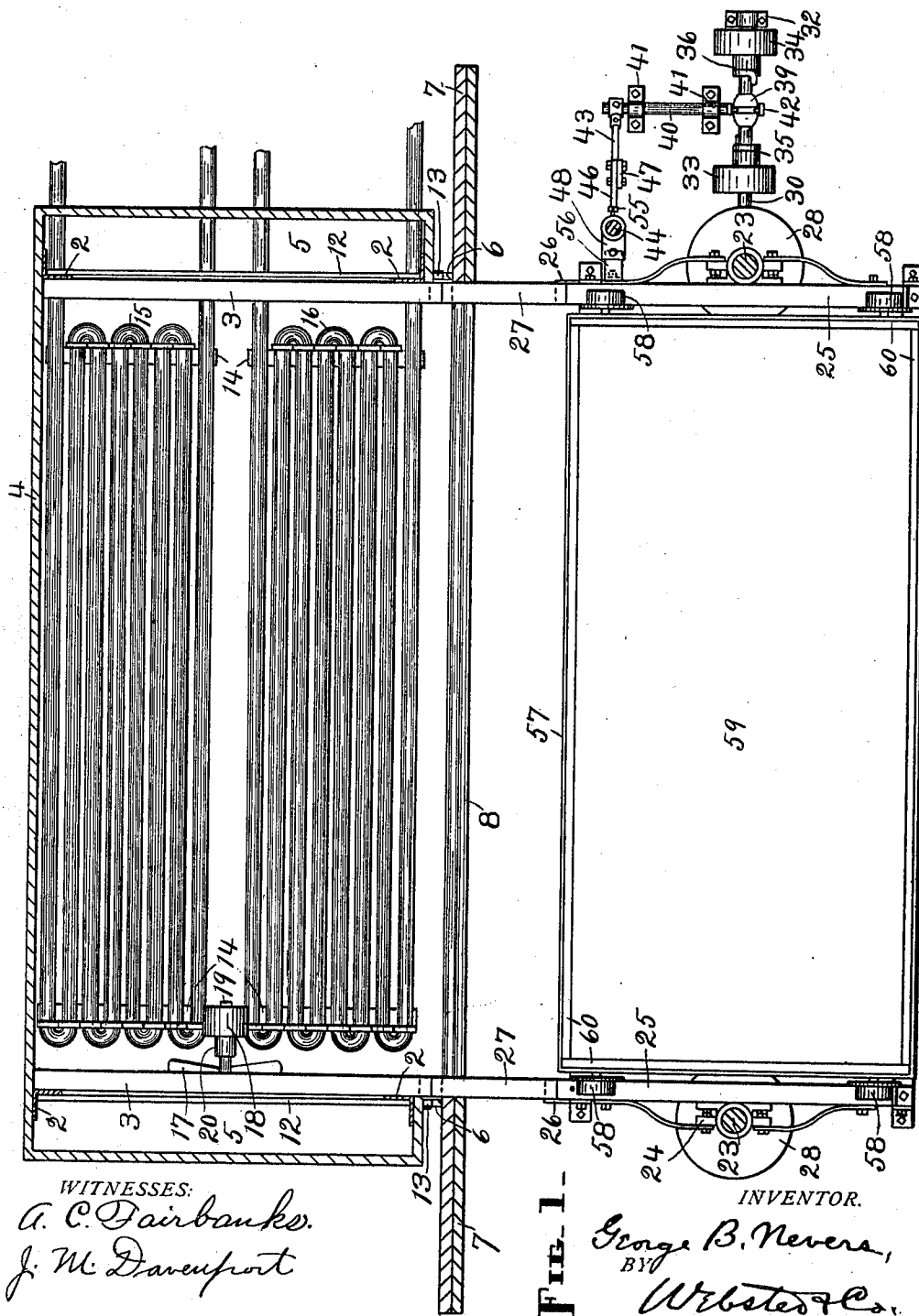


993,094.

G. B. NEVERS.
CANDY SETTING MACHINE.
APPLICATION FILED AUG. 29, 1910.

Patented May 23, 1911.

4 SHEETS-SHEET 1.



WITNESSES:

A. C. Fairbanks.
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Fig. 1 - 26

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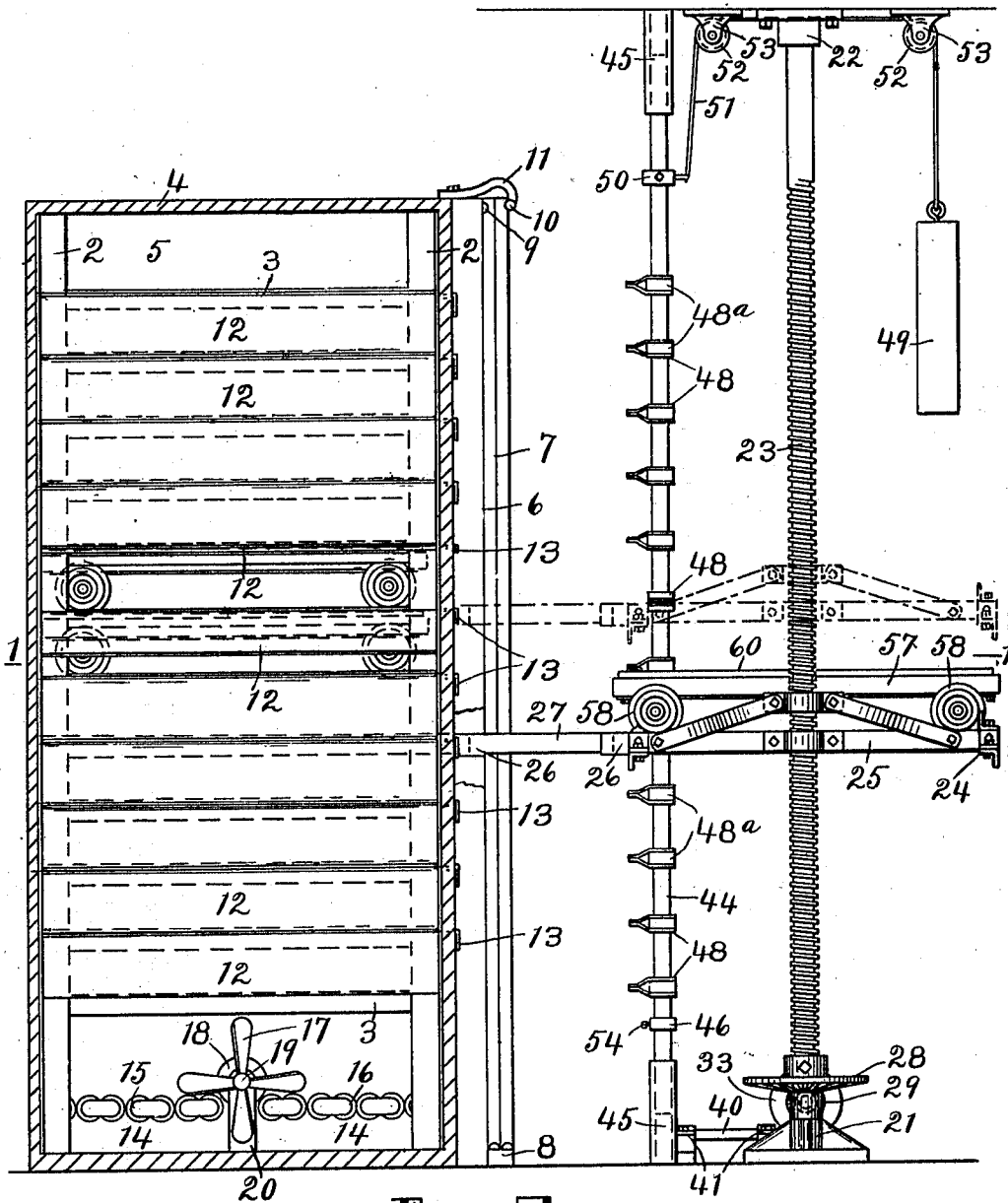


FIG. 2.

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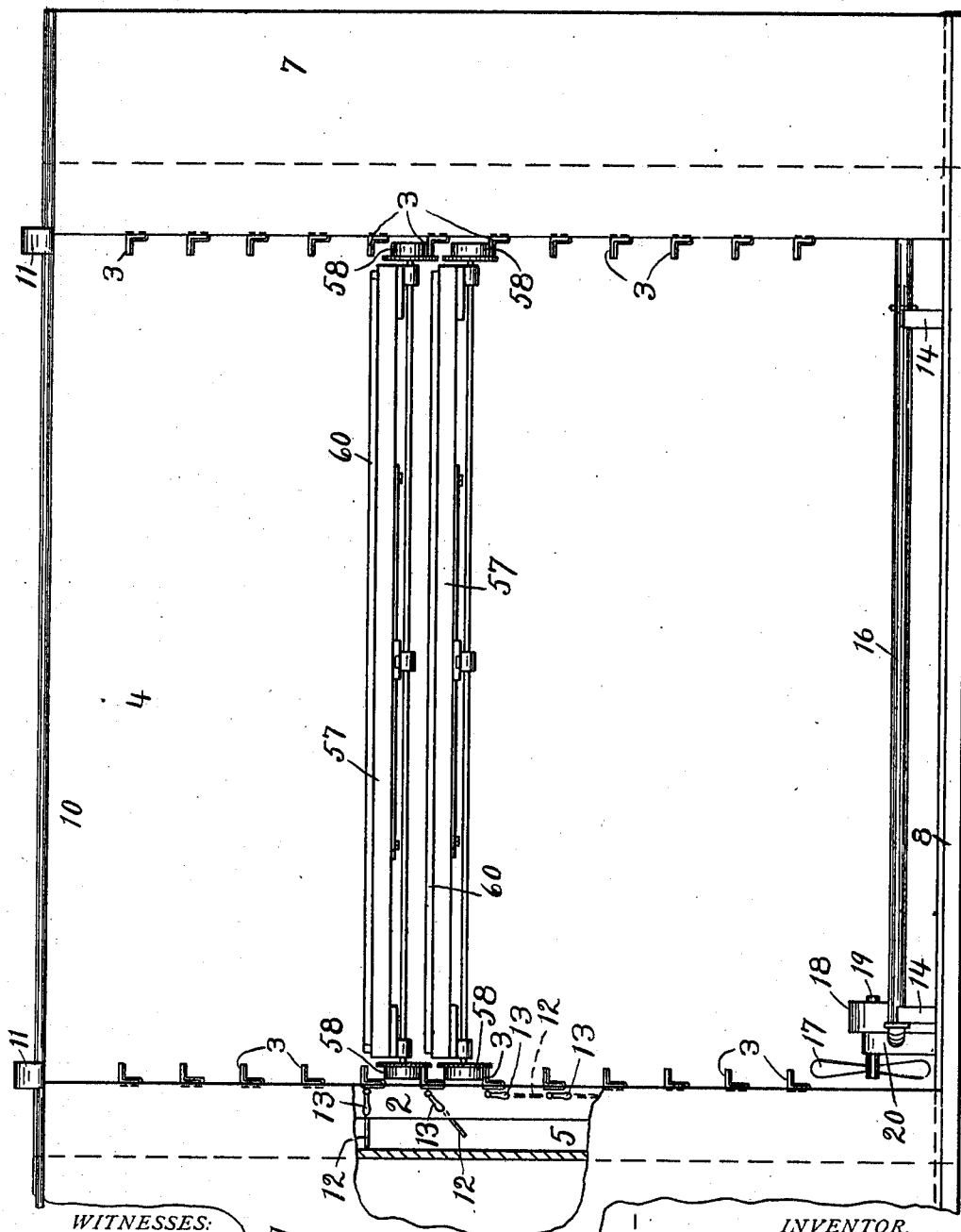
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4 SHEETS—SHEET 3.



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FIG. 3—

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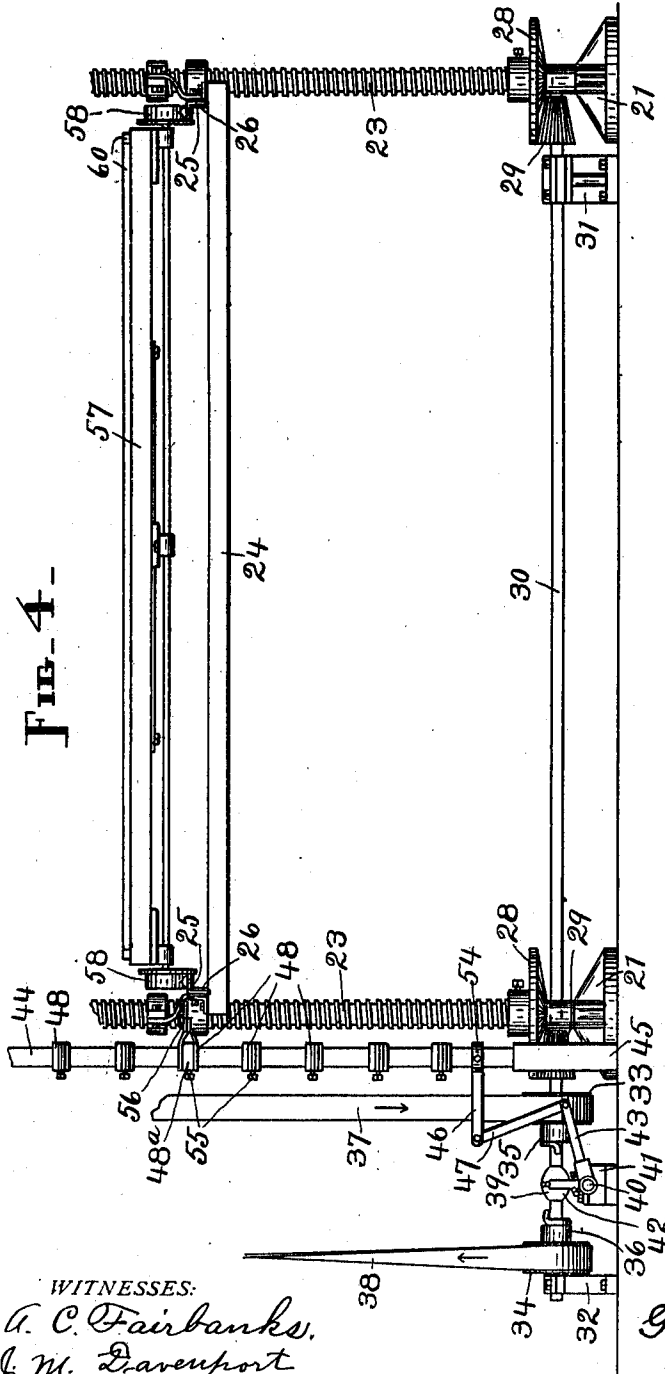
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4 SHEETS—SHEET 4.

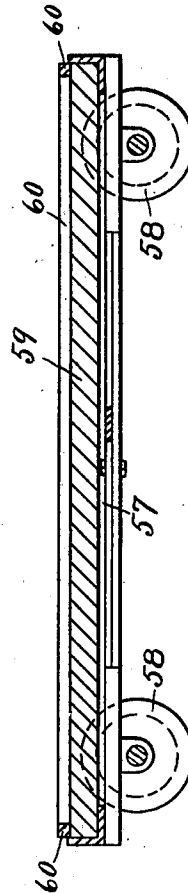
FIG. 4—



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FIG. 5—



UNITED STATES PATENT OFFICE.

GEORGE B. NEVERS, OF SPRINGFIELD, MASSACHUSETTS.

CANDY-SETTING MACHINE.

993,094.

Specification of Letters Patent.

Patented May 23, 1911.

Application filed August 29, 1910. Serial No. 579,494.

To all whom it may concern:

Be it known that I, GEORGE B. NEVERS, a citizen of the United States of America, residing at Springfield, in the county of Hampden and State of Massachusetts, have invented a new and useful Candy-Setting Machine, of which the following is a specification.

My invention relates to improvements in candy-making machinery, and more particularly to candy-setting machines which are in the nature of driers, and consists generally of a rack, with which may be employed heating or cooling appliances, a certain peculiar elevator and operating mechanism therefor, and tracks of suitable construction, together with such other parts and members as may be necessary or desirable to render the machine serviceable and complete, all as hereinafter set forth.

In the manufacture of many kinds of candy it is customary to pour the candy while in a liquid state on to large slabs of marble, slate, or other hard and smooth material, and leave it to cool or dry and set or harden before being cut up preparatory to finishing ready for the market. In order to reduce the candy to the right consistency in as short a time as possible and with the minimum amount of labor, the aforesaid slabs are very large in area, so as to obtain correspondingly large sheets of candy placed thereon to be exposed to the air and thus dried out, and these slabs, therefore, require a great deal of room, that is, floor-space, and are handled with much difficulty, although in less time than if the slabs were smaller and more numerous. With my machine these difficulties and disadvantages are overcome or removed, by the economy in floor-space, the saving in time and labor, and the general enhancement of the facility with which the candy can be handled, incident to the use of such machine, and this is the primary object of my invention.

Other objects will appear in the course of the following description.

I attain these objects by the means and mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a horizontal section through or a sectional top plan of a machine which embodies a practical form of my invention, such view being taken on lines 1—1, in Fig. 2, looking down, and the doors being open; Fig. 2, an end elevation of said machine, the

corresponding end of the rack casing being removed, also the adjacent door sections, and two positions of the elevator being indicated respectively in full and by dot-and-dash lines; Fig. 3, a front elevation of the rack with the doors open, portions of the doors and of the casing at one end being broken away to disclose the interior construction and certain of the parts; Fig. 4, a rear elevation of the elevator and its operating mechanism, the upper portions thereof being omitted, and, Fig. 5, an enlarged transverse section through one of the trucks.

Similar figures refer to similar parts throughout the several views.

The rack which I have herein shown comprises vertical angle-iron corner pieces 2, and a plurality of horizontal angle-iron tracks 3 secured against the inner faces of said corner pieces at the ends of the rack. The tracks 3 are equi-distant from each other, and so arranged that any given track at one end is on the same horizontal plane with its mate at the other end. The corner pieces may be secured at the top and bottom to suitable supports, as the ceiling, roof or top and floor of a casing 4. The corner pieces 2 and the tracks 3 constitute bracket members which together make up the rack.

The casing 4 is extended at the ends beyond the rack to form, with certain shutters or dampers presently to be described, two vertical flues 5. The front of the casing 4 between the aforesaid bracket members is open, and there are two upright parts 6 of said casing which project forward at the ends of the opening. Two doors 7 are provided for said opening. These doors may be of any suitable construction and arranged relative to the casing in any suitable manner, but as shown such doors consist of two leaves each arranged to slide at the bottom on a double track 8, laid on the floor in front of the parts 6, and at the top between parallel tracks 9 and 10, said track 9 being attached to the front edges of said parts 6 behind said doors, and said track 10 being supported in front of said doors by brackets 11—11 having their points of attachment at the top of the casing. The doors 7 operate in opening and closing in the same manner as any double-leaf doors.

As already mentioned, each flue 5 consists in part of or is provided with a plurality of shutters or dampers 12, each arranged and adapted to close the opening from said

flue or the space between two of the tracks 3, to close said flue above the upper of such tracks, or to deflect the air in said flue without closing either said space or flue. Each damper 12 is pivotally mounted at the ends in the corner pieces 2, and has a handle 13 accessible from the outside of the casing in front. When hanging freely from its pivotal points the damper closes the opening between the two adjacent tracks 3, when turned up into a horizontal position by means of its handle 13 said damper closes that part of the flue 5 in which it is located that is above the damper, and when turned by said handle into any position between these extremes said damper deflects the air as it enters or leaves the aforesaid opening but does not cut it off from said flue above. Dampers in these three positions appear in Figs. 2 and 3. Frictional engagement between the ends of the dampers 12 and the contiguous parts of the corner pieces 2 may be depended upon to retain said dampers in whatever positions they may be caused to assume.

Supported on suitable blocks 14 on the floor of the casing 4, are two pipe coils 15 and 16, the former being for steam, hot-water, or other heating medium and connected with a suitable source of supply of the same (not shown), and the latter being for cold air or other cooling medium and connected with a suitable source of supply of that (not shown).

In the bottom of the casing 4, at one end and under the tracks 3 at that end, is a fan 17 driven by a motor 18 on the same shaft 19 therewith, or in any other suitable manner. This fan when in motion creates a current of air in the interior of the casing 4, which current may be controlled to a greater or less extent by means of the dampers 12. A standard 20 on the floor of the casing is provided to support the fan members.

Journaled in two floor bearings 21 and the same number of ceiling bearings 22 are two vertical screws 23. Carried by the screws 23 and adapted when they revolve to be raised or lowered thereby according to the direction of rotation is an elevator 24. The ends of the elevator 24 consist in part of two tracks 25 which are the same distance apart as are the oppositely-disposed tracks 3 of the rack; in other words, the tracks 3 and 25 at either end of the machine are all in the same vertical plane longitudinally, so that by moving said elevator in the proper direction and to the required extent said tracks 25 can be brought into exact alinement with any pair of said tracks 3. Adjacent ends of the tracks 3 and 25 are equipped with sockets 26 capable of receiving angle-iron bridge-track pieces or track-closers 27—27 and of supporting such pieces or track-closers in abutting relation to said

tracks 25 and any pair of said tracks 3 with which the tracks 25 are in alinement, said track-closers fitting in between adjacent ends of the alining tracks, flush therewith at all points, and bridging the gaps between them.

The mechanism here provided for rotating the screws 23 mutually in either direction consists of two bevel-gears 28 secured to said screws, two bevel-gears 29 secured to a horizontal shaft 30 and meshing with said bevel-gears 28 on corresponding sides of the bearings 21, said shaft being journaled in said bearings and in other floor bearings 31 and 32, two pulleys 33 and 34 loose on said shaft and respectively provided with clutch members 35 and 36, a belt 37 for the pulley 33 and a crossed belt 38 for the pulley 34, said belts being driven from pulleys on a main or countershaft (not shown), and a clutch 39 of any approved type slidably mounted on but non-revolubly connected with said shaft between said clutch members. When the clutch 39 is actuated into engagement with the clutch member 35 the pulley 33, operating through the shaft 30 and the bevel-gears 29 and 28, causes the screws 23 to be rotated in such a way as to lower the elevator 24, and when said clutch is actuated into engagement with the clutch member 36 the pulley 34, also operating through said shaft and bevel-gears, causes said screws to be rotated in the opposite direction and said elevator to be raised thereby.

The operating mechanism for the clutch 39 consists of a rock-shaft 40 in floor bearings 41—41 and carrying a yoke 42 at its front end and an arm 43 at its rear end, said yoke being connected with said clutch in the usual manner, a counterweighted vertical rod 44 supported for longitudinal movement in two sockets 45 one secured to the floor and the other to the ceiling, a rigid arm 46 extending outward from said rod in the direction of said clutch and parallel with the shaft 30, a connecting-rod or link 47 pivoted at its upper end to said arm 46 and at its lower end to said arm 43, and a plurality of adjustable dogs 48. The counterweight, for the clutch-operating rod 44, is represented at 49, and is connected with a collar 50 on said rod by means of a rope 51 which passes over two idlers 52 mounted in hangers 53—53 supported from the ceiling. This counterweight serves to retain the rod 44 in whatever position it may be left after being moved up or down in the sockets 45. The arm 46 may be adjusted on the rod 44, for the purpose of imparting the proper amount of throw to the clutch 39 when said rod is raised or lowered, by means of a bolt 54 tapped into the hub end of said arm and extending through into engagement with said rod.

It will now be seen that, when the rod 44

is moved downward from stopping position, the clutch 39 is actuated from the intermediate or neutral position into engagement with the clutch mechanism 35, through the medium of the arm 46, the link 47, the arm 43, the rock-shaft 40, and the yoke 42. and, when said rod is moved upward from stopping position, said clutch is actuated from said neutral position into engagement with the clutch member 36, by the same means, the elevator 24 descending in the first instance and ascending in the second instance. It will be seen, also, that the elevator is stopped, regardless of the direction in which it is traveling, as soon as the rod 44 is moved in the direction to throw the clutch out of engagement with either clutch member and into its neutral position.

There are twelve tiers in the rack, a number which may vary in different machines, however, and there are as many dogs 48 as tiers. These dogs are normally held against movement longitudinally on the rod 44, although they may be vertically adjusted thereon, by means of collars 48^a also on said rod and bolts 55 tapped through said collars into engagement with said rod. The dogs 48 are thus placed so that the elevator 24 can be stopped at any desired height and with the tracks 25 in exact alinement with any pair of tracks 3, by a simple readjustment about its axis of the controlling dog. When operatively set, the dog is turned on its collar 48^a and the rod 44 so as to locate the nose of said dog in the path of travel of a lug 56 at the adjacent end of the elevator 24; at other times said dog is swung out of the way of such lug.

A number of cars or trucks 57 are furnished as essential elements of this machine, there being generally a truck for each tier, although but three are illustrated herewith. Each truck 57 is mounted on flanged wheels 58 adapted to run on the track members 25, 27 and 3, and is of a size which renders it receivable on or in the rack within the casing 4. Said truck carries a hard flat slab 59, and four removable edge rails 60 are provided to set on said slab just inside of the sides and ends of the truck, which sides and ends project slightly above the upper surface of the slab to afford backings for said rails.

Having described in detail the construction of my machine, I will next proceed to explain in full the operation of the same, assuming that there is a truck 57 on the elevator 24, and that said elevator is located at a convenient height for pouring candy onto the slab 59 carried by said truck. Edge rails 60 are first placed in position and the candy in a liquid or melted state is poured into the shallow receptacle, formed by the slab 59 and said rails, until such receptacle is full. Now the dog 48, which is opposite the

tier where it is desired to place the truck, is swung into operative position, and the rod 44 is moved by hand in whichever direction is required in order to cause the elevator to travel up or down as may be necessary to bring the truck opposite said tier. When the elevator lug 56 encounters said last-mentioned dog, said lug carries said dog and the rod 44 with it, and so brings about the disconnection of the clutch 39 from the clutch member with which it is engaged. The elevator stops, the track-closers 27 are inserted in the alining sockets 26, and the truck with its load is pushed onto or into the rack, the wheels 58 rolling from the tracks 25, over said track-closers, onto the contiguous tracks 3. In Figs. 1 and 4 and in full lines in Fig. 2, the parts are shown in the positions just described, but before the truck is rolled into the rack, the contact between the lugs 56 and the active dog 48 showing plainly in Figs. 1 and 4. Next the track-closers 27 are taken from their sockets, a dog 48, that is opposite a tier containing a truck upon which the candy is ready for removal, is adjusted in the path of the lug 56, and the elevator sent up or down to meet said dog with said lug and so be brought to rest directly in front of said tier, as represented by dot-and-dash lines, in Fig. 2. The track-closers are then put in place, the truck is run out onto the elevator, and the latter is caused to carry said truck to a position where the candy thereon can be removed without inconvenience. If any dog is in the way of the lug 56, it must be swung aside before manually operating the rod 44 to start the elevator the second time. As a rule, before removing the candy, the edge rails 60 which surround it are taken away, and the large sheet of candy is cut into smaller sheets. After the removal of the aforesaid sheet of candy, the rails 60 are replaced, more candy is poured onto the slab 59, and the supporting truck is stored in the rack like the first. These operations may be repeated until the rack is full, at which time or whenever the desired amount of candy less than the full capacity of said rack has been stored, the doors 7 are closed and the candy is left to set, either with or without the aid of either heated or chilled air. After being left long enough to become of the right consistency, the doors are opened, and the trucks are taken out one after another, relieved of their load of candy, reloaded, and returned to the drying chamber again.

If either coil 15 or 16 is to be employed to heat or cool the air in the casing 4, the dampers 12 are adjusted so as to direct the air in said casing to the best advantage in and around the trucks and over the exposed upper surfaces of the candy thereon.

The fan 17 is generally set in motion

whenever either of the coils is used, and may be set in motion when the air in the casing 4 at normal temperature is to be depended upon, to create a circulation through the 5 flues 5, in the bottom and top of the casing, and between the trucks and their loads. Cooperation between the fan, when used, and the dampers is important.

It is quite obvious that either or both of 10 the coils 15 and 16 and the fan 17 can be omitted, and even the doors 5 and the casing itself, without seriously impairing the utility of my invention or materially reducing its efficiency for some if not many kinds of 15 candy. It is quite obvious, moreover, that numerous changes in the shape, size, arrangement, and construction of some or all of the parts and members of this machine may be made without departing from the 20 nature of my invention or exceeding the scope of my claims.

The active or operative dog 48, for the elevator 24 in its higher position as indicated by dot-and-dash lines, in Fig. 2, appears in full and as having just stopped said 25 elevator in its ascent; the active or operative dog second below (shown in Figs. 1 and 4) has just stopped the elevator in its descent.

In positioning the dogs 48, it is necessary, 30 of course, to take into consideration the amount of movement imparted by hand to the rod 44 to start the elevator.

To start the elevator the rod 44 is actuated in the opposite direction to that which 35 said elevator takes when started, but in stopping the elevator carries said rod in the same direction with it, the amount of movement of the rod being the same in both cases.

By the term "track" or "tracks" I mean 40 to include any suitable slide-way or slide-ways for the trucks.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination, in a candy-setting 45 machine, of a rack comprising a plurality of corner pieces and a plurality of horizontal track-forming members attached to said corner pieces and with such pieces constituting the ends of said rack, an elevator adjacent to such rack and provided with tracks 50 adapted to be brought into line with any pair of said rack track-forming members, and a plurality of trucks receivable in said rack and also receivable one at a time on 55 said elevator, such trucks being provided with means to support candy in sheet formation.

2. The combination, in a candy-setting machine, of a rack provided with tracks at 60 different elevations, a track-provided eleva-

tor operatively arranged in front of said rack with a space between, operating mechanism for such elevator whereby the latter may be stopped with its tracks in alinement with any pair of said first-mentioned tracks, 65 removable track-closers for such alining tracks, such track-closers being supported by the rack and elevator and capable of bridging the gaps between adjacent ends of said alining tracks and connecting said ends, 70 and a truck adapted to travel on any of said tracks and over said track-closers.

3. The combination, in a candy-setting machine, of a track-provided rack, a track-provided elevator adjacent to said rack, operating mechanism for such elevator capable 75 of locating the same opposite any tier in said rack, trucks arranged to travel on the rack and elevator tracks and receivable in said rack, and candy-receiving slabs carried 80 by said trucks.

4. The combination, in a candy-setting machine, of a track-provided rack, a track-provided elevator adjacent to said rack, operating mechanism for such elevator capable 85 of locating the same opposite any tier in said rack, trucks arranged to travel on the rack and elevator tracks and receivable in said rack, candy-receiving slabs carried by said trucks and removable candy-confining 90 edge members on such slabs.

5. The combination, in a candy-setting machine, with an inclosed track-provided rack, dampers arranged in such inclosed rack at the ends thereof to regulate the flow 95 of air therein, and heating and cooling pipes in the bottom of such inclosed rack, of a track-provided elevator in operative relation to said rack, and trucks adapted to run on the rack and elevator tracks and receivable 100 in said rack, such trucks being provided with means to support candy in sheet formation.

6. The combination, in a candy-setting machine, with an inclosed track-provided 105 rack, dampers arranged in such inclosed rack at the ends thereof to regulate the flow of air therein, heating and cooling pipes in the bottom of such inclosed rack, and an agitator also in the bottom of such inclosed 110 rack for the air therein, of a track-provided elevator in operative relation to said rack, and trucks to run on the rack and elevator tracks and receivable in such rack, such trucks being provided with means to support 115 candy in sheet formation.

GEORGE B. NEVERS.

Witnesses:

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