June 17, 1958 C. E. WEBBER ET AL 2,839,090

WIRE CLOTH LOOM

Filed March 6, 1957 3 Sheets-Sheet 1

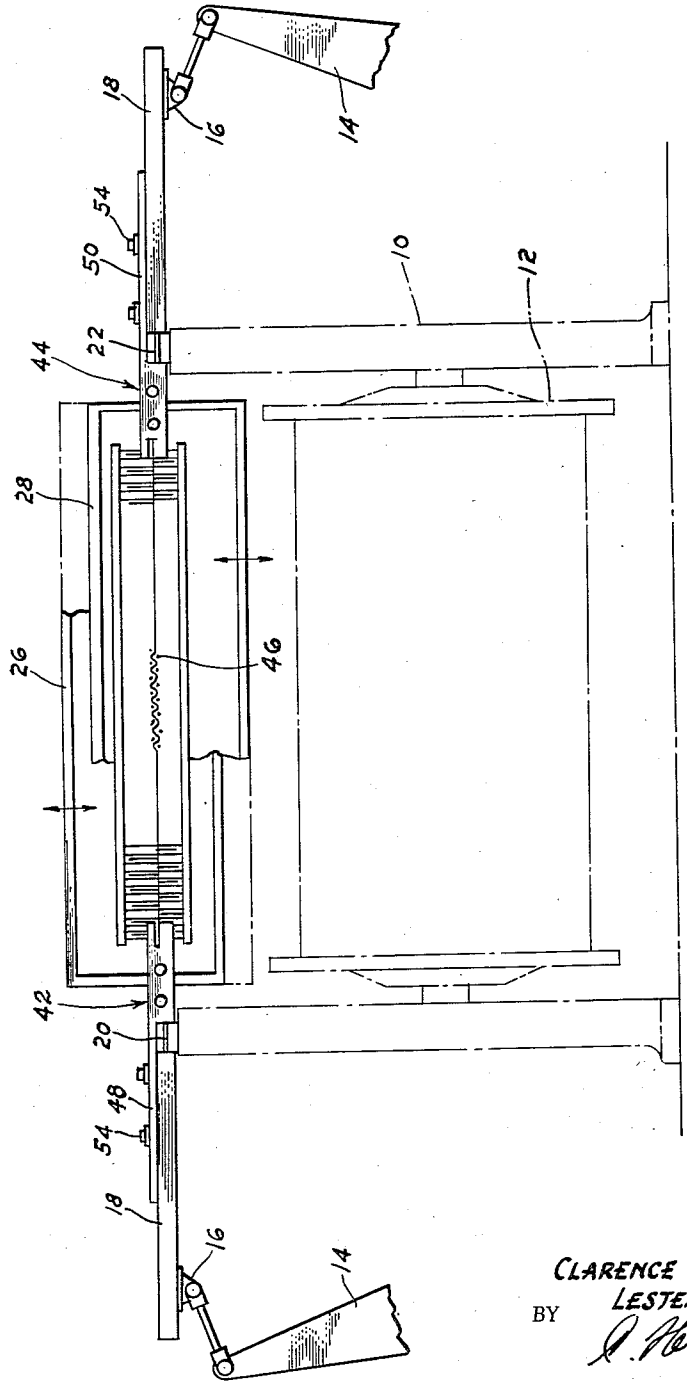

Fig. 1

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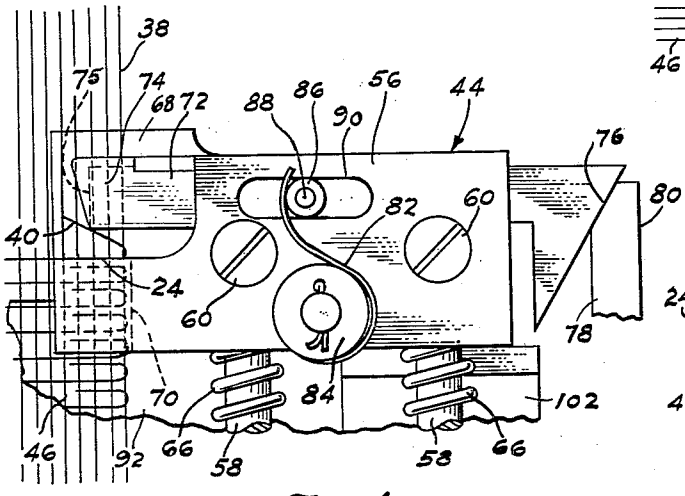

Fig. 4

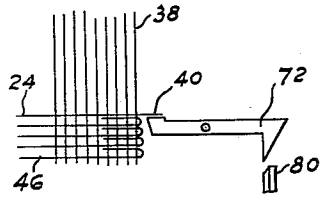

Fig. 5

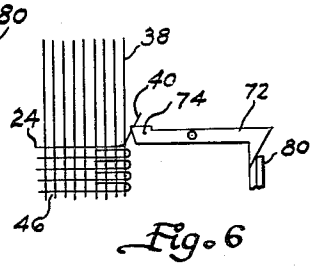

Fig. 6

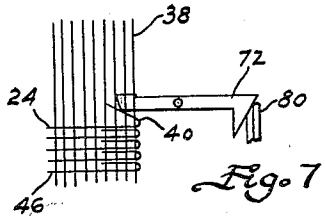

Fig. 7

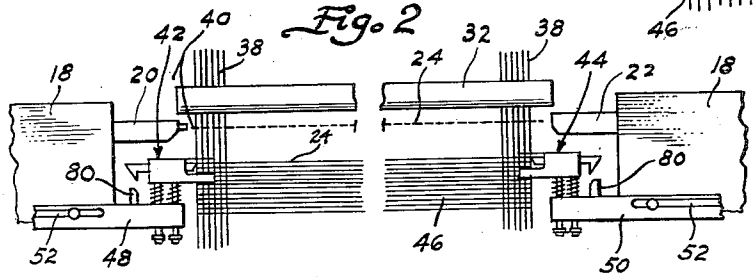

Fig. 2

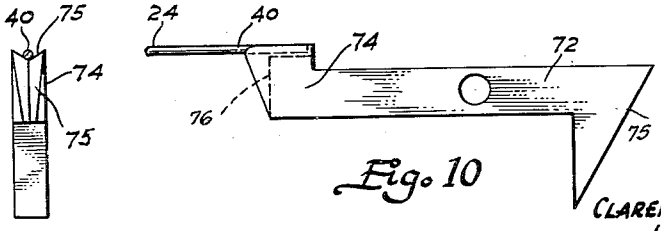

Fig. 11

Fig. 10

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WIRE CLOTH LOOM

Filed March 6, 1957 3 Sheets-Sheet 3

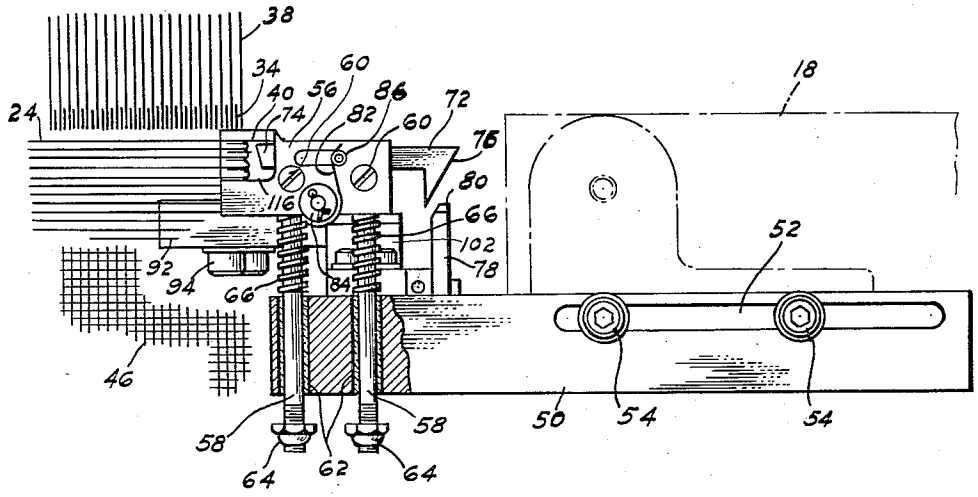

Fig. 3

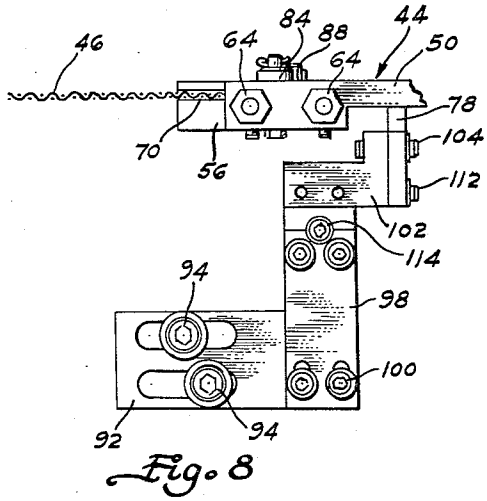

Fig. 8

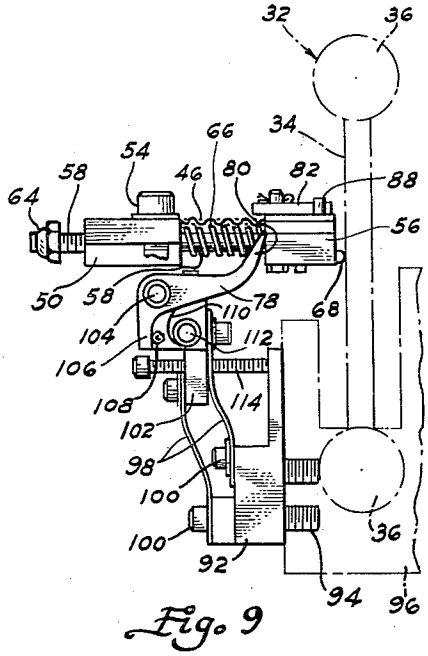

Fig. 9

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United States Patent Office 2,839,090 Patented June 17, 1958

2,839,090

WIRE CLOTH LOOM

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Application March 6, 1957, Serial No. 644,416

25 Claims. (Cl. 139—127)

This invention relates to improvements in a loom for weaving wire cloth and, more particularly, in tucking mechanism utilized in a wire cloth loom of the type which inserts cut weft wires between the warp wires of the shed of the loom, in contract to that type of wire cloth loom which utilizes a so-called continuous weft wire fed from bobbins carried by a shuttle.

For many years, woven wire cloth known as insect screening for example has been woven upon looms employing a shuttle containing a bobbin wound with wire which comprises the weft strands of the woven cloth. This type of loom forms a selvage at opposite edges of the woven cloth which is smooth in that the continuous weft wires are inserted in such a manner, as in textile weaving looms of conventional type, that each successive weft wire is a continuation of the previously inserted weft wire and is connected thereto by a bend in the wire at the selvage edge of substantially 180°.

One of the principal disadvantages of a loom of this type is that when the wire on the bobbin becomes exhausted, it is necessary to replenish the empty bobbin with a filled one, such operation usually requiring stopping the loom, and a certain amount of time as well as human effort is required in this operation. As a result of this, it is only possible for a single operator to oversee and service the operation of a limited number of looms of this type. Further, it is necessary to employ bobbin winding machines to provide bobbins filled with wire to be used in the shuttle of the loom.

In contrast to this type of loom, a loom which employs gripper carriers which sequentially position the leading end of a wire from a very large coil thereof through the shed of the loom from one edge to the other of the weave, cuts this inserted weft wire from the supply, and then again insert the leading end of the wire from the supply coil through the shed to form the next weft wire, repeating this cycle indefinitely, offers substantial advantages particularly in the minimum amount of servicing that is required for such a loom. The relatively large spools filled with wire which may be employed in a loom of this latter type permits the loom to be operated continuously for many hours before such spools become exhausted and require replacement by a filled spool. This type of loom however required the solving of a problem of what to do with the projecting cut ends of the weft wires inserted by the loom in the woven cloth.

Heretofore, particularly in weaving relatively heavy gauge material such as agricultural fencing expensive and complex looms have been developed which handle the cut ends of the weft wires in various ways such as bending and twisting said ends in the selvage edge, welding the cut ends to adjacent weft wires after being bent into engagement therewith, and the like. However, particularly in the art of weaving insect wire screening, such treatment of the cut ends of the weft wires has not been feasible for a number of reasons including the relatively small size of the wire used in the loom, the smaller spaces between adjacent weft wires or warp wires, and also the desire to produce insect screening having a relatively smooth selvage edge offering no sharp ends or projections or any substantial increase in thickness in the selvage edges which might, for example, impede winding the finished insect screening into coils or rolls.

The problem of producing a loom which successfully wove insect screening having weft wires separate from each other was solved by the construction comprising the subject matter of pending application Serial No. 579,915, filed April 23, 1956, and assigned to the assignee of the instant invention. While the improvements comprising the subject matter of said pending application operate satisfactorily, the present invention comprises an improvement thereover primarily from the standpoint of providing tucking mechanism which acts upon the cut ends of the weft wires as effectively as the prior construction but the new tucking mechanism is much more simple in operation and construction, whereby the cost thereof is considerably less than that of the prior tucking mechanism and otherwise is desirable over the prior mechanism from the standpoint of requiring a minimum amount of maintenance and servicing.

It is the principal object of the present invention to provide in a wire cloth loom particularly adapted for weaving insect screening but also being employable for weaving woven wire products of heavier gauge material, wherein a tucking head is positioned adjacent each edge of the weave in the loom, and a tucking blade is supported by the tucking head in such manner that the blade has rectilinear reciprocable movements, as distinguished from arcuate movements, thus simplifying the supporting and actuating structure for the tucking blades over the supporting and actuating mechanism employed in the prior invention covered by said co-pending application.

Still another object of the present invention is to support each tucking head for reciprocable movements parallel to the edges of the weave of the cloth, thus providing movement for the tucking blades to accomplish part of the bending of the projecting cut ends of the weft wires, while unique and simple mechanism causes reciprocable movements of the tucking blades in directions parallel to the cut weft wires to complete the bending of said initially projecting cut ends of the weft wires into the shed of the loom in order that said ends may become woven between a limited number of the warp wires comprising the outermost portions of the selvage edges of the wire cloth.

A further object of the invention is to utilize preferably the movement of the reed bar unit of the loom to effect reciprocable movements of the tucking head as well as the tucking blade in one direction in which these elements are mounted to move, while spring means are employed to effect movements thereof in opposite directions to complete the cycle of movement of each tucking unit.

Still another object of the invention is to provide a tucking unit for use at each side of the weave of the loom which is simple in construction, durable in use, fool-proof in operation, easily and inexpensively assembled, and the number of critical dimensions of the various elements of each unit being minimum.

Details of the foregoing objects and of the invention, as well as other objects thereof, are set forth in the following specification and illustrated in the drawings comprising a part thereof.

In the drawings:

Fig. 1 is a front elevation of an exemplary wire cloth loom embodying the principles of the present invention, certain conventional portions of the loom being either omitted or broken away to simplify the illustration, or otherwise being shown in phantom lines for purposes of highlighting the present invention and its applicability to said loom.

Fig. 2 is a fragmentary top plan view of the loom

shown in Fig. 1 and illustrating particularly the relationship of the gripper carriers for the weft wires to tucking mechanism disposed adjacent opposite edges of the weave and operable in accordance with the principles of the invention.

Fig. 3 is an enlarged plan view of one tucking unit and its supporting means shown in operable position relative to one edge of the weave, the various elements of the tucking unit being illustrated therein in the position they occupy at the commencement of the bending operation of a projecting end of the last inserted weft wire.

Fig. 4 is a view similar to Fig. 3 but shown on a still larger scale and illustrating the position of the tucking blade in the tucking unit substantially at the end of the bending operation of the initially projecting end of the cut weft wire.

Figs. 5, 6 and 7 are diagrammatic views illustrating respectively various steps in the bending operation of the projecting ends of the cut weft wires, the commencement of the bending cycle being illustrated in Fig. 5, the completion of a preliminary bending being illustrated in Fig. 6, and the completion of the final bending being illustrated in Fig. 7, all of these views illustrating only a fragmentary portion of one selvage edge of the cloth being woven, the tucking blade, and a cam follower which is fragmentarily illustrated in its various positions relative to the tucking blade.

Figs. 8 and 9 respectively illustrate, on a scale similar to that employed in Fig. 3, front and side elevations of a tucking head embodying the principles of the invention and cam follower supporting mechanism which is attached to the reed bar assembly for purposes of operating both the tucking head and reciprocating the tucking blade relative to said head.

Figs. 10 and 11 respectively illustrate a top plan view and a front end view of a tucking blade comprising part of the present invention, the scale being similar to that employed in Fig. 4.

An exemplary wire cloth loom is illustrated in Fig. 1 for purposes of best illustrating the principles of the present invention. Said loom comprises a frame **10**, at one end of which a warp drum **12** is mounted to contain the warp wires from which the shed of the loom is formed. Mounted respectively at opposite sides of the frame **10** are a pair of oscillating arms **14** which are actuated by mechanism, not shown, in accordance with conventional looms of this type. The oscillating arms **14** respectively reciprocate slidable members **16** which are guided for movement on laterally extending frame members **18** which are stationary relative to frame **10** and are supported thereby.

In this figure, the beam roll around which the woven wire cloth extends at the forward end of the loom has been omitted to simplify the illustration. Likewise, the beat-up frame unit comprising the reed bar assembly have been omitted to render the figure less confusing.

The slidable members **16** in the lateral frame members **18** are connected to the outer ends of the gripper carriers **20** and **22** which are shown to best advantage in Fig. 2. In operation of the loom. the gripper carrier **20** engages the end of the weft wire supply and moves half way through the shed of the loom while the other gripper carrier **22** likewise is moving to meet carrier **20**. Upon meeting, gripper carrier **22** then engages the end of the weft wire and, upon the direction of movements of both carriers **20** and **22** being reversed, the gripper carrier **22** then will pull the weft wire **24** entirely through the shed of the loom, whereupon cutting mechanism of conventional nature, not illustrated, severs the thus placed weft wire **24** from the wire which is still engaged at this time by the gripper carrier **20** preparatory to the next excursion into the shed of the loom.

The loom also is provided with vertically reciprocable harness frames **26** and **28** which are actuated by conventional mechanism, not illustrated, for purposes of forming the shed which extends from the leading end of the woven cloth **46** as shown in Fig. 2, and through the harness frames **26** and **28**. It will be understood, in accordance with conventional operation of looms, that immediately after a cut weft wire **24** is inserted into the shed, it is beaten up to the leading end of the woven cloth **46** by reed bar assembly **32** which is actuated by mechanism not illustrated herein in order that the drawing may be more simplified. The reed bar assembly **32** is illustrated in phantom however in Fig. 9 and includes a plurality of reeds **34** extending between horizontal bars **36**, the warp wires **38** from the warp drum **12** respectively extending between adjacent reeds **34** as shown in Fig. 3.

After the last inserted weft wire **24** has been positioned within the shed and has been beat up into the shed from the dotted line insert position shown in Fig. 2, to the full line position of wire **24** in said figure, by reed bar assembly **32**, the harness frames then shift to lock the weft wire into the weave and the positioning of the wire **24** as well as the length thereof, is such that the opposite ends **40** thereof respectively project beyond the outermost warp wires **38** of the woven wire cloth **46**.

Said projected ends **40** of the last inserted cut weft wire **24** then are operated upon by tucking units **42** and **44** respectively positioned adjacent opposite edges of the weave of the cloth. The tucking units **42** and **44** each comprise supporting means which may be simple elongated bars **48** and **50** preferably provided with elongated slots **52**, each of which receive preferably a pair of clamping bolts **54** by which the supporting bars **48** and **50** respectively are adjustably secured to the lateral frame members **18** at opposite sides of the frame of the loom.

Referring particularly to Figs. 3 and 4, it will be seen that each tucking unit comprises a head which conveniently may be more or less rectangular in shape as shown in said figure. The head **56** is mounted relative to its supporting bar **50** for reciprocable motion in opposite directions parallel to the edge of the woven cloth **46**. One simple means of achieving this comprises providing a pair of guide bars **58** which are parallel to each other and extend into the tucking head **56**, being locked thereto by screws **60** for example. The bars **58** also extend through parallel, spaced bearings **62** provided in supporting bar **50**, stop nuts **64** being threaded on the outer end thereof for abutment with the forward face of supporting bar **50** to limit the movement of the tucking head **56** away from said bar. Also, compression springs **66** preferably surround the guide rods **58** and extend between the adjacent faces of supporting bar **50** and tucking head **56** as clearly shown in Fig. 3. Said springs move the tucking head **56** in one reciprocable direction, while the reed bar unit **32** engages bumper **68**, see Fig. 9, when the reed bar unit is moving in beat-up direction, to move the tucking head **56** in reverse reciprocable direction.

It will be understood that while only the operation of a single tucking unit **44** is described herein, the tucking unit **42** simultaneously is actuated similarly at the opposite side of the loom.

The tucking head **56** also is provided with a slot **70**, best seen in Fig. 8, through which the selvage edge of the woven cloth **46** passes. The head **56** also is provided with a reciprocable tucking blade **72**, the inner end **74** of which is provided with a groove **75** which engages the projecting end **40** of the last inserted weft wire **24**, as shown in Fig. 3 and, in phantom and on a larger scale in Fig. 10, due to the fact that the tucking blade **72** preferably is mounted within head **56** so as to be substantially within the plane of the woven cloth **46**.

When the last inserted weft wire **24** is being beaten up into the shed by the reed bar unit **32**, said unit **32**, near the end of its beat-up movement, engages bumper **68** so as to move the tucking head **56** in beat-up direction, thereby compressing springs **66**. At the completion of

this operation, the projecting ends 40 of the weft wire 24 will be positioned relative to the inner ends 74 of both of the tucking blades in the tucking units 42 and 44 at opposite edges of the cloth as shown in Figs. 2, 3 and 10. The harness frames then reverse their positions so as to cause the shed to shift and lock the beat-up weft wire 24 which has last been inserted into the weave of the cloth. The reed bar assembly then commences to retreat and, in doing so, permits the springs 66 to expand and move the tucking heads 56 of the respective units 42 and 44 in a direction to bend the projecting ends 40 of the weft wire from the position shown in Fig. 5 for example, to the position shown in Fig. 6. This comprises the first step in the operation of forming a complete bend of the projecting ends 40 of each weft wire as sequentially incorporated in the weave of the cloth.

As has been stated above, the tucking blade 72 in each tucking unit is reciprocable in said unit parallel to the weft wires and substantially within the plane of the woven cloth. Such reciprocation is effected by cam means, one simple and effective form of which comprises a cam surface 76 formed on the outer end of each of the blades 72. During the retreating movement of the reed bar unit 32, a cam follower 78, which is connected pivotally to said reed bar unit by mechanism best shown in Figs. 8 and 9, is provided with an actuating tip 80 which engages cam surface 76 on the tucking blade and moves the inner end 74 thereof into the shed, in parallelism with the weft wires, to complete the bending of the projecting ends 40 of each last inserted weft wire 24 so that said projecting ends then assume the shape substantially as shown in Fig. 7. Said projecting end 40 then is disposed within the shed which is very narrow at this location, whereby, when the next inserted weft wire is beaten into position within the shed by the reed bar unit 32, it will engage the somewhat angularly disposed ends 40 of the previously inserted weft wire and finally dispose the same substantially parallel to the weft wires as shown in Fig. 7 relative to the previously inserted and bent ends of the other weft wires.

The path of movement of the reed bar unit 32 is sufficient that the actuating tip 80 of cam follower 78 will ride off of the end of cam surface 76 and continue to move in the retreating direction of the reed bar unit until such movement ends. However, as soon as the tip 80 has moved from the end of cam surface 76, the tucking blade 72 is reciprocably moved in reverse direction so as to retract the inner end 74 of the tucking blade from the shed of the loom. Such retracting movement is accomplished by a simple spring 82 which preferably is connected at one end to an anchor member 84 shown in Figs. 3 and 4, said anchor member being adjustably connected to tucking head 56, whereby the tension of the spring 82 may be adjusted as required. The other end of spring 82 engages an anti-friction roller 86 carried by pin 88 which projects from blade 72 as best shown in Fig. 4. The tucking head 56 is provided with a slot 90 through which the pin 88 and roller 86 project.

The cam follower 78, as has been stated, is carried by the reed bar unit 32. Referring to Fig. 9 particularly, it will be seen that the supporting means for the cam follower 78 comprises a base block 92 which is connectable by bolts 94 to a portion of the movable frame 96 which carries and actuates the reed bar unit 32. Extending upwardly from base block 92 are a pair of flexible leaf spring members 98 which are adjustably connected at the lower ends thereof by bolts 100 to base block 92 for purposes of supporting adjustment block 102, to one end of which the cam follower 78 is pivotally connected by pivot bolts 104.

As will best be seen from Fig. 9, the cam follower 78 preferably is a bell crank, having a projecting end 106 which is engageable with a stop stud 108 connected to adjustment block 102. The end 106 of the cam follower 78 normally is held against stop stud 108 by a spring 110 carried by anchor member 112 adjustably fastened to adjustment block 102 so as to permit adjustment of the tension spring 110 when desired. Further, the assembly on adjustment block 102 may be adjusted as a unit relative to base block 92 and reed bar unit 32 by regulating adjustment screw 114 which is threaded through adjustment block 102 and into engagement with the projecting portion of base block 92 as clearly shown in Fig. 9.

Due to the pivotal mounting of cam follower 78, it will be seen that after the tip 80 thereof has moved off of the end of cam surface 76 on tucking blade 72 while the reed bar unit is retreating, when the reed bar unit next moves in beat-up direction, the tip 80 of the cam follower will engage the projecting forward surface of tucking blade 72 and will slide beneath said projecting end of the tucking blade due to the spring 110 permitting yielding pivotal movement of the cam follower 78. However, upon the tip 80 of the cam follower clearing said cam, the spring 110 will restore the follower to the position thereof shown in Fig. 9 and in which position the tip 80 will be positioned to engage the cam surface 76 of the tucking blade 72 when the reed bar unit next moves in retreating direction.

From the foregoing, it will be seen that the tucking blade 72 of each of the tucking units 42 and 44 move in reciprocable rectilinear manner. That is, movement of each tucking blade in one direction parallel to the edge of the weave of the cloth is effected by the tucking head 56 being moved by the reed bar unit or assembly 32 and reverse movement thereof is accomplished by springs 66. Movement of the tucking blade 72 transversely to the above recited movements of the blade is accomplished in one direction by cam follower 78 carried by the reed bar assembly 32, while spring 82 moves the blade in a reverse direction, such transverse movement of blade 72 being parallel to the weft wires of the weave of the cloth.

For convenience, the inner end of the tucking head 56, on the upper portion thereof above the plane of the woven cloth, is provided with a recess 116, best shown in Fig. 3, said recess affording a view of the operation of the inner end of the tucking blade 72 and also permitting viewing of the previously woven four or five weft wires, the tucked ends of which all have been woven between a limited number of the warp wires 38 comprising the selvage edge of the woven cloth. Such weaving of the tucked ends of the weft wires anchors the weft wires securely in the weave and also produces a smooth selvage edge in that the outer ends of the weft wires comprising the very edge of the woven cloth are rounded.

It also will be seen that the mechanism which supports the tucking units 42 and 44 is adjustable relative to the fixed portions of the loom which support the same. Further, the supporting mechanism for the cam follower 78 is adjustable in a number of respects so as to accomplish the reciprocation of the tucking blades a desired amount and at the part of the weaving cycle desired.

In contrast to the tucking mechanism of the pending application referred to above, the present tucking mechanism includes only simple slidably mounted members which do not require a number of anti-friction bearings as employed in the structure of said pending application. Further, only a very limited amount of travel of the tucking blades is required and, due also to the simplicity of construction of the present invention, the tucking unit is smaller in size than that shown in the pending application, yet all the advantages residing in the latter are present in the instant invention.

Further, the tucking units comprising the present invention readily are adaptable to at least certain types of existing looms with only a minimum amount of adaptation for purposes of producing woven wire cloth of relatively fine sizes, as well as coarser sizes, woven from substantially unlimited supplies of weft wire without requiring stopping the looms to replenish the bobbins as is necessary in looms of the type utilizing bobbins. As a result

of this, it is possible to use a single operator to oversee the operation of a far greater number of looms than is possible when using bobbin-type looms, yet a highly desirable type of woven cloth is produced upon looms embodying the present invention. Still further, looms utilizing the present invention are much more compact in size since they eliminate the need for the awkward and space consuming mechanism usually required to throw the shuttle. A still further advantage of looms embodying the present invention is that the same may be operated at a far higher rate of speed than shuttle-type looms. All of these factors make it possible to produce comparable insect screening particularly, as well as coarser types of screen cloth, at a lower cost than is possible by using bobbin-type looms.

While the invention has been described and illustrated in its preferred embodiment, and has included certain details, it should be understood that the invention is not to be limited to the precise details herein illustrated and described since the same may be carried out in other ways falling within the scope of the invention as claimed.

We claim:

1. Wire cloth selvage forming mechanism comprising a wire cloth weaving loom including gripper carriers operable to insert cut weft wires of uniform length successively within the shed of the loom, the length of the weft wires being greater than the width of the wire cloth woven by the loom and the opposite ends of said wires respectively projecting beyond the opposite edges of the weave in the loom when initially inserted in the shed, in combination with a plurality of tucking blades, means supporting said blades respectively adjacent opposite edges of the weave for rectilinear reciprocable movements substantially within the plane of the weave, and means operable simultaneously to actuate said blades initially to engage and bend said projecting ends of the last inserted weft wire toward the shed opening and then into said shed opening, thereby to form curved ends on the weft wires and smooth selvage edges.

2. Wire cloth selvage forming mechanism comprising a wire cloth weaving loom including gripper carriers operable to insert cut weft wires of uniform length successively within the shed of the loom, the length of the weft wires being greater than the width of the wire cloth woven by the loom and the opposite ends of said wires respectively projecting beyond the opposite edges of the weave in the loom when initially inserted in the shed, in combination with a plurality of tucking blades, means supporting said blades respectively adjacent opposite edges of the weave for rectilinear reciprocable movements substantially within the plane of the weave, and means operable initially to move said blades simultaneously and parallel to said weave in a direction to bend said projecting ends of the last inserted weft wire respectively substantially parallel to the edges of said weave and subsequently move said blades while engaging said bent ends simultaneously substantially parallel to said weft wire and thereby bend said ends respectively into the opposite ends of said shed to form curved ends on the weft wires and provide the weave with smooth selvage edges.

3. Wire cloth selvage forming mechanism comprising a wire cloth weaving loom including gripper carriers operable to insert cut weft wires of uniform length successively within the shed of the loom, the length of the weft wires being greater than the width of the wire cloth woven by the loom and the opposite ends of said wires respectively projecting beyond the opposite edges of the weave in the loom when initially inserted in the shed, in combination with a plurality of elongated tucking blades positioned substantially parallel to said weft wires, means supporting said blades with the inner ends thereof normally respectively adjacent the opposite edges of the weave and substantially within the plane thereof, and means operable to move said blades initially parallel to the selvage edges of said weave in a direction to first bend the projecting ends of the last inserted weft wire respectively toward the opposite ends of the shed of the loom and then move said blades simultaneously substantially longitudinally of the axes thereof into said shed to bend said ends of the weft wire thereinto, thereby to form curved ends on the weft wires of the weave to produce smooth selvage edges thereon.

4. Wire cloth selvage forming mechanism comprising a wire cloth weaving loom of the type constructed to position individual cut weft wires between the warp wires and including a stationary frame, gripper carriers operable to position said weft wires between said warp wires with the opposite ends of said weft wires initially projecting beyond the outermost warp wires, and a reed bar unit reciprocable to beat up said weft wires as successively inserted into the shed of the weave; in combination with tucking units on said loom respectively positioned adjacent opposite edges of the weave of the wire cloth, said tucking units each including a tucking blade reciprocable in a direction substantially parallel to said weft wires and said blades being positioned respectively to engage the opposite projecting ends of the last inserted weft wire after being beat up by the reed bar, and means operable to reciprocate said tucking blades simultaneously into the shed of said warp wires to bend said initially projecting ends of said weft wire into said shed to form curved ends thereon and produce a wire cloth having smooth selvage edges.

5. Wire cloth selvage forming mechanism comprising a wire cloth weaving loom of the type constructed to posion individual cut weft wires between the warp wires and including a stationary frame, gripper carriers operable to position said weft wires between said warp wires with the opposite ends of said weft wires initially projecting beyond the outermost warp wires, and a reed bar unit reciprocable to beat up said weft wires as successively inserted into the shed of the weave; in combination with tucking units on said loom respectively positioned adjacent opposite edges of the weave of the wire cloth, said tucking units each including a head supported for limited reciprocable movement substantially parallel to the edges of the weave and a tucking blade reciprocably carried by each head for opposite movements in a direction substantially parallel to said weft wires, said blades being positioned respectively to engage the opposite projecting ends of the last inserted weft wire after being beat up by the reed bar, and means operable to move said heads initially parallel to edges of weave to cause said blades to bend said ends of said weft wire repsectively toward the ends of said shed and then move said tucking blades simultaneously into the shed of said warp wires to bend said ends of said weft wire into said shed to form curved ends thereon and produce a wire cloth having smooth selvage edges.

6. Wire cloth selvage forming mechanism comprising a wire cloth weaving loom of the type constructed to position individual cut weft wires between the warp wires and including a stationary frame, gripper carriers operable to position said weft wires between said warp wires with the opposite ends of said weft wires initially projecting beyond the outermost warp wires, and a reed bar unit reciprocable to beat up said weft wires as successively inserted into the shed of the weave; in combination with tucking units on said loom respectively positioned adjacent opposite edges of the weave of the wire cloth, said tucking units each including a head supported for limited reciprocable movement substantially parallel to the edges of the weave and a tucking blade reciprocably carried by each head for opposite movements in a direction substantially parallel to said weft wires, said blades being positioned respectively to engage the opposite projecting ends of the last inserted weft wire after being beat up by the reed bar, and means carried by said reed bar unit and engageable with said heads and blades initially to move the same in one direction parallel to the edges of the weave to cause said blades to bend said projecting ends of said weft wire

toward the ends of said shed and then move said tucking blades simultaneously into the shed of said warp wires to bend said ends of said weft wire into said shed to form curved ends thereon and produce a wire cloth having smooth selvage edges.

7. Wire cloth selvage forming mechanism comprising a wire cloth weaving loom of the type constructed to position individual cut weft wires between the warp wires and including a stationary frame, gripper carriers operable to position said weft wires between said warp wires with the opposite ends of said weft wires initially projecting beyond the outermost warp wires, and a reed bar unit reciprocable to beat up said weft wires as successively inserted into the shed of the weave; in combination with tucking units on said loom respectively positioned adjacent opposite edges of the weave of the wire cloth, said tucking units each including a head supported for limited reciprocable movement substantially parallel to the edges of the weave and a tucking blade reciprocably carried by each head for opposite movements in a direction substantially parallel to said weft wires, said blades being positioned respectively to engage the opposite projecting ends of the last inserted weft wire after being beat up by the reed bar, means carried by said reed bar unit and engageable with said heads and blades initially to move the same in one direction parallel to the edges of the weave to cause said blades to bend said projecting ends of said weft wire toward the ends of said shed and then move said tucking blades simultaneously into the shed of said warp wires to bend said initially projecting ends of said last inserted weft wire into said shed to form curved ends thereon and produce a wire cloth having smooth selvage edges, and additional means operable to move said head and blades in directions opposite to those described to complete each cycle of movement thereof.

8. Wire cloth selvage forming mechanism comprising a wire cloth weaving loom of the type constructed to position individual cut weft wires between the warp wires and including a frame, gripper carriers operable to position said weft wires between said warp wires with the opposite ends of said weft wires initially projecting beyond the outermost warp wires, and a reed bar unit reciprocable to beat up said weft wires as successively inserted into the shed of the weave; in combination with support means fixed to said loom adjacent opposite edges of the weave of the wire cloth, a tucking head carried by each support means for movement in opposite directions transverse to said weft wires, a tucking blade slidably carried by each tucking head for movement in opposite directions substantially parallel to said weft wires and the inner ends of said blades during each cycle of operation initially being positioned respectively adjacent the projecting ends of the last inserted and beat-up weft wire, means operable upon said tucking heads during movement of said reed bar unit away from said weft wires to move the inner ends of said blades against said projecting ends of said weft wire to bend the same substantially parallel to the woven wire cloth, and means operable subsequently to move said blades in a direction parallel to said weft wire to project the inner ends thereof into said shed and thereby bend said ends of said weft wire into said shed to form curved ends thereon at the selvage edges of the woven cloth, the initially projecting cut ends being woven between a limited number of the warp wires of said selvage edges.

9. Wire cloth selvage forming mechanism comprising a wire cloth weaving loom of the type constructed to position individual cut weft wires between the warp wires and including a frame, gripper carriers operable to position said weft wires between said warp wires with the opposite ends of said weft wires initially projecting beyond the outermost warp wires, and a reed bar unit reciprocable to beat up said weft wires as successively inserted into the shed of the weave; in combination with support means fixed relative to said loom adjacent opposite edges of the weave of the wire cloth, a tucking head carried by each support means for movement substantially within the plane of the woven wire cloth in a direction transverse to said weft wires, a tucking blade slidably carried by each tucking head for movement in opposite directions substantially parallel to said weft wires and the inner ends of said blades during each cycle of operation initially being positioned respectively adjacent the projecting ends of the last inserted weft wire after it is beat up by said reed bar unit, means operable upon said tucking heads during the beat-up movement of said reed bar unit initially to move said tucking heads in the same direction as said unit, additional means operable subsequently to move said heads in a reverse direction and thereby move the inner ends of said blades against said projecting ends of said weft wire and bend the same substantially parallel to the woven wire cloth, and further means operable trereafter to move said blades in a direction parallel to said weft wire to project the inner ends of the blades into said shed and thereby bend said ends of said weft wire into said shed to form curved ends thereon at the selvage edges of the woven cloth, the initially projecting cut ends being woven between a limited number of the warp wires of said selvage edges.

10. Wire cloth selvage forming mechanism comprising a wire cloth weaving loom of the type constructed to position individual cut weft wires between the warp wires and including a frame, gripper carriers operable to position said weft wires between said warp wires with the opposite ends of said weft wires initially projecting beyond the outermost warp wires, and a reed bar unit reciprocable to beat up said weft wires as successively inserted into the shed of the weave; in combination with support means fixed relative to said loom adjacent opposite edges of the weave of the wire cloth, a tucking head carried by each support means for movement substantially within the plane of the woven wire cloth in a direction transverse to said weft wires, a tucking blade slidably carried by each tucking head for movement in opposite directions substantially parallel to said weft wires and the inner ends of said blades during each cycle of operation initially being positioned respectively adjacent the projecting ends of the last inserted weft wire after it is beat up by said reed bar unit, means operable upon said tucking heads during the beat-up movement of said reed bar unit initially to move said tucking heads in the same direction as said unit, means operable to then move said heads in a reverse direction to engage the inner ends of said blades with said projecting ends of said weft wire and bend the same substantially parallel to the woven wire cloth, means operable thereafter to move said blades in a direction parallel to said weft wire to project the inner ends of the blades into said shed and thereby bend said ends of said weft wire into said shed to form curved ends thereon at the selvage edges of the woven cloth, and further means operable upon said blades thereafter to retract said blades to starting position.

11. Wire cloth selvage forming mechanism comprising a wire cloth weaving loom of the type constructed to position individual cut weft wires and including gripper carriers operable to position said weft wires between said warp wires and dispose the opposite ends of said weft wires initially projecting beyond the outermost warp wires, and a reed bar unit reciprocable to beat up said weft wires as successively inserted into the shed of the weave; in combination with support means fixed relative to said loom adjacent opposite edges of the weave of the wire cloth, a tucking head reciprocably carried by each support means for movement in opposite directions parallel to the edges of the weave and substantially within the plane thereof, a tucking blade reciprocably carried by each head for movement in directions parallel to said weft wires, means operable by said reed bar unit and engageable with said heads near the end of each beat-up stroke to move said heads toward the woven cloth and thereby dispose the inner ends of said blades respectively

adjacent the projecting ends of the last inserted weft wire when fully beaten up, means engageable with said heads and operable to move said heads reversely as said reed bar unit retreats and thereby move said blades to bend the ends of said weft wire substantially parallel to the edges of the weave, and means operable by said reed bar unit during continued retreating movement thereof to reciprocate said blades and move the inner ends thereof and bent ends of said weft wire into the shed of said loom to form smoothly curved ends on said weft wire at the selvage edges of the cloth.

12. Wire cloth selvage forming mechanism comprising a wire cloth weaving loom of the type constructed to position individual cut weft wires between the warp wires and including gripper carriers operable to position said weft wires between said warp wires and dispose the opposite ends of said weft wires initially projecting beyond the outermost warp wires, and a reed bar unit reciprocable to beat up said weft wires as successively inserted into the shed of the weave; in combination with support means fixed relative to said loom adjacent opposite edges of the weave of the wire cloth, a tucking head adjacent each support means, guide means on each head and support means operable to afford reciprocable movement of said heads in opposite directions parallel to the plane of the woven cloth, a tucking blade reciprocably carried by each head for movement in directions parallel to said weft wires, means operable by said reed bar unit and engageable with said heads near the end of each beat-up stroke to move said heads toward the woven cloth and thereby dispose the inner ends of said blades respectively adjacent the projecting ends of the last inserted weft wire when fully beaten up, spring means engageable with each head and operable to move said heads reversely as said reed bar unit retreats and thereby move said blades against said ends of said weft wire to bend the same substantially parallel to the edges of the weave, means operable by said reed bar unit during continued retreating movement thereof to reciprocate said blades and move the inner ends thereof and bent ends of said weft wire into the shed of said loom to form smoothly curved ends on said weft wire at the selvage edges of the cloth, and spring means operable upon said blades to retract the same from said shed at the completion of said bending operation of said weft ends.

13. Wire cloth selvage forming mechanism comprising a wire cloth weaving loom of the type constructed to position individual cut weft wires between the warp wires and including a frame, gripper carriers operable to position said weft wires between said warp wires and dispose the opposite ends of said weft wires initially projecting beyond the outermost warp wires, and a reed bar unit reciprocable relative to said frame to beat up said weft wires as successively inserted into the shed of the weave; in combination with support means fixed relative to said frame adjacent opposite edges of the weave of the wire cloth, a tucking head adjacent each support means, guide rod means on each head projecting from said support means and operable to afford reciprocable movement of said heads relative to said support means in opposite directions parallel to the edges of the woven cloth, a tucking blade reciprocably carried by each head for movement in directions parallel to said weft wires and substantially within the plane of the woven cloth, means on said reed bar unit engageable with said heads near the end of each beat-up stroke to move said heads toward the woven cloth and thereby dispose the inner ends of said blades respectively adjacent the last inserted weft wire when fully beaten up, springs on said guide rod means operable to reversely move said heads as said reed bar unit retreats and thereby move said blades against said ends of said weft wire to bend the same substantially parallel to the edges of the weave, and means carried by said reed bar unit and engageable with said blades during continued retreating movement of said unit to reciprocate said blades and move the inner ends thereof and bent ends of said weft wire into the shed of said loom to form smoothly curved ends on said weft wire at the selvage edges of the cloth.

14. Wire cloth selvage forming mechanism comprising a wire cloth weaving loom of the type constructed to position individual cut weft wires between the warp wires and including a stationary frame, gripper carriers operable to position said weft wires between said warp wires and dispose the opposite ends of said weft wires initially projecting beyond the outermost warp wires, and a reed bar unit reciprocable relative to said frame to beat up said weft wires as successively inserted into the shed of the weave; in combination with support means fixed relative to said frame adjacent opposite edges of the weave of the wire cloth, a tucking head adjacent each support means, guide rod means carried by each head and reciprocable in said support means to provide reciprocable movement of said heads in opposite directions parallel to the edges of the woven cloth, a tucking blade reciprocably carried by each head for movement in directions parallel to said weft wires and substantially within the plane of the woven cloth, means operable by said reed bar unit and engageable with said heads near the end of each beat-up stroke to move said heads in beat-up direction and thereby dispose the inner ends of said blades respectively adjacent the last inserted weft wire when fully beaten up, means engageable with said heads to reversely move said heads as said reed bar unit retreats and thereby move said blades against said ends of said weft wire to bend the same substantially parallel to the edges of the weave, and cam means on said blades operable by said reed bar unit during continued retreating movement thereof and operable to reciprocate said blades and move the inner ends thereof and bent ends of said weft wire into the shed of said loom to form smoothly curved ends on said weft wire at the selvage edges of the cloth.

15. Wire cloth selvage forming mechanism comprising a wire cloth weaving loom of the type constructed to position individual cut weft wires between the warp wires and including a stationary frame, gripper carriers operable to position said weft wires between said warp wires and dispose the opposite ends of said weft wires initially projecting beyond the outermost warp wires, and a reed bar unit reciprocable to beat up said weft wires as successively inserted into the shed of the weave; in combination with support means fixed relative to said frame adjacent opposite edges of the weave of the wire cloth, a tucking head adjacent each support means, guide means on each head and support means operable to provide reciprocable movement of said heads in opposite directions parallel to the edges of the woven cloth, a tucking blade reciprocably carried by each head in directions parallel to said weft wires and substantially within the plane of the woven cloth, means on said reed bar unit engageable with said heads near the end of each beat-up stroke to move said heads toward the woven cloth and thereby dispose the inner ends of said blades respectively adjacent the last inserted weft wire when fully beaten up, means engageable with said heads to reversely move said heads as said reed bar unit retreats and thereby move said blades against said ends of said weft wire to bend the same substantially parallel to the edges of the weave, cam means on said blades, cam follower means carried by said reed bar unit and operable during continued retreating movement thereof to engage said cam means and reciprocate said blades to move the inner ends thereof and bent ends of said weft wire into the shed of said loom to form smoothly curved ends on said weft wire at the selvage edges of the cloth, and spring means operable upon said blades to retract said blades from said shed at the completion of the bending of the ends of said weft wire.

16. Wire cloth selvage forming mechanism comprising

a wire cloth weaving loom of the type constructed to position individual cut weft wires between the warp wires and including a stationary frame, gripper carriers operable to position said weft wires between said warp wires and dispose the opposite ends of said weft wires initially projecting beyond the outermost warp wires, and a reed bar unit reciprocable to beat up said weft wires as successively inserted into the shed of the weave; in combination with support means fixed relative to said frame adjacent opposite edges of the weave of the wire cloth, a tucking head adjacent each support means, guide means on each head and support means operable to provide reciprocable movement of said heads in opposite directions parallel to the edges of the woven cloth, a tucking blade carried by each head substantially within the plane of the woven cloth and reciprocable in directions parallel to said weft wires, each blade having a cam on the outer end thereof, means on said reed bar unit engageable with said heads near the end of each beat-up stroke to move said heads toward the woven cloth and thereby dispose the inner ends of said blades respectively adjacent the last inserted weft wire when fully beaten up, means engageable with said heads to reversely move said heads as said reed bar unit retreats and thereby move said blades against said ends of said weft wire to bend the same substantially parallel to the edges of the weave, and cam follower means pivotally carried by said reed bar unit and respectively operable during continued retreating movement thereof to engage said cams and reciprocate said blades to move the inner ends thereof and bent ends of said weft wire into the shed of said loom to form smoothly curved ends on said weft wire at the selvage edges of the cloth, said cam follower means overriding said cams during the full retreating movement of said reed bar unit and the pivotal mounting of said follower means permitting said means to move away from said cams during the beat-up movement of said reed bar unit.

17. A tucking unit attachable to a loom to weave wire cloth by positioning successive even lengths of weft wires having cut ends respectively initially projecting beyond the opposite edges of the weave after said weft wires are beat up, said unit comprising a support attachable to a loom adjacent the edge of the weave of the cloth, a tucking head carried by said support for reciprocable movement in opposite directions parallel to the edges of the weave, a tucking blade carried by said head for reciprocable movement in opposite directions parallel to the weft wires of the cloth, said support when moved in one direction carrying the blade therewith and engaging the end of said blade nearest the edge of the weave with the projecting end of the last inserted weft wire and bending said end substantially into parallelism with the edge of the weave, and means attachable to a movable member of the loom and operable to engage said blade and move it relative to said head in a direction to project said end of the blade in the shed of the loom parallelly to said weft wire and thereby bend said end of the weft wire into the shed of the loom.

18. The tucking unit according to claim 17 further characterized by said tucking head and support having guide rod means thereon and spring means operable to effect movement of the head in one direction relative to said support.

19. The tucking unit according to claim 17 further characterized by said tucking blade having a groove on the end engageable with the end of the weft wire, and cam means operable to move said blade in one reciprocable direction.

20. The tucking unit according to claim 19 further characterized by said cam being on the end of the blade opposite the grooved end.

21. The tucking unit according to claim 19 further including spring means engageable with said blade and operable to move said blade oppositely to the direction by which it is moved by said cam means.

22. The tucking unit according to claim 17 further characterized by said tucking head having a groove in the end thereof adjacent the end of the blade which engages the cut end of the weft wire, said groove being parallel to and receiving one edge of the woven cloth.

23. The tucking unit according to claim 17 further including guide rod means projecting from said head and extending through guide bearing means in said support, compressible springs on said guide rod means between said head and support and operable to effect movement of said head in one direction relative to said support, and stop means on said guide rod means to limit movement of said head in said one direction.

24. The tucking unit according to claim 23 further characterized by one end of said blade being projectable relative to the end of said body nearest the weave to effect bending of the end of the last inserted cut weft wire and the other end of said blade having a cam thereon, cam follower means attachable to the reed bar unit of a loom and operable in one direction of movement of said reed bar unit to engage said cam and move said blade in a direction to bend the end of said weft wire into the shed of the loom, and spring means engageable with said blade to move it in reverse direction.

25. The tucking unit according to claim 24 further characterized by said cam follower means being pivotally connected to a support attachable to the reed bar assembly of a loom and operable thereby when moving in one direction to engage said cam to move said blade in a direction to bend the end of the weft wire, said cam follower being arranged to override said cam and the pivotal mounting of said follower permitting said follower to move around said cam during reverse movement of said reed bar unit, and spring means engaging said pivoted cam follower and operable normally to hold said cam follower in cam-engageable position but permit movement therefrom to ride around said cam.

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