

H. W. OWEN.
 LOOSE WARP TAKE-UP.
 APPLICATION FILED MAY 11, 1911.

1,027,886.

Patented May 28, 1912.

FIG.1.

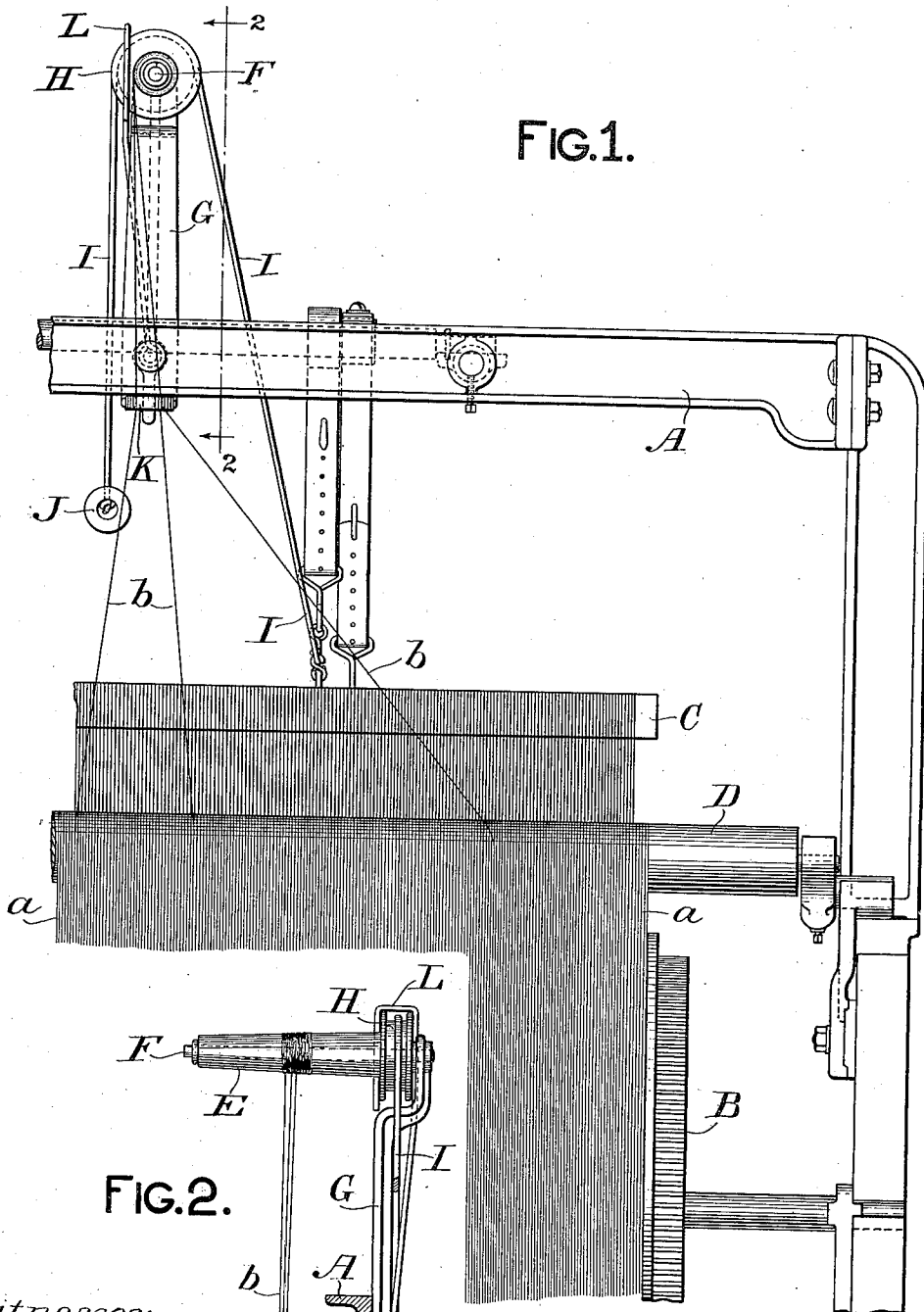
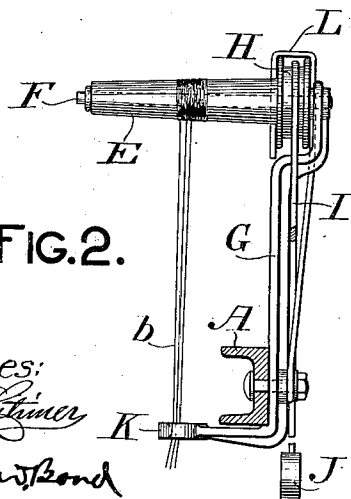


FIG.2.



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UNITED STATES PATENT OFFICE.

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LOOSE-WARP TAKE-UP.

1,027,886.

Specification of Letters Patent.

Patented May 28, 1912.

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To all whom it may concern:

Be it known that I, HERBERT W. OWEN, of Dover, in the county of Strafford and State of New Hampshire, have invented a
5 Loose-Warp Take-Up, (Case A,) of which the following is a specification.

It frequently occurs that more warp threads are wound on the warp beam of a loom than are required in weaving the intended fabric. This surplus of warp
10 threads on the warp beam is often intentional in order that there shall certainly be enough warp threads available for the fabric. The result of such surplus or extra
15 warp threads is that they are apt to get among the warp threads which are being woven into the fabric and consequently warp breakage occurs and defects in the fabric are caused. Heretofore attention to
20 these loose warps has been a source of annoyance and has taken the time of the weaver.

The purpose of the present invention is to provide an automatic take-up for these
25 loose warp threads. It is important in connection with such a loose warp take-up that it should be equally efficient irrespective of the location of the loose warp threads on the warp beam and irrespective of the vary-
30 ing rates of the feed of the warp due to differing numbers of picks in a given length of the fabric. It is likewise important that the mechanism should be simple and should require minimum attention and no adjust-
35 ment on account of varying numbers of picks. The loose warp take-up constituting the present invention carries out these objects.

It is illustrated in the accompanying
40 drawings, wherein—

Figure 1, is a rear view of so much of a loom as is necessary for an understanding of the present invention, the loom being equipped with the new take-up. Fig. 2, is
45 a side view of the take-up.

A, is a portion of the framework of the loom; B, is the warp beam; C, is the rear harness, a simple harness motion being shown; and D, is the whip roll. The illustrated warp threads *a, a*, are those which are utilized in the weaving and which enter the finished fabric. Extra surplus or loose warp threads are shown at *b*, three such loose warps being indicated as located at
55 different points along the length of the

whip-roll. These loose warps pass from the warp beam B, over the whip roll D, and thence upwardly and forwardly to the loose warp take-up. This take-up includes a drum E, upon which the loose warps *b*, are
60 wound. This drum loosely rotates upon a fixed stud or axle F, which extends horizontally above the warp and at right angles to the warp beam. The stud or axle F, is secured to, and extends rearwardly from, a
65 bracket G, secured to the upper cross bar of the loom frame A. For rotating the take-up drum E, it is equipped with a grooved pulley H, fast thereon and constituting a part thereof with which coöperates a flexible driver I. This driver at one end is connected with the reciprocating rear harness C. This driver I, is a band or cord passing over the grooved pulley H, and at its free end a weight J, is attached to it below the
75 take-up drum.

The loose warps *b*, pass upwardly and forwardly to a fixed guide K, located immediately below the take-up drum E. This guide is an eye through which the loose
80 warps pass. A fixed guard L, prevents the driver I, from getting off from the pulley H.

When the rear harness, to which the driver I, is attached, rises, the weight J, descends, thereby rotating the drum backwardly in a direction to unwind the loose warps. When the rear harness descends it draws upon the driver I, thereby causing the take-up drum to rotate forwardly and hence to wind up the loose warps. If the connection between the driver I, and the drum pulley H, were a tight and uniform one, the drum would simply be oscillated back and forth to equal extents and there would be no winding up of the loose warps.
85 The driving arrangement shown, however, affords a loose slipping friction drive which is more effective to advance the take-up drum than to reverse it.

When the rear harness starts on its ascent, it moves more quickly than does the weight J, dropping by gravity, with the result that the driver I, is slackened during the first portion of the ascent of the rear harness, thereby freeing the pulley H, of the friction of the driver to a substantial extent; and the full frictional effect of the weighted driver as it drops is not realized until the rear harness has ascended part way. The consequence is that the down stroke of the
100 105 110

rear harness is more effective in rotating the take-up drum than its up-stroke and hence the take-up drum rotates forwardly to a greater extent than it rotates rearwardly. Therefore the loose warps are wound upon the take-up drum. The loose slipping friction drive of the take-up drum is further important because the driver can slip when the loose warps are drawn taut and hence there is no danger of breaking the loose warps even though there is but a single one being wound on the take-up. Another merit of the loose slipping friction drive is that it is equally efficient no matter how fast or how slowly the fabric is advanced as the weaving progresses, and, consequently, no adjustment of the loose thread take-up is required.

The drum E, is the frustum of a cone and has no flange at its rear end so that the warp threads accumulated on the drum can be readily slipped off. Owing to the direction of the axis of the drum relatively to the length of the whip-roll and warp-beam, and to the location of the guide K, the single take-up drum suffices for all the loose warps irrespective of their location on the warp beam. This loose slipping friction drive slips sufficiently to avoid breaking the warp threads while effectively winding them up irrespective of their accumulation on the drum and the varying feed of the cloth.

The surplus warp threads on the warp beam which are wound up by the rotary take-up are not governed by the weaving instrumentalities (namely, the harnesses, the cloth take-up and their coöperating devices) nor do they enter the fabric woven by the loom; and, accordingly, the take-up for the surplus loose warp threads is an element separate from the warp beam and the cloth take-up, and it is important that it should perform its office of taking care of the surplus warp threads during the normal progress of the weaving, and hence it is power impelled and automatic in its action.

I claim:—

1. A loom having, in combination, harnesses; a warp-beam; a whip-roll; a fixed stud extending horizontally above the warp at right angles to the warp-beam and whip-roll; a loose warp rotary take-up drum turning on said stud; a pulley on the take-up drum; a loose warp guide above the warp and below said take-up drum which leads the loose warps from the whip roll to the take-up drum; and a slipping friction drive for rotating said take-up drum consisting of a band or cord attached to the rear harness of the loom and passing over said pulley and a weight on the free end of said band or cord.

2. A loom having, in combination, harnesses; a warp-beam; a whip-roll; a fixed

stud extending horizontally above the warp at right angles to the warp-beam and whip-roll; a loose warp rotary take-up drum turning on said stud; a pulley on the take-up drum; a loose warp guide above the warp and below said take-up drum which leads the loose warps from the whip roll to the take-up drum; and a slipping friction drive for rotating said take-up drum consisting of a band or cord attached to a reciprocating part of the loom and passing over said pulley and a weight on the free end of said band or cord.

3. A loom having, in combination, harnesses; a warp-beam; a whip-roll; a fixed stud extending horizontally above the warp at right angles to the warp-beam and whip-roll; a loose warp rotary take-up drum turning on said stud; and means for rotating said take-up drum.

4. A loom having, in combination, a warp-beam; a loose warp rotary take-up drum turning on an axis at right angles to the warp-beam; a loose warp guide which leads the loose warps to the take-up drum; and means for rotating the take-up drum.

5. A loom having, in combination, a warp-beam; a loose warp rotary take-up drum with its axis at right angles to the warp-beam; and means for rotating said take-up.

6. A loom having in combination, a warp beam; weaving instrumentalities; a loose warp rotary take-up drum independent of the warp beam and weaving instrumentalities; a slipping friction drive therefor, said drive comprising a flexible driver attached at one end to a reciprocating part of the loom, passing around said drum, and having a weight attached to its free end below said drum; and a guard to maintain said flexible driver in position.

7. A loom having in combination, a warp beam; weaving instrumentalities; a loose warp rotary take-up drum independent of the warp beam and weaving instrumentalities; a slipping friction drive therefor, said drive comprising a flexible driver attached at one end to a reciprocating part of the loom, passing around said drum, and having a weight attached to its free end below said drum.

8. A rotary take-up for the loose warp threads of a loom; a slipping friction drive therefor, said drive comprising a flexible reciprocating driver passing around said take-up and having a weight attached to its free end below said take-up; and a guard to maintain said flexible driver in position in combination with the warp beam and weaving instrumentalities of the loom, said take-up being independent of said warp beam and weaving instrumentalities.

9. A rotary take-up for the loose warp threads of a loom; a slipping friction drive

therefor, said drive comprising a flexible reciprocating power impelled driver passing around said take-up and having a weight attached to its free end in combination with the warp beam and weaving instrumentalities of the loom, said take-up being independent of said warp beam and weaving instrumentalities.

10. A loom having, in combination, a warp-beam, weaving instrumentalities, a rotary take-up drum for the surplus loose warp threads on the warp-beam which are not governed by the weaving instrumentalities, and means for rotating said drum during the normal progress of the weaving.

11. A loom having, in combination, a warp-beam, weaving instrumentalities, a rotary take-up mounted on the loom for the surplus loose warp threads on the warp-beam which are not governed by the weaving instrumentalities, and automatic means for rotating said take-up during the progress of the weaving.

12. The warp-beam and weaving instrumentalities of a loom, in combination with a rotary take-up for the surplus loose warp threads on the warp-beam which are not governed by the weaving instrumentalities, and a slipping friction drive for rotating said take-up during the normal progress of the weaving.

13. The warp-beam and weaving instru-

mentalities of a loom, in combination with a take-up for the surplus loose warp threads on the warp-beam which are not governed by the weaving instrumentalities, and a slipping friction drive for moving said take-up during the normal progress of the weaving.

14. The warp-beam and weaving instrumentalities of a loom, in combination with a rotary take-up for the surplus loose warp threads on the warp-beam which are not governed by the weaving instrumentalities, and automatic means for rotating said take-up during the progress of the weaving.

15. A slipping automatic movable take-up for the surplus loose warp threads of a loom which do not enter into any portion of the fabric woven by the loom, and automatic means for moving said take-up during the progress of the weaving, in combination with the warp beam and weaving instrumentalities of the loom, said loose warp thread take-up being independent of the said warp beam and weaving instrumentalities.

In witness whereof, I have hereunto signed my name in the presence of two subscribing witnesses.

HERBERT W. OWEN.

Witnesses:

DWIGHT HALL,
ALMIE M. JENNESS.