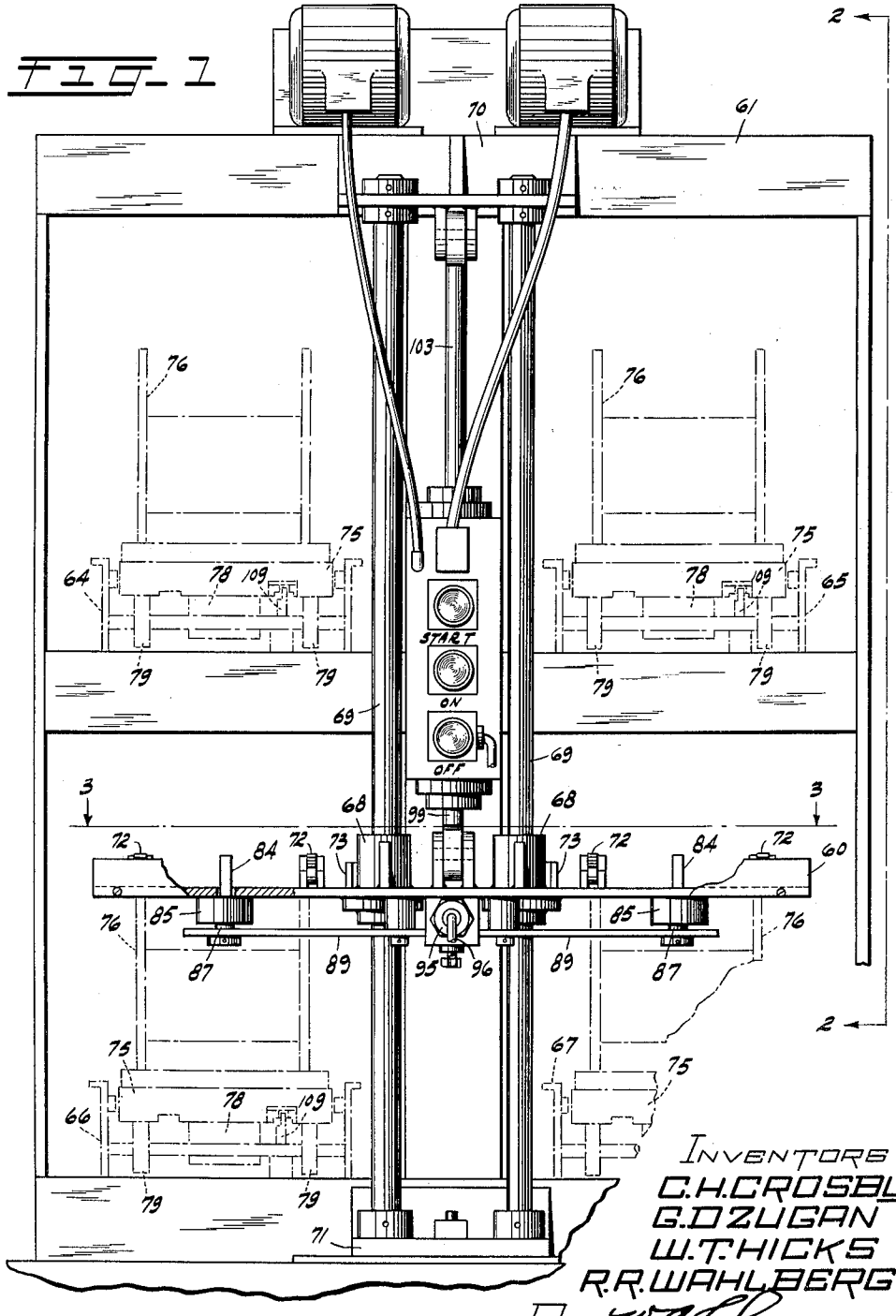
April 17, 1962 C. H. CROSBY ETAL 3,029,959

ELEVATOR FOR STRANDING CABLER

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Fig. 1



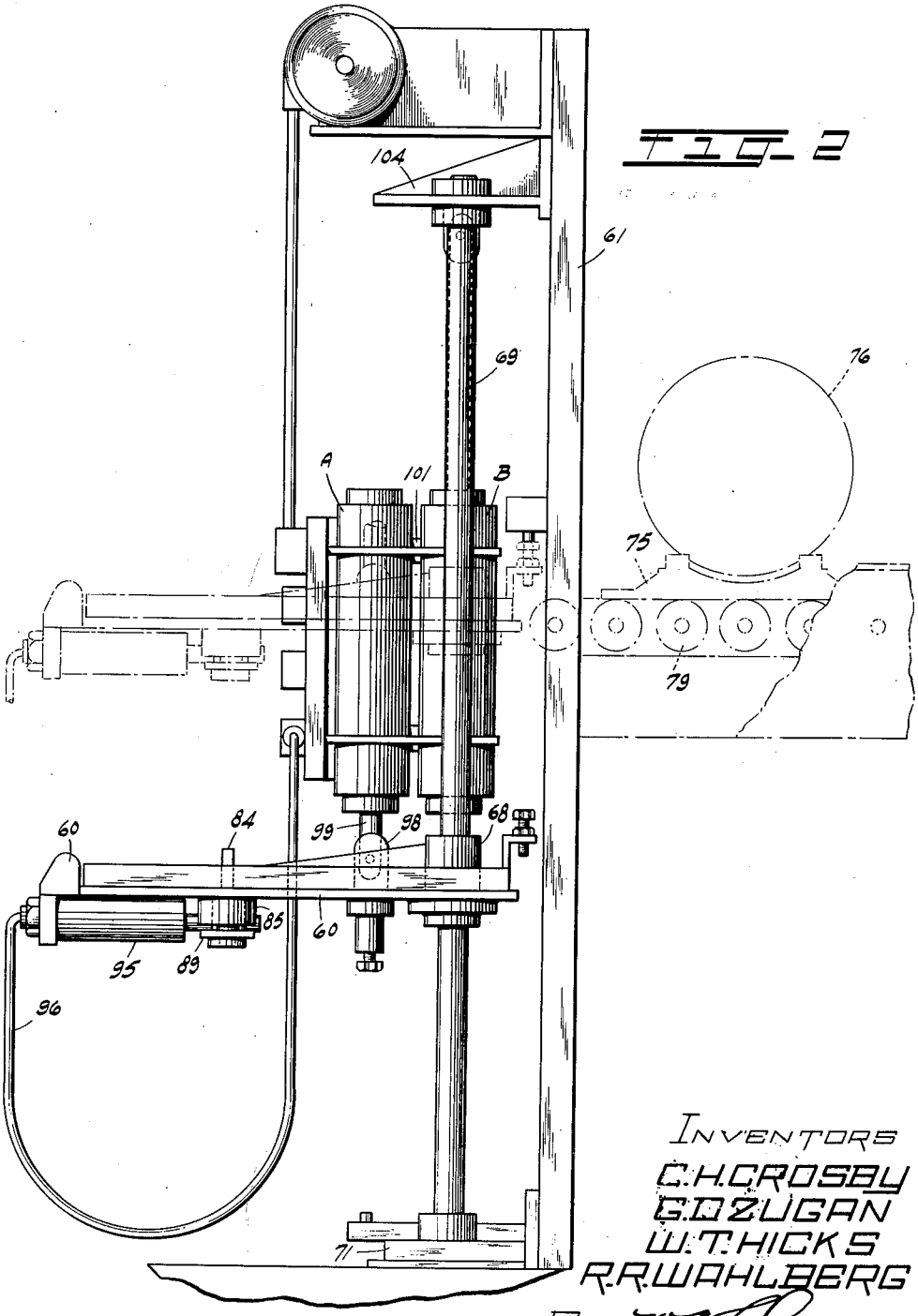
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FIG. 2



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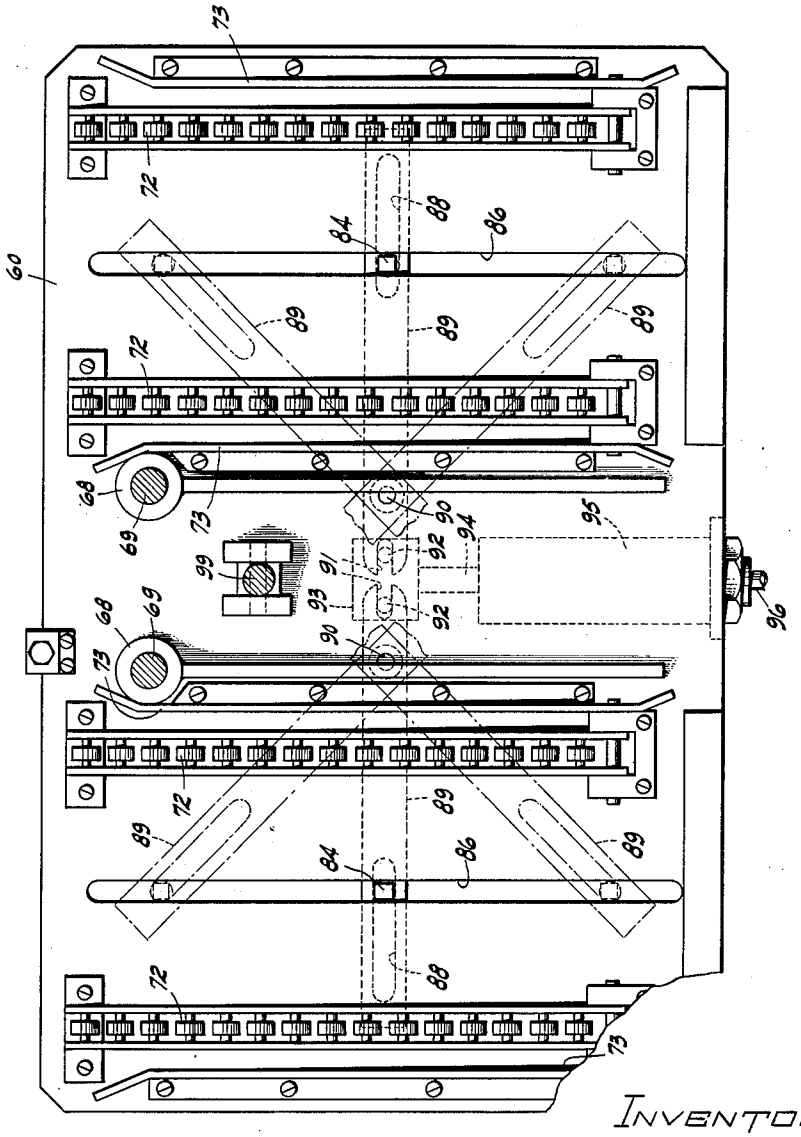
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FIG. 3



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ELEVATOR FOR STRANDING CABLER

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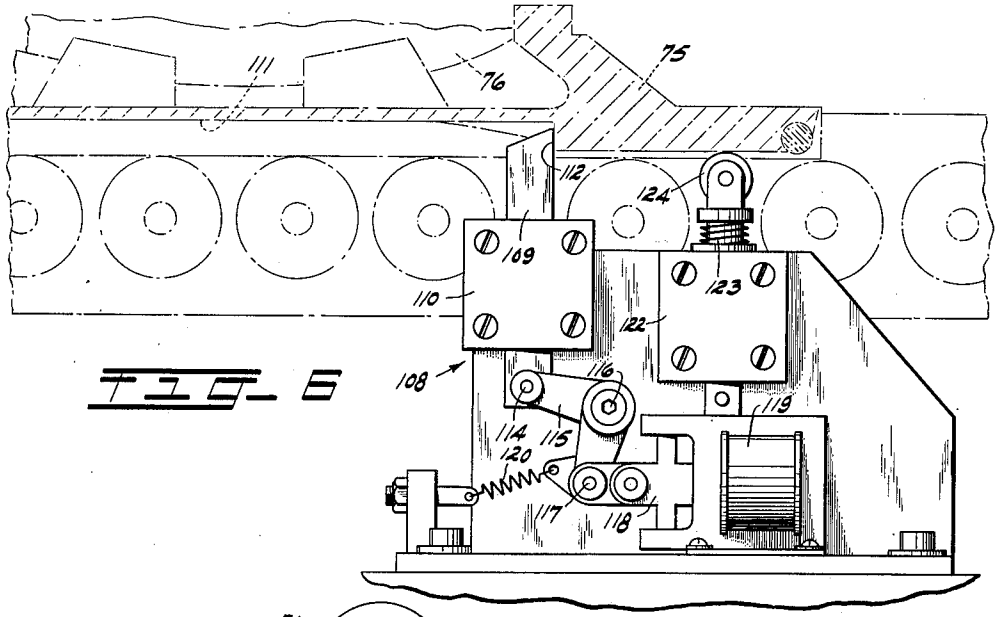


FIG. 6

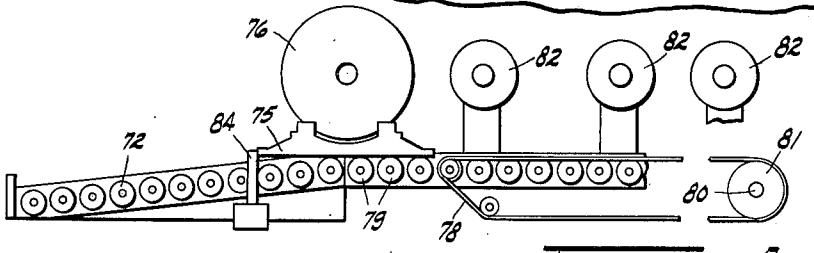


FIG. 4

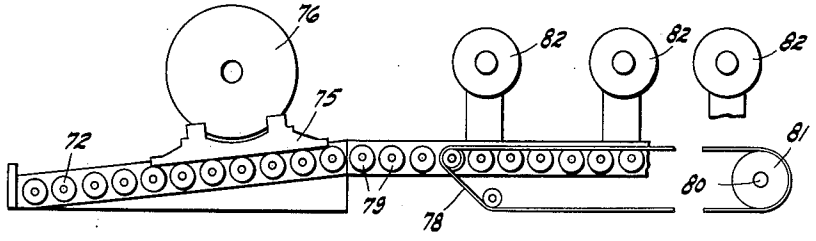


FIG. 5

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ELEVATOR FOR STRANDING CABLER

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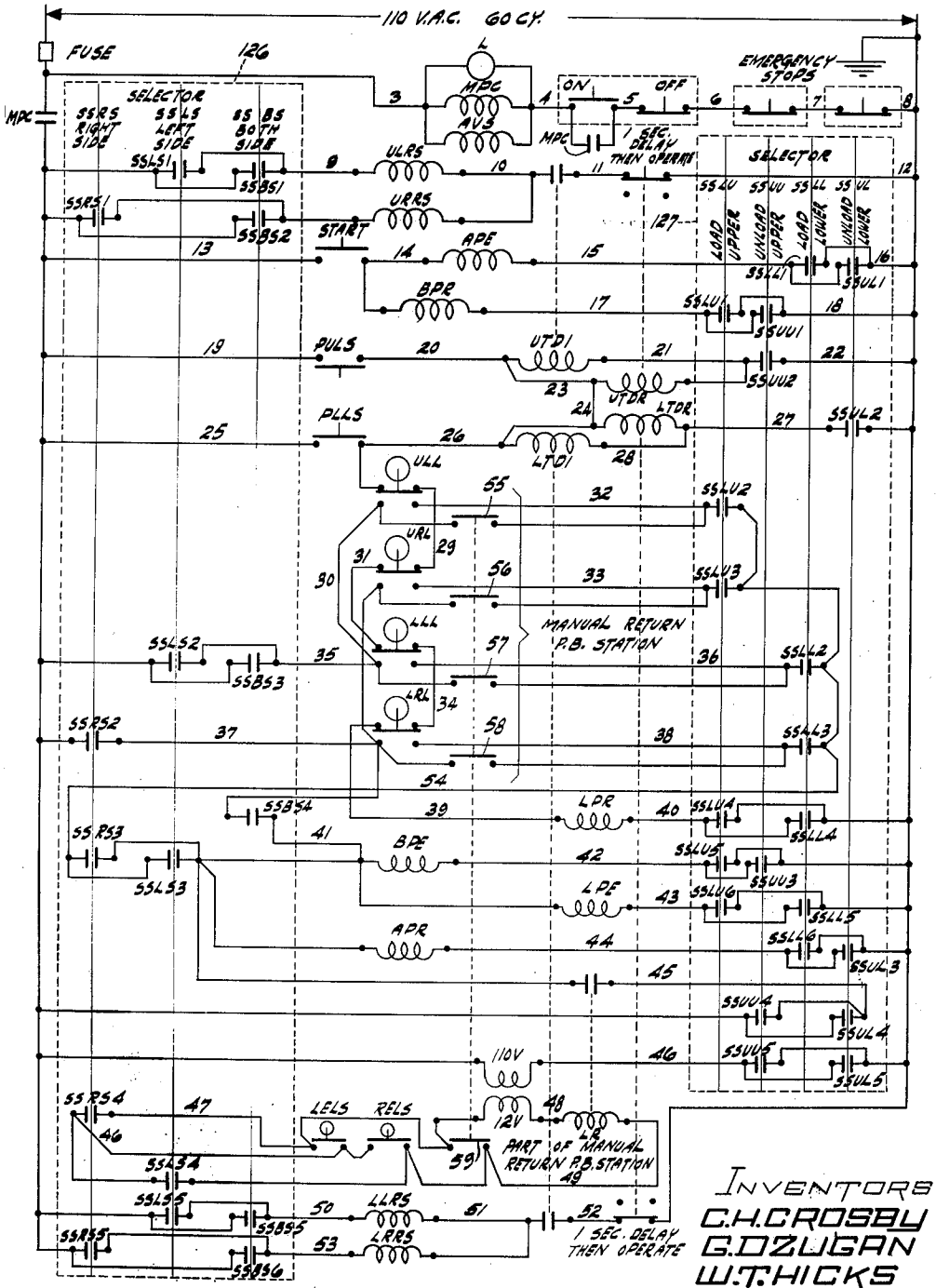


FIG. 7

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NOMENCLATURE	
AVS	AIR VALVE SOLENOID (CHECK VALVE)
LLL	LOWER LEFT LOAD LIMIT SWITCH
LRL	LOWER RIGHT LOAD LIMIT SWITCH
ULL	UPPER LEFT LOAD LIMIT SWITCH
URL	UPPER RIGHT LOAD LIMIT SWITCH
PLLS	PLATFORM LOWER LIMIT SWITCH
PULS	PLATFORM UPPER LIMIT SWITCH
LLRS	LOWER LEFT REEL STOP SOLENOID
LRRS	LOWER RIGHT REEL STOP SOLENOID
ULRS	UPPER LEFT REEL STOP SOLENOID
URRS	UPPER RIGHT REEL STOP SOLENOID
L	LIGHT
LELS	LEFT ELEVATOR LIMIT SWITCH
RELS	RIGHT ELEVATOR LIMIT SWITCH
LPE	LOAD PISTON EXTEND SOLENOID AIR VALVE
LPR	LOAD PISTON RETRACT SOLENOID AIR VALVE
APE	"A" PISTON EXTEND SOLENOID AIR VALVE
APR	"A" PISTON RETRACT SOLENOID AIR VALVE
BPE	"B" PISTON EXTEND SOLENOID AIR VALVE
BPR	"B" PISTON RETRACT SOLENOID AIR VALVE
LR	LOAD RELAY
MPC	MAIN POWER CONTROL
LTDI	LOWER TIME DELAY INTERLOCK
UTDI	UPPER TIME DELAY INTERLOCK
LTDR	LOWER TIME DELAY RELAY
UTDR	UPPER TIME DELAY RELAY
SSBS	SELECTOR SWITCHES BOTH SIDES
SSLS	SELECTOR SWITCHES LEFT SIDE
SSRS	SELECTOR SWITCHES RIGHT SIDE
SSLL	SELECTOR SWITCHES LOAD LOWER
SSLU	SELECTOR SWITCHES LOAD UPPER
SSUL	SELECTOR SWITCHES UNLOAD LOWER
SSUU	SELECTOR SWITCHES UNLOAD UPPER

FIG 8

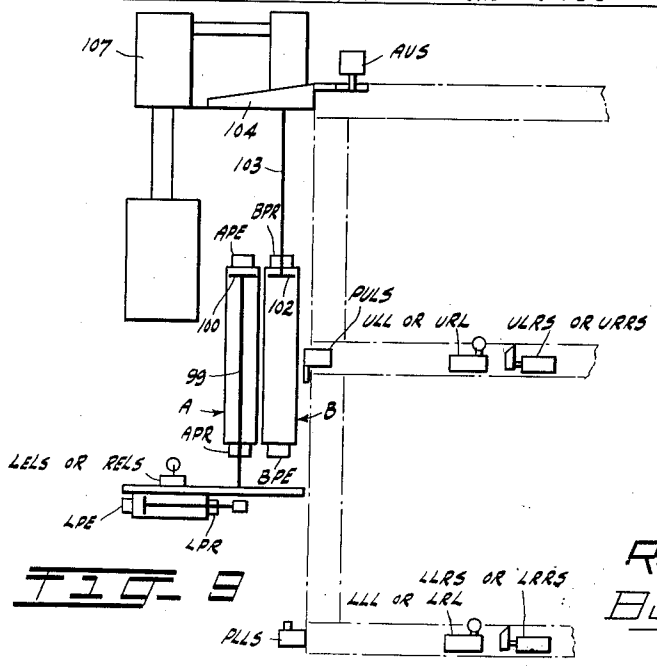


FIG 9

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United States Patent Office 3,029,959 Patented Apr. 17, 1962

3,029,959

ELEVATOR FOR STRANDING CABLER

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Filed May 4, 1959, Ser. No. 810,620
12 Claims. (Cl. 214—16.4)

This invention relates to reel transporting apparatus particularly for supply stands of cable stranders.

In cable stranders or stranding cablers, numerous supply reels must be provided and located conveniently for the single or pairs of wires thereon to be advanced longitudinally in groups and formed into cables or cable units. Rows of supporting units for groups of the reels are mounted in supply stands. In some instances, there are upper and lower rows of mounting units in the supply stands and conveyors to move pallets supporting reels in one direction to transport full reels to the numerous mounting units in each row and in a reverse direction to move the pallets with empty reels away from the mounting units.

The operations of loading full reels onto the conveyors for movement to their mounting units and removing the empty reels released from the conveyors, consume a considerable part of the overall time required for conditioning the strander or stranding cabler for operation.

The object of the present invention is an efficient and speedly operable apparatus for transporting articles, particularly reels for supply stands.

In accordance with the object, the invention comprises a platform disposed adjacent one end of a supply stand having upper and lower rows of supporting units and conveyors operable in reverse directions to move the reels on pallets relative thereto. Suitable means is provided for supporting the platform for vertical movement from a normal position to either upper or lower positions adjacent the upper and lower conveyors, and means is selectively operable through predetermined cycles by the closing of series of circuits to move the platform for use in loading or unloading the conveyors.

The control circuits are conditioned through selectors to perform any one of 12 operations which are performed automatically after pressing a start switch. In the present instance, there are two upper and two lower conveyors moving relative to their respective parallel groups of 27 aligned reel mounting units. Therefore, through the two selectors, four separate operations may be arranged to load the respective conveyors singly; four additional operations may be arranged to unload the four conveyors individually. Two additional arrangements of circuits are provided to load both upper or both lower and two final arrangements of circuits are provided to unload both upper or both lower. All of these series of circuits are arranged through the selectors to condition a series of circuits which begin functioning with the closing of a start switch.

Other objects and advantages will be apparent from the following detailed description when considered in conjunction with the accompanying drawings wherein:

FIG. 1 is a front elevational view of the apparatus mounted at an end of a supply stand;

FIG. 2 is a side elevational view taken substantially along the line 2—2 of FIG. 1;

FIG. 3 is a horizontal sectional view taken along the line 3—3 of FIG. 1;

FIG. 4 is a schematic illustration of the platform and an adjacent conveyor during a loading operation;

FIG. 5 is a similar to FIG. 4 illustrating an unloading operation;

FIG. 6 is a vertical sectional view of a holding means of the apparatus during unloading of the reels and pallets;

FIG. 7 is a wiring diagram of the various circuits;

FIG. 8 is a chart of the various switches and electrical units of the circuits and the descriptions thereof; and

FIG. 9 is a schematic illustration of the apparatus and the locations of certain of the control and operating means of the circuits.

The apparatus includes a platform 60 which is of sufficient width to service conveyor units of a supply stand 61. In the present instance, there is an upper lift conveyor means 64, an upper right conveyor means 65, a lower lift conveyor means 66, and a lower right conveyor means 67. The platform has guide bushings 68 which are disposed concentric with vertically positioned guide rods 69 and are slidable thereon during movement vertically from the normal position, shown in FIG. 1, to registration with the upper conveyor units 64—65 or the lower conveyor units 66—67.

The rods 69 have their ends fixed in an upper bracket 70 and a lower bracket 71 mounted at the end of the supply stand 61. By viewing FIG. 3, it will be noted that pairs of roller units 72 are mounted on the platform between pairs of guides 73 to support pallets 75 on which reels 76 are mounted. The guides 73 assure alignment of the pallets with their respective conveyor units when the platform 60 is moved into general alignment therewith. Suitable means, not shown, such as a conveyor mounted in general alignment with the platform 60 when at its normal position, may be utilized in feeding full reels on their pallets onto the platform and for readily receiving empty reels with their pallets from the platform.

The roller unit 72 are mounted in a plane which is at a slight angle with respect to the conveyor units 64 to 67, inclusive, for purposes utilized in loading and particularly unloading the pallets 75 with their reels 76. These angular positions are actually exaggerated in FIGS. 4 and 5. The purpose of the angular positions in unloading serving to cause the pallets 75 and their reels 76 to move freely by gravity down the roller units to become located completely upon the platform after leaving a driven belt 78 of its respective conveyor.

As illustrated schematically in FIGS. 4 and 5, the conveyors 64 to 67, inclusive, include pairs of rollers 79 for actually supporting the pallets 75 and their reels 76 and a belt-like conveyor 78 moving between the pairs of rollers 79 to actually propel or move the pallets in one direction or another, depending upon the direction of rotation of a drive shaft 80 for the drive roller 81.

At this point, attention is directed to the schematic illustration of some of the 27 mounting units 82 for each conveyor unit 64 to 67, inclusive.

The mounting units 82, in the present instance, are of the truncated cone-shaped center type operable in pairs, positioned on opposite sides of each conveyor 78 so that each pair will interengage the hubs of the reel 76 aligned therewith, and hold them free for rotation relative to their pallets during the removal of the strands or wires therefrom. The pairs of mounting units 82 are also actuable into open position to free the empty reels and to allow them to be lowered onto their pallets for removal from the supply stand.

The means for moving the pallets with their reels from the platform 60 onto the conveyor units 64 to 67, inclusive, includes vertical pins 84 supported by holders 85 and movable between their pairs of roller units 72 in parallel slots 86 in the platform 60. The holders 85 have projections 87 extending through elongate openings 88 in lever arms 89. The lever arms 89 are mounted on stationary pivots or spindles 90 supported by the under-sur-

face of the platform 60, while the inner ends of the lever arms have notches 91 therein.

The notches 91 straddle pins 92 mounted on a block 93 which is secured to a piston rod 94 of an air cylinder 95. The air cylinder 95 is fixed to the undersurface of the platform 60 and is supplied with air under pressure through an air line 96 under the control of valves, not shown, but identified as LPE and LPR in FIGS. 7, 8, and 9. For the purpose of clearness, the lever arms 89 and their connection with the pins 84 and the block 93 of the piston rod 94 are shown in dotted lines in FIG. 3. The broken line positions nearest the air cylinder 95, illustrate the arms in their normal positions, while the other broken line positions illustrate the arms at the end of their operating strokes.

The platform 60 is connected at 98 to a piston rod 99 of a piston 100 disposed in an air cylinder A. The air cylinder A is fixed by suitable means 101 to an air cylinder B which has a piston 102 therein. A piston rod 103 of the piston 102 extends vertically and has its upper end fixed to a bracket 104 supported by the supply stand 61.

Suitable controls are provided for the apparatus including pressure means 107 for air under pressure for the cylinders A and B, and a solenoid operable check valve AVS for the main supply of air. In FIG. 9, upper and lower piston extend and piston retract valves APE and APR for the cylinder A and the piston retract and piston extend valves BPR and BPE for the cylinder B are illustrated schematically. Also in FIG. 9, left elevator limit and right elevator limit switches LELS and RELS are mounted near the left and right sides of the platform to be actuated by empty reels and their pallets moving onto the platform from their respective conveyors.

Upper and lower limit switches for the platform are shown schematically in FIG. 9 and identified respectively as PULS and PLLS. The upper left and right conveyors of the supply stand have load switches positioned to be actuated by pallets with reels thereon when moved from the platform onto their respective conveyors. Only one of these switches is shown in FIG. 9 but they are identified respectviely as ULL and URL. Similar switches are provided for the left and right conveyor units of the two lower portions of the supply stand; these switches identified respectively as LLL and LRL.

The lower left load switch LLL and the lower right load switch LRL function as the upper left load switch ULL and the upper right load switch LRL to close their respective circuits when loaded pallets have been moved from the platform onto their respective conveyors. There are also reel stops, as shown in detail in FIG. 6 but shown schematically in FIG. 9, for stopping the leading pallets moving off the conveyors until the platform is ready to receive them. These are actually defined as upper left reel stop ULRS, upper right reel stop URRS, lower left reel stop LLRS and lower right reel stop LRRS. The reel stops are identical in structure and mounted beneath the paths of the pallets at convenient locations between the conveyor 78, in each instance, and the rollers 79, as illustrated in FIG. 1.

The term "stop" applies to the entire unit indicated at 108 and including, in each instance, a latch 109 movable vertically in a guide 110 to enter a groove 111 in the pallet 75 to engage a shoulder 112 and stop the pallet with its reels 76 until the platform is ready to receive it. The latch 109 is connected at 114 to one arm of a bell-crank lever 115 which is pivotally mounted at 116 and has its other arm connected at 117 to a core 118 of a solenoid 119. The solenoid 119 has its core 118 normally held outwardly by a spring 120 to hold the latch 109 in its upward position. The solenoid winding, in each of the four instances, is shown in FIG. 7. The identifying letters ULRS upper left reel stop, URRS upper right reel stop, are shown near the top of FIG. 7 and LLRS lower left reel stop and LRRS lower right reel stop, are shown at the bottom of FIG. 7.

A switch shown at 122 in FIG. 6 normally held in its up position to close its top contacts, in each instance, by a spring 123 has a roller 124 positioned to be engaged by each pallet leaving the platform and rolling onto its conveyor to move the switch 122 to engage its bottom contacts. The switch 122, in each instance, is identified near the center of FIG. 7 and also in FIG. 9 as the upper left limit ULL, upper right limit URL, lower left limit LLL, and lower right limit LRL.

The various features of the electro-pneumatic controls for the apparatus, identified by single or groups of letters, are defined more fully in FIG. 8.

Referring now to FIG. 7, the various switches and electrical units of the numerous series of controls are identified as completely as possible using numbers 1 and 2 to identify the main circuit lines from a 110 volt alternating current, 60 cycle, supply. Also, numbers 3 to 53 are used to identify lines for the various circuits so that they may be traced readily and the various features identified through the aid of the chart in FIG. 8 and the schematic illustration in FIG. 9.

With the circuit arrangement of FIG. 7, there are two selectors housed schematically in the dotted areas 126 and 127. The selector 126 is not shown in detail but it has three positions wherein it may close three groups of switches to limit the controls or the selected series of circuits to the right side, the left side, or both sides of the supply stand. For the right side, the group of switches are indentified as SSRS1 to SSRS5, inclusive. For the left side, the group of switches are identified as SSLS1 to SSLS5, inclusive. For both sides, the group of switches are identified as SSBS1 to SSBS6, inclusive. The selector 127 has four groups of switches respectively for limiting the controls or the selected series of circuits to loading of upper conveyors, unloading of upper conveyors, loading of lower conveyors, or unloading of lower conveyors. The first group of switches for loading upper conveyors are identified as SSLU1 to SSLU6, inclusive The second group for unloading upper conveyors is identified as SSUU1 to SSUU5, inclusive. The third group of switches for loading lower conveyors is identified as SSLL1 to SSLL6, inclusive, while the fourth group for unloading lower conveyors is identified as SSUL1 to SSUL5, inclusive.

Operation

Through the arrangement of the circuits, 12 selected series of operating cycles can be carried out by setting the selector 126 to control the service of the platform for the right side or the left side, or for both sides, and then by setting the selector 127 to load upper, to unload upper, to load lower, or to unload lower. To condition the apparatus for operation, the On switch is pressed closed to complete a circuit from line 1 through line 3, windings MPC and AVS, as well as the light L, through lines 4, closed On, 5, closed Off, 6, 7, and 8 to line 2. The relay winding MPS closes its contacts, one to complete line 1, and one to electrically complete a by-pass for the On switch. The light L is illuminated to indicate that the apparatus is ready for operation and the winding AVS opens the air valve solenoid check valve as shown in FIG. 9. The apparatus is for any of the 12 series of operating cycles which may be carried out by positioning of the selectors 126 and 127, and pressing the start switch.

Load Both Sides Upper

Closes switches SSBS1 to SSBS6, inclusive, of selector switch 126. Close switches SSLU1 to SSLU6, inclusive, of selector switch 127. Press Start switch, closing circuit from line 1 through 13, Start switch, BPR, 17, SSLU1, 18 to line 2. Energization of BPR causes cylinder B to rise on fixed piston 102 to move platform up until platform upper limit switch PULS is closed, positioning platform 60 adjacent upper conveyor units 64 and 65. Closing of PULS energizes LPR in a circuit from line 1

through 19, PULS, 20, 23, 24, 26, unoperated ULL, 29, unoperated URL 31, unoperated LLL, 34, unoperated LRL, 39, LPR, 40 SSLU4 to line 2.

The pallets, with their reels, which previously have been loaded on the platform at the normal position, are moved off of the platform by load piston 94—95 FIG. 3 (LFR) retracted and onto their respective upper conveyors where they will engage and operate both switches ULL and URL to close their bottom contacts. These switches, when operated to close their bottom contacts, jointly complete two circuits one being traced from line 1 through SSBS3, 35, 30, bottom contacts of ULL, 32, SSLU2, SSLU3, 33, lower contacts of URL, SSBS4, 41, BPE, 42, SSLU5 to line 2. Energization of BPE causes cylinder B to move down on its fixed piston to move the platform to its normal position. At the same time, the action of the air cylinder 95 is reversed to move the arms 89 and the pins 84 to normal positions. This is accomplished by energization of LPE in a second circuit connected to the last described circuit adjacent BPE and extending through LPE and SSLU6 to line 2.

Unload Both Lower

In this instance, the group of switches SSBS1 to SSBS6, inclusive, of selector 126 and the group of switches SSUL1 to SSUL5, inclusive, of selector 127 are closed. Again all that is needed to start the series of operations, to carry through a complete cycle of moving the platform down, receiving the empty reels and their pallets from both lower conveyors and returning the platform to its normal position, is the pressing of the Start switch. This closes a circuit from line 1, through 13, Start switch, 14, APE, 15, SSUL1, 16 to line 2.

Energization of APE causes piston of cylinder A to move down until platform 60 is aligned with the lower conveyor units 66 and 67 and closes PLLS. Operation of PLLS closes circuit to energize lower time delay interlock LTDI and lower time delay relay LTDR. LTDI is in a circuit from line 1 through 25, PLLS closed, 26, 28, 27, SSUL2 to line 2.

LTDR is in substantially the same circuit located between lines 26 and 27. When LTDI and LTDR operate their contacts closed, circuits are completed through lower left reel stop solenoid LLRS and lower right reel stop solenoid LRRS, respectively, from line 1 through SSBS5, 50, LLRS, 51, and from line 1 SSBS6, 53, and LRRS, both circuits joining line 52 in which closed contacts of LTDI and LTDR are disposed and on to line 2.

When reels and their pallets are released, by retraction of the latches 109, FIG. 6, through energization of solenoid windings LLRS and LRRS, they are urged by the conveyors 78 to roll onto the platform and when on the platform, to operate switches LELS and RELS. The left elevator limit switch LELS and the right elevator limit switch RELS when closed, complete a circuit from the secondary winding of the transformer, shown near the bottom of FIG. 7, through 48 and winding of load relay LR, closing contact in line 45. This completes a circuit from line 1 through SSUL4, 45, close contact of LR, APR, 44, SSUL3 to line 2. The piston 100 of the cylinder A moves the platform up to its normal position.

To Load Lower Right Side

In this instance, the selector 126 is adjusted to close the group of switches SSRS1 to SSRS5, inclusive, and the selector 127 is adjusted to close the group of switches SSLL1 to SSLL6, inclusive. Here again, the Start switch is pressed and the series of circuits are closed in their respective order, to lower the platform, to feed a pallet with its reel thereon to the right conveyor, and to return the platform and feeding means to their normal positions. When the Start switch is closed, a circuit is completed from line 1 through line 13, Start switch, 14, APE, 15, SSLL1 to line 2. Energization of APE extends piston of cylinder A down until platform aligns with conveyor units 66 and 67 and operates PLLS. Operation of PLLS closed energizes LPR in a circuit from line 1 through 25, closed PLLS, unoperated ULL, 29, unoperated URL, 31, unoperated LLL, 34, unoperated LRL, 39, LPR, 40, SSLL4 to line 2. When LPR is energized, the air cylinder 95, FIG. 3, receives air under pressure to cause retraction of the piston therein to cause the right pin to push the pallet and its reel off the platform and onto the conveyor unit 67 where it will operate lower right limit switch LRL to its bottom contacts. Movement of LRL from its top contacts to its bottom contacts by the pallet fed onto the conveyor 67, opens the previous of the first half cycle circuits and closes the second half cycle circuits. The circuit closed to retract piston 100 in cylinder A is traced from line 1 through SSRS2, 37, operated LRL, 38, SSLL3, 54, SSRS3, APR, 44, SSLL6 to line 2. The circuit to extend the piston of cylinder 95 to return the transfer pins 84 to their normal positions includes most of the last named circuit, making connection at SSRS3 and continuing through LPE, 43, and SSLL5 to line 2. The last two circuits cause the reel transfer means of the platform to return to their normal position as the platform returns to its normal position.

Other Operations

The apparatus will carry out 12 different operating cycles. The two joined cylinders A and B assist each other in moving the platform 60. The platform 60 is connected directly to the piston rod 99 of the cylinder A but, while the cylinder A remains unoperated during operation of the cylinder B, the cylinder A must be relied upon to follow the cylinder B to move the platform. In a similar manner, the cylinders A and B with the platform are supported by the piston rod 103 and cylinder A, when operated, will depend on cylinder B.

There are six loading operations and six unloading operations. The loading operations include loading (1) upper left, (2) upper right, (3) lower left, (4) lower right, singly, (5) both upper, and (6) both lower. The unloading operations include unloading (1) upper left, (2) upper right, (3) lower left, (4) lower right, singly, and unloading the (5) upper conveyors simultaneously and the (6) lower conveyors simultaneously. The apparatus may be conditioned for any of these series of operating cycles by setting the selectors 126 and 127. After this has been done for each operating cycle, the series of circuits are conditioned for automatic operation by pressing the start switch.

Three of the series of operating cycles have been described in detail. It is believed, through the aid of FIGS. 7, 8, and 9 in particular, that the other nine series of operations may be followed by following the instructions, that is, by setting the selector 126 to correspond with the proper side of the supply stand which is to be serviced or for both sides, if desired, and then setting the selector 127 depending upon whether the upper conveyors or lower conveyors are to be loaded or unloaded.

Following these actions, operation of the Start switch will start and carry out the first half cycles of all of the operations. The other half cycles of the operations, including the return of the platform to its normal position and the return of the reel transporting means to its normal position, if it has been actuated, rely on other switches. For example, during loading operations, the switches ULL or URL for the upper conveyor units and LLL or LRL for the lower conveyor units, must function singly or in pairs depending upon the series of circuits to be operated by the pallet with its reel transferred from the platform onto its respective conveyor. Until this occurs in each instance during any one of the six loading operations, the return cycle for the selected series of circuits will not begin. However, once the switch (shown in FIG. 6 as 122) has been operated or a pair of these switches have been operated, the return cycle begins by

closing of certain circuits to return the platform and the reel transporting means to their normal positions.

In a similar manner, the unloading operations are performed, carrying out the first half cycle in each instance after selecting the desired groups of switches of the selectors **126** and **127** to position the platform to receive a pallet and its reel. At this time, the one or more latches **108** of FIG. 6, identified in FIG. 9 as ULRS, URRS, LLRS, and LRRS, are released to free the one or pair of pallets to move onto the platform. Here again, switches LELS or RELS must be actuated by the pallet or pallets moving onto the platform with their reels before the second half cycle of the selected series of circuits may begin to return the platform to its normal position.

Another series of switches identified at **55, 56, 57, 58,** and **59** join together for simultaneous action, are normally open but may be closed manually during setting up of the apparatus to return the platform to its normal position.

It is to be understood that the above described arrangements are simply illustrative of the application of the principles of the invention. Numerous other arrangements may be readily devised by those skilled in the art which will embody the principles of the invention and fall within the spirit and scope thereof.

What is claimed is:

1. A reel transporting apparatus in combination with a horizontally positioned elongated supply stand for reels having groups of upper and lower pairs of reel mounting units disposed in parallel horizontal rows throughout the major portion of the length of the supply stand and upper and lower groups of substantially horizontal conveyors operable in reverse directions singly and extending substantially the full length of the supply stand to transport reels on pallets relative to their respective rows of pairs of mounting units, the apparatus comprising a platform disposed outside the supply stand and normally positioned out of alignment with the groups of upper and lower conveyors adjacent one end of the supply stand and having a width sufficient to service both upper and lower groups of conveyors when moved into registration therewith at selected intervals, vertical guides mounted externally of the supply stand for the platform, means selectively operable through predetermined cycles to move the platform upwardly and downwardly from the normal position to register with either group of upper or lower conveyors and return to the normal position, and series of circuits selectively closed to cause operation of said means automatically through any of the cycles.

2. A reel transporting apparatus according to claim 1 in which a first circuit of one of the series of circuits when closed causes movement of the platform adjacent to the group of conveyors, transfer elements, electrically operable means carried by the platform to move the transfer elements simultaneously toward the conveyors to transfer reels and their pallets from the platform onto their respective adjacent conveyors, and a switch actuated to close another circuit of said series when the platform reaches the group of conveyors and cause electrical operation of the transfer element moving means to transfer all of the reels and their pallets from the platform to all of their adjacent conveyors simultaneously.

3. A reel transporting apparatus according to claim 2 in which switches are mounted near the adjacent conveyors and are actuated closed by the pallets of the reels moved thereon from the platform to jointly cause operation of the transfer elements to their normal positions and cause the platform moving means to return the platform to its normal position.

4. The reel transporting apparatus according to claim 1 in which means holds the platform at its normal position and includes two fluid operable cylinders having pistons and piston rods, means securing the cylinders to each other, means securing one of the piston rods to the platform, stationary means supporting the other piston rod and its piston, and means operating the cylinders singly while relying on the cooperation of the unoperated cylinder to remain unoperated during movement of the platform between the normal position and positions adjacent its respective groups of conveyors.

5. The reel transporting apparatus according to claim 1 in which limit switches are closed by the platform when moved to a position adjacent its respective groups of conveyors.

6. The reel transporting apparatus according to claim 5 in which there are operable push bars carried by the platform, the limit switches being under the control of certain of the groups of selectively operated switches to close a second circuit of a selected series to operate the push bars from a normal position to push a pallet and reel off the platform and onto its conveyor.

7. The reel transporting apparatus according to claim 6 in which another switch is operated into closed position by the pallet and reel when moved onto the conveyor to assist the certain groups of selectively operated switches to close the final circuits to operate the holding means to return the platform to its normal position.

8. The reel transporting apparatus according to claim 5 in which the limit switches are under the control of certain of the groups of selectively operated switches to close another circuit including a solenoid, and a latch normally positioned to hold a pallet and reel on its conveyor and moved free of the pallet by energization of the solenoid for movement of the pallet and reel onto the platform.

9. The reel transporting apparatus according to claim 8 in which another switch on the platform is closed by the pallet and its reel moving onto the platform to operate the holding means to return the platform to its normal position.

10. The reel transporting apparatus according to claim 7 in which another switch is operated into closed position by the pallet and reel when moved onto the conveyor to assist the certain groups of selectively operated switches to close the final circuits to cause operation of the holding means and the transporting means simultaneously into their normal positions.

11. The reel transporting apparatus according to claim 1 in which a first circuit of one of the series of circuits when closed causes movement of the platform to one of the groups of conveyors, a latch for each conveyor mounted to normally hold leading pallets from leaving their conveyors, a solenoid for each latch and operatively connected thereto to release its latch from a pallet when energized, and a switch closed by the platform reaching the said group of conveyors to cause energization of certain of the solenoids to release certain of the pallets for movement onto the platform.

12. A reel transporting apparatus according to claim 11 in which a number of switches are mounted on the platform in the path of the pallets moving thereon from the conveyors and closed by the pallets to cause operation of the platform moving means to return the platform to its normal position.

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