H. S. HOUGHTON.

Piecing-Warp Holder.

No. 164,740. Patented June 22, 1875.

Fig. 1.

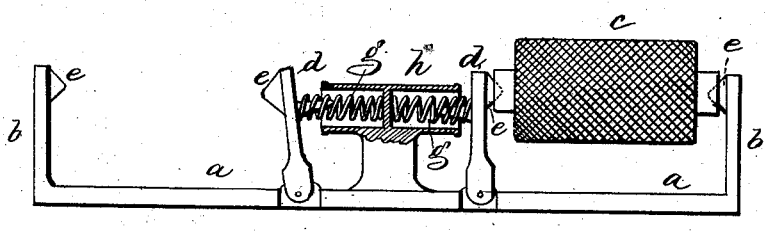

Fig. 2.

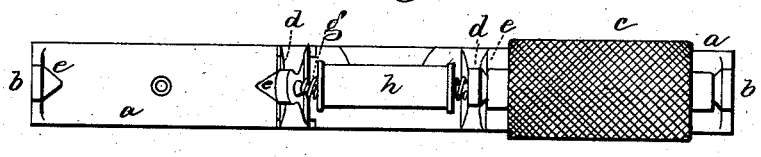

Fig. 3.

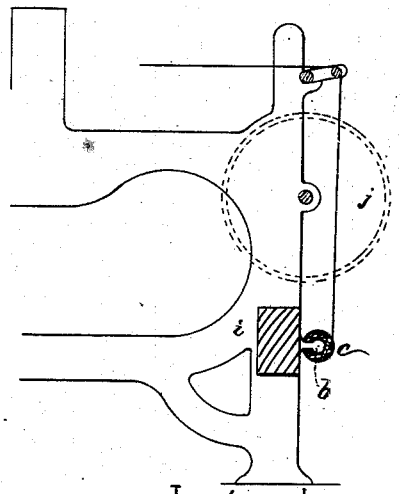

Fig. 4.

Witnesses.

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UNITED STATES PATENT OFFICE.

HENRY S. HOUGHTON, OF SMITHVILLE, MASSACHUSETTS.

IMPROVEMENT IN PIECING-WARP HOLDERS.

Specification forming part of Letters Patent No. **164,740**, dated June 22, 1875; application filed May 11, 1875.

To all whom it may concern:

Be it known that I, HENRY S. HOUGHTON, of Smithville, in the county of Worcester and State of Massachusetts, have invented an Improved Piecing-Warp Holder for Looms, of which the following is a specification:

This invention relates to an improvement in looms, and has reference to a piecing-warp holder; and consists in a spool-holder adapted to be attached to the loom-frame, and to support one or more spools containing warp-threads, which may be tied to any broken or imperfect warp, to keep the cloth perfect.

It sometimes happens, in warping the yarns onto the warp-beam and on the dresser-frame, that warps are broken and are not discovered at once, and when discovered the end or ends of the broken thread or threads are then placed on the beam, and result in leaving a disconnected end on the beam, and often there is quite a gap between the disconnected ends, and, consequently, there would be an imperfection in the weaving, owing to the absence of the warp, unless this warp, so broken, is pieced by a second and independent thread. It sometimes happens, also, that a warp-beam will contain a great number of such threads, as the operator has been more or less careless, but usually I find that from two to four piecing-threads are sufficient for an ordinary warp. These piecing-threads are tied to the broken ends of the warp-threads, and pass through the eyes of the harness, and are woven into the fabric until the end of the thread again unwinds from the warp-beam, when such end is in turn tied to the piecing-warp, and the latter is broken from connection with its spool.

Figure 1 is a side view of one of my piecing-warp holders, adapted to hold two spools, a part being shown in section. Fig. 2 is a top view thereof; Fig. 3, a view of the same attached to the loom-frame, and Fig. 4 a modified form of journal.

In the drawing, *a* is a frame, having projections *b*, adapted to sustain one end of the spool or bobbin *c*, and pivoted or adjustable projections *d*, to support the opposite end of the spool. These projections have conical bearings or centers *e*, on which the spools turn; but instead of having cones *e* for some bobbins, such as are spun on the Sawyer ring-spinning frames, I use a projection, like *f*, with a socket, to receive within it the end of the quill or bobbin. One of each pair of the projections *b* or *d*, preferably *d*, is pivoted, and provided with a spring, *g*, supported in a case, *h*, or otherwise, so as to press the projection against the spool or bobbin with sufficient force to produce the necessary friction, so that the piecing-warp, when being woven, will be kept sufficiently taut.

The force of these springs may be easily adjusted by putting in the sockets, in case *h*, a washer.

I prefer to place this piecing-warp holder on the cross-beam *i*, under the warp-beam *j*, and I lead the thread, when tied, to a warp from the holder up over the warp-beam and whip roller or beam, and then tie it to the regular warp, as shown in Fig. 3.

These holders may be attached by means of screws, or otherwise, and may be more or less in number; but usually holders for from two to four spools are employed.

Heretofore, it has been common to tie a piecing-warp on a broken warp in the loom; but there has been no way of keeping such piecing-thread under tension, and commonly such thread has been led from a spool or bobbin thrown into a box or other convenient receptacle moved about on the floor; and without tension such piecing-thread is apt to be looped up and cause an imperfection in the weaving quite as objectionable as though the thread had been entirely omitted.

With this invention bad spots in the weaving are obviated, and the tension of the piecing-thread may be regulated to correspond with the tension of the warps being woven. It is evident that this invention might be variously modified without departing from this invention—as, for instance, the spools might be held on a rod, and have cone-bearings on the rod to fit the ends of the spools, and the cones may be adjusted to correspond with the length of the spool or bobbin being used; or different kinds of springs or friction devices might be used to regulate the tension of the threads on the spools or bobbins.

Having described my invention, I claim—

A piecing-warp holder consisting of projec-

tions to center and support spools or bobbins, and to produce tension thereon, and adapted to operate in connection with warps being unwound from a warp-beam in a loom, to piece the warps when broken, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

HENRY S. HOUGHTON.

Witnesses:
AUSTIN G. WHEELOCK,
GEO. SHATTUCK.