

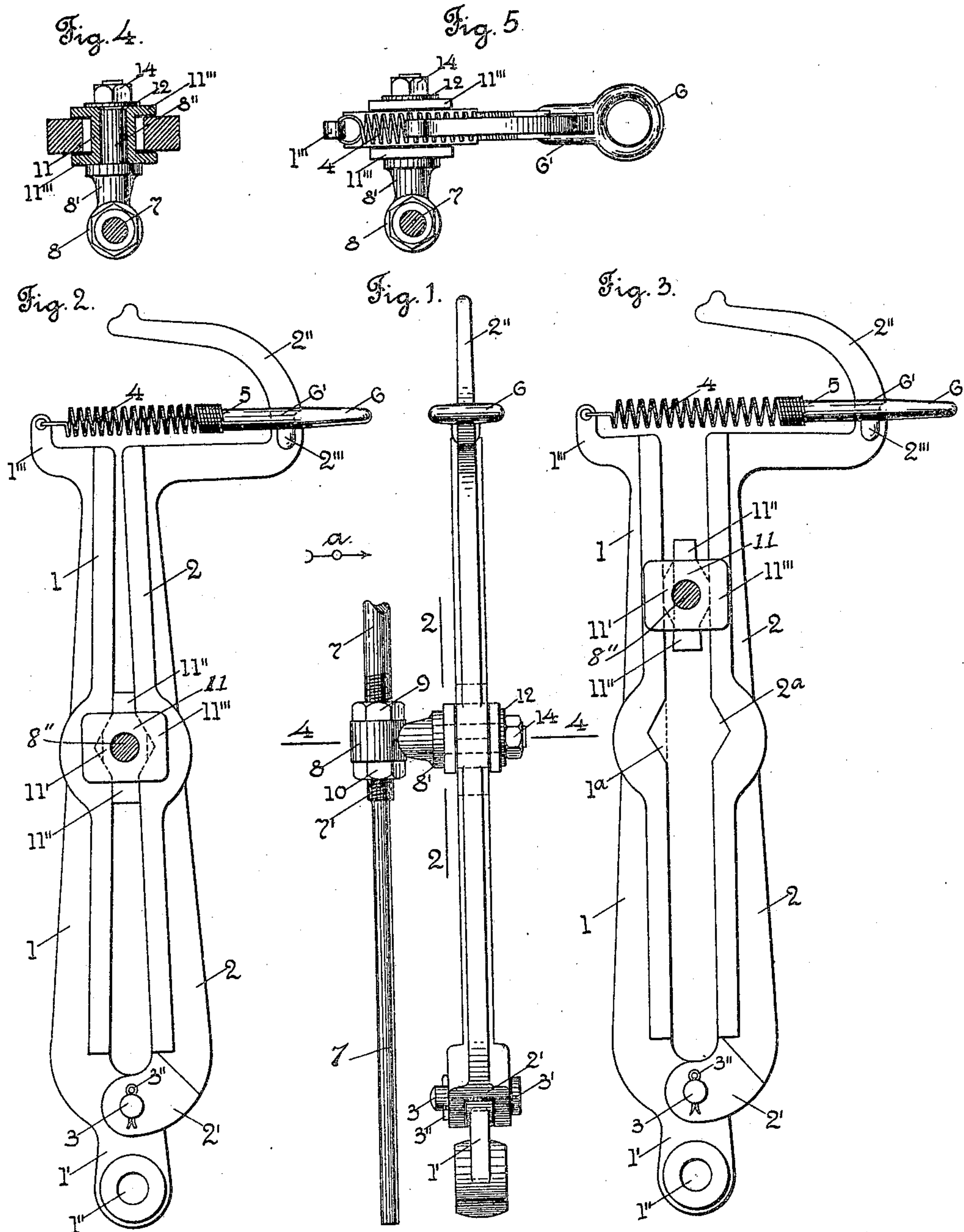
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W. WATTIE.

GIVE WAY CONNECTION FOR BOX MOTIONS OF LOOMS.

APPLICATION FILED NOV. 2, 1904.



Witnesses

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## GIVE-WAY CONNECTION FOR BOX-MOTIONS OF LOOMS.

No. 812,468.

Specification of Letters Patent.

Patented Feb. 13, 1906.

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*To all whom it may concern:*

Be it known that I, WILLIAM WATTIE, a citizen of the United States, residing at Worcester, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Give-Way Connections for Box-Motions of Looms, of which the following is a specification.

My invention relates to a give-way or yielding connection, and more particularly to a give-way connection for the box-motion of looms to prevent the breaking of the moving parts.

In a box-motion of a loom as ordinarily constructed the box-operating rod is connected with the box-operating lever through a give-way connection, so that in the raising and lowering of the shuttle-boxes if a shuttle fails to be wholly ejected or to fully enter a shuttle-box, and thus prevents the raising or lowering of the shuttle-boxes, the give-way connection to the shuttle-box-operating rod operates to release said rod, and the shuttle-boxes will remain stationary, and thus the breaking of the moving parts will be prevented.

Heretofore in a give-way connection of ordinary and well-known construction forming a part of the shuttle-box motion there has been two upright arms or levers pivotally connected together at their lower ends. The lower end of one upright arm or lever is ordinarily pivotally mounted on the lower end of the other, and their upper ends are yieldingly held together by a spring. Intermediate their upper and lower ends each of the upright arms or levers has a curved recess or depression in its inner edge. Said recesses are contiguous to each other and receive a circular pin or stud secured to the box-operating rod. The lower end of one of the upright arms or levers of the give-way connection is ordinarily connected with the lever of the box-motion, which communicates vertical motion to the boxes according to the indications of the pattern-surfaces in the usual and well-known way. In the case of shuttle-boxes not moving and the box-operating rod not moving for any reason when the loom is in operation, the lever of the box-motion and the give-way connection continuing to move, the arms of the give-way connection will be moved apart to release the

stud or pin held within the recess therein, leaving said stud or pin stationary, while the give-way connection is moved with the box-operating lever, all as will be fully understood by those skilled in the art. I have found in practice that in order to release the circular pin or stud confined within the circular recesses in the give-way arms that considerable power is required and that by the constant use the friction of the round pin or stud on the ends or corners of the recessed portions in the give-way arms wears away the surfaces and causes still greater friction and still greater power to release the pin or stud from the give-way arms.

The object of my invention is to improve upon the construction of the give-way connection of ordinary construction and operation above described, and more particularly to do away with the curved or circular recesses in the give-way arms which receive the circular pin or stud on the box-operating rod and to substitute therefor non-circular recesses, and preferably angularly-shaped recesses, to receive the part secured to the box-operating rod, which is preferably of non-circular shape.

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

Referring to the drawings, Figure 1 is an edge view of a give-way connection embodying my improvements and of a box-operating rod attached thereto. Fig. 2 is a section on line 2 2, Fig. 1, looking in the direction of arrow *a*, same figure. Fig. 3 corresponds to Fig. 2, but shows the give-way connection opened and the part connected with the box-operating rod released. Fig. 4 is a section on line 4 4, Fig. 1; and Fig. 5 is a plan view of the parts shown in Fig. 1.

In the accompanying drawings, 1 is one of the upright arms or levers of the give-way connection, which in this instance has an extended lower end 1' with a hole 1'' therein to pivotally attach said arm 1 to a pin or stud on a lever. (Not shown.) 2 is the other upright arm or lever of the give-way connection, which in this instance is made forked at its lower end 2' to receive the lower part of the arm 1 and is pivotally attached thereto by a stud or pin 3, having in this instance the head 3' on one end and provided with a split pin 3''



at its other end. The upper end of the arm 1 has in this instance a projection 1''' thereon, to which is attached one end of a spiral spring 4. The other end of the spiral spring 4 is in this instance attached to the inner end of a pin or plug 5. The other end of the pin or plug 5 is in this instance attached to a slotted extension 6' on a ring 6. The extension 6' has a slot therethrough through which extends the inwardly-curved extension 2'' on the arm 2. Stops or projections 2''' on the arm 2 limit the downward movement of the ring 6. By moving the ring 6 on the part 2'' of the arm 2 the tension of the spring 4 is released to allow of the free opening or spreading apart of the arms 1 and 2. At a point intermediate the upper and lower ends of the arms 1 and 2 and in the inner contiguous edges thereof are formed non-circular recesses 1<sup>a</sup> and 2<sup>a</sup>. These recesses are preferably of non-circular shape or angular shape, as shown, having the inclined upper and lower parts.

The box-operating rod 7 has attached at its upper end in the ordinary way the shuttle-boxes. (Not shown.) The rod 7 is in this instance provided with a screw-threaded portion 7', which extends through a collar 8. A nut 9 above the collar 8 and a nut 10 below the collar 8 secures the collar on the rod 7 and regulates its position thereon. Extending out from one side of the collar 8 is a stud 8', which in this instance has a reduced circular portion 8'', (see Fig. 4,) on which is loosely mounted a block 11, which is held on the stud or circular portion 8'', in this instance by a washer 12 and a nut 14 on the screw-threaded end of said stud. The block 11 is preferably of non-circular shape and has the enlarged central portion 11' to extend within the recessed portions 1<sup>a</sup> and 2<sup>a</sup> in the arms 1 and 2 and the reduced upper and lower ends 11'' to extend above and below said recessed portions.

Upon each side or face of the block 11 are preferably formed the extended lips or wings 11''', which extend over the edges of the arms 1 and 2 (see Fig. 4) to hold the block 11 in position between said arms and guide the same thereon when said arms are moved apart to release said block, as shown in Fig. 3, and are moved up or down thereon.

The advantages of my improvements will be readily appreciated by those skilled in the art.

By making the recesses in the give-way arms of non-circular shape, and preferably of angular shape, having the inclined portions at their upper and lower ends, I reduce very much the friction of the block 11 or other part held within said recesses. I prefer to use a block or stud connected with the box-operating rod and held within the recesses in the arms 1 and 2 of non-circular shape; but I may use, if preferred, a stud or block of circular

shape or a pin with a roll on it to be held within the recesses of non-circular shape in the arms 1 and 2.

It will be understood that my improvements in give-way connections may be used in connection with different mechanisms. I do not limit their use to box-motions of looms, though they are particularly adapted for that purpose.

It will be understood that the details of construction of my improvements may be varied, if desired. Instead of having a recess in the inner edge of each arm 1 and 2 one arm, as 1, may be made with a straight edge, as shown by broken lines in Fig. 3, and the other arm, as 2, has a non-circular recess in its inner edge to receive the stud or block on the box-operating rod. In this case the block 11 has one side straight, as shown by broken lines in Fig. 3.

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

1. In a give-way connection for a box-motion of a loom, the combination with a box-operating rod having a screw-thread portion thereon, a collar loosely mounted on said rod, and adjustable thereon through nuts turning on said screw-thread portion, and said collar having a stud extending out from one side thereof, and a block mounted on said stud, and said block of non-circular shape at its central part, of two arms or levers pivotally connected together and yieldingly drawn toward each other, and one or both of said arms or levers having a non-circular recess or depression in its inner edge, adapted to receive and yieldingly hold the non-circular portion of said block.

2. In a give-way connection for a box-motion of a loom, the combination with a box-operating rod having a screw-thread portion thereon, a collar loosely mounted on said rod and adjustable thereon through nuts turning on said screw-thread portion, and said collar having a stud extending out from one side thereof, and a block mounted on said stud, and said block of non-circular shape at its central part, and having its upper and lower ends of reduced diameter, and having lips or wings extending beyond the central portion, of two arms or levers pivotally connected together, and yieldingly drawn toward each other, and one or both of said arms or levers having a non-circular recess or depression in its inner edge, adapted to receive and yieldingly hold the non-circular portion of said block.

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