No. 740,672. PATENTED OCT. 6, 1903.

A. P. S. MACQUISTEN.

WARP STOP MOTION.

APPLICATION FILED JULY 14, 1902.

NO MODEL. 2 SHEETS—SHEET 1.

Fig. 2.

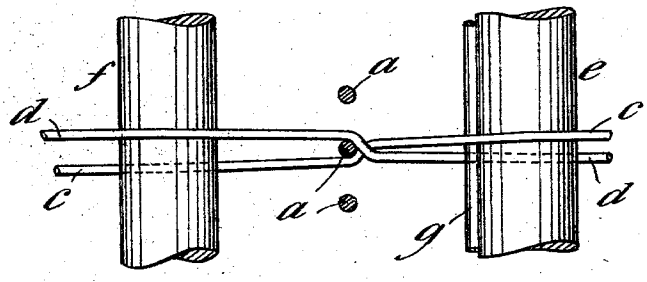
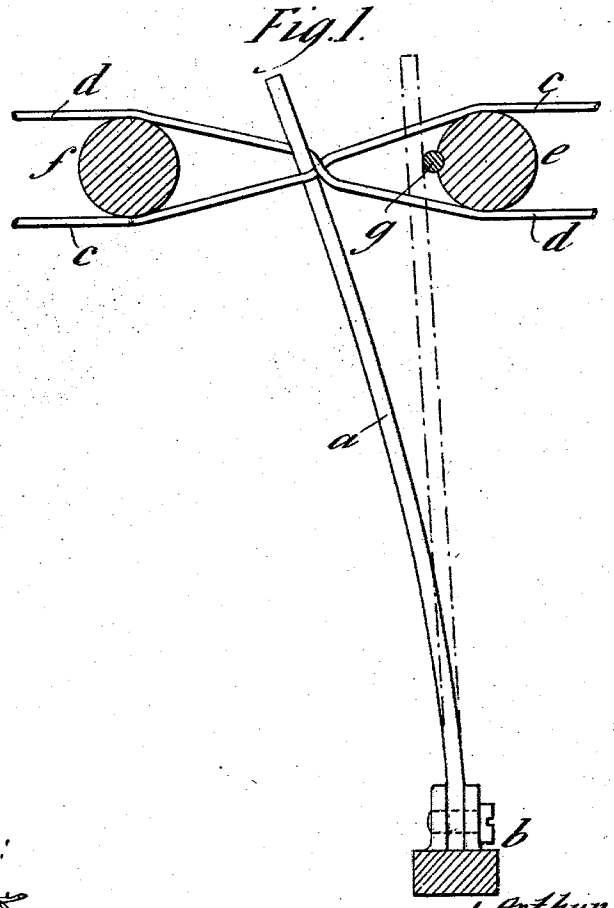



Fig. 1.




Witnesses:

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Dennis Sumby.

Inventor

Arthur P. S. Macquisten

By James L. Norris.

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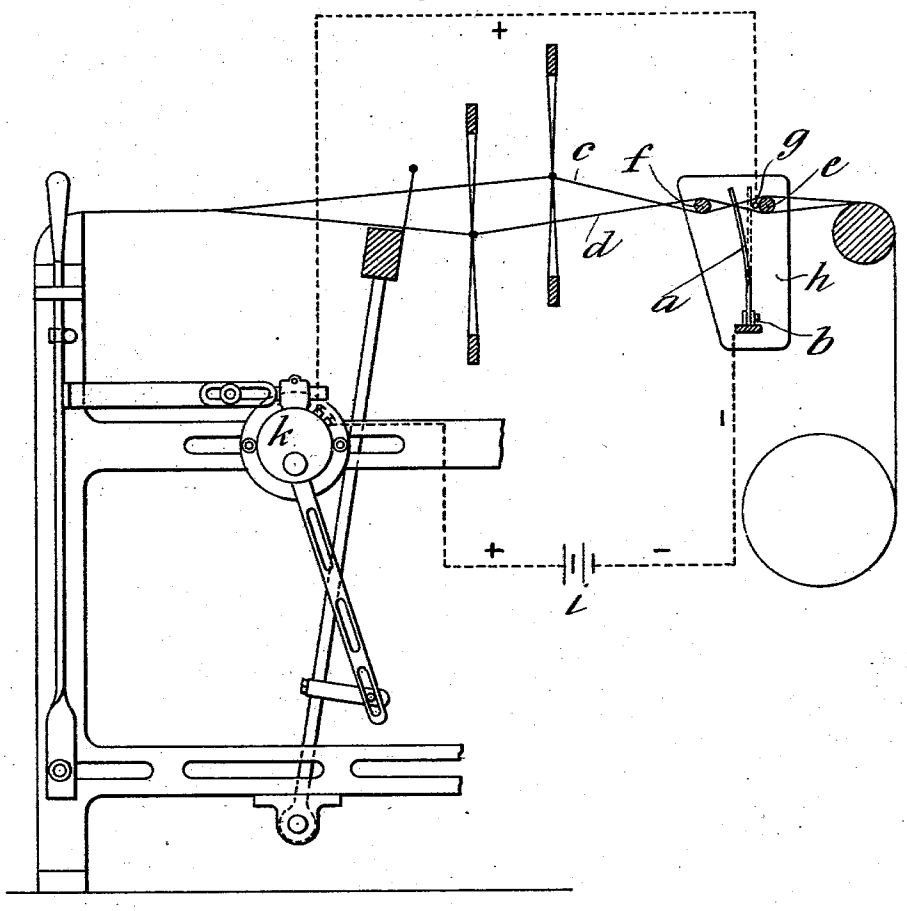
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NO MODEL. 2 SHEETS—SHEET 2.

Fig. 3




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No. 740,672. Patented October 6, 1903.

# UNITED STATES PATENT OFFICE.

ARTHUR P. STANLEY MACQUISTEN, OF GLASGOW, SCOTLAND.

## WARP STOP-MOTION.

SPECIFICATION forming part of Letters Patent No. 740,672, dated October 6, 1903.

Application filed July 14, 1902. Serial No. 115,538. (No model.)

*To all whom it may concern:*

Be it known that I, ARTHUR PENRHYN STANLEY MACQUISTEN, a subject of the King of Great Britain, residing at 118 Napiershall street, Glasgow, Scotland, have invented certain new and useful Improvements in Warp Stop-Motions, (for which I have applied for a patent in Great Britain, dated May 23, 1902, No. 11,730,) of which the following is a specification.

My invention relates to mechanism whereby in looms, warping-machines, and the like the breakage of one of the warp-threads is automatically indicated or operates mechanism by which the machine is stopped. For this purpose I pass the warp-threads over and under two rods, so as to form a lease, the odd threads over the first and under the second, the even threads under the first and over the second, thus crossing each pair of adjacent threads, and in front of each crossing I arrange an elastic wire free at one end and fixed at the other end in such a position that when the warp-threads are stretched all these wires are bent forward. When any thread of a pair breaks, the wire that was held by the crossing of the pair is left free and in virtue of its elasticity springs back. In this position it can be seen and the attendant can mend the broken thread. The liberated wire may not only be seen, but may also operate electrically or mechanically stop mechanism of any suitable known kind—such, for example, as that described in my United States Patent No. 724,307, dated March 31, 1903, for improvements in controlling mechanism.

In the accompanying drawings I show, by way of example, how the wire when liberated can by making an electrical contact put stop mechanism into operation.

Figure 1 is a longitudinal section and Fig. 2 is a partial plan, both drawn to an enlarged scale, showing a pair of warp-threads with one of a row of wires arranged to operate according to my invention. Fig. 3 is a diagrammatic view illustrating the invention applied to the stop device shown in my United States patent above referred to.

*a* is the wire, fixed at its lower end to a conducting-base *b* and held at its upper part in front of the crossing of two of the warp-threads *c* and *d*, which pass over and under two rods *e* and *f*, *c* passing over *e* and under *f*, while *d* passes under *e* and over *f*, the one passing on the one side and the other on the other side of the wire. The base *b* is in such a position that when the warp is stretched to the left the wire is bent forward, as shown in Fig. 1. When either of the threads *c* and *d* breaks, the wire springs back against a conducting-wire *g*. (Shown in sections in Fig. 1.) It can be seen in this position by the attendant, who can stop the machine and mend the thread or owing to the contact of the wire with the conductor *g* an electrical current can be transmitted to operate any suitable stop mechanism—such, for example, as that described in my United States Patent No. 724,307, dated March 31, 1903, for improvements in controlling mechanism. The conducting-wire *g* may be on the rod, as shown, or in any convenient position in the path of the wires *a* as they spring back.

It is to be understood that a complete row of wires *a*, one for each pair of warp-threads, extends quite across the loom. The rods *e* and *f* and the base *b* are held rigidly together by passing through two end plates, one of which (marked *h*) is shown in Fig. 3.

Usually two rods *e* and *f* are employed in a lease; but as the crossing of the two threads is made independently of the front rod *f* this rod may be dispensed with.

Referring to Fig. 3 of the drawings, *i* is a battery, the negative pole of which is connected with the wire *a* through the medium of the base *b*, formed of conducting material, the positive pole being connected with one of the terminals of the stop mechanism *k*, the other terminal being connected with the wire *g*. In circuit with the terminals of the stop mechanism *k* there is an electromagnet which attracts a lever-armature to put the stop again in operation in the manner described and shown in the said United States patent hereinbefore named. When a thread breaks, contact is made at *g*, as described above, and the electromagnet of the stop mechanism is energized to throw said stop mechanism into operation. The stop mechanism referred to forms no part of the present invention, and is therefore not shown or described in detail.

The specific construction of stopping mechanism diagrammatically illustrated in Fig.

3 is fully set forth in United States Patent No. 724,307, granted to me March 31, 1903, for improvements in controlling mechanism.

Having thus described the nature of this invention and the best means I know of carrying the same into practical effect, I claim—

In a warp-stop mechanism for looms and the like, the combination of a pair of lease-rods, by means of which the warp-threads are crossed, an electrical conductor extending along one of said rods, a plurality of resilient wires mounted to contact with said electrical conductor, said wires being normally held out of contact with said electrical conductor by intersecting warp-threads, and an electric circuit connected with said wires and with said conductor and adapted to be closed when a warp-thread breaks and permits one of said resilient wires to contact with said electrical conductor.

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

A. P. STANLEY MACQUISTEN.

Witnesses:
ANDREW MACKIE MACINTOSH,
DAVID GRANT.