April 5, 1932. E. J. FERNANE ET AL 1,852,076

GAUGE HARNESS

Filed Dec. 9, 1930 2 Sheets-Sheet 1

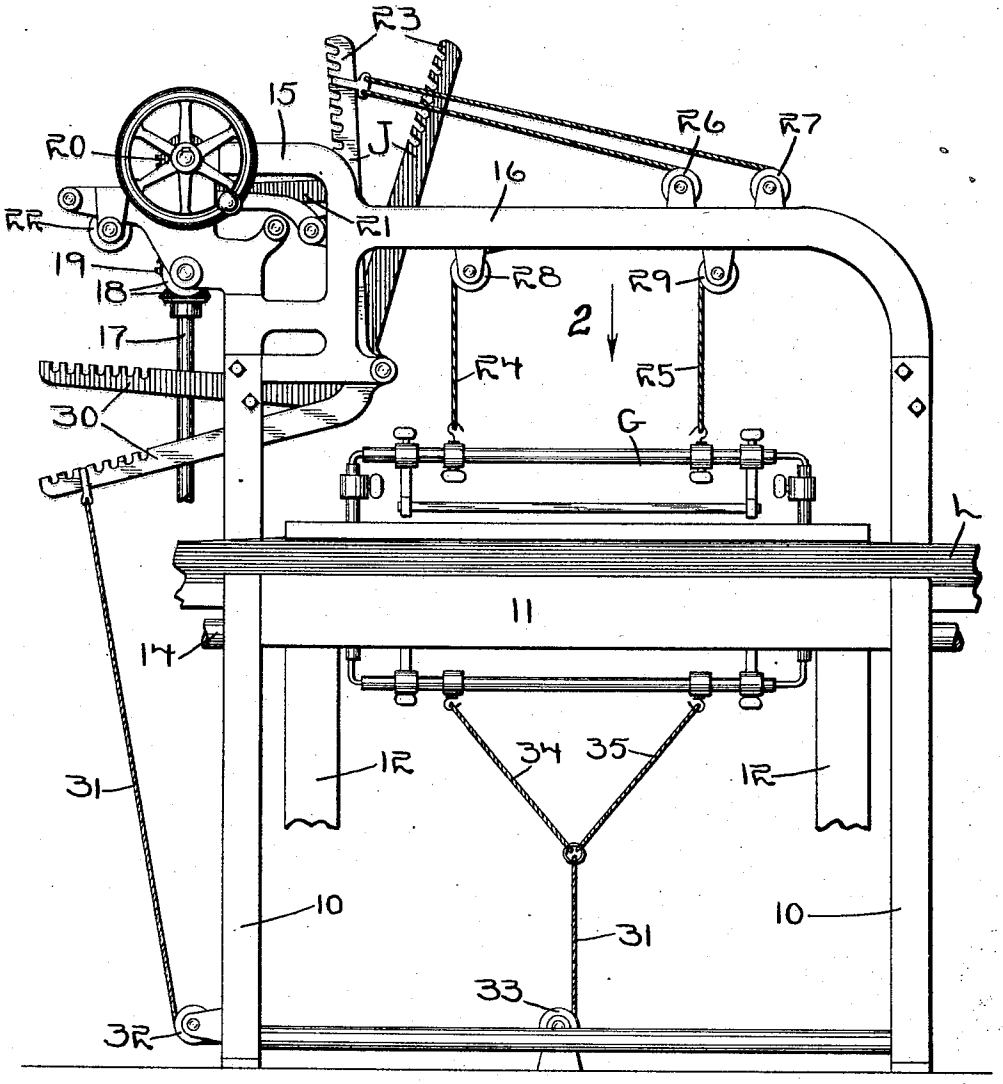

Fig. 1

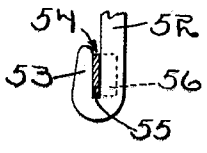

Fig. 4

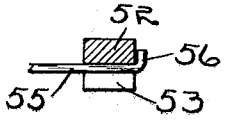

Fig. 5

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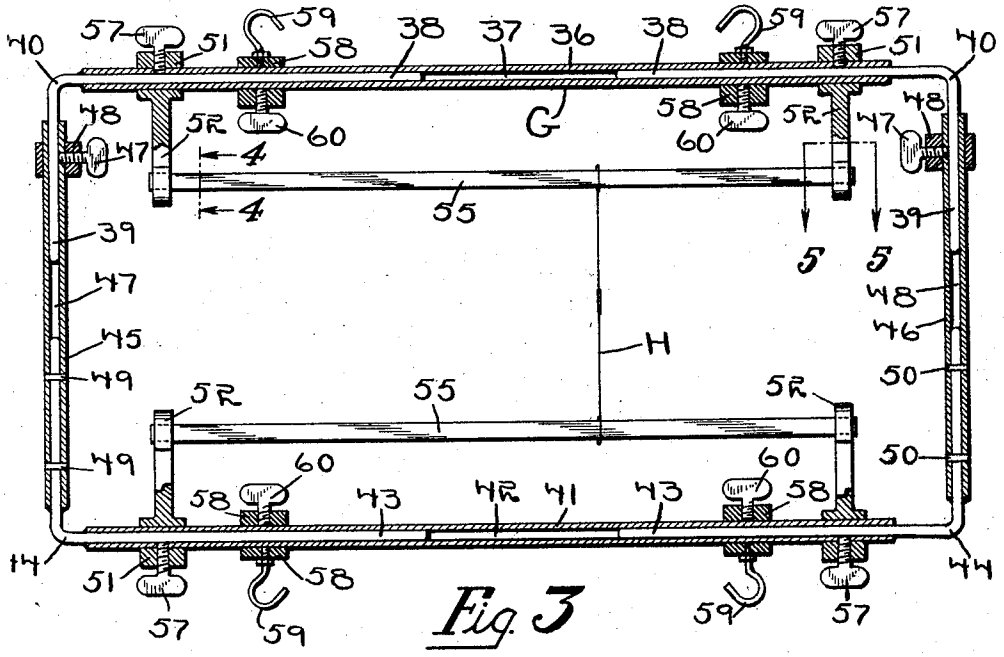

Fig. 3

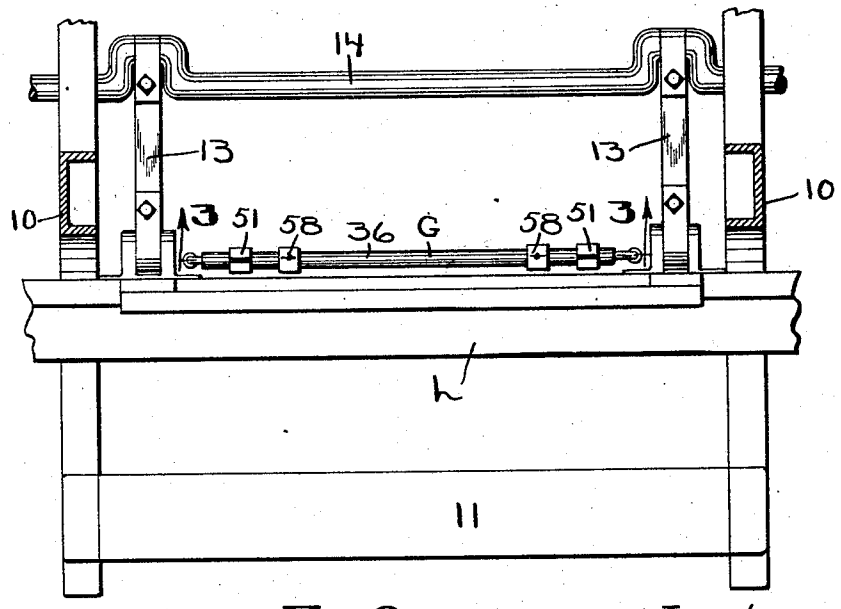

Fig. 2

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UNITED STATES PATENT OFFICE

EDWARD J. FERNANE AND MAURICE J. FLYNN, OF WORCESTER, MASSACHUSETTS, ASSIGNORS TO CROMPTON & KNOWLES LOOM WORKS, OF WORCESTER, MASSACHUSETTS, A CORPORATION OF MASSACHUSETTS

GAUGE HARNESS

Application filed December 9, 1930. Serial No. 501,104.

This invention relates to a gauge harness to facilitate the positioning of harness connections during the assembly of looms.

It frequently happens that the manufacturer of textile looms does not make the harnesses that are to be used in them. The purchaser, when placing his order, specifies the size of the harness to be used and the loom is made accordingly. During the assembly of the looms it is desirable to check the accuracy of the various harness connections, but it often happens that a harness of the required size is not available. It is an object of our invention to provide a dummy harness which may be adjusted to any desired dimensions for the purpose of checking the harness connections.

With this and other objects in view which will appear as the description proceeds, our invention relates to the combination and arrangement of parts hereinafter described and set forth in the claim.

In the accompanying drawings, wherein a convenient embodiment of our invention is set forth,

Fig. 1 is a front elevation of a loom in which our invention is employed,

Fig. 2 is a sectional plan view looking in the direction of arrow 2, Fig. 1,

Fig. 3 is a vertical section along lines 3—3 on Fig. 2,

Fig. 4 is a vertical section through the heddle bar along line 4—4, Fig. 3, and

Fig. 5 is a horizontal section along line 5—5, Fig. 3.

Referring to the drawings, we have shown loomsides 10 supporting the breast beam 11. The lay L is supported by the usual lay swords 12 and receives its forward and rearward motion through a pair of crank connectors 13 from a crank shaft 14, as shown in Fig. 2.

For purposes of illustration we show a Knowles head designated at 15 and supported by the loomside 10 and arch stand 16. The head receives its motion from a vertical shaft 17 by means of bevel gears 18 which actuate cylinder gears 19 and 20. Connecting levers 21 when acted upon by the pattern mechanism on the pattern cylinder 22 are moved by the cylinder gears to cause angular motion of the arms 23 on the harness jacks J. The harness cords 24 and 25 are thus caused to move up or down and are guided by means of upper pulley sheaves 26 and 27 and lower pulley sheaves 28 and 29 located on the arch stand.

The harness jacks J have lower arms 30 connected to cords 31 passing around pulley sheaves 32 and 33 and thence to the lower side of the gauge harness, where connection is made by means of cords 34 and 35. The jacks thus provide positive motion in both directions.

The matter thus far described is of common construction and forms no part of our present invention.

In carrying our invention into effect we provide a dummy harness shown more clearly in Fig. 3 which may be placed in the loom to check the previously described harness actuating mechanism while the loom is being assembled.

The gauge is designated generally at G and is provided with an upper tubular bar 36 with a bore 37 which receives the horizontal ends 38 of angle rods 40. A lower tubular bar 41 similar to the upper bar 36 is provided with a bore 42 to receive the ends 43 of lower angle rods 44. Tubular bars 45 and 46 which form the sides of the frame are provided with bores 47 and 48, respectively. The upper angle rods 40 have downwardly projecting ends 39 which extend into the bores 47 and 48 and which are held in adjustable position with regard to the tubes 45 and 46 by means of thumb screws 47. The thumb screws are held by collars 48 and project through the tubes to exert pressure on the angle rods and hold them fixed. The lower angle rods 44 are held in fixed position in the tubes 45 and 46 by means of rivets 49 and 50.

The upper and lower tubular bars 36 and 41 are provided collars 51 which support hooks 52 formed integral therewith. As shown in Figs. 4 and 5 the hooks 52 have upturned ends 53 which form slots 54 to receive the heddle bars 55. The heddle bars are prevented from sliding out of the hooks by means of bent over ends 56. Thumb-

screws 57 similar to 47 are tapped through the collars 51 and exert pressure on their respective angle rods. It can thus be seen that the thumbscrews 57 act to hold the heddle bars, the tubes, and the angle rods in fixed relation to each other. As the hooks 52 on the lower bar are inverted the lower heddle bar 55 would naturally fall out of position were it not for the heddles H which may be strung on the bars in any desired number.

Collars 58 carrying hooks 59 may be slidably mounted on both upper and lower tubular bars. Thumbscrews 60 similar to thumbscrews 47 and 57 may be employed to hold the collars 58 in any desirable position longitudinally of the bars.

In making practical use of our invention the upper and lower thumbscrews 57 are loosened and the angle rods 40 and 44 moved outwardly away from the center of the frame to increase its width to any desired dimension. Several heddles H of the required size are then strung along the heddle bars 55. The thumbscrews 47 on the vertical tubular bars 45 and 46 are then loosened to allow the frame to be adjusted to the proper height and to position the heddle bars 55 to accommodate the heddle. Heddles of different lengths are to be used with various vertical adjustments.

The thumbscrews 60 are then loosened and the hooks 59 are adjusted longitudinally on the tubular bars 36 and 41. It will be understood that there will be certain positions on the bars where the forces of the harness cords 24, 25, 34 and 35 will be most efficiently distributed to the harness frame.

By placing this harness gauge in the loom and supporting it by means of the harness cords 24, 25 and 31 the proper location of the pulley sheaves 28 and 29 on the arch stand 16 may be determined as well as the maximum available distance between the crank connectors 13 which are located opposite both ends of the harnesses.

By placing the gauge as far forward as possible without interferring with the rearward motion of the lay L as shown in Fig. 2 and as far to the rear as possible without interferring with the motion of the crank shaft 14 we may determine the maximum depth of the space to be used for harnesses.

The head 15 may be turned by hand with the wheel 61 to cause the jacks J to lift or lower the harness gauge and thus determine the maximum shed opening.

From the foregoing it will be seen that we have provided means whereby looms may be tested for all ordinary harness problems during construction, without the necessity of keeping various harnesses on hand. It will be seen also that the gauge harness or dummy harness comprises adjustable parts, preferably telescoping, which permit the height and length to be varied as required.

Having thus described our invention it will be seen that changes and modifications may be made therein by those skilled in the art without departing from the spirit and scope of the invention and we do not wish to be limited to the details herein disclosed, but what we claim is:

In a gauge harness for looms having harness connections, a pair of cross members, a pair of end members, a pair of angle elements for each cross member, each element being slidable on the corresponding cross member, the end members supported by the angle elements, and harness connection devices on the cross members.

In testimony whereof we have hereunto affixed our signatures.

EDWARD J. FERNANE.
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