United States Patent

[11] 3,563,529

[72] Inventors **Berthold Gottschalk**
Brooklyn;
Thomas G. Monaghan, Kew Gardens, N.Y.

[21] Appl. No. **808,938**
[22] Filed **Mar. 20, 1969**
[45] Patented **Feb. 16, 1971**

[73] Assignee **Cutting Room Appliances Corp.**
New York, N.Y.

[54] **EDGE CONTROL FOR TURNTABLE CLOTH LAYING MACHINES**
3 Claims, 4 Drawing Figs.

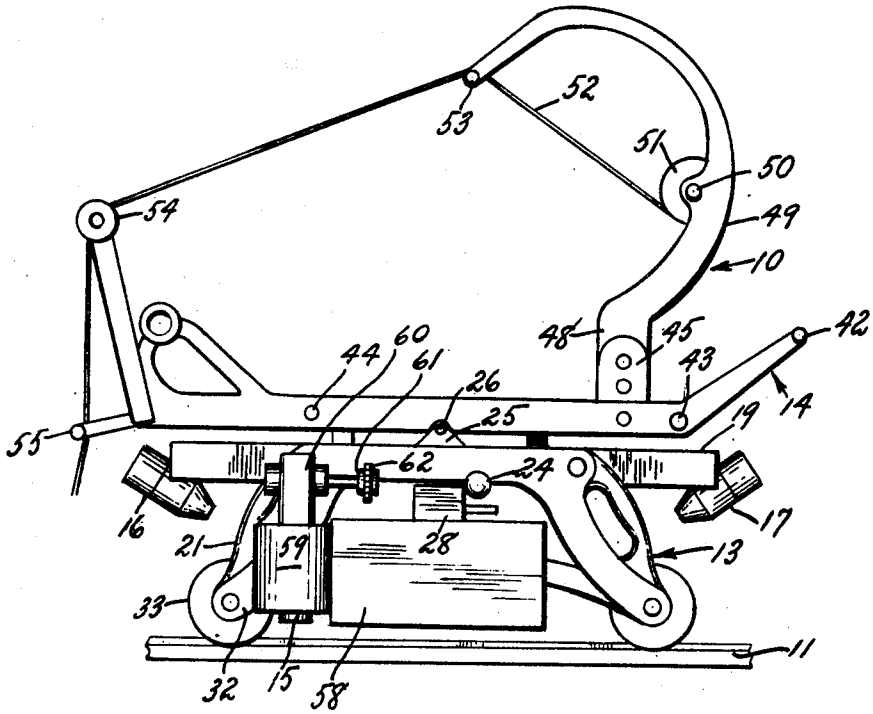
[52] **U.S. Cl.** **270/31,** 242/57.1
[51] **Int. Cl.** **B65h 29/46,** B65h 25/26
[50] **Field of Search** 242/57.1, 75.4, 55.16, 68.7, 66; 226/20, 19, 18, 15, 16, 17, 21, 22, 23; 270/31

[56] **References Cited**
UNITED STATES PATENTS

2,980,421	4/1961	Deichmann	270/31
3,181,859	5/1965	Sayles	270/31
3,222,005	12/1965	Wendelken	242/57.1

Primary Examiner—George F. Mautz
Attorney—Charles E. Temko

ABSTRACT: A turntable cloth laying carriage including a laterally shiftable component supporting a cloth web supply source. A pair of longitudinally aligned sensing means are selectively actuated depending upon the relative rotational position of the turntable with respect to a rectilinearly moving base to control movement of said shiftable component, thereby maintaining one edge of the web in aligned relation with respect to previously laid goods, the aligned edge depending upon the rotational position of the platform.



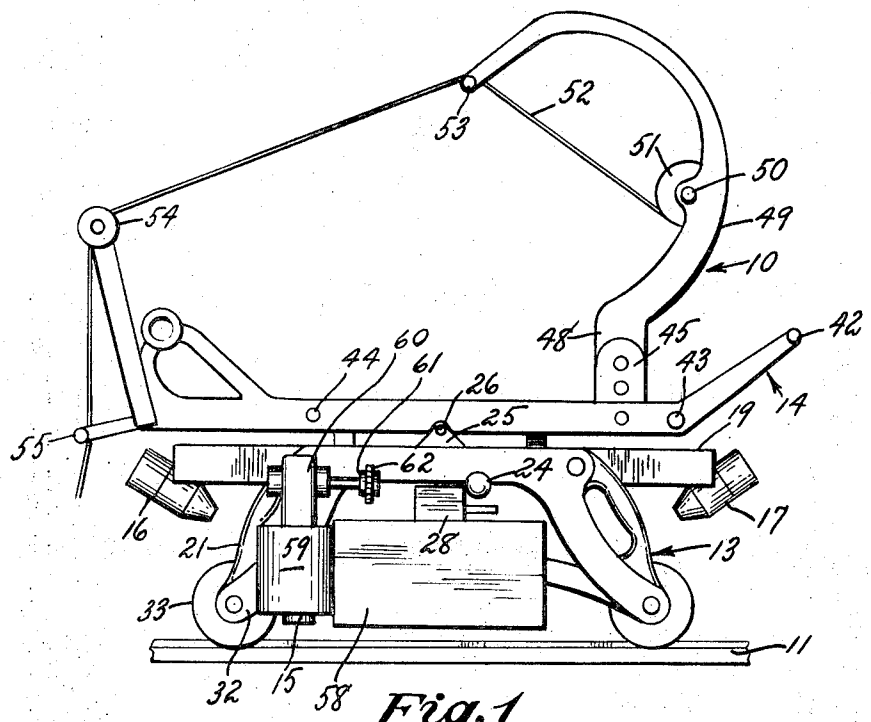
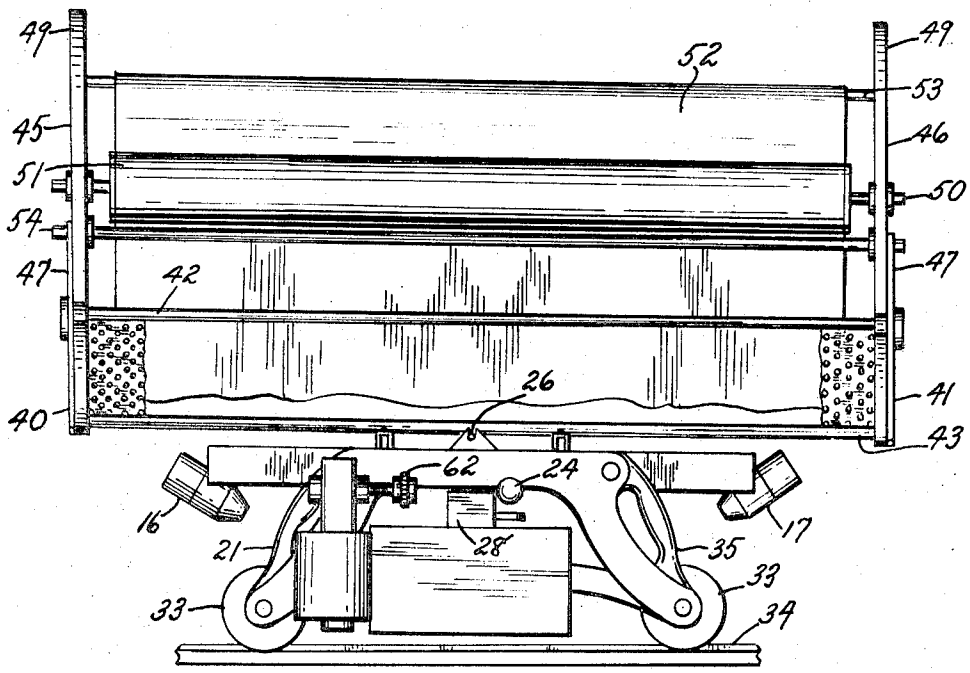

53
52
51
50
49
10
54
48
45
42
44
60
61
43
26
25
14
19
55
62
24
17
16
21
59
28
13
33
11
32
15
58

Fig. 1

Fig. 2


49
52
49
53
45
46
51
50
54
47
42
47
26
40
41
43
62
24
16
17
21
28
35
33
33
34

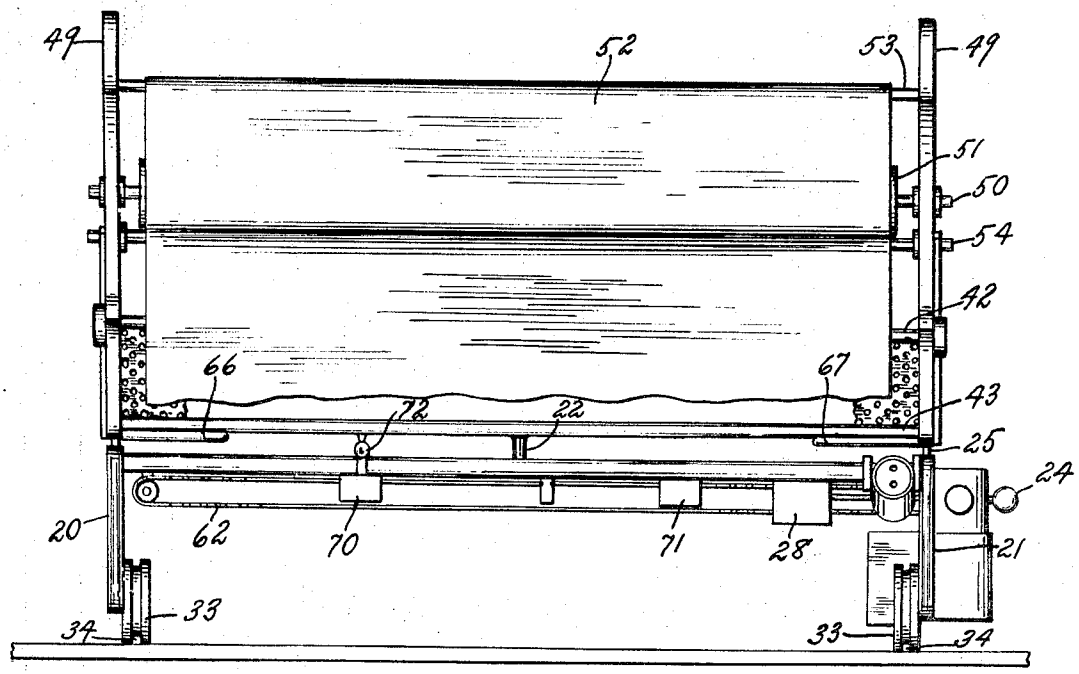

49
52
53
49
51
50
54
42
66
67
43
72
22
25
24
20
62
70
71
28
21
33
34
33
34

Fig. 3

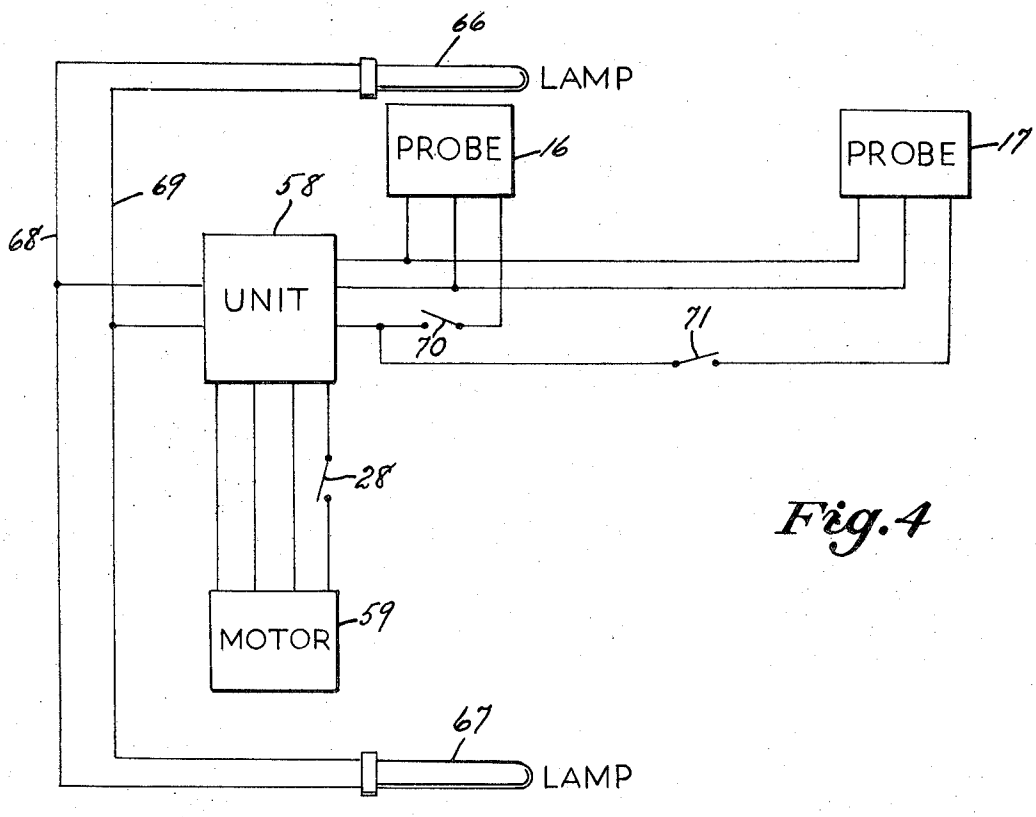

66
LAMP
PROBE
16
PROBE
17
69
58
68
UNIT
70
71
28
MOTOR
59
67
LAMP

Fig. 4

EDGE CONTROL FOR TURNTABLE CLOTH LAYING MACHINES

This invention relates generally to the field of cloth laying machines, and more particularly to a turntable type cloth laying carriage having means for aligning one of the two edges of a cloth web being dispensed with respect to a rectilinear line corresponding in location to the aligned edges of a plurality of layers of cloth being deposited upon a cloth laying table.

This operation may be performed using conventional cloth laying carriages, in which case, the individual layers are deposited during the period in which the carriage is travelling in a single direction, the web being severed at the completion of each laying cycle, following which the carriage returns in an opposite direction without the depositing of the web. More conveniently, the operation is performed by so called turntable spreading machines of the type exemplified by that disclosed in the Deichmann, U.S. Pat. No. 2,980,421, dated Apr. 18, 1961, and assigned to the same assignee as the instant application. In devices of this type, owing to the provision of means for pivoting the cloth roll upon the carriage, it is possible to lay cloth while the carriage is moving in either direction, while still permitting, with the severance of the web at each end of the table the facing of a single surface of the web continuously in the same direction with the deposition of each layer.

The problem of maintaining one edge of the individual plies in overlying relation with respect to those previously deposited on the table is not new, and, as exemplified in the Wendelken, U.S. Pat. No. 3,222,005, granted Dec. 7, 1965, which patent is also assigned to the same assignee as the instant application, it is known to provide photosensitive sensing means mounted on the carriage to shift a laterally adjustable component of a carriage to compensate for the uneven alignment of the edge of the cloth roll as the same is unwound. The use of photosensitive devices of this type has heretofore been confined to cloth laying carriages of nonpivoting type, since the turntable type carriage will dispense a web of cloth in such manner that one edge of the cloth roll is disposed along one edge of the cloth laying table, and on the return movement, the oppositely disposed edge of the web is superimposed thereupon. Since the web is often of varying width throughout its length, the provision of a second photosensing device disposed on an opposite lateral side of the carriage to sense the other edge would serve no useful purpose. Thus, it has been conventional to manually adjust the transverse movement of a turntable type carriage while manually checking alignment as the carriage moves along the table, as disclosed in the above-mentioned Deichmann patent.

It is therefore among the principal objects of the present invention to provide an improved turntable type cloth laying machine incorporating photosensitive edge detection means which will sense either of two oppositely disposed edges of the web, depending upon the direction of movement of the carriage so as to permit continual alignment of each succeeding layer of cloth with respect to a common line representing a plane in which all of the similar edges of previously deposited layers of cloth lie.

Another object of the invention lies in the provision of improved cloth laying machine carriage structure of the type described which may incorporate a pair of photosensitive edge sensing devices which are longitudinally aligned upon a nonrotating part of the cloth laying machine carriage, which are so positioned as to sense an edge of the cloth roll disposed upon the turntable element of the carriage being deposited from either end thereof.

Still another object of the invention lies in the provision of a device as described hereinabove, incorporating means for automatically activating one of the two sensing devices depending upon the relative position of the turntable element with respect to a rectilinearly moving base supporting the same.

A further object of the invention lies in the provision of improved means of the class described in which the turntable element is provided with illumination means overlying both edges of the web being dispensed, movement of the turntable element to predetermined position serving to align the illumination means with the respective sensing element with which it cooperates.

Still another object of the invention lies in the provision of improved cloth laying carriage means possessed of the above advantages, in which the cost of fabrication may be of a reasonably low order, directly comparable with existing prior art devices, thereby permitting consequent wide sale, distribution and use.

A feature of the disclosed embodiment lies in the provision of means for deactivating normally present lateral turntable adjustment means during the pivotal movement of the turntable element with respect to the base element.

These objects and feature, as well as other incidental ends and advantages, will more fully appear during the progress of the following disclosure, and be pointed out in the appended claims.

In the drawings, to which reference will be made in the specification, similar reference characters have been employed to designate corresponding parts throughout the several views.

FIG. 1 is a side elevational view of an embodiment of the invention.

FIG. 2 is a similar view in elevation, showing the turntable element rotated through approximately 90° as compared with that seen in FIG. 1.

FIG. 3 is an end elevational view thereof, as seen from the left-hand portion of FIG. 1.

FIG. 4 is a schematic electrical diagram.

In accordance with the invention, the device, generally indicated by reference character **10** is used in conjunction with a conventional cloth laying table **11**, over which it transverses between first and second ends (not shown). The device **10** comprises broadly: a wheeled base element **13**, a turntable element **14** pivotally mounted thereon, turntable lateral adjustment means **15**, and first and second sensing elements **16** selectively interconnectable with said turntable adjustment means **15** to control the position thereof.

The wheeled base element **13** may be of conventional configuration, including a horizontal frame **19**, to which are interconnected vertical end frames **20** and **21**. A centrally located spindle **22** rotates in bearings (not shown) to support the turntable element **14**, movement being controlled by a handle **24** operating a latching member **25** which engages pintles **26** on the turntable element. Downward movement of the handle **24** simultaneously opens a switch **28**, the purpose of which will more fully appear hereinafter.

The end frames **20** and **21** are similar and symmetrical, and include lower extremities **32** to which wheels **33** are secured to cooperate with tracks **34** on the table. Hand grips **35** permit the device **10** to be manually moved over the table, although if desired, powered means of the type disclosed in the above-mentioned Deichmann patent may also be utilized.

The turntable element **14** is mounted on the spindle **22**, and includes side frame members **40** and **41** which are joined together by transversely extending rods **42**, **43** and **44** in well-known manner. Uprights **45** and **46** of a type disclosed in the Adams, U.S. Pat. No. 2,337,436 of Dec. 21, 1943 are supported by interconnecting brackets **47**. The uprights **45** include a base portion **48**, as well as an arcuate portion **49** supporting a spindle **50** for a cloth roll **51** from which a web **52** passes, and guide rollers **53**, **54** and **55**.

The turntable lateral adjustment means **15** is of powered type, the general structural details of which are similar to those shown in the above-mentioned Deichmann patent. Power is supplied through a control unit **58**, disclosed in the above-mentioned Wendelken patent which controls the direction of rotation of an electric motor **59** which transmits movement through a gear reduction means **60** to a sprocket **61** and chain **62**.

The first and second sensing elements **16** and **17** are similar, each cooperating with one of two lamps **66** and **67** which are mounted on the turntable in such position as to overlie one

edge of the cloth web. This is most conveniently accomplished by using lamps of the so called "lumiline" type, in which the incandescent area is several inches in length, thus providing a source of illumination which will not require adjustment within a range of web widths. Referring to FIG. 4 in the drawings, the lamps 66—67 are powered through parallel conductors 68 and 69, and normally both lamps remain illuminated during a cloth laying operation. Switches 70 and 71 are selectively operated by a single tripper 72 mounted on the turntable element, and either one or the other of the switches will be closed when the turntable is locked in preselected position by the latching member 25.

Thus, during operation, only one sensing element 16—17 will be operative, this being the one through which the edge of the web nearest a preselected edge of the cloth laying table is presently passing. At the completion of movement of the carriage in the appropriate direction, the carriage is halted, the web severed, the turntable rotated through 180°, and the web again pulled downwardly to commence a cloth laying operation. This rotation will automatically position the appropriate lamp 66—67 opposite the other of the sensing elements, and the cloth laying operation may be resumed. During rotation, the handle 24 will be pressed downwardly to clear the latching member 25, this action automatically interrupting operation of the control unit 58. Positioning of the turntable element and release of the handle 24 closes the switch 28, after one of the switches 70—71 has been closed by the tripper 72.

I wish it to be understood that I do not consider the invention limited to the precise details of structure shown and set forth in this specification, for obvious modifications will occur to those skilled in the art to which the invention pertains.

I claim:

1. A turntable type cloth laying carriage for use in conjunction with a cloth laying table comprising: a base element having wheeled means for supporting the same for longitudinal movement over said table, a turntable element supported for selective rotation about a vertical axis upon said base element to either of two predetermined relative positions substantially 180° mutually apart, said turntable element having means supporting a supply of web material to be disposed upon said table, means for laterally shifting said turntable element relative to said base element to adjust the position of a longitudinal edge of said web relative to the surface of said table; first and second sensing means positioned in longitudinal alignment on one longitudinal side of said turntable element, first and second illuminating means positioned in transverse alignment on said turntable element; whereby movement of said turntable element to one of said relative positions may serve to position one of said illuminating means opposite one of said sensing means to sense one longitudinal edge of said web of material feeding from said supply means, and movement of said turntable to the other of said positions serves to position the other of said illuminating means opposite the other of said sensing means to sense the opposite longitudinal edge of said web.

2. Structure in accordance with claim 1, including switch means alternately closed by the relative position of said turntable element relative to said base element to selectively interconnect one of said sensing means to control movement of said lateral shifting means.

3. Structure in accordance with claim 2, including means for latching said turntable element with respect to said base element, and switch means opened by the opening of said latching means to interrupt operation of said sensing means during rotation of said turntable element between said two positions.