F. A. WHITMORE.

WIRE MOTION FOR LOOMS.

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960,211. Patented May 31, 1910.

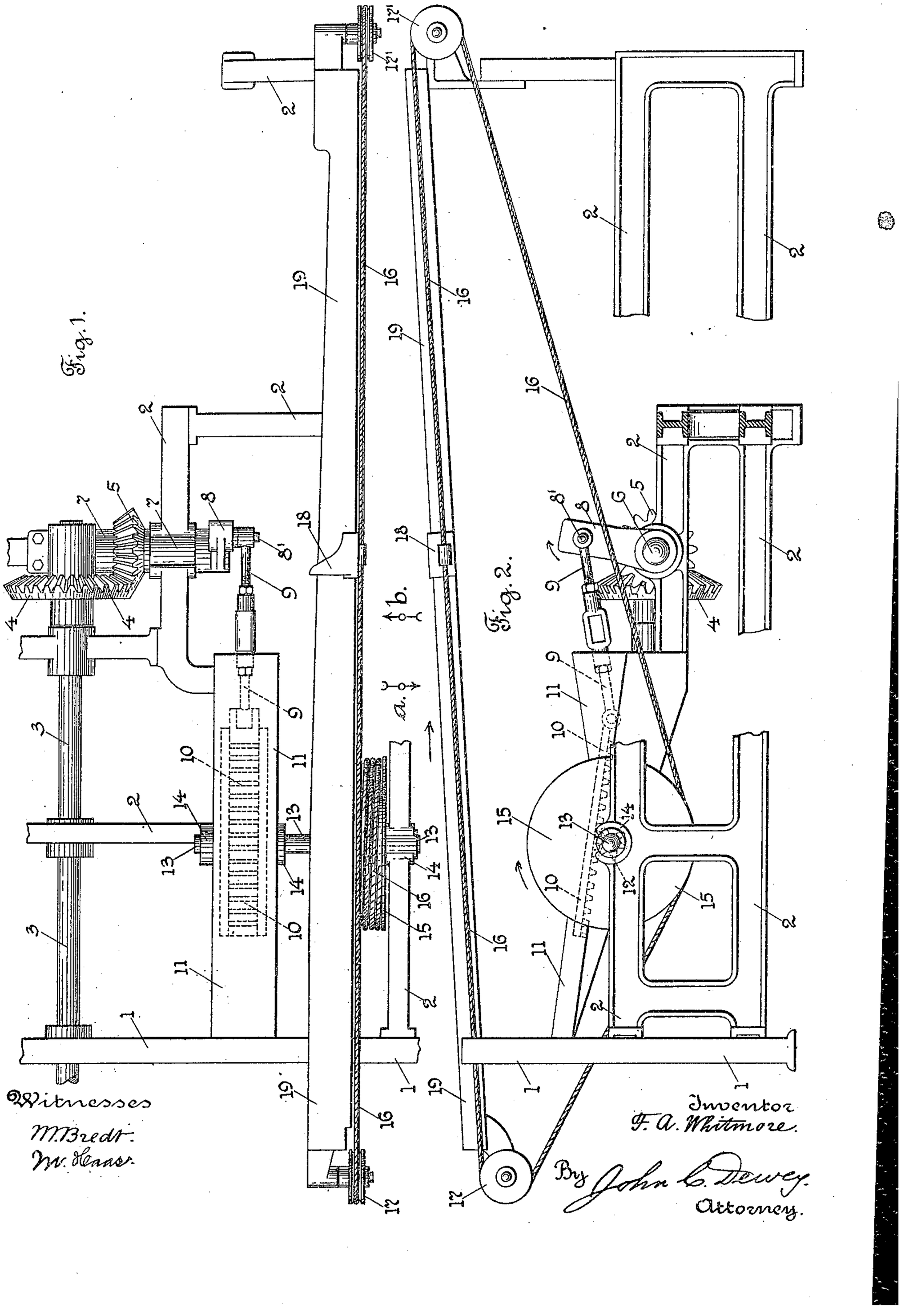

Fig. 1.

Fig. 2.

Witnesses

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WIRE MOTION FOR LOOMS.

960,211. Specification of Letters Patent. Patented May 31, 1910.

Application filed October 28, 1909. Serial No. 525,192.

To all whom it may concern:

Be it known that I, FRED A. WHITMORE, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Wire Motions for Looms, of which the following is a specification.

My invention relates to a wire motion for looms, or to mechanism for inserting and withdrawing the pile wire in looms for manufacturing tapestry carpets, or other pile fabrics, and the object of my invention is to provide a simple and positive mechanism for—inserting and withdrawing—the pile wire.

My invention consists in certain novel features of construction of my improvements as will be hereinafter fully described.

I have only shown in the drawing a detached part of a loom frame, and the bottom or cam shaft of a loom, with my improved wire motion or mechanism combined therewith, sufficient to enable those skilled in the art to understand the construction and operation thereof.

Referring to the drawing:—Figure 1 is a plan view of my improvements in loom wire motion, looking in the direction of arrow *a*, Fig. 2, and, Fig. 2 is a front view of the improvements shown in Fig. 1, looking in the direction of arrow *b*, same figure.

In the accompanying drawing, 1 is the loom side or end frame, having bolted thereto the different parts of the frame 2, which frame supports the wire motion.

3 in this instance is the bottom or cam shaft from which the wire motion is ordinarily driven. On the cam shaft 3 is fast a bevel gear 4, which meshes with and drives a bevel gear 5, which is fast on one end of a short cross shaft 6, mounted in suitable bearings 7 on the frame 2. On the other end of the shaft 6 is secured a crank arm 8, carrying the crank pin 8′, which has pivotally connected thereto one end of an adjustable pitman or connector 9; the other end of said pitman or connector 9 is pivotally connected to one end of a rack 10. The rack 10 is suitably guided in a bar or plate 11, and meshes with and rotates a pinion 12, which is preferably secured on one end of a shaft 13, which is journaled in suitable bearings 14 on the frame 2. The other end of the shaft 13 has secured thereon the cord drum 15, around which is wound a cord or rope 16, which passes over two guide sheaves 17, and 17′, suitably supported. The cord or rope 16 is connected with the wire hook or clamp 18, which slides back and forth on a bar 19, through the revolution of the crank arm 8, and intermediate connections to the cord 16, to insert and withdraw the pile wire, not shown.

The shaft 6, carrying the crank arm 8, is located in a plane below the plane of the movement of the rack 10, and the crank arm 8 turns in the direction of the arrow Fig. 2. By reason of the relative position of the shaft 6 carrying the crank arm 8, and the plane of movement of the rack 10, a slower motion is communicated to said rack 10 during a part of the rotation of the crank 8, and consequently to the drum 15, the cord 16, and the clamp 18, and the other part of the rotation of the crank 8 a quicker motion is communicated.

As the rack 10 is rigidly guided in the bar or plate 11 it will reciprocate in a constant plane of movement, which, however, is above the axis of the shaft 6, so that the plane of reciprocation of the pivoted connection between the said rack 10 and the pitman or connector 9, will always be above the said shaft 6, the axis of which is out of line of the plane of movement of said rack. From this it results that the rack will be moved in one direction during something more than one-half of a revolution of the shaft 6, and will be moved in the opposite direction during something less than one-half of a revolution of the said shaft, thus imparting to the said rack a slower motion in one direction than in the other. The time of the slower and quicker motion of the clamp 18 is so regulated, that the wire connected with the clamp 18 will be withdrawn during the slower motion of the clamp, and inserted during the quicker motion.

The operation of my improvements in wire motion will be readily understood by those skilled in the art. My improvements are of simple construction, and can be readily combined with a carpet or other pile fabric loom, of ordinary construction.

It will be understood that the details of construction of my improvements may be varied if desired.

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

1. In a mechanism for inserting and withdrawing the pile wires of a pile fabric loom, the combination with a cord carrying the wire hook or clamp, of a drum around which said cord passes, a pinion operatively connected with said drum, a rack engaging said pinion, means for guiding said rack in a constant plane, a shaft having its axis in a plane which is out of line of the plane of movement of said rack, said shaft being provided with a crank, and a pitman connected at one end to said crank and having a jointed connection at its other end with said rack, whereby differential movements in opposite directions will be imparted to said wire hook or clamp, the wire withdrawing movement of the said hook or clamp being slower than the wire inserting movement thereof.

2. In a mechanism for inserting and withdrawing the pile wires of a pile fabric loom, the combination with a cord carrying the wire-hook or clamp, of a drum around which said cord passes, a shaft on which said drum is mounted, a pinion secured to said shaft, a rack engaging said pinion, means for guiding said rack in a constant plane, a second shaft having its axis in a plane which is out of line of the plane of movement of said rack, said second shaft being provided with a crank, and a pitman jointed to said crank and to said rack, whereby differential movements in opposite directions will be imparted to said wire hook or clamp, the wire withdrawing movement of the said hook or clamp being slower than the wire inserting movement thereof.

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Witnesses:
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