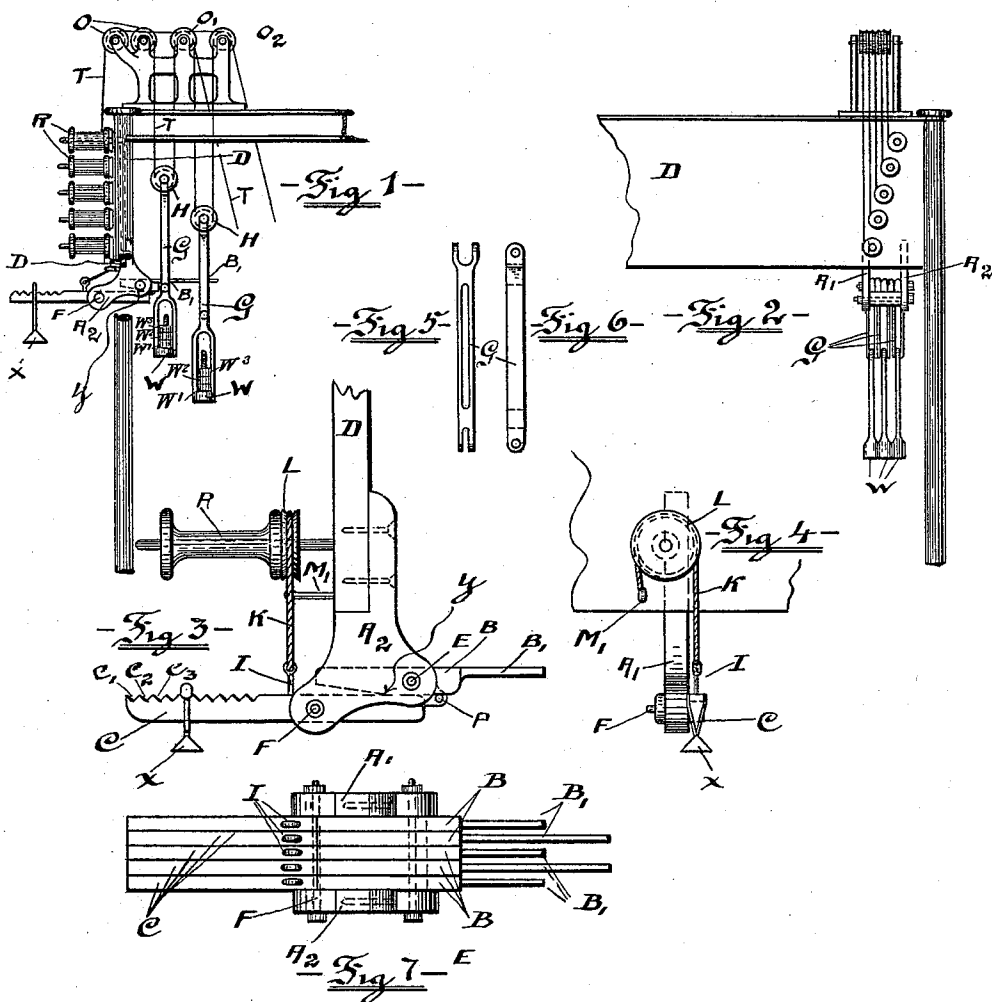


(No Model.)

A. & S. WIDMER.
AUTOMATIC LET-OFF.

No. 579,783.

Patented Mar. 30, 1897.



Witnesses—

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UNITED STATES PATENT OFFICE.

ADOLPH WIDMER AND SAMUEL WIDMER, OF PATERSON, NEW JERSEY.

AUTOMATIC LET-OFF.

SPECIFICATION forming part of Letters Patent No. 579,783, dated March 30, 1897.

Application filed June 24, 1896. Serial No. 596,703. (No model.)

To all whom it may concern:

Be it known that we, ADOLPH WIDMER and SAMUEL WIDMER, citizens of the United States, residing at Paterson, in the county of Passaic and State of New Jersey, have invented certain new and useful Improvements in Automatic Let-Offs with Sustained Weight; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

Our invention is an improvement on the present system of unwinding the warps for ribbon-work by elevating the drop-weights attached to the warp every time the said weights have reached the floor, a labor and time wasting operation on the part of the weaver, as it necessitates the stopping of the loom. Furthermore, in our device, in case of any adjustment of the warp being necessary, (threads snapping, for instance,) the loom had to be stopped, after which the operator had to go from the front of the loom to the rear and catch the weights up, so that they did not continue to exercise any pull on the warps while he adjusted the warp-threads out of order, whereas now he can not only adjust the warp-threads out of order in the position the warp is in after being stopped, but can pull the entire warp back from the front beam, the sustained weight permitting this motion to an extent of length of the slot in fork G, as will be explained farther on. The predominant qualification is, however, the one doing away with the handling of the weights, as it enables the warp-rolls to feed their entire warp until worked down; and our device is strictly true to its title, inasmuch as, in addition to having the let-off automatic, instead of permitting the weight to drop, by attaching our counterbalancing device we keep the weight suspended continuously.

In order to fully illustrate our idea, we have in the hereunto-attached drawings, wherein like letters of reference indicate corresponding parts in the different views, shown in Figure 1 a side view of the rear part of a ribbon-

loom, indicating the operation of our automatic let-off with sustained weights and the warp's course from the warp-roll and to its course under the first glass beam previous to its passing through the reed. Fig. 2 is a rear end view of Fig. 1. Fig. 3 is a detailed side view of our device; Fig. 4, an end view of part of Fig. 3; Fig. 7, a top view of Fig. 3; Fig. 5, a detail view of the fork G, and Fig. 6 a side view of Fig. 5.

Our device is composed of the following parts: Between two pieces of framework A' and A², screwed on the part of the loom-frame D forming the warp-roll racks, having the warp-roll pegs, said pegs in this construction being made of cast-iron, two rows of levers B and C are supported, respectively, on pins E and F. Levers B, being alternately long and short, are supported by a rod P, fixed between frames A' and A² and partly in the lower part of fork G, which supports the weight W when the loom is in activity. Said fork G is attached at its other end to the pulley H. Levers C, pivoted on rod F, secured in the frames A' and A², are furnished with notches C' C² C³, and so on, to permit the attachment of a weight, whose action will be explained later on. They are, furthermore, each furnished with a hook I, having a cord K attached, passing over a pulley L, attached to the warp-roll, the other end of said cord K being attached to the frame D by the eyelet M', the cord K thus acting as a brake on the warp-roll, as will be seen later on.

The other elements are well known and will be alluded to in describing the passage of the warp from the warp-roll. If, for instance, the warp in Fig. 1 be used as an example to illustrate the application of our device and be followed in its course, we will allude to it as T. This warp T then in being unwound from the warp-roll R passes over the two pulleys O, down around the pulley H, having the weight W attached, over the second pulley O' in the top castle, down under the glass beam, and so on until its division up into threads through the reed.

The action of our device on the warp is as follows: As the arrangement previous to our invention of having the weight drop (from whence the name "drop-weight") was to bear down the warps between the warp-roll and

the reeds, and when the weight ceased to act by resting on the floor, necessitating the elevating of the forecastle to greatest possible height and then to elevate it again, the idea quite naturally formed itself to any one watching the time and labor wasting operation of raising that drop-weight by hand that if the weight could be sustained the operator could bestow all his attention on the actual weaving taking place in the front part of the loom.

This we have by experience found can be obviated and the weights kept suspended by having these so counterbalanced by the weight X, adjusted on the other lever-arm C, as to bear against the under surface with the fork G on the part B' of lever B, causing lever B to vibrate slightly and generally resting with the point marked Y in Figs. 1 and 3 on the lever C, this lever having the cord K attached to it by eyelet I. The cord running over the pulley L, attached to warp-roll R, and fastened at its other end to eyelet M', secured in the warp-rack D, will, on account of having a weight X attached, act as a counterbalance to the weight W, the point Y being the fulcrum of the balance-levers B and C. In the same manner that the weight W can be made heavier and lighter by adding or removing metal disks, so also the lever C is constructed with the notches C' C² C³, and so on, to increase or decrease the friction on the friction-pulley L by moving the weight X to or from the fulcrum Y.

What we then claim as new and an improvement in the present drop-weight system, and desire to secure protection for, is—

1. In a loom, the warp-roll rack having rows of pins supporting the warp-rolls, a row of warp-rolls each having a friction-pulley attached, the top castle with pulleys adapted to support the warp, the pulleys and thereunto-

attached weights, a fork attached between said pulleys and their respective weights in combination with a lever-balance appertaining to each warp, comprising two levers having their approximate ends in contact creating a fulcrum, a laterally-adjustable weight attached to the rear lever of said lever-balance, a cord attached to said rear lever passing over the friction-pulley attached to the warp-roll, and attached at its other end to warp-roll rack, all for the purposes as set forth as illustrated and described.

2. In a loom, the warp-roll rack having rows of pins supporting the warp-rolls, each warp-roll having a friction-pulley attached, the top castle with pulleys adapted to support the warp, the pulleys and thereunto-attached weights, a fork attached between said pulleys and their respective weights in combination with a row of lever-balances, each lever-balance comprising two levers having their approximate ends in contact thereby creating a fulcrum, two side frames suitably secured to the warp-roll rack having an adequate number of the said lever-balances pivoted between them, laterally-adjustable weights attached to the rear levers, cords attached to the rear levers passing over the friction-pulleys attached to the warp-rolls and secured to the warp-roll rack, all operating for the purposes as set forth substantially as illustrated and described.

In testimony that we claim the foregoing we have hereunto set our hands this 17th day of June, 1896.

ADOLPH WIDMER.
SAMUEL WIDMER.

Witnesses:

HARRY GIBB,
AUGUST M. TRESCHOW.