strap 28 passes directly to the pulley 30 near the floor and then to the batten the other strap 29 passes backward over pulley 33, and from that to the pulley 31, and then to the batten. The crank 32, being fast on the same shaft with the gear 15, revolves with
15 it as though it were fast on the gear itself. It should be noticed that the shuttles stop and dwell at the extreme throw of the cranks 18 and 22 by reason of the cranks passing the center, and also that the relative position of
20 the cranks 18 and 22 with the gear 15 is such that when the cranks are passing the center the gear 15 is running at its slowest speed. Ordinarily the shuttle-motion is driven by some kind of a cam, and the connecting-straps
25 are run loose, so as to get a dwell at the extreme throws, and also so as to make one cam give the motion for two different shuttle-

spaces. This arrangement causes the shuttle to start and stop very suddenly—a thing which is very injurious to the shuttle-rack and pin- 30 ions in the batten; but on my shuttle-motion I give plenty of dwell at each end of the throw, and I can also easily adjust the throw of the shuttles to any length of shuttle-space by reason of the adjusting-slots in the crank- 35 arms. It is also obvious that the shuttle will start and stop very quietly.

Having described my invention, what I claim as new, and desire to secure by Letters Patent, is— 40

In a loom, the combination, with an eccentric gear fast on the crank-shaft and an auxiliary elliptic gear provided with twice the number of teeth as the first gear and in mesh therewith, of an adjustable double crank 45 fixed to said auxiliary gear and adapted to be adjusted thereon, with means for said adjustment, a rack which operates the shuttles, and connections therefrom to said crank, substantially as described.

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Witnesses:

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