

July 29, 1941.

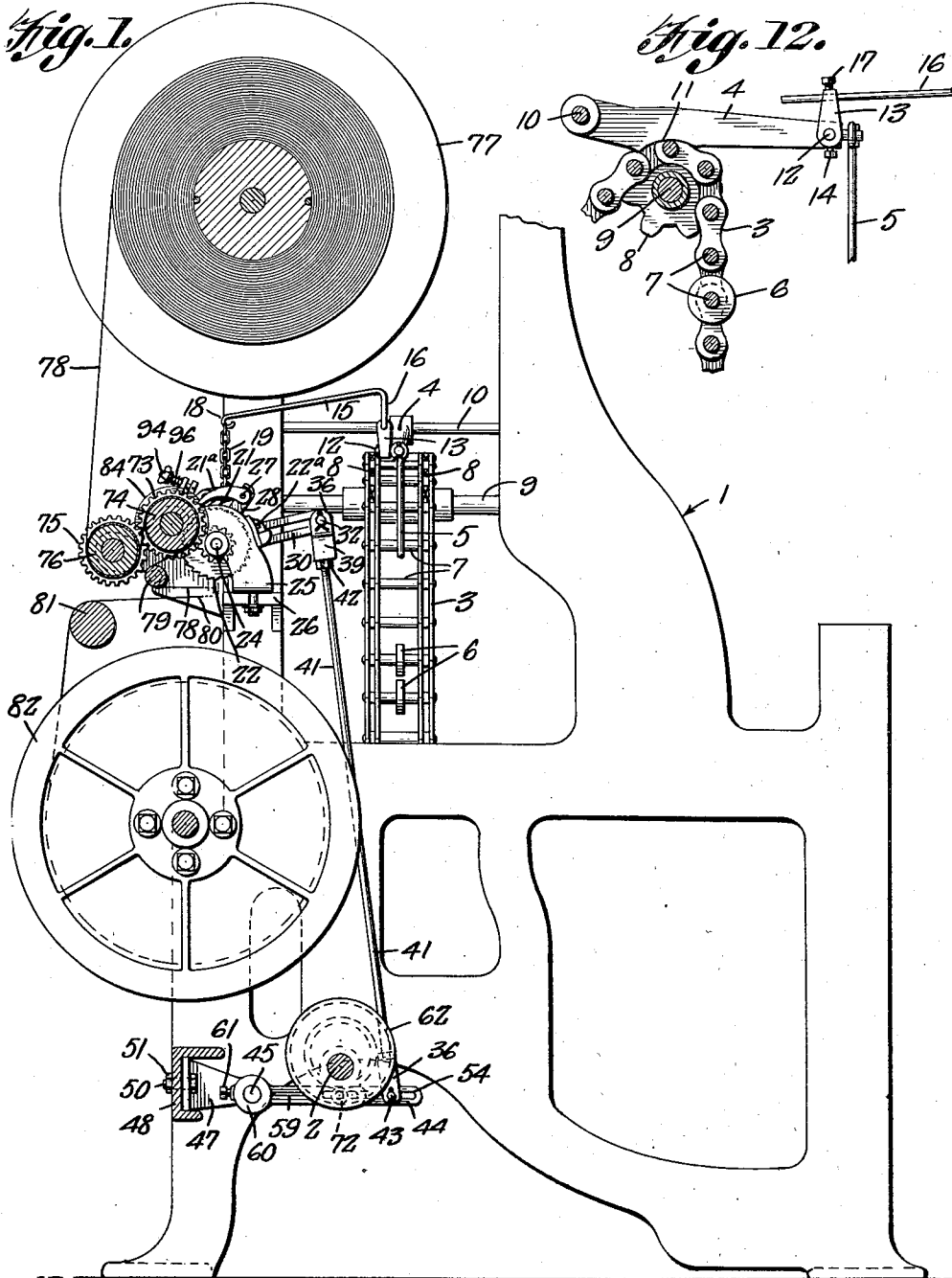
A. H. HILL

2,250,833

LETOFF MECHANISM FOR LOOMS

Filed Dec. 18, 1939

3 Sheets-Sheet 1



Albert H. Hill,

INVENTOR

BY Victor J. Evans & Co.

ATTORNEYS

P. D. Hickey

WITNESS

July 29, 1941.

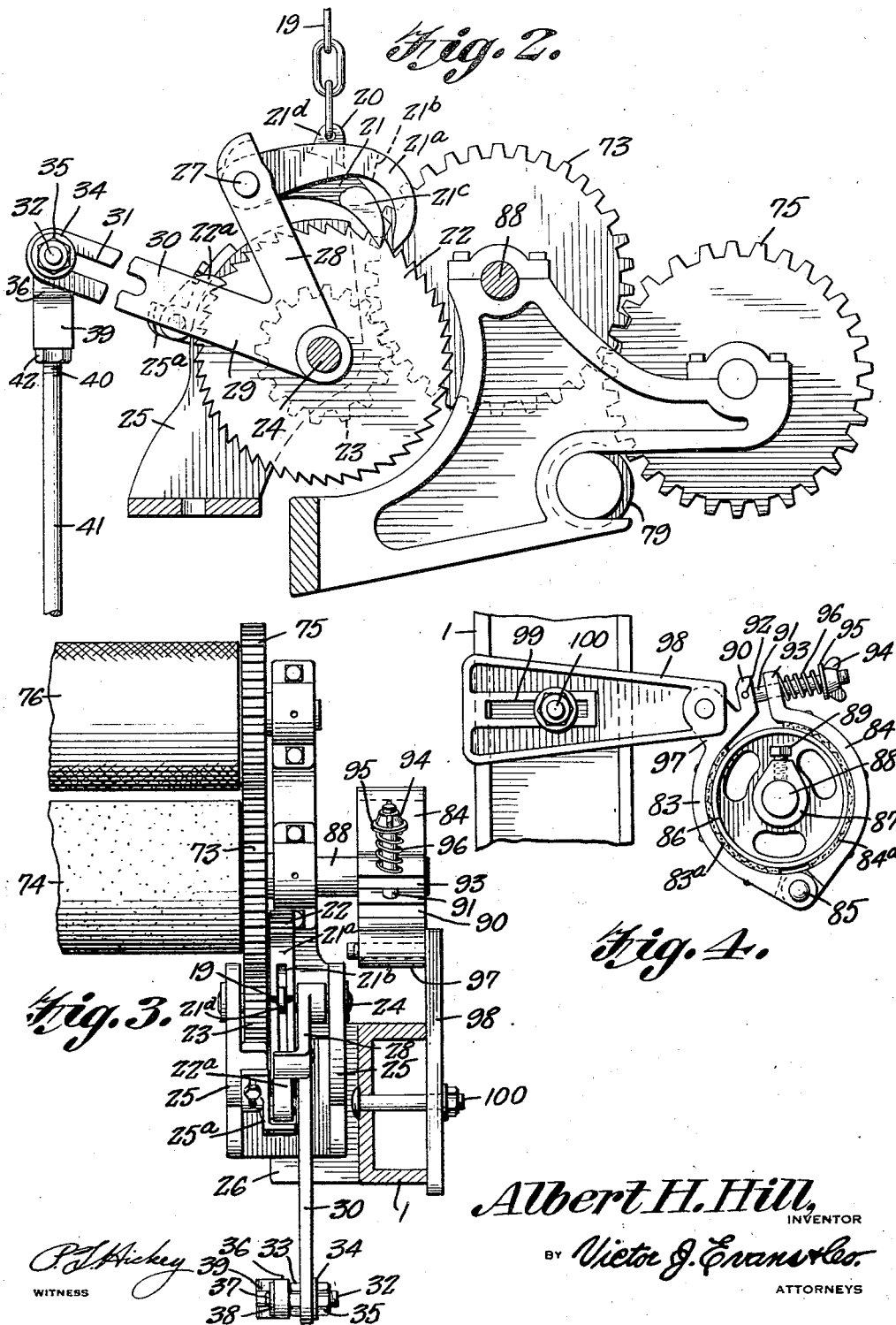
A. H. HILL

2,250,833

LETOFF MECHANISM FOR LOOMS

Filed Dec. 18, 1939

3 Sheets-Sheet 2



July 29, 1941.

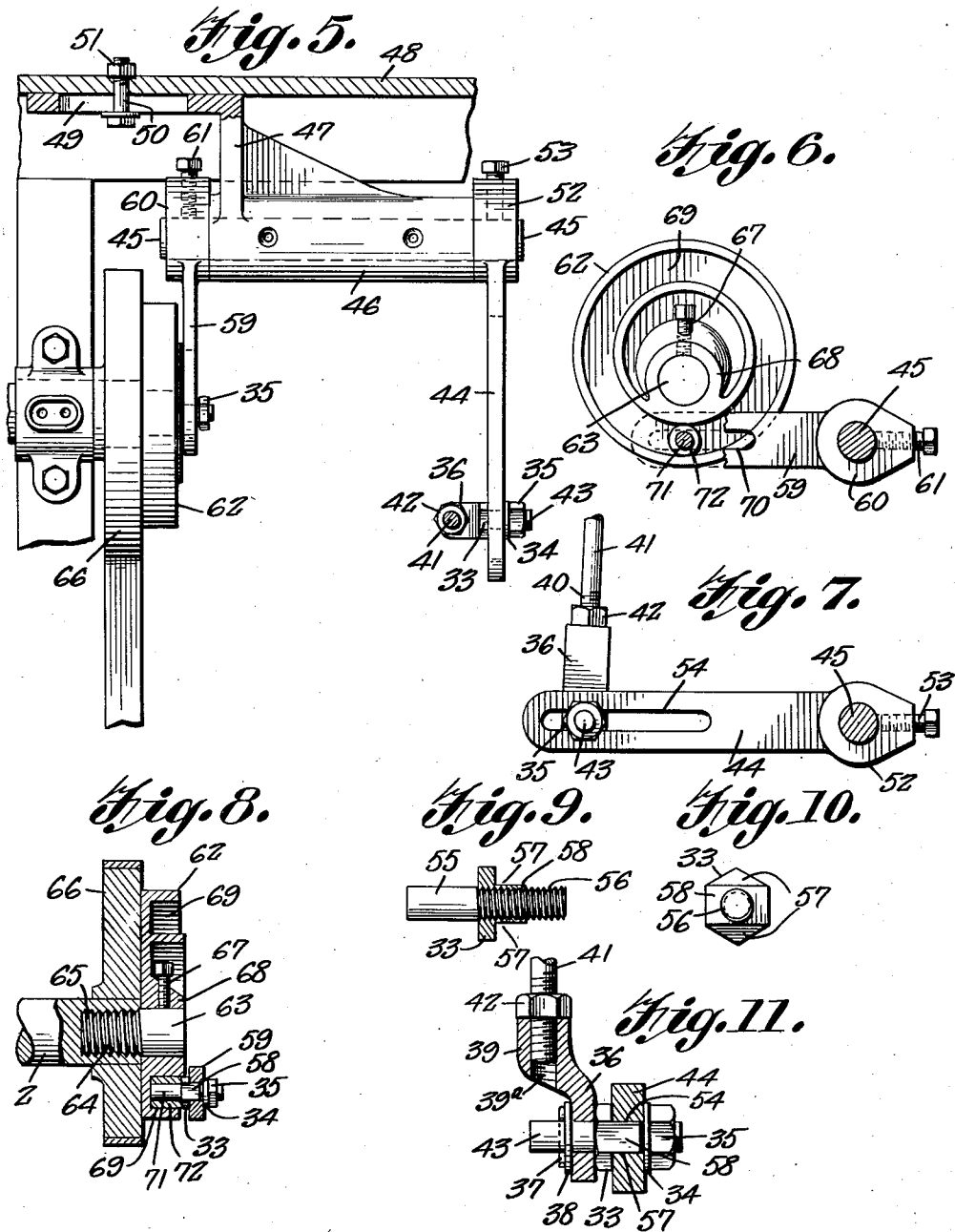
A. H. HILL

2,250,833

LETOFF MECHANISM FOR LOOMS

Filed Dec. 18, 1939

3 Sheets-Sheet 3



Albert H. Hill,
INVENTOR

By Victor J. Evans & Co.
ATTORNEYS

P. Hickey
WITNESS

UNITED STATES PATENT OFFICE

2,250,833

LETOFF MECHANISM FOR LOOMS

Albert H. Hill, Columbus, Ga.

Application December 18, 1939, Serial No. 309,874

4 Claims. (Cl. 139—25)

This invention relates to let-off mechanism for looms and more particularly to a terry-warp let-off, or, in other words, a special mechanism for intermittently stopping the feeding of the top warp, termed the "terry warp" in looms otherwise conventional for the weaving of double pile fabrics and more particularly for making Turkish towels and like pile fabrics known as terry cloth, that is to say, fabric in which the terry warp loops are not cut.

The invention has for one of its objects to improve generally upon mechanism of the above noted character, and a particular object is to produce a mechanism embodying a minimum number of separate working parts which can be readily installed in an otherwise conventional loom structure without material alteration in either the loom structure or the let-off mechanism and having provision for simplified, yet positive and practical adjustment for variation in the size of the terry warp loops and depth of pile or outer surface shag of the woven fabric.

A further object is to produce a mechanism of the foregoing character in which the respective parts thereof are conveniently accessible from outside the body frame of the loom proper for the adjustment, replacement and repair thereof.

With the foregoing and other objects and advantages to be attained, as will hereinafter more fully appear, the invention consists in the novel general structure and in the particular parts and combinations and arrangements of parts thereof as hereinafter described and defined in the appended claims, reference being had to the accompanying drawings illustrating a practical adaptation of the invention, in which—

Figure 1 is a fragmentary view, partly in vertical longitudinal section and partly in side elevation looking toward the right side unit of the body frame from the interior of the structure;

Figure 2 is a fragmentary view, partly in vertical section and partly in elevation and on an enlarged scale, illustrating details of the driving ratchet and the immediately associated parts of the let-off mechanism;

Figure 3 is a fragmentary view, partly in top plan and partly in horizontal section, illustrating further details of the driving ratchet and geared connection between the ratchet and the terry warp feeding and holding roll and the associated idler roll, together with the associated braking element of the terry warp let-off roll;

Figure 4 is a fragmentary view, in side elevation, illustrating certain details of the braking

element and its mounting on the side frame of the loom structure;

Figure 5 is a fragmentary view, partly in horizontal section and partly in top plan, illustrating the associated eccentric and crank means for operating the driving ratchet of the terry warp feeding portion of the let-off mechanism;

Figure 6 is a fragmentary detail view, in side elevation and partly in section, with a portion broken away and illustrating the correlation of the driving eccentric and the associated crank element;

Figure 7 is a fragmentary view, in side elevation, illustrating the companion crank element of the ratchet operating means and the adjustable attachment of the connecting rod thereto;

Figure 8 is a fragmentary view, partly in section and partly in elevation, illustrating a preferred means of mounting and actuating the ratchet driving eccentric;

Figure 9 is a detail view of the stud member and section of one of the nut members thereon for attaching the connecting rod to the crank element shown in Figure 7;

Figure 10 is an end view of the stud and nut assembly shown in Figure 9;

Figure 11 is a fragmentary view, partly in section and partly in elevation, illustrating further details of the means of attachment between the crank element and the connecting rod; and

Figure 12 is a fragmentary view, in side elevation, illustrating a part of the means in the mechanism for effecting the disengagement and let-off of the ratchet which drives the terry warp feeding and holding roll.

Referring now to the drawings in detail, the numeral 1 designates, generally, the right side unit of the body frame of a conventional loom of the terry warp type, or, in other words, a loom for weaving double pile fabrics such as Turkish towels and material known as "terry cloth," in which the terry loops are uncut, and also for producing fabrics such as velvet, plush and the like, in which the terry loops are cut, and also having provision for stopping the forward feeding of the terry warp when plain weaving is done.

In the machine as shown, is included the conventional constantly rotating driving shaft 2, which, in some machines, is termed the "back shaft" and in others the "harness cam shaft" or "auxiliary shaft" but in any case constantly operating and providing the power drive for certain of the different mechanisms which are operated in timed relation by means of special connections (not shown) between them and said

shaft 2, the respective mechanisms operating in the weaving of the fabric including the actuation of the warp stop motion detectors, the harnesses and the reed, et cetera.

All of the foregoing structure is obvious and well known, and, therefore, it is deemed unnecessary to illustrate the same in detail in the accompanying drawings. However, a conventional pattern chain 3 is illustrated in Figure 1 of the drawings, said chain functioning in the ordinary loom assembly to control the change from plain weaving to terry weaving and vice versa. In the operation of the chain it affects an actuator element 4 (see Figure 12 of the accompanying drawings) having a connector 5 which extends to and controls the beat-up motion (not shown), the operation of the actuator element being intermittent and effected by the engagement therewith of a riser 6, a series of which are specially arranged on the chain to sequentially engage and lift said element 4 intermittently, it being understood that during the intervals while said element 4 is thus lifted the beat-up motion functions to perform plain weaving and that when the riser 6 passes from engagement with the element 4 the latter falls and the beat-up motion functions to perform terry weaving. This is conventional in certain well known loom constructions and operations. Hence, further detailed structural illustration and description is not herein presented, except as to how the actuator element 4 enters directly into the present invention as will later more fully appear.

As shown in the accompanying drawings (see Figures 1 and 12) the chain 3 comprises a parallel pair of endless sprocket chains the links of which are cross-connected by transverse pintles 7 the ends of which pivotally join the respective links and certain pintles carrying thereon the risers 6, which latter, as shown, are in the form of circular disks or rollers. The pair of sprocket chains pass over supporting idler rollers 8 which are rotatably mounted on a supporting shaft 9 provided therefor on the side frame unit 1 of the loom. The actuator element 4 is pivotally mounted at one end on a supporting shaft 10 located on the side frame unit 1 in a plane above and at a distance rearward of the shaft 9. In its lowered position the actuator element rests with an arcuately recessed under portion 11 thereof on the looped portion of the pattern chain 3 (see Figure 12) and the risers 6 of the chain engage in said recessed portion 11 in lifting the actuator element.

The actuator element 4 is provided at its end remote from that at which it is pivotally mounted with a lateral stud 12, on which stud is secured a coupling 13 by a set-screw 14, said coupling 13 carrying a stiff wire or rod 15, one portion 15 of which is bent angularly and secured at the end thereof in an opening in the coupling 13 by a set-screw 17 (see Figure 12). The opposite end portion of the wire or rod 15 is formed with an eye 18 from which depends a chain 19 (see Figure 1). The lower end of this chain is attached, as at 20, to a pusher pawl 21 which engages a peripherally toothed ratchet disk or wheel 22, said disk or wheel 22 having a pinion 23 fixed to rotate therewith on a shaft 24 which is supported at its ends on the parallel upstanding members of a bifurcated pillar 25 mounted on a bracket extension 26 of the adjacent portion of the frame side unit 1 of the loom structure.

As shown, the pusher pawl is of the double type,

that is to say, it comprises one element, to which the numeral 21 is applied for its identification, and a longer companion element 21^a, both of which are pivoted to swing about the same axis, as at 27, on the upper angular arm 28 of a bell crank 29 which is mounted to swing freely on the shaft 24 which carries the ratchet disk or wheel 22 and the pinion 23. The forward end portions of both pawls 21 and 21^a are of substantially the same width and the distance between the extreme ratchet-engaging end edges of the pawls is less than the distance between the edges of two adjacent teeth of the ratchet disk or wheel 22 so that there is assurance of either one of the pawls dropping into the space between two teeth and thereby engaging the tooth in advance thereof in whatever position the disk or wheel 22 may be brought to rest after each intermittent actuation thereof. In this connection it is noted that the pawl 21^a is preferably of substantially the same width throughout its entire length, and it is longitudinally slotted to bifurcate it from a point adjacent its forward end as indicated by the transverse dotted line 21^b in the illustration of the pawl in Figure 2 of the drawings and extending therefrom to the pivoted end of the pawl. This is to accommodate the major body portion of the pawl 21 which is reduced in width from its pivoted end to a point inwardly from its free end portion, and from which point to its forward ratchet disk or wheel engaging edge it is of a width corresponding substantially to that of the pawl 21^a whereby to provide a head 21^c underlying the adjacent solid end portion of the pawl 21^a, the reduced shank portion of the pawl 21 being fitted loosely in the slotted portion of the pawl 21^a and having an apertured upstanding ear or lug 21^d to which the lifting chain 19 is attached, as at 20, as hereinbefore described in connection with the general description of the pawl.

By the just above described form and arrangement of the companion pawls 21 and 21^a it is obvious that the lifting of the pawl 21 by upward pulling of the chain 19 simultaneously lifts the pawl 21^a because of the head portion 21^c underlying the adjacent forward portion of the pawl 21^a. So, too, because of the provision of relative space between adjacent forward end portions of the two pawls, either one of the pawls is free to engage the ratchet disk or wheel without interference of the other pawl.

The opposite arm 30 of the bell crank 29 extends more nearly horizontal than the arm 28 thereof and is longitudinally slotted, as at 31. Adjustably fitted in said slotted portion 31 of the bell crank arm 30 is a stud 32 having a hexagonal collar portion 33 which impinges one side of the bell crank arm 30 when a washer 34 is tightened against the opposite side of the arm by a jam nut 35 provided on the adjacent screw-threaded end portion of said stud 32. Hingedly mounted on the stud 32 next adjacent the hexagonal collar 33 thereof is a connector link 36 which is held in place by a cotter pin 37 passed through the adjacent end portion of the stud with a washer 38 interposed between the pin and the adjacent face portion of said connector link. As shown, this connector link has its portion remote from its pivot offset, as at 39, and provided with a screw-threaded longitudinal bore 39^a for the reception of the screw-threaded upper end portion 40 of a pusher rod 41, said rod being fastened in adjusted attachment to the connector link by a jam nut 42 provided on the threaded portion of

the rod and tightened against the end of the connector link.

The opposite end portion of the pusher rod 41 is similarly attached to an identical connector link, the only difference being that the lower connector link is disposed inversely. This lower connector link is pivotally mounted on a stud 43 in the same manner that the upper connector link is mounted on the hereinbefore described stud 32, the details of the stud structure and the mounting of the connector link thereon being illustrated more clearly in Figure 11 of the drawings, wherein the stud 43 is attached to a lever arm 44 with provision for adjustment of the stud longitudinally of the arm. As shown, the lever arm 44 is mounted on a rock shaft 45 which is rotatably mounted in a bearing portion 46 of a supporting bracket 47, which latter is adjustably mounted in a cross member 48 of the loom frame structure as shown more clearly in Figures 1 and 5 of the drawings, wherein said supporting bracket 47 is fitted slidably between the upper and lower flanged portions of said frame member 48 and is provided with an elongated slot 49 through which a bolt 50 is inserted into a registered screw-threaded opening in the frame member and fastened in place by a jam nut 51 which is tightened against the adjacent outer face portion of said frame member. The lever arm 44 is provided with a hub portion 52 at one end thereof which is fastened to the rock shaft 45 by a set-screw 53, said arm 44 having an elongated longitudinal slot 54 therein adjacent its opposite end for the adjustable mounting of the stud 43 on said arm.

While the studs 32 and 43 are respectively designated by different reference numerals for identification in their particular locations in the operative assembly, it is noted that they are identical per se, and, therefore a single description of the details illustrated in Figures 9, 10 and 11 will suffice for both studs. As shown in these three figures, the stud comprises an integral body which is plain cylindrically faced throughout a portion thereof, as at 55, the remainder of the stud being screw-threaded, as at 56 (see Figure 9). The hereinbefore generally described hexagonal collar portion 33 of the stud is provided, as more clearly shown in Figures 9 and 10, by cutting away portions of a conventional hexagonal nut on opposite sides of the axis thereof, as at 57, and screwing the nut on the threaded portion 56 of the stud with the uncut portion of the nut disposed toward the plain cylindrical stud portion 55. The diametrically extending oblong block or spline portion 58 produced by cutting the nut away on opposite sides of the axis thereof, as just above described, is fitted slidably in either the slot 31 of the bell crank arm 30 or the slot 54 in the lever arm 44, as the case may be, the stud being fastened in its adjusted position in the slot and also held against rotation in the nut constituting the integral collar 33 and block or spline portion 58 by the tightening of the jam nut 35 against the interposed washer 34, between which latter and the collar 33 the bell crank arm 30 or the lever arm 44 is tightly clamped.

Secured on the end of the rock shaft 45 opposite to that on which the lever arm 44 is mounted is an actuator arm 59, which, as shown, is of shorter length than the lever arm 44, this arm 59 having a hub portion 60 which is fastened to the shaft 45 by a set-screw 61 in a manner similar to the mounting of the lever arm 44 on said shaft 45, by which provision the two arms 44 and

59 may be adjusted in different angular relations to each other. However, in the ordinary operation of the mechanism of the present invention, the two arms 44 and 59 extend substantially in parallel relation to each other, the principal difference being in the relative lengths of the arms, the arm 59 being the shorter and by its working engagement with an operating eccentric, to be presently more fully described, and thereby having a definite oscillatory movement imparted thereto, causes a longer linear travel of the pusher rod 41 which is pivotally attached to the longer lever arm 44 by the connector link 36 at a point more remote from the axis of the rock shaft 45 than the point where the actuator arm 59 receives its power from the eccentric to be now described.

The eccentric, designated by the numeral 62, is mounted on the regular back shaft, harness cam shaft or auxiliary shaft 2, by whichever functional terminology it may be identified in the machine and which is constantly rotating in the operation of the weaving instrumentalities of the loom proper as hereinbefore described, the particular means of mounting comprising a stud 63 having a plain cylindrical outer portion and a screw-threaded inner portion 64 which is fitted tightly in a counterpart axial socket 65 bored in the end of the shaft 2 on which the regular eccentric or cam element 66 is mounted for driving certain of the respective mechanisms in the regular weaving of the fabric, such as the warp stop motion detectors, the harnesses and the reed, et cetera, as hereinbefore described. As shown, the eccentric 62 is located next adjacent the regular eccentric or cam 66 and is fastened in place by a set-screw 67 inserted in a screw-threaded aperture in its hub portion 68 and tightened against the outer plain cylindrical portion 63 of the stud on which the eccentric is directly mounted. The eccentric 62 may be of any approved type, but it preferably comprises a circular body having an annular groove 69 in one side face thereof, with its hub portion 68 offset from the center of the circular body portion and eccentric with relation to the annular groove 69.

The working connection between the actuator arm 59 and the eccentric 62 is preferably accomplished by slotting said arm longitudinally, as at 70 (see Figure 6), and adjustably securing a stud 71 similar to the aforesaid studs 32 and 43 in the slotted portion of the arm, that is to say, the stud 71 has a collar 33, spline portion 58, securing nut 35 and interposed washer 34 for securing the stud in adjusted relation longitudinally of the arm 59 the same as said studs 32 and 43 are secured to the bell crank arm 30 and the lever arm 44, respectively. As shown, the stud 71 has an antifriction bearing collar 72 sleeved thereon and working in the annular groove 69 of the circular eccentric body 62. Obviously, this bearing element 72 may be either a plain cylindrical ring or it may be tapered if desired. So, too, in some cases, the antifriction bearing element 72 may be obviously in the form of a sphere with an axial bore to fit the stud 71. The specific form of said element 72 in itself is not of the present invention, therefore no further detailed illustration or description thereof is herein given.

By the structure thus far described, the rotation of the eccentric 62 imparts an oscillatory motion to the actuator arm 59 which motion is in turn obviously imparted to the companion lever arm 44 which is attached to the rock shaft

45 carrying said actuator arm 59, the lever arm 44 in turn causing an oscillation of the bell crank 29 through the medium of the pusher rod 41 which is pivotally connected at its opposite ends, respectively, to said lever arm 44 and the arm 30 of the bell crank, the oscillation of the bell crank causing an intermittent rotation of the ratchet wheel 22 by the engagement of the pawls 21 and 21^a with the circumferential teeth of the ratchet wheel 22 until such time that the actuator element 4 is lifted and effects the disengagement of the pawls 21 and 21^a from the ratchet wheel to thereby stop the feeding of the top thread or terry warp as the same is commonly termed in the art. In this connection, it is here pointed out that the use of a circular-bodied eccentric, such as illustrated in the drawings, with an annular groove and the hub portion offset from the axis of the circular body and eccentric with relation to the annular groove, is of importance and material advantage in that the eccentric may be adjusted rotatably on the shaft 2 to vary the timing of the actuation of the let-off mechanism, whereas, with certain other types of eccentrics or cams, the cams themselves have to be varied in form to accomplish variation in the timing of the actuation of the let-off mechanism, that is to say, more particularly in the feeding of the top thread or terry warp with relation to the operation of the warp stop motion detectors, the harnesses and the reed, et cetera, as hereinbefore described. The general structural arrangement and relation of the operating connections between the eccentric 62 and the ratchet driving pawls 21 and 21^a is also such that simplified adjustments are readily made by varying the relative positions of the studs 32, 43 and 71 on the respective arms on which they are carried, each and all of said parts being of convenient access through the openings in the adjacent side unit of the body frame of the loom.

To prevent back movement of the ratchet wheel 22 a detent pawl 22^a is mounted on a bracket extension 25^a of the outer member of the bifurcated pillar 25 to engage the teeth of the wheel (see Figures 2 and 3).

The pinion 23 which rotates with the ratchet wheel 22 is in mesh with a spur gear 73 which is fixed on the end of the regular top thread or terry warp feeding and let-off roll 74 having the roughened circumferential surface which is usually provided by an emery cloth or other special roughened fabric covering, but, in some cases, by directly roughening the surface of the roll, particularly if it is made of metal. By this intermeshing engagement of the pinion 23 with the spur gear 73 the roll 74 is obviously rotated with the ratchet wheel 22 when the latter is intermittently driven by the pawls 21 and 21^a on the oscillating bell crank 29 as hereinbefore described. The spur gear 73 on the circumferentially roughened roll 74 is in mesh with a spur gear 75 of the same diameter which is mounted on a companion roll 76 having a soft circumferential surface, preferably provided by a covering of flannel or like characteristic material, said roll 76 being of the same diameter as the roll 74 so that both rollers have the same peripheral speed when rotated positively the one by and with the other through the intermeshing spur gears 73 and 75 on the respective rolls.

The loom proper, which is of a common conventional type as hereinbefore described, is provided with the usual top warp beam 77 from which the supply of top thread or terry warp

78 wound thereon is unwound and delivered, first to the soft surfaced feeding roll 76, thence under said roll and up over the companion rough surfaced roll 74, from which latter the thread is carried down and about an idler roll 79 in the usual manner to the warp stop motion detectors (not shown). With the top thread or terry warp thus looped about the rolls 76, 74 and 79 it is intermittently fed to the stop motion detector of the loom, the let-off of the feeding mechanism being controlled and effected by the operation of the pattern chain 3 having the risers 6 which control the operation of the beat-up motion as well as lifting the ratchet driving pawls 21 and 21^a from engagement with the ratchet wheel 22 to stop the feeding of the top thread or terry warp as hereinbefore described.

The bottom thread or ground warp 80 is carried over the usual idler or whip roll 81 to the warp stop motion detectors from the bottom thread or ground warp beam 82 in the conventional manner.

While the top thread or terry warp beam 77 may be provided with the usual conventional braking means (not shown) the tension of which is usually automatically varied during the regular operation of certain weaving instrumentalities in the loom structure proper, it is preferable to provide a special brake element to the circumferentially roughened terry warp feeding and let-off roll 74. As shown in Figures 3 and 4 of the drawings, this brake element comprises a complementary pair of arcuate shoes 83 and 84, respectively, said shoes being hingedly joined at one end, as at 85, and respectively provided with friction linings 83^a and 84^a to engage the circumferential face of a drum 86 having a hub portion 87 received on the end portion of the shaft extension 88 of the roll 74 and being secured in place by a set-screw 89.

The end of the shoe 83 remote from that which is hinged to the companion shoe 84 is provided with a substantially radial lug 90 to which a stud 91 is pivotally attached, as at 92, said stud 91 extending through an aperture provided therefor in an opposed lug 93 on the shoe 84, said stud projecting a considerable distance beyond the lug 93 and being screw-threaded for the reception of a wing nut 94, next adjacent the inner side of which is a washer 95, between which latter and the lug 93 is interposed a spring 96. By turning the nut 94 to move it inwardly and outwardly on the stud 91 the spring 96 may be placed under different degrees of compression whereby to vary the tension of the spring and accordingly regulate the braking effect of the lined shoes 83 and 84 on the circumference of the drum 86. In order to afford a compensating support for the brake element, one of the shoes, preferably the shoe 83, as shown, is provided with a radial lug 97 which is hingedly attached to the outer end portion of a bracket arm 98 provided with a longitudinal slot 99 for the reception of a securing bolt 100 by which the bracket arm is fastened with longitudinal adjustment on an adjacent portion of the side frame unit 1 of the loom. By this provision a constant braking action is maintained on the terry warp feeding and let-off roll 74 to prevent overrun of the roll when the driving pawls 21 and 21^a are disengaged from the ratchet wheel 22, and the mounting of the brake element is not only of a compensating character but the tension of the spring 96 and the effective frictional engagement of the lined brake shoes 83

and 84 with the drum 86 may be varied at the will of the operator, and the general construction and arrangement of the parts being such that a more positive and definite operation of the mechanism in the feeding of the terry warp is attained as well as the let-off thereof during the time plain weaving operation is being performed on the loom.

From the foregoing description it is apparent that the throw of the oscillatory pawl-carrying bell crank is readily variable at the will of the operator to accordingly regulate the intermittent travel of the let-off roll 74 together with its companion roll 76 by merely changing the positions of the respective end connectors 36 of the pusher rod 41 where said connectors are pivotally attached to the bell crank arm 30 and lever arm 44 or merely changing the location of the stud 71 on the actuator arm 59 so that the antifriction element 72 on the stud 71 has a working engagement in the groove 69 of the eccentric 62 at a greater or lesser distance from the axis of the rock shaft 45, as the case may be, or by varying all of the said working connections, it being, of course, understood that the relative angularity of the arms 44 and 59 may be also changed on the rock shaft 45, as well as the changing of the position of the eccentric 62 on the stud extension 63 of the driving shaft 2 whereby to regulate the timing of the let-off mechanism with relation to the operation of the respective weaving instrumentalities, as hereinbefore described, in addition to regulating the length of feed of the top thread or terry warp.

While the structure herein illustrated and described embodies a practical adaptation of the invention, it is obvious that considerable modification may be made therein without departing from the spirit and scope of the invention as defined by the appended claims. The invention, therefore, is not limited to the specific construction and arrangement shown.

What is claimed is:

1. In a terry loom, in combination with the weaving instrumentalities thereof and including a continuously rotating driving shaft having conventional working connections for operating said instrumentalities, and a warp feeding and let-off roll, of pawl and ratchet driving means for said roll; said means including an operating bell crank one arm of which carries the pawl and the other arm being the actuating arm, a lever arm mounted in opposed relation to the actuating arm of said bell crank, a pusher rod connecting said bell crank actuating arm and said lever arm, the attachment of the rod to said arms being at the opposite ends of the rod and adjustable longitudinally of the rod and also the respective arms, an actuator arm mounted to oscillate with said lever arm about a common axis by and with each other and having provision for relative angular adjustment, and a rotatably adjustable eccentric mounted on said driving shaft of the weaving instrumentalities of the loom and having an operating connection with said actuator arm.

2. The herein described operating and controlling means for terry warp feeding and let-off rolls comprising in combination with a conventional warp feeding and let-off roll, of a pawl and ratchet unit for driving the roll, an operating bell

crank one arm of which carries the pawl element of said unit, the opposite arm of the bell crank being the actuator arm thereof and provided with a longitudinal slot, an opposed longitudinally slotted lever arm, a connecting pusher rod between said actuator arm of the bell crank and said lever arm, connector links attached to the opposite ends of said pusher rod with longitudinal adjustment thereon, pivot studs to which said connector links are swingably attached, said studs being respectively secured with adjustment in the slotted portions of said bell crank actuator arm and said lever arm, a companion actuator arm mounted in correlation to said lever arm to oscillate about a common axis by and with each other, a rotatably mounted annularly grooved, circular eccentric, a stud mounted on said companion actuator lever with adjustment longitudinally thereof, and an antifriction bearing element on said stud working in the annular groove of said eccentric.

3. In a terry loom, in combination with a pawl and ratchet driving unit for the warp feeding and let-off roll and an oscillatory actuator controlling the beat-up motion of the loom, of a supporting coupling on said oscillatory actuator, an angular extension rod mounted at one end with longitudinal adjustment on said supporting coupling, and a flexible connection between the opposite end of said extension rod and the pawl element of said pawl and ratchet driving unit whereby said pawl element is moved out of its operating position in said unit when said oscillatory actuator moves in the direction to cause the beat-up motion to function in the performance of plain weaving and the pawl element is restored to its operating position when said oscillatory actuator reacts to cause the beat-up motion to function in the performance of terry weaving.

4. In a terry loom, in combination with a pawl and ratchet driving unit for the warp feeding and let-off roll and an oscillatory actuator controlling the beat-up motion of the loom, said oscillatory actuator having a stud projected laterally therefrom, of a supporting coupling pivotally mounted on said stud extension of the oscillatory actuator and having a set screw to impinge said stud to hold the coupling in adjusted position on the stud angularly with respect to the oscillatory actuator, said supporting coupling having a transverse opening therethrough and a set screw to enter said opening, an angular extension rod having one end portion fitted slidably in said transverse opening of the supporting coupling and impinged by the set screw of the coupling to hold the rod in longitudinally adjusted position on the coupling, and a flexible connection between the opposite end of said extension rod and the pawl element of said pawl and ratchet driving unit whereby said pawl element is moved out of its operating position in said unit when said oscillatory actuator moves in the direction to cause the beat-up motion to function in the performance of plain weaving and the pawl element is restored to its operating position when said oscillatory actuator reacts to cause the beat-up motion to function in the performance of terry weaving.

ALBERT H. HILL.