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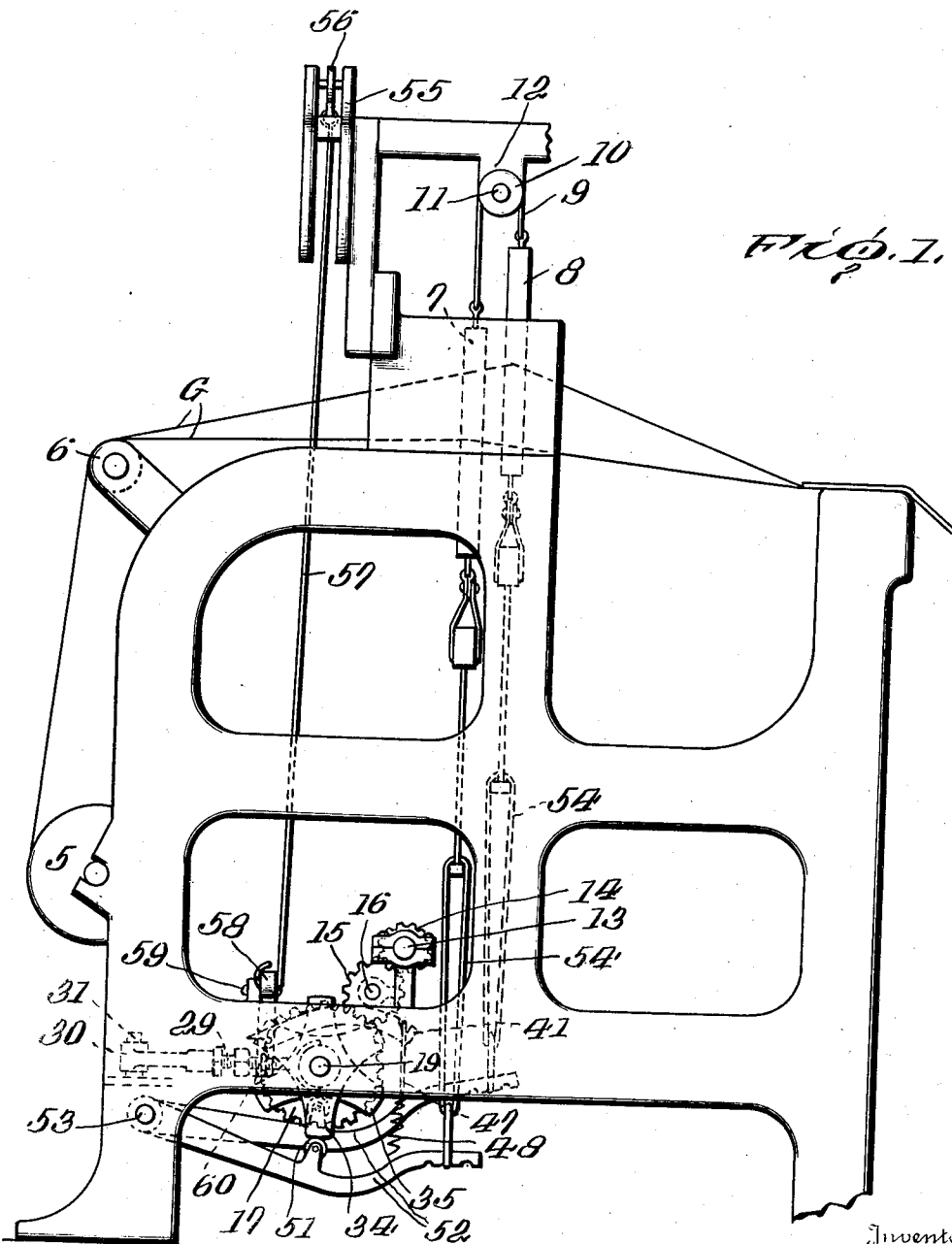
E. MESSER

2,165,000

HARNESS CONTROL

Filed Sept. 1, 1938

3 Sheets-Sheet 1



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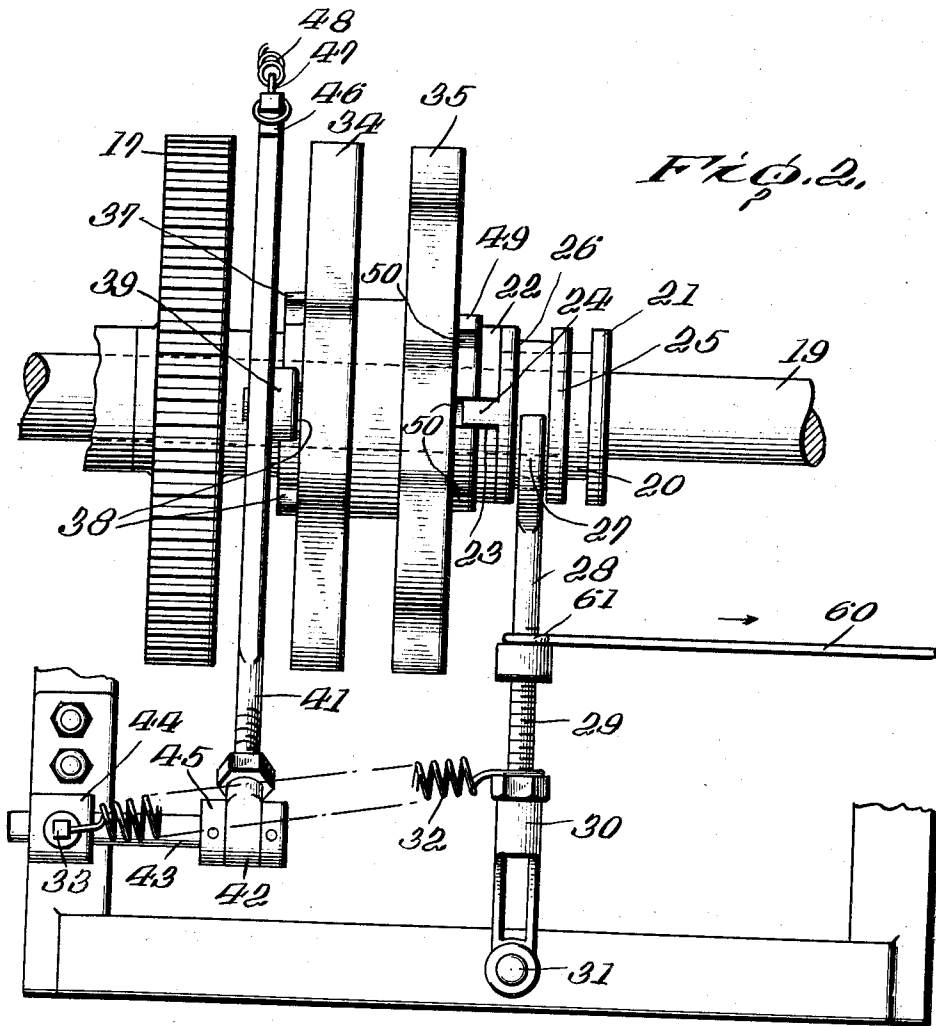
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3 Sheets-Sheet 2



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UNITED STATES PATENT OFFICE

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HARNES CONTROL

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Application September 1, 1938, Serial No. 228,065

1 Claim. (Cl. 139—79)

This invention relates to a new and improved harness control for looms and is designed particularly for plain or cam looms for weaving plain toweling.

5 An object of the invention is to provide a simplified means controlling the harness action, whereby the weft may be floated through the shedding of the warp as many times as desired and thereby produce a floated thread design in
10 the toweling.

A still further object of the invention is to provide a simplified construction in which clutch control cams are utilized for operating the harness frames and the clutch is under the control
15 of a pattern chain.

With the above objects in view and others which will appear hereinafter, the invention includes the arrangement and combination of parts hereinafter more fully described and shown in
20 the accompanying drawings in which:

Fig. 1 is a side elevation, partly broken away and with portions of the plain loom omitted for greater clarity illustrating the invention;

Fig. 2 is a plan view of the harness cam control illustrating also the controlling clutch there-
25 for;

Fig. 3 is a cross sectional view taken through the clutch and harness controlling cams; and

Fig. 4 is a cross sectional view taken on the
30 section line 4—4 of Fig. 3.

In the drawings, in which similar reference characters represent like parts, the ground warp beam is shown at 5 with the usual whip roll at 6. The ground warp G from the beam 5 passing
35 over the whip roll 6 is divided between the rear harness frame 7 and the front harness frame 8. The harness frames 7 and 8 are connected together by the straps 9 which extend over the rollers 10, mounted on an oscillatable shaft 11
40 supported by the fixed bearings 12 provided on the loom frame.

The loom is provided with the usual shaft 13 on which a pinion 14 is mounted which meshes with the idler pinion 15 mounted on the stud
45 shaft 16 secured to the loom frame at any suitable position. The idler pinion 15 meshes with the gear 17 which is fixed to the tubular shaft 18 rotatably mounted upon the shaft 19 which is
50 mounted in suitable bearings mounted in the loom frame. Also secured fixedly to the tubular shaft 18 is a collar 20 having enlarged portions 21 and 22 at its ends. The enlarged portion 22 is provided with diametrically opposed slots 23 into which extend the lugs 24 of a sleeve mem-
55 ber 25 slidably mounted upon the collar 20 be-

tween the enlarged portions 21 and 22. The sleeve member 25 is provided with a groove 26 in which engages the forked end 27 of the lever 28.

The lever 28 has a screw threaded end 29 which
5 threads into the socket member 30 which is pivoted to the pin 31 provided upon the loom frame. A spring 32 engages with one end the lever 28 and the other end is secured to a fixed point, the bolt 33. The spring 32 normally tends
10 to hold the lever and consequently the sleeve 25 in their left hand position as shown in Fig. 2.

Rotatably mounted upon the tubular shaft 18 between the collar 20 and the gear 17 are the harness control cams 34 and 35. The cams are
15 integrally connected by the hub portion 36 and each cam is provided with three single pick points positioned oppositely to one another as shown clearly in Figure 4.

The hub 36 is provided with a collar 37 on the
20 end nearest to the gear 17. The collar 37 is provided with six equidistantly spaced arc-shaped depressions 38 with which a brake roller 39 is designed to cooperate. The brake roller 39 is rotatably mounted by the pin 40 on the lever 41
25 which is at one end screw threaded in to a socket member 42 which in turn is pivotally mounted upon the stud shaft 43 which is fixed in the bearing 44 upon the loom frame by means of the previously mentioned bolt 33. The socket por-
30 tion 42 is held on the shaft 43 between the collars 45.

The other end of the lever 41 is provided with a notch 46 with which engages a wire 47 which in turn is secured to the spring 48 and the other
35 end of the spring 48 is secured to a fixed point on the loom frame. The construction outlined maintains the roller 39 in contact with the collar 37 at all times.

The other end of the hub 36 opposite the
40 collar 37 is provided with a collar 49 in which are provided six equidistantly spaced apertures 50 designed to receive the lugs 24 of the sleeve member 25 and thereby operate the cams 34 and 35 with the collar 20 since the lugs 24 are always
45 in engagement with the apertures 23 provided on the collar 22.

The points on the cams 34 and 35 cooperate with the treadle rollers 51 provided on the treadle levers 52 which are pivoted at 53 to the loom
50 frame. The free ends of the treadles are connected to the straps 54 which in turn are connected to the harness frames 7 and 8 in the usual manner.

The gear 17 is generally provided with sixty- 55

three teeth and is driven by a twenty-one tooth pinion gear 15 which is of the same size as the pinion 14. When the cams 34 and 35 are connected by the clutch mechanism above described 5
 to the collar 20, such cams are driven regularly by the gear 17 and the harness frames 7 and 8 are alternately moved upwardly and downwardly for their single pick. However, when it is desired to float the weft through for several throws 10
 the control mechanism for the clutch as described below is used.

The pattern chain rack is shown at 55 in Fig. 1 and the high ball lever is indicated at 56. Connected to the high ball lever is a rod 57 which 15
 engages one arm of the bell crank lever 58 pivotally secured to the loom frame by pin 59. The other arm of the bell crank lever 58 has pivotally secured thereto a rod 60 which at its other end 61 engages the lever 28 so as to swing 20
 the lever 28 when operated by a high ball on the pattern chain to the right from the position shown in Fig. 2.

It is believed that the operation of the harness cams 34 and 35 is obvious from the construction 25
 described. Whenever the rod 57 is elevated by a high ball on the pattern chain, the rod 60 shown at Fig. 2 is moved in the direction of the arrow and the sleeve 25 is moved to the right from the

position shown in Fig. 2 thereby withdrawing the lugs 24 from the apertures 50 in the collar 49. Upon withdrawal of the lugs 24 from the apertures 50, the cams 34 and 35 will be held in fixed 5
 position due to the brake roller 39. During such time, the weft will be floated back and forth through the shedding and the floated thread design will be produced in the toweling. The arc shaped recesses 38 provided in the collar 37 are 10
 positioned in alignment with the recesses 50 in order that withdrawal and reentry of the lugs 24 may be accomplished at any time.

I claim:

A harness control for a plain loom comprising 15
 a shaft, a tubular shaft rotatably mounted on said shaft, a gear fixed to said tubular shaft rotated by a moving part of the loom, a pair of cams actuating the harness frames freely rotatable on 20
 said tubular shaft, a collar fixed to said tubular shaft, a slidable sleeve non-rotatably mounted on said collar, said cams having spaced recesses, 25
 lugs on said sleeve for engaging said recesses to rotate said cams with said gear, means for aligning said recesses with said lugs and means for withdrawing said lugs from said recesses in order to hold said cams stationary while floated threads are woven in the cloth.

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