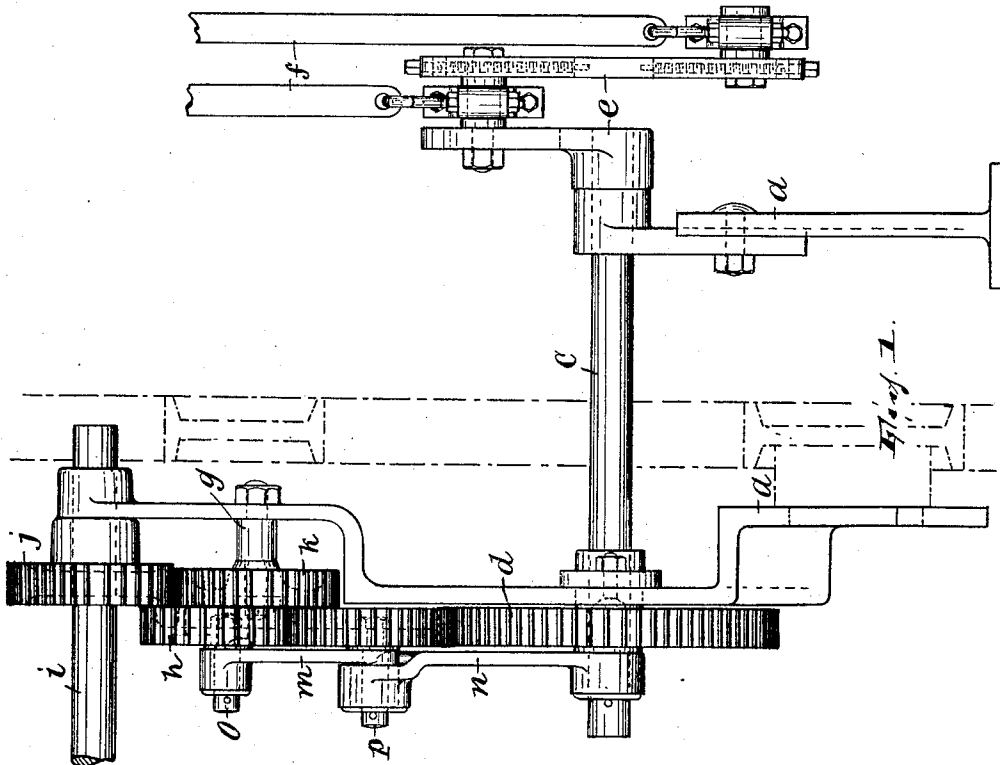
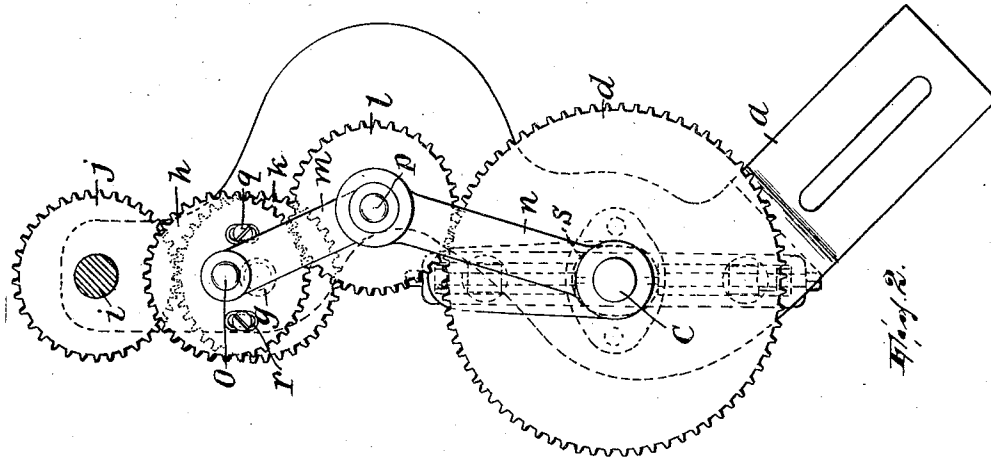


A. WIDMER.
DRIVING MECHANISM FOR LOOMS.
APPLICATION FILED FEB. 3, 1912.

1,052,542.

Patented Feb. 11, 1913.

2 SHEETS—SHEET 1.



WITNESSES

Wm. Zell.
Clara Kaufmann.

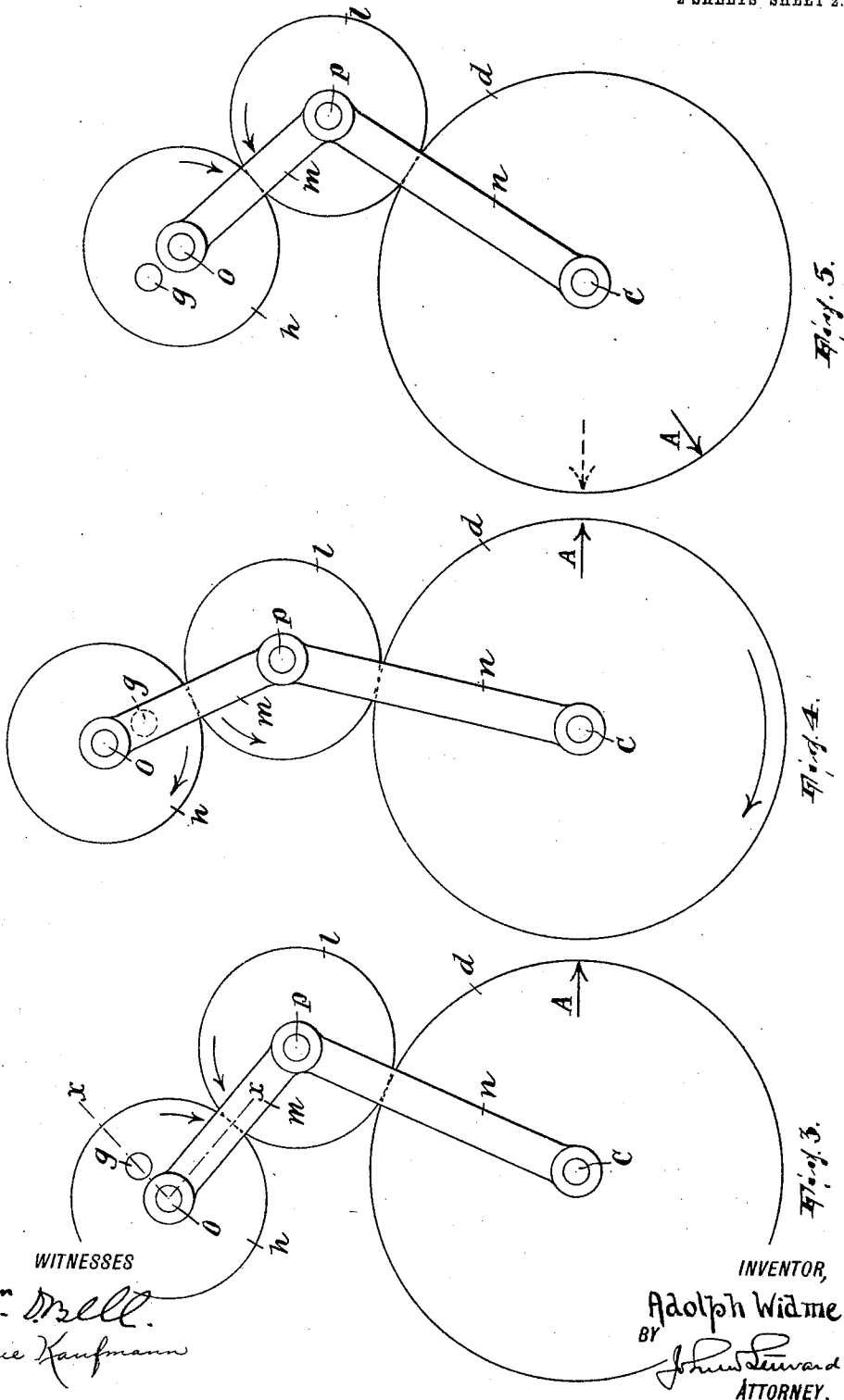
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WITNESSES

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Elise Kaufmann

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UNITED STATES PATENT OFFICE.

ADOLPH WIDMER, OF PATERSON, NEW JERSEY.

DRIVING MECHANISM FOR LOOMS.

1,052,542.

Specification of Letters Patent.

Patented Feb. 11, 1913.

Application filed February 3, 1912. Serial No. 675,229.

To all whom it may concern:

Be it known that I, ADOLPH WIDMER, a citizen of the United States, residing at Paterson, in the county of Passaic and State of New Jersey, have invented certain new and useful Improvements in Driving Mechanisms for Looms, of which the following is a specification.

This invention relates to means whereby changing conditions, in respect to motion, may be accomplished in some driven parts in looms and machinery of that character, for instance, in the means for driving the shuttles of a loom of the narrow ware type wherein, as is well known, it is desirable that the velocity of the shuttles be alternately accelerated and retarded and that a dwell should occur upon the shuttles reaching each of their limits of movement, so as to give the batten opportunity to accomplish the beating-up before the shuttles are again moved.

The object of my invention is to provide a simple, durable, and efficient mechanism of this character so constructed that it may be readily adjusted to alter the extent of the dwell without resort to expedients which would unduly encumber the mechanism with parts only useful for the adjustment or which would destroy the self-contained character of the mechanism or require material reorganization of its members in order to effect the adjustment.

In the accompanying drawing, Figure 1 is a front elevation of the improved mechanism; Fig. 2 a side elevation; and Figs. 3 to 5 diagrams illustrating the positions of the parts during a single cycle of the driven member of the mechanism.

In said drawings, *a* designates suitable supporting means in which is journaled some rotary member of the loom whose motion is to proceed under changing conditions. In the present instance said rotary member may include a shaft *c* and a peripherally toothed gear *d* and a double crank *e* fixed on the shaft; to the double crank *e* may be attached in the usual manner the straps or other flexible connections *f* which are attached to the shuttle-actuating rack of the loom, mutually coöperating so that in the rotation of the crank said straps alternately advance the rack, reciprocating it.

Having a stud *g* in the support *a* as its axis of motion is the eccentric driving member *h*, the same being in the form of a

peripherally toothed pinion. In the present instance the driving member is itself driven from the crank shaft *i* of the loom through the intermeshing peripherally toothed pinions *j* and *k*, the former fixed on the shaft *i* and the latter journaled on stud *g* and carrying pinion *h*, and the pinion *h* having its axis of rotation (stud *g*) at its center.

l is a rotary transmission member in the form of a peripherally toothed pinion which is in intermeshing engagement with gear *d* and pinion *h*. It may be held in such engagement in any suitable way, but I prefer to employ for this purpose a toggle-connection comprising links *m* and *n*. The link *m* is pivotally connected at one end to a stud *o* projecting concentrically from the driving member *h*; link *n* is pivoted at one end of the shaft *c*; and the other ends of the links *m* and *n* are pivotally connected together by a stud *p* which projects centrally from transmission member *l*.

The operation will be understood on reference to the diagrams. As the driving member *h* sweeps around its axis of rotation *g*, alternately approaching and receding from the driven member, the transmission member sweeps outwardly and inwardly, as illustrated in the several diagrammatic views. It of course follows, owing to the eccentric mounting of the driving member, that the rotary movement imparted to the transmission member is one which alternately increases and decreases in velocity, the periods between changes in velocity being theoretically *nil*. A motion of similar character might be expected at first sight to be imparted to the driven member but, as a matter of fact, while the movement of that member is also characterized by alternately increasing and decreasing velocities, a period of dwell occurs following the decrease of velocity and prior to the succeeding increase of velocity, thus: While the member *h* is rotating from the position in Fig. 3 to that in Fig. 4, although it rotates and so turns the transmission member around its axis *p*, the rotation of the latter does not result in rotation of the driven member because, inasmuch as at this time the member *l* is allowed by the receding peripheral quadrant of member *i* between the radial lines *x-x* in Fig. 3 to move bodily to the left at a velocity compensating for the peripheral speed of the transmission

member l , the latter simply rolls idly around the driven member. When member h reaches the position shown in Fig. 4, the driven member is again put in motion, as will be obvious, continuing in motion until the position shown in Fig. 3 is again reached, the movement being at first gradually increasing and then gradually decreasing; the point at which maximum velocity occurs in the driven member will be where the rise of the periphery of the driving member on the transmission member and the bodily movement of the transmission member to the right exert their best coöperative effort in turning the driven member.

By comparing Figs. 3 and 4 it will be seen from the arrows A that the driven member stands at a dwell while the driving and transmission members are moving from the positions shown in Fig. 3 to those shown in Fig. 4. Fig. 5 shows the parts in one of the positions they occupy while the driven member is being rotated, so that the arrow A stands short of the point it will occupy when the next dwell occurs and which will be then indicated by the dotted arrow in Fig. 3 when the diameters of d and l are as illustrated.

The pinion h is secured to the carrier pinion k by bolts g which are arranged in pinion k and penetrate slots r in pinion h . These slots extend parallel with that diameter of pinion h which extends from the point of its highest to the point of its lowest eccentricity. Thus adjustment of the pinion h in two ways is permitted: It may be shifted to different positions, without any rotary movement thereof in doing so, in the direction of the length of said diameter, changes in its position in this respect producing changes in the extent of the dwell;

or it may be shifted on one of the bolts g as an axis (that is, rotatively), the result of which will be of course to cause the dwell to occur earlier or later in each cycle of rotation of pinion k than it occurs in the relative disposition of the parts as seen in the diagrams. This simple form of adjustment is of considerable value in a mechanism of this character, inasmuch as it allows one and the same organism to be universally adapted for changing conditions in respect to the dwell in a single loom (or other machine) or in different looms, without the interchange of parts or substitution thereof for others which is usually incident to the employment of other types of gearing or the like mechanisms of its general class.

The slot s in Fig. 1 is to permit adjustment of the driven member vertically.

I do not wish to be limited to the precise construction and arrangement of parts herein shown and described, what I claim being:

The combination, with a suitable support, of a rotary driving member and a rotary driven member, one of said members being journaled in the support, a carrier journaled in the support and carrying the other member, the latter member being adjustable in the carrier rotatively and radially relatively to the axis of rotation of the carrier, and a shifting rotary transmission member held in peripheral engagement with each of the first two members, substantially as described.

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

ADOLPH WIDMER.

Witnesses:

JOHN W. STEWARD,
WM. D. BELL.