Sept. 20, 1938. C. CLUTSOM 2,130,636

LOOM WITH STATIONARY WEFT SUPPLIES

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Fig. 1.

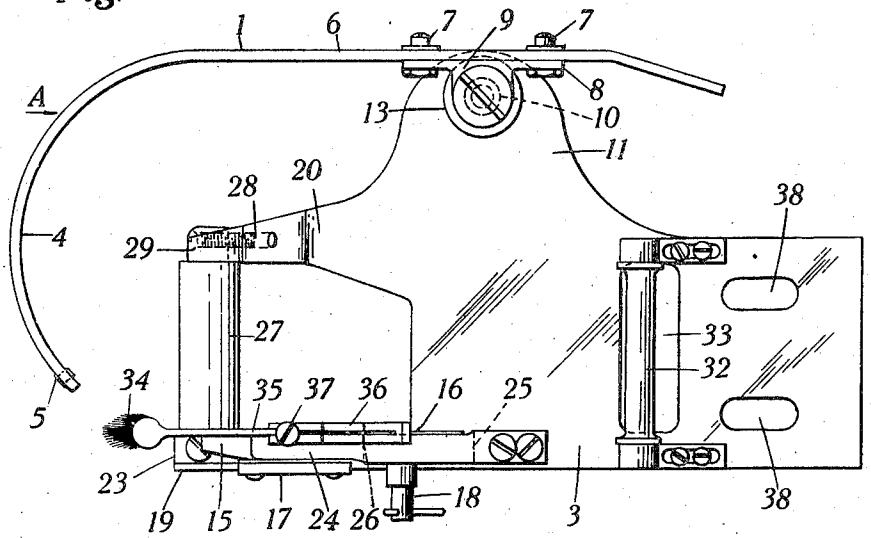


Fig. 2.

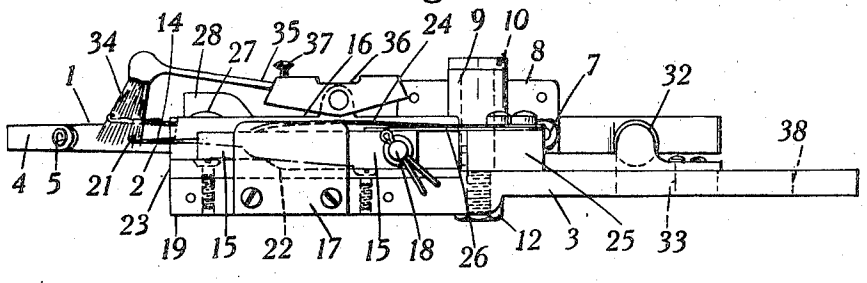
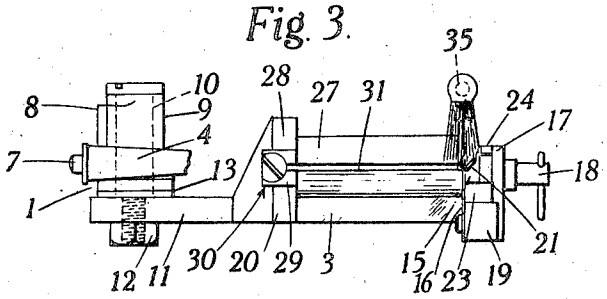


Fig. 3.



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Fig. 4.

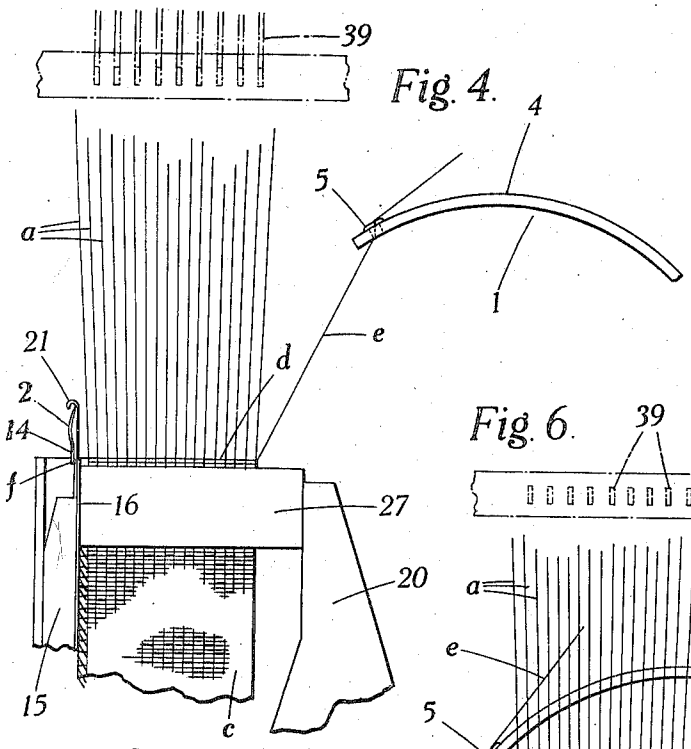


Fig. 6.

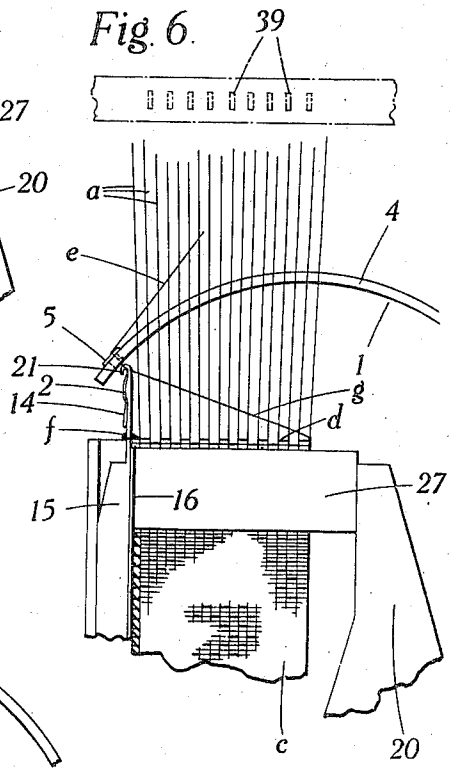
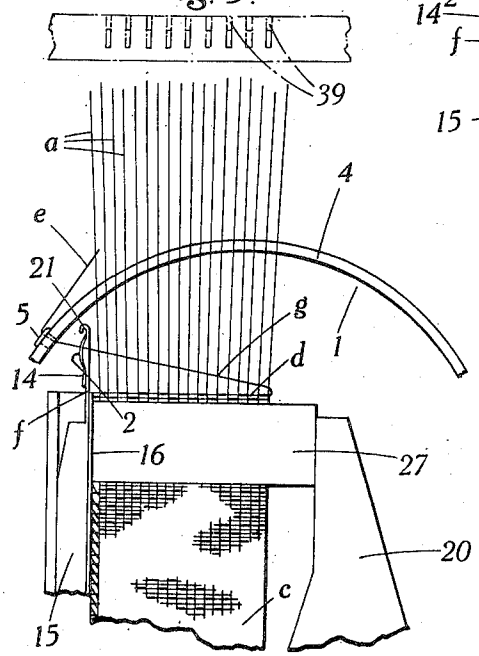


Fig. 5.



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Fig. 7.

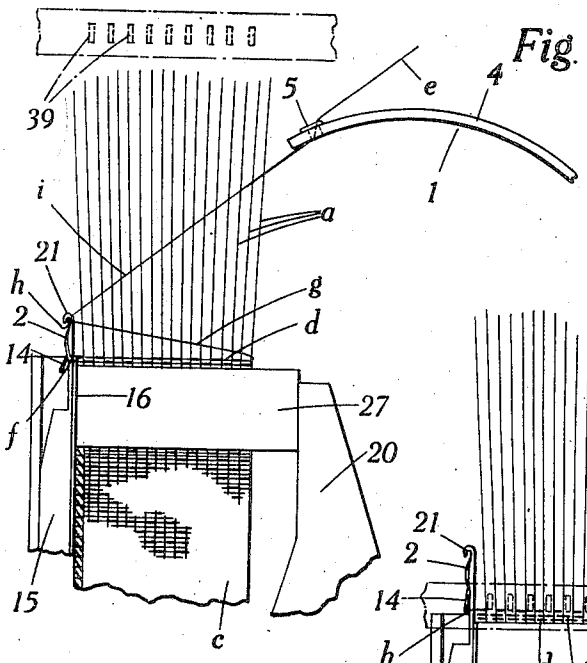


Fig. 9.

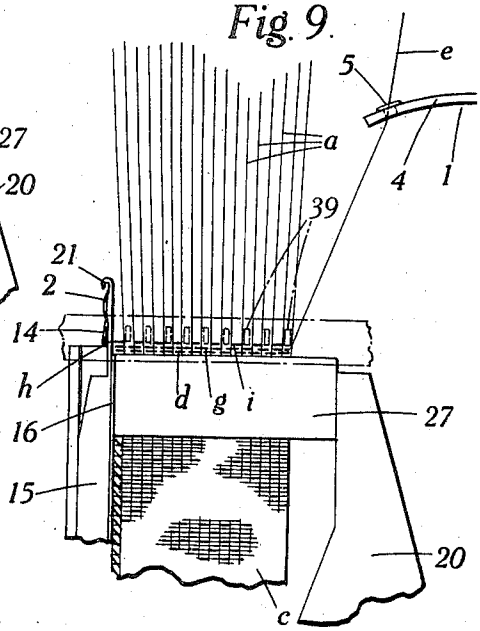
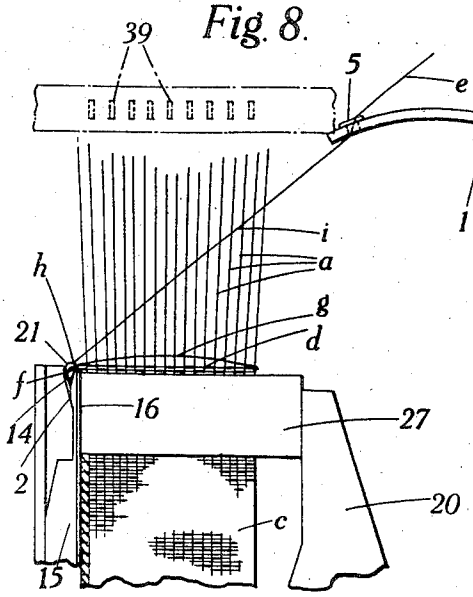


Fig. 8.



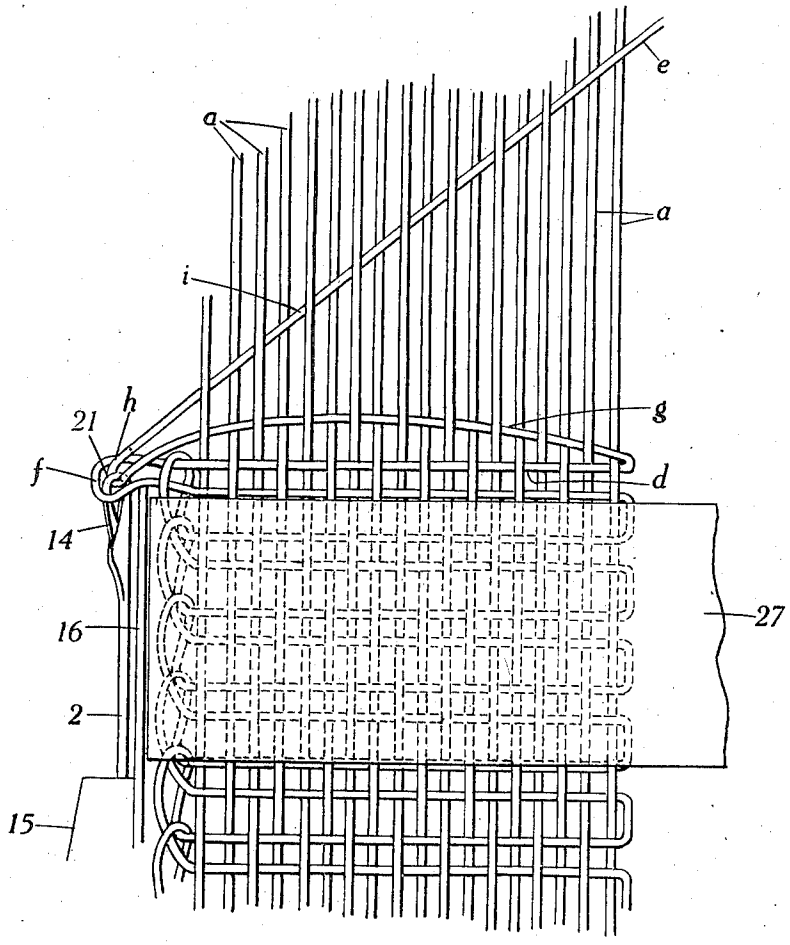
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Fig. 10.



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Fig. 11.

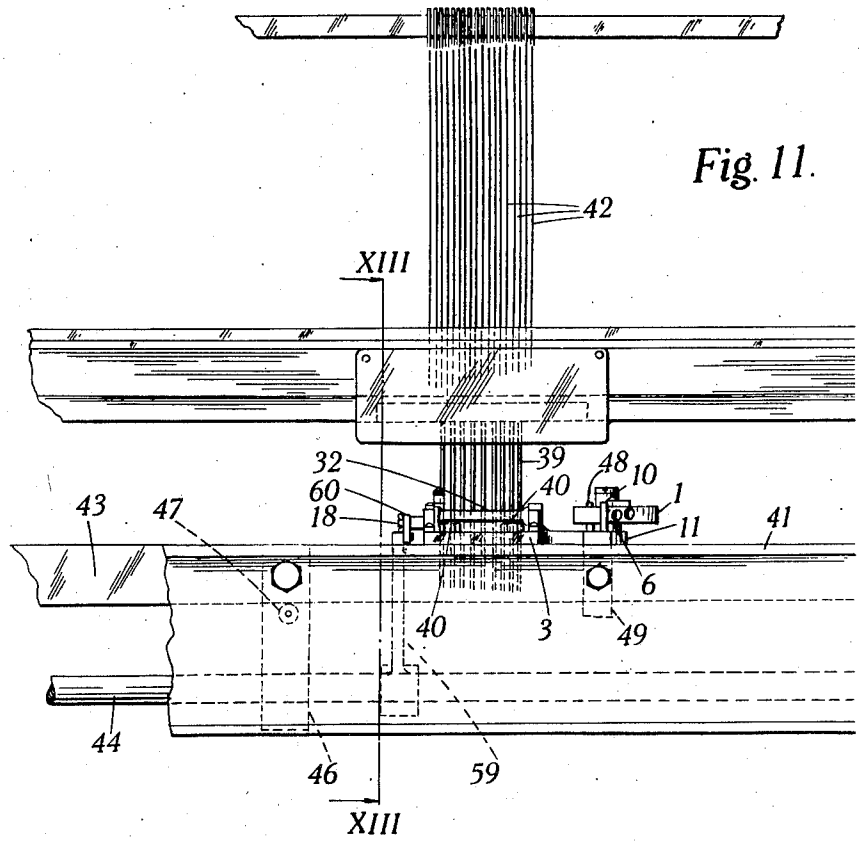
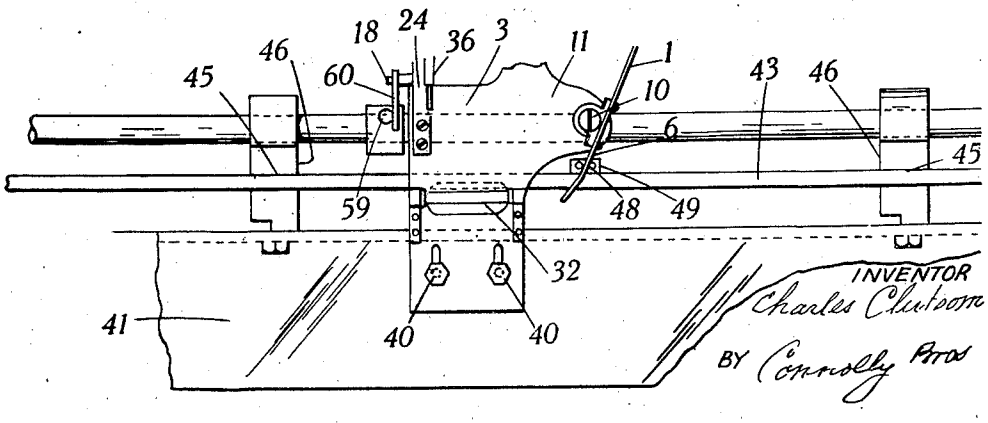


Fig. 12.



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Fig. 11.a

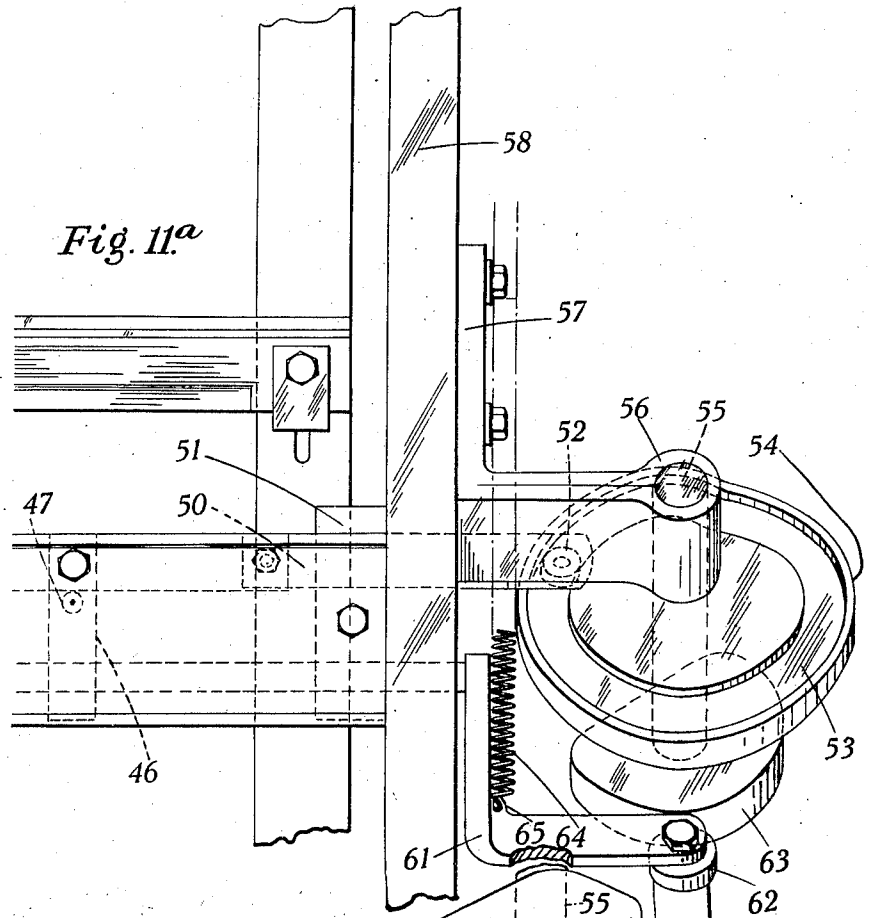
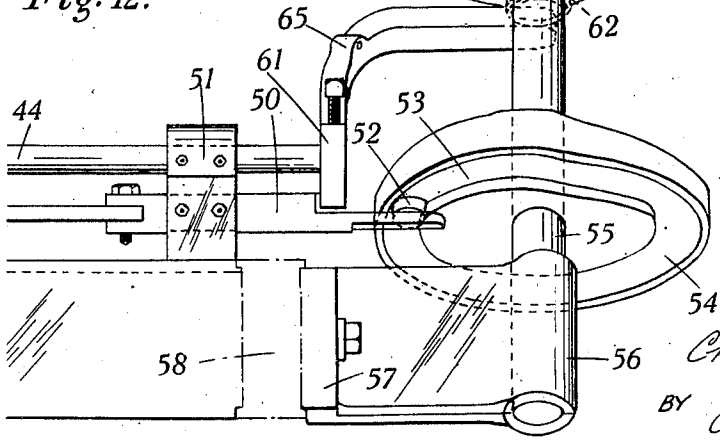


Fig. 12.a



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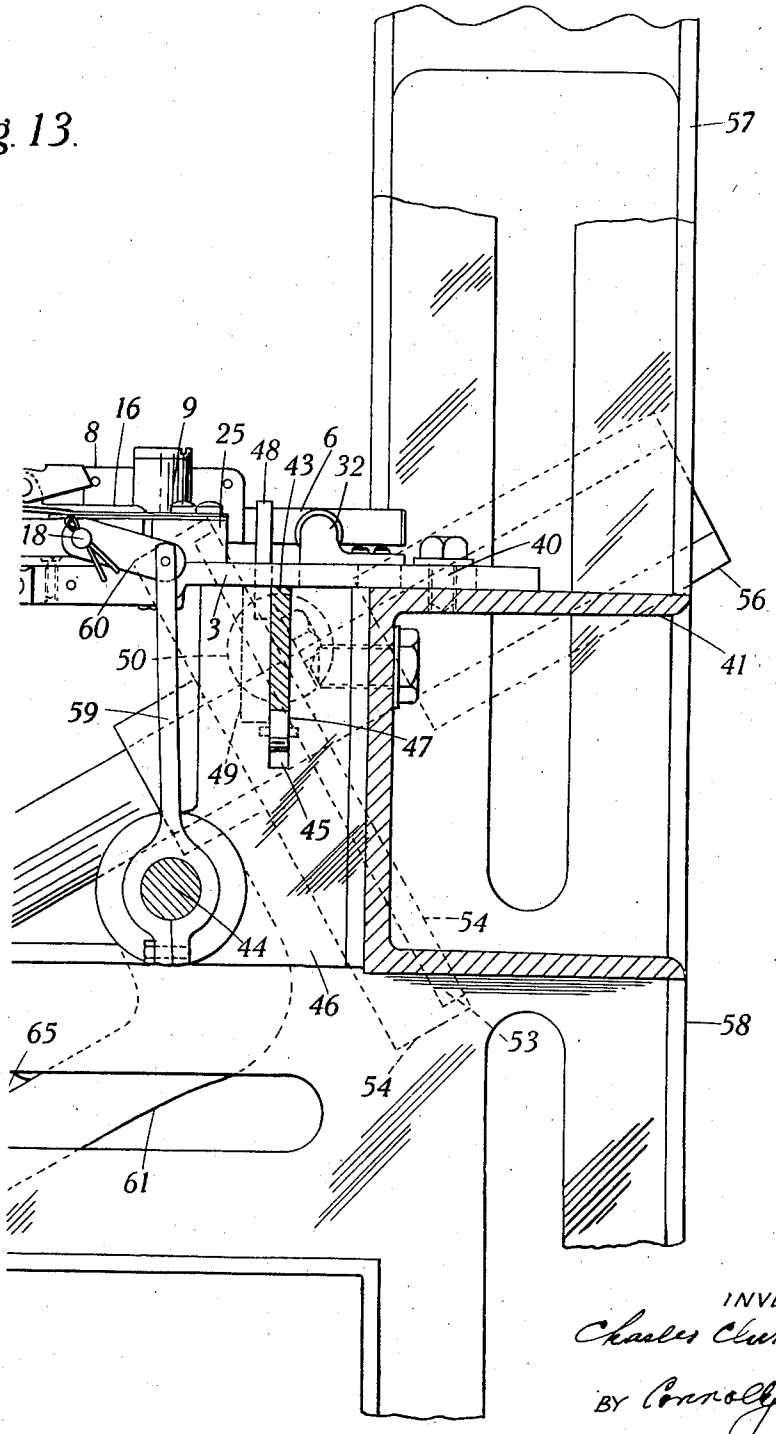
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Fig. 13.



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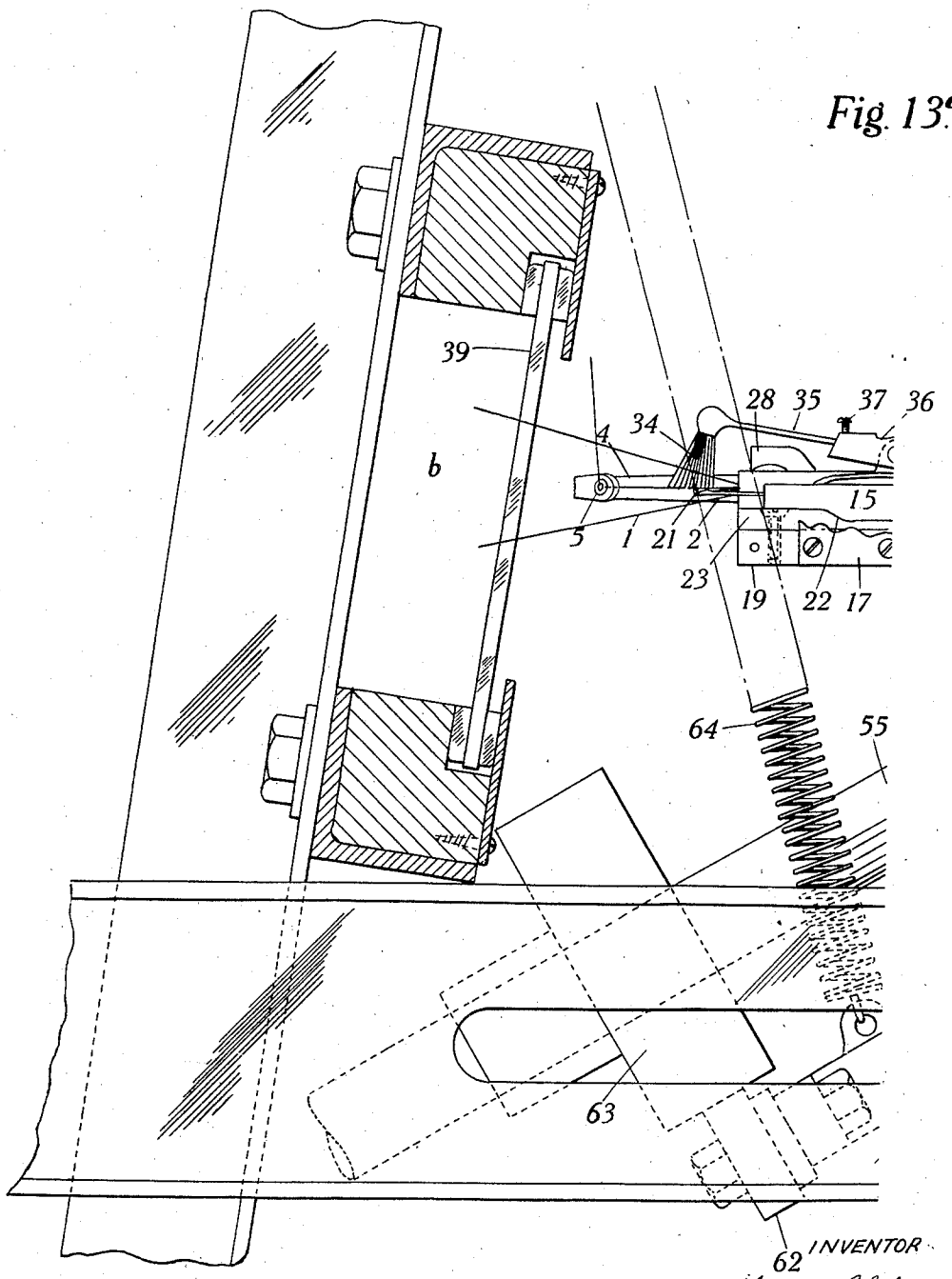
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Fig. 13a



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Fig. 14.

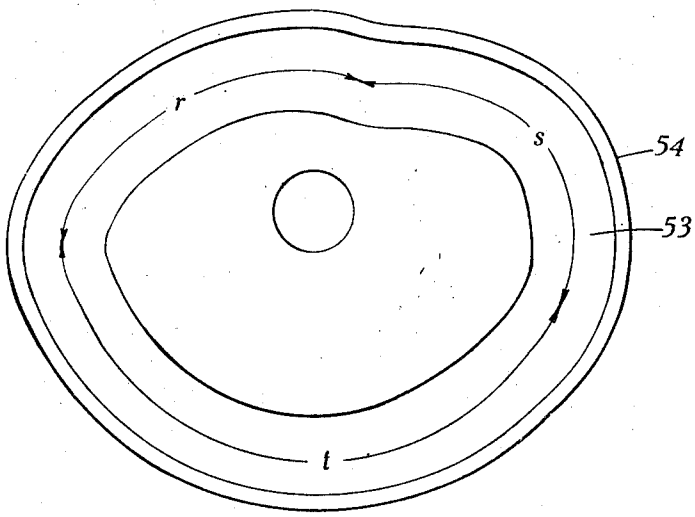
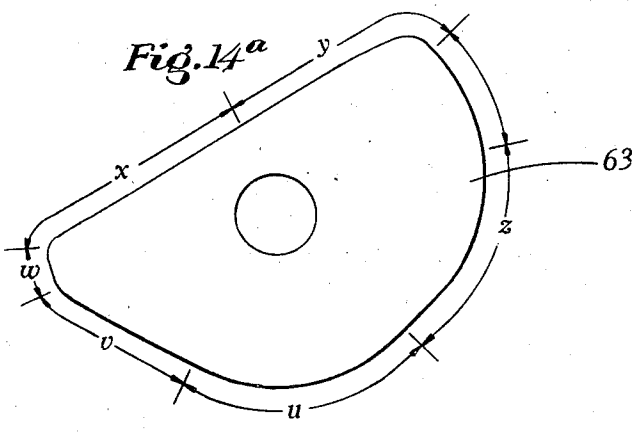


Fig. 14a



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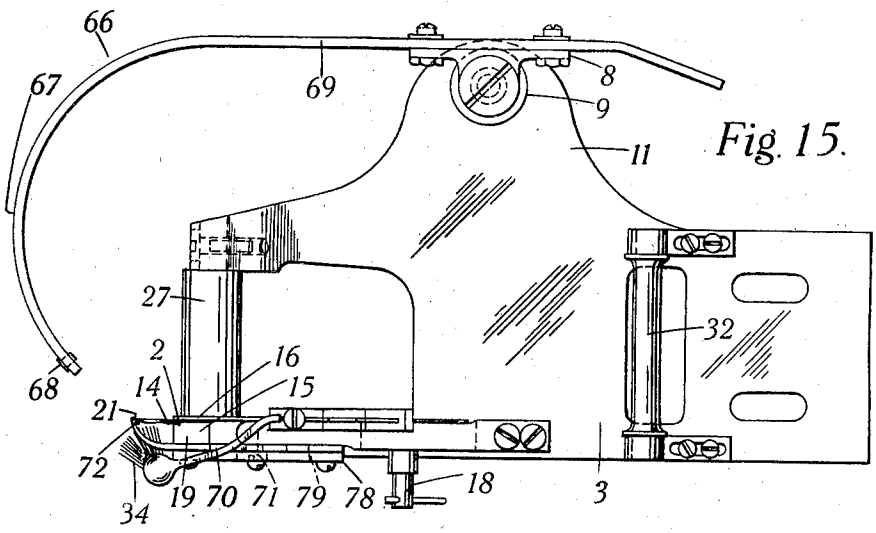


Fig. 15.

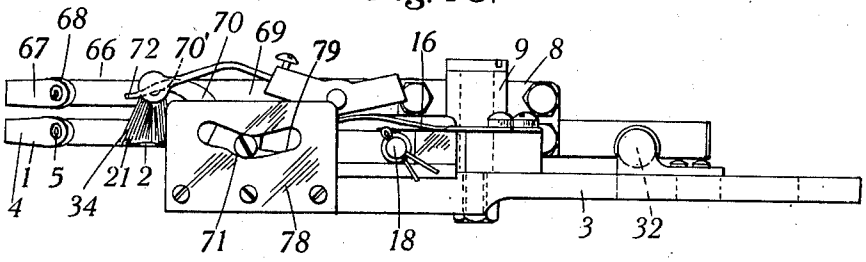


Fig. 16.

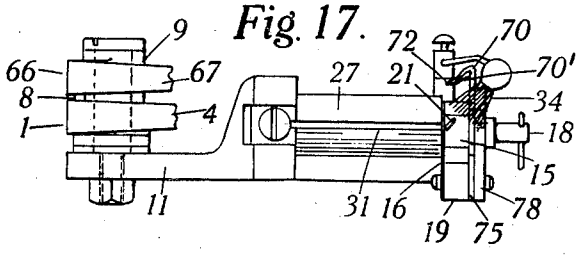


Fig. 17.

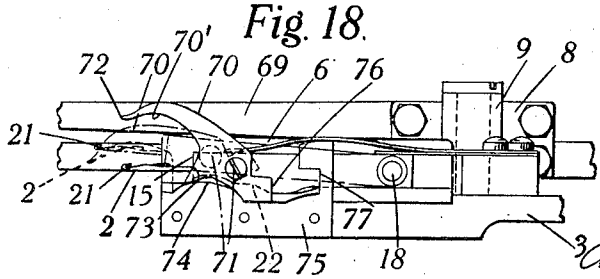


Fig. 18.

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Fig. 19.

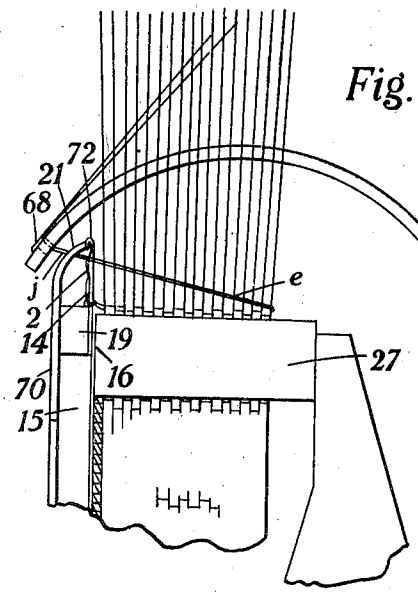
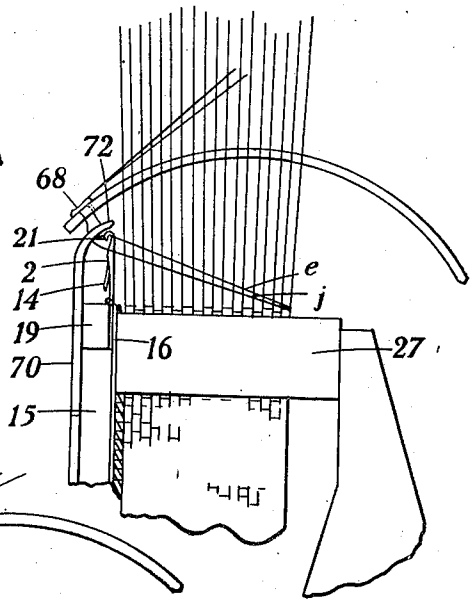


Fig. 20.



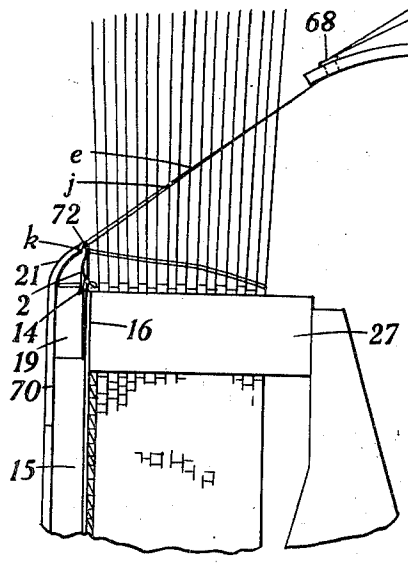


Fig. 21.

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Patented Sept. 20, 1938

2,130,636

UNITED STATES PATENT OFFICE

2,130,636

LOOMS WITH STATIONARY WEFT SUPPLIES

Charles Clutsom, St. Michaels, Ashby-de-la-Zouch, England

Application September 3, 1937, Serial No. 162,369
In Great Britain September 19, 1936

11 Claims. (Cl. 139—124)

This invention relates to looms with weft supplies which are stationary as regards insertion of the weft and has reference more especially to looms such as are employed for weaving elastic fabrics in the piece for manufacture subsequently into elastic garments, such for example as corsets, corselets, belts, girdles and like foundation garments, as well as to small-ware looms for weaving elastic webs and like narrow pieces, such as ribbons and braids in continuous length. The invention is not, however, to be regarded as limited in this respect as it may be applied to looms for weaving ordinary fabric in the piece for other purposes.

An object of the present invention is to provide in or for a loom improved means whereby fabric can be satisfactorily produced without the use of shuttles, thereby obviating the disadvantages attendant on shuttling so that increased output is obtained while considerable saving of thread results and costs of production are reduced.

Another object of the invention is to provide improved means for producing woven fabric with a knitted selvedge, as will be hereinafter described.

In the accompanying drawings,

Figure 1 is a plan view of a unit or an attachment for application to a loom in the production of a plain weave with a single weft thread and a knitted selvedge.

Figure 2 is a side elevational view of the same.

Figure 3 is an end view as viewed in the direction of the arrow A in Figure 1.

Figures 4–9 are diagrammatic views illustrating successive stages in the operation of the weft laying member and the thread engaging element of the unit or attachment.

Figure 10 is a detail view of a part of Figure 8.

Figures 11 and 11*a* are front elevations of so much of a small-ware weaving loom as is necessary to illustrate the application thereto of said unit or attachment.

Figures 12 and 12*a* are detail plan views hereinafter to be described.

Figures 13 and 13*a* are transverse sectional views taken on the line XIII—XIII of Figure 11.

Figures 14 and 14*a* comprise face views of the cams which are employed for actuating the weft laying member and the thread engaging element respectively.

Figures 15, 16 and 17 are three views similar to Figures 1, 2 and 3 respectively showing an alternative form of unit or attachment for use in the production of double-faced woven fabric with a knitted selvedge.

Figure 18 is a detail side elevational view of a part of said unit or attachment with one of the side plates thereof removed.

Figures 19, 20 and 21 are three views corresponding to Figures 5, 6 and 7 respectively illustrating successive stages in the operation of the modified unit or attachment.

Figures 11 and 12 are drawn to a smaller scale and Figures 4–10 and 19–21 to a larger scale than the remaining figures.

Like parts are designated by similar reference characters throughout the drawings.

In the particular illustrative embodiment of the invention shown in Figures 1–3, the weft laying member 1 and the thread engaging element 2 are mounted for movement upon a common bracket or like support, such as 3, adapted to be readily applied to and removed from a loom. The weft laying member is in the form of a thread guide and feeder and comprises a curved portion 4 which has therein a thread guiding eye 5 or equivalent passage for weft thread and is carried by or, as shown, formed integrally with a radial or substantially radial arm or bar 6 (Figure 1) pivotally mounted on the bracket or like support so as to enable the portion 4 to be oscillated in a horizontal plane. Conveniently the arm or bar 6 is attached, e. g. by means of screws 7, to a small flat plate 8 which is formed with a drilled boss 9 and mounted to turn about a stud 10 carried by a lateral extension 11 of the bracket 3. The said stud projects from the bracket at right angles thereto and is conveniently screw-threaded at its lower end for engagement with a nut 12 which serves to fix the stud in position. To enable the weft laying member to pivot freely about the stud a ball or equivalent bearing such as 13 may be interposed between the boss 9 and the extension 11. In this specific example the thread engaging element 2 is in the form of a latch needle, the latch of which is indicated at 14. The needle is attached to a carrier bar 15 slidably mounted for reciprocation in, or as shown, on the bracket 3 and located at the side of the latter remote from the stud 10 between two plates 16 and 17 which together constitute a guide for the bar. The said bar is formed or provided with a laterally extending peg, pin or equivalent projection such as 18 whereby it can be reciprocated. The bracket 3 is bifurcated at its forward end in such a way as to form two forwardly projecting limbs 19 and 20 and the plate 16—which is of a relatively thin character—is secured to

the inner face of the limb 19, as by means of screws, while the plate 17 is similarly secured to the other side of said limb. The plate 16, moreover, is substantially co-extensive with the limb 19 and vertically disposed closely adjacent to the needle 2. As will be seen more clearly in Figure 3, the needle is inclined so that its hook 21 lies in a plane which is obliquely disposed with respect to the plane of the plate 16. A cam such as 22 may be provided so that when the needle is advanced to engage thread presented to it by the weft laying member 1 in the manner hereinafter described, such engagement is facilitated as the result of contact between the needle, or the carrier bar 15, and the said cam. When provided, the cam 22 is preferably fixed, for which purpose it is conveniently formed on a part 23 disposed beneath the carrier bar 15 and attached by means of screws to the top of the limb 19. The underside of the said bar is appropriately shaped to co-operate with the cam 22 in such a way that on each forward stroke of the bar the latter is lifted at its forward end to effect deflection of the needle as indicated in dot-and-dash lines in Figure 2. Spring means are provided to depress the bar 15 and hence return the needle to its normal level when the bar is retracted. A blade spring 24 is conveniently provided for this purpose, one end of said spring acting on the top of the bar 15, while the other end is rigidly attached to a projecting part or to a small block such as 25 on the bracket 3. A blade spring 26 also attached to the said projecting part or block and acting on the top of the bar 15 at the rear end thereof is provided to maintain the bar in contact with the part 23. The unit or attachment has associated with it means adapted to constrain the portion of the fabric in the region of the fell to follow a definite path and in the specific example now being described said means consist of a guide 27—somewhat in the form of a bridge-piece—which extends at right angles to the needle 2 between the plate 16 and an upwardly projecting lug 28 or like part formed or provided on the limb 20. The guide is formed at one end with a portion 29 which is secured in a slot 30 in the limb 20. A horizontally disposed slot 31 (Figure 3) is formed in and extends through the guide 27 to permit of the passage of fabric being woven. This slot is located in the same plane as the weft laying member 1, that is to say in the plane in which the weft is laid, for the purpose hereinafter set forth. A roller 32 is conveniently provided on the unit or attachment to support fabric as it passes from the guide 27 through a slot 33 in the bracket 3 to any suitable drawing-off mechanism. A brush 34 or some equivalent device is employed to ensure the latch 14 being open at appropriate times as will be hereinafter described and the said brush is attached to the end of a comparatively short rod 35 which is adjustably secured in a support 36 mounted on the plate 16. A set screw 37 serves to set the brush in the required angular position. To enable the unit or attachment to be readily applied to the appropriate part of a loom the bracket is formed with one or more holes such as 38 for the passage of securing screws.

The unit or attachment just described is intended for use in the production of narrow pieces of woven fabric in continuous length and is adapted to be mounted in an appropriate position in a small-ware loom with the weft laying member 1 and the needle 2 located on opposite sides of the path of the warps *a* so that the portion 4 of the member 1 can carry weft to and fro through a shed, such as *b*, Figure 13*a*, formed in the usual manner. Since, when the unit or attachment is in use, the fabric being woven passes through the guide 27, proper passage of the weft laying member 1 through the shed is ensured, and in this way the said member is prevented from catching the warps *a*. The operation of the unit or attachment will now be described with reference to Figures 4–9. In Figure 4 a portion of fabric already woven is indicated at *c* and, as will be understood, this is being drawn off from the loom in customary manner and is supported in the region of the fell by the guide 27. The last pick of weft to be laid at the fell of the fabric is shown at *d*, the reed or sley of the loom is represented at 39 in dot-and-dash lines and the weft thread *e* from a stationary weft supply (not shown) is passing to and from the eye 5. Suitable thread tensioning means, e. g. spring pressed thread tensioning discs, with or without a light tension spring, may be and preferably are provided for obviating slackness in the thread *e* as it passes to and from the weft laying member. At the stage represented in Figure 4 the said member is at the end of a reverse stroke, the needle 2 is in the position shown and a loop *f* of weft thread previously formed at the edge of the fabric is on the stem and below the open latch 14 of the needle. The needle is now caused to be advanced to the position indicated in Figure 5 and at the same time deflected by the cam 22 aforesaid so that it engages the thread presented to it as a pick *g* is carried through the shed as the result of the member 1 making a forward stroke. Positive engagement of the thread with the needle is secured by reason of the latter being deflected in the manner stated. The latch 14 is kept open by the brush 34 or equivalent device aforesaid while the needle is advanced.

In Figure 5 the weft laying member is shown at the end of the forward stroke. During initial reverse movement of the said member, the needle remains stationary so that the thread is pulled into the needle hook 21 as shown in Figure 6. The curvature of the portion 4 and the angularity of the hook 21 is such, as will be seen, to facilitate entrance of the weft thread into the hook. As the weft laying member makes its reverse stroke to carry the next pick *i* of weft through the shed (Figures 7 and 8) the thread is pulled around the hook 21 to form a loop *h*. At this stage the needle is retracted. In Figure 7 the needle is shown in the course of retraction and, as will be seen, the pick *g* of weft is being pulled up to the previously laid pick *d*, the loop *h* is being drawn towards the forward edge of the plate 16 and the needle latch 14 is about to be closed by reason of its contact with the old loop *f*. As the needle withdraws still further the latch thereof is closed, the newly formed loop *h* is elongated and drawn through the loop *f* and the latter is cast-off. The elongation of the loop *h* and the casting-off of the old loop *f* is facilitated by the forward edge of the plate 16 which constitutes a knocking-over edge and functions in conjunction with the needle to facilitate formation of the selvedge.

At the stage illustrated in Figure 8 (see also Figure 10) the needle is nearly fully retracted, the loop *h* is about to be drawn through the loop *f* and the latter is being cast-off or knocked over. The needle is subsequently advanced and the latch thereof is consequently opened by the loop

h, which latter is cleared as shown in Figure 9. During the successive stages just described the reed or sley 39 advances to beat up the wefts and just prior to the stage illustrated in Figure 9 the said reed or sley, by reason of its advancing movement and contact with the picks *g* and *i*, assists in clearing the loop *h* from the needle latch. The formation of the portion 4 of the weft laying member is such that the latter does not collide with the advancing reed or sley. After the loop has been cleared the needle is then slightly retracted to the position indicated in Figure 4 prior to the laying of the next pick of weft and movement of the needle to engage the latter. This sequence of movements just described is repeated at each oscillation of the weft laying member so that the weft thread is laid to and fro through the shed *b* and the engaged portions of thread are interknitted to form a selvedge as weaving proceeds. As will be understood, the needle holds the thread each time the weft laying member makes a reverse stroke and it is in this way that a loop is formed. The manner in which the selvedge is produced is shown more clearly in Figure 10 and, as will be appreciated, it is the loops formed by successive pairs of inserted picks of weft which are interknitted. The needle, which extends in the same general direction as the warps, reciprocates at right angles to the picks of weft.

Referring to Figures 11, 11*a*–13, 13*a*, it will be seen that the unit or attachment is secured by means of screws 40 to the top of a longitudinal member 41 of the main frame of the loom at the front of the latter. As already alluded to herein, Figures 11–13 purport to show a part of a small-ware loom and in such a loom there will be as many units or attachments as pieces of web or the like to be woven although, for the sake of convenience in illustration, only one unit or attachment is shown, and, as will be seen, this is mounted in alignment both with the appropriate healds such as 42 (Figure 11) of the shedding mechanism and the corresponding reed or sley 39. Suitable actuating cams are provided for the weft laying member 1 and the associated needle 2 and motion is conveniently transmitted to said cams from a suitable source, such for example as one of the shafts of the loom, through intermediate driving gear or connections. The necessary movements are imparted to the weft laying member 1 by means of a fork or forks or equivalent means or, as shown, by a cam actuated slide bar 43 and to the carrier bar 15 from a cam actuated rockshaft 44. The said slide bar is conveniently mounted in slots 45, one of which is formed in each of a number of spaced brackets such as 46 bolted or otherwise secured to the back of the frame member 41. If desired, a roller 47 may be provided in each of the slots to support the slide bar and enable the latter to move freely as it is reciprocated, for the intended purpose. The slide bar, moreover, extends beneath the free end of the radial arm or bar 6 aforesaid, which latter is bent to enable it to be located between a pair of upstanding pins or the equivalent such as 48 which are formed or provided on a small block 49 attached to the slide bar. As shown more clearly in Figure 13*a*, the slide bar 43 is attached to one end of a short slidable rod 50 which passes through a bearing block 51 and carries at its other end a roller 52 adapted to engage in a cam groove 53 formed in one face of a cam 54. This cam, the shape of which is represented in Figure 14, is rigidly secured to a shaft 55 disposed at one side of the loom and adapted to be driven in timed relation with the operation of the various parts of the loom, for example from the main shaft of the latter (not shown) through suitable gearing. Conveniently, and as seen more clearly in Figure 13, the shaft 55 is inclined downwardly from the front of the loom and at its end remote from the driving means is supported in a bearing 56 formed on a bracket 57 bolted to one of the side members 58 of the main frame. When the cam 54 occupies the position shown in Figure 11 the weft laying member is at the end of a reverse stroke and the arrangement is such that as the cam revolves in an anti-clockwise direction (as viewed from the front of the machine) the slide bar 43 reciprocates to actuate the weft laying member and move it to and fro through the shed *b*. The movements of the weft laying member are, of course, determined by the contour of the cam groove 53 and said member makes a forward stroke when the roller 52 engages the portion *r* of the groove, a reverse stroke when said roller engages the portion *s*, and remains stationary at the end of the reverse stroke while the portion *t* passes the roller.

The brackets 46 and the block 51 are also adapted to support the rockshaft 44 and the latter has rigidly secured thereto a radially extending arm 59 which is connected to the pin, peg or equivalent projection 18 by means of a short link 60. Thus, when the shaft 44 is rocked to and fro the carrier bar 15 and hence also the needle is reciprocated. An arm 61 is secured to one end of the rockshaft and furnished with a roller 62 which projects into the path of an actuating cam 63 also provided on and rotatable with the cam shaft 55. Conveniently, and as shown more clearly in Figures 11 and 12, one portion of the arm 61 extends at right angles to, and another parallel with, the shaft 44. The said arm, moreover, is spring controlled to maintain the roller 62 in contact with the periphery of the cam 63, for which purpose a tension spring or springs such as 64 is or are conveniently employed. In the drawings one such spring is indicated and this is connected at one end to a lug 65 formed on the arm 61 and at the other end to any suitable fixed part of the loom. The arrangement just described is such that as the cam 63 revolves the arm 61 is oscillated to rock the shaft 44. The shape of the cam 63 is represented in Figure 14 and when the roller 62 is in engagement with the peripheral portion *u* the needle remains stationary in the position indicated in Figure 4. Commencing at this position and during one revolution of the cam 63 the portion *v* thereof as the result of its contact with the roller 62 effects advancement of the needle to engage the thread, the portion *w* causes the needle to remain stationary, the portion *x* effects retraction of the needle so that it draws a loop of thread through a previously formed loop, the portion *y* causes the needle to be advanced again to clear the newly formed loop and as the result of its contact with the roller the portion *z* causes the needle to be subsequently withdrawn to its initial position.

If desired, a separate finger or like part may be provided in association with the needle 2 and suitably operated so as to push or pull the appropriate portion of the weft thread into engagement with the said needle when the latter advances to receive the thread. Such a finger or like part may be provided instead of or in addition to the cam or equivalent means for effecting deflection of the needle when it is advanced.

A unit or attachment for use in the production of double-faced woven fabric with a looped or knitted selvedge will now be described with reference to Figures 15 to 18. The said unit or attachment is in all essential respects similar to that already described but, as will be seen from Figures 16 and 17, it is provided with an additional weft laying member **66** of the same form as the weft laying member **1**. In Figure 17 parts of the weft laying members are broken away for the sake of convenience in illustration. The member **66** has a curved portion **67** which has therein a thread guiding eye **68** for passage of an additional weft thread and is carried by or, as shown, formed integrally with an arm or bar **69** attached, in a similar way to the arm or bar **6**, to the plate **8**. The two weft laying members are disposed one above the other in parallel planes and are adapted to be actuated together, for example, from a cam actuated slide bar such as that hereinbefore described. When the modified unit or attachment is in use threads of different characteristics or/and colours, e. g. silk or artificial silk and cotton or wool are supplied to the pair of weft laying members and these threads are laid through a double shed of correspondingly dissimilar warps thereby producing double-faced fabric, such, for example, as one with a silk or artificial silk front and a cotton or wool back. The needle **2** is arranged and adapted to be operated in precisely the same way as the needle in the first described unit or attachment. In this specific example, moreover, the needle assists in forming a looped or knitted selvedge of both of the threads *e* and *j*, Figures 19, 20 and 21, supplied by the weft laying members **1** and **66** respectively. In this connection, however, it will be understood that some means must be provided for pushing or pulling the appropriate portion of one of the weft threads into engagement with the needle at such times as a pick of said weft has been laid at a forward stroke of the corresponding weft laying member and the needle has been advanced to engage both threads. This is due to the fact that the operative end of one of the weft laying members is located above the needle. Referring to Figures 15 and 16, for instance, it will be seen that the operative end of weft laying member **1** is arranged at the same level as the needle **2**, whereas the corresponding end of the member **66** is located above the needle. Thus, in this particular example, when the needle is advanced and consequently also deflected by the cam **22**, the said needle only engages the thread *e*. Consequently, if both of the threads are to be subsequently drawn around the needle hook **21** to form a loop, then some means must be provided for pushing or pulling the appropriate portion of the thread *j* into contact with the needle. For this purpose a finger or like part such as **70** is conveniently provided in association with the needle and adapted to be operated conjointly with the latter. In the specific example shown the finger **70** is pivotally mounted on a pin **71** which is screwed into the side of the carrier bar **15** remote from the plate **16**. The forward portion of the finger is curved as shown in Figures 16 and 18 to provide on its underside a downwardly directed surface **70'** and this portion is also bent or otherwise formed so that the extremity **72** thereof is disposed directly above the needle hook **21** when the needle is in the position it occupies immediately prior to being advanced to receive the threads (see Figures 15 and 19). The finger **70** reciprocates with the needle and is adapted to be turned on its pivot to bring the extremity **72** just below the needle hook when the needle is fully advanced, as indicated in dot-and-dash lines in Figure 18. During such turning movement the finger acts on the thread *j* and pushes it into contact with the needle (see Figure 20) so that when the weft laying members **1** and **66** make a reverse stroke the appropriate portion of said thread is drawn into the needle hook together with the corresponding portion of the thread *e*. In this way a loop *k* is formed of both threads and in Figure 21 the needle **2** is shown in the course of being retracted to draw the said loop towards the forward edge of the plate **16**. The turning movement aforesaid is conveniently effected by cam means suitably fixed in relation to the finger. The finger **70** is conveniently formed with a downwardly projecting extension **73** adapted to be acted upon by a suitably profiled portion **74** of a cam plate **75** fixed in position adjacent to the carrier bar **15**. At such times as the needle **2** is fully retracted a rearwardly extending projection **76** on the finger enters a notch **77** formed in the plate **75**. The said plate, moreover, is maintained in position by means of a retaining plate **78** which is attached, e. g. by means of screws, to the limb **19** and formed with an appropriately formed slot **79** through which projects the head of the pivot pin or screw **71**.

If desired the needle of the last described unit or attachment may engage only one of the two weft threads to assist in forming it into loops, in which instance the other thread would be engaged but cast off without being formed into loops so that it passes round the loops of the other thread. For example, the thread which is not to be formed into loops may be laid or brought below the latch of the needle so that it is cast off. The needle may be curved or inclined to enable this to be done or a separate finger or like part somewhat similar to the finger **70** may be provided in association with the needle and suitably operated so as to push or pull the appropriate thread behind or below the needle latch.

It will be understood, of course, that any convenient form of thread engaging element other than a latch needle may be employed in either of the units or attachments herein described.

There may be a thread engaging element located on the same side of the path of the warps as the weft laying member or members. By providing two elements in association with the same weft laying member or pair of such members but on opposite sides of the path of the warps, a looped or knitted selvedge can be formed at each edge of the fabric. When two elements are provided as aforesaid they may be operated simultaneously in the same manner or so that when one is advanced to engage the thread the other is retracted to cast off the thread. Again, and in conjunction with a unit or attachment for producing double-faced fabric, there may be a pair of thread engaging elements on one or each side of the path of the warps, one for each thread so that both wefts are formed into loops or knitted at one or each edge of the fabric. In such a case the two elements provided for engaging different threads at the same edge of the fabric may be attached to one and the same carrier bar.

When the weft laying member or members and the thread engaging element or elements are mounted on a bracket or like support as aforesaid the latter may be formed in two parts adapt-

ed for adjustment laterally one or each in relation to the other, e. g. by screw or other suitable means, so as to enable pieces of fabric of different widths to be produced.

As will be understood, in a loom adapted to weave but a single piece of fabric there will be one thread laying member and a co-operating thread engaging element, e. g. unit or attachment as aforesaid.

Several pieces of fabric may be woven simultaneously face to face, e. g. one above another, by suitable arrangement of weft laying members and associated thread engaging elements, in which case any suitable number of the said members and elements may be operated by actuating means such as those aforesaid, common to all.

The invention may be carried into practice in connection with existing looms by substituting the improved mechanism for the shuttles, shuttle boxes, picking mechanism and associated parts, thereby simplifying such looms as well as in new looms.

The shedding harness, reed or sley, the drawing-off means and associated actuating mechanisms are of conventional form, but a further advantage arising out of the invention is that the beating up motion of the reed or sley can be considerably shortened as there is or are no shuttle or shuttles to clear, so that fraying action on the warp threads is correspondingly reduced.

What I claim then is:—

1. In a weaving loom, in combination, a weft laying member pivotally mounted and adapted to operate to carry weft to and fro through a shed of warps, a guide, a latch needle attached to a carrier bar slidably mounted for reciprocation in said guide, said needle being adapted to operate in conjunction with the weft laying member to ensure laying of the weft to and fro through the shed and to form a knitted selvedge, a cam for effecting deflection of the needle on the forward strokes whereby positive engagement of the weft with the needle is facilitated, a part providing a knocking over edge adjacent to the needle to facilitate formation of said selvedge, and a slotted guide for supporting fabric adjacent to the fell while being woven.

2. In a weaving loom, in combination, a weft laying member pivotally mounted and adapted to operate to carry weft to and fro through a shed of warps, a latch needle arranged so that in use it extends in the same direction as the warps, a guide, a carrier bar to which the needle is attached and mounted for reciprocation in the guide, said weft laying member being so arranged in relation to the needle as to present weft to said needle at each of its forward strokes and the needle being adapted to operate in conjunction with the weft laying member to ensure laying of the weft to and fro through the shed and to form a knitted selvedge, a cam for effecting deflection of the needle on the forward strokes whereby positive engagement of the weft with the needle is facilitated, a part providing a knocking over edge adjacent to the needle to facilitate formation of said selvedge, and a slotted guide for supporting fabric adjacent to the fell while being woven.

3. In a weaving loom, in combination, a weft laying member pivotally mounted and adapted to operate to carry weft to and fro through a shed of warps, a guide, a latch needle attached to a carrier bar slidably mounted for reciprocation in said guide, said needle being adapted to operate in conjunction with the weft laying member to ensure laying of the weft to and fro through the shed and to form a knitted selvedge, a cam for effecting deflection of the needle on the forward strokes whereby positive engagement of the weft with the needle is facilitated, a part providing a knocking over edge adjacent to the needle, a device adapted to ensure the latch of the needle being open as and when required, and a slotted guide for supporting fabric adjacent to the fell while being woven.

4. In a weaving loom, in combination, a pivoted weft laying member having a curved forward portion and adapted to operate to carry weft to and fro through a shed of warps, a latch needle arranged at the side of the warps opposite from that at which the weft laying member is pivoted and in such a way that in use it extends in the same direction as said warps, a bar which serves to carry the needle and is slidably mounted, said bar being provided with a part whereby it can be reciprocated to operate the needle in conjunction with the weft laying member to ensure laying of the weft to and fro through the shed and to form a knitted selvedge, a cam for effecting deflection of the needle on the forward strokes whereby positive engagement of the weft with the needle is facilitated, a plate providing a knocking over edge adjacent to the needle to facilitate formation of said selvedge, and a slotted guide for supporting fabric adjacent to the fell while being woven.

5. In a weaving loom, in combination, a pair of pivoted weft laying members adapted to operate to carry weft threads to and fro through sheds of warps, a guide, a latch needle, a carrier bar to which said needle is attached and slidably mounted for reciprocation in said guide, said needle being adapted to operate in conjunction with the weft laying members to ensure laying of the weft threads to and fro through the sheds and to form a knitted selvedge of both of said threads, a cam for effecting deflection of the needle on the forward strokes whereby positive engagement of the threads with the needle is facilitated, a part providing a knocking over edge adjacent to the needle to facilitate formation of said selvedge, a finger associated with the needle and adapted to be moved in relation to the needle when the latter is reciprocated for the purpose herein described, and a slotted guide for supporting fabric adjacent to the fell while being woven.

6. In a weaving loom with a stationary weft supply, in combination, a pair of weft laying members, each consisting of a thread guide adapted to operate to carry weft to and fro through a shed of warps, a reciprocatory knitting needle adapted to operate in conjunction with the weft laying members to ensure laying of the threads and to form a knitted selvedge, cam means so arranged for action upon the knitting needle as to effect deflection of the latter on the forward stroke whereby positive engagement of one of the weft threads with said needle is secured a finger which reciprocates with said knitting needle and is adapted to be moved relatively thereto on its forward strokes so that said finger acts upon the other weft thread and moves it into contact with the needle, and means for causing the fabric to follow a definite path in the region of the fell to facilitate laying of the weft.

7. In a weaving loom with a stationary weft supply, in combination, a weft laying member consisting of a thread guide adapted to operate

to carry weft thread to and fro through a shed of warps, a reciprocatory knitting needle adapted to operate in conjunction with the weft laying member, to ensure laying of the weft to and fro through the shed and to form a knitted selvedge, cam means, so arranged for action upon the knitting needle as to effect deflection of the latter on the forward strokes, whereby positive engagement of the weft thread with said needle is secured, and means for constraining the fabric to follow a definite path in the region of the fell while being woven.

8. In a weaving loom with a stationary weft, in combination, a weft laying member consisting of a thread guide adapted to operate to carry weft thread to and fro through a shed of warps, a reciprocatory knitting needle adapted to operate in conjunction with the weft laying member to ensure laying of the weft to and fro through the shed and to form a knitted selvedge, cam means so arranged for action upon the knitting needle as to effect deflection of the latter on the forward stroke whereby positive engagement of the weft thread with said needle is secured, a part providing a knocking over edge arranged to function in conjunction with the knitting needle, to facilitate formation of the selvedge and means for constraining the fabric to follow a definite path in the region of the fell, while being woven.

9. In a weaving loom with a stationary weft supply, in combination, a weft laying member consisting of a thread guide adapted to operate to carry weft thread to and fro through a shed of warps, a reciprocatory knitting needle adapted to operate in conjunction with the weft laying member to ensure laying of the weft to and fro through the shed and to form a knitted selvedge, cam means so arranged for action upon the knitting needle as to effect deflection of the latter on the forward strokes whereby positive engagement of the weft thread with said needle is secured, and guiding means arranged to be located adjacent the fell of the fabric in use, to hold said fabric in the plane in which the weft is laid, so as to ensure proper passage of the weft through the warp shed.

10. In a weaving loom with a stationary weft supply, in combination, a weft laying member, consisting of a thread guide adapted to operate to carry weft thread to and fro through a shed of warps, a reciprocatory latch needle, adapted to operate in conjunction with the weft laying member to ensure laying of the weft to and fro through the shed and to form a knitted selvedge, cam means so arranged for action upon the latch needle as to effect deflection of the latter on the forward strokes, whereby positive engagement of the weft thread with said needle is secured, means for constraining the fabric to follow a definite path in the region of the fell to facilitate laying of the weft, and, in association with said latch needle, means adapted to ensure the latch thereof being open to permit the needle to engage the thread as and when required.

11. In a weaving loom with a stationary weft supply, in combination, a weft laying member, consisting of a thread guide and a cooperating knitting needle, so arranged relatively as to be normally located on opposite sides of a series of warps in use and adapted to operate, in conjunction, whereby the weft thread is laid to and fro through a shed of warps and the engaged portions of thread are interknitted, thereby forming a selvedge as weaving proceeds, means for causing the fabric to follow a definite path in the region of the fell, and cam means, so arranged for action upon the knitting needle, as to effect deflection of the latter, on the forward strokes, whereby positive engagement of the weft thread with said needle is secured.

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