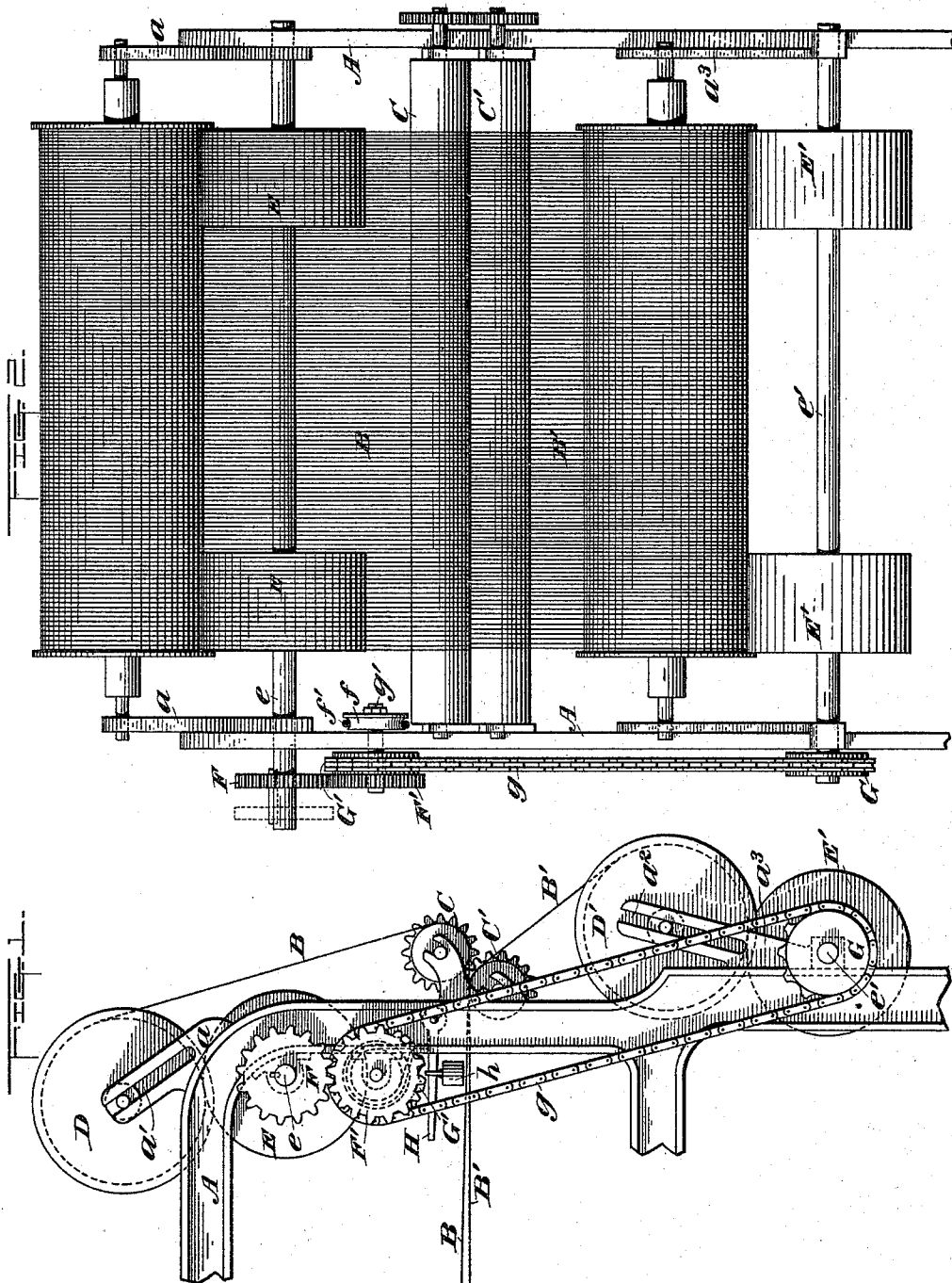


(No Model.)

I. E. PALMER.
LET OFF MECHANISM FOR LOOMS.

No. 573,160.

Patented Dec. 15, 1896.



Witnesses.

Richard
George Barry.

Inventor, Isaac E. Palmer,
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UNITED STATES PATENT OFFICE.

ISAAC E. PALMER, OF MIDDLETOWN, CONNECTICUT.

LET-OFF MECHANISM FOR LOOMS.

SPECIFICATION forming part of Letters Patent No. 573,160, dated December 15, 1896.

Application filed March 10, 1894. Serial No. 503,097. (No model.)

To all whom it may concern:

Be it known that I, ISAAC E. PALMER, of Middletown, in the county of Middlesex and State of Connecticut, have invented a new and useful Improvement in Let-Off Mechanism for Looms, of which the following is a specification.

My invention relates to an improvement in let-off mechanism for looms, and more particularly to let-off mechanism for use in connection with looms where, from any cause, such, for example, as forming suspension-loops of the warp-threads in weaving hammocks, it is found desirable to advance one of the sets of warp-threads faster than the other set for the purpose of either leaving an unwoven series of loops across the fabric or fulling one of the sets of warp-threads.

A practical embodiment of my invention is represented in the accompanying drawings, in which—

Figure 1 represents a portion of the loom-frame and the let-off mechanism in end elevation, and Fig. 2 represents the same in rear elevation.

A represents a portion of the loom-frame at the end from which the sets of warp-threads are drawn to be woven. The particular means for weaving may be of any well-known or approved form and is not represented herein. The upper set of warp-threads is denoted by B and the lower set by B'. The upper set B leads under a guide-roller C from a supply-roller D, journaled in elongated slots a' , formed in standards a , fixed to the frame A. The supply-roller D rests upon supporting-drums E, fixed on a shaft e , journaled in the frame A, and having secured on one of its ends a slip gear-wheel F, so secured to the shaft e that it will rotate together with the shaft, but be permitted to slide longitudinally of the shaft. Its connection with the shaft may be of the ordinary feather-and-groove type. The lower set of warp B' extends over a guide-roller C' in proximity to the guide-roller C from the supply-roller D', mounted in elongated slots a'' in standards a'' , fixed to the frame A. The rollers C C' may be geared together, as shown, when the loom is employed for ordinary plain weaving, but when employed for weaving

hammocks in which the warp-threads are utilized for suspension-loops the rollers are disengaged by removing one of the inter-meshing gear-wheels. The supply-roller D' rests upon supporting-drums E', fixed on the shaft e' , journaled in the frame and provided at one end with a sprocket-wheel G. The sprocket-wheel G is connected by a sprocket-chain g with a sprocket-wheel G', fixed on a spindle g' in suitable bearings in the frame. The spindle g' has fixed thereon a spur-wheel F', corresponding in the number of teeth to the spur-wheel F, hereinbefore referred to, and said spindle g' has further fixed thereon a brake-wheel f , which receives around it a band f' , one end of which is secured to the frame A and the opposite end to the lever H, carrying a weight h , adjustable along the lever H for the purpose of increasing or decreasing the frictional contact of the band f' with the brake-wheel f to increase or decrease the tension under which the warp-threads are to be fed.

In operation whenever it becomes desirable to momentarily advance one of the sets of warp-threads, in the present instance the upper set B, the wheel F is slipped out of engagement with the corresponding gear-wheel F', and the warp-threads composing the set B may then be pulled forward independently of the lower set of warp-threads B', the particular means for pulling the threads forward being a matter to be determined for the purposes in hand. At present I use a rod which is inserted momentarily under a set of warp and moves it in a direction to pull the threads of the upper set quickly along a distance sufficient to make the desired length of unwoven loops. As soon as this has been done the gear-wheel F may be slipped back again into engagement with the corresponding gear-wheel F', and the weaving will continue again as before.

It is obvious that various simple means, such, for example, as an ordinary shifting-lever, might be employed for moving the gear-wheel F out of and into contact with the gear-wheel F'. I at present prefer, however, to leave it to the operator to simply slide it back and forth with his hand.

In cases where it is desired to feed one set

of warp continuously faster than the other to produce a fulling effect the supporting drum or drums, engaged with the supply-roll of the set to be accelerated, may be made larger
 5 than those of the other set, the supporting-
 drums on one or the other of the shafts *e* or *e'* being for this purpose conveniently made interchangeable. Instead of changing the
 10 size of the drums the drum-driving gear might
 be made interchangeable to drive one set of supporting-drums faster than the other.

What I claim is—

1. In combination, independent supports for different sets of warp, rollers bearing
 15 against the warp on the said supports, a shifting gear mounted to rotate with the roller engaged with the warp on one of said supports, an independent gear mounted in position to engage the said shifting gear when the latter
 20 is thrown into operative position and gear for connecting said independent gear with the roller engaged with the warp on another warp-support whereby the said warp-supports are
 25 caused to feed at predetermined rates or one of said warp-supports is permitted to feed in-

dependently of the other as may be desired, substantially as set forth.

2. In combination, independent supports for different sets of warp, rollers bearing against the warp on the said supports, a shifting gear mounted to rotate with the roller engaged with the warp on one of said supports, an independent gear mounted in position to engage the said shifting gear when the latter is thrown into operative position, a gear for
 35 connecting said independent gear with the roller engaged with the warp on another warp-support whereby the said warp-supports are caused to feed at predetermined rates or one
 40 of said warp-supports is permitted to feed independently of the other as may be desired, and a tension device arranged to act upon said independent gear and through it upon the feed-regulating rollers, substantially as set forth.

ISAAC E. PALMER.

Witnesses:

FREDK. HAYNES,
 L. M. EGBERT.