

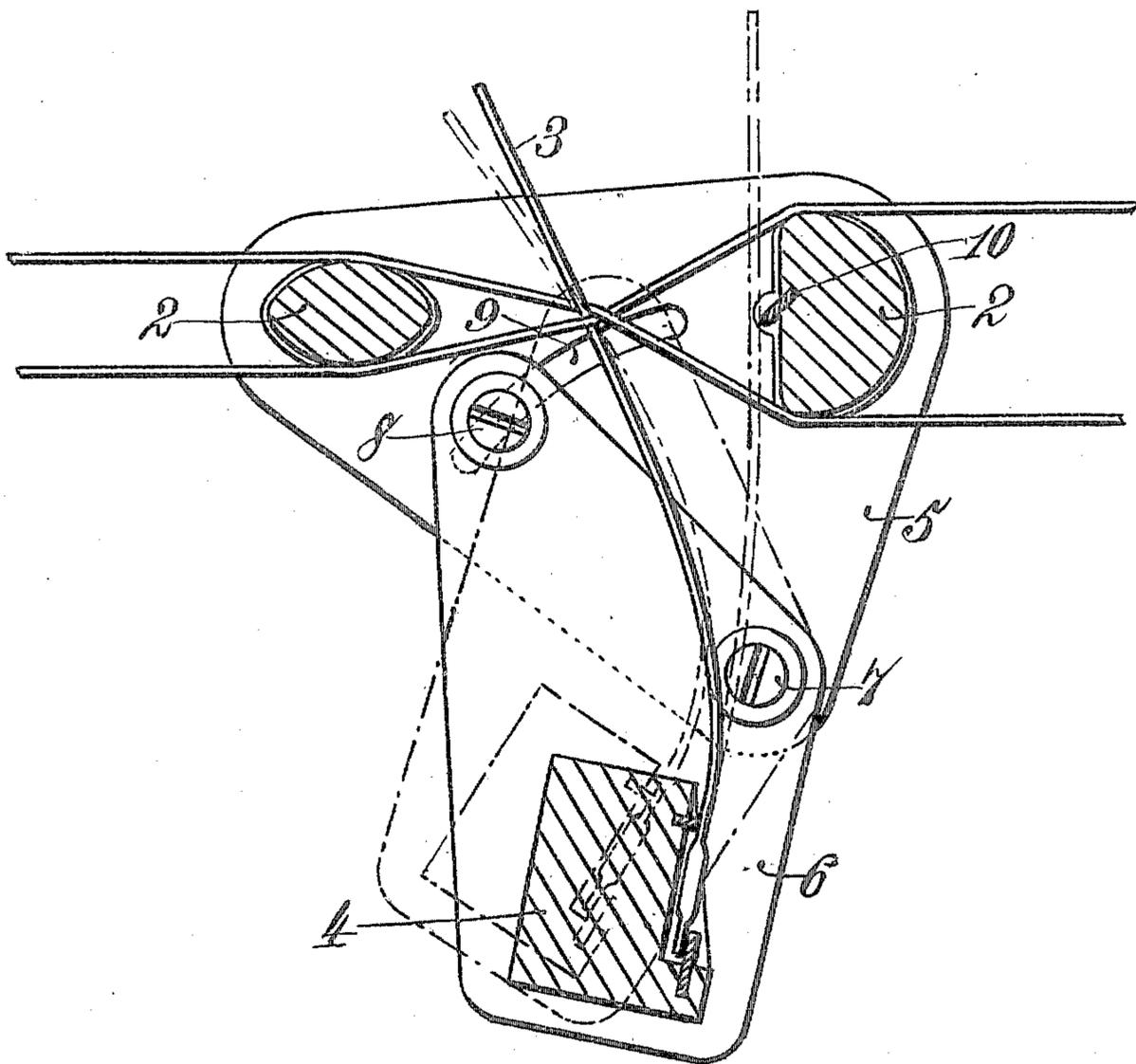
No. 811,373.

PATENTED JAN. 30, 1906.

T. A. B. CARVER.  
WARP STOP MOTION.  
APPLICATION FILED FEB. 1, 1905.

2 SHEETS—SHEET 1.

*Fig. 1.*



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*James L. Norris Jr.*

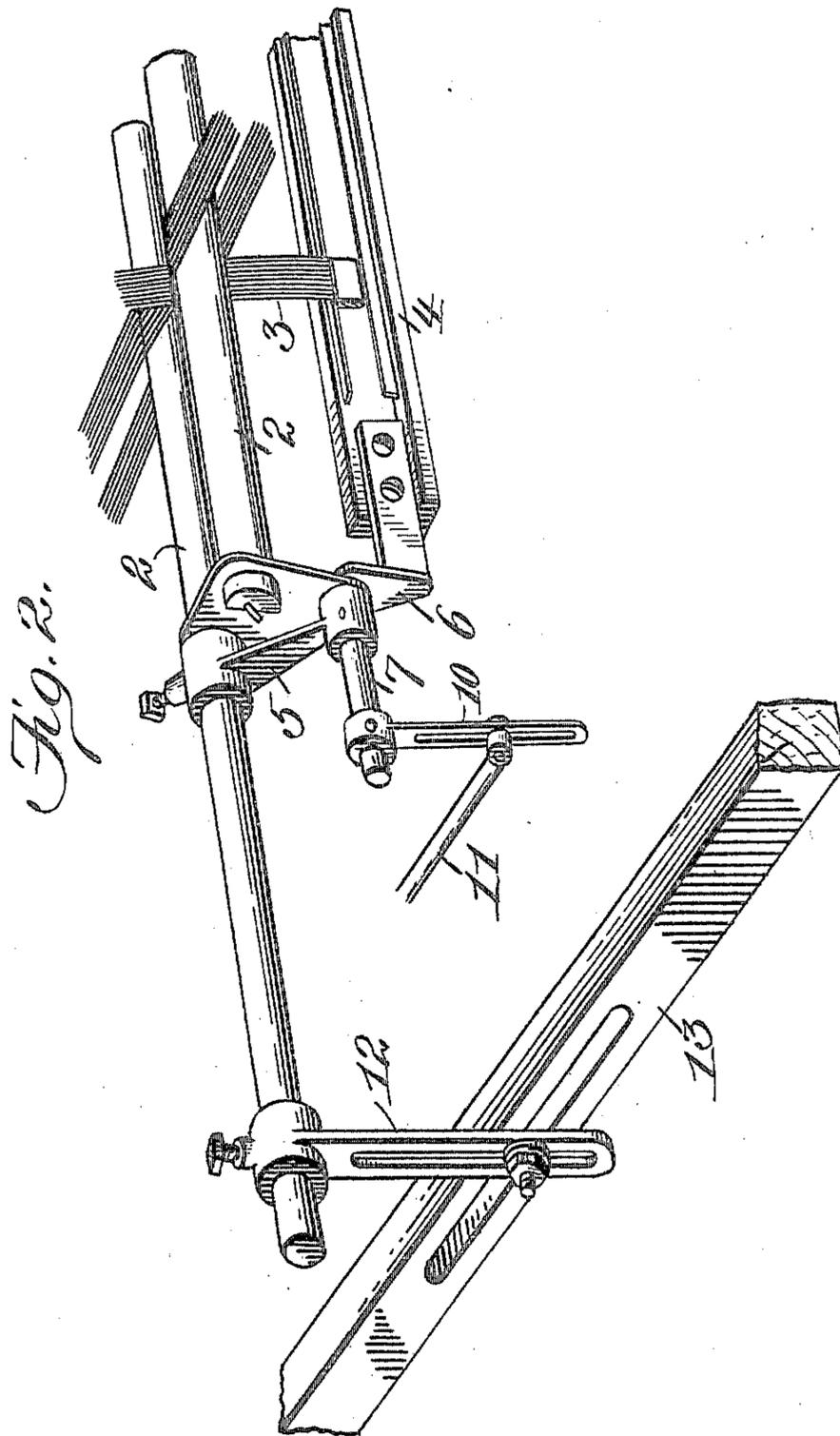
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2 SHEETS—SHEET 2.



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# UNITED STATES PATENT OFFICE.

THOMAS A. B. CARVER, OF GLASGOW, SCOTLAND.

## WARP STOP-MOTION.

No. 811,373.

Specification of Letters Patent.

Patented Jan. 30, 1906.

Application filed February 1, 1905. Serial No. 243,755.

*To all whom it may concern:*

Be it known that I, THOMAS A. B. CARVER, a subject of the King of Great Britain, residing at Glasgow, Scotland, have invented certain new and useful Improvements in Warp Stop-Motions, of which the following is a specification.

My invention relates to warp stop-motions of the type described in A. P. S. Macquisten's United States Patent No. 740,672, dated October 6, 1903, to which reference may be had and in which a length of spring-wire is engaged with the threads of the warp in such a way that on the breakage of a thread it springs back to bring stopping mechanism into play.

The present invention has for its object the provision of quick and ready means whereby the weaver may regulate the action of the wires upon the warp according to the size and nature of the yarn—that is to say, as the yarns being woven vary from coarse to fine, or vice versa, the pressure of the wires upon the warp may be instantly regulated to be the least necessary to secure sufficiently quick springing back of the wire upon the breakage of a thread to effect the stoppage of the loom. The control over the action of the wires upon the warp which is thus provided secures for the weaver the important advantage that he is able with each variation of the size or nature of the warp to remove abrasion of the yarn by the warp-stop always to the greatest possible extent.

In the drawings accompanying and forming a part of this specification, Figure 1 is a longitudinal section of part of a loom involving my invention. Fig. 2 is a perspective view of a portion of the loom, illustrating a slight modification.

Like characters refer to like parts in the two figures of the drawings.

In Fig. 1 of the drawings I illustrate lease-rods, (each designated by 2 and which are arranged in the same relative manner as disclosed by the Letters Patent hereinbefore referred to.) These lease-rods, as in said patent, serve as a means for securing the crossing of the warp-threads, said threads crossing, as will be understood, between the lease-rods. In connection with the lease-rods I employ resilient wires, as 3, which in the present instance perform the same function as the wires of the patent and in the same manner. The wires 3, however, are so mounted

that their pressure by the respective crossing warp-threads can be adjusted or regulated in order to secure the advantage hereinbefore set forth. This variation in pressure I secure in the present case by varying the deflection of the resilient or spring wires, which deflection can be conveniently accomplished by movably mounting the base 4, to which the bases of said wires 3 are connected.

In the drawings is shown an end plate 5, to which one end of each lease-rod 2 is connected, the opposite ends of said lease-rods being connected with a complementary plate, as in the patent. Associated with the end plates 5 are end plates 6, to which the opposite ends of the base 4, carrying the resilient wires 3, are connected. I have only represented one of these end plates 6; but it is the same in construction and mounting as the other. The end plate 6 is shown as pivotally supported by the end plate 5, a pivot of some suitable kind serving to secure such joint. From this it will be evident that the plate 6, and hence the companion plate on the other side, but not represented, can be adjusted with respect to the lease-rod-supporting plates.

To hold the end plates 6 in an adjusted position, a set-screw, as 8, may be provided, being carried by one plate and arranged to traverse an arcuate slot, as 9, in the other plate, said arcuate slot being concentric with the axis of the pivot 7. From the description just made it will be evident that the deflection of the wires 3 can be regulated by an operative in order that the pressure upon said wires by the respective crossing warp-threads can be changed in accordance with the size of the yarn being woven.

Although I have described a particular arrangement for securing a variation in pressure upon the resilient wires, such result can be obtained in other ways. For example, the base 4, from which the wires rise, can be directly mounted upon a suitable support for turning motion instead of being carried by swinging means.

The lease-rod 2 on the right may carry a conductor, as 10, of wire, forming part of an electric circuit, (not shown, but which may be the same as in the patent.) When a wire is released by the breaking of one of a pair of crossing-threads, the wire 3, which is held under tension by said threads, will be released, so that it can spring against the conductor 10 to close the circuit.

By the means I have described a further advantage is secured, for in certain classes of weaving the tension in the warp during a large portion of the period of the loom is very low, and, if sufficient deflection were continuously applied to the wires, as 3, to give sufficient strength to produce quick springing back when a thread broke then when the warp becomes slack the wires would fall back and stop the loom. In such cases, therefore, I provide relative movement of the base 4 to produce variation of the tension of the wires upon the warp, which may be by simply rotating said base, and I connect the latter, for example, by a simple lever and connecting-rod to a suitably reciprocating or revolving part of the loom, so that the deflection of the wires 3 remains sufficient to produce quick action only so long as the tension in the warp is high; but during that part of the period of the loom in which the tension in the warp is low then the deflection in the wires is reduced to be insufficient to cause them to spring back far enough to stop the loom.

In Fig. 2 I have shown an organization whereby the results just alluded to can be secured. In this figure the lease-rods are denoted by 2, the stationary plates by 5, the swinging plates by 6, and the wires by 3. I have only shown, however, one swinging plate and one stationary plate, they being pivotally connected by a pivot 7, extending laterally from the swinging plate and passing through a hub in the stationary plate. To the outer end of the pivot is connected a slotted arm 10, to which is adjustably connected a rod, as 11, adapted to be operated by some moving part of the loom. One of the lease-rods is supported by arms, as 12, only one of which is shown, adjustably connected with the frame 13 of the loom.

From the foregoing description it will be apparent that my invention involves means for securing a crossing of warp-threads and yieldable means held under pressure by the respective crossing warp-threads, the pressure being variable to adapt the loom to the character or size of the yarn being woven. The yieldable means in the present case consists of the wires 3, each of which, as will be evident, is in the nature of a circuit-controller or a means for throwing a stop-motion mechanism into action.

Having described my invention, what I claim is—

1. In a warp stop-motion for looms, the combination of a pair of lease-rods by means of which the warp-threads are crossed, and a plurality of resilient wires arranged to be held under pressure by the respective cross-

ing warp-threads and adjustable to vary such pressure.

2. In a warp stop-motion for looms, the combination of a pair of lease-rods by means of which the warp-threads are crossed, and a plurality of resilient wires arranged to be held under pressure by the respective warp-threads and adjustable to vary their deflection.

3. In a warp stop-motion for looms, the combination of a pair of lease-rods by means of which the warp-threads are crossed, a plurality of resilient wires arranged to be held under pressure by the respective warp-threads and adjustable to vary such pressure, and an electric conductor carried by one of the lease-rods and arranged for engagement by a wire when one of the threads holding said wire breaks.

4. In a warp stop-motion for looms, the combination of a pair of lease-rods by means of which the warp-threads are crossed, a plurality of resilient wires arranged to be held under pressure by the respective crossing warp-threads, and a movably-mounted base carrying said wires.

5. In a warp stop-motion for looms, the combination of lease-rods by means of which the warp-threads are crossed, a plurality of resilient wires arranged to be held under pressure by the respective crossing warp-threads, a base carrying the wires, swinging means to which said base is connected thereby to vary the pressure against said wires, and means for holding said swinging means in an adjusted position.

6. In a warp stop-motion for looms, the combination of means for holding warp-threads crossed, and yieldable means held under pressure by the respective crossing-threads and adjustable to secure a regulation of such pressure.

7. In a warp stop-motion for looms, the combination of a detector engaging with crossed warps with means for regulating the pressure of engagement between the detector and the warps.

8. In a warp stop-motion for looms, the combination of a detector engaging with crossed warps with means operated by the loom for varying the pressure of engagement between the detector and the warps conformably with the tension of the latter.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

THOMAS A. B. CARVER.

Witnesses:

ARTHUR E. NEEDHAM,  
HENRY D. JOYCE.