

(No Model.)

W. F. KINTZING.
SHUTTLE MOTION FOR LOOMS.

No. 542,525.

Patented July 9, 1895.

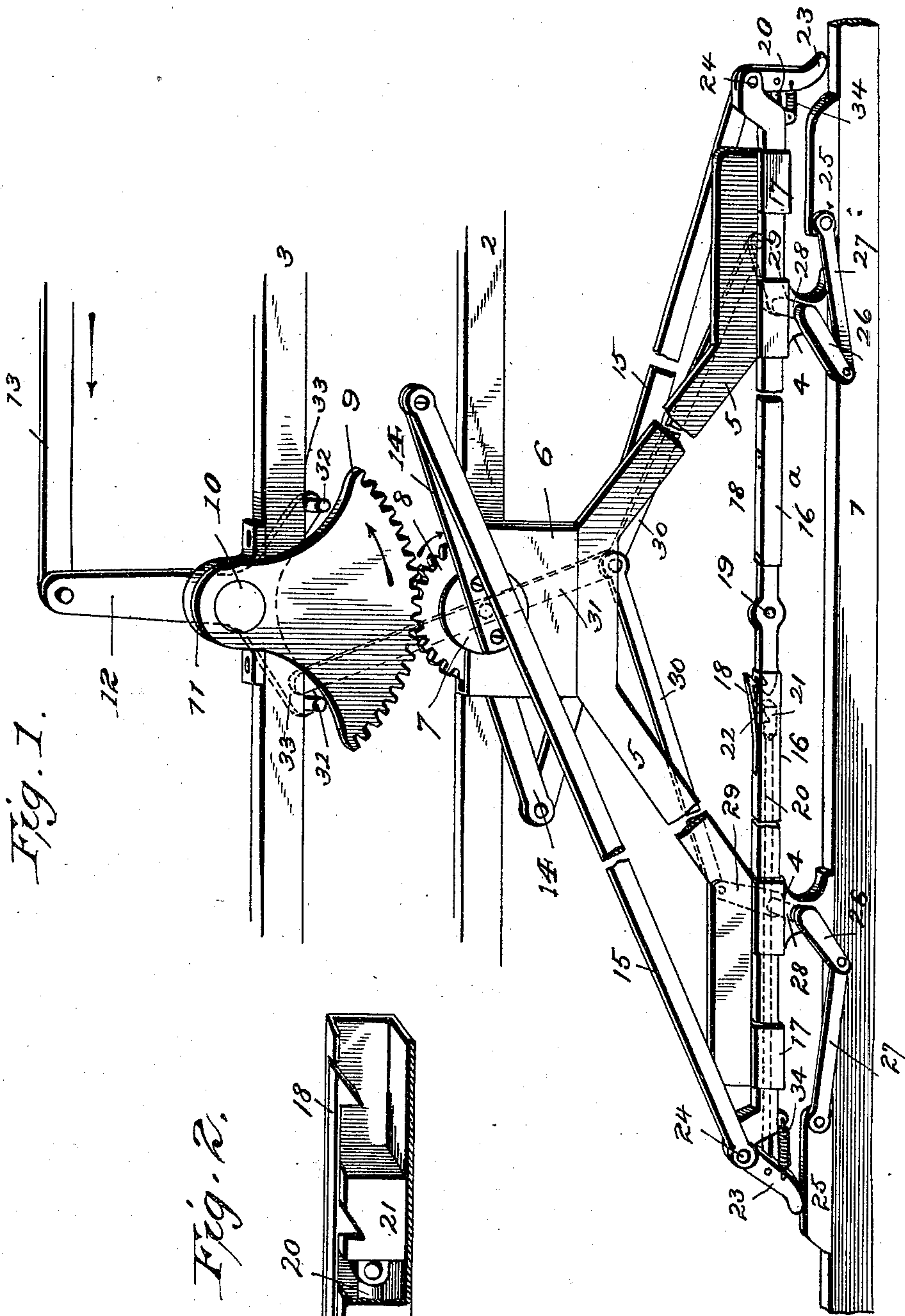


Fig. 1.

Fig. 2.

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WILLIAM F. KINTZING, OF GLEN ROCK, PENNSYLVANIA, ASSIGNOR, BY MESNE ASSIGNMENTS, TO W. C. KOHLER, PAUL J. BECK, ISRAEL GLATFELTER, WM. J. REIDER, JOSEPH DISE, SAMUEL K. DIEHL, EDWARD F. EYSTER, AND A. S. NORRISH, OF SAME PLACE.

SHUTTLE-MOTION FOR LOOMS.

SPECIFICATION forming part of Letters Patent No. 542,525, dated July 9, 1895.

Application filed April 23, 1894. Serial No. 508,688. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM F. KINTZING, a citizen of the United States, residing at Glen Rock, in the county of York and State of Pennsylvania, have invented certain new and useful Improvements in Shuttle-Motions for Looms; and I do 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 the figures of reference marked thereon, which form a part of this specification.

My invention relates to improvements in shuttle-motions for looms, particularly for that class of looms for weaving wire-cloth; and it has for its object to provide improved mechanism for reciprocating the shuttle-bars, from one to the other of which the shuttle is alternately transferred in the reciprocation of the two bars.

It has further for its object to provide improved means for alternately releasing the shuttle from the bars in their reciprocation, so that it may be carried first by one shuttle-bar and then by the other.

To the accomplishment of the foregoing and such other objects as may hereinafter appear the invention consists in the construction and in the combination of parts hereinafter particularly described, and then sought to be specifically defined by the claims, reference being had to the accompanying drawings, forming a part hereof, and in which—

Figure 1 represents in side elevation so much of a loom-frame as is necessary to show the application of my invention, the features of the invention being shown in side elevation; and Fig. 2 is an enlarged detail, with parts broken away, showing the shuttle-catch and releasing mechanism.

In the drawings, the numerals 1, 2, and 3 designate portions of the frame of a wire-weaving loom of any approved pattern.

Upon the lower cross-piece 1 are placed boxes 4, which sustain a brace-frame 5, which supports a box 6, in which is journaled a shaft 7, carrying a cog-wheel 8, which is ro-

tated by means of a suitable rack, which is preferably, although not necessarily so, in the form of a segment 9, whose teeth mesh with those of the cog-wheel 8, and which is carried by a shaft 10, journaled in a box 11, secured to the cross-piece 3, which shaft 10 has an arm or crank 12, to which one end of a rod 13 is pivotally connected, said rod being suitably connected with an appropriate part of the loom mechanism, (not illustrated,) so that said rod may be reciprocated for the purpose of oscillating the segment 9 to impart motion to the cog-wheel 8.

To opposite sides of the shaft 7 are attached the oppositely-extending arms 14, to the outer end of which are pivotally connected the pitman-rods 15, one of which is pivotally connected at its lower end to the shuttle-bar 16, and the other one likewise connected to the shuttle-bar 16^a, both of which shuttle-bars slide in the boxes 4 and through sleeves 17, extending from the brace-frame 5.

The shuttle-bars are hollow, and each is provided with a spring-catch 18 for holding the shuttle 19, which is of any approved pattern. Through each of the shuttle-bars passes loosely a rod 20, (illustrated by dotted lines in the shuttle-bar 16,) each of which rods is provided at its inner end with a wedge-shaped block 21, adapted to be drawn against a wedge-shaped projection 22 on the under side of the spring-catch, so as to release said catch from engagement with the end of the shuttle as the shuttle is to be transferred from one shuttle-bar to the other. Only one of these rods and wedge-shaped blocks is shown in dotted lines, which, however, is sufficient, as both are alike and operate in the same manner and one will be understood from the other. Each of these rods is pivotally connected at its outer end to a lever 23, pivoted at its upper end by a bolt 24 to the outer end of one of the two shuttle-bars. Each of these levers 23 is acted on in alternation at the proper time to actuate the wedge-shaped block through its rod to release the spring-catch from the shuttle to permit the shuttle to be transferred from one shuttle-bar to the other in alternation, in order that it may be carried by the shuttle-bar with which

it is in locking engagement. Any suitable form of cam and operating mechanism may be employed for this purpose; but I prefer the construction shown, which consists of the sliding
 5 cams 25, guided in any suitable manner upon the cross-piece 1. These cams are actuated by suitable mechanism, the preferred construction being the crank-arms 26, each connected by a link 27 with its respective cam and
 10 secured to a shaft 28, suitably journaled and having at its other end a crank-arm 29, with which is pivotally connected at one end a rod 30, the two rods 30 being pivotally connected at their meeting ends to the lower end of a
 15 lever 31, which may be fulcrumed between its ends to the cross-piece 2. The upper end of this lever 31 lies in the path of travel of the two pins 32, which project from the two arms 33, extending from a hub secured to the
 20 shaft 10, so as to oscillate with that shaft.

The rack 9, cog-wheel 8, arms 14, and driving-rods 15 will be so proportioned and arranged relatively to each other that the two shuttle-bars will move inwardly toward each
 25 other and then separate and move outwardly from each other, one shuttle-bar carrying the shuttle from the limit of its outward movement inwardly, when the shuttle is transferred to the other shuttle-bar and by it carried
 30 outwardly to the limit of its outward movement and then back again to the limit of its inward movement, when it is taken by the other shuttle-bar and carried outward and then brought inward and transferred to the
 35 other shuttle-bar, and so on in alternation during the entire operation of the machine, the adjacent ends of the two shuttle-bars being in position for the transfer of the shuttle from one bar to the other when the rack
 40 9 is at the middle of its movement, as illustrated in the drawings.

The arms 33, the lever 31, the rods 30 and connections between them, and the cams 25 will be so proportioned and arranged relatively to one another and to the shuttle-bar
 45 driving mechanism that the spring-catch 18 will be released from the shuttle 19 at the time the shuttle is to be locked to the other shuttle-bar by impelling the cam against the
 50 lever connected with the wedge-shaped block, which releases the spring-catch, as illustrated in the left of the figure of the drawings, while the cam which actuates the other lever will be drawn inward from under that lever, as
 55 illustrated in the right of the same figure, this movement being imparted in alternation first to one cam and then the other throughout the entire period of the operation of the machine.

The relative relation of the arm 31 to the
 60 pins 32 will be such that the pins will not act on the arm to disengage the shuttle until after the shuttle-bar has caused the shuttle to engage the spring-catch of the adjacent shuttle-bar, when the pin will act on the arm to throw
 65 the cam to disengage the catch from the end of the shuttle-bar which has completed its stroke.

In order to retract the levers 23 after the cams have passed from under the same and thus move inwardly the wedge-shaped blocks
 70 21, so that the spring-catches 18 may be in normal position to automatically engage with the shuttle as it is to be transferred from one shuttle-bar to the other, I connect the levers
 75 23 by means of springs 34 with the shuttle-bars, as illustrated, so that said springs will draw the levers and the rods of the wedge-shaped blocks to their normal position.

The operation of the devices will be apparent to those skilled in the art from the foregoing description, and the operation therefore
 80 need not be more fully enlarged upon.

This invention provides a simple construction for accomplishing the objects in view and a construction in which the parts are not
 85 liable to become deranged and which will operate for a long time without repairs.

I have described and illustrated with particularity the preferred details of construction of the several parts; but it is obvious that
 90 such details can be varied and the forms of the parts changed without departing from the essential features of the invention.

It may be added that this construction will allow the parts to be run faster than other
 95 constructions and that their successful working will not be impaired by wear of the parts and any lost motion that may result therefrom.

Having described my invention and set forth its merits, what I claim is—

1. In a shuttle motion for looms, the combination with the shuttle bars and means for operating the same, of a catch to each shuttle
 105 bar to engage the shuttle, a lever pivoted to each shuttle bar and reciprocable therewith, a reciprocating rod connected to each lever and having a member to engage the catch of each shuttle bar to release the same from the
 110 shuttle, a reciprocating cam to act on each of said levers, an oscillating lever having connection with said reciprocating cams to throw the same in and out of engagement with said levers in alternation to release the shuttle
 115 from the shuttle bars, and means for shifting said oscillating lever, substantially as and for the purposes described.

2. In a shuttle motion for looms, the combination of the shuttle bars provided with a
 120 catch, the shaft carrying the crank-arms driving rods connecting said shaft with said shuttle bars, a pivoted lever at the outer end of each shuttle bar, a reciprocating rod connected with each of said levers to actuate said catch to release the shuttle from the shuttle
 125 bar, a toothed wheel mounted on the shaft of said crank-arms, a rack engaging the teeth of said wheel, means for actuating said rack, cams reciprocable beneath the pivoted levers to which the shuttle releasing rods are connected, an oscillating lever, rods connected with said lever and having connection with said reciprocable cams, and means for shifting the oscillating lever to slide the cams be-

neath the said pivoted levers, substantially as and for the purposes described.

3. In a shuttle motion for looms, the combination of the shuttle bars, the shaft carrying the crank arms and connected by driving rods with said shuttle bars, the toothed wheel mounted on the shaft of said crank arms, the rack engaging the teeth of said wheel, means for actuating said rack, the oscillating lever 10 31, the arms carrying pins to move said lever in opposite directions, rods connected to said oscillating lever, cams connected with said

rods to be actuated therefrom, and mechanism acted on by said cams for releasing the shuttle from the shuttle bars in alternation, 15 substantially as and for the purposes described.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM F. KINTZING.

Witnesses:

CHAS. H. HEINDEL,
ELI W. ROHRBAUGH.