I. COULOMBE.

LOOM ATTACHMENT.

APPLICATION FILED OCT. 8, 1913.

1,103,661.

Patented July 14, 1914.

2 SHEETS—SHEET 1.

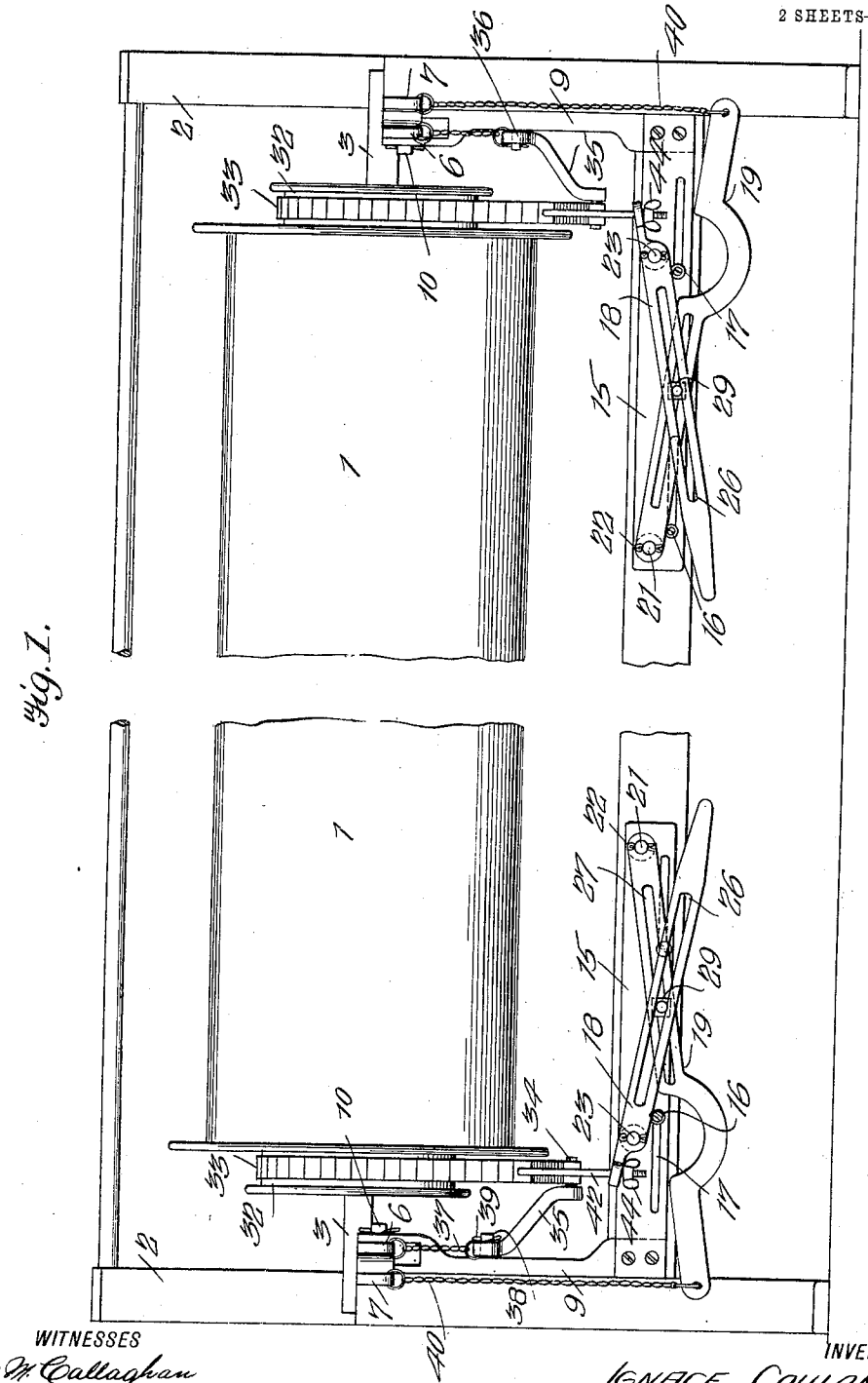


Fig. 1.

WITNESSES

E. M. Callaghan

C. E. Trainor

INVENTOR

IGNACE COULOMBE,

BY Munn & Co.

ATTORNEYS

THE NORRIS PETERS CO., WASHINGTON, D. C.

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2 SHEETS—SHEET 2.

Fig. 2.

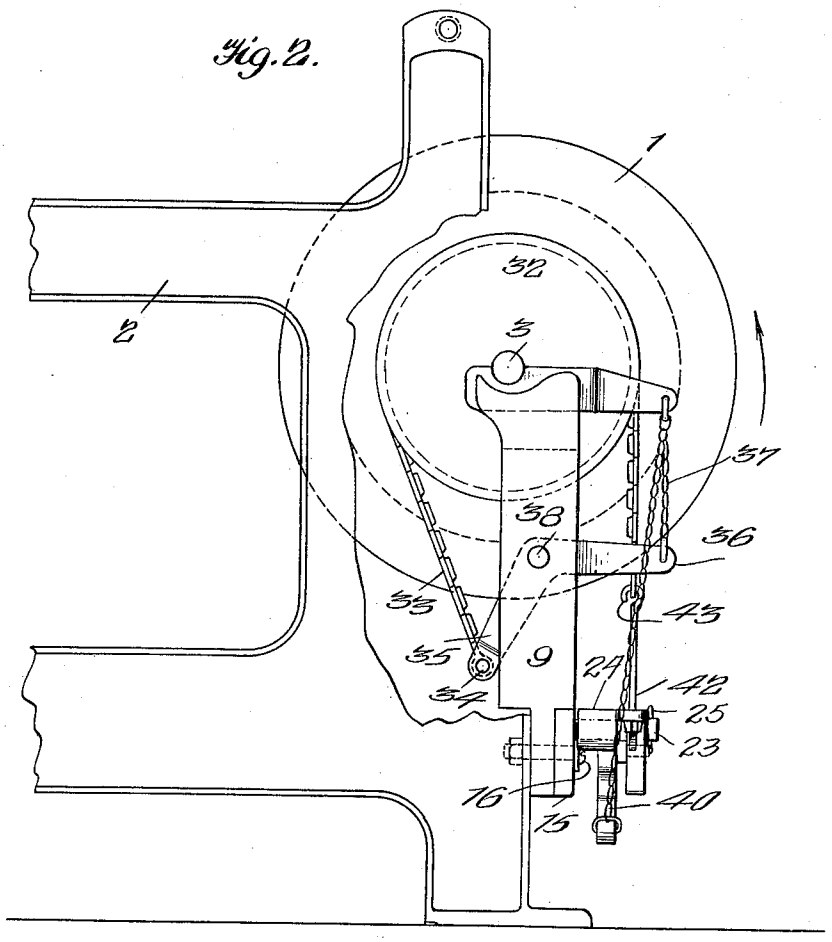
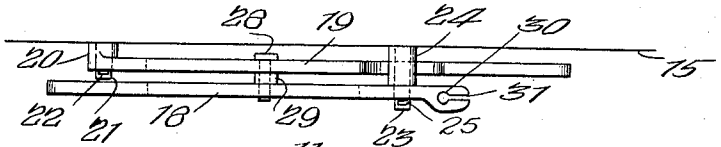


Fig. 3.



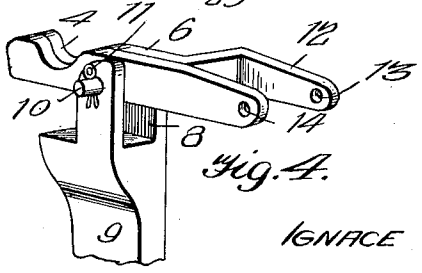


Fig. 4.

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THE NORRIS PETERS CO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

IGNACE COULOMBE, OF FALL RIVER, MASSACHUSETTS.

LOOM ATTACHMENT.

1,103,661. Specification of Letters Patent. Patented July 14, 1914.

Application filed October 8, 1913. Serial No. 794,102.

To all whom it may concern:

Be it known that I, IGNACE COULOMBE, a citizen of the United States, and a resident of Fall River, in the county of Bristol and State of Massachusetts, have invented a new and useful Improvement in Loom Attachments, of which the following is a specification.

My invention is an improvement in loom attachments, and has for its object to provide an attachment of the character specified, wherein the tension on the warp beam is controlled directly by the weight of the yarn on the beam, and wherein the mechanism is so arranged that as the yarn feeds from the beam, the tension will automatically decrease.

In the drawings:—Figure 1 is a front view of a portion of a loom, showing the warp beam with the attachment in place, Fig. 2 is an end view of Fig. 1 with parts of the loom broken away, Fig. 3 is a top plan view of the lever mechanism, and Fig. 4 is a perspective view of the bearing levers for the spindle or journal pin of the warp beam.

The present invention is an improvement over my prior patent #1,062,443, granted May 20, 1913.

The warp beam 1 of the loom 2 is provided with the usual spindles or journal pins 3, and the said pins engage grooves 4 and 5 respectively in bearing levers 6 and 7. The said levers are pivoted intermediate their ends between the arms 8 of a fork at the upper end of the standard 9, by means of a pivot pin 10. The pin passes through the arms of the fork, and the levers, and a cotter pin 11 is provided for holding the pin in place. The lever 6 has the end remote from the groove 4 offset laterally away from the lever 7 as shown at 12, and both levers are provided at the said end with openings 13 and 14 respectively.

It will be understood that the mechanism at each end of the loom is the same, and each of the standards 9 before mentioned, is connected to one end of a plate 15, which is secured to the frame of the loom by means of screw bolts 16, the said screw bolts passing through slots 17 extending longitudinally of the plate, in order that the plates may be adjusted to proper position with respect to the loom. Levers 18 and 19 are connected with the plate. The lever 19 is provided at the end remote from the standard with a hub or bearing 20, and the said hub or bearing engages a pin 21, extending laterally from the plate, and a cotter pin 22 is passed through the pin outside of the lever to hold the lever in place. The lever 18 is pivoted on a pin 23 extending laterally from the plate, and a sleeve or arbor 24 encircles the pin between the lever and the plate 15.

A cotter pin 25 is passed through the pin outside the lever. Each lever is slotted longitudinally, the lever 18 having a slot 26, and the lever 19 having a slot 27. A bolt 28 is passed through the slot 27 of the lever 19, and a nut 29 is threaded on to the bolt adjacent to the said lever. The head of the bolt is on the inner side of the lever, and the outer end of the bolt engages the slot 26 of the lever 18. Thus the bolt may be adjusted with respect to both levers, and may be locked in adjusted position by tightening the nut to compress the lever 19 between the head of the bolt and the nut. The lever 18 is extended beyond the pivot pin 23 toward the standard, and the said end is provided with an opening 30, and with a slot 31, leading from the opening to the adjacent end of the lever.

The brake disk 32 at each end of the beam is engaged by a brake band 33 of any usual or desired construction. One end of the brake band is connected to a laterally extending pin 34 on one of the arms 35 of an elbow lever. The other arm 36 of the said lever is connected to the opening 14 of the bearing lever 7, by means of a chain 37 or the like.

The elbow lever is pivoted intermediate its ends on a pin 38, extending laterally inward from the standard 9, and a cotter pin 39 is passed through the pin to hold the elbow lever in place. The opening 13 of the lever 6 is engaged by one end of a chain or other flexible member 40, and the opposite end of the chain is connected to the free end of the lever 19.

A rod 42 connects the other end of the brake band with the lever 18. The rod is provided with a hook 43 at its upper end and the lower end passes through the opening 30 of the lever 18, and a wing nut 44 is threaded on to the rod below the lever.

The operation of the attachment is as follows:—When the beam is heavy with yarn, the weight of the beam and the yarn tends

to depress the inner ends of the bearing levers, and to raise the outer ends. The lever 6 when the outer end thereof is raised, will lift the arm 36 of the elbow lever, thus making tension on the end of the brake band connected with the arm 35 of the said lever. At the same time, the outer end of the lever 7 is lifted, thus making tension on the chain 40, and tending to lift the end of the lever 19 adjacent to the standard 9. Since the levers 18 and 19 are connected and since the connection is on the opposite side of the pivot pin 23 from the chain 40, the end of the lever 18 remote from the standard 9 is lifted, thus depressing the end connected with the rod 42 and making tension on the other end of the brake band. As the yarn passes from the warp beam, the weight of the beam and the yarn is lessened, so that there is less downward pressure on the inner ends of the levers 6 and 7, and as a consequence the tension on the brake band is decreased. The connection between the brake and the warp beam is very sensitive, responding instantly to every change in weight however slight. Thus the actual weight of the warp on the beam controls the tension. After the proper relation between the levers 18 and 19 is attained, no further adjustment is necessary. The adjustment may be so exactly arranged, that the actual tension on the warp beam will be the same, from the commencement of the feeding of the warp until the last coil is withdrawn. By arranging the brake at each end of the beam, the device is much more sensitive, and much more exact. In different characters of warp, the connection between the levers may be varied, so that whatever the character of the warp, the tension will be precisely the same until all of the warp is unreeled from the beam.

I claim:—

1. The combination with the loom and the warp beam having brake disks at its ends, of a support at each end of the beam, a pair of bearing levers arranged alongside each other and pivoted intermediate their ends to the support, said levers having registering notches on the rear side of the pivotal connection for receiving the adjacent end of the warp beam, an elbow lever pivoted to the support below the bearing levers, a brake band on the adjacent disk and having its inner end secured to the adjacent arm of the elbow lever, a flexible connection between the other arm and the front end of the inner lever of the pair of bearing levers, a pair of levers pivoted to the support and extending longitudinally of the beam, one of the said levers being pivoted to the support at the end remote from the bearing levers, a flexible connection between the other end of the said lever and the front end of the other bearing lever, the other lever of the last named pair being pivoted at the opposite end from the pivotal connection of the first-named lever of the pair and being extended beyond the said pivotal connection, an adjustable connection between the extended end of the said lever and the front end of the brake band, said last-named pair of levers being longitudinally slotted, a bolt engaging the slots of both levers, and means for rigidly connecting the bolt to one of the levers.

2. The combination with the loom and the warp beam having brake disks at its ends, of a support at each end of the beam, a pair of bearing levers arranged alongside each other and pivoted intermediate their ends to the support, said levers having registering notches on the rear side of the pivotal connection for receiving the adjacent end of the warp beam, an elbow lever pivoted to the support below the bearing levers, a brake band on the adjacent disk and having its inner end secured to the adjacent arm of the elbow lever, a flexible connection between the other arm and the front end of the inner lever of the pair of bearing levers, a pair of levers pivoted to the support and extending longitudinally of the beam, one of the said levers being pivoted to the support at the end remote from the bearing levers, a flexible connection between the other end of the said lever and the front end of the other bearing lever, the other lever of the last-named pair being pivoted at the opposite end from the pivotal connection of the first-named lever of the pair and being extended beyond the said pivotal connection, an adjustable connection between the extended end of the said lever and the front end of the brake band, and an adjustable connection between the said levers intermediate their pivotal connection.

3. The combination with the loom and the warp beam, of a pair of bearing levers for each end of the beam, said levers being pivoted to a common support intermediate their ends and having registering notches in rear of the pivotal connection for receiving the adjacent end of the warp beam, a brake band at each end of the beam, an elbow lever pivoted below the inner bearing lever, the inner end of the brake band being connected to the adjacent end of the elbow lever, a connection between the other end of the elbow lever and the front end of the inner bearing lever, a pair of levers arranged alongside each other below the beam at each end thereof, said levers being pivoted at opposite ends, a connection between the front end of the outer bearing lever and the adjacent end of the lever whose pivotal connection is remote from the said end, an adjustable connection between the levers intermediate their pivotal connection, the other lever being extended beyond its pivotal connection and having an

adjustable connection between the extended end and the front end of the inner bearing lever.

4. In a loom the combination with the warp beam, of a pair of levers pivoted at each end thereof and supporting the beam in rear of their pivotal connection, a brake band encircling each end of the beam, a connection between the rear end of the brake band and the front end of one of the said levers for making traction on the said end of the band when the front end of the bearing lever moves upward, a pair of levers pivoted below the beam at each end thereof, and extending longitudinally of the beam, the members of each pair being pivoted to the loom at their opposite ends and lying alongside each other, an adjustable connection between the said levers intermediate their pivotal connection, a connection between the free end of the lever whose pivotal connection is remote from the adjacent end of the beam and the front end of the other bearing lever, the other lever of the pair being extended beyond its pivotal connection toward the adjacent end of the warp beam, and an adjustable connection between the said extended end and the front end of the brake band.

5. In a loom, the combination with the warp beam, of a pair of levers pivoted at each end thereof and supporting the beam in rear of their pivotal connection, a brake band encircling each end of the beam, a connection between the rear end of the brake band and the front end of one of the said levers for making a traction on the said end of the band when the front end of the bearing lever moves upward, and a connection between the front end of the brake band and the front end of the other bearing lever for making traction on the said end of the brake band when the front end of the said bearing lever is moved upward.

6. In a loom, the combination with the warp beam, of a pair of levers pivoted intermediate their ends at each end of the beam and supporting the beam on one side of their pivotal connection, a brake band encircling the beam at each end thereof, and a connection between each end of the brake band and the opposite end of one of the levers from the brake beam for making traction on each end of the brake band when the opposite ends of the levers from the warp beam are moved upward.

IGNACE COULOMBE.

Witnesses:
GEORGE H. PAEAUD,
PHILIAS ST. DENIS.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."