J. Holding & J. Eccles — Impts. in Looms.

No. 119,848. Patented Oct. 10, 1871.

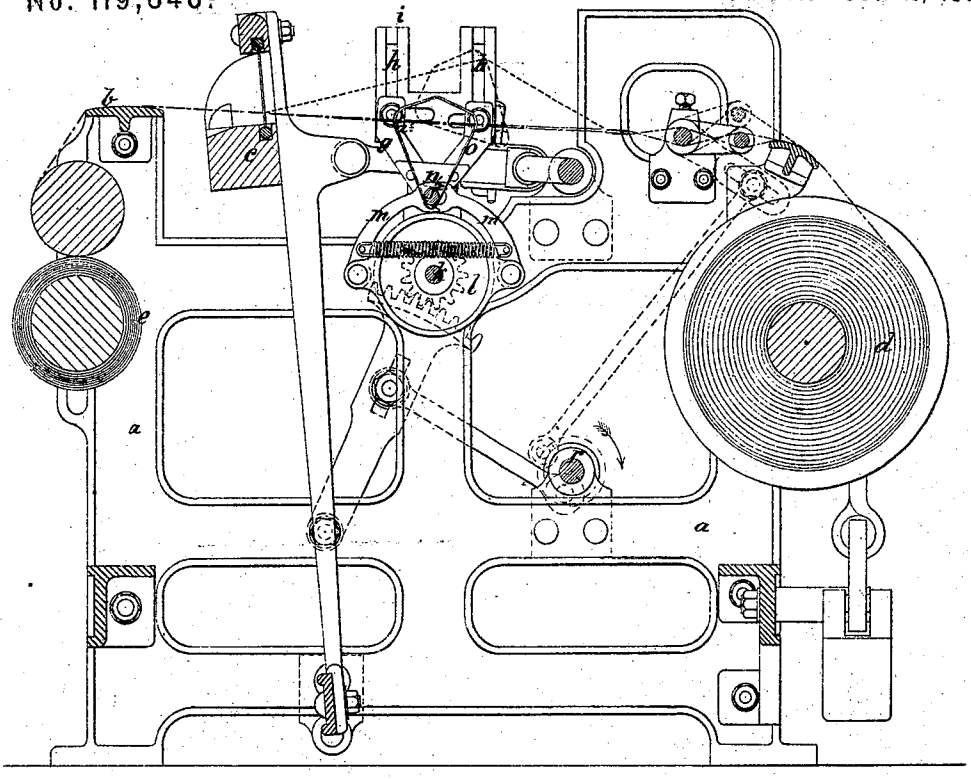
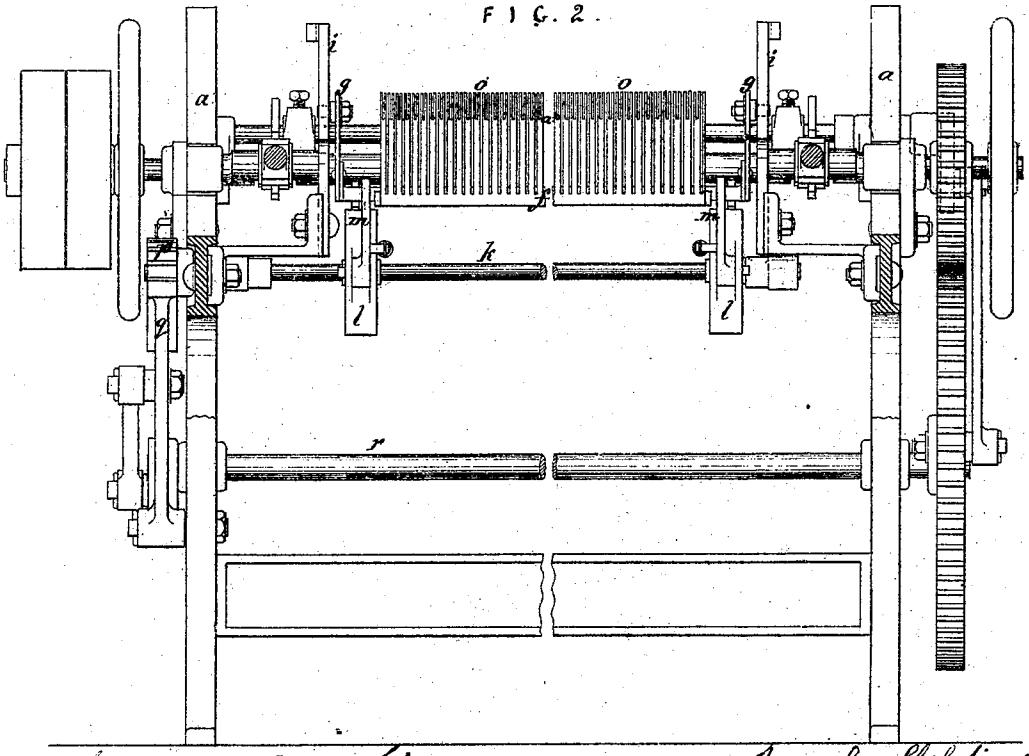


FIG. 2.



Witnesses

Thomas Wigley

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UNITED STATES PATENT OFFICE.

JOSEPH HOLDING AND JAMES ECCLES, OF MANCHESTER, GREAT BRITAIN.

IMPROVEMENT IN WARP-SHEDDING MECHANISMS FOR LOOMS.

Specification forming part of Letters Patent No. 119,848, dated October 10, 1871; antedated October 3, 1871.

To all whom it may concern:

Be it known that we, JOSEPH HOLDING and JAMES ECCLES, of Manchester, in the county of Lancaster, Kingdom of Great Britain and Ireland, have invented certain Improvements in Looms for Weaving, for which Letters Patent of the Kingdom of Great Britain and Ireland were granted to us July twenty-sixth, one thousand eight hundred and sixty-nine, of which the following is a specification:

The invention relates to mechanism for the purpose of producing a shed for the passage of the shuttle in looms for weaving that will dispense with the perishable and expensive healds usually employed for the same purpose; and the improvements consist in mounting upon a longitudinal bar a number of wires bent to the form of an inverted cone, each alternate space between the wires being connected diagonally in such a manner that the openings or spaces between the wires will present alternate diagonal lines. These wires are supported upon a bar immediately below the warp-threads behind the reeds. This bar, through the medium of the ordinary tappets or other equivalent, receives an oscillatory or rocking motion, combined with a vertical lift that causes the wires to act upon the warp-threads which pass through the space between the wires in such a manner that each alternate thread of yarn is raised and the remaining ones lowered with every oscillation of the bar, the effect of which forms a perfect and uniform shed without the employment of healds. The point or fractional surfaces forming the connections between the wires are provided with a covering of thread or other material that can readily be renewed when desired. This arrangement of apparatus may also be employed with great advantage for forming a shed at the time of taking a leese in slashers, tape-legs, or other machines employed for finishing yarns preparatory to weaving.

In order that the invention may be better understood and explained in detail, we have hereunto attached a drawing, similar letters of reference being marked upon corresponding parts on all the figures alike.

Figure 1 represents a longitudinal elevational section of a loom having our improved shedding motion applied thereto. Fig. 2 represents a detached back view of the same.

In these figures, *a* represents the frame; *b*, the breast-beam; *c*, the slay; *d*, the warp-beam; and *e*, the cloth roller; all being old and well-known points of a loom. *f* is a longitudinal bar, to which is secured a number of wires, *o*, partaking of the form of an inverted cone or triangle, the construction of which is accomplished by continuously folding the wire in a spiral direction around the longitudinal bar *f* and a mandrel or block, the section of which partakes of the form the wires are required to assume. The wires, when thus folded are secured at their base to the longitudinal bar *f*, and the mandrel is then withdrawn, after which the wires on either side are alternately coupled together by being twisted or made otherwise to overlap from their base up to the point *a*, forming their angle of contact, thereby causing the spaces between the wires to be formed in zigzag (thus, WW) into each one of these spaces. The warp-threads are placed and are acted upon for shedding by the wires *o*, in the manner hereinbefore described. The ends of the longitudinal bar *f* are secured to angle-plates *g g*, which are provided with studs that enter the slots *h h* formed in the brackets *i i*, secured to the loom-frame *a*. A shaft, *k*, supported in bearings secured to the loom-frame and running immediately underneath and parallel with the longitudinal bar *f* is supplied with disks, wheels, or other equivalent *l l*, which are secured to such shaft at points forming the extremity or termination of the shedding-wires O. On the sides of this wheel or disk at points formed by its horizontal axis, projections are constructed that form the fulcrums of two bent levers *m m*, that terminate in jaws or carriers *n*, the position and formation of which allow them to fit, when carried forward, onto the end or ends of the longitudinal bar *f* immediately behind their angle-plate or plates *g g*. The shaft *k*, upon which the disk or wheel *l* is secured, receives an oscillatory or rocking motion, which is imparted thereto through the medium of the pinion *p* and the lever-quadrant *q*, which receives motion from a second motion-shaft, *r*, which is connected therewith by the rod *r*. Thus, as the shaft *k* rocks it alternately brings the lever-jaws *n n* into contact with the longitudinal bar *f*, supporting the shedding-wires *o* and forces the same first in one direction and then in the other, the amount of oscillation or throw being regulated by the position of the disk or wheel K from a hor-

izontal to a slanting axis, the object of the slanting axis being to give a greater amount of throw or oscillation to the angle forming the junction of the shedding wires on the sides furthest from the reed, and a proportionately smaller one at the angle or junction nearest the reed, producing thereby a uniform shed.

I claim—

1. The combination, with the warp-beam and breast-beam of a loom, of a shaft, *f*, to which are connected wires or guides *o*, bent to the form substantially as described and alternately coupled to form a zigzag space, as set forth.

2. The combination of the subject-matter of the first claim and the disks *l*, arms *m*, or equivalent devices, whereby the within-described movements can be imparted to the shaft *f* and its guides.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

JOSEPH HOLDING.
JAMES ECCLES.

Witnesses:
THOMAS WRIGLEY,
WILLIAM HENRY DAWSON. (95)