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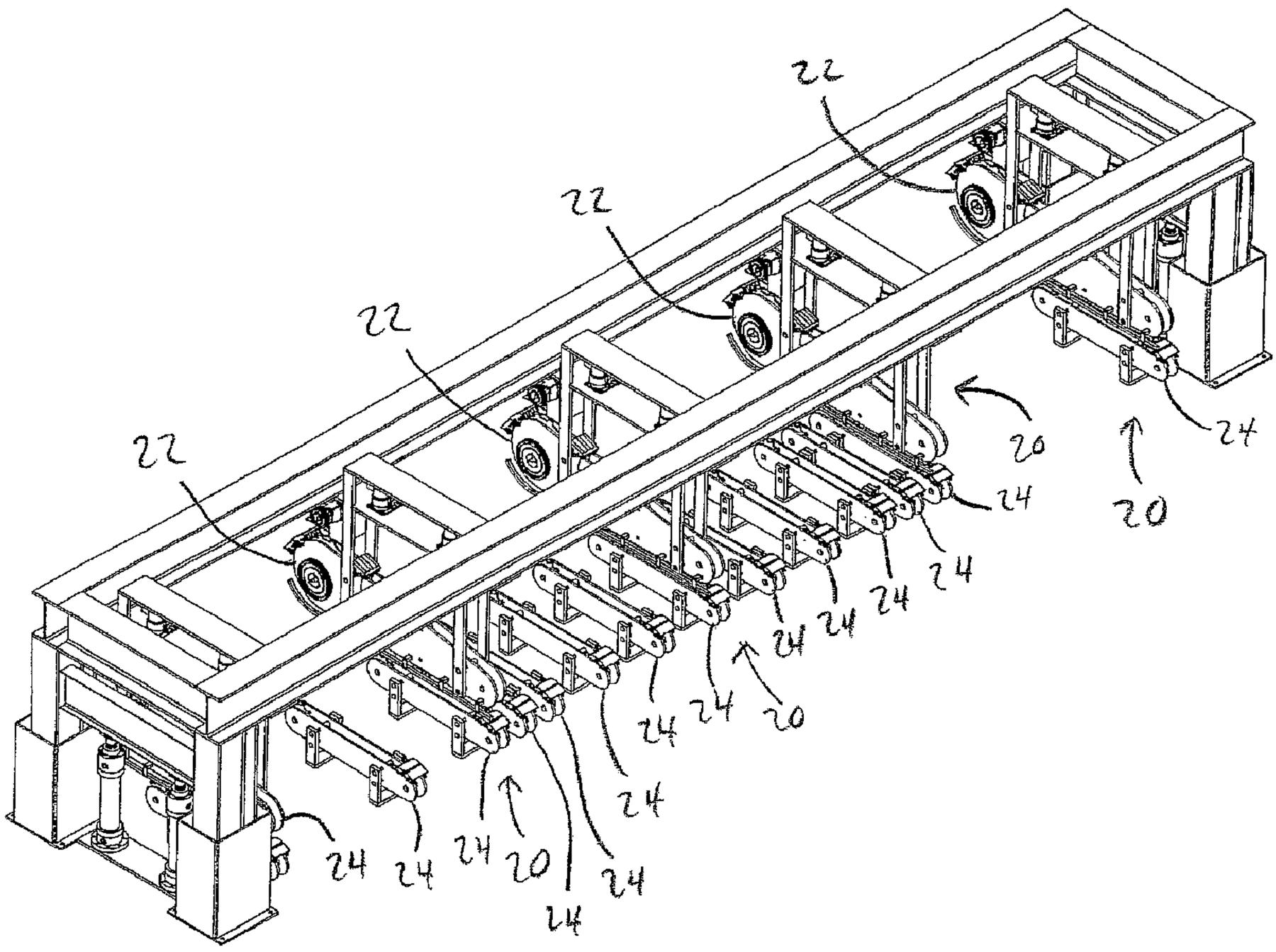

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A method of making wallboard including the steps of providing an unfinished length of wallboard that has a recess along its longitudinal edges by conveying it upon a conveyor in a first direction in a step, forming recesses in the unfinished length of wallboard at both lateral edges thereof, selecting an apparatus for forming the recess from a plurality of device for forming the recess, forming the recess with the selected apparatus, and separating the unfinished length of wallboard at a location of the recess to form finished lengths of wallboard, such that the finished lengths of wallboard have recessed lateral edges. Also disclosed is a system for performing the method.

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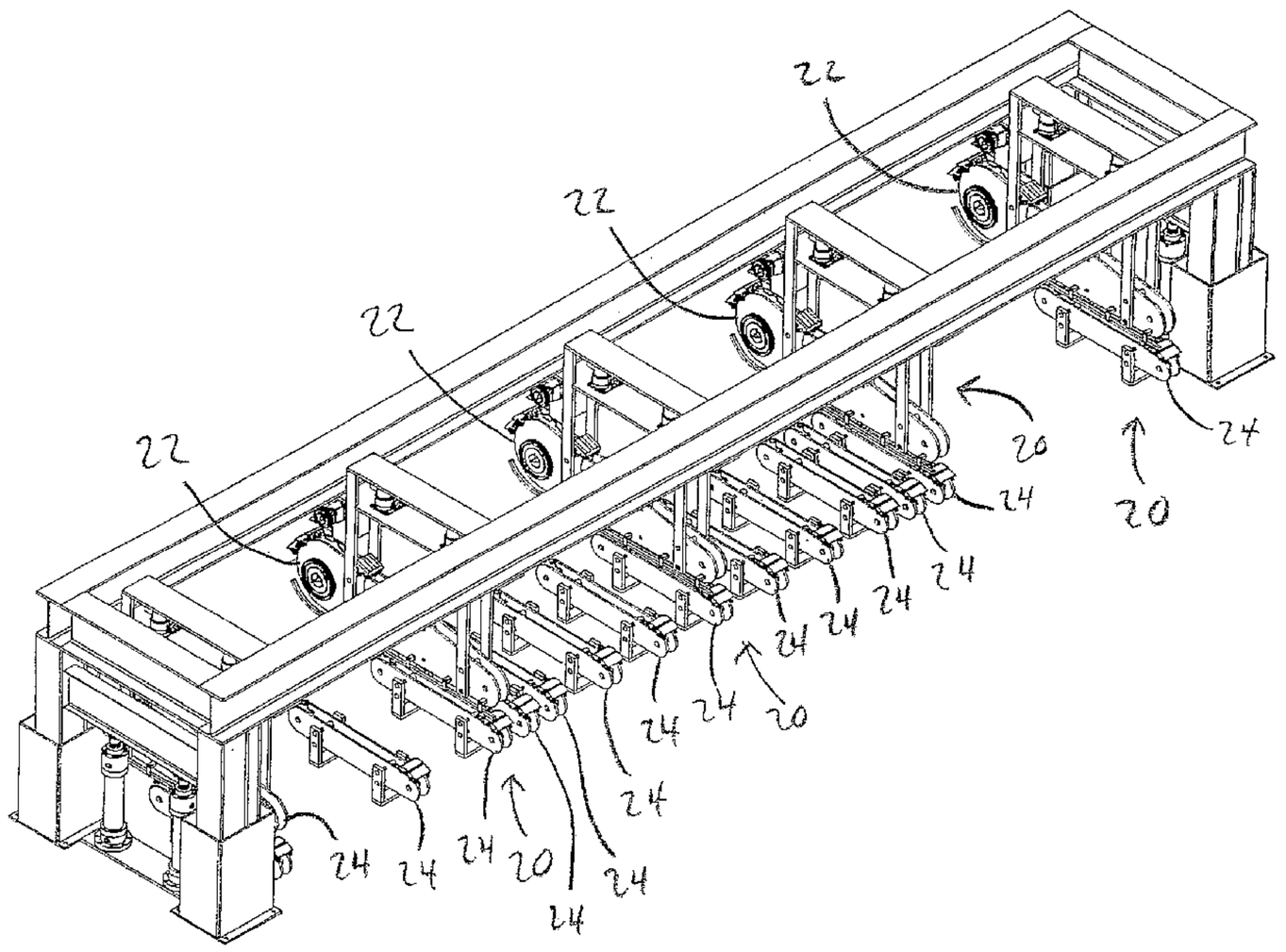

(57) **Abstract:** A method of making wallboard including the steps of providing an unfinished length of wallboard that has a recess along its longitudinal edges by conveying it upon a conveyor in a first direction in a step, forming recesses in the unfinished length of wallboard at both lateral edges thereof, selecting an apparatus for forming the recess from a plurality of device for forming the recess, forming the recess with the selected apparatus, and separating the unfinished length of wallboard at a location of the recess to form finished lengths of wallboard, such that the finished lengths of wallboard have recessed lateral edges. Also disclosed is a system for performing the method.

SYSTEM AND METHOD FOR MAKING WALLBOARD

Technical Field

This invention relates generally to gypsum board, and more specifically to a method and apparatus for providing recessed portions on the lateral edges of wallboard.

Background Art

Conventional gypsum wallboard or drywall is typically manufactured from a gypsum plaster slurry which is put between two layers of paper. More specifically, in the conventional method, a wet slurry of gypsum is poured on a conveyor between two layers of paper, and the slurry is allowed a certain amount of time to set. In gypsum wallboard, the two layers of paper contain the slurry and provide the tensile strength required in installation and use.

In at least some known fabrication methods, the conveyor is a closed loop conveyor that can travel at speeds of four hundred feet per minute or faster. The conveyor enables the wallboard to be fabricated using rolls of paper and accordingly, includes at least a longitudinal edge forming system, a cutting system, and a drying system. The edge forming system uses wedge shaped raised edges along the conveyor that create recessed areas along the longitudinal edges in the face of the wallboard prior to the wallboard being fully cured. When the wallboard is later cut to size and installed, the recesses are filled with wallboard compound, taped over, and finished to produce a smooth joint.

The cutting system enables the wallboard to be cut into predetermined discrete lengths such that substantially rectangular wallboard members are formed. The cutting system is adjustable to allow different lengths of wallboard to be cut without substantial interruption of the manufacturing operation.

After being cut, the wallboard members are moved away from the cutting station to a loading area where they are loaded into a drying system to dry the cut wallboard members.

Known wallboard includes recessed areas that extend along both of the opposed longitudinal edges of the wallboard. The recessed areas are formed by the raised edges on the conveyor. The recessed areas are in the shape of inclined planes that taper from the face of the wallboard to the longitudinal edges and have a maximum depth at the side edges of about 0.090" below the face of the wallboard.

When the wallboard is cut by the cutting system, panels of conventional wallboard are formed which are bordered by the opposed recessed longitudinal edges and by a pair of lateral non-recessed edges that connect the longitudinal edges. More specifically, the wallboard is typically cut such that the panels are fabricated with a longitudinal length that is commonly eight feet, ten feet, twelve feet, fourteen feet, and sixteen feet or longer. Additionally, wallboard panels are made in thicknesses that are commonly 1/4", 3/8", 1/2" and 5/8" thick. For maximum efficiency and conservation of plant space, the same line must have the capability of fabricating all of the different lengths of wallboard without a major shutdown of the line.

During installation, depending on the length of the wall being formed by the wallboard, wallboard panels are typically positioned for installation such that the longitudinal edges are parallel to the floor, an installation known as a "horizontal orientation". In this installation, a longitudinal recess of a first panel is adjacent to a longitudinal recess of the adjacent panel. This forms a longitudinal recessed joint. A wallboard compound fill material and tape are then used to seal the recessed joint formed by the recessed longitudinal edges of the panels. Specifically, the recessed areas of the joints are filled with the wallboard compound, taped and smoothed across the joint, such that the joint is covered without the compound creating an unsightly bulge extending outwardly between the panels. Installing the wallboard panels such that the longitudinal

length extends horizontally along a wall parallel to the floor, rather than vertically and substantially perpendicularly to the floor, facilitates faster installation time of the wallboard panels, and faster finishing time of the installed wallboard panels. In addition, when wallboard is installed in a vertical orientation, installation and labor costs may be increased as the installers and tapers must use ladders for installation and finishing.

When wallboard panels are installed on longer walls and ceilings, because the recessed areas only extend along two longitudinal edges of each panel, a butt joint may be formed between the lateral edges of two adjacent panels. Such joints must still be covered with tape and compound, but because the lateral edges do not include a recessed area, the joint compound must be spread over a wider area than those of the longitudinal joints to facilitate blending the butt joints into the wall surface without creating unsightly bulges.

Adding to the difficulty of creating recessed area in lateral edges of wallboard panels is that the panels are made in continuous lengths, which are then cut to size after the wallboard panel has fully cured. It is very difficult to create the recessed areas in the wallboard panel after the gypsum is fully cured and a particular problem has been delamination of the paper from the gypsum core.

Summary of the Invention

The present invention comprises a method of making wallboard comprising the steps of a) providing an unfinished length of wallboard that has a recess along its longitudinal edges by conveying it upon a conveyor in a first direction in a step, b) forming recesses in the unfinished length of wallboard at both lateral edges thereof, c) selecting an apparatus for forming the recess from a plurality of devices for forming the recess, d) forming the recess with the selected apparatus, and e) separating the unfinished length of wallboard at a location of the recess to form finished lengths of wallboard, such that the finished lengths of wallboard have recessed lateral edges.

The present invention provides a device for forming the recesses in an unfinished length of wallboard. The device comprises a first press located at a first lateral edge of the unfinished length of wallboard, and a second press located at a second lateral edge of the unfinished length of wallboard opposite the first lateral edge. A third press is located between the first and second press. As unfinished lengths of wallboard are fed into the first, second and third presses, the first press forms a recess along the first lateral edge, the second press forms a recess along the second lateral edge and the third press forms a recess in the wallboard generally parallel to the first recess and between the first and second lateral edges.

Brief Description of the Drawings

Fig. 1 is plan view of gantry having a plurality of drywall presses according to an embodiment of the present invention;

Fig. 2 is perspective view of a drywall press according to an embodiment of the present invention;

Fig. 3 is perspective view of an upper press assembly according to an embodiment of the present invention;

Fig. 4 is perspective view of a lower press assembly according to an embodiment of the present invention;

Fig. 5 is perspective view of an upper shoe assembly according to an embodiment of the present invention in an extended position;

Figs. 6A-6F are views of an upper shoe according to an embodiment of the present invention;

Fig. 7 is perspective view of an upper shoe assembly according to an embodiment of the present invention in a retracted position;

Figs. 8A-8D are views of a lower shoe according to an embodiment of the present invention;

Fig. 9 is perspective view of a lower shoe assembly according to an embodiment of the present invention;

Figs. 10A-10C are views of a pin according to an embodiment of the present invention;

Fig. 11 is a partial side view of a length of wallboard passing through an upper and lower press assembly according to an embodiment of the present invention; and

Fig. 12 is a side view of a length of wallboard passing through an upper and lower press assembly according to an embodiment of the present invention.

Best Mode for Carrying Out the Invention

While this invention is susceptible of embodiment in many different forms, there is shown in the drawings and will herein be described in detail preferred embodiments of the invention with the understanding that the present disclosure is to be considered as an exemplification of the principles of the invention and is not intended to limit the broad aspect of the invention to the embodiments illustrated.

Referring to Fig. 1, a preferred embodiment of the present invention comprises a press 20 for forming of one or more recessed lengths in partially cured gypsum wallboard such that when the partially cured wallboard is cut into finished lengths, the lateral edges of the finished lengths have recessed edges on all four edges of the board. For the purposes of the present invention, a recess can be a tapered or non-tapered recess. The invention preferably performs this press function in partially cured gypsum wallboard panels after gypsum slurry has been applied to paper backing but before the wallboard is sent to ovens to fully cure. However, it is within the scope of the present invention to form recesses along cured gypsum before it is cut into finished lengths or to sheets of cured gypsum wallboard that has already been cut to finished lengths.

In the preferred aspect, where the gypsum is only partially cured and the wallboard not cut to finished lengths, the recessed areas are formed along the lateral edges of the uncut wallboard and also in several locations along the length of the uncut wallboard. The locations of the recesses on the length of the uncut wallboard will vary depending upon whether eight foot lengths, nine foot

lengths, ten foot lengths, etc. of wallboard, or combinations of length thereof, are being produced. Typically, the length of uncut and partially cured wallboard that is sent to ovens to be fully cured is 32', although other lengths may be produced in various gypsum wallboard plants. The 32' foot length, or other appropriate length, is referred to as the unfinished length. In the event of 32' lengths, it is preferably to have presses located at 0' (i.e. the lateral edge), 8', 9' 10', 12', 14', 16', 18', 20', 22', 23', 24', 27' and 32' (i.e. the opposite lateral edge). The present invention accomplishes this by providing presses at each location indicated. Alternatively, a smaller number of presses are provided that are positionable on the support system to the various required locations. Additionally, the presses are easily removable so that a press may be removed for repair and maintenance. By feeding the 32' length into the press and forming recesses in the ends and at one or more locations along the length of the wallboard, recesses running the width are formed therein such that every common length of wallboard can be manufactured with lateral edge tapers at the finished wallboard lengths.

The presses 20 each comprise an upper press assembly 22 and a lower press assembly 24. Wallboard 26 passes between the upper and lower press assemblies 22 and 24. The upper press assemblies 22 are moveable from an upper position where the upper press assemblies 22 do not contact the uncut wallboard and a lower position where the upper press assemblies 22 come into contact with the uncut wallboard. Because the recesses are most preferably only about .090" deep, the upper press assemblies 22 are infinitely adjustable in the vertical direction such that fine adjustment can be made to adjust for tolerances in the thickness of the wallboard and also to accommodate wallboard of different nominal thicknesses. The proper adjustment of the height of the upper press assembly may be detected by either a laser measure or by physically contacting the wallboard, for example with a roller that measures the precise thickness of the wallboard. The upper presses 22 are all individually adjustable to properly control recess depth as the wallboard moves through the presses. As

can been seen in Fig.1, four upper press assemblies 22 have been lowered in position at 0', 12', 22' and 32' to make wallboard of 10' and 12' lengths.

Fig. 2 shows the upper press assembly 22, the lower press assembly 24 and a takeout conveyor 28 to remove the wallboard from the press. An upper surface of the takeout conveyor 28 is preferably in a plane lower than the upper surface of the lower press assembly 24 so that the wallboard 26 will move away from the upper press assembly 22 as it exits the lower press assembly 24. Lengths of wallboard 26 are shown between the upper and lower press assemblies 22 and 24, and the press assemblies 22 and 24 and takeout conveyor 28 move the wallboard in a direction indicated by arrow A.

As shown in Fig. 3, the upper press assembly 22 comprises two spaced apart plates 30 and 32 attached to one another to form an upper plate assembly 34. Riding upon the upper plate assembly 34 are a plurality of upper shoe assemblies 36. The upper shoe assemblies 36 are attached to one another end-to-end and form a loop around the upper plate assembly 34. A large sprocket 38 is located at a first end 40 of the plate assembly 36, and a small sprocket 42 is located at an opposite, second end 44 of the plate assembly 36. The sprockets are located between the plates 30 and 32. One or both of the sprockets 38 and 42 are powered to cause the upper shoe assemblies 36 to rotate about the upper plate assembly 34 in the direction shown by the arrows B. Also provided is a shoe support bar 46 that maintains the upper shoe assemblies 36 adjacent the upper plate assembly 34 as the upper shoe assemblies 36 travel along the bottom portion of the upper plate assembly 34 until the upper shoe assemblies 36 are out of contact with the wallboard as they extend around the large sprocket 38, as further described below.

The lower press assembly 24 is shown in Fig. 4 and comprises first and second plates 48 and 50 attached to one another and spaced apart from one another to form a lower plate assembly 52 having a first end 56 and a second end 60. Mounted upon the lower plate assembly 52 are a plurality of lower shoe assemblies 54. The lower shoe assemblies 54 extend around the lower plate

assembly 52 to form a loop. The lower shoe assemblies 54 are further driven by one or both of a first sprocket 58 at the first end 56 and a second sprocket (not shown) at a second end 60.

Referring to Figs. 5 and 6A-6F, the upper shoe assemblies 36 of the upper press assembly 22 comprise a forming plate 64. The forming plate 64 comprises two upstanding outer walls 66 and 67. Between the walls 66 and 67 are located two support blocks 68. Each support block 68 defines a bore 70 that is in line with bores 72 defined in each outer wall 66 and 67. The support blocks 68 each further define an arcuate stop portion 74. Mounted within the bores 70 and 72 is a pin 76. The pin 76 captures three roller bearings 78 as well as two chain side plates 80. Another pin 82 captures three more roller bearings 84 and an opposite end of the chain side plate 80. The pin 82 is associated with the upper shoe assembly 36 by virtue of the pin 82 extending into two slots 85 that are formed within the side walls 66 and 67 of the forming plate 64. The bearings 84 are spaced apart by collars 75 placed over the pin 82 and between the bearings 84.

As a result of pin 82 being located within the slots 84, the forming plate 64 is allowed to pivotally move about the pin 76 move from a first, open position as shown in Fig. 6 to a second, closed position as shown in Fig. 7, making the distance between the bearing 82 and a bottom surface 90 of the forming plate 64 variable.

The upper shoe assembly 36 further comprises a pair of shoe alignment bearings 86 mounted on the support blocks 68. Additionally, shoe pivot bearings 88 are attached to each wall 66 and 67.

In the most preferred embodiment, the bottom surface 90 of the forming plate 64 is 6-1/2" wide as viewed from Fig. 6D and Fig. 6F. A flat pad 92 is centered on the bottom surface 90 of the forming plate 64 is approximately 1-1/4" wide. First tapered portions 94 taper at about a three degree angle from the flat pad 92 for about 1-1/4" from the center of the bottom surface 90. Second tapered portions 96 taper at about a one degree angle from the flat pad 92 from

the first tapered portion 94 to either edge of the forming plate 64. The multiple tapered surfaces prevent bulging of the wallboard it the edge of the forming plate 64.

Multiple upper shoe assemblies 36 are attached to one another through the use of additional chain side plates 80 which extend from the pin 82 to a pin 76 of an adjacent, trailing upper shoe assembly 36 and a chain side plate 80 that extends from a pin 76 of the upper shoe assembly 36 to the pin 82 of an adjacent, preceding upper shoe assembly 36. The forming plates 64 further comprise a front support surface 69 and a rear support surface 71. The point where the support surface 69 meets the bottom surface 90 is located at or behind an imaginary line Z-Z which passes though the center of the aligned bores 70 and 72 and perpendicular to the surface 90. When the upper shoe assemblies 36 are attached to one another with the chain side plates 80, the front support surface 69 of one upper shoe assembly 36 rests upon the rear support surface 71 of an adjacent upper shoe assembly 36. In this manner the bottom surfaces 90 of each shoe provide a consistent surface in which the flat pads 92, first tapered portions 94 and second tapered portions 96 of the attached upper shoe assemblies 36 align and are coplanar to form a consistent surface even with significant force applied to the surface 90 of each forming plate 64.

Referring to Figs. 8A-D and 9, the lower shoe assemblies 54 comprise a support plate 98. The support plate 98 has a flat lower surface 100 and two upwardly extending sidewalls 102 and 103. The support plate 98 also comprises a pair of support blocks 104 each having aligned bores 106 defined therein which align with bores 108 defined within the sidewalls 102 and 103. Inserted within the aligned bores 106 and 108 is a pin 110. The pin 110 retains three roller bearings 120 and two chain side plates 202 to the support plate 98. Also attached to the two support blocks 104 are alignment bearings 106. The chain side plates 202 each attach to a pin 110 of a preceding, adjacent support plate 98 and the chain side plates 202 of a following, adjacent support plate 98 attach to the pin 110 of the present support plate 98, and so on, to create a chain.

The forming plate 98 further defines an arcuate surface 204 and a rear support shelf 206. When multiple lower shoe assemblies 54 are placed are attached to one another by the chain side plates 80 the arcuate surface 204 of a lower shoe assembly 54 rests upon the rear support shelf 206 of an adjacent lower shoe assembly 54. As a result, lower surfaces 100 of the lower shoe assemblies 54 form a flat surface upon which a sheet of partially cured wallboard 26 may rest without deformation of the wallboard 26.

Referring to Figs. 10A-C, the pins 76, 82 and 110 are preferably identical and are described with respect to representative pin 76. The pin 76 has central bore 130 that is threaded at either end. The pin 76 further has annular grooves 132 at the locations that correspond to the mounting of bearings thereon. Connecting bores 134 extend through the pin 76 at the location of the annular grooves 132 to the central bore 130. In this manner, grease fittings may be threaded into the pin 76 at the central bore 130 to provide grease through the central bore 130 to the connecting bores 134 to the annular grooves 132 and to lubricate the bearings mounted on the pin 76. Annular grooves 136 are sized to accept retainer clips to retain the pins 76 in the forming plate 64 or support plate 98, as the case may be.

The upper shoe assemblies 36 of the upper press assembly 22 are maintained and aligned on the plates 30 and 32 by the shoe alignment bearings 86. The shoe alignment bearings 86 contact inner surfaces 120 and 122 of the plates 30 and 32, respectively, of the upper press assembly 22. Likewise, the lower shoe assemblies 54 of the lower press assembly 24 are maintained and aligned on the plates 48 and 50 by the alignment bearings 106. The alignment bearings 106 contact inner surfaces 124 and 128 of the plates 48 and 50 of the lower press assembly 24.

Fig. 12 shows a simplified view of the interaction of the upper shoe assemblies 36 and the lower shoe assemblies 54 as they are moved about the perimeter of the plates 30 and 32 and the plates 48 and 50, respectively. The upper shoe assemblies 36, as they pass the around the second end 44 of the

upper press assembly 22, pivot outwardly. In this manner, the surfaces 90 of the upper shoe assemblies 36 become parallel to the wallboard 26 at the point where the surfaces 90 first make contact with the wallboard. The upper shoe assemblies 36 initially make contact with the wallboard 26 and compress it an initial 0.010". In this manner, the upper shoe assemblies 36 to not dig into or put divots in the wallboard 26 with a leading edge of the upper shoe assembly 36.

The lower shoes assemblies 54, as they pass around the second end 41 of the lower press assembly 24, as viewed in Fig. 12, are brought into parallel relationship with the wallboard 26 and contact wallboard 26 prior to the upper shoe assemblies 36 contacting the wallboard 26. In this manner, the lower shoe assemblies 54 provides support for the wallboard 26 and an opposing force for the upper shoe assembly 36 when it makes initial contact with the wallboard 26 and begins compressing the wallboard 26. Additionally, in order to prevent a preceding lower shoe assembly 54, labeled M in Fig. 12, from being forced into the wallboard 26 by the support surface 204 (if the support surface were not arcuate) a trailing lower shoe assembly 54, labeled N in Fig. 12, the support surface 204 is made arcuate such that the center of the arc formed by the surface 204 is the center of the bore 108.

Referring to Fig. 12, as the wallboard 26 traverses from right to left, the upper shoe assemblies 36 are moved from an initial impression of 0.010" near a point X to a final impression of 0.0102" near a point Y with the horizontal length between points X and Y preferably being about 67". This is accomplished by a taper along the bottom plates 30 and 32 which force the upper shoe assemblies 36 into the wallboard by virtue of contact with the bearings 78 and 84. After point Y, the plates 30 and 32 provide a taper that brings the upper shoe assemblies 36 out of contact with the wallboard 26. A takeout conveyor 28 removes the wallboard 26 from the press 20.

In a further preferred aspect of the invention, the lateral edges of finished lengths of wallboard are wrapped with paper to further strengthen the edge of the wallboard.

The scope of the claims should not be limited by particular embodiments set forth herein, but should be construed in a manner consistent with the specification as a whole.

CLAIMS:

1. A method of making wallboard comprising, in sequence:

(a) forming a continuous length of wallboard having first and second surfaces, longitudinal edges running the length of the continuous length of wallboard, and a recess in the first surface along each longitudinal edge;

(b) cutting an unfinished length of partially cured wallboard from the continuous length of wallboard;

(c) forming a plurality of lateral recesses in the first surface of the wallboard, one lateral recess at each lateral edge of the unfinished length and at least one lateral recess parallel to and offset from the lateral edges; and

(d) cutting the unfinished length of wallboard at the at least one offset lateral recess to form a plurality of finished lengths of wallboard such that each finished length of wallboard has recessed edges along all four edges of the first surface;

wherein said process further comprises the step of selecting presses for forming the lateral recesses

(i) from a plurality of prepositioned presses on a recess forming apparatus, the selected presses corresponding to the position of the lateral edges and the desired location of the at least one offset lateral recess, or

(ii) from a plurality of presses on a recess forming apparatus, at least one of said presses being movable from one position to another on the recess forming apparatus, wherein the presses are positioned at points corresponding to the lateral edges of the wallboard to be acted upon as well as at the location of the offset lateral recess(es), prior to forming the plurality of lateral recesses in step (c).

2. The method of claim 1, wherein the presses are selected from a plurality of prepositioned presses on a recess forming apparatus, the selected presses corresponding to the position of the lateral edges and the desired location of the at least one offset recess.

3. The method of claim 1, wherein the presses are selected from a plurality of presses on a recess forming apparatus, at least one of said presses being movable from one position to another on the recess forming apparatus, wherein the presses are positioned at points corresponding to the lateral edges of the wallboard to be acted upon as well as at the location of the offset lateral recess(es).

4. The method of claim 1, wherein the recesses are formed at the same time.

5. The method of claim 1 wherein the recesses are formed by a gradual compression of the first surface of the wallboard at the desired location of the recesses.

6. A method of making wallboard comprising, in sequence:

(a) forming a continuous length of wallboard having first and second surfaces, longitudinal edges running the length of the continuous length of wallboard, and a recess in the first surface along each longitudinal edge;

(b) cutting an unfinished length of partially cured wallboard from the continuous length of wallboard; and

(c) forming a plurality of lateral recesses in the first surface of the wallboard by conveying the unfinished length of wallboard through a recess forming apparatus having a plurality of presses aligned with or parallel to the lateral edges of the wallboard, each press having an upper and a lower press assembly, a fore and an aft end, and opposing surfaces on said upper and lower assemblies defining a gap through which the wallboard passes in a planar orientation and in a direction perpendicular to the longitudinal edges and which gap gradually tapers from the fore end of each press, which first receives the wallboard, towards the aft end of each press, the taper causing a gradual compression in the first surface of the wallboard.

7. The method of claim 6, wherein the number of recesses to be formed is two, one at each lateral edge of the wallboard.

8. The method of claim 6, wherein the number of recesses to be formed is at least three, one at each lateral edge of the wallboard to be acted upon and at least one at a location offset from and parallel to the lateral edges and wherein the method further comprises the step of cutting the unfinished length of wallboard at the at least one offset recess to form a plurality of finished lengths of wallboard such that each finished length of wallboard has recessed edges along all four edges of the first surface.

9. The method of claim 6, wherein the recess forming apparatus has at least three stationary presses, each positioned on the apparatus to correspond to various lengths of wallboard, whose upper assembly is moveable from a first position removed from the wallboard and a second position in contact with the wallboard, and wherein the method further comprises the step of selecting and moving to the second position those upper assemblies necessary to produce the recesses in the desired locations.

10. The method of claim 6, wherein the recess forming apparatus has at least three positionable presses, each capable of being positioned on the apparatus to correspond to various lengths of wallboard desired, whose upper assembly is moveable from a first position removed from the wallboard and a second position in contact with the wallboard, and wherein the method further comprises the step of positioning the presses, or that number of presses needed, to the location corresponding to the location of the desired recesses in the wallboard and moving the upper assembly of those presses to the second position.

11. A method of making wallboard comprising, in sequence:

(a) forming a continuous length of wallboard having first and second surfaces, longitudinal edges running the length of the continuous length of wallboard, and a recess in the first surface along each longitudinal edge;

(b) cutting an unfinished length of partially cured wallboard the continuous length wallboard;

(c) forming a plurality of lateral recesses in the first surface of the wallboard, one lateral recess at each lateral edge of the unfinished length and at least one lateral recess parallel to and offset from the lateral edges; and

(d) cutting the unfinished length of wallboard at the at least one offset lateral recess to form a plurality of finished lengths of wallboard such that each finished length of wallboard has recessed edges along all four edges of the first surface; wherein the method employs a device comprising a plurality of presses in spaced, parallel relationship, each press having a fore end and an aft end and comprising upper and a lower press assemblies having opposing surfaces defining a gap through which a length of wallboard is to pass, said gap gradually tapering from the fore end towards the aft end of the press assemblies.

12. The method of claim 11, comprising at least three press assemblies.

13. The method of claim 11, wherein the spacing of the presses is fixed.

14. The method of claim 11, wherein at least one press is capable of being moved from one position to another such that the lateral recess to be formed by said at least one press may be formed at, and perpendicular to, any desired location along the longitudinal edge of the wallboard.

15. The method of claim 11, wherein all of the presses are capable of being moved from one position to another relative to the longitudinal edge of the wallboard.

16. The method of claim 11, comprising a plurality of lower press assemblies in excess of the number of upper press assemblies.

17. The method of claim 16, wherein a number of the lower press assemblies are prepositioned to coincide with desired wallboard lengths such that one only needs to move the upper press assembly when wanting to change the wallboard lengths to be produced.

18. The method of claim 11, wherein at least one assembly of each press is moveable from a first position where it is removed from the point where it will engage an unfinished length of wallboard in the gap to a second position where it is capable of forming a recess of the desired depth in a length of wallboard passing through the gap.

19. The method of claim 18, wherein the upper assembly is moveable from said first position to said second position and defines the taper of the gap.

20. The method of claim 11, wherein the opposing surfaces of the press assemblies form continuous loops which rotate about their respective press assemblies, the loop of the upper assembly rotating opposite the rotation of the loop of the lower assembly such that the rotation of both loops helps feed the unfinished length of wallboard through the gap.

21. The method of claim 20, wherein the opposing surfaces of the press assemblies comprise a plurality of linked shoe assemblies forming a continuous loop about each press assembly.

22. The method of claim 20, wherein each press assembly has associated therewith a means for rotating the opposing surfaces about each assembly.

23. The method of claim 22, wherein the means are power driven sprockets.

24. The method of claim 11, wherein the length of the gap is at least six inches.

25. The method of claim 11, wherein the length of the gap is the width of the wallboard.

26. The method of claim 11, further comprising means for detecting changes in the thickness of the wallboard to be processed and for automatically adjusting the position of the upper press assembly engaged in forming the recess relative to the lower press assembly to ensure a consistent recess depth.

27. An improved method for forming wallboard wherein the improvement comprises the formation of lateral recesses in the wallboard which lateral recesses are formed by a lateral recess forming apparatus comprising a plurality of presses in spaced, parallel relationship, each press having a fore end and an aft end and comprising upper and a lower press assemblies having opposing surfaces defining a gap through which a length of wallboard is to pass, said gap gradually tapering from the fore end towards the aft end of the press assemblies, which is integrated into a wallboard forming system.

28. The improved method of claim 27, wherein the lateral recess forming apparatus is inserted into the wallboard forming system at a point after the cutter for the unfinished length of wallboard and after the gypsum in the wallboard has partially cured and before the oven for fully curing the wallboard.

29. The improved method of claim 28, wherein the lateral recess forming apparatus is inserted after the point at which the unfinished wallboard is flipped.

30. The improved method of claim 27, wherein the lateral recess forming apparatus is inserted after the point at which the unfinished length of wallboard is flipped and before the unfinished length of wallboard is cut to its final length.

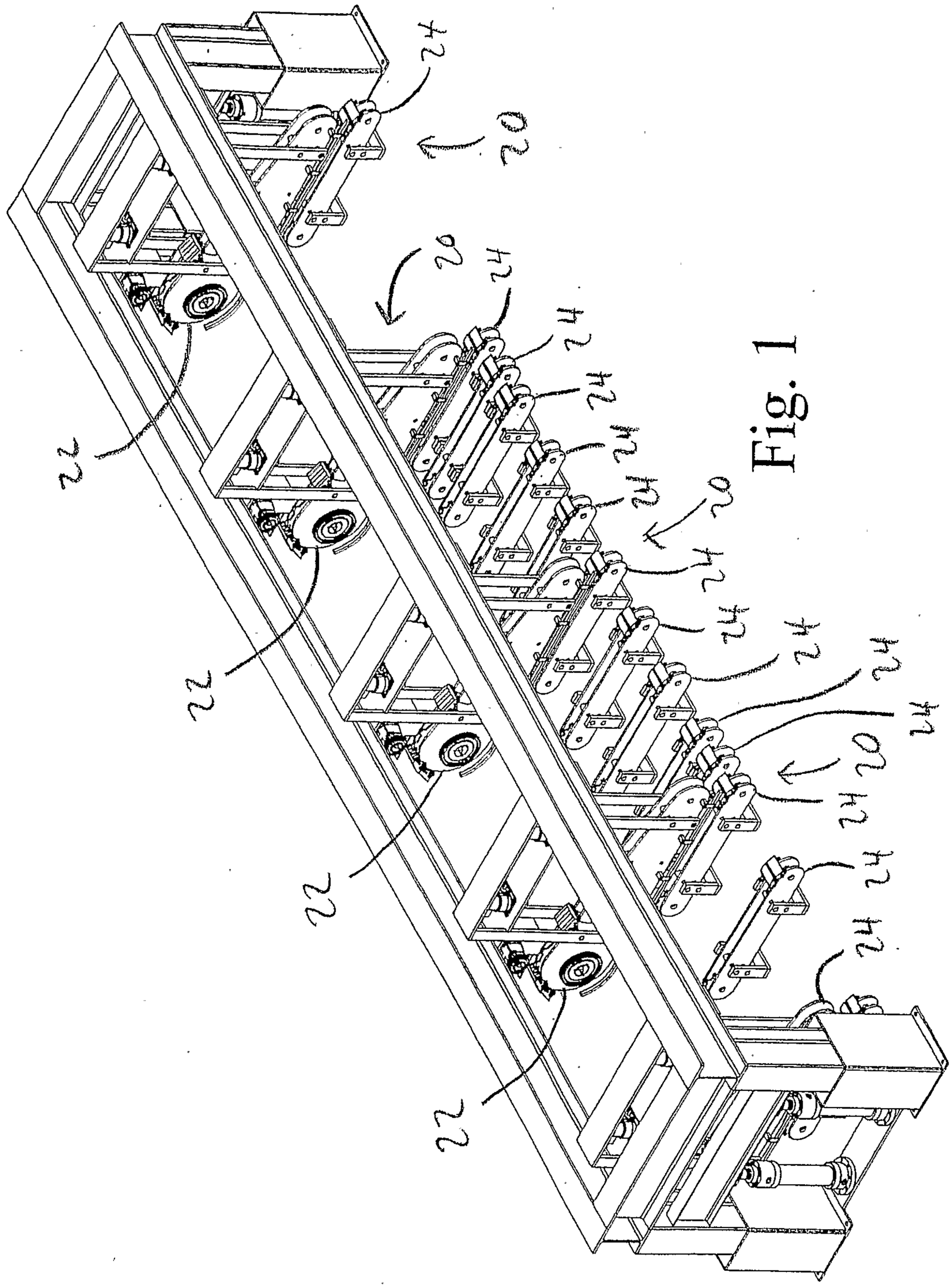

Fig. 1

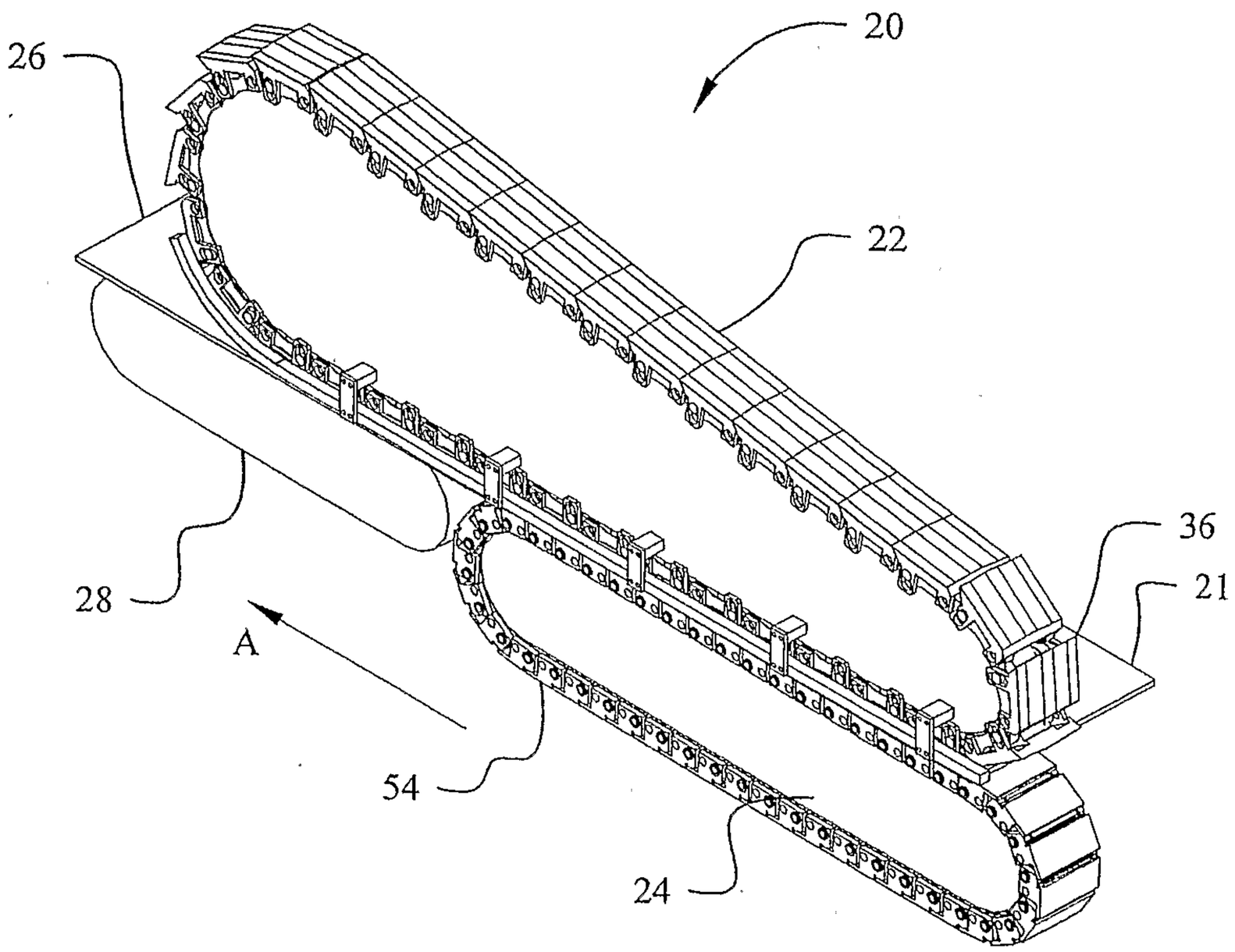

Fig. 2

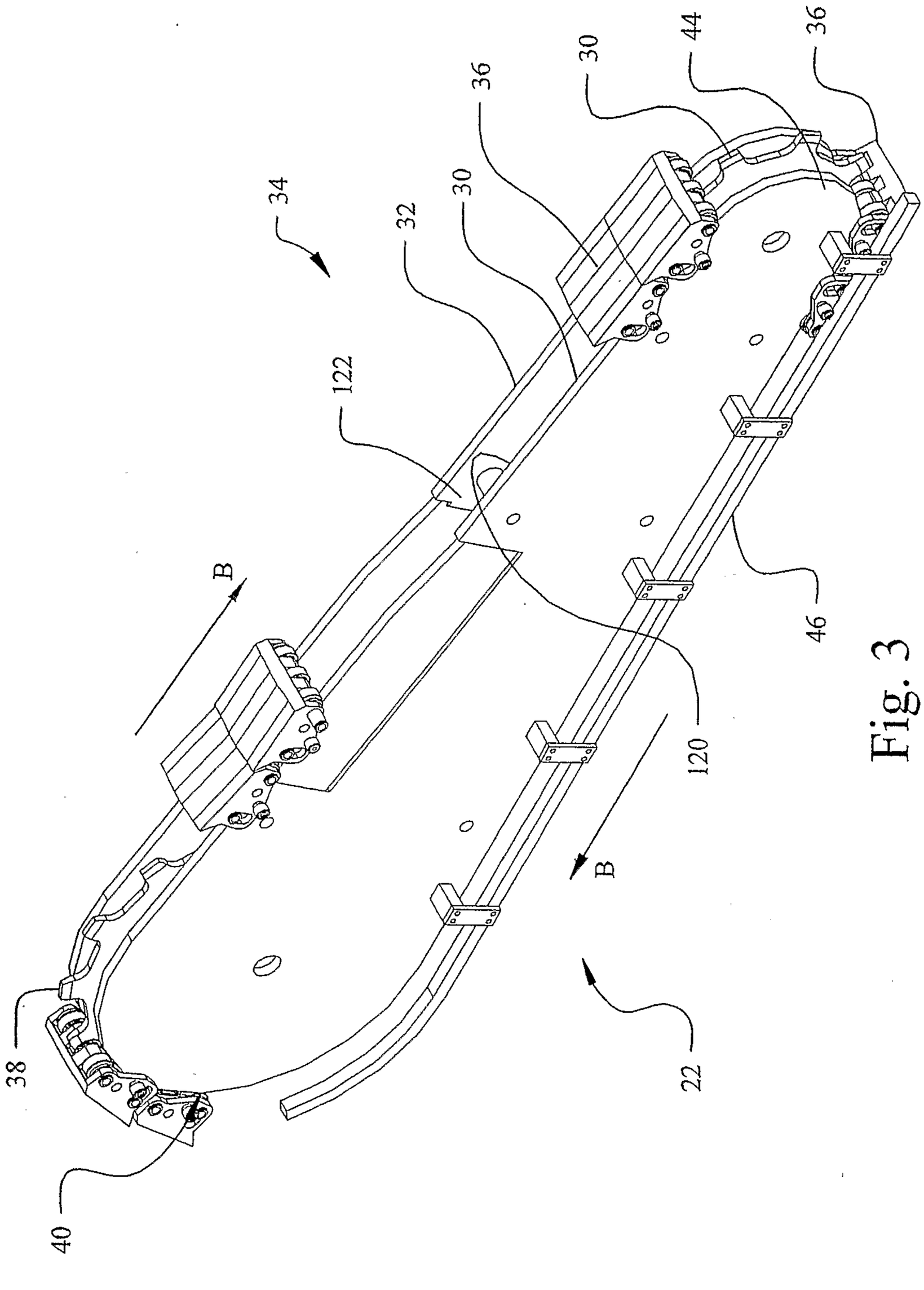

Fig. 3

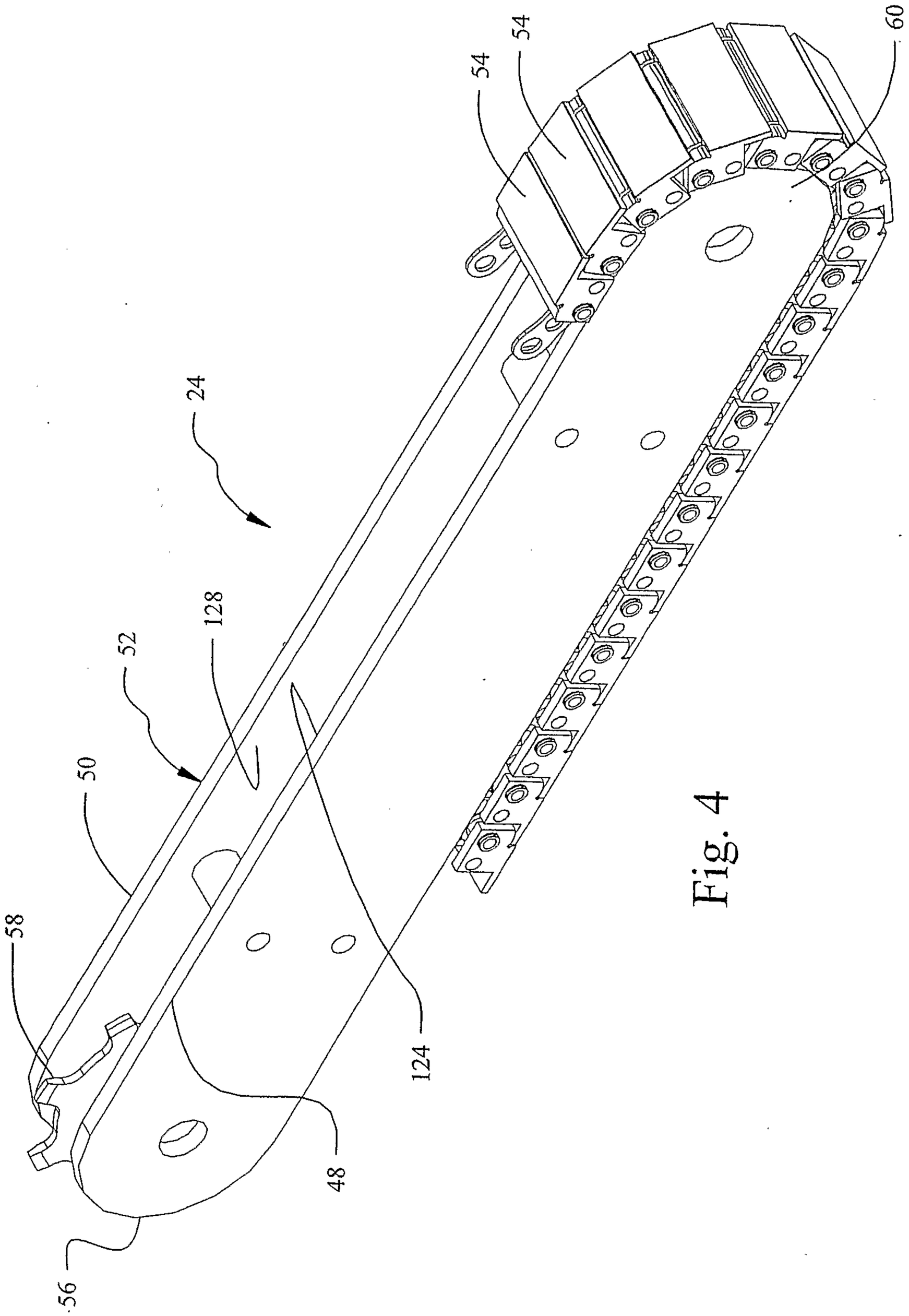

Fig. 4

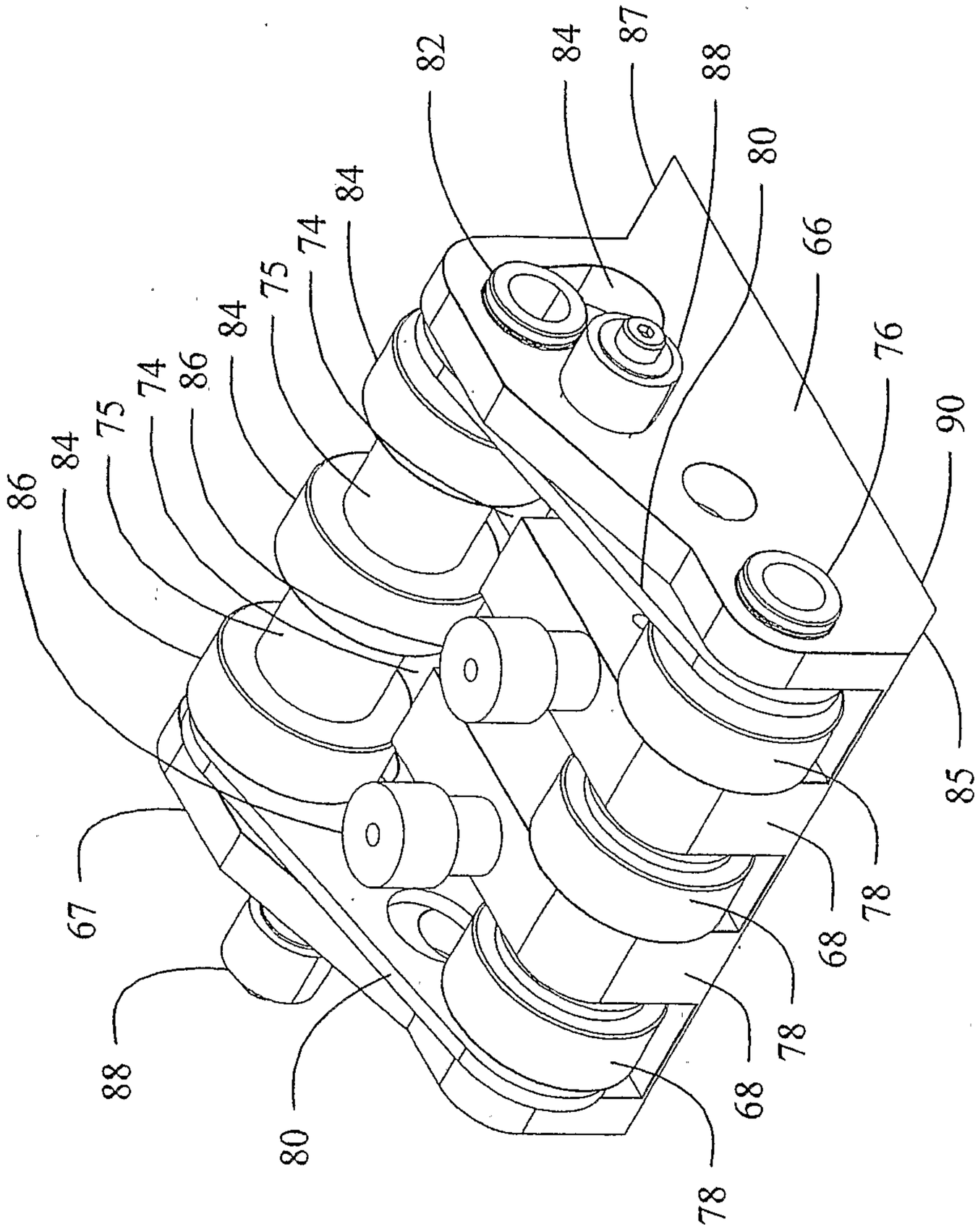
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Fig. 5

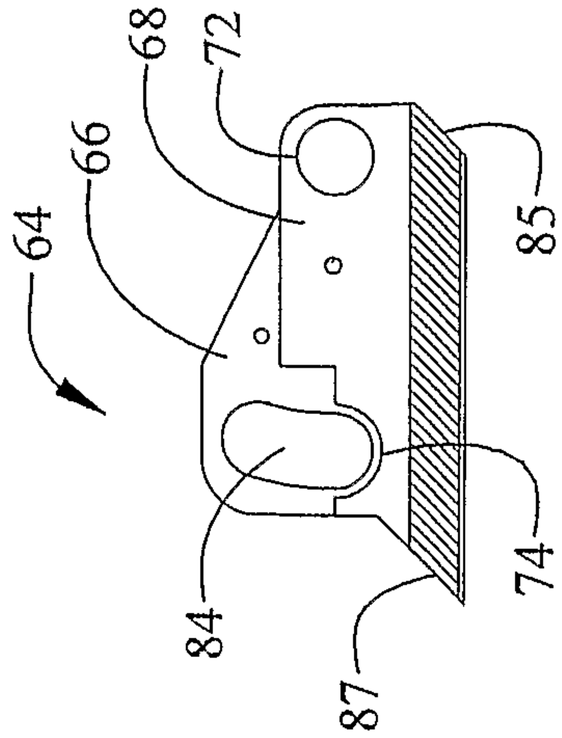

Fig. 6E

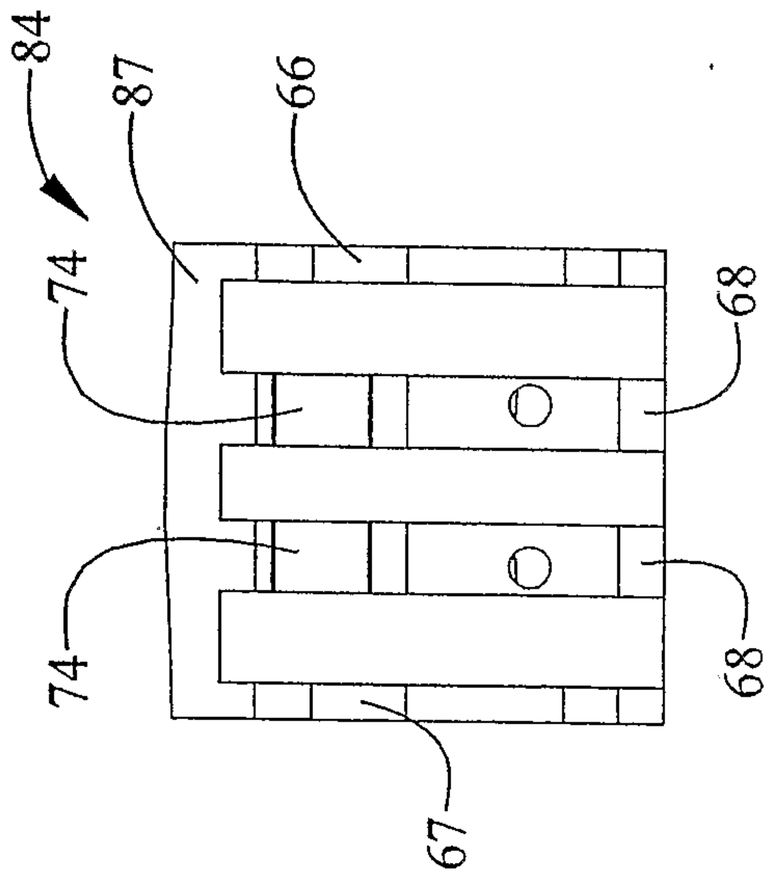

Fig. 6B

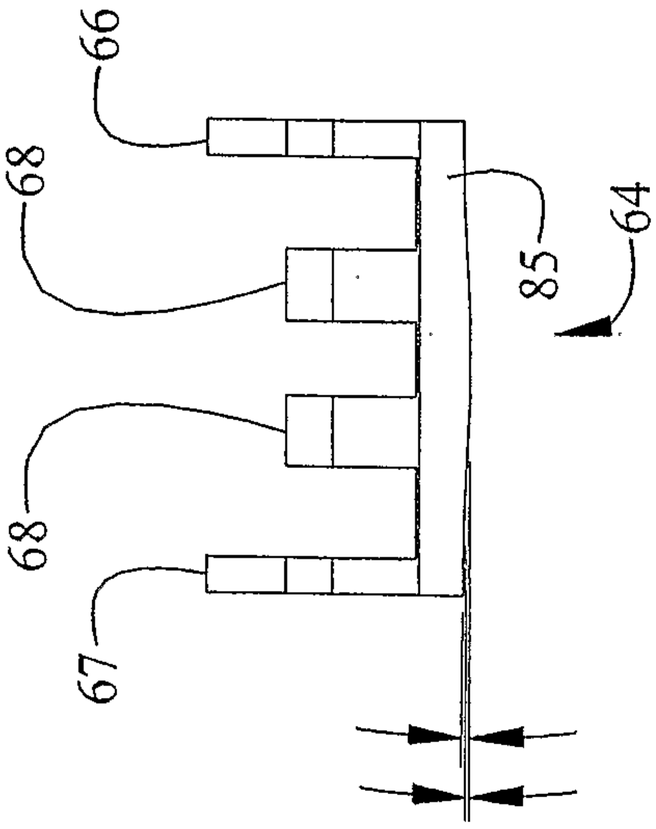

Fig. 6D

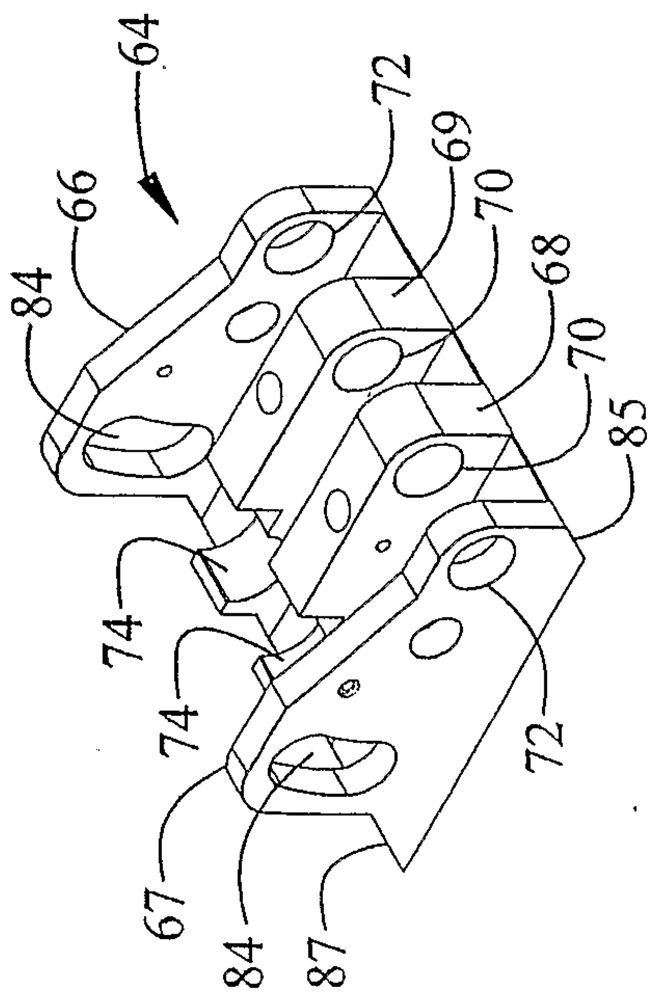

Fig. 6A

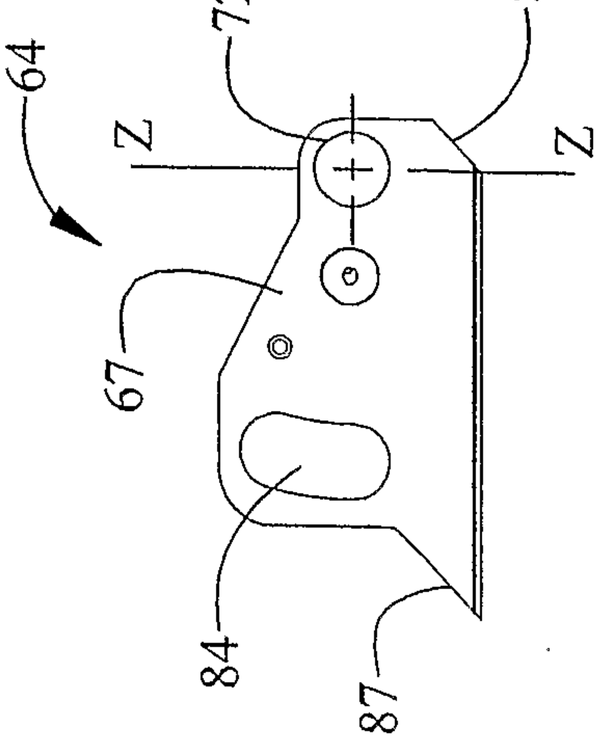

Fig. 6C

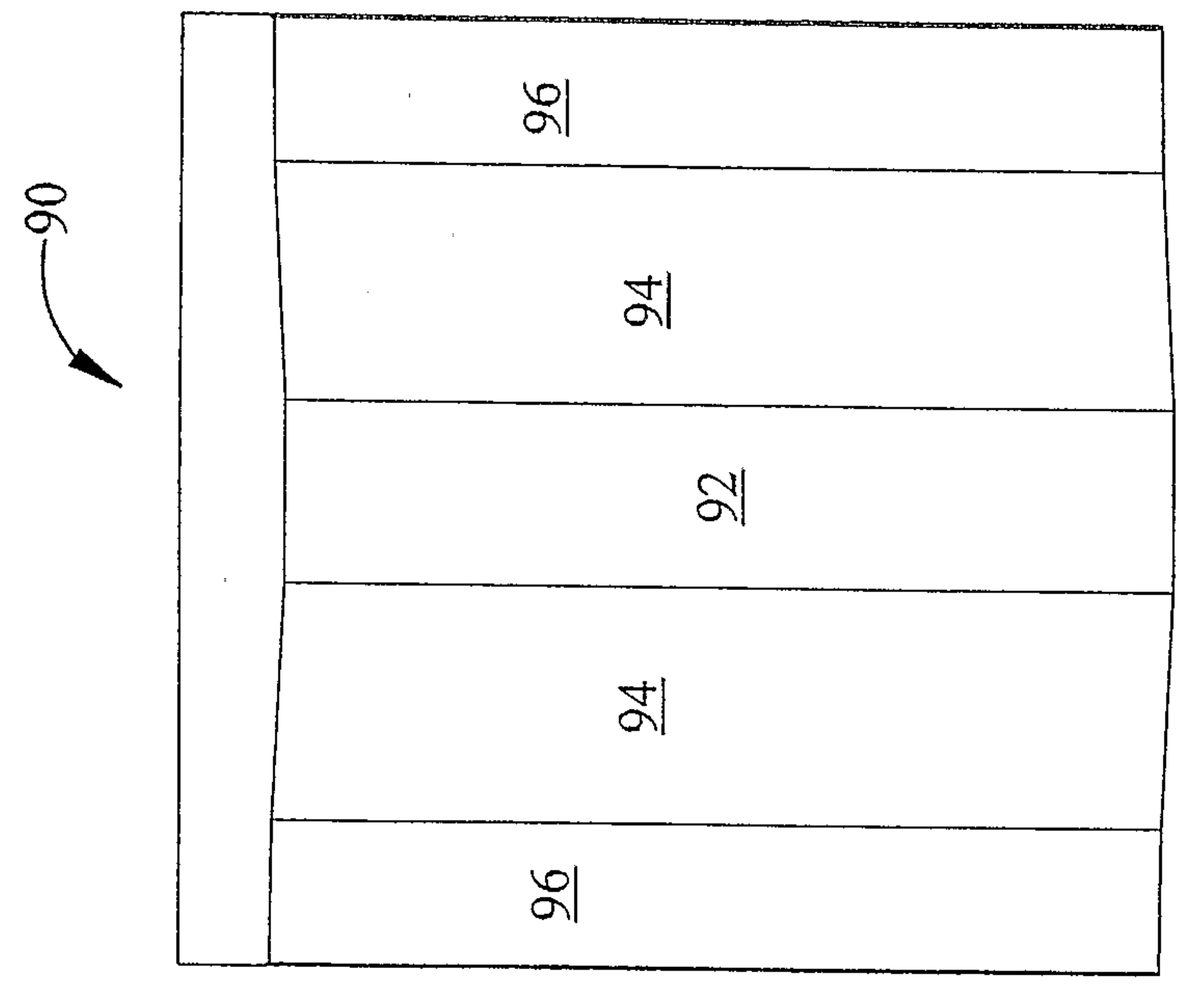

Fig. 6F

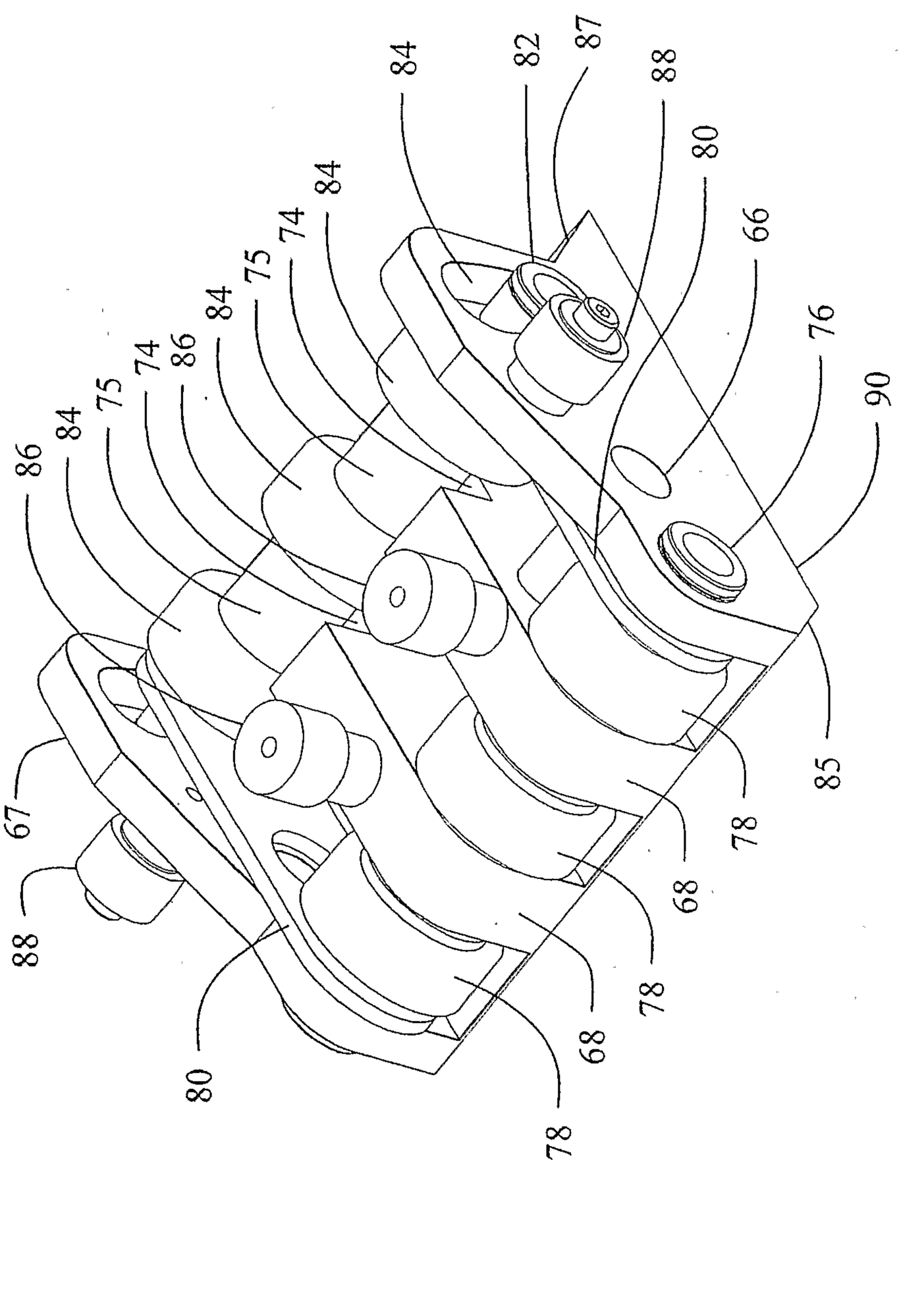
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Fig. 7

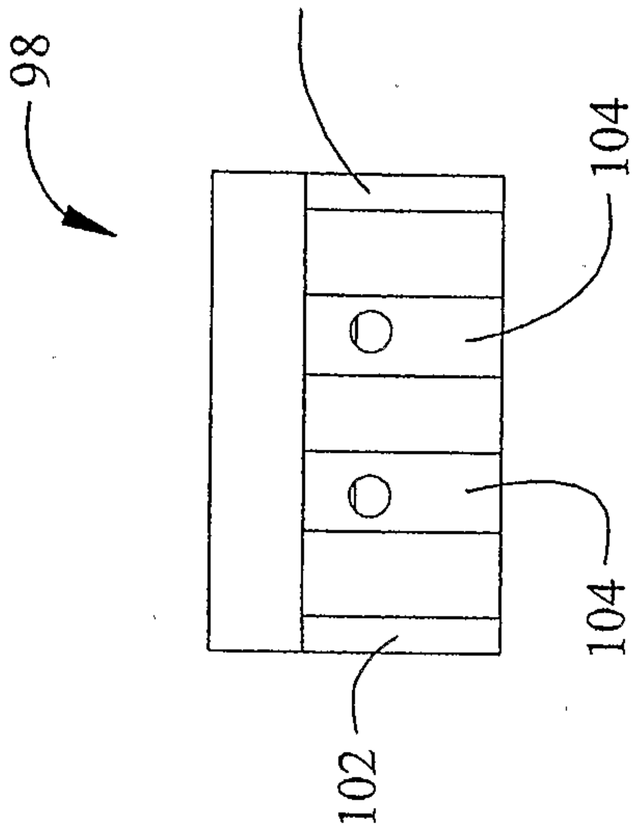

Fig. 8B

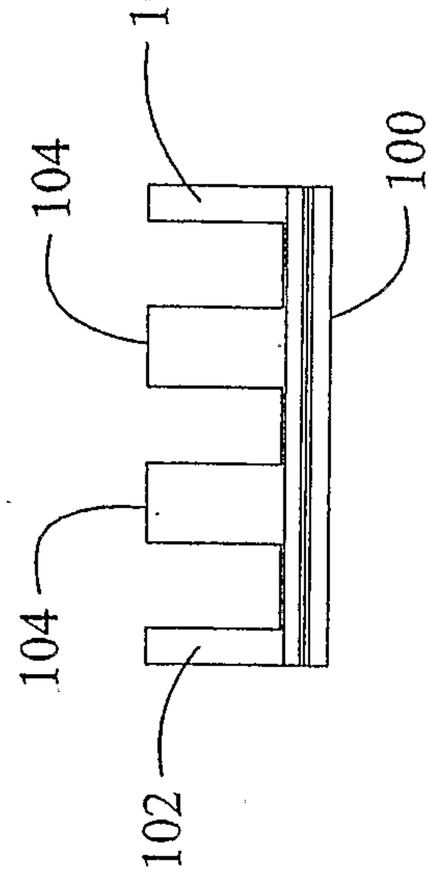

Fig. 8D

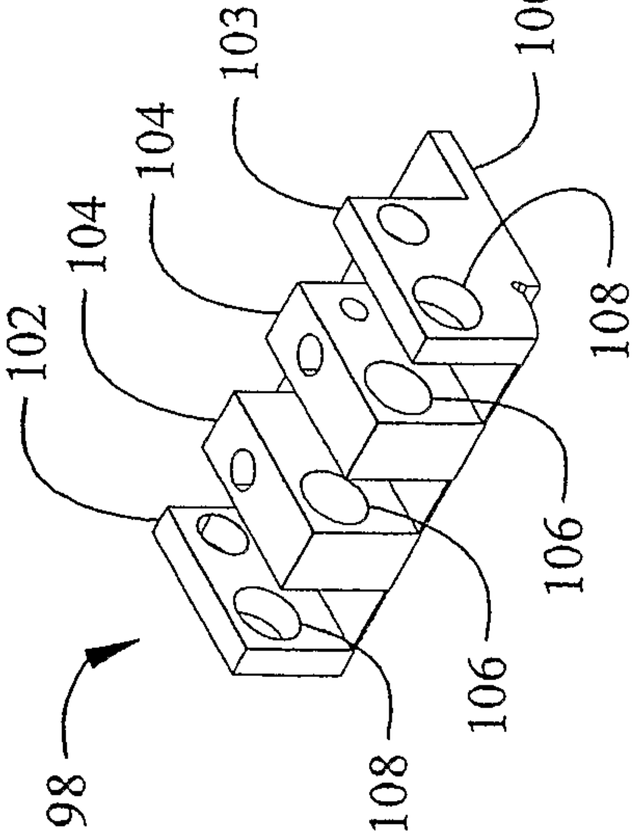

Fig. 8A

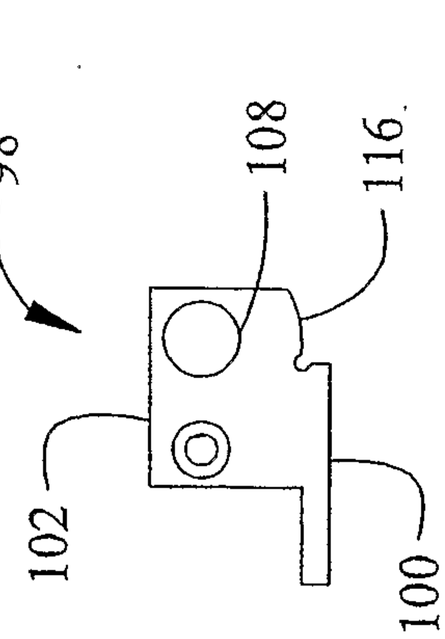

Fig. 8C

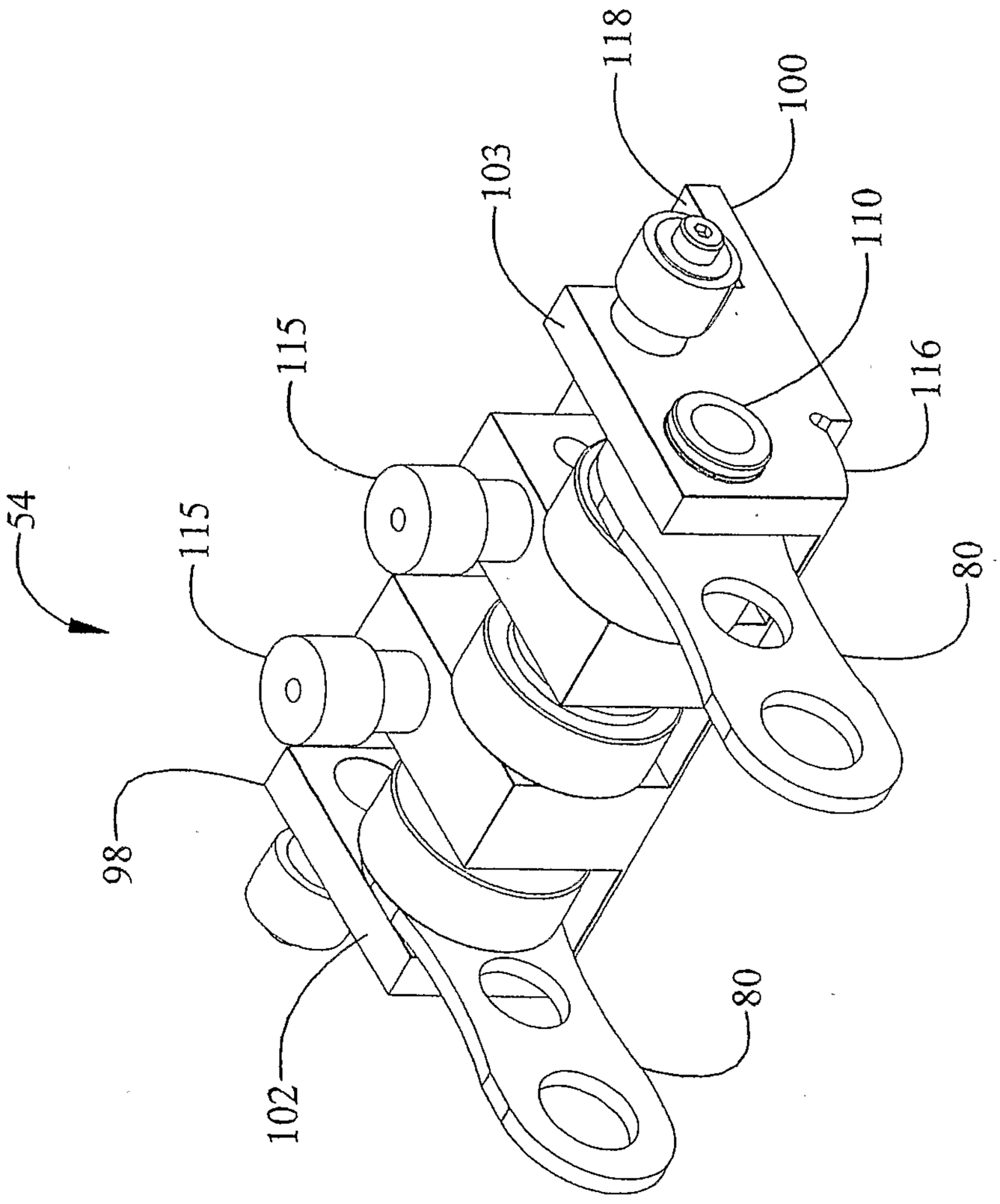

Fig. 9

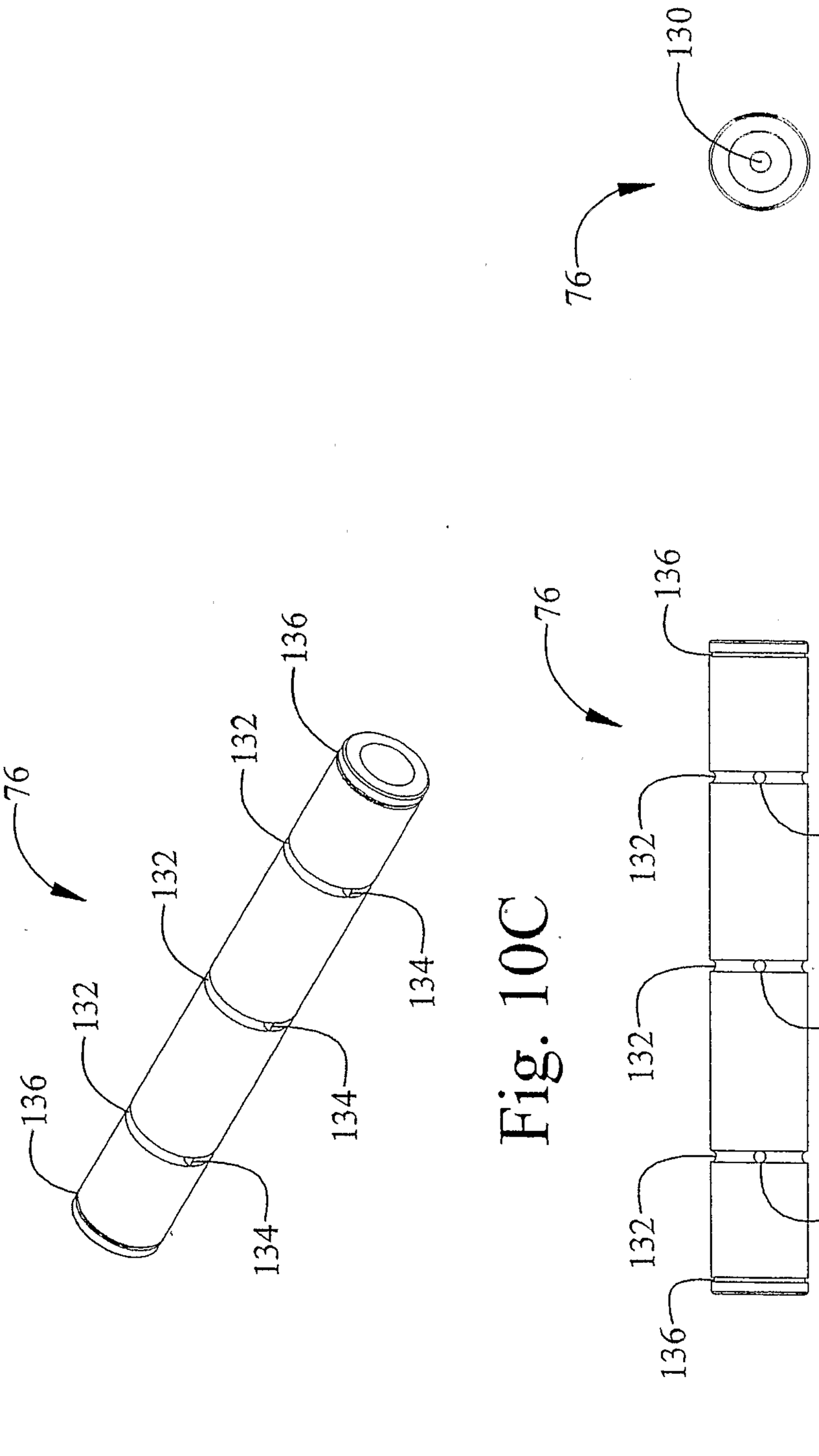

Fig. 10C

Fig. 10A

Fig. 10B

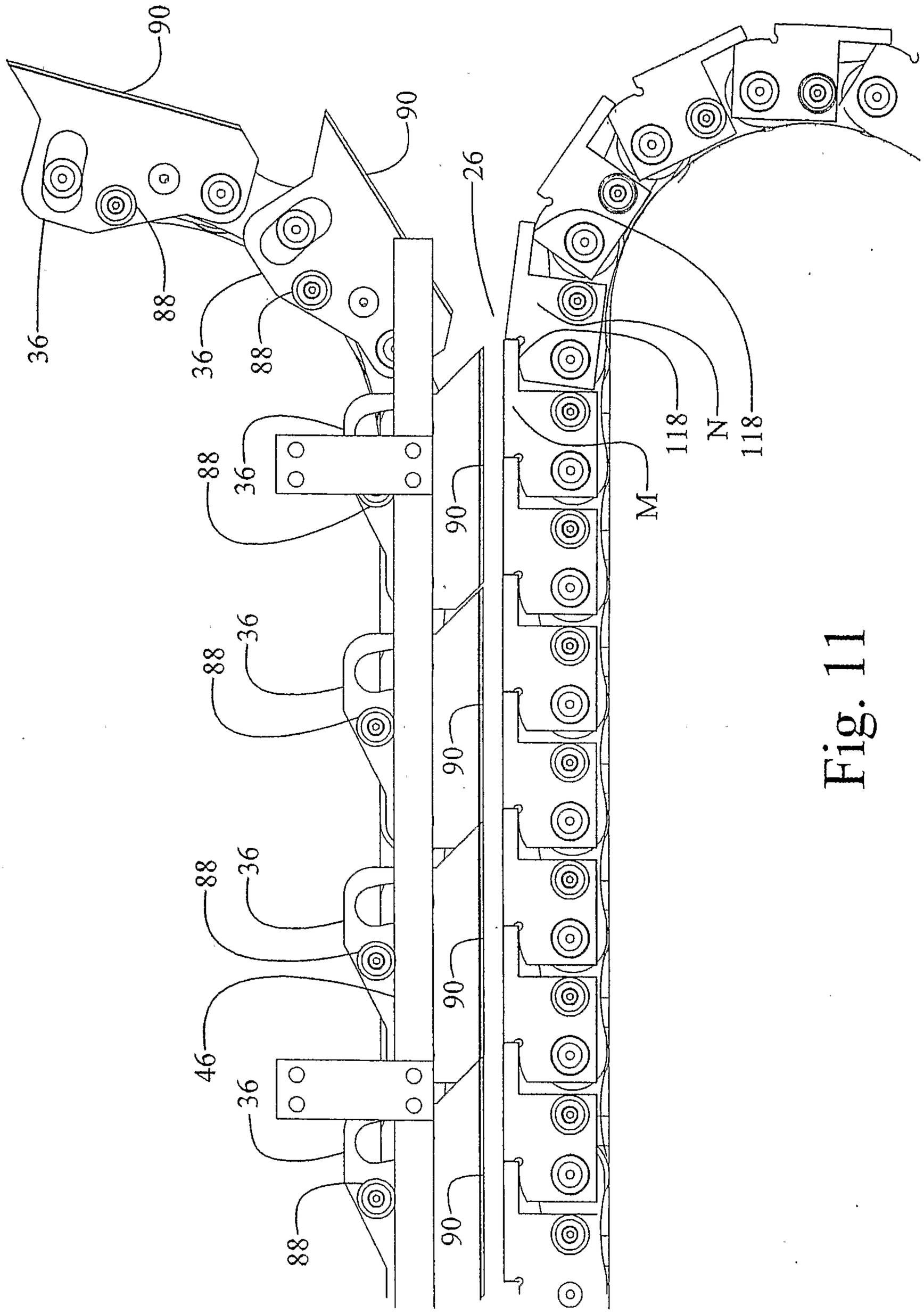
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Fig. 11

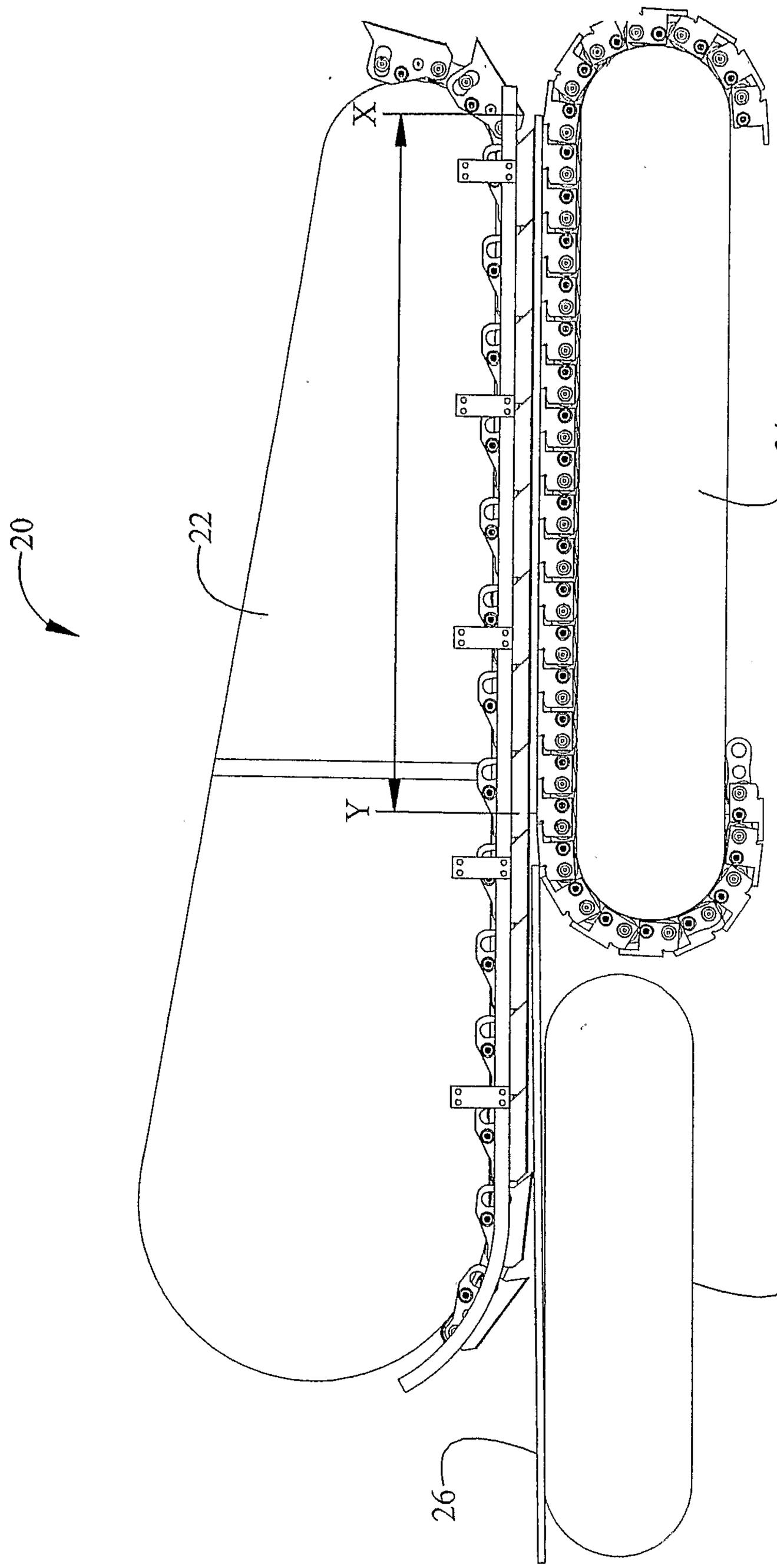
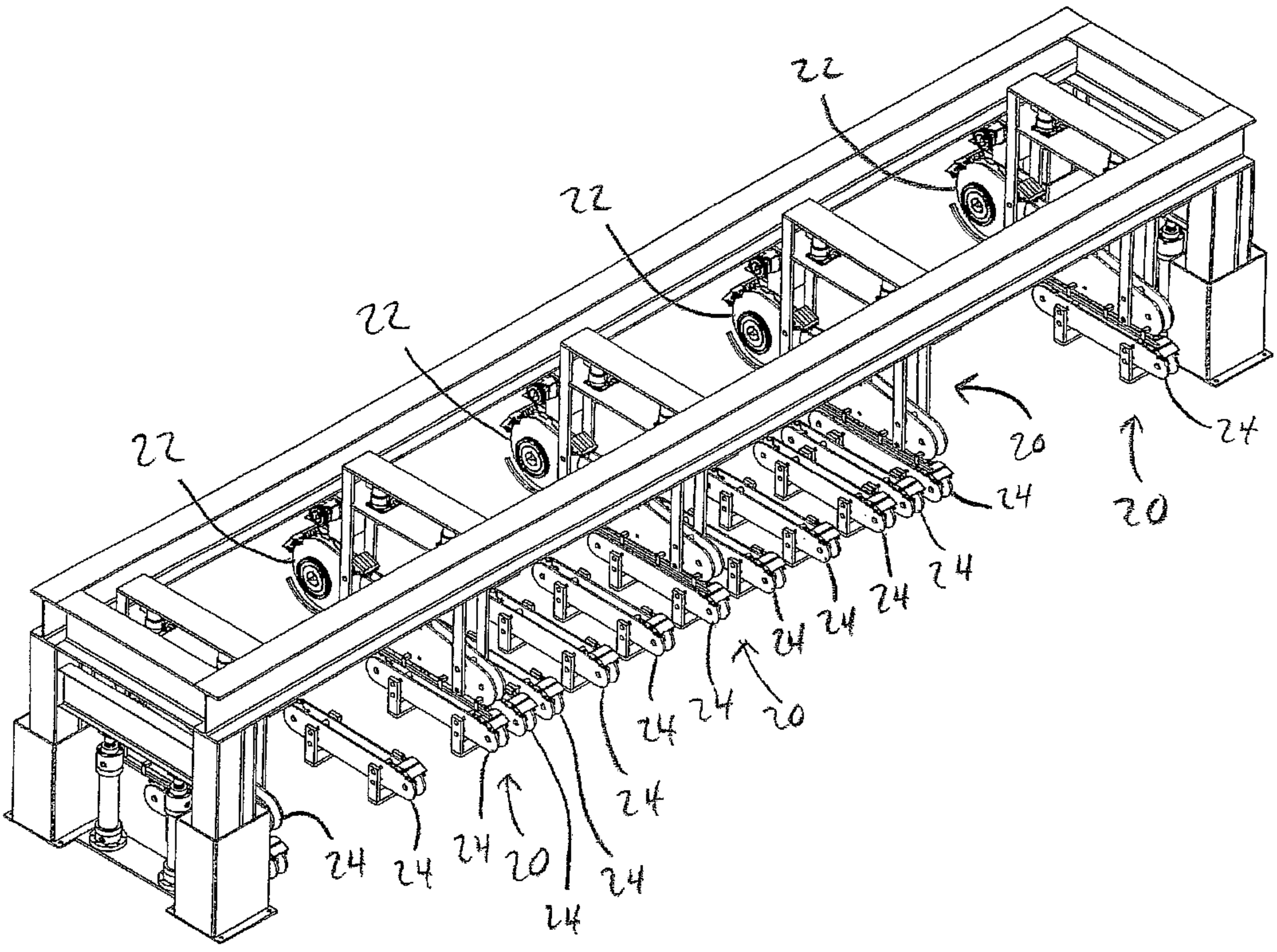


Fig. 12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