Jan. 25, 1927.

1,615,250

G. WILCOX

STACKING MACHINE

Filed Dec. 1, 1923

5 Sheets-Sheet 1

Fig. 1

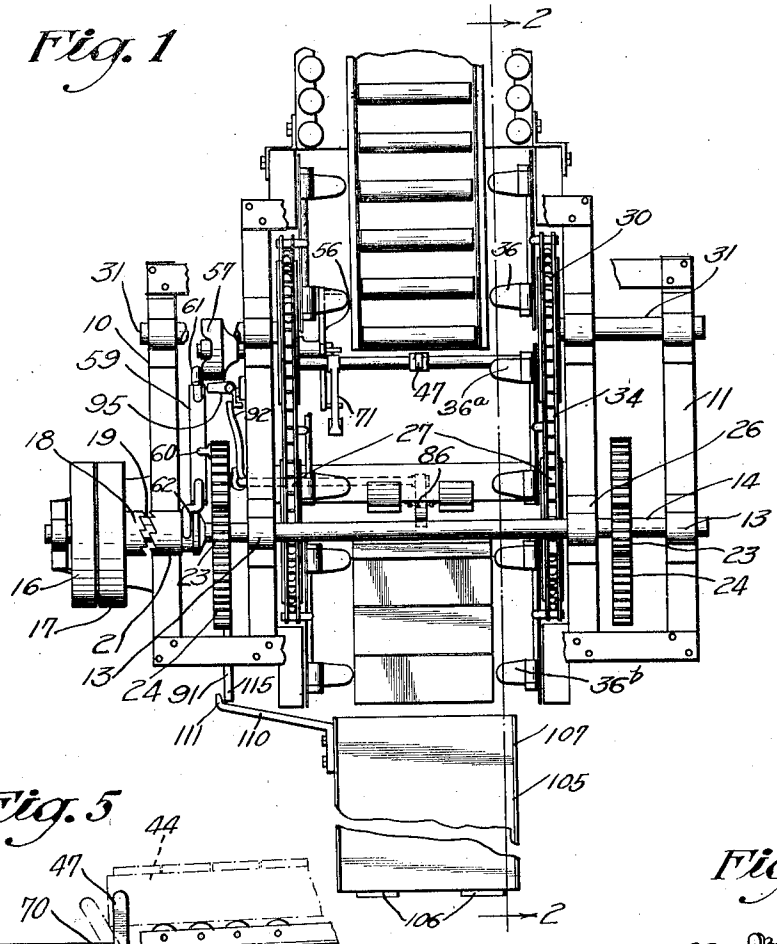


Fig. 5

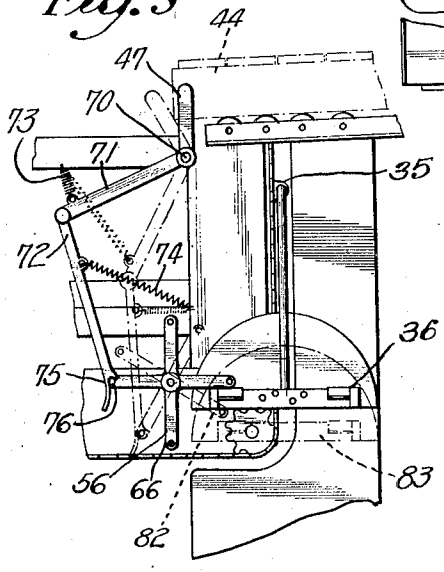
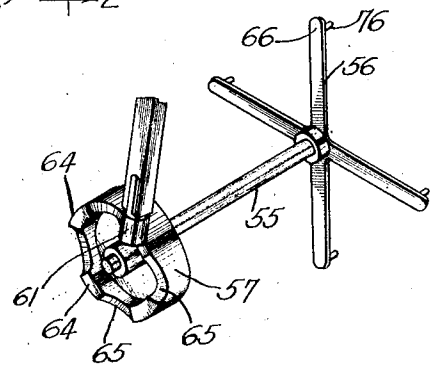


Fig. 6



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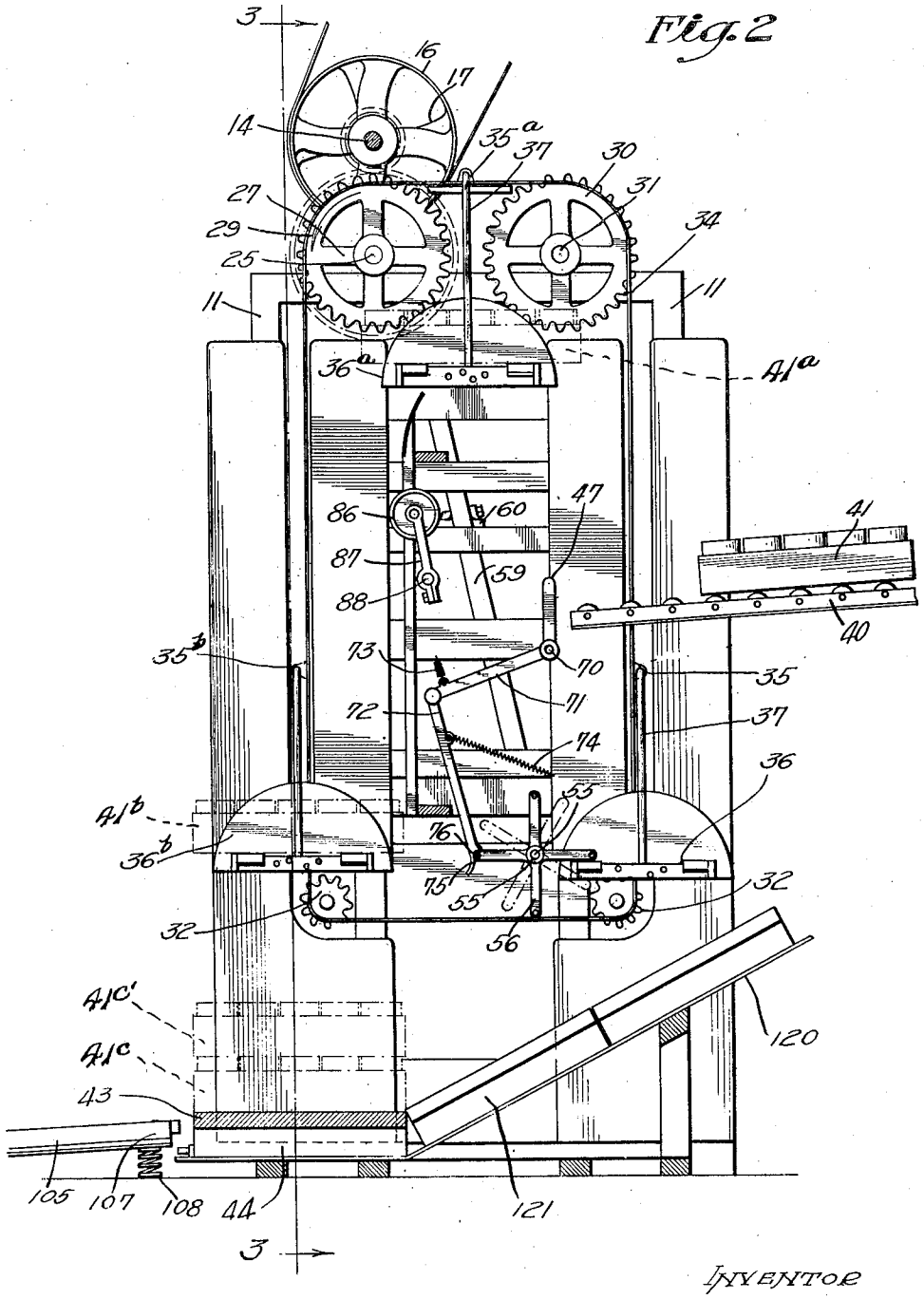
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STACKING MACHINE

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Fig. 2



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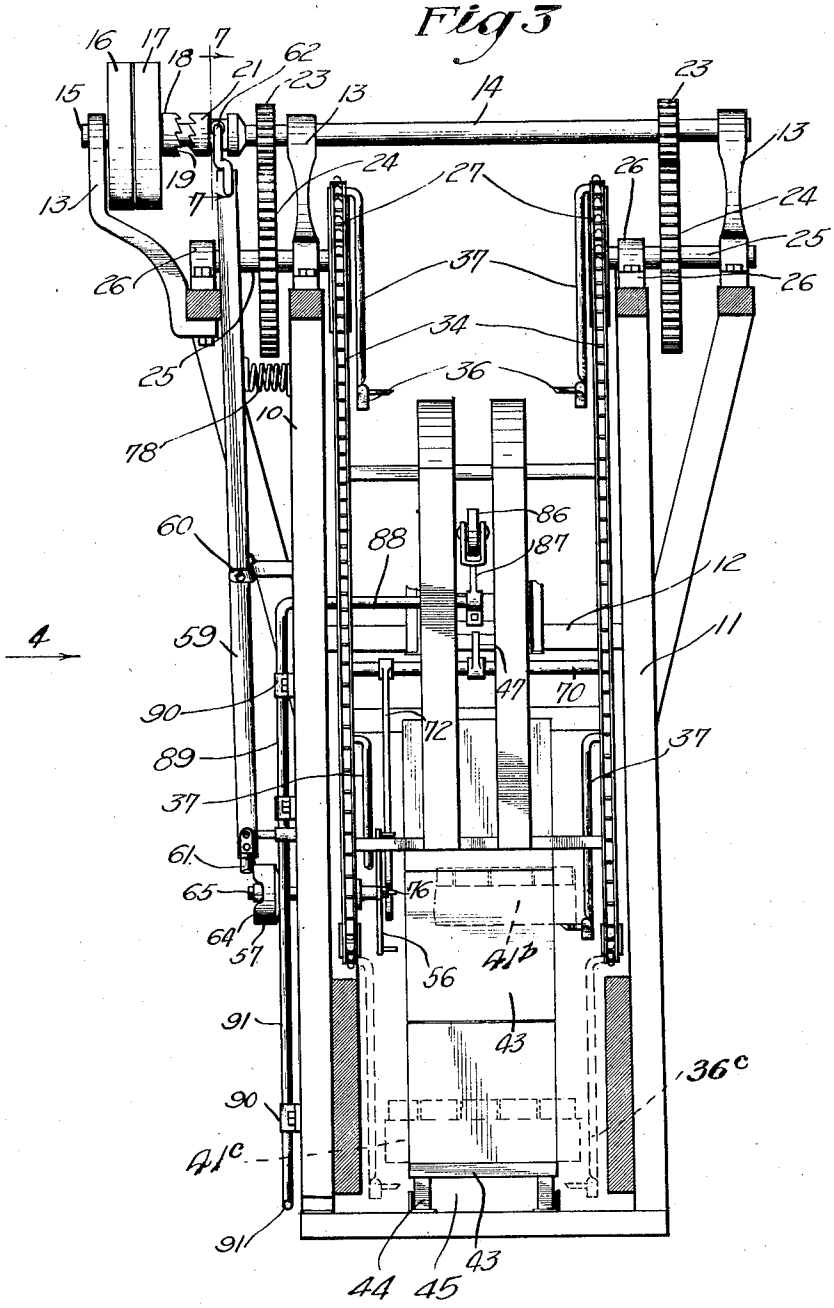
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Fig 3



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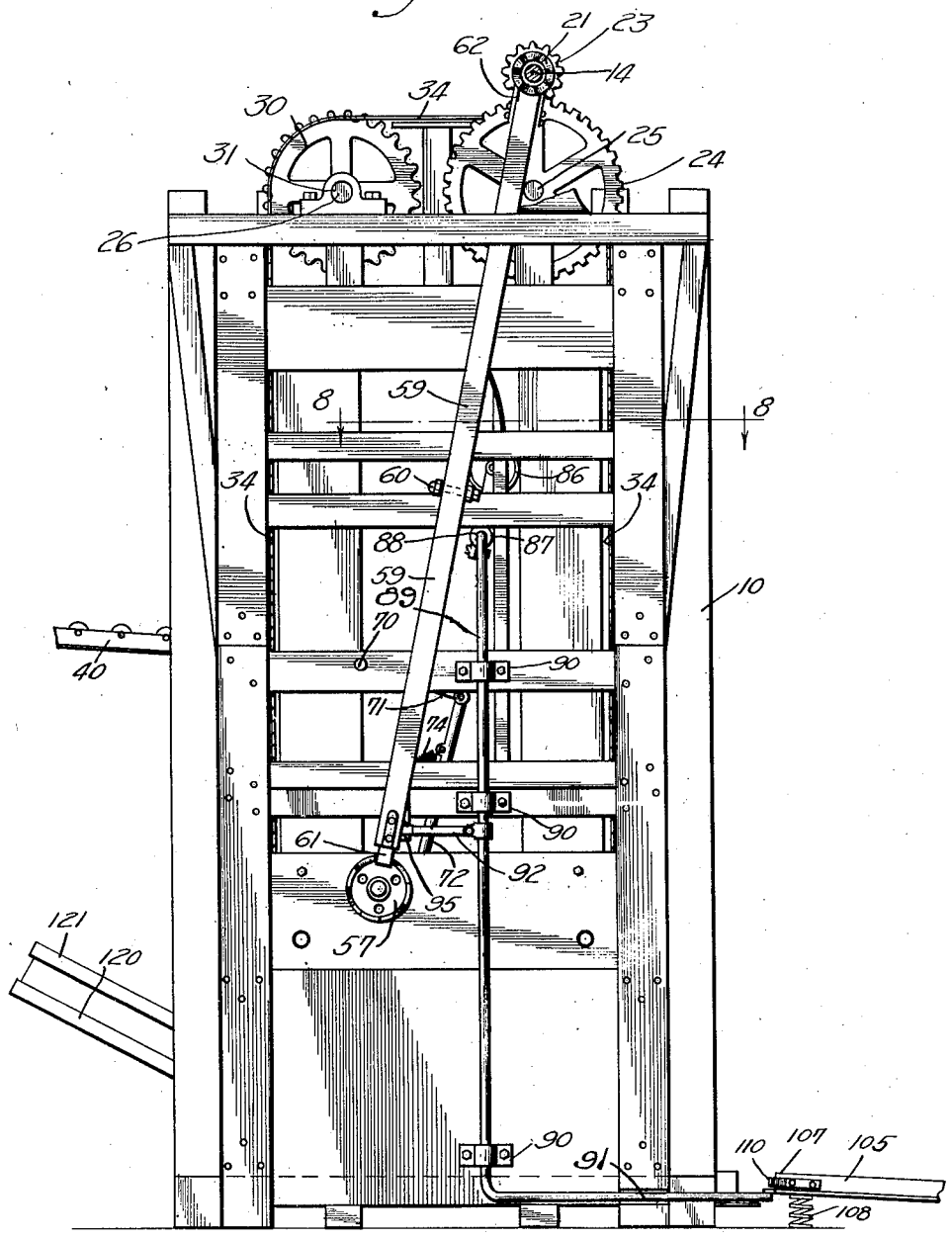
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STACKING MACHINE

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Fig. 4



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STACKING MACHINE

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Fig. 7

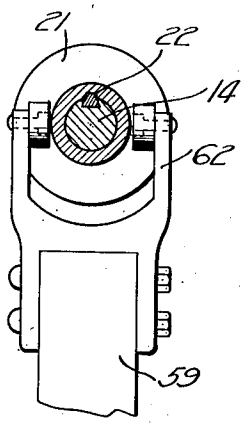


Fig. 9

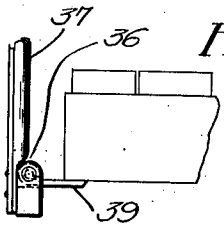
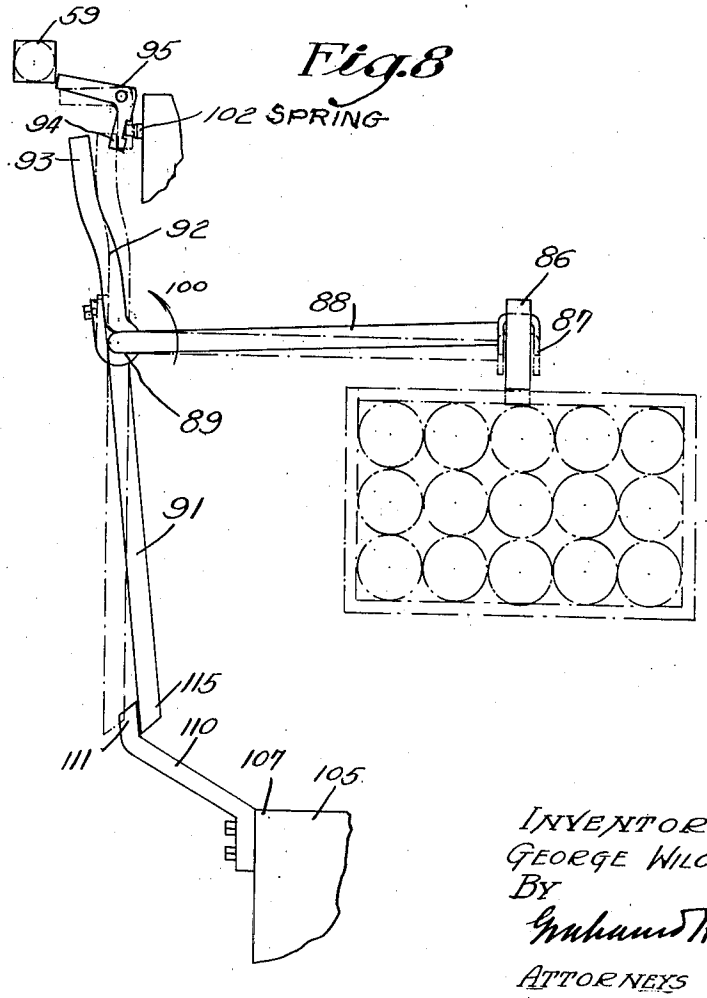


Fig. 8



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Patented Jan. 25, 1927. 1,615,250

UNITED STATES PATENT OFFICE.

GEORGE WILCOX, OF RIVERSIDE, CALIFORNIA, ASSIGNOR TO CALIFORNIA CANNING MACHINERY CO., A CORPORATION OF CALIFORNIA.

STACKING MACHINE.

Application filed December 1, 1923. Serial No. 677,946.

This invention relates to mechanical devices for stacking objects such as boxes or trays in regularly arranged stacks. The invention is suited for use in various industries and is particularly useful in the canning industry in relation to which I shall hereinafter describe the utility of the device with the definite understanding that it is to be in no way limited to the particular use described.

In the canning industries, hot cans from the cookers are arranged in trays, these trays being subsequently stacked in cooling rooms where the cans are allowed to cool before storage or labeling and packing for shipment. The device hereinafter described is especially adapted for use with a can arranging machine which is fully described in my application for patent on can arranging device, filed March 28, 1923, Serial No. 628,249. This can arrangement machine places the cans in trays and provides a roller conveyer along which the trays are directed to a stacking machine of the character hereinafter described which is arranged to place the trays in stacks so that they may be readily transported.

It is an object of the invention to provide a stacking machine, which will take trays or other objects from a conveyer or platform and deposit them, one upon the other in an evenly formed stack.

It is a further object of the invention to provide in this device automatic means for controlling the operation of the stacker, this means being adapted to operate in consequence of the placement of a tray in position to be engaged and lifted by the carriers of the stacking machine.

It is a further object of the invention to provide a means whereby the stacking machine will be made inoperative when a definite number of trays have been placed in a stack, thus preventing the piling of the trays beyond a certain predetermined number.

It is a further object of the invention to provide a latch means which holds the stacking machine inoperative until the stack has been moved free and clear from the machine.

It is a further object of the invention to provide in this device a means for automatically placing the stack platforms in receptive position, thus eliminating the personal element from this portion of the stacking operation and preventing the stacking of the trays upon the floor instead of upon a platform.

The especial advantages of the invention and further objects will be made evident hereinafter.

Referring to the drawings, which are for illustrative purposes only:

Fig. 1 is a plan view of a stacking machine embodying the features of my invention.

Fig. 2 is a vertical section taken upon a plane represented by the line 2—2 of Fig. 1.

Fig. 3 is a section taken upon the plane represented by the line 3—3 of Fig. 2.

Fig. 4 is a side elevation, viewing the device as indicated by the arrow 4 in Fig. 3.

Fig. 5 is a fragmentary view illustrating the operation of the control mechanism, which causes the operation of the device when a tray is placed in receptive position.

Fig. 6 is perspective view, showing the relation between the cam and the star wheel.

Fig. 7 is a fragmentary enlarged section taken as indicated by the line 7—7, in Fig. 3.

Fig. 8 is an enlarged diagrammatic view taken as indicated by the line 8—8 in Fig. 4 and showing the operation of the lock mechanism which prevents the operation of the machine until after the removal of the full stack of trays.

Fig. 9 is an enlarged view showing the operation of the lift fingers of the carrier members.

As shown in the drawings, my invention employs a pair of side supporting frames 10 and 11, which are suitably interconnected by cross structure as indicated at 12. Between standards 13 mounted on the tops of the frames 10 and 11, a shaft 14 extends.

The leftward end 15 of the shaft 14 which is disposed above the frame 10 has pulleys 16 and 17 rotatably mounted thereupon. The pulley 16 serves as a free running idler pulley and the pulley 17 is adapted for use as a drive pulley and is equipped with an extending hub 18, having clutch jaws 19 formed thereupon. Adjacent to the hub 18 is placed a sliding clutch member 21, which is splined upon the shaft 14 as indicated at 22 in Fig. 7. By moving the clutch member 21 outwardly from the position in which it is shown, driving engagement may be formed between the pulley 17 and the shaft 14. Upon the shaft 14 a pair of drive pinions 23 are secured which engage gears 24

rotatably mounted upon stub shafts 25, held in bearing blocks 26 situated upon the tops of the frames 10 and 11. Mounted upon the inner ends of the shafts 25 are sprocket wheels 27 which are of the same size and through the cooperation of the gears 23 and 24 are drivable at the same rate of speed in the direction indicated by the arrow 29 in Fig. 2.

As shown particularly in Fig. 2, large sprocket wheels 30 are placed adjacent to the sprocket wheels 27, these sprocket wheels, being mounted upon stub shafts 31 as shown in Fig. 1. Upon the inner faces of the frames 10 and 11 at points below the sprockets 29 and 30, small sprockets 32 are placed, thus providing upon each frame a system of four sprockets over which a traveler in the form of a chain 34 may run. At regularly spaced points in the chains 34 attachment fixtures 35 are placed. In the form of the invention shown three of these fixtures 35 are employed, as at 35, 35^a and 35^b, Fig. 2, from which three carrier members 36 may be suspended by hanger rods 37, which at all times throughout the travel of the traveller or chain 34 hang in vertical positions as shown in Fig. 2. Each of the carriers 36 is comprised of a flat plate member, having inwardly extended lifting fingers 39, as shown in Fig. 9. These lifting fingers due to the disposal of their mass ordinarily rest in an extended position, but are upwardly swingable, so that they may pass trays which have been previously stacked.

As shown in Fig. 2, a roller conveyer 40 extends inwardly from the rear and between the side frames 10 and 11, and provide means whereby a tray as indicated at 41 may be conveyed into a position wherein it may be engaged by the carriers 36 and deposited in a stack, as indicated by the dotted lines at 41^c and 41$^{c'}$, upon a stack platform 43. The machine is designed to operate in periods, in other words, the movement thereof is so controlled that upon the placement of a tray in the position indicated by the dotted lines 44 of Fig. 5, the tray will be engaged and lifted by a carrier 36, whereupon, the travel will stop until the placing of another tray in position upon the conveyer. In this manner, means is provided whereby the machine operates only during such times as a tray is in place to be lifted and stacked. The chain 34 does not travel continuously and it is therefore possible to place a tray in position upon the platform 40 with the entire assurance that it is going to be properly engaged by the carrier, owing to the fact that the carriers remain in the respective position indicated in Fig. 2 until a tray 41 is moved against the operating lever 47 whereupon a carrier 36 will move upwardly and advance to the position of the carrier indicated at 36^a, the lifting fingers 39 thereof engaging the tray reposing upon the conveyer 40 in the manner shown in Fig. 9, and carrying it to the position indicated at 41^a.

The tray will remain in the position just indicated, pending the placement of another tray against the lever 47, whereupon the mechanism will advance through another period, bringing the first mentioned carrier to the position 36^b and the first mentioned tray from the position indicated at 41^a to the position indicated at 41^b in Fig. 2 and Fig. 3. During the next periodic operation of the machine, the first mentioned carrier then travels downwardly to the position indicated in dotted lines 36^c and the tray is deposited upon the platform 43, as indicated at 41^c, 41$^{c'}$.

This periodic operation of the machine is controlled by the following mechanism: Adjacent to the lower right hand sprocket 32, mounted in the frame 10, is a shaft which has a four pointed star wheel 56 mounted upon the inner end thereof and a four pointed cam 57 situated at the outer end thereof, the relative positions of the star wheel 56 and the cam 57, being shown in Figs. 1, 3 and 6.

Upon the exterior of the frame 10, an operating arm 59 is mounted. This arm is pivoted at an intermediate point upon a bracket 60, which is secured to the frame 10. As shown in Figs. 3 and 4, the arm 59 has at its lower end a roller 61, which rides upon the cam 57 and the upper end of the arm 59 is provided with a yoke 62, which engages the clutch member 21, as shown in Figs. 3 and 7, in such a manner that the clutch member is thrown in and out of engagement with the pulley 17 by the movement of the arm 59, which movement is controlled by the cam 57. The cam 57 is provided with four points 64, separated by four hollows 65 and is so mounted upon the shaft 55, that when the points or arms 66 of the star wheel 56 are disposed in true vertical and horizontal positions; or in other words, the position shown in full lines in Fig. 2, the roller 61 of the lever 59 will rest upon the points or high spots 64 of the cam 57. Therefore, whenever the star wheel is in the position shown in full lines in Fig. 2, the lower end of the arm 59 will be held in outward position by the cam 57 and the clutch member 21 will be correspondingly held out of engagement with the pulley 17. Therefore, it will be seen that the device will not operate when the star wheel is in the position shown in full lines in Fig. 2. The operating lever 47 is mounted upon a horizontal shaft 70, from which there extends an arm 71 having a long pawl 72 pivoted thereto at the outer end thereof. The arm 71 is held resiliently upwardly by a spring 73 and a spring 74 is employed to hold the pawl 72 in a rearward

direction with the lower end 75 thereof, resting against a pin 76, mounted upon one of the arms 66 of the star wheel 56. When the tray indicated at 41 in Fig. 2 is moved forwardly upon the conveyer 40 into the position indicated by the dotted lines 44 in Fig. 5, the operating lever 47 is rotated rearwardly with the result that the arm 71 and the pawl 72 are moved into the positions indicated by the dotted lines whereupon the star wheel is moved into the position indicated by the dotted lines, which brings one of the hollows 55 of the cam 57 into conjunction with the roller 61, allowing the roller to move inwardly under the action of a compression spring 78 with the result that the yoke 62 mounted upon the upper end of the arm 59 moves the clutch member 21 into engagement with the hub 18 formed upon the drive pulley 17. The carrier chain 34 will then advance in the manner heretofore described, a fixture 35, Fig. 2, moving downwardly from the position 35^b and around the sprocket 32, across the extension of the chain 34 between the sprockets 32, and upwardly into the positions indicated at 35, as also indicated in Fig. 5. It will be perceived that the end 82 of one of the arms 66 of the star wheel 56 will be in the path of the carrier, indicated by the dotted lines 83, as it moves upwardly into the position indicated in full lines 84. The star wheel 56 will therefore, be engaged by the carrier and rotated from the diagonal position indicated by dotted lines to the erect position indicated in full lines, whereupon another point 64 of the cam 57 will come into position under the roller 61, causing the outward movement of the lower end of the arm 59 and a corresponding inward movement of the upper end thereof, which draws the clutch member 21 out of engagement with the pulley 17. This will result in the stopping of the carrier in the position indicated in full lines at the right of Figs. 2 and 5. It will be recognized that the continued periods of operation are produced by repetitions of the movement of the star wheel through the medium of the control lever 47, causing the periodic engagement and disengagement of the clutch mechanism.

From the foregoing, it will be seen that the device operates only when there is a tray placed in proper position upon the conveyer and it also maintains the horizontality of the trays during the handling of the same.

The invention also provides means whereby the device is prevented from operating after a designated number of trays have been placed in the stack indicated at 41^c, $41^{c'}$ in Fig. 2. In this figure, a roller 86 is shown mounted, by means of an adjustment bracket 87, upon the horizontally extending arm 88 which, as shown in Figs. 3 and 8, is bent inwardly at the upper end of a vertical shaft 89 which is mounted by means of pillow blocks 90 upon the outside of the side frame 10 and has the lower end thereof bent forwardly in the form of a lever 91. A rearwardly extending lever 92 is secured upon the vertical shaft 89 as shown in Figs. 4 and 8. The rearward end 93 of the lever 92 overlies the toe 94 of a latch member 95, this latch member being situated adjacent to the lower end of the arm 59, and being adapted to swing over when the lower end of the arm 59 is disposed outwardly into the position indicated in full lines in Fig. 8, which prevents the arm from again swinging inwardly when the cam is again disposed into a position to allow the return of the arm. Therefore, it will be seen that during the engagement of the latch 95, the lower end of the arm 59 is held in an outward position and the clutch mechanism held out of engament, thus preventing the operation of the device, no matter what the movement of the star wheel may be.

The roller 86 is disposed in such a position that it will be engaged and moved rearwardly by each tray as the tray moves downwardly upon the stack 41^c, $41^{c'}$. This swinging of the roller 86 and the arm 88 into the position indicated by the full lines in Fig. 8, causes a rotation of the shaft 89 in the direction of the arrow 100 with the result that the lever 92 is swung outwardly and the lever 91 swung inwardly from the positions from which they are shown in dotted lines in Fig. 8. Therefore, it will be seen that during the time, the roller 86 is depressed, the latch 95 will be free to swing under the action of the spring 102 into engagement position with the lower end of the arm 59. This release of the latch 95 is only momentary during the passage of the trays into position upon the stack and up to the time the stack is completed occurs only during the time that the roller 61 is resting in one of the hollows 65 of the cam 57, therefore, having no effect upon the operation of the device. When the stack 41^c, $41^{c'}$ has been built up to its entire height or, in other words, until the top tray depresses and remains in position against the roller 86, the arm 88 will be held back until the stack 42 is removed. Therefore, when the star wheel is turned into a position bringing a point 64 of the cam beneath the roller 61 and causing the outward movement of the lower end of the arm 59, the latch will drop into the position of engagement shown in Fig. 8, thus holding the lower end of the arm 59 in outward position, even though the star wheel 56 may be turned into active position due to the placement of another tray in position upon the conveyer 40.

The invention further provides means for preventing the release of the latch 95 until after the stack 42 has been removed, entirely

free from the stacking machine. This is accomplished by the use of the following mechanism.

The sloping platform 105 is placed in front of the machine as indicated in Fig. 1 and the outer end thereof is hinged at 106, the inner end 107 of the platform 105 being resiliently held in raised position by spring means 108. Extending leftwardly, from the sloping platform is a latch arm 110, having a rearwardly extending hook 111 formed upon the end thereof, as indicated in Figs. 1 and 8. When the stack has been filled to its entire height and the stacking machine thereupon rendered inactive, a truck is wheeled up the platform to lift the stack and carry same to some point of storage. It will be remembered that during the time the stack is in place in the machine, the lever 91 is held in inwardly swinging position as indicated in Fig. 8. Therefore, when the truck is wheeled upon the sloping platform 105 and the spring means 108 depressed, so that the forward end 107 of the sloping platform drops down and the hooked end 111, moves downward into a position in front of the forward end 115 of the lever 91, which prevents the swinging of the lever 91 into the outward position indicated by the dotted lines. The stack of trays may then be lifted by the truck, the upper end of the truck swinging away from the roller 86. By the presence of the hook 111 in position before the end 115 of the lever 91, the shaft 89 is prevented from rotating in the direction opposite to the arrow 100 and bringing the lever 92 against the toe 94 of the latch 95 so as to release the lower end of the arm 59. The weight of the truck upon the sloping platform 105, holds it in depressed position until the stack of trays is removed entirely clear of the machine, and the platform is not allowed to rise under the action of the spring means 108 until after the truck has been wheeled off therefrom. Upon the removal of the truck from the platform 105, the hook 111 moves upwardly into a position of disengagement, relative to the end 115 of the arm 91, allowing the arm to swing outwardly with the result that the arm 92 and the roller 86 return to their normal positions at rest, indicated by the dotted lines in Fig. 8, whereupon the latch 95 is swung back into the position shown in dotted lines, allowing the operation of the mechanism to be controlled entirely by the star wheel and cam arrangement.

The platforms 43 upon which the trays are stacked are kept in reserve upon a sloping slide structure 120 as shown in Fig. 2 and when a stack of trays and the platform 43 upon which the stacks rest, is removed from the machine the adjacent tray as indicated at 121 slides down into receptive position. With this arrangement, it is unnecessary for the truck man to stop and place a platform in the machine, and by this arrangement, the unsatisfactory conditions arising from the failure of the truck man to properly place a platform is entirely eliminated as the platforms are placed upon the slide 120 in reserve by the traying machine attendant.

By providing the platforms 43 with legs 44, Fig. 3, a space 45 is left thereunder into which the nose of a truck may be easily extended. This facilitates the moving of the stack as it is generally difficult to force the nose of the truck under one stack, especially when it is of considerable weight, when the stack rests on the floor.

I claim as my invention:

1. In a stacking machine, the combination of: a continuous traveller; carriers disposed upon said traveller; means for driving said traveller; starting means, operative in consequence of the placing of an object to be stacked in position to be engaged by one of said carriers, for causing said driving means to advance said traveller; and locking mechanism for preventing the movement of said traveller when a stack of predetermined size has been formed.

2. In a stacking machine, the combination of: a continuous traveller; carriers disposed upon said traveller; means for driving said traveller; starting means, operative in consequence of the placing of an object to be stacked in position to be engaged by one of said carriers, for causing said driving means to advance said traveller; and means for stopping said driving means when said traveller has been advanced a designated distance; and locking mechanism for preventing the movement of said traveller when a stack of predetermined size has been formed.

3. In a stacking machine, the combination of: a continuous traveller; carriers disposed upon said traveller; means for driving said traveller; starting means, operative in consequence of the placing of an object to be stacked in position to be engaged by one of said carriers, for causing said driving means to advance said traveller; and locking mechanism for preventing the movement of said traveller when a stack of predetermined size has been formed; and latch mechanism for holding said locking mechanism active until said stack has been moved entirely clear of said stacking machine.

4. In a stacking machine, the combination of: a continuous traveller; carriers disposed upon said traveller; means for driving said traveller; starting means, operative in consequence of the placing of an object to be stacked in position to be engaged by one of said carriers, for causing said driving means to advance said traveller; and means for stopping said driving means when said

traveller has been advanced a designated distance; and locking mechanism for preventing the movement of said traveller when a stack of predetermined size has been formed; and latch mechanism for holding said locking mechanism active until said stack has been moved entirely clear of said stacking machine.

5. In a stacking machine, the combination of: a continuous traveller; carriers disposed upon said traveller; means for driving said traveller; starting means, for causing said driving means to advance said traveller; and locking mechanism for preventing the movement of said traveller when a stack of predetermined size has been formed.

6. In a stacking machine, the combination of: a continuous traveller; carriers disposed upon said traveller; means for driving said traveller; starting means, for causing said driving means to advance said traveller; and means for stopping said driving means when said traveller has been advanced a designated distance; and locking mechanism for preventing the movement of said traveller when a stack of predetermined size has been formed.

7. In a stacking machine, the combination of: a continuous traveller; carriers disposed upon said traveller; means for driving said traveller; starting means, for causing said driving means to advance said traveller; and locking mechanism for preventing the movement of said traveller when a stack of predetermined size has been formed; and latch mechanism for holding said locking mechanism active until said stack has been moved entirely clear of said stacking machine.

8. In a stacking machine, the combination of: a continuous traveller; carriers disposed upon said traveller; means for driving said traveller; starting means, for causing said driving means to advance said traveller; and means for stopping said driving means when said traveller has been advanced a designated distance; and locking mechanism for preventing the movement of said traveller when a stack of predetermined size has been formed; and latch mechanism for holding said locking mechanism active until said stack has been moved entirely clear of said stacking machine.

9. In a stacking machine, the combination of: a continuous traveller; carriers disposed upon said traveller; means for driving said traveller; starting means, operative in consequence of the placing of an object to be stacked in position to be engaged by one of said carriers, for causing said driving means to advance said traveller; locking mechanism for preventing the movement of said traveller when a stack of predetermined size has been formed; a depressible member over which said stack is removed from said stacking machine, said member being so disposed that it is held depressed until said stack is entirely clear of the machine; and latch mechanism operative by the depression of said depressible member for holding said locking mechanism active until said stack has been moved entirely clear of said stacking machine.

10. In a stacking machine, the combination of: a continuous traveller; carriers disposed upon said traveller; means for driving said traveller; starting means, operative in consequence of the placing of an object to be stacked in position to be engaged by one of said carriers, for causing said driving means to advance said traveller; and means for stopping said driving means when said traveller has been advanced a designated distance; locking mechanism for preventing the movement of said traveller when a stack of predetermined size has been formed; a depressible member over which said stack is removed from said stacking machine, said member being so disposed that it is held depressed until said stack is entirely clear of the machine; and latch mechanism operative by the depression of said depressible member for holding said locking mechanism active until said stack has been moved entirely clear of said stacking machine.

11. In a stacking machine, the combination of: a continuous traveller; carriers disposed upon said traveller; means for driving said traveller; starting means, for causing said driving means to advance said traveller; means for stopping said driving means when said traveller has been advanced a designated distance; a depressible member over which said stack is removed from said stacking machine, said member being so disposed that it is held depressed until said stack is entirely clear of the machine; and latch mechanism operative by the depression of said depressible member for holding said locking mechanism active until said stack has been moved entirely clear of said stacking machine.

12. In a stacking machine, the combination of: a continuous traveller; carriers disposed upon said traveller; means for driving said traveller; starting means, for causing said driving means to advance said traveller; locking mechanism for preventing the movement of said traveller when a stack of predetermined size has been formed; a depressible member over which said stack is removed from said stacking machine, said member being so disposed that it is held depressed until said stack is entirely clear of the machine; and latch mechanism operative by the depression of said depressible member for holding said locking mechanism active until said stack has been moved entirely clear of said stacking machine.

13. In a stacking machine, the combination of: a continuous traveller; carriers disposed upon said traveller; means for driving said traveller; starting means, for causing said driving means to advance said traveller; means for stopping said driving means when said traveller has been advanced a designated distance; locking mechanism for preventing the movement of said traveller when a stack of predetermined size has been formed; a depressible member over which said stack is removed from said stacking machine, said member being so disposed that it is held depressed until said stack is entirely clear of the machine; and latch mechanism operative by the depression of said depressible member for holding said locking mechanism active until said stack has been moved entirely clear of said stacking machine.

14. In a stacking machine, the combination of: a continuous traveller; carriers disposed upon said traveller; means for driving said traveller; starting means, for causing said driving means to advance said traveller; locking mechanism for preventing the movement of said traveller when a stack of predetermined size has been formed; and latch mechanism for holding said locking mechanism active until said stack has been moved entirely clear of said stacking machine; a depressible member over which said stack is removed from said stacking machine, said member being so disposed that it is held depressed until said stack is entirely clear of the machine; and latch mechanism operative by the depression of said depressible member for holding said locking mechanism active until said stack has been moved entirely clear of said stacking machine.

15. In a stacking machine, the combination of: a continuous traveller; carriers disposed upon said traveller; means for driving said traveller; starting means, for causing said driving means to advance said traveller; means for stopping said driving means when said traveller has been advanced a designated distance; locking mechanism for preventing the movement of said traveller when a stack of predetermined size has been formed; latch mechanism for holding said locking mechanism active until said stack has been moved entirely clear of said stacking machine; a depressible member over which said stack is removed from said stacking machine, said member being so disposed that it is held depressed until said stack is entirely clear of the machine; and latch mechanism operative by the depression of said depressible member for holding said locking mechanism active until said stack has been moved entirely clear of said stacking machine.

16. In a stacking machine, the combination of: a continuous traveller; carriers disposed upon said traveller; means for driving said traveller, consisting of a clutch member, and a cam member arranged to operate said clutch member; starting means, operative in consequence of the placing of an object to be stacked in position to be engaged by one of said carriers, for causing said driving means to advance said traveller; means for stopping said driving means when said traveller has been advanced a designated distance; and locking mechanism for preventing the movement of said traveller when a stack of predetermined size has been formed; and latch mechanism for holding said locking mechanism active until said stack has been moved entirely clear of said stacking machine.

17. In a stacking machine, the combination of: a continuous traveller; carriers disposed upon said traveller; means for driving said traveller, consisting of a clutch member, and a cam member arranged to operate said clutch member; starting means, for causing said driving means to advance said traveller; means for stopping said driving means when said traveller has been advanced a designated distance; locking mechanism for preventing the movement of said traveller when a stack of predetermined size has been formed; latch mechanism for holding said locking mechanism active until said stack has been moved entirely clear of said stacking machine; a depressible member over which said stack is removed from said stacking machine, said member being so disposed that it is held depressed until said stack is entirely clear of the machine; and latch mechanism operative by the depression of said depressible member for holding said locking mechanism active until said stack has been moved entirely clear of said stacking machine.

18. In a stacking machine, the combination of: a continuous traveller; carriers disposed upon said traveller; means for driving said traveller; starting means, operative in consequence of the placing of an object to be stacked in position to be engaged by one of said carriers, for causing said driving means to advance said traveller; and locking mechanism, including and operated by an engagement member placed so as to be engaged by objects carried by said carriers, for preventing the movement of said traveller when a stack of predetermined size has been formed.

19. In a stacking machine, the combination of: a continuous traveller; carriers disposed upon said traveller; means for driving said traveller; starting means, operative in consequence of the placing of an object to be stacked in position to be engaged by one of said carriers, for causing said driving means to advance said traveller; and means for stopping said driving means when said traveller has been advanced a desig-

nated distance; and locking mechanism, including and operated by an engagement member placed so as to be engaged by objects carried by said carriers, for preventing the movement of said traveller when a stack of predetermined size has been formed.

20. In a stacking machine, the combination of: a continuous traveller; carriers disposed upon said traveller; means for driving said traveller; starting means, operative in consequence of the placing of an object to be stacked in position to be engaged by one of said carriers, for causing said driving means to advance said traveller; locking mechanism, including and operated by an engagement member placed so as to be engaged by objects carried by said carriers, for preventing the movement of said traveller when a stack of predetermined size has been formed; and latch mechanism for holding said locking mechanism active until said stack has been moved entirely clear of said stacking machine.

21. In a stacking machine, the combination of: a continuous traveller; carriers disposed upon said traveller; means for driving said traveller; starting means, for causing said driving means to advance said traveller; and locking mechanism, including and operated by an engagement member placed so as to be engaged by objects carried by said carriers, for preventing the movement of said traveller when a stack of predetermined size has been formed.

22. In a stacking machine, the combination of: a continuous traveller; carriers disposed upon said traveller; means for driving said traveller; starting means, for causing said driving means to advance said traveller; locking mechanism, including and operated by an engagement member placed so as to be engaged by objects carried by said carriers, for preventing the movement of said traveller when a stack of predetermined size has been formed; and latch mechanism for holding said locking mechanism active until said stack has been moved entirely clear of said stacking machine.

23. In a stacking machine, the combination of: a continuous traveller; carriers disposed upon said traveller; means for driving said traveller; starting means, for causing said driving means to advance said traveller; locking mechanism, including and operated by an engagement member placed so as to be engaged by objects carried by said carriers, for preventing the movement of said traveller when a stack of predetermined size has been formed; a depressible member over which said stack is removed from said stacking machine, said member being so disposed that it is held depressed until said stack is entirely clear of the machine; and latch mechanism operative by the depression of said depressible member for holding said locking mechanism active until said stack has been moved entirely clear of said stacking machine.

24. In a stacking machine, the combination of: a continuous traveller; carriers disposed upon said traveller; means for driving said traveller; starting means, for causing said driving means to advance said traveller; means for stopping said driving means when said traveller has been advanced a designated distance; locking mechanism, including and operated by an engagement member placed so as to be engaged by objects carried by said carriers, for preventing the movement of said traveller when a stack of predetermined size has been formed; a depressible member over which said stack is removed from said stacking machine, said member being so disposed that it is held depressed until said stack is entirely clear of the machine; and latch mechanism operative by the depression of said depressible member for holding said locking mechanism active until said stack has been moved entirely clear of said stacking machine.

25. In a stacking machine, the combination of: a continuous traveller; carriers disposed upon said traveller; means for driving said traveller; starting means, for causing said driving means to advance said traveller; locking mechanism, including and operated by an engagement member placed so as to be engaged by objects carried by said carriers, for preventing the movement of said traveller when a stack of predetermined size has been formed; and latch mechanism for holding said locking mechanism active until said stack has been moved entirely clear of said stacking machine; a depressible member over which said stack is removed from said stacking machine, said member being so disposed that it is held depressed until said stack is entirely clear of the machine; and latch mechanism operative by the depression of said depressible member for holding said locking mechanism active until said stack has been moved entirely clear of said stacking machine.

26. In a stacking machine, the combination of: a continuous traveller adapted to move upwardly on one side and downwardly on another side of its path of movement; vertically hanging carriers on said traveller; a support for holding objects to be stacked in the path of said carriers, as they travel upwardly; a platform disposed in the path of the downwardly moving carriers for receiving said objects in superimposed relationship to form a stack; a clutch through which said traveller is driven; means for operating said clutch; mechanism for rendering said clutch active when an object is placed upon said support; and means for preventing the engagement of said clutch

when a stack of designated size has been formed on said platform.

27. In a stacking machine, the combination of: a continuous traveller adapted to move upwardly on one side and downwardly on another side of its path of movement; vertically hanging carriers on said traveller; a support for holding objects to be stacked in the path of said carriers as they travel upwardly; a platform disposed in the path of the downwardly moving carriers for receiving said objects in superimposed relationship to form a stack; a clutch through which said traveller is driven; means for operating said clutch; mechanism for rendering said clutch active when an object is placed upon said support; and means for preventing the engagement of said clutch when a stack of designated size has been formed on said platform, said means including a detaining member, a depressible member for receiving the weight of a portative vehicle for removing said stack, and intervening mechanism for actuating said latch when said depressible member is depressed.

In testimony whereof, I have hereunto set my hand at Los Angeles, California, this 2nd day of November, 1923.

GEORGE WILCOX.