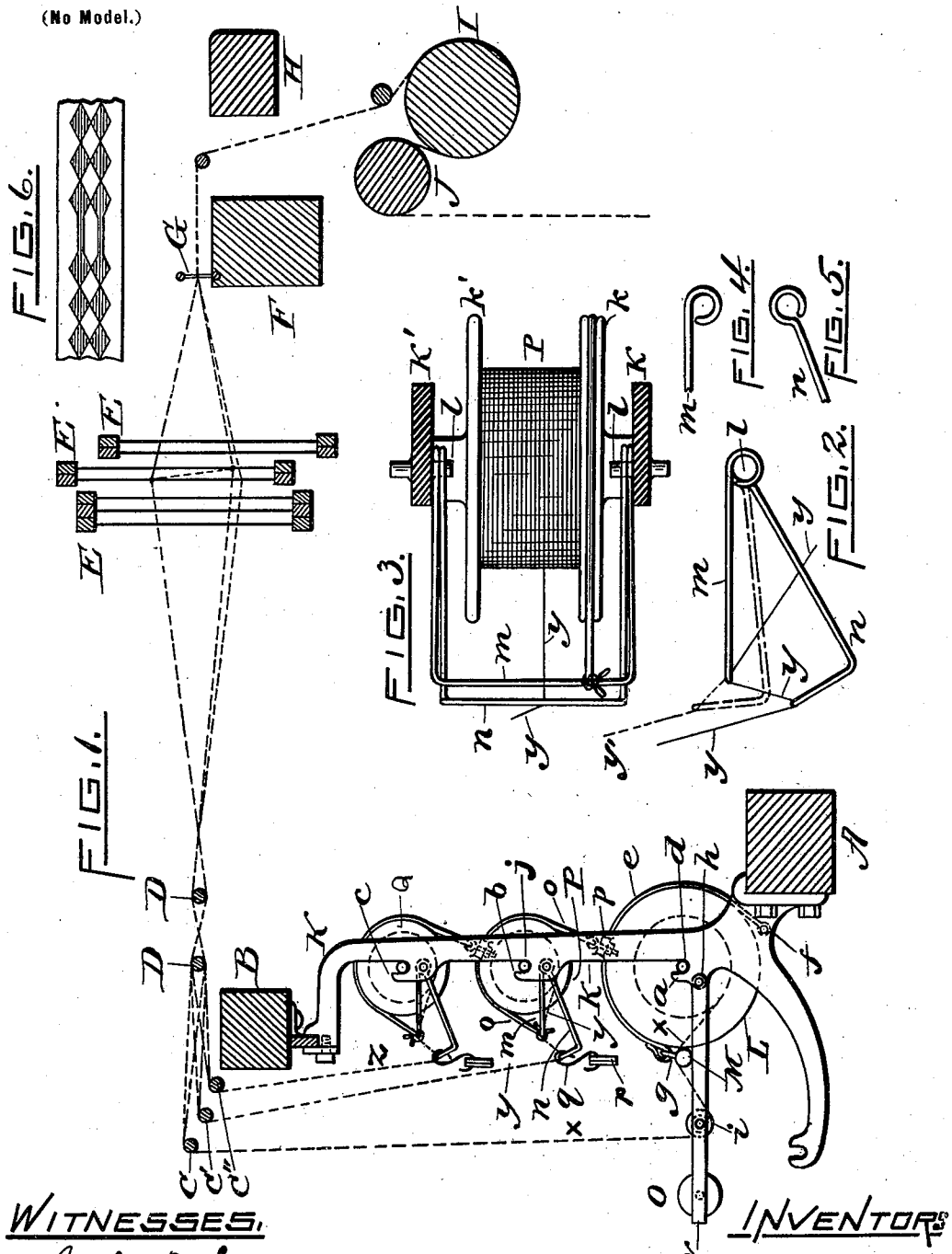
No. 674,149. Patented May 14, 1901.

F. WOOD & W. HINCHLIFFE.

LET-OFF DEVICE FOR LOOMS.

(Application filed Jan. 28, 1901.)

(No Model.)



WITNESSES.

Charles T. Hannigan.

Anne E. Perce.

INVENTORS.

Frank Wood

William Hinchliffe

by Warren R. Perce

Atty.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

FRANK WOOD AND WILLIAM HINCHLIFFE, OF CUMBERLAND, RHODE ISLAND.

LET-OFF DEVICE FOR LOOMS.

SPECIFICATION forming part of Letters Patent No. 674,149, dated May 14, 1901.

Application filed January 28, 1901. Serial No. 45,080. (No model.)

To all whom it may concern:

Be it known that we, FRANK WOOD and WILLIAM HINCHLIFFE, citizens of the United States, residing at Cumberland, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Slackening Devices for Doup-Weaving, of which the following is a specification, reference being had therein to the accompanying drawings.

Like letters indicate like parts.

Figure 1 is a view, partly in side elevation and partly in vertical section, of such parts of a tape-loom as are necessary to illustrate our invention and its uses. Fig. 2 is a side elevation of our improved slackening devices. Fig. 3 is a top plan view of the same, together with a warp-beam and a friction device for the latter. Figs. 4 and 5 are detail views. Fig. 6 shows the finished tape which is a product of said loom.

Our invention relates to looms for doup-weaving, and especially to the slackening means for regulating the feed and tension of the doup-threads.

It consists of the novel construction and combination of the several elements hereinafter particularly described, as specifically set forth in the claims.

In the drawings, A B are portions of the frame of the loom, C C′ C″ the whip-rolls, D D the lease-rods, E E E the harnesses, F the lay, G the reed, H the breast-beam, I the sand-roll, and J the weight-roll, all of the usual construction.

K K′ are standards fastened at their upper and lower ends to the frame B A, as shown in Fig. 1, and provided with the brackets *a*, *b*, and *c*. The warp beam or roller L is mounted by its journals *d* in the brackets *a*. A friction cord or band *e*, fastened at one end to an eye *f* on the standard K, passes over one of the flanges of the warp beam or roller L, in a circumferential groove thereof, and its opposite end is fastened to an eye *g* of a rod M. A lever N, pivoted to the standard K at *h*, extends to the rear and has a roller *i* mounted rotatably thereon. On the end of the lever N is the weight O. The warp *x* passes from the roller L up over the rod M, down under the roller *i*, up over the whip-roll C, over the lease-rods D D, and through the harness E E E and reed G. The weight of the rod M and also the downward pull of the warp passing over said rod give the cord or band *e* a sufficient friction upon the warp-roller L to regulate properly the paying out of the warp *x* therefrom.

In the bracket *b* of the standards K K′ is mounted the warp beam or roller P of doup thread by the journals *j* thereof. This roller P has the circular flanges *k k′*, the former of which is circumferentially grooved, as seen in Fig. 3. In the standards K K′ are stud-pins *l l*, on which are mounted the slackeners *m n*, the shapes of which are fully illustrated in Figs. 2 and 3. The slackener *m* has a bent eye, whose shape is shown in Fig. 4, and the slackener *n* has a bent eye, whose shape is shown in Fig. 5 Said slackeners are mounted by their said eyes, respectively, upon the stud-pins *l l*, as seen in Figs. 2 and 3. A friction cord or band *o*, fastened at one end to the eye *p* on the standard K, (see Fig. 1,) passes over the roller P, and its opposite end is fastened to the cross-piece of the upper slackener *m*. The slackener *n* is bent, as shown in Figs. 1 and 2, and on its cross-piece is a hook *q*, on which are weights *r*. The doup-thread *y* passes from the roller P up over the cross-bar of the slackener *m* and down under the cross-bar of the slackener *n*, thence up over the whip-roll C′ and lease-rods D D, and through the harnesses E E E and reed G. In like manner the roller Q is mounted in the brackets *c* of the standards K K′, and the doup-thread *z* therefrom passes over the whip-roll C″, lease-rods D D, and through the harnesses E E E and reed G, as shown.

We do not deem it necessary to describe the process of doup-weaving, as the same is common and well known, and our present invention relates entirely to the slackening devices *m n*. In Figs. 1 and 2 these slackeners *m n* are shown in their usual position. The draft of the doup-thread *y* is caused by the weights *r* upon the hook *q*, hung upon the cross-bar of the slackener *n*, and this draft of the doup-thread in passing over the cross-bar of the slackener *m* causes the friction-cord *o* to draw more tightly on the roller P, and so to prevent over-rotation thereof. When

by the jacquard or other mechanism controlling the pattern devices there is required a slackening of the doup-threads, the slackener n moves from the position shown in Fig. 2 in solid lines to the position shown in said figure in dotted lines, being so moved by that portion of the doup-thread y which is above and beyond the cross-bar of the slackener n. The thread y when the slackener n is in its elevated position lies in the direction indicated in Fig. 2 by the dotted line y'. In this direction it is seen that the thread no longer pulls down the slackener m, and therefore the friction-cord o does not bind on the flange of the roller P. The result is that said doup-thread is loose and allows the douping movement in the harnesses, whereby the figure or pattern formed of the doup-thread is woven into the fabric. The return of the pattern-forming devices to their previous position allows the weights r to draw down the slackener n to the position indicated in Fig. 2 in solid lines.

In Fig. 6 is shown the patterned fabric, in which the doup-threads are woven into the desired design.

This mechanism is adapted to be used in the weaving not only of figured tape, but also of leno and other gauze fabrics.

The slackening devices heretofore employed for these purposes have been placed on the upper portions of the loom, where they have been much in the way, and they have been comparatively heavy, extensive, and cumbersome. Our improved slackening devices occupy but little space, do not interfere with access to the loom, and being of such light weight are extremely sensitive to the draft of the pattern-forming mechanism, while they afford to each individual warp-beam of doup-thread precisely that degree of friction which it needs, without any excess thereof or any communication from one to another.

We claim as a novel and useful invention and desire to secure by Letters Patent—

1. The improved slackening device for doup-weaving herein described, consisting of the combination of a flanged, rotatable warp-roller, properly mounted, an upper slackening-lever consisting of a bar with two parallel bent ends which terminate each with an eye, two studs mounted in fixed supports in the same vertical line with the journals of said warp-roller but below the same, on which studs, respectively, said eyes of the upper slackening-lever are loosely mounted, a friction-cord passing over the flange of said roller and having one end fastened to a fixed support and the other end fastened to the upper slackening-lever, a lower slackening-lever consisting of a bar with two bent ends parallel with each other terminating each with an eye, which eyes, respectively, are loosely mounted on said studs, a weight hung upon the bar of the lower slackening-lever, a doup-thread wound upon said roller and passing thence over the bar of the upper slackening-lever and under the bar of the lower slackening-lever, and means adapted to draw said thread from the warp-roller substantially as specified.

2. The improved slackening device for doup-weaving, consisting of the combination of a flanged, rotatable warp-roller, properly mounted, an upper slackening-lever consisting of a bar with two parallel bent ends which terminate each with an eye, two studs mounted in fixed supports in the same vertical line with the journals of said warp-roller but below the same, on which studs, respectively, said eyes of the upper slackening-lever are loosely mounted, a friction-cord passing over the flange of said roller and having one end fastened to a fixed support and the other end fastened to the upper slackening-lever, a lower slackening-lever consisting of a bar with two bent ends parallel with each other terminating each with an eye, which eyes, respectively, are loosely mounted on said studs, a doup-thread wound upon said roller and passing thence over the bar of the upper slackening-lever and under the bar of the lower slackening-lever, and means adapted to draw said thread from the warp-roller, substantially as described.

In testimony whereof we affix our signatures in presence of two witnesses.

FRANK WOOD.
WILLIAM HINCHLIFFE.

Witnesses:
W. E. KEACH,
M. M. BROWN.