Feb. 23, 1965 J. P. REGAN ETAL 3,170,161

METAL STITCHING APPARATUS

Filed Sept. 10, 1962 4 Sheets-Sheet 1

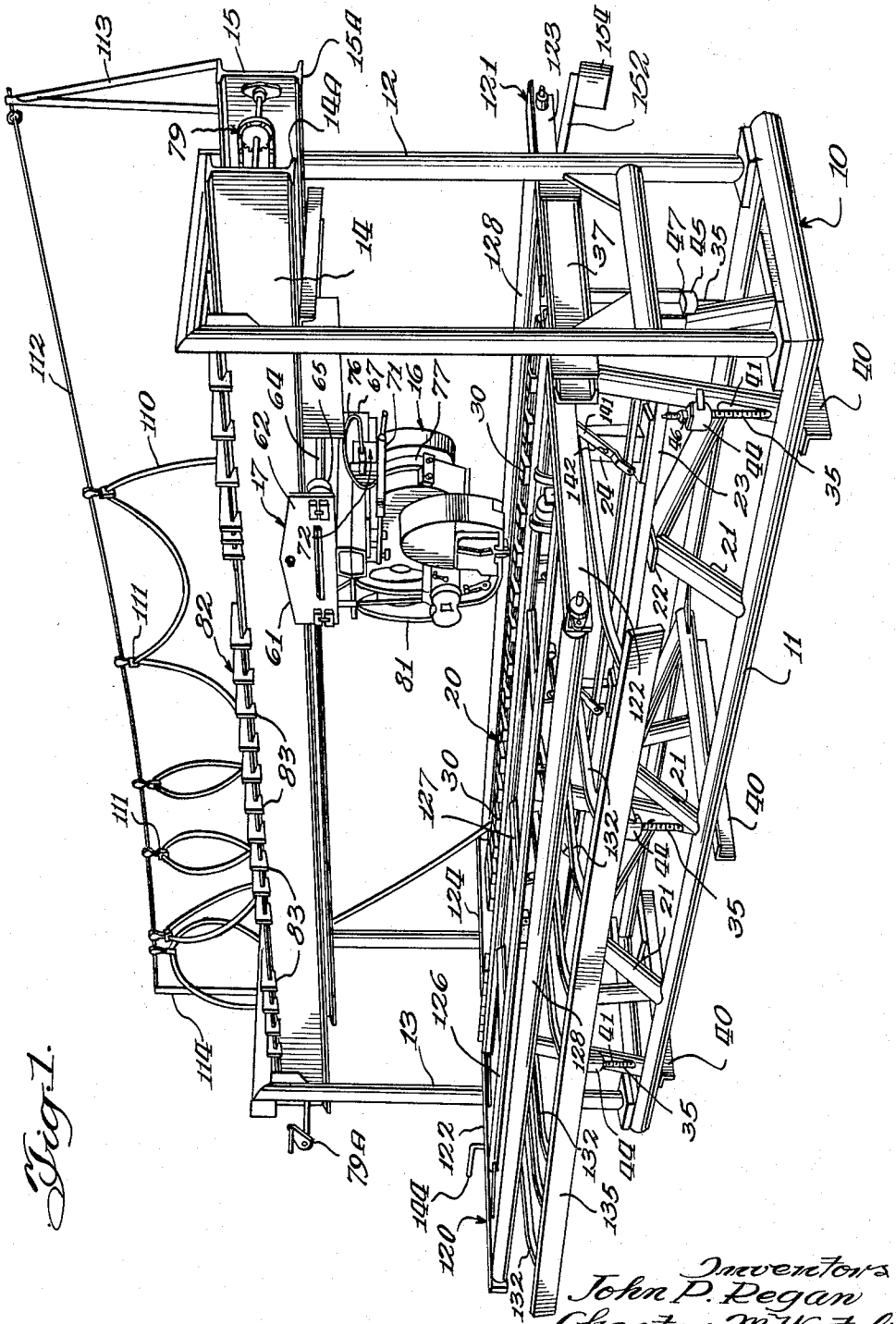


Fig. 1.

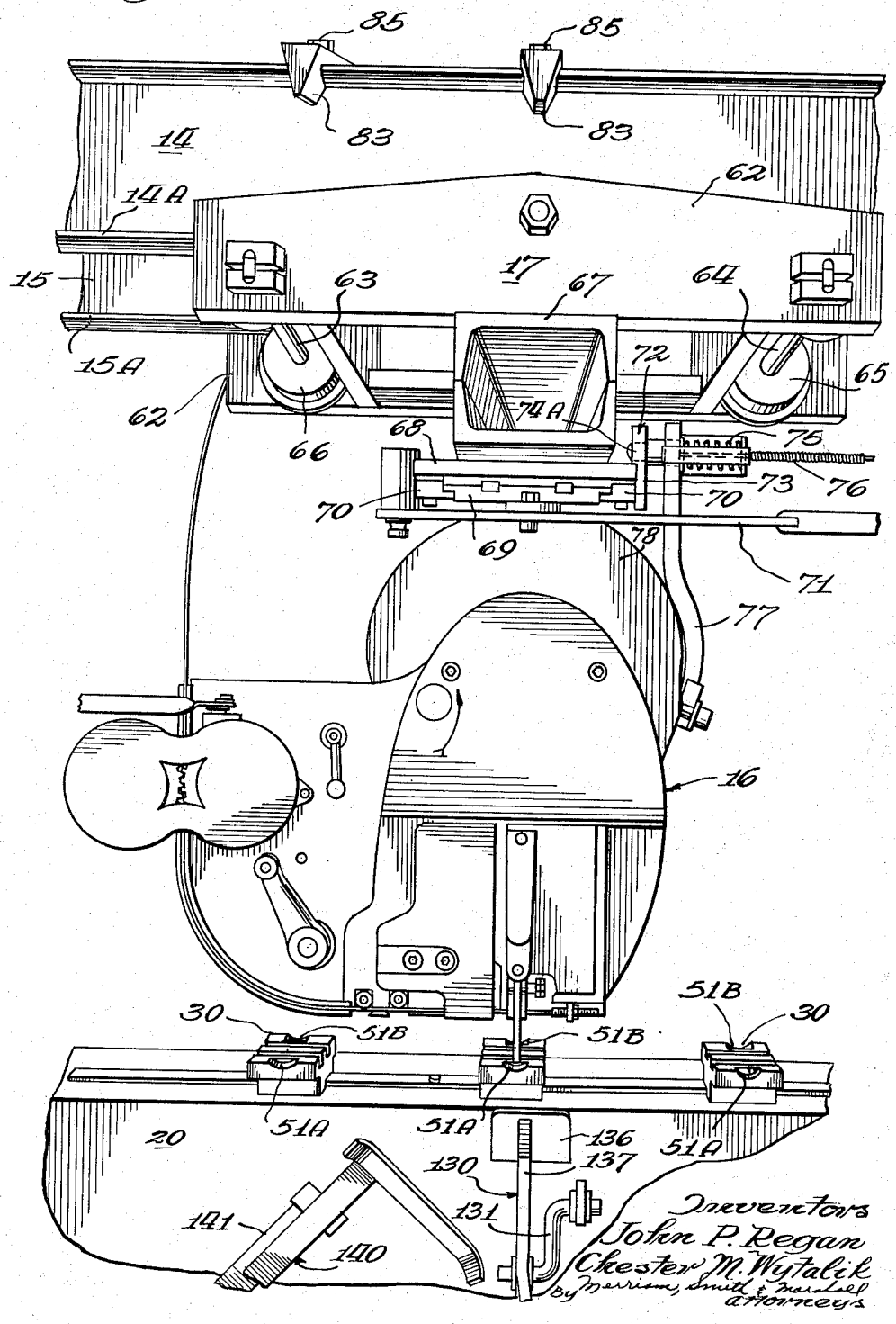
Inventors
John P. Regan
Chester M. Wytalik
By Merriam, Smith & Marshall
Attorneys

Feb. 23, 1965 J. P. REGAN ETAL 3,170,161

METAL STITCHING APPARATUS

Filed Sept. 10, 1962 4 Sheets-Sheet 2

Fig. 2



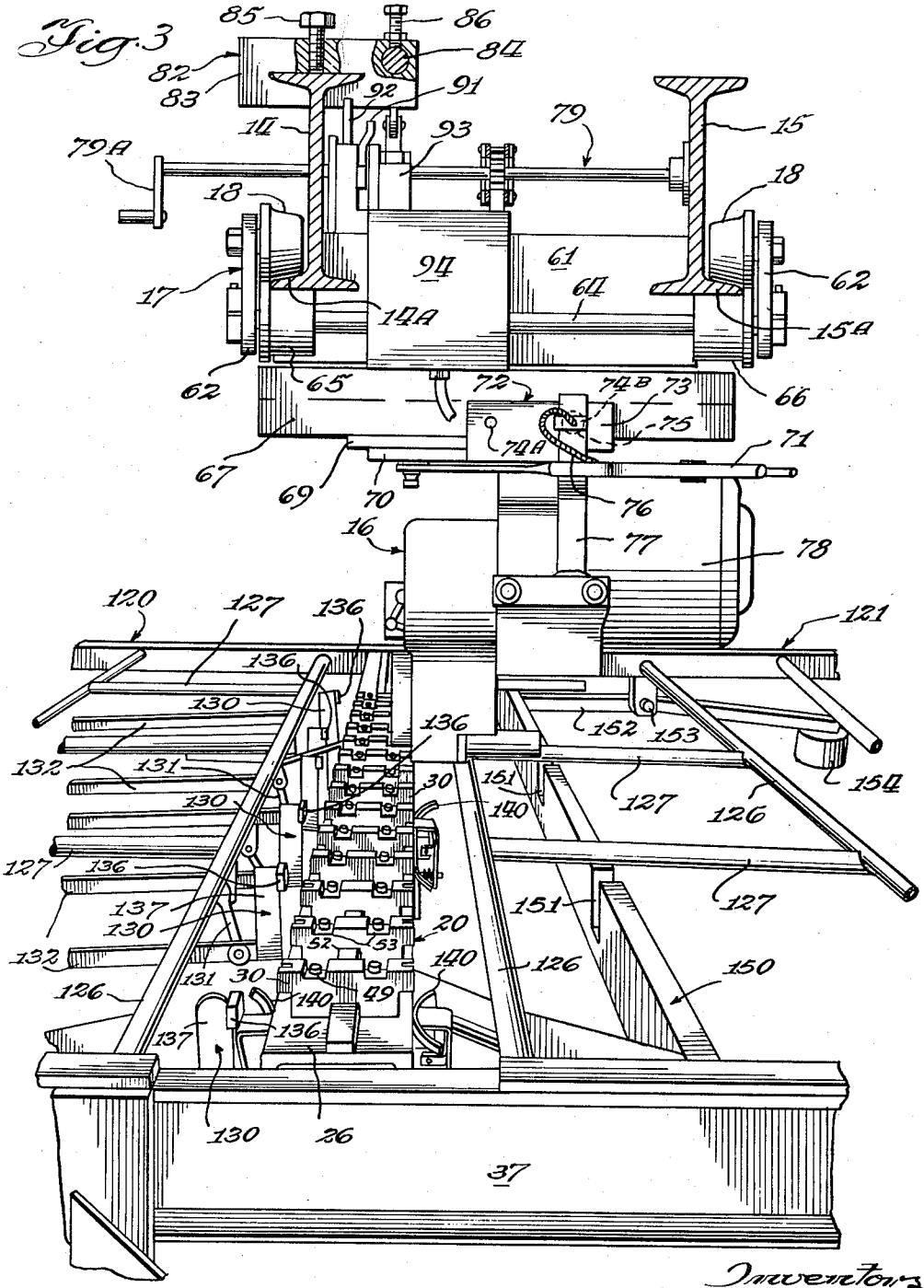
Inventors
John P. Regan
Chester M. Wytalik
By Merriam, Smith & Marshall
Attorneys

Feb. 23, 1965 J. P. REGAN ETAL 3,170,161

METAL STITCHING APPARATUS

Filed Sept. 10, 1962 4 Sheets-Sheet 3

Fig. 3



Inventors
John P. Regan
Chester M. Wytalek
By Merriam, Smith & Marshall
attorneys

Feb. 23, 1965 J. P. REGAN ETAL 3,170,161

METAL STITCHING APPARATUS

Filed Sept. 10, 1962 4 Sheets-Sheet 4

Fig. 4

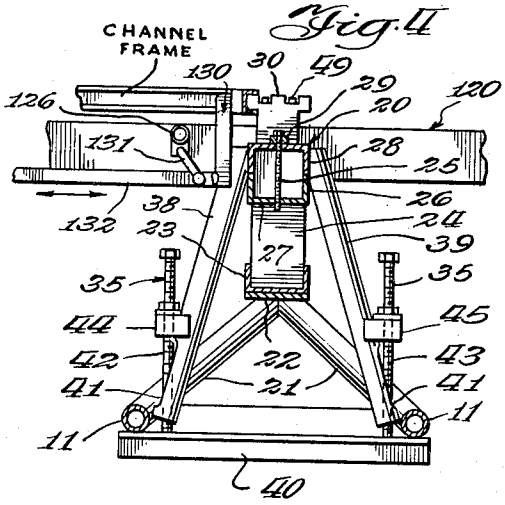


Fig. 7.

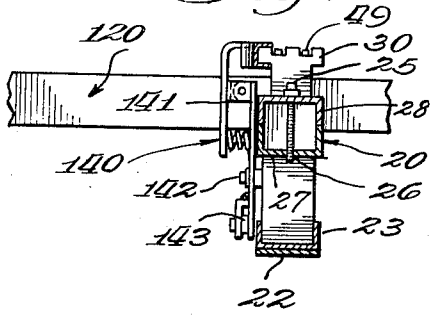


Fig. 9

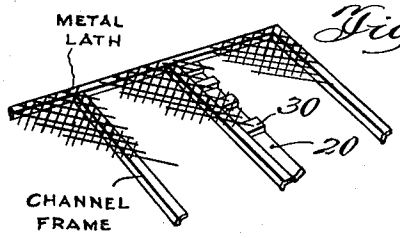


Fig. 6

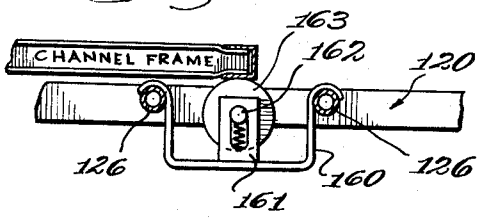


Fig. 8

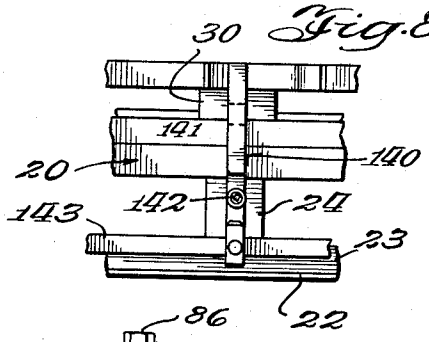
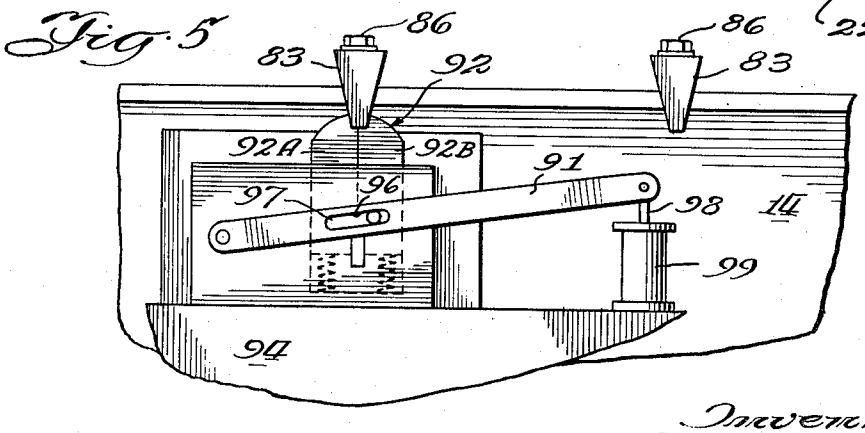


Fig. 5



Inventors
John P. Regan
Chester M. Wytalik
By Burrison, Smith & Hamilton
Attorneys

United States Patent Office 3,170,161 Patented Feb. 23, 1965

3,170,161

METAL STITCHING APPARATUS

John P. Regan, Lake Forest, and Chester M. Wytalik, Itasca, Ill., assignors to Inland Steel Products Company, Milwaukee, Wis., a corporation of Delaware

Filed Sept. 10, 1962, Ser. No. 222,287
9 Claims. (Cl. 1—152)

This invention relates to an apparatus for prefabricating panel assemblies. It is more particularly concerned with an apparatus for stitching sheet-like panels to a supporting framework.

The use of assembly techniques for attaching or mounting large area thin sheet-like materials such as plywood, expanded metal lath, thin gauge metal perforate or imperforate sheets, or the like, to a supporting framework to impart rigidity and structural integrity to the panel member generally has the objective of facilitating the prefabrication of panel members for subsequent use in the construction of room enclosures, sidewalls and roof members for track and trailer bodies and other installations where large wall and roof areas have to be covered. Fastening expedients for attaching the panel member to the framework is governed by the compatibility of the sheet-like member, supporting framework and the fasteners used to effect the union of the sheet-like member and the framework, the materials of construction used in fabricating the panel components and other factors.

The development of metal stitching (vide: "Tool Engineer," November, December, 1951) provided a quick and economical method for attaching thin section sheet-like materials to supporting framework without precleaning, drilling, punching or hole alignment operations. The metal stitches are formed of high-tensile-strength steel wire using high speed, power-driven stitching machines. Such machines, however, have limitations because in the conventional machine, the driver and the clincher block are held in a fixed relationship by the stitching framework. This arrangement minimizes the flexibility of the machine and limits its application.

In accordance with this invention, there is provided a metal stitching apparatus which utilizes a moving stitch driving head and a stationary clincher block system mounted on a suitable framework which holds the panel member and framework in stationary alignment during the stitching operation. By using the apparatus of this invention, the work-piece is held stationary while the stitching apparatus moves, whereas in the conventional apparatus the converse occurs.

In the drawings:

FIGURE 1 is a perspective view of an illustrative embodiment of a stitching machine of this invention.

FIGURE 2 is a fragmentary enlarged view of a portion of FIGURE 1 illustrating the movable stitching head carrying the power-driven wire former and driver and the stationary clincher blocks.

FIGURE 3 is an end view of the stitching apparatus of FIGURE 1 showing the panel and framework supporting table and means for holding the framework stationary on the machine.

FIGURE 4 is a cross-sectional fragmentary view illustrating the adjustability feature of the clincher block mounting table.

FIGURE 5 is a view of the indexing mechanism and electrical switching arrangement for positioning the stitching head in alignment with a clincher block and simultaneously effecting the operation of the stitching head and subsequent release to permit movement of the stitching head to the next indexing station.

FIGURE 6 illustrates an accessory for facilitating the movement of the framework work-piece during the stitching operation.

FIGURE 7 is an illustrative side view of the clamping device for holding the framework stationary on the clincher block assembly.

FIGURE 8 is an illustrative front view of the clamping device shown in FIGURE 7.

FIGURE 9 is an illustrative sketch showing a typical supporting framework and panel member in position on the clincher block assembly.

Although the instant invention has wide application in the assembly of a variety of panel fabrications using a number of fastening techniques, in order to facilitate an understanding of this invention, the following description will be directed to an illustrative embodiment of this invention having application in the assembly of prefabricated metal lath and metal channel panels described in application Serial No. 135,706, filed August 23, 1961, by George E. McGurn, and now abandoned.

Referring to the drawings, the illustrative stitching apparatus consists of a supporting structure **10** having a rectangular base **11** and vertical and upright standards **12** and **13**. Suspended between standards **12** and **13** are a pair of heavy duty structural I beams **14** and **15** which function as a bracing system for imparting structural rigidity to the supporting structure **10** as well as track for movably mounting a conventional metal stitching head **16** on a trolley member **17** which rides on wheels **18** on the lower flanges **14A** and **15A** of beams **14** and **15**.

The clincher block table **20** is mounted on the side members of base **11**, by means of legs **21** which converge to an apex upon which are mounted base plates **22**. A sub-table **23** extending the length of the frame **10** is integrally attached to the base plates **22** by welding or the like. Spaced along the upper surface of the sub-table **23** are stub columns **24** to which is adjustably attached by means of threaded fasteners **25** the clincher block base **26**. In fabricating base **26**, structural channels **27** and **28** are welded together to form a box section. A longitudinally extending guide rail **29** is secured to the upper surface of table **26** and serves as a slide guide for the longitudinally adjustable clincher blocks **30**.

As shown in FIGURE 4, table **26** is adjusted by means of screw jacks **35**. Three sets of screw jacks **35** are provided in order to align vertically the entire length of table **26**. Slideways (not shown), in which the terminal ends of table **26** ride, are attached to cross members **37** on standards **12** and **13**. The screw jacks **35** consist of a pair of inwardly converging legs **38** and **39** attached at their upper ends to the sides of table **26**. The lower ends of legs **38** and **39** rest on cross members **40** attached to the side members of base **11**. Slots **41** in the lower extremities receive cap screws **42** and **43**. Laterally projecting lugs **44** and **45** depend from legs **38** and **39** adjacent the upper ends of slots. Threaded pads **46** and **47**, which engage the threaded portions of screws **42** and **43**, are mounted on lugs **44** and **45**. The lower ends of screws **42** and **43** rest on cross member **40** which acts as a bearing surface to permit the raising or lowering of the lugs **44** and **45** and thereby effect the vertical adjustment of the base table **26**. In adjusting the table, the threaded fasteners **25** are slackened and the desired vertical adjustment made by the screw jacks **35** after which the threaded fasteners are tightened to secure the base table at the proper elevation to permit the stitching head to cooperate with the clincher blocks to assure the formation of a properly clinched wire stitch.

As shown in FIGURES 2, 3 and 4, a plurality of clincher blocks **30** are slidably mounted along table **26** and attached thereto by means of fasteners **49** cooperating with a pattern of threaded holes in the table **26** top to provide the necessary number of stitching stations for producing the panel assembly. In the illustrated machine, the clincher blocks **30** are provided with clinch-

forming grooves **51** to make a standard loop. Other groove profiles can also be used to make by-pass loop clinches, outside loop clinches or flat clinches. In fabricating metal lath and channel panels, the so-called standard loop has been used effectively. Furthermore, the relationship of the stitching head **16** and the clincher blocks **30** is such that the stitches can be applied to the work-piece either perpendicular, parallel or diagonal to the line of pull. The illustrated machine is arranged to provide perpendicular stitching.

The clincher blocks **30** are fabricated with a bottom slot **52** and two upper slots **53**. The bottom slot **52** engages the guide rail **29**. The slots **53** form recessed areas which are drilled to receive threaded fasteners **41** which engage cooperating threaded apertures located in the upper side of base table **26**. The drilled holes are drilled over-size and slotted to permit an alignment of the stitching head **16** and the clincher bars **30**. Other techniques, however, can be used for movably securing the clincher blocks **30** to the base table **26**. Clinch-forming grooves **51** are provided in each end of the clincher blocks **30**. The ends of the clincher block **30** are spaced from the upper side of the base table **26** to receive the flange portion of a metal channel member which is used to form the framework in the metal lath and channel panel structure fabricated by the illustrative machine. The clincher block **30** is raised above the surface of the table **26** to receive a variety of channel widths.

The stitcher head **16** seen in FIGURES 2 and 3 is mounted on a trolley assembly **17** comprising a carriage **61** having truck plates **62**. Axles **63** and **64**, upon each of which are mounted lower guide wheels **65** and **66** which ride along the bottom surface of flanges **14A** and **15A** respectively, are journalled in truck plates **62**. The carriage **61** rides on wheels **18** which roll along the lower outer flanges **14A** and **15A** of beams **14** and **15**. The rolling profile of wheels **18** matches the riding profile of flanges **14A** and **15A**. A bracket **67** having a box cross-section extends laterally across the carriage **61**. On the bottom side of the bracket **67** is attached a mounting plate **68** upon which is slidably mounted a slide plate **69** held in a sliding position by means of flanged mounting frame comprising a pair of side flanges **70** which slidably engage the opposed sides of slide plate **69**. The stitcher head **16** is suspended from the slide plate **69**. To move the stitcher head **16** into cooperative engagement with either clincher forming groove **51A** or **51B**, a lever **71** pivotally mounted on the mounting plate **68** and attached at an intermediate point to the slide plate **69** is used.

Lock **72** is used to retain the stitcher head **16** in alignment once it has been moved into position. As shown in FIGURES 1, 2 and 3, a latch plate **73** is mounted on bracket **68**. Latch holes **74A** and **74B** are located on the latch plate **73** in appropriate locations to permit the slide plate **69** to be locked in position with relation to the opposed clincher forming grooves **51A** or **51B**. A spring-loaded latch pin **75** operated by a flexible cable **76** is reciprocatively mounted in a suitable bracket on latch arm **77** which is attached to the housing **78** of stitcher head **16**.

A chain and sprocket drive **79** is used to move the carriage **61** of the trolley assembly along the track provided by beams **14** and **15**. A handle **79A** is used to operate the chain and sprocket drive.

A conventional stitcher head **16**, powered by an electrical motor and operated as hereinafter described, is employed in the illustrative apparatus of this invention. Stitch-forming is carried out in a conventional manner with the stitch-forming and driving being done by the stitch-forming mechanism shown generally at **16**, the clinching being effected by the clinch-forming grooves **51A** or **51B**, as the case may be, in clincher blocks **30**, and wire for use in forming the stitch is fed from wire supply coils mounted on reels **81** which are attached to the carriage **61**.

To provide automatic operation of the stitching mechanism, an indexing system is employed which insures the alignment of the stitcher head at a selected stitching station and simultaneously therewith triggers the operation of the stitcher and instantaneously thereafter effects its subsequent release for travel to the next station. As shown in FIGURES 1, 2, 3, and 5, a plurality of wedge-shaped indexing stops **82** are slidably mounted in an upright position along the upper flange of beam **14**. The stops **82** consist of wedge-shaped stop plates **83** which are mounted on a guide bar **84** by means of suitable apertures provided in the plates **83**. The guide bar **84**, which is not attached to the frame but is held in position by the stop plates **83**, stabilizes the stop plates **83** and helps to prevent any misalignment which might occur when the stitcher head is moved into position and stopped by indexing stop system **82**. The front portion of the stop plate **83** extends outwardly from the apparatus frame; the rear portion extends inwardly and depends downward from the inner upper flange of beam **14**. In this position, the rear portion of stop plate **83** functions as a stop for the indexing mechanism **90**. Frictional locks **85** and **86** are employed to hold the stops securely in position on the frame **10** and guide bar **84** respectively.

The indexing mechanism consists of a lever **91**-operated latch **92** which is spring-loaded in the raised position and mounted in a suitable slide guide to reciprocatively move in a vertical direction, an electrical switch **93**, an electrical relay and two-time delay switches (not shown) which are actuated by switch **93**. The first time-delay switch controls the operation of the stitcher head motor and the second time-delay switch controls the operation of solenoid **99**, which operates lever **91** and thereby disengages the latch **92** from the stop plate **83** with which it is engaged. The indexing mechanism is contained in a suitable housing **94** attached to the carriage **61**. The latch **92** has a wedge-shaped slot located in its upper tip which is constructed to engage stops **83** to hold the carriage **61** in a locked position during the stitching operation. The latch **92** is longitudinally separated into two parts **92A** and **92B** in order to prevent the latch **92** from overriding the stop plate **83**. A pin **96** extends from the side of the latch **92** and engages a slot **97** in lever **91** which is pivotally mounted at one end of housing **94**. The other end of the lever is coupled to the armature **98** of solenoid **99** which normally is in a de-energized condition. A suitable electrical power source, not shown, controlled by the electrical switch elements of the indexing mechanism **90**, is used to provide electrical power to operate the stitch-forming and driving mechanism **16**. Electrical power is conducted to the stitcher head motor by means of electrical conductor cable **110**, which is coiled into a helical form with each bight of the coil attached to a pulley means **111** which travel along a wire **112** connected between upright stanchions **113** and **114**.

Work supporting shelves **120** and **121** extend outwardly from the frame **10** in a horizontal position at the level of the clincher blocks **30**. The shelves **120** and **121** consist of laterally extending side arms **122**, **123**, and **124**. A skeletal table is formed by longitudinal and parallel members **126** and **127**. At the free edges of the shelves **120** and **121**, elongated rollers **128** are mounted to facilitate manipulating the sheet-like material and supporting frame on the apparatus during panel fabrication.

Several aids are utilized for aligning the components of the prefabricated panel constructed on the machine in this invention. When the channel members are initially positioned on the clincher blocks **30**, as shown in FIGURE 4, one flange of the channel rests on the upper surface of the clincher blocks **30**. Because the channel members are rather long, in order to facilitate the positioning of the entire length of the channel member on the clincher blocks, a series of aligning shoes **130** are pivotally connected to the longitudinal member **126** of the work supporting shelf **120** closest to the clincher table **20**.

By means of links **131**, which are attached at one end to push rods **132** and at the other end to pivots, which are spaced along longitudinal member **126**, a reciprocal motion can be effected in the operation of the aligning shoes **130**. A similar linkage arrangement is also employed at the outer ends of the push rods **132** to provide a parallelogram type of linkage. At the outer end an elongated push bar **135** is used. At the inner end an aligning shoe **136** is attached to an upright arm **137** forming the push rod assembly. Aligning shoes **136** cooperate with a corresponding clincher block **30** such that when an inward movement is imparted to the push rod linkage by asserting a force against push bar **135**, the shoes engage the channel member at spaced points along its entire length to push the channel into position on the clincher blocks **30**.

When alignment has been effected, a pivotally mounted channel lock **140** is used to secure the channel members on the clincher blocks **30** during the stapling operation. The channel clamps consist of a plurality of clamping arms **141** which are pivotally attached at spaced locations to the clincher block table **20** at axis **142**. The lower end of the channel clamps **141** are connected to a throw rod **143** which is common to all of the clamps and which is operated by a suitable lever **144**. In the normal position, the clamping arms **141** are retracted below the surface of the clincher blocks **30** as shown in FIGURE 2 and spaced between the shoes **136** of the aligning mechanism. Thus, after the aligning mechanism **130** has functioned to position the channel members on the clincher blocks **30**, the aligning mechanism **130** will hold the channel member in position temporarily until the channel member is locked into position by the clamps **140**.

There is also provided as part of work supporting shelf **121**, a retractable sheet stop **150**. Sheet stop **150**, which is shown in a retracted position in FIGURE 3, normally will extend above the upper surface of the work supporting shelf **121** by means of recesses **151** which straddle the parallel members **127** of work supporting shelf **121**. The sheet stop **150** is mounted at either end to a pair of arms **152**, which are pivotally attached on work supporting shelf **121** and at **153**. The sheet stop **150** is counter-balanced by means of weight **154** in order that the sheet stop **150** can be retracted below the surface of the work supporting shelf **121** in order to facilitate the manipulation of the panel being constructed during its fabrication.

In FIGURE 6 is shown an auxiliary aid which also facilitates the manipulation of the panel assembly on the work piece shelves **120** during fabrication of the panel. This device consists of a pair of bracket members **160** which straddle two of the longitudinal members **126** on work piece shelf **120**. A pair of spring-loaded pillow blocks **161** are provided on each of these brackets and journalled therein is an axle **162** upon which is mounted a roller **163**. When the frame element of the panel is positioned on the stapling machine, the roller **163** will raise the portion of the frame in contact therewith above the level of the clincher block table **20**. However, when the channel member is clamped in position on the clincher block table **20** for stitching, the roller **163** will retract and permit the frame to rest evenly on the work piece shelf **120**. When the clamp **140** is released after the stitching operation and the channel disengaged from the clincher blocks **50**, the frame can then be manipulated about by means of the cooperation between the roller elements **128** and **163** mounted on the work piece table.

In the operation of the machine, the frame member which has already been prefabricated is placed upon the clincher block table **20** with the flange of the channel to which the sheet material is to be stitched resting on the clincher blocks **30**. The channel member is positioned by means of the aligning bar mechanism and thereafter clamped in place by means of the clamp arms **141**. A sufficient number of pieces of sheet-like material are

laid on the frame and the proper alignment and overlap thereon insured by means of sheet stop **150**, the indexing stops **82** having been positioned to provide the desired stitch pattern. The stitcher head **16** is moved into its initial position on the trackway adjacent the end of the apparatus at which crank member **79A** is located. The chain and sprocket drive **79** is put into operation by rotation of crank **79A** and the stitcher head **16** moved into the first stitching station, at which point the indexing mechanism hereinbefore discussed insures the proper alignment of the stitching head and the appropriate stitcher block cooperating therewith, and simultaneously triggers off the sequential operation of the time delay switches hereinbefore mentioned, the first of which effects the operation of the driver element of the stitcher head and the second of which releases the latching arrangement of the indexing mechanism to permit the subsequent movement of the stitcher head into engagement with the next stitching station, as determined by the positioning of the indexing stop means **82** and clincher bar **30** aligned therewith. This operation is sequentially carried out until the stitcher head **16** has traversed the entire length of the track and has functioned at each of the stitching stations provided. The panel assembly is then moved to another channel for further stitching. In the event that a different panel arrangement is to be prefabricated, the indexing stops **82** can be repositioned in alignment with the clincher bars **30** which are also rearranged to conform with a pre-determined stitching pattern.

By using the double ended stitching blocks **30** which are shown in the illustrative embodiment, the stitching operation can be carried out on channel members which open into opposite directions with a minimum of effort.

In order to facilitate the operation of the stitching head **16** in cooperation with the clinch forming grooves **51A** and **51B** on the opposite ends of the clinches blocks **30**, the stitching head is laterally shifted by releasing latch pin **75** and manipulating the operating lever **71** such that the stitching head **16** is moved into the alternative position for stitching. Lateral alignment is insured by the latch **72** arrangement which prevents any inadvertent lateral movement during the stitching operation.

In the construction of this apparatus, conventional materials of construction are utilized. It is essential, however, in services wherein a fastener means is employed having a reciprocating driving means which exerts a large force against the fastener table during the fastening operation to provide sufficient structural rigidity to minimize any misalignment which might occur during the fastening operation. As shown in the illustrative embodiment, tubular structural members have been employed in fabricating the frame. However, structural elements having other cross-sectional configurations can be employed, depending upon the service in which the apparatus is to be utilized.

Although the subject invention has been described with reference to an illustrative embodiment of a stitching apparatus of this invention, designed to effect the prefabrication of metal lath and channel members, it is evident that it can be also used in a number of other types of construction for the prefabrication of panel members. Although it is especially adaptable for use in wire stitching operations, the concept of employing a movable fastener producing means which cooperates with a complementary stationary fastener producing means while retaining the work piece in a stationary position can be adapted to other types of operations wherein two cooperating and complementary fastener producing elements are utilized, such as spot welding wherein a movable electrode assembly could be substituted for the stitching head and a fixed electrode assembly substituted for the clincher block assembly, or a simple stapling operation wherein preformed staples

are used instead of wire stitches produced by conventional wire stitching machinery. It may be also desirable in order to facilitate the operation of the apparatus to eliminate the manual operation of the chain and sprocket drive and utilize an electric or hydraulic motor for effecting the movement of the trolley carriage 61.

These and other modifications and variations in the illustrative device will be obvious to one skilled in the art to which this invention pertains in order to employ the instant invention in a variety of different services. Accordingly, it is intended that this invention be limited only in the manner set forth in the appended claims.

What is claimed is:

1. A panel assembly apparatus for fastening a sheet-like material to a frame member which comprises a supporting frame, a track means transversely mounted on said frame, a base table mounted transversely on said frame below said track means, a trolley means mounted on said track means, a fastener means comprising a wire stitching head having a reciprocating driver and wire stitch-forming means dependently mounted on said trolley means, a plurality of clincher blocks for clinching formed stitches mounted on said base table, said clincher blocks having stitch clinching grooves provided therein to provide a plurality of stitching stations, indexing means mounted on said trolley means cooperating with said track means to temporarily lock said stitching head in stitching alignment with the respective stitching stations, and means for moving said trolley means along said track means.

2. A panel assembly apparatus for fastening a sheet-like material to a frame member which comprises a supporting frame, a track means transversely mounted on said frame, a base table mounted transversely on said frame below said track means, a trolley means mounted on said track means, fastener means comprising a wire stitching head having a reciprocating driver and a wire stitch-forming means dependently mounted on said trolley means, a plurality of clincher blocks for clinching formed driven stitches mounted on said base table and having means for adjustably positioning said blocks thereon, said clincher blocks having stitch clinching grooves providing a plurality of stitching stations, indexing means mounted on said trolley means cooperating with said track means to temporarily lock said stitching head in stitching alignment with the respective stitching stations, and means for moving said trolley means along said track means.

3. A panel assembly apparatus in accordance with claim 2 in which a work-piece supporting shelf laterally extends from said frame in substantial horizontal alignment with said clincher blocks.

4. A panel assembly apparatus in accordance with claim 2 in which clamping means are provided for holding the supporting frame in position on said clincher blocks while stitching the sheet-like material to said frame.

5. A panel assembly apparatus in accordance with claim 2 in which said fastener means is electrically operated and said indexing means includes stop means mounted on said track, a latch means cooperating with said stop means mounted on said trolley means, and an electrical control circuit comprising electrical switch means for operating said fastener means substantially concurrently with said latch means engaging said stop means and thereafter controlling electrical means for disengaging said latch means and said stop means.

6. A panel assembly apparatus in accordance with claim 2 in which said fastener means is laterally adjustable on said trolley means, and each clincher block is provided with oppositely positioned stitch clinching grooves which cooperate with said fastener means.

7. A panel assembly apparatus in accordance with claim 2 in which said base table is vertically adjustable.

8. A panel assembly apparatus for fastening a sheet-like material to a frame member which comprises a supporting frame having opposed end frames, a track means comprising a pair of spaced structural I beams transversely mounted on said frame, a lower base table mounted transversely on said frame below said track means, an upper base table vertically adjustably mounted on said lower base table, a trolley means comprising a wheeled carriage mounted on said track means, an electrically operated fastener means comprising a wire stitching head dependently mounted on said trolley means and laterally adjustable thereon, said stitching head comprising a reciprocating driver and wire stitch-forming means, a plurality of clincher blocks mounted on said upper base table and longitudinally adjustable thereon, each of said clincher blocks having opposed stitch clinching grooves provided on the terminal ends thereof to provide a plurality of stitching stations, indexing means mounted on said trolley means cooperating with said track means and said stitching stations to temporarily lock said stitching head in stitching alignment with the respective stitching stations, said indexing means including stop means mounted on said track means, a latch means cooperating with said stop means mounted on said trolley means, and an electrical control circuit comprising electrical switch means for operating said fastener means substantially concurrently with said latch means engaging said stops and thereafter controlling electrical means for disengaging said latch means and said stop means, means for moving said trolley means along said track means, clamping means for holding the frame member in position on said clincher blocks while stitching the sheet-like material thereto, and a work-piece supporting shelf laterally extending from said frame in substantial horizontal alignment with said clincher blocks.

9. A panel assembly apparatus for fastening a sheet-like material to a frame member, said apparatus comprising a supporting frame, a track means transversely mounted on said frame, a base table mounted transversely on said frame below said track means, a trolley means mounted on said track means, a fastener head comprising a reciprocating fastener means, said fastener head dependently mounted on said trolley means, a plurality of clincher blocks for cooperating with said reciprocating fastener means, said clincher blocks mounted on said base table to form a plurality of stitching stations, indexing means mounted on said stitching head cooperating with said head and said stitching stations to temporarily lock said fastener head in fastening alignment with the respective stitching stations, and means for moving said trolley means along said track means.

References Cited in the file of this patent

UNITED STATES PATENTS

3,026,519	Johnson	Mar. 27, 1962
3,068,484	Moehlenpah et al.	Dec. 18, 1962
3,079,607	Jureit	Mar. 5, 1963