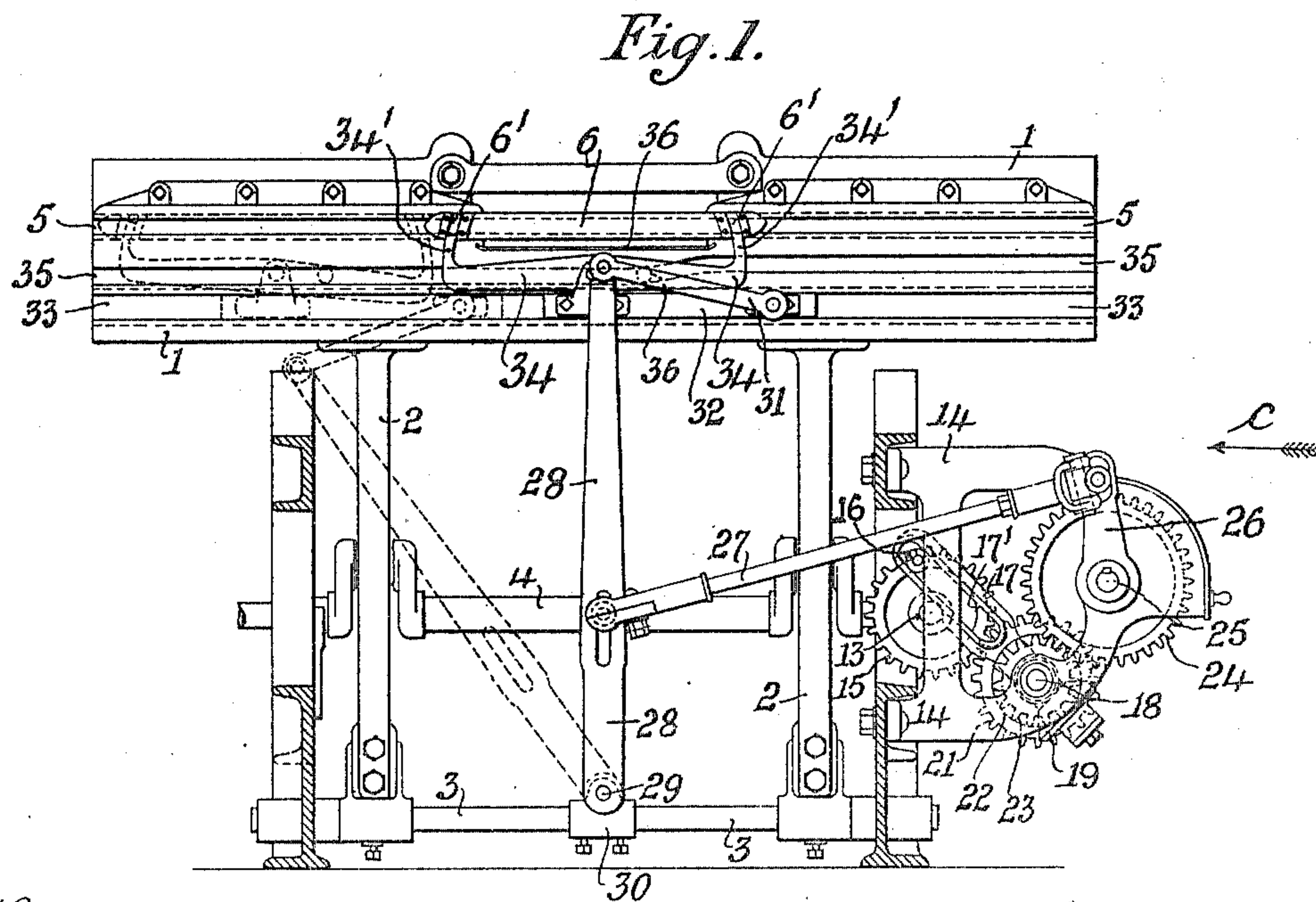
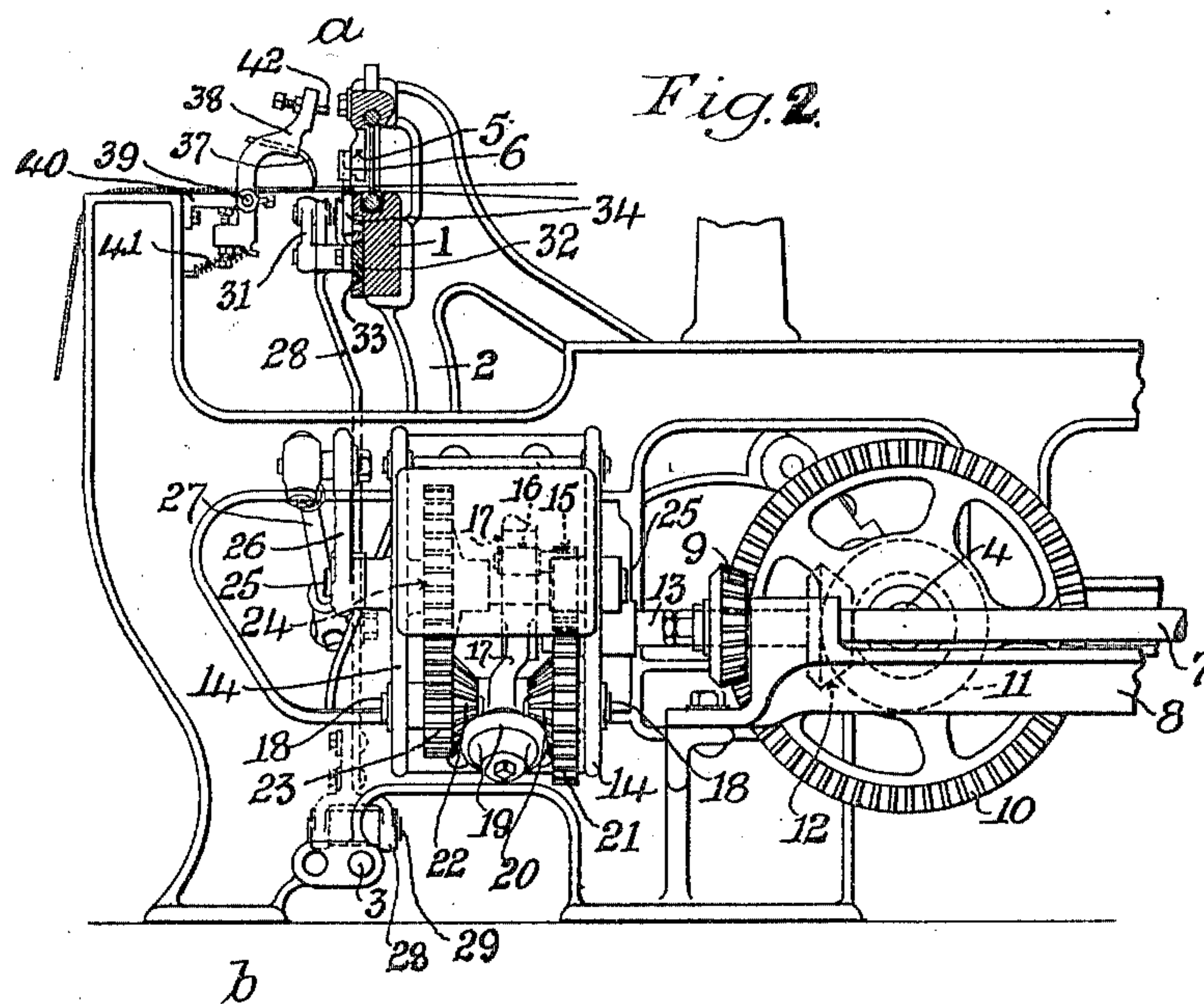


No. 811,847.

PATENTED FEB. 6, 1906.

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LOOM FOR WIRE FABRICS OR GAUZE.  
APPLICATION FILED OCT. 20, 1904.



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# UNITED STATES PATENT OFFICE.

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## LOOM FOR WIRE FABRICS OR GAUZE.

No. 811,847.

Specification of Letters Patent.

Patented Feb. 6, 1906.

Application filed October 20, 1904. Serial No. 229,226.

*To all whom it may concern:*

Be it known that I, EDWARD HOLLINGWORTH, a subject of King Edward the VII of England, residing at Dobcross, in the county of York, England, have invented certain new and useful Improvements in Looms for Weaving Wire Fabrics or Gauze, of which the following is a specification.

This invention relates to looms for weaving wire fabric or gauze, and particularly to the shuttle motion of said looms, the object of my invention being to provide an improved motion or means for carrying or traversing the shuttle across the loom and for giving a dwell at each extremity of motion or traverse of the shuttle to admit of the beat up of the lay against the last shoot of wire placed in the "shed."

Referring to the drawings, Figure 1 is a front elevation, taken on line *a b*, Fig. 2, of a wire-weaving loom having my improvements applied thereto; and Fig. 2 is a side elevation of same looking in the direction of arrow *c*, the lay being shown in section.

In the accompanying drawings, 1 represents the lay, carried by the lay-swords 2, which are secured on the shaft 3 and coupled by connecting-rods to the crank-shaft 4; 5, the shuttle-race at the front of the lay; 6, the shuttle, and 7 the main driving-shaft, supported in bearings in the stand or bracket 8, bolted to the side frame of the loom and imparting motion through bevel-pinion 9, fast on said shaft, to bevel-gear 10, fast on the crank-shaft 4, to drive said shaft, all as ordinary.

At the rear of the bevel-gear 10 is a bevel-gear 11, meshing with a bevel-gear 12, fast on a short shaft 13, supported in bearings in the stand 14, bolted to the side frame of the loom. On the front end of the short shaft 13 is fast a gear 15, to the face of which is secured a stud or roll 16, extending outwardly and entering a longitudinal slot 17' in an arm or lever 17, mounted loosely on a short shaft 18, journaled in bearings in the stand 14, the said arm being extended beyond the shaft 18 and having a rounded extremity to form a stud, whereon is loosely secured a bevel-gear 19, which meshes with a bevel-gear 20, formed on or secured to a gear 21, mounted loosely on the shaft 18 and gearing with the gear 15

on shaft 13, which when driven from the bevel-gears 11 and 12 transmits a constant rotary motion thereto and to the bevel-gear 19. The said bevel-gear 19 also meshes with a second bevel-gear 22, likewise loosely mounted on the shaft 18 and formed on or secured to a pinion 23, which meshes with a gear 24, fast on a short shaft 25, journaled in bearings in the stand 14, the front end of said shaft having in this instance secured thereon a crank-arm 26, to which is pivotally connected one end of a connecting-rod 27, whose opposite end is pivotally connected to a vertical arm or lever 28. The lever 28 occupies a position midway of the side frames of the loom and is pivoted at 29 on a boss 30, secured to the shaft 3, on which the lay-swords are mounted, so as to move backward and forward bodily with the lay.

The rotary motion imparted by gear 15 to the gear 21 gives, through bevel-gear 20, a constant rotation to the loose bevel-gear 19, which by reason of the oscillation of the arm or lever 17 by the stud or roll 16 and slot connection 17' is carried through the arc of a circle around the shaft 18 first in one direction and then back again. In its forward stroke the bevel-gear 19 acts to drive the bevel-gear 22, which through gears 23 and 24 gives motion to the shaft 25, the crank-arm 26 thus being rotated to the extent necessary to oscillate the lever 28 from one extreme position, as indicated in dotted lines in Fig. 1, to its opposite extreme position; but on the return stroke of the bevel-gear 19 it rides over the bevel-gear 22 without rotating the same, thus giving no motion to the series of gears 22, 23, and 24, and allowing the lever 28 to dwell on reaching its extreme position. The next forward stroke of the bevel-gear 19 causes the lever 28 through the intermediate gearing and connection to be oscillated to its opposite extreme position and again dwell during the following return stroke of the bevel-gear 19, the cycle of events being constantly repeated during the running of the loom and intermittently oscillating the lever 28. The direction of motion of the parts when driven is always in the same direction.

To the upper end of the vertical oscillating lever 28 is pivotally connected one end of a link 31, whose opposite end is pivotally con-



nected to a block or sliding piece 32, adapted  
 to be moved endwise by said lever and link  
 in a dovetailed race or way 33 in the front of  
 the lay. On the said sliding block 32 is  
 5 swiveled or centrally pivoted a compound or  
 two armed lever 34, having its extremities  
 upturned or provided with upwardly-project-  
 ing fingers 34', which are curved to the arc of  
 a circle described from the pivot-center of the  
 10 lever. The lever 34 is parallel with the shut-  
 tle 6, and near each end of the said shuttle  
 I form recesses or openings 6', into which the  
 respective fingers or upturned ends 34' of the  
 lever are adapted to pass freely and to en-  
 15 gage with the side walls thereof to traverse  
 the shuttle backward and forward across the  
 loom. The recesses or openings 6' in the  
 shuttle are preferably curved to the same ra-  
 dius as the fingers 34'.  
 20 In the lay 1 between the races 5 and 33, in  
 which the shuttle 6 and sliding piece 32, re-  
 spectively, register and slide to and fro across  
 the loom, I cut or form a suitable cam groove  
 or race 35, into which extends a stud or roll  
 25 36, carried by the lever 34. Said stud, as the  
 lever is carried backward and forward across  
 the loom, travels along the cam-groove and  
 as it rides from one place to the other thereof  
 causes the lever 34 to be oscillated on its cen-  
 30 ter to move the curved extension or finger at  
 one end thereof into engagement with its re-  
 spective recess or opening in the shuttle and  
 move the curved extension at the opposite  
 end of the said lever out of engagement with  
 35 the shuttle, the engagement and disengage-  
 ment of the two fingers or projections with  
 their respective recesses in the shuttle taking  
 place at or beyond the selvages of the wire  
 fabric or gauze being woven or the sides of  
 40 the shed—that is to say, as the lever 28 and  
 link 31 slide the block 32 and lever 34, pivoted  
 thereon, to and fro across the loom the up-  
 turned finger at one end of said lever engages  
 with its respective recess in the shuttle as the  
 45 latter emerges from one side of the shed and  
 carries the shuttle forward fully out of the  
 shed and then back to the shed or from the  
 position shown in full lines to that shown in  
 dotted lines in Fig. 2 and back again. The  
 50 roll 36, in riding from one plane to the other  
 of the cam-slot 35, withdraws one finger from  
 engagement with the shuttle and simulta-  
 neously engages the other therewith, one hav-  
 ing hold before the other moves clear, where-  
 55 by on leaving the shed at each side the  
 shuttle is engaged by one or the other of the  
 upturned fingers and traversed fully out of  
 the shed and back again, first at one side and  
 then the other. The lever 28 is shown in  
 60 full line in Fig. 1 in its middle position, as is  
 also the shuttle. The dwell of the lever 28  
 takes place at each extremity of motion or  
 traverse of the shuttle and admits of the beat  
 up of the lay against the last shoot of wire  
 65 weft placed in the shed. A guard 36' for the

warp extends between the points of connec-  
 tion and disconnection of the upturned fin-  
 gers 34' with the shuttle.

In order to hold the last shoot of wire weft  
 until the lay beats up and take up the ten- 70  
 sion thereof, bent fingers 37 are provided,  
 these being secured to arms or levers 38,  
 mounted on a rock-shaft 39, carried by bracket  
 or brackets 40, and held normally in position  
 by spring or springs 41. As the lay 1 beats 75  
 up it strikes against the stud 42, secured to  
 the arms 38, and forces back the said arms  
 against the tension of the spring or springs  
 41, the bent fingers 37 thus being elevated  
 clear of the fell of the fabric until the said 80  
 last shoot of wire weft is beaten up, when as  
 the lay recedes the arms 38 are released and  
 drawn down by the springs to engage the fin-  
 gers with the next shoot of wire weft.

In Fig. 1 the lay is shown part way ad- 85  
 vanced to the limit of its forward stroke, and  
 the loose oscillating slotted arm or lever 17 is  
 shown in its highest position.

It will be understood that the details of  
 construction of my improvements may be va- 90  
 ried, if desired.

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

1. In a loom of the class described, the com- 95  
 bination with a continuously-driven gear or  
 pinion, and an oscillating lever, and connec-  
 tions from said lever to a shuttle, for travers-  
 ing the shuttle across the loom, of mechan-  
 ism intermediate said continuously-driven 100  
 gear or pinion, and said oscillating lever, to  
 cause said lever to dwell at each extremity of  
 its movement, said mechanism consisting of  
 a gear having a stud or roll thereon entering  
 a longitudinal slot in an arm or lever, and 105  
 said lever loosely mounted on a shaft, and  
 having loosely mounted on one end a bevel-  
 gear which meshes with a bevel-gear mount-  
 ed loosely on a shaft, and said bevel-gear hav-  
 ing peripheral teeth thereon meshing with a 110  
 pinion on a continuously-driven rotary shaft,  
 and said shaft, a second bevel-gear loosely  
 mounted and in mesh with the bevel-gear on  
 said lever, and having peripheral teeth there-  
 on which mesh with a gear, and said gear, 115  
 and a crank connected therewith, and a con-  
 nection from said crank to the oscillating le-  
 ver.

2. In a loom of the class described, a lever 120  
 centrally pivoted on a block or slide and  
 adapted to be moved endwise to and fro  
 across the lay, said lever having upturned fin-  
 gers or projections adapted to enter corre-  
 sponding recesses or grooves in the respective  
 ends of the shuttles, a cam groove or slide in the 125  
 lay, which is engaged by a stud or roll on said  
 lever, to move said lever as it is carried across  
 the lay, to cause one finger on said lever to be  
 engaged with and the other to be disengaged  
 from the shuttle, alternately, connections in-



intermediate said slide and an oscillating lever,  
and said oscillating lever, and means for giving  
a dwell thereto at each extremity of its  
movement, said means consisting of a con-  
5 tinuously-driven gear or pinion, a gear hav-  
ing a stud or roll thereon entering a longitu-  
dinal slot in an arm or lever, and said lever  
loosely mounted on a shaft, and having  
loosely mounted on one end a bevel-gear,  
10 which meshes with a bevel-gear mounted  
loosely on a shaft, and said bevel-gear, hav-  
ing peripheral teeth thereon meshing with a

pinion on a continuously-driven rotary shaft,  
and said shaft, a second bevel-gear loosely  
mounted, and in mesh with the bevel-gear on 15  
said lever, and having peripheral teeth there-  
on which mesh with a gear, and said gear, and  
a crank connected therewith, and a connec-  
tion from said crank to the oscillating lever.

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