

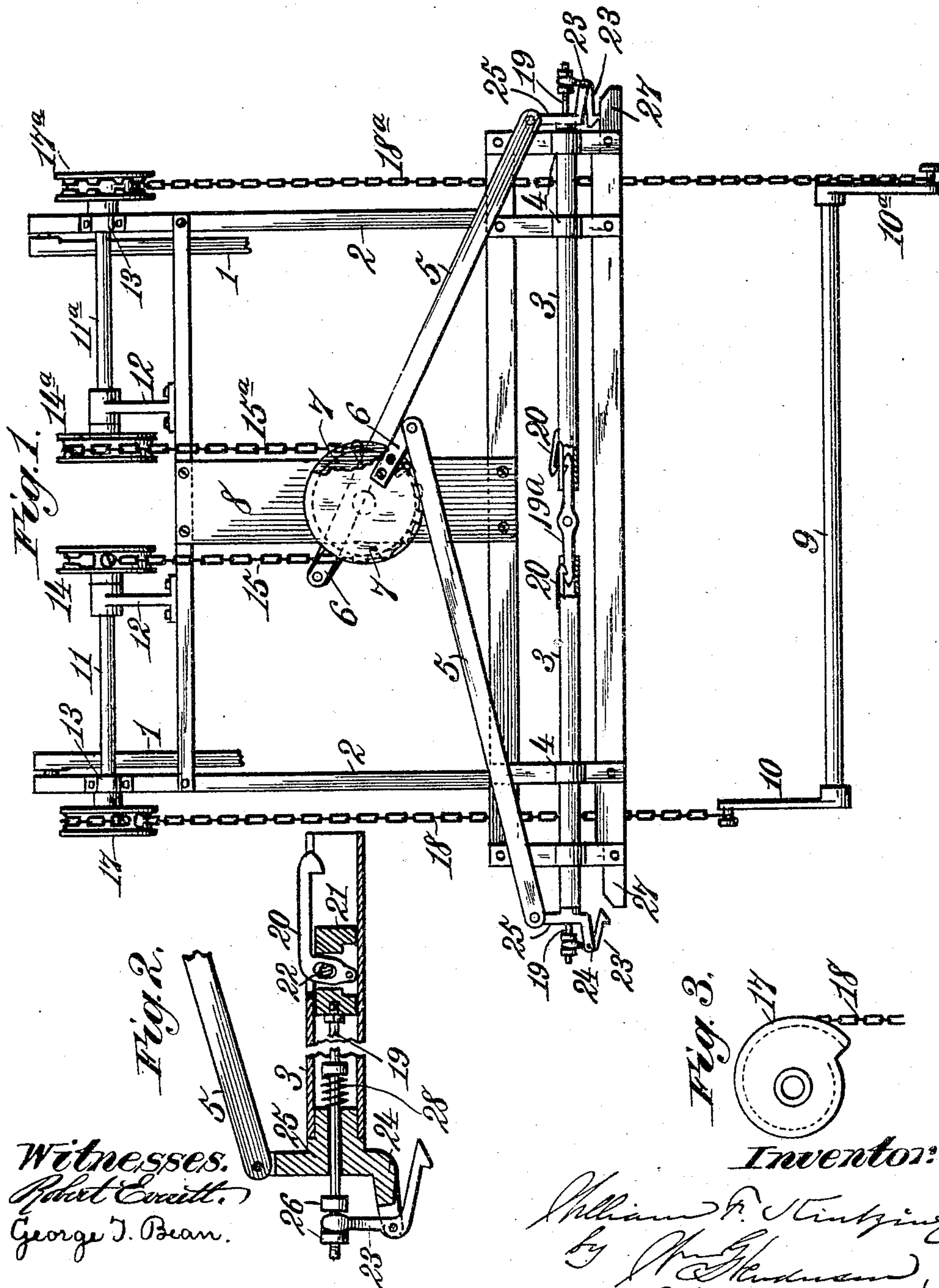
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W. F. KINTZING.
SHUTTLE MOTION FOR LOOMS.

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NO MODEL.



Witnesses.
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UNITED STATES PATENT OFFICE.

WILLIAM F. KINTZING, OF HANOVER, PENNSYLVANIA.

SHUTTLE-MOTION FOR LOOMS.

SPECIFICATION forming part of Letters Patent No. 773,396, dated October 25, 1904.

Application filed February 25, 1904. Serial No. 195,153. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM F. KINTZING, a citizen of the United States, residing at Hanover, 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 shuttle-motions for looms, and while designed with particular reference to looms for weaving wire-cloth yet is adapted for looms weaving other material.

The invention has for its object to provide improved means for operating the shuttle-bars and also to provide improved means for releasing the shuttle at the proper time for its transfer from one shuttle-bar to 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 arrangement of parts hereinafter particularly described and then sought to be clearly defined by the claims, reference being had to the accompanying drawings, forming a part hereof, and in which—

Figure 1 is a front elevation of so much of a loom as is necessary to illustrate the manner of applying my invention thereto. Fig. 2 is a detail, on an enlarged scale, illustrating means for releasing the shuttle; and Fig. 3 is a detailed view of one of the sheaves or pulleys, from which a chain extends to the crank-shaft hereinafter mentioned.

In the drawings the numeral 1 designates a part of the loom-frame from which is swung the lathe-frame 2, which carries the shuttle-movement and which comprises generally the shuttle-bars 3, adapted to slide in the brackets 4, the pitmen 5, which connect the shuttle-bars with the crank-arms 6, attached to the chain-wheels 7, journaled in the plate 8, so as to lie one on each side of said plate, and shaft 9, having cranks 10 and 10^a, from which power will be transmitted to the chain-wheels 6, the

pitmen, and shuttle-bars by means hereinafter to be described. The shaft 9 will be provided with cams to bear against levers connected by links to heddle-frames, which parts are not illustrated because they are well known and an illustration of which may be found in United States Letters Patent No. 737,939, granted to me September 1, 1903, and which are omitted here for purposes of clearness in illustrating the other parts and because they form no part of the present invention.

The numerals 11 and 11^a designate two horizontally-disposed shafts journaled in suitable brackets 12 and boxings 13, secured to the lathe-frame 2. These shafts carry at their inner ends grooved sheaves or pulleys 14 and 14^a, from which extend chains 15 and 15^a, which at their lower ends are connected to the chain-wheels 7, one to each wheel. The opposite ends of the shafts 11 and 11^a carry grooved sheaves or pulleys 17 and 17^a, from which extend chains 18 and 18^a, which at their lower ends are attached to the cranks 10 and 10^a of the shaft 9. As the shaft 9 revolves the crank 10 at one end thereof will pull on the chain 18^a so as to turn the sheaves 17^a and 14^a in a direction to wind one chain, 15^a, on the sheave 14^a and unwind the other chain, 15, from the sheave 14 and cause the chain-wheels 7 to turn so as to move the pitmen 5 in directions which will cause the shuttle-bars 3 to reciprocate, one of which will carry the shuttle 19^a out and back, when it will be grasped by the hook of the other shuttle-bar and carried the remainder of its travel and then back to be caught by the other shuttle-bar, as usual in this type of looms, each shuttle-bar catching the shuttle on its outward movement after it has been brought in by the companion shuttle-bar, the several parts being so proportioned and relatively arranged that the bar receiving the shuttle will receive it at a point beyond the center or limit of its inward movement and while on its outward movement, as illustrated, for instance, in Fig. 1 of the drawings. The bar from which the shuttle is released travels outward and then inward and again slightly outward before it receives the shuttle from the other bar which has carried

it outward and brought it back to a point where it will be received by the other bar and at the same time released from the bar carrying it, for which purpose the double chain-wheel 7 will make nearly a complete revolution—for instance, say fifteen-sixteenths of a revolution—in one direction and then in the other direction. By arranging the sheaves 14 14^a and 17 17^a as illustrated the chains 15 15^a and 18 18^a will run therefrom in straight lines, as shown, so that there will be less friction and there will be no liability of the chains being pulled from off their sheaves and the parts will run easier and with less noise.

In order to take up the slack in each chain 18 18^a in the upward movement of the chain, I form the sheaves 17 and 17^a cam-shaped, as illustrated in Fig. 3, so that the slack will be taken up by said cam in the winding of the chain around the sheave, and thus rattling will be prevented and a steadier movement obtained.

The hollow shuttle-bars 3 each contain a rod 19, which at its inner end is connected with a hook 20—say through the instrumentality of a sliding block 21 and pin 22, as in my Patent No. 737,939, or otherwise—and at its outer end is connected to a bent lever 23, which is pivoted to an arm 24, extending from a member 25, which connects the pitman 5 with the shuttle-bar. One arm of the lever 23 loosely encircles or straddles the rod 19 and is limited in its movement by the shoulders or collars 26 on the rod. The outer end of the lever 23 extends toward and is in line with a cam 27 and carried by the lathe-frame 2. When on the inward movement of the shuttle-bar it reaches the point for the release of the shuttle, the inturned arm of lever 23 strikes the cam 27 and rides over it, so that the end of the lever is raised and the other end thrown outward, so as to shift the rod 19 outwardly, and thus lift the hook 20 and unlock the shuttle as it is grasped by the corresponding hook of the other shuttle-bar. When on the outward movement of the shuttle-bar the lever leaves the cam 27, the spring 28, which was compressed in the other movement of the rod, now expands and returns the rod and the hook to their normal positions. This makes a simple and durable and easy-working means for actuating the shuttle-holding hook.

I have illustrated and described with particularity the preferred details of construction

and arrangement of the several parts; but it is to be understood that changes can be made therein and essential features of my invention be retained.

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

1. In a shuttle-motion for looms, the combination of the reciprocating shuttle-bars, pitmen for transmitting motion to said bars, rotatable means connected with said pitmen, shafts carrying sheaves at opposite ends, chains connecting one set of said sheaves with said rotatable means, and chains connecting the other set of sheaves with mechanism for rotating the sheaves, substantially as described.

2. In a shuttle-motion for looms, the combination of the reciprocating shuttle-bars, pitmen for transmitting motion to said bars, rotatable means connected with said pitmen, shafts carrying sheaves at opposite ends, chains connecting one set of said sheaves with said rotatable means, and chains connecting the other set of sheaves with mechanism for rotating the sheaves, one set of sheaves having cams for taking up slack in the chains, substantially as described.

3. In a shuttle-motion for looms, the combination of the reciprocating shuttle-bars, pitmen for transmitting motion to said bars, rotatable means connected with said pitmen, sheaves provided with chains connected at one end to the sheaves and at the other end to said rotating means, and mechanism for rotating said sheaves to wind the chain upon one sheave while unwinding the chain from the other sheave, substantially as described.

4. In a shuttle-motion for looms, the combination with the shuttle-bars, and mechanism for reciprocating same, of longitudinally-moving rods each provided with a hook for engaging the shuttle, a bell-crank lever pivoted to a part carried by the shuttle-bar and having one arm connected with the shuttle-hook rod, and a cam in the line of travel of the lever to engage one arm thereof to tilt the lever to release the hook from the shuttle, substantially as described.

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

WILLIAM F. KINTZING.

Witnesses:

CHAS. H. HEINDEL,
C. M. HEINDEL.