July 21, 1959 H. J. C. OSTER, JR 2,895,624

ELEVATOR FOR USE IN A LUMBER STACKER

Filed Sept. 24, 1956 4 Sheets-Sheet 1

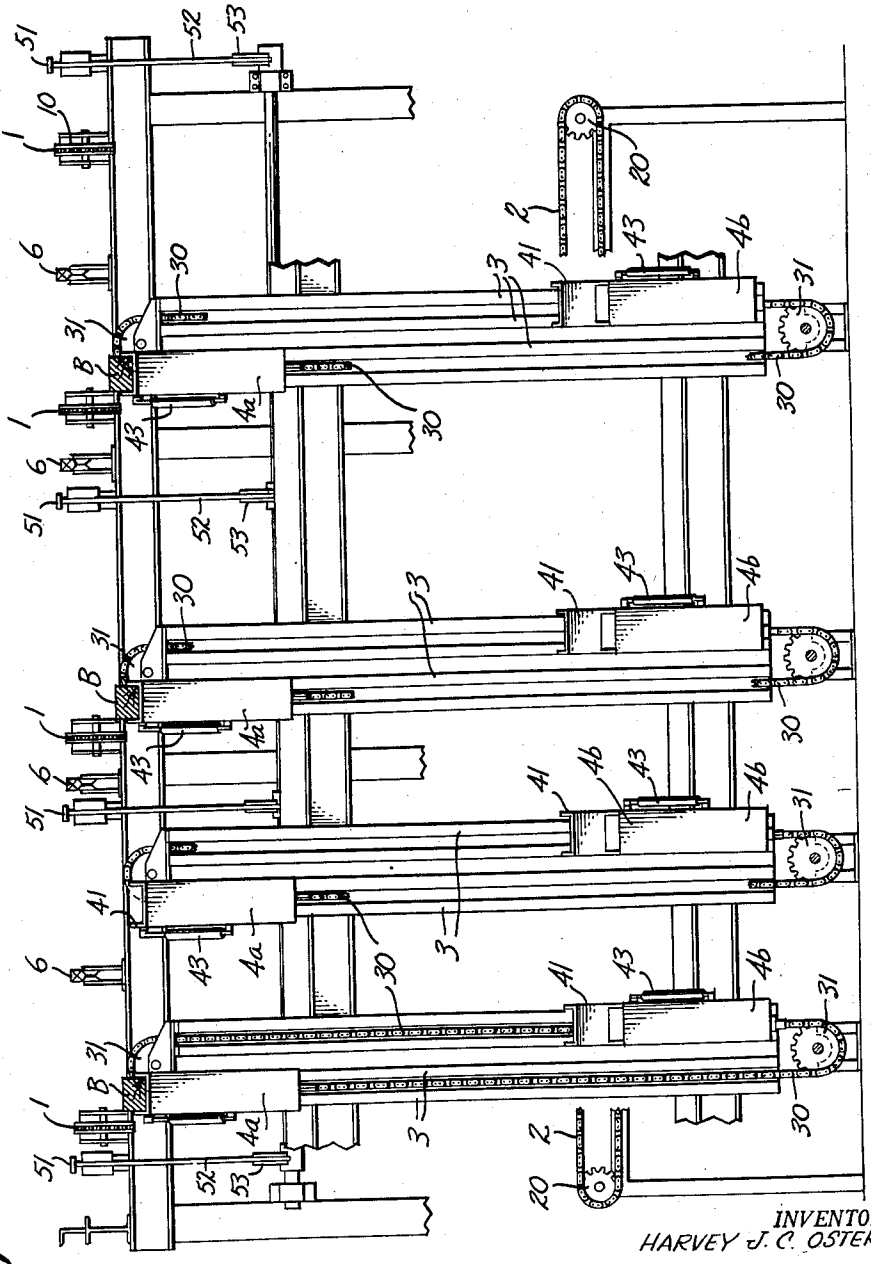


Fig. 1.

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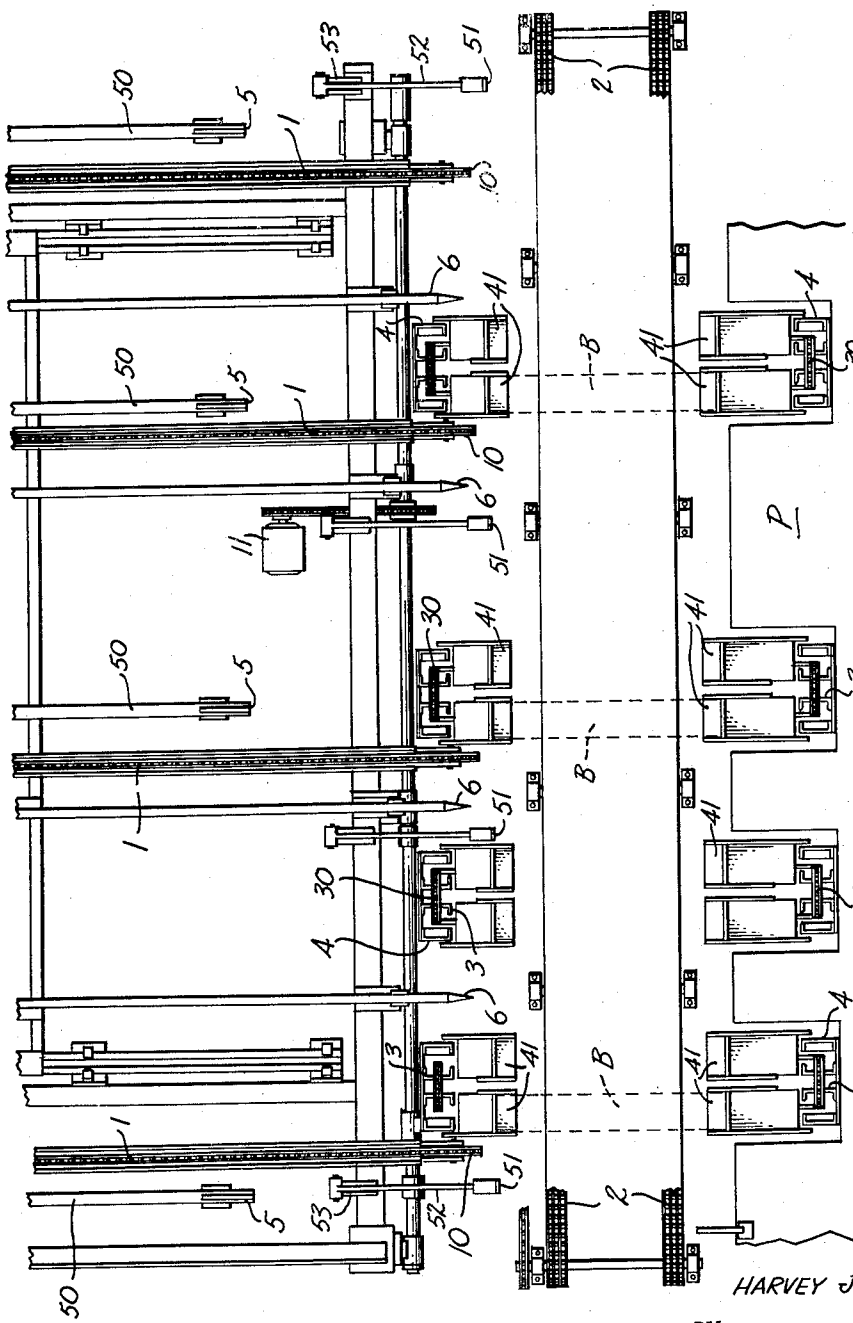



Fig. 2.

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ELEVATOR FOR USE IN A LUMBER STACKER

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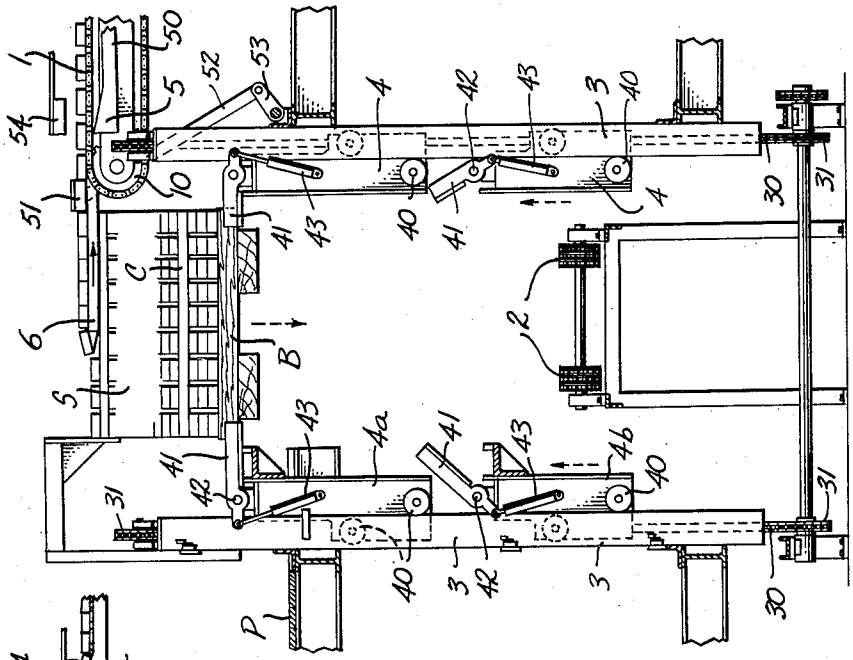


Fig. 3.

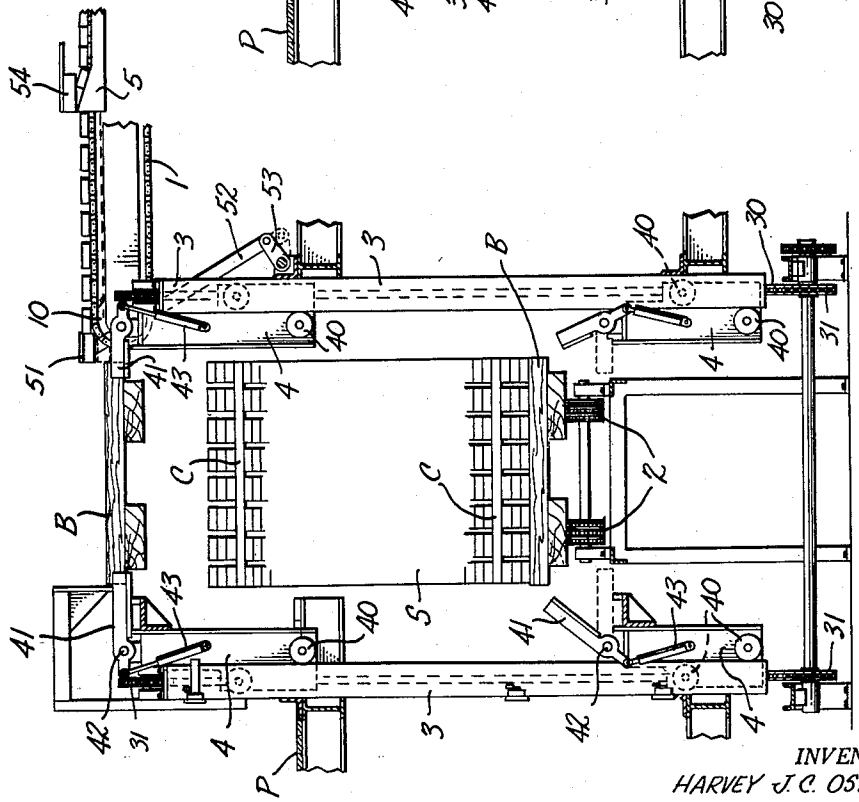


Fig. 4.

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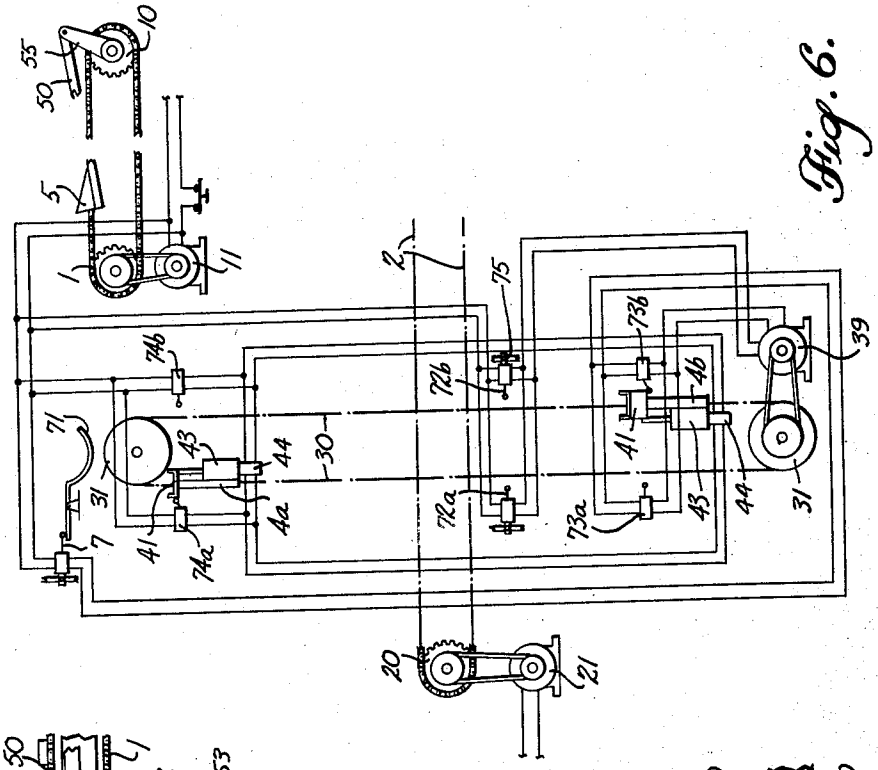


Fig. 6.

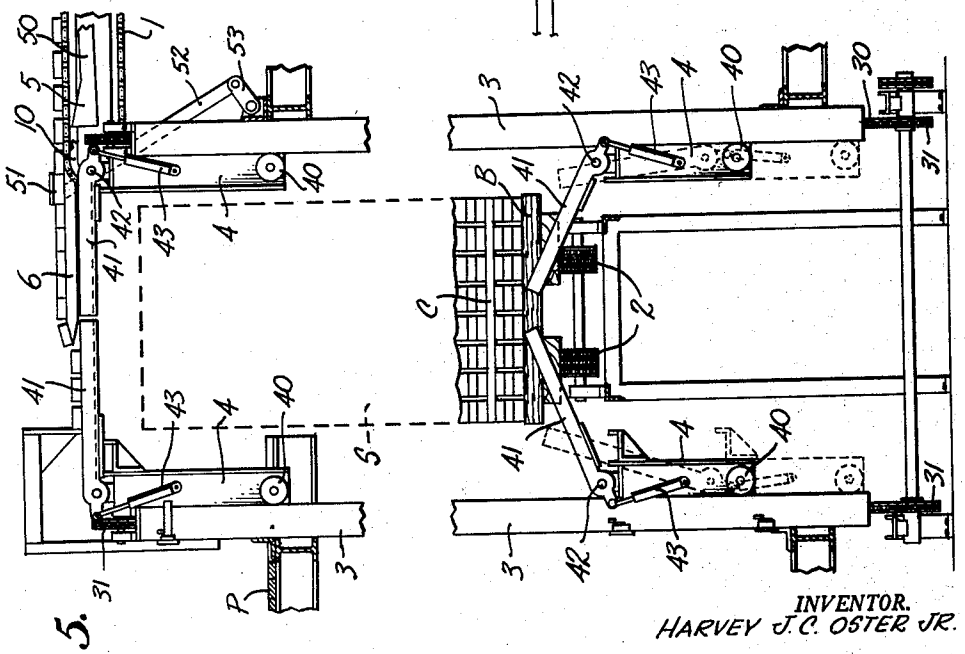


Fig. 5.

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United States Patent Office 2,895,624 Patented July 21, 1959



2,895,624

# ELEVATOR FOR USE IN A LUMBER STACKER

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Application September 24, 1956, Serial No. 611,514

20 Claims. (Cl. 214—6)

Various types of lumber stackers are known, yet all have been unsatisfactory for one reason or another. Except for the type which stacks the lumber by sliding boards down an incline, the heart of successful lumber stackers lies in the elevator whereon the boards are stacked in successive courses, and by which the growing stack is lowered until the finished stack can be conveyed away, for drying in a kiln, for storing, or shipping, or for other purposes.

Heretofore the elevator used in such lumber stackers, upon reaching its lowermost position, has been required to remain there until the stack is moved aside, and then required a definite period of time to return to its uppermost position. Until it had returned to its uppermost position the stacking of the next stack could not begin, so that in all an appreciable period of time elapsed from the completion of one stack to the commencement of the next stack. The lumber, nevertheless, continued to advance towards the stacking station without interruption, unless halted arbitrarily to await the return of the elevator to its uppermost position. An example of such a stacker is found in the Lawson Patent No. 2,730,247, dated January 10, 1956. The lumber feed mechanism and the lumber stacking mechanism of such stackers are capable of substantially continuous operation, hence it is clear that the interruption is due to the elevators heretofore used, and that if elevator mechanism capable of substantially uninterrupted operation in conjunction with the stacker can be devised, the entire stacking operation can be simplified and speeded up.

According to the present invention, as soon as one stack is completed, it is promptly deposited by its supporting elevator upon an off-bearing conveyor, and almost without interruption a companion elevator is in position to receive the next stack, so that there is, in effect, no interruption in the smooth and continuous flow of boards along a feed conveyor to the stacking station, and onto elevators positioned automatically to receive them. Stacking can continue substantially uninterruptedly, and can be controlled automatically throughout repeated cycles.

Other stacking mechanism of types known heretofore have operated by dropping or sliding the boards down steep inclines under the influence of gravity, and upon arrival at the lowermost point thereof, they more or less interfered with and slid over one another, and so were liable to become damaged. Even in stackers wherein the boards were pushed horizontally onto a lowering stack, there was the possibility of damage to the boards already stacked or those in process of being stacked, by movement of boards relatively to other boards.

The present invention utilizes an advantageous feature, such as the Lawson patent discloses, in that the boards are maintained always substantially level and in the relative position in the stack that they had while advancing along the feed conveyor, and they are lowered gently, without dropping, through a small distance and



directly downwardly, to their position in the stack, and without change in their position or orientation relative to adjacent boards. They do not move over previously stacked boards or over one another, and so are substantially free of the possibility of damage or of hanging up by reason of such relative movement.

According to the present invention, the operation is substantially continuous and automatic, operating uninterruptedly through an indefinite number of cycles. The feed conveyor is located at an upper level and an offbearing conveyor at a lower level, leading respectively to and from the stacking station. The feed conveyor, whereon the successive boards lie at right angles to the direction of advance, travels continuously to the stacking station, and the offbearing conveyor, which receives periodically the completed stacks, advances them continuously as soon as they are deposited thereon, and in the direction transversely to the direction of advance of the boards along the feed conveyor. The elevators which are the heart of this invention serve to accumulate the stacks and to lower them from the level of the feed conveyor to the level of the offbearing conveyor.

Distributed along the opposite sides of the offbearing conveyor are a series of pairs of upright posts or other supports, one of each pair being at one side of the locus of the stack and the other of the pair at the opposite side. Each such post supports a vertically disposed endless conveyor chain, and two elevators. The elevators are secured to the respective runs of the conveyor chain upon a given post at such spacing that when one elevator is at the uppermost level, just beneath the level of the feed conveyor, the other elevator on the same post is at the lowermost level, below the level of the offbearing conveyor. Each elevator alternately rises and lowers, in its separate vertical path. Each supports a stack-supporting arm or equivalent element, which cooperates with a similar element upon the elevator at the same level which is supported on the paired post at the opposite side of the stacking station. These two stack-bearing elements for each post cooperate to support the stack during the formation of the stack and its lowering, and when the stack in being lowered is deposited upon the offbearing conveyor, the stack-supporting elements are automatically withdrawn, so that when the now-lowered elevator starts upwardly, as it does automatically, the stack-supporting elements thereof will not interfere with the stack which they had supported, which by now is moving off on the offbearing conveyor. However, the now-lowered elevators are only conditioned automatically for upward movement, and actually start upwardly only in conjunction with lowering movement of the now-upraised elevators on the other run of the given chains, hence the possibility of interference with the off-moving stack is soon eliminated, and only the possibility of interference with the now-forming stack on the upraised elevators remains. This is controlled by proper timing, automatically, of the movement of the stack-supporting elements of the elevators into their stack-supporting position.

Automatic controls are provided for halting the raising of each elevator at its uppermost limit of movement, and for commencing its lowering step by step. This, as stated above, is a conditioning operation, and the lowering is actually effected by a second automatic control which is coordinated with the desired thickness of a course to be laid upon the elevators. This second automatic control effects lowering of the elevator, following the deposit of each course, by the effective thickness of the course, whereupon the elevators halt awaiting the deposit of the next course. When the desired height of stack has been attained, further automatic controls continue the movement of the stack downwardly uninter-

ruptedly to deposit it upon the offbearing conveyor and to bring the previously lowered elevators and their stack-supporting elements to the top limit of their travel, and to move those stack-supporting elements into operative position, ready to receive the next stack, and still further automatic controls effect withdrawal of the stack-supporting elements of the lowered elevators, to avoid interference with the stack as these elevators move upwardly. Provision is made for adjustment in these automatic controls for different effective thicknesses of a course and for different heights of stack, as may be desired.

These automatic controls are also coordinated, whether electrically or mechanically is immaterial, with mechanism for segregating and advancing boards of a given aggregate width, equivalent to the width of a course desired, so that such a course is advanced from the feed conveyor out over the stack and then is deposited directly downwardly into position upon the stack.

The feed conveyor, and preferably the offbearing conveyor also, is continuously driven, but provision can be made for intermittent movement of either or both thereof, and in case their feed is intermittent, it can be tied in with and controlled by the automatic controls previously mentioned for the elevators.

The invention is illustrated in a preferred form in the accompanying drawings, and the manner of its operation will be made clear in this specification, while those features which are believed to be new are set forth in the accompanying claims.

Figure 1 is an elevation of the posts and elevators at one side of the stacking station, showing parts in position ready to commence the building of a stack.

Figure 2 is a top plan view of the stacking mechanism complete.

Figure 3 is a transverse section through the mechanism at the stacking station, showing a stack partially formed, and in process of being lowered, while Figure 4 is a similar view, showing the stack completed and deposited upon the offbearing conveyor, and the companion elevators ready to receive the first course of the next stack.

Figure 5 is a view similar to Figure 4, but showing a slightly modified form of the stack-supporting elements.

Figure 6 is a diagrammatic showing of the automatic controls.

The form of the conveyors is immaterial, but the feed conveyor may consist, for example, of a plurality of parallel chains **1**, mounted upon sprocket wheels **10** which are continuously driven in one direction from a motor **11** (Figure 6). Individual boards B disposed transversely of the chains **1** are advanced thus toward the stacking station at the end of the chains. At a level below the feed conveyor is an offbearing conveyor, consisting for example of the chains **2** upon the sprockets **20** which are continuously driven in one direction by a motor **21** (Figure 6). The offbearing conveyor is directed transversely to the direction of advance along the feed chains **1**. The difference in level between the feed chains and the offbearing chains is such as will accommodate a stack of the greatest height that it is desired to produce. Such a stack may be, for instance, sixty inches high, and the difference in level might be in such a case sixty-six inches. A platform P is provided at one side of the stacking station for an operator who performs certain functions preparatory to starting each new stack, or who inserts separator sticks between certain or successive courses, as will appear more fully hereinafter.

Distributed along the opposite sides of the stacking station are upright posts **3**. Each post is paired with a post similarly located at the opposite side of the stacking station. The several posts provide support for boards of different lengths. Each post supports an endless elevator chain **30** carried by sprockets **31** at top and bottom of the post, and these sprockets and the endless chains upon them are so oriented that the plane defined by the two runs of each chain is parallel to the direction of movement along the offbearing conveyor **2**. Each post stops slightly below the level of the feed conveyors, and each chain extends well below the level of the offbearing conveyor **2**.

Two elevators, designated collectively by the numeral **4** and individually by the numerals **4*a*** and **4*b***, are guided upon each post, as by the rollers **40**, for vertical movement along the post, and the respective elevators are secured to the respectively opposite runs of the chain **30** in such manner that as the elevator **4*a*** is raised to its uppermost position, the elevator **4*b*** is at its lowermost position, and vice versa. It is to be emphasized that these elevators do not go around the sprocket wheels **31**, but merely rise to the upper sprocket wheel **31** and then lower to the vicinity of the lower one, and so on, reversing at each end of their travel. The automatic mechanism to accomplish this will be described later. The important thing to note is that when one of the elevators, for instance **4*b***, has been lowered far enough to deposit a stack carried thereby upon the offbearing chains **2**, the other elevator **4*a*** of the paired posts has been raised to its uppermost limit and is ready immediately to receive a stack from the feed chains.

Each elevator carries a stack-supporting element which is movable relative to the elevator. Such a stack-supporting element may consist, for example, of a bunk arm **41** pivoted upon its elevator at **42** and controlled by an actuator **43**. These bunk arms need not be of a length such that conjointly they will span the distance between them, although they are so shown in Figure 5, but in the preferred form they are short enough that in themselves they will not interfere with the offbearing chains **2**. The space between them is spanned by a bunk B, which may be laid in place by a workman upon the platform P as a given pair of elevators approaches the up position. The only difference in the operation of the two forms, that of Figure 5 and that of the other figures, respectively, is that in the form of Figure 5 the arms **41** must commence their withdrawal while the elevators are continuing their downward movement, in order that these longer bunk arms may themselves clear the offbearing chains **2**, whereas in the form of the other figures the shorter bunk arms will clear the chains **2**, and so need not be withdrawn so soon, but can be withdrawn at the commencement of the upward movement of the elevator whereon they are mounted.

Reverting to the feed mechanism, this includes a pusher member **5** upon a long arm **50**, suitably controlled and moved to segregate from the boards B advancing along the feed chains **1**, that total width of boards which will constitute a single course of the stack. The pusher is shown in Figure 4 engaging so many boards, and upon the advance of the pusher **5** to the left in that figure, these boards will be advanced to the left to a point over the stacking station, provided the hold-back member **51** is withdrawn, as it can be by its arm **52** and crank **53**. A cooperating member **54** moves with the pusher element **5** to prevent boards from behind being pushed up onto and over the pusher member **5**.

The boards are not required to be pushed across the upper surface of the stacked boards, but instead are supported during their movement to position over the stack by spears **6** at various locations along the stacking station, which move outwardly in conjunction with the pusher **5** over the stack, but beneath the boards of the next course to support the latter. The spear is shown in this supporting position in Figure 3, and is in process of being withdrawn to the right. The hold-back element **51** prevents the boards from being withdrawn to the right, and consequently as the spears are so withdrawn, the boards merely drop off the sloped end of the spears into their

proper position in the stack. The stack S may at intervals have cross sticks C placed manually or automatically, by operators upon the platform P, and to effect dropping of the elevators to an extent to accommodate the thickness of these cross sticks the normal drop of the elevator with the imposition of each course may be a little more than the thickness of a course, to accumulate enough to accommodate the thickness of an occasional cross stick, or an operator upon the platform P may by a manual button (not shown) cause the elevators to drop a little farther each time the operator places a cross stick.

In Figure 6, the pusher **5** is diagrammatically shown as actuated by a crank arm **55** rotatable in conjunction with a sprocket wheel **10** of the feed chain **1**.

To explain the operation of the device, it may be assumed that one of the elevators, as *4a*, is at or near its uppermost limit of movement and a bunk B has been placed upon the cooperating bunk arms **41**, which are in their horizontal position. The pusher **5** advances a course of boards from the feed chain **1** onto the bunk B or onto boards previously laid on the bunk, in conjunction with the spears **6**, and upon withdrawal of the spears and of the pusher **5**, these boards (held by the hold-back elements **51**) are deposited upon the stack. Each course as it is deposited or as it is pushed into position for deposit engages an arm **71** of a normally open limit switch **7** (see Figure 6), which energizes a circuit to the reversible motor **39** that drives the elevator chains **30**. This effects lowering of the elevators *4a* until by the dropping of the course just deposited upon the elevators, the switch **7** is reopened. Upon reopening this breaks the circuit to the motor **39** and lowering of the elevators ceases momentarily. With the deposit of a new course, the lowering resumes, and it continues to lower thus by stops and starts until the elevators reach a point to close one of two normally open limit switches *72a* or *72b*. Upon closing the switch *72a*, a circuit to the motor **39** is reclosed and the motor continues to operate without interruption to lower the stack until such time as the elevator reaches and opens a normally closed switch *73a* or *73b*. Upon opening the switch *73a*, this particular circuit to the motor **39** is interrupted and lowering of the elevator ceases. By this time, however, the stack with its bunks B has been deposited upon the offbearing conveyor **2** and has started to move away from the stacking station.

It will be understood that when the one elevator *4a* reaches and actuates the lower limit switch *73a*, the other elevator *4b* has reached and actuated the switch *74b* at the upper limit of its movement. Actuation of this switch actuates a solenoid valve **44** which controls the actuator **43** on each of the elevators. The now upraised elevator *4b* has its bunk arms **41** lowered automatically into horizontal position, while the now lowered elevator *4a* has its bunk arms upraised, so that when this elevator rises, the bunk arms will clear the locus of the stack. As stacking continues substantially without interruption, but upon the bunk arms supported upon the upraised elevators *4b*, the motor **39** is again energized, but now through a reversing circuit, still in the same manner as before, to lower the elevators *4b* and to raise again the elevators *4a*. This continues as before, with the elevators of each given post alternately rising and falling and alternately supporting and depositing a load upon the offbearing conveyors to rise again while the companion elevators are lowering with a load. The operation continues automatically and uninterruptedly through an indefinite number of cycles.

It will be noted that the limit switches *72a* and *72b* are mounted at **75** for vertical adjustment, whereby they will adapt the elevator to accommodate stacks of different height, that is to say, they will commence the uninterrupted downward movement of the elevators for deposit of the stack at a different level in their vertical movement, which, in effect, controls the height of the stack to be formed.



It is preferred that the pusher mechanism **5** and associated parts be continuously operative, but it is within the contemplation of this invention to incorporate controls for the same with the control circuit for the elevators, whereby to halt actuation of the pusher members during the brief time interval that a given stack is being lowered from the position of the limit switches *72a* to the position of the limit switches *73a* or *73b*.

I claim as my invention:

1. An elevator mechanism, for use in conjunction with a lumber stacker wherein feed mechanism operates substantially uninterruptedly to advance successive boards in a direction transverse to their length to a stacking station, and wherein offbearing mechanism at a level below the feed path of the boards moves successive stacks from the stacking station in a direction transverse to the direction of feed of the boards, said elevator mechanism comprising a plurality of elevators connected in pairs and distributed along the opposite sides of the offbearing mechanism, means guiding the elevators of each pair for up and down movement of each in a single path, means interconnecting the paired elevators for alternate and simultaneous raising and lowering of each elevator in its path between the level of the feed mechanism and a level below the level of the offbearing mechanism, the paths of the paired elevators defining planes parallel to the offbearing mechanism, means interconnecting the like elevators at opposite sides of the offbearing mechanism for conjoint vertical movement, means carried by each elevator and cooperating with like means carried by the similarly moving elevator of a pair at the opposite side of the offbearing mechanism, for supporting a stack of lumber, means operatively associated with the feed mechanism for depositing a course of boards upon said stack-supporting means or upon boards previously stacked thereon, and means energized automatically in conjunction with the deposit of each course to lower the stack-supporting elevators by the effective thickness of such course, and correspondingly to raise the inactive elevators.

2. An elevator mechanism as in claim 1, including also means automatically operable by the lowering of the stack-supporting elevators to a level corresponding to the desired height of the stack, to further lower the said elevators uninterruptedly to deposit the stack upon the offbearing conveyor, and to raise the inactive conveyors substantially to the level of the feed conveyor.

3. In a lumber stacker, in combination with a feed conveyor to advance successive boards substantially uninterruptedly towards a stacking station, and with an offbearing conveyor at a lower level to advance a stack deposited thereon substantially without interruption from the stacking station, upright support members along the opposite sides of the stacking station, extending from a level below the offbearing conveyor substantially to but not above the level of the feed conveyor, a pair of elevators guided upon each support member for alternate up and down movement, the loci of each pair defining a plane parallel to the direction of the offbearing conveyor, each elevator being located opposite a similar conveyor at the opposite side of the stacking station, means interconnecting the two elevators of each pair for lowering one thereof while the other is rising, and vice versa, between an upper level to receive boards from the feed conveyor and a lower level to deposit a stack of boards upon the offbearing conveyor, means operatively interconnecting the opposite similar elevator for conjoint movement, means operable automatically by completion of the lowering movement of each elevator to condition such elevator for upward movement, means carried conjointly by the similarly situated opposite conveyors to support a stack of boards, means operating substantially continuously to advance a given width of boards, sufficient to form a course, from the feed conveyor into a position above the stacking station, and to

deposit them there as a course upon the stack-supporting means or upon a stack already commenced thereon, and means operable automatically by deposit of a course to lower the stack-supporting elevators by a distance equivalent to the effective thickness of a deposited course, following each such deposit.

4. A lumber stacker as in claim 3, including means automatically operable upon completion of a stack of given height, to lower the elevators supporting such stack uninterruptedly to a level below the offbearing conveyor, to deposit the stack upon that conveyor.

5. A lumber stacker, for use in conjunction with a feed conveyor to advance successive boards substantially uninterruptedly towards a stacking station, and a continuously running offbearing conveyor at a lower level, and oriented transversely to the feed conveyor, for transporting a stack from the stacking station, said stacker comprising a plurality of upright posts arranged in pairs at opposite sides of, and distributed along, the offbearing conveyor, terminating just below the level of the feed conveyor, an endless elevator chain supported from and extending from top to bottom on each post, oriented in planes parallel to the offbearing conveyor, two elevators guided on each post and both connected to the respective runs of the elevator chain on such post at a spacing such that when one elevator is substantially at the level of the feed conveyor the other elevator is below the level of the offbearing conveyor, and vice versa, reversible means to drive the elevator chains to lower, by controlled, successive steps, first one and then the other elevator, and at the same time correspondingly to raise the paired elevator, means carried by each elevator, cooperating with the corresponding elevator on the paired post, to support piled lumber above and to lower a stack thereof eventually onto the offbearing conveyor, and means to segregate a plurality of boards upon the feed conveyor, to advance them over the pile, and to deposit them thereon as a course, following lowering of the pile after it has received a preceding course of boards.

6. A lumber stacker as in claim 5, including automatic control means governing operation of the elevator-lowering means, and coordinated with the segregating and depositing means, to effect lowering of the elevators, following deposit of a course of boards thereon, by the distance equivalent to the thickness of such course.

7. A lumber stacker as in claim 6, including means to adjust said automatic control means, to accommodate different course thicknesses.

8. In a lumber stacker as in claim 3, a bunk arm shiftably mounted upon each elevator, means also carried on the respective elevators to shift the corresponding bunk arm from a horizontal stack-supporting position to a stack-clearing position, said bunk arms constituting the means to support stacked lumber, and means operatively connected to the bunk arms, and automatically operable to shift the arms to stack-clearing position as the stack is lowered onto the offbearing chains, and to return the arms to stack-supporting position upon return of the elevator to its upper position.

9. A lumber stacker as in claim 8, wherein each bunk arm is pivotally supported upon its elevator to swing into horizontal stack-supporting position, and upwardly thence to stack-clearing position.

10. In a lumber stacker as in claim 3, automatic cycling control means operable to advance a single course of boards onto the pile-supporting means of the upraised elevator; to lower that elevator and its pile-supporting means by the effective height of the next course; to advance and deposit the next course, and so on until the initially upraised stack-supporting means have been lowered and a stack of predetermined height, less than the difference in level between the feed conveyor and the offbearing conveyor, has been built up; next to lower the elevator and the stack thereon without interruption until the stack rests upon the offbearing conveyor, with the stack-supporting means below the latter; to withdraw the lowered stack-supporting means from beneath the deposited stack, to reverse the direction of the elevator chains, and to return the stack-supporting means of the now-upraised other elevator to stack-supporting position, to receive the next course.

11. A lumber stacker as in claim 10, wherein the automatic cycling control means includes means to interrupt advance of the course-advancing means during uninterrupted lowering of the loaded elevator, and to resume advance of the course-advancing means following arrival of the other elevator and its stack-supporting means in the stack-supporting position.

12. In a lumber stacker, in combination with a feed conveyor at an upper level for advancing successive boards, disposed transversely of their direction of advance, to a stacking station, and with an offbearing conveyor at a lower level arranged to remove a stack from the stacking station in a direction transverse to the direction of advance of the boards, a plurality of endless elevator chains, disposed substantially vertically at opposite sides of the stacking station, oriented with the plane of each chain parallel to the path of removal of the stack, means to support each elevator chain and its upper end just beneath the level of the feed conveyor, and its lower end below the level of the offbearing conveyor, an elevator secured to each run of each elevator chain, at spacings such that when one elevator is fully raised the other is at its lowermost position, and vice versa, means guiding the elevators for up-and-down movement, means carried by the respective elevators, and in operation extending transversely of the stack, to support the piled boards of a stack, means to deposit successive courses of boards upon the stack-supporting means of the several elevators, means to lower the elevators following reception of each course, by a sufficient distance to receive the next course, and finally by a distance sufficient to deposit the completed stack upon the offbearing conveyor, and means to reverse the direction of the elevator chains, to initiate lowering of the now-upraised elevator and its stack-supporting means, in the manner just described.

13. A lumber stacker as in claim 12, including means at the stacking station to segregate the boards for a single course from the others on the feed conveyor, and to advance the segregated boards into a position above the pile, means to support the segregated boards from below during their advance into such position, and means to effect withdrawal of the supporting means from beneath the so-supported and positioned boards, by movement in a direction transverse to the boards, to deposit them substantially vertically and individually upon the pile immediately beneath them.

14. An elevator mechanism for use in conjunction with a lumber stacker wherein feed mechanism operates substantially uninterruptedly to advance successive boards in a direction transverse to their length to a stacking station and there to deposit them above boards previously stacked, and wherein offbearing mechanism at a level below the feed path of the boards moves successive stacks from the stacking station in a direction transverse to the direction of feed of the boards, said elevator mechanism comprising a plurality of elevators connected in pairs and distributed along the opposite sides of the offbearing mechanism, means guiding the elevators of each pair for up and down movement of each in its individual path, the paths of the paired elevators defining planes parallel to the offbearing mechanism, means interconnecting the paired eelvators for alternate and simultaneous raising and lowering of each elevator in its path between the level of the feed mechanism and a level below the level of the offbearing mechanism, means interconnecting the like elevators at opposite sides of the offbearing mechanism for conjoint up and down movement, means carried by the similarly moving opposite like elevators for sup-

porting a stack of lumber, and means automatically energized in conjunction with the deposit of boards on the elevators to lower the latter correspondingly, and correspondingly to raise the paired but inactive elevators.

15. An elevator as in claim 14, including means operable automatically by completion of the lowering movement of the stack-supporting elevators and deposit of the stack upon the offbearing conveyor, to place the raising and lowering means in condition to effect subsequent upward movement of these elevators.

16. A continuous stacker for lumber, including: upright posts paired at opposite sides of and distributed lengthwise of a stacking station, two paired elevators guided on each post and interconnected for upward movement of one while the paired elevator moves downwardly, and vice versa, the loci of all the paired elevators at each side of the stacking station defining planes parallel to the stacking station and to each other, means supported by each elevator and the similarly moving elevator of a pair at the opposite side of the stacking station to support boards deposited thereon, means to lower descending elevators by the distance corresponding to the height of deposited boards, and correspondingly to raise paired rising elevators, and means automatically operable upon such descending elevators reaching a predetermined lower limit to place the raising and lowering means in condition to subsequently lower the previously rising elevators and to raise the previously lowering elevators.

17. A continuous stacker as in claim 16, including means operable automatically by reversal of the sense of movement of the elevators to shift the stack-supporting elements of the lowered elevators out of the locus of the stack, to avoid interference as the lowered elevators begin to rise, with lowering of the raised elevators.

18. A continuous stacker for lumber as in claim 16, including means disposed for engagement by deposited boards, and operatively connected to the elevator-lowering means to lower the same automatically by the required distance.

19. A continuous stacker for lumber, including: a plurality of elevators connected in pairs and distributed along opposite sides of an upper stacking station and a lower offbearing station, means guiding the elevators of each pair for up and down movement of each in its individual path, the paths of the elevators of all pairs at the respective sides of such station defining a common plane parallel to the opposite such plane, means interconnecting the paired elevators for alternate and simultaneous raising and lowering of each elevator in its path between the level of the stacking station and a level below the level of the offbearing station, means interconnecting the like elevators at opposite sides of the station for conjoint up and down movement, means carried by the similarly movable opposite like elevators for supporting a stack of lumber, reversible power means operatively connected to the several elevators, to raise and lower them, and a control circuit for said power means including upper switch means disposed in the path of boards arriving at the stacking station and momentarily actuatable thereby to lower the upraised elevator by a distance corresponding to the thickness of such boards, a lower limit switch engageable by the elevators at their lower limit of movement, and a power-reversing circuit operable by engagement of said lower limit switch, to effect reversal of the power means upon subsequent actuation of said upper switch means.

20. A continuous stacker as in claim 19, including a limit switch above the lower limit switch, positioned for engagement by the descending elevators, and operatively connected in said control circuit to initiate uninterrupted downward movement of descending elevators and uninterrupted upward movement of rising elevators until the descending elevators engage said lower limit switch.

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