

(No Model.)

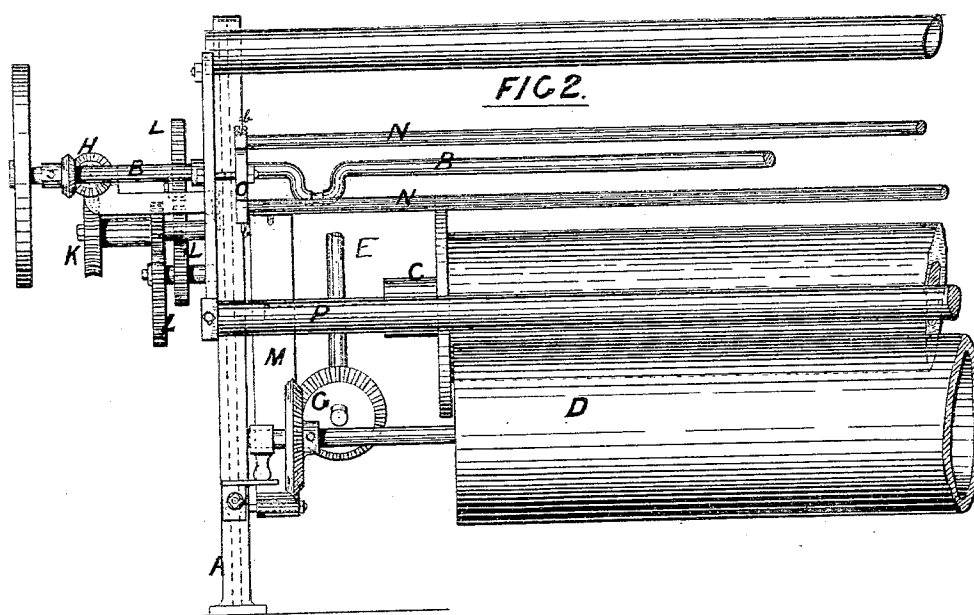
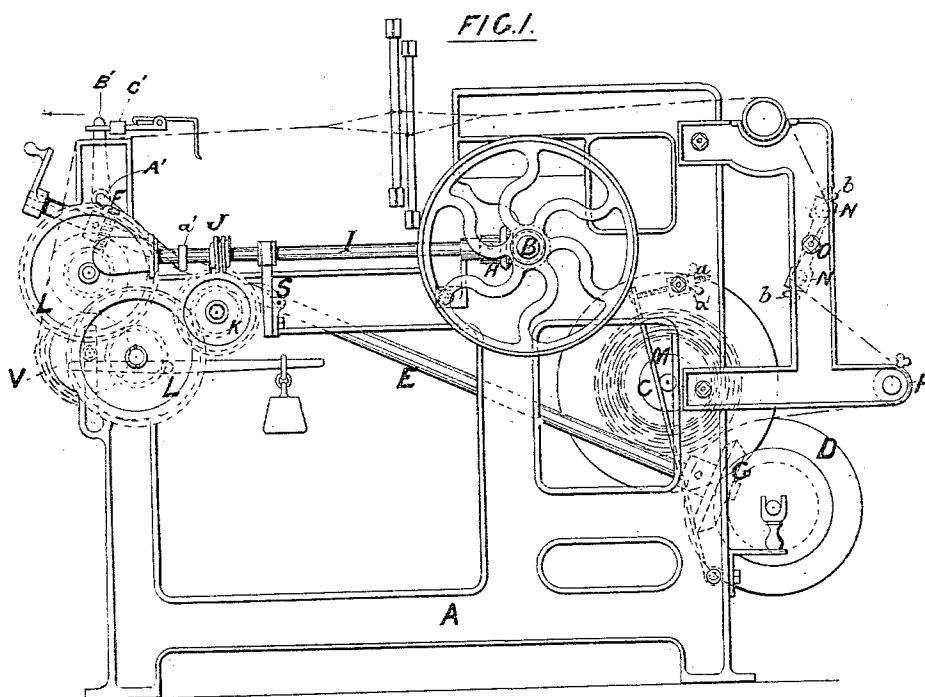
2 Sheets—Sheet 1.

T. H. BLAMIRE'S.

TAKE-UP AND LET-OFF MECHANISM FOR LOOMS.

No. 318,857.

Patented May 26, 1885.



WITNESSES:

A. B. Crossley
J. H. Blamires

INVENTOR:

T. H. Blamires

(No Model.)

2 Sheets—Sheet 2.

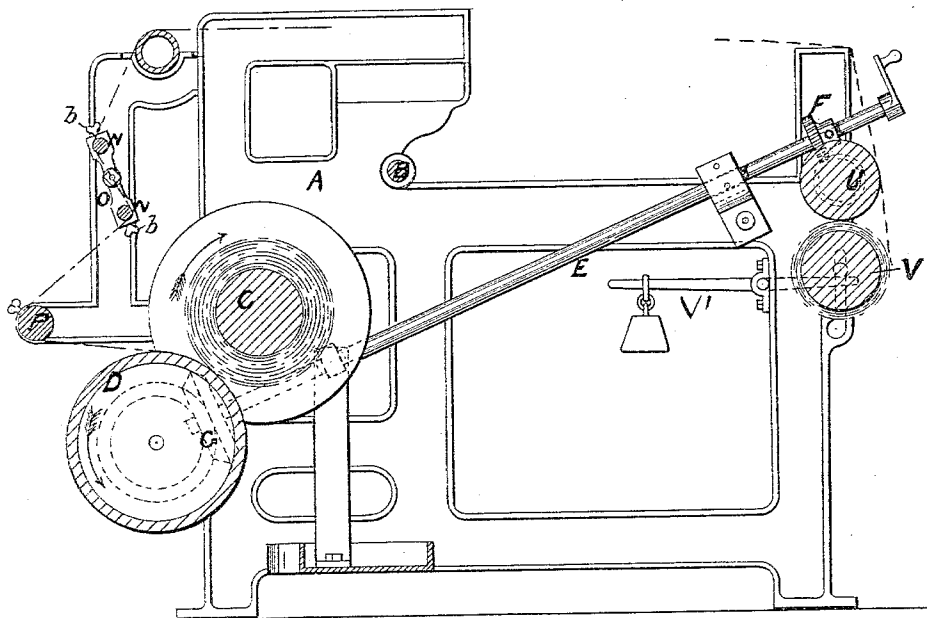
T. H. BLAMIRE.

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FIG. 3.



WITNESSES:

Albrossy
J. H. Barton

INVENTOR:

T. H. Blamires

UNITED STATES PATENT OFFICE.

THOMAS HOWARD BLAMIRE, OF HUDDERSFIELD, COUNTY OF YORK,
ENGLAND.

TAKE-UP AND LET-OFF MECHANISM FOR LOOMS.

SPECIFICATION forming part of Letters Patent No. 318,857, dated May 26, 1885.

Application filed January 10, 1884. (No model.) Patented in England November 23, 1883, No. 5,495.

To all whom it may concern:

Be it known that I, THOMAS H. BLAMIRE, a citizen of the United Kingdom of Great Britain, and a resident of Huddersfield, in the county of York, England, have invented certain Improvements in Take-Up and Let-Off Mechanisms for Looms, of which the following is a specification.

My invention (for which I have obtained a patent in Great Britain, No. 5,495, bearing date November 23, 1883) consists of improvements in take-up and let-off mechanisms for looms for weaving, wherein the warp-beam is driven by peripheral contact with a delivery roller or drum, on which the warp-beam bears with a part of its weight, and wherein the warp-beam and taking-up beam are driven from the same shaft; and the objects of my improvements are, first, to provide inclined bearings for the warp-beam, the inclination of which bearings may be varied by suitable adjusting mechanism in order to vary the pressure of said beam on the delivery-roller; and, second, to provide an improved mechanism for driving the warp-beam and taking-up beam from the same shaft, all as will be particularly described hereinafter, and defined in the claims.

I will say that previous to my invention it has been proposed to drive the warp-beam and taking-up beam of a loom from one shaft, in order that the relative speeds of the two beams may be better maintained; and it has also been proposed to drive these beams by peripheral frictional contact with the driving rollers or drums, whereby the surface-speed may be maintained uniform, therefore I do not claim these features, broadly, although I have herein shown them.

In the drawings which serve to illustrate my invention, Figure 1 is a side elevation of so much of a loom as is necessary to illustrate my invention. Fig. 2 is a view of one end of the same, looking from the right in Fig. 1. This view shows only one side of the loom, and a portion of the shaft E, together with the devices at the forward end of said shaft, are broken away or omitted. Fig. 3 is a vertical section taken in the center of the loom and longitudinally of the same.

Referring to Figs. 1, 2, and 3, A is the loom-

frame; B, the crank-shaft, and C the warp-beam, which, it will be seen, rests or bears upon a delivery-roller, D. This beam C receives a continuous rotary motion from the sand-beam or friction-drum U (see Fig. 3) through the medium of a shaft, E, a worm-wheel, F, on said shaft, which meshes with a worm on the axis of beam U, and bevel-gears G on the shaft E and drum D, respectively. The sand-beam U receives its motion from the crank-shaft B through the medium of miter or bevel wheels H, shaft I, worm J, worm-wheel K, and train of gears L, the last gear-wheel of the said train being fixed on the axis of the sand-beam U.

As usual in looms of this class, the taking-up beam V is mounted below the sand-beam in vertically-slotted bearings, and is kept pressed upward into peripheral contact with the sand-beam by means of weighted levers V', the shorter arms of which take under the journals of the beam V. The motion which is thus imparted to the sand-beam from shaft B is communicated to the delivery-drum D through shaft E, as before stated, and this drum communicates it to the warp-beam C by frictional surface or peripheral contact, whereby the warp is unwound from the beam and supplied in the same proportion that it is used. The relative speeds of the take-up beam V and the warp-beam C are regulated by means of the bevel-wheels G, these being changeable, and the first two wheels of the train L, the first of which is on the axis of the worm-wheel K. By this mechanism the delivery of the warp and the taking up of the woven fabric are made commensurate and uniform relatively, the quantity of warp delivered being always determined by the quantity taken up, and the warp is delivered with mechanical accuracy whatever may be the amount of warp on the warp-beam.

S is a retaining-catch, designed to prevent the worm-wheel K from running back when the shaft I is lifted, so as to remove worm J from mesh with wheel K on the breakage of the weft, whereby the take-up and let-off mechanism is immediately stopped, although the loom may continue to run for one or two revolutions by its acquired momentum. For effecting this stoppage of the take-up and let-

off mechanism I employ the usual weft-fork mechanism found in many looms, and fully described in Kenworthy and Bulloughs' English Patent No. 8,790 of 1841. I have shown in 5 Fig. 1 the principal features of the mechanism. The shaft I is capable of being lifted in its bearings, and this is effected by means of a rock-shaft, A', mounted in the frame of the loom, and having a cranked end which is provided with a hook, a', that takes under the 10 shaft I. On the other end of rock-shaft A' is an upright arm, B', which stands just in front of the "knocking-off" lever C', which swings or plays horizontally on a vertical pivot at 15 the end opposite to that shown in Fig. 1. This lever C' bears the weft-fork, and when the weft is broken or absent from other causes the lever C' will be automatically drawn by the usual weft-hammer in the direction of the arrow, and will act upon arm B' in such a manner as to raise shaft I. This mechanism I do not claim.

When weaving a soft-wound warp, I provide that the full weight of the loaded beam shall 25 not bear upon the drum D. It will be observed that the centers of beam C and drum D are not in the same vertical plane, and that the journals on the ends of the warp-beam bear upon adjustable inclined bars M. These 30 bear the greater portion of the weight of the beam; but they permit the beam to bear with a lesser portion of its weight upon the drum D. This mode of mounting the warp-beam prevents the flattening or compressing of its rounded surface by undue pressure on D. 35 Heretofore where the warp-beam has been mounted in inclined bearings the inclination of these, so far as I am aware, has been fixed or unchangeable. In order to vary the inclination of the bars M, to regulate the pressure of the beam on the drum D, I provide 40 them with regulating-screws a. These screws pass through holes in a cross-bar fixed in the loom-frame, and are provided with suitable 45 nuts, a', all of which is indicated by dotted

lines in Fig. 1. The bars M are hinged to the loom-frame at their lower ends to permit of this adjustment of their inclination.

I will now briefly describe the warp-tension-regulating devices, (best shown in Fig. 3,) although I make no claim to this feature of the loom. Two bars, N, are mounted in swivel-brackets O, mounted rotatively on frame A. The warp (shown in dotted lines) on its way from beam C to the "shed" passes over an idler or bar, P, and thence around bars N. 55 The tension is regulated by turning the brackets O on their axes, so as to change the direct course of the warp more or less. Set-screws b serve to prevent the rotation of bars N in 60 their sockets when desired.

I claim as my invention—

1. The combination, with the delivery roller or drum, of the warp-beam and the inclined bearings for the warp-beam, constructed to be 65 adjusted and provided with adjusting mechanism, substantially as described, whereby their inclination may be varied, as set forth.

2. The combination, with the warp-beam and its delivery roller or drum, of the hinged bars M and their screws and nuts, said bars 70 constructed to form an adjustable inclined bearing for the beam, substantially as set forth.

3. The combination of the warp-beam, its delivery roller or drum, the shaft E, and bevel-gears G, the worm-wheel F, the sand-beam 75 U, the shaft I, and its worm J, the worm-wheel K, and train L, the crank-shaft B, bevel-gears H, take-up beam V, and its yielding support, all constructed and arranged to operate substantially as set forth. 80

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

THOMAS HOWARD BLAMIRE.

Witnesses:

C. W. WHITMAN,

U. S. Consular Agent at Huddersfield.

A. B. CROSELEY,

Market Place, Huddersfield.