

[54] **TRUCK FOR LOADING OVEN COMPARTMENTS**

[75] Inventor: **Richard M. Leahy**, Malden, Mass.

[73] Assignee: **Beatrice Foods Co.**, Chicago, Ill.

[22] Filed: **Sept. 14, 1973**

[21] Appl. No.: **397,357**

[52] U.S. Cl. **214/38 B, 214/515**

[51] Int. Cl. **B60p 1/64**

[58] Field of Search..... **214/38 B, 38 BA, 38 BB, 214/38 D, 515; 296/35 A**

[56] **References Cited**

UNITED STATES PATENTS

1,573,172	2/1926	Laffey	214/38 BA
2,019,949	11/1935	Brace	214/38 B X
2,691,449	10/1954	Claybourn.....	214/38 B
3,261,484	7/1966	Nilsson	214/38 BB

Primary Examiner—Robert G. Sheridan

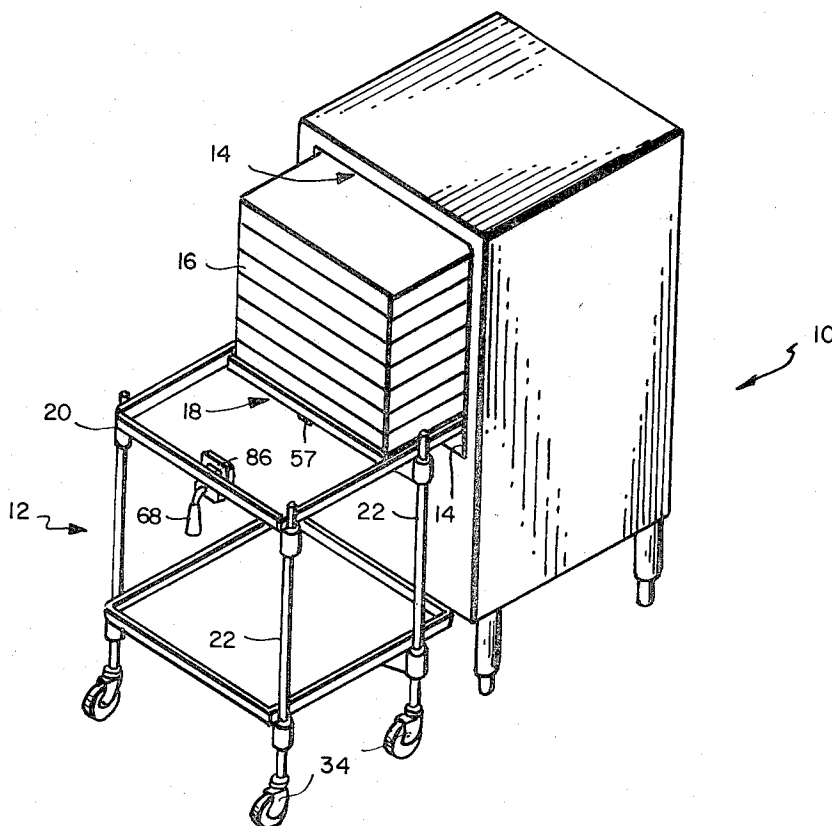
Attorney, Agent, or Firm—Dike, Bronstein, Roberts, Cushman & Pfund

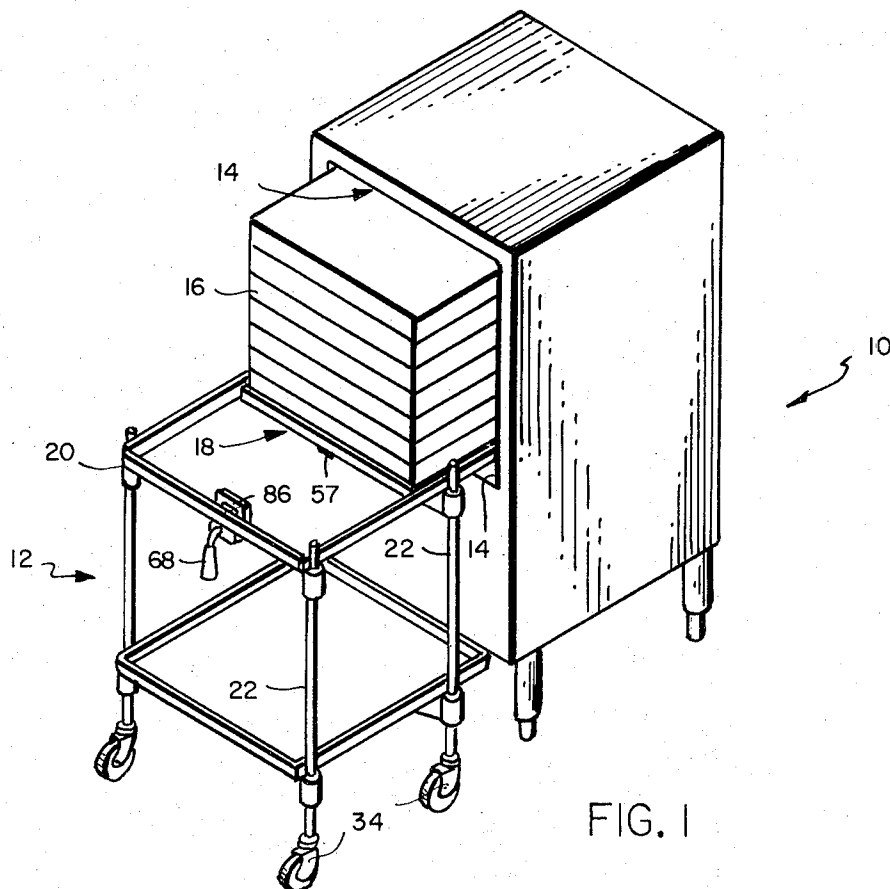
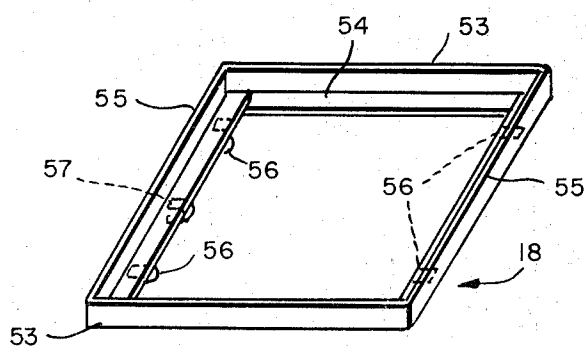
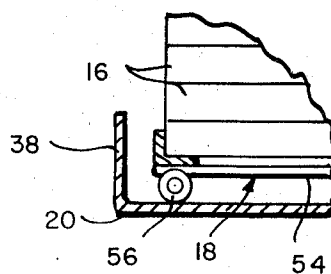
[57]

ABSTRACT

The combination with a compartment having a front opening defined by rectangularly arranged top, bottom and side walls, of a mobile truck movable to a position opposite the front opening, said truck comprising a shelf mounted thereon for adjustment to the level of the bottom of the compartment, a docking member fixed to the truck and extending forwardly therefrom for interengagement with the inner side of the compartment at the entrance thereto, and a hook rotatably mounted on the truck for rotation from a horizontal position to a vertical position, said bottom wall of the compartment having at the entrance thereto a slot into which the hook is adapted to be rotated to lock the truck to the compartment. The combination includes a dolly, provided with wheels, mounted on the shelf of the truck for transferring a stack of trays of edible material from the truck to the compartment and vice versa while the truck is locked to the compartment, and latch means on the truck operable simultaneously with the hook to lock the dolly to the truck when the hook is disengaged and release the dolly when the hook is engaged.

4 Claims, 9 Drawing Figures





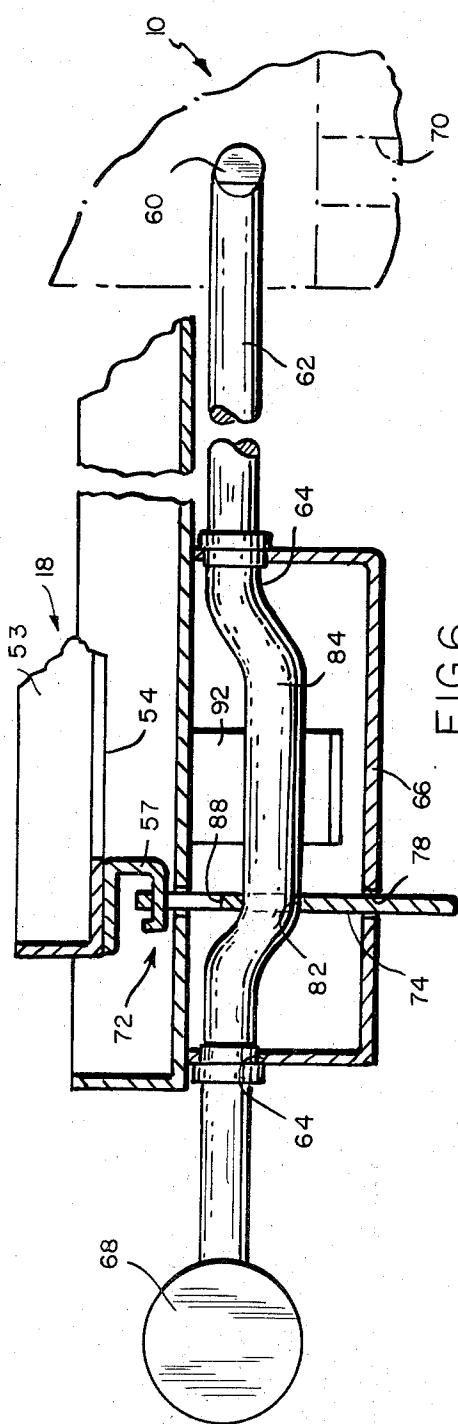


FIG. 6

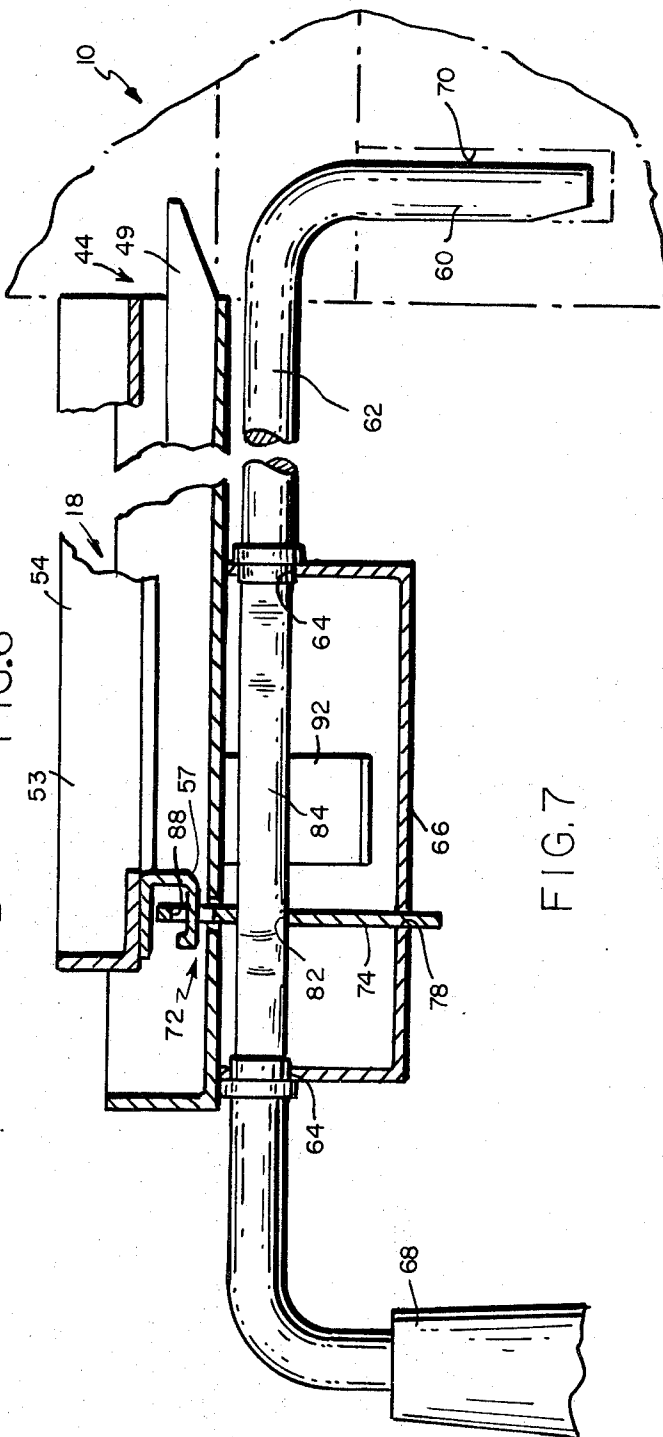
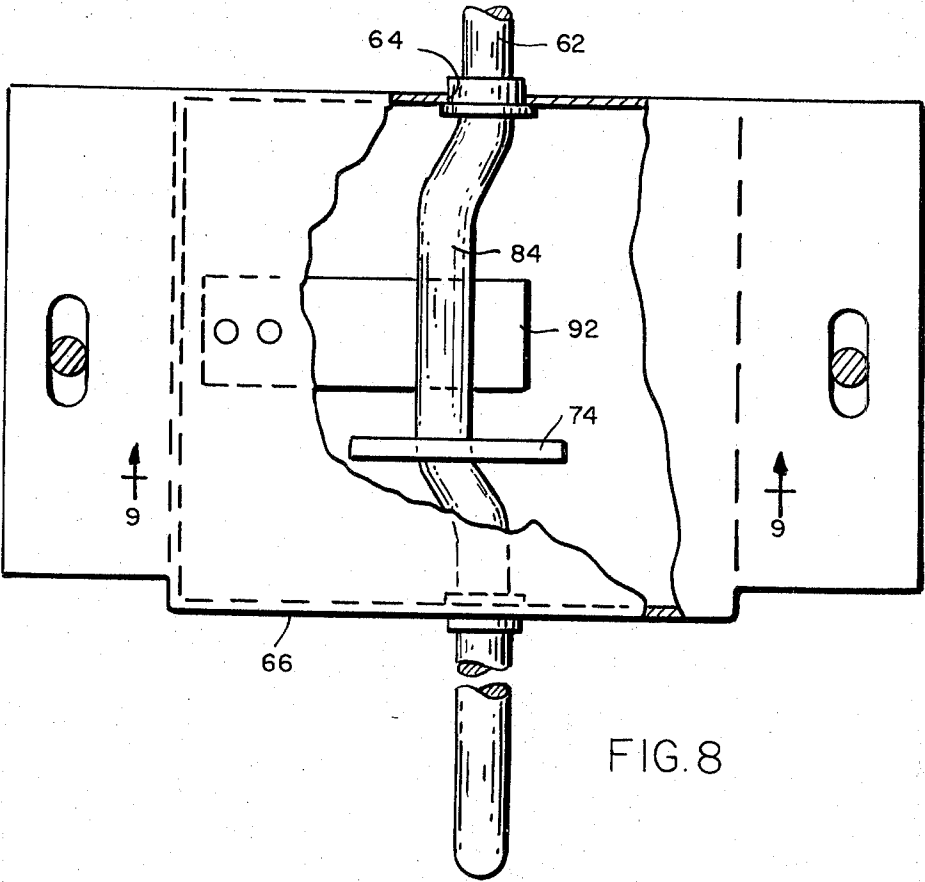
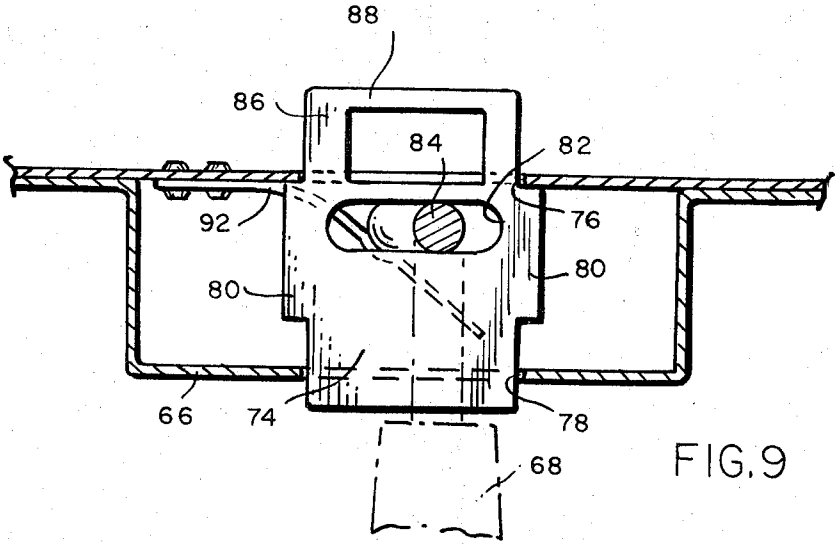


FIG. 7



TRUCK FOR LOADING OVEN COMPARTMENTS

BACKGROUND OF the INVENTION

Trucks for use in combination with a compartment, for example a refrigerating compartment or an oven compartment, to facilitate loading materials of an edible nature or otherwise into the compartment and for later removing them from the compartment are disclosed in such U.S. Pat. Nos. as Gantivoort, 1,410,466, Hoppe, 1,826,885, Litman, 2,883,253, and others. In the aforesaid patents a mobile truck is employed provided with one or more shelves on which the material to be introduced into the compartment is supported at a level corresponding to shelves in the compartment and the truck is moved up to the open front of the compartment to enable transferring the material from the truck into the compartment or vice versa. The apparatus of the present invention is designed as an improvement on that shown in the aforesaid patents in that there is provision for accurately aligning the truck with the entrance to the compartment and locking it in this position during the transfer of material from the truck into the compartment and vice versa so that there is no danger of the truck being accidentally moved away from the compartment during the transfer and provision for locking a dolly, on which the material is transported from the truck to the compartment and back from the compartment, to the truck so that while the truck is being moved up to or away from the compartment the dolly cannot accidentally slide off.

SUMMARY

The invention as herein illustrated comprises, in combination, with a compartment having a front opening providing access to the interior bottom wall thereof, of a mobile truck movable to a position confronting the front opening of the compartment, said truck comprising a shelf mounted thereon for adjustment to a height corresponding to that of the bottom wall of the compartment such that when the truck is moved to said confronting position a dolly mounted on the shelf may be rolled therefrom into the compartment to be supported therein on the bottom wall, docking means on the truck extending forwardly therefrom for interengagement with the side walls of the compartment at the entrance thereto to align the truck with the opening in the compartment and locking means for locking the truck to the compartment while transferring the dolly from the truck to the compartment and vice versa. There is means associated with the locking means, means operable in its inoperative position to lock the dolly on the shelf and in its operative position to release the dolly. The docking means comprises transversely spaced blocks fixed to the shelf, the blocks having beveled forward ends for guiding them into the compartment. The locking means comprises at the entrance to the opening of the compartment a slot in a wall thereof and a hook on the truck arranged to be engaged with the slot. The means for locking the dolly to the shelf is a latch movable into engagement with a hook on the dolly.

The invention will now be described in greater detail with reference to the accompanying drawings wherein:

FIG. 1 is a perspective view of an oven and truck showing the truck moved up to a position confronting the open side of the oven compartment with a stack of trays resting on a dolly mounted on the top shelf of the

truck in a position for entrance into or withdrawal from the oven compartment;

FIG. 2 is a perspective view of the truck removed from confronting relation with the oven showing in dotted lines on the top shelf a dolly;

FIG. 3 is a perspective view of a dolly;

FIG. 4 is a fragmentary vertical section of the upper shelf of the truck showing a dolly resting thereon and a stack of trays mounted on the dolly;

FIG. 5 is a fragmentary horizontal section at the bottom of the oven compartment and the lower shelf of the truck showing the docking means for aligning the truck with the oven compartment and the locking means for locking the truck to the compartment;

FIG. 6 is an enlarged fragmentary section of the locking means in its inoperative position including latching means for latching the dolly to the shelf;

FIG. 7 is a view corresponding to FIG. 6 with the locking means in its operative position and the latching means in its inoperative position;

FIG. 8 is a plan view taken on the line 8—8 of FIG. 6 with a portion broken away to show the locking rod; and

FIG. 9 is a section taken on the line 9—9 of FIG. 8. Referring to FIG. 1 there is shown an oven 10, a truck 12 rolled up to a position confronting the oven compartment 14 which is in the upper part of the oven structure and a stack of trays 16 supported on a dolly 18 resting on the top shelf 20 of the truck in a position for movement into and out of the oven compartment. The truck (FIG. 1) is shown with a single shelf which is adjusted to a height thereon corresponding to the level of the bottom of the oven compartment. For an oven having a compartment in the lower part of its structure the shelf may be lowered to a corresponding position. If desired two shelves (FIG. 2) may be provided for adjustment on the truck to levels corresponding to the bottoms of the compartments arranged one above the other so that a dolly may be moved from each of the shelves into one of the oven compartments to transport trays mounted thereon to and from the oven compartments.

FIG. 2 shows a truck 12 with two shelves for use with an oven having two compartments, as comprised of rectangularly arranged, vertically disposed posts 22 on which there are mounted for vertical adjustment two shelves 20—20. Brackets 28 mounted to the lower sides of the shelves provided with vertically disposed sleeves 30 for receiving the posts 22 provide for heightwise adjustment of the shelves and set screws 32 provide for fixing the shelves in the desired heightwise position.

At the lower ends of the posts 22 there are casters 34 which provide mobility for the truck so that it may be moved to and from the oven for loading and unloading purposes.

Each tray has on its two opposite sides upstanding side rails 36—36 and along its rear side an upstanding rail 38. Its forward side is open.

To enable moving the truck 12 up to the open front of the oven compartments to a position in exact alignment therewith without having to jog the truck back and forth there are provided docking means on one or both shelves comprising docking members 44—44 (FIGS. 2 and 5) for engagement with the inner sides of the side walls 10a—10a of the compartment at the entrance thereto. The docking members 44—44 comprise

blocks 48—48 bolted or otherwise fastened to the forward side of the shelf which have forwardly extending end portions 49—49. The outer sides of the blocks 48—48 are beveled to facilitate entrance into the oven compartment and are made long enough to guide the truck into exact alignment with the open front of the oven compartment.

As previously related, the shelves are adapted to support dollies on which trays are mounted for movement into and out of the oven compartments. These dollies comprise, as shown in FIG. 3, rectangular frames 54 mounted on wheels 56 for rolling engagement with the shelves and with the bottoms within the oven compartments. It is to be understood that there may be vertically arranged supports between the bottom and top of the oven onto which a corresponding number of dollies may be moved from a corresponding number of shelves on the truck. Each dolly has upstanding side and end walls 53—53 and 55—55 and, as shown in FIGS. 6 and 7, a hook 57.

After the truck has been moved up into confronting relation to the oven compartment it is desirable to lock it in this position so that it will not accidentally be moved away during the loading and unloading operations and accordingly there is provided locking means on the shelves and on the bottoms of the oven compartments lockingly interengageable. The locking means on each shelf comprises a hook 60 at one end of a rod 62 journaled for rotation at the underside of the shelf, as shown in FIGS. 6 and 7, in openings 64—64 formed in a bearing bracket 66 secured to the underside of the shelf. The opposite end of the rod 62 has on it a handle 68 to enable rotating the rod and hence the hook 60 from a horizontal position parallel to the bottom of the oven compartment, as shown in FIG. 6, to a vertical position, as shown in FIG. 7. The bottom of the oven near the front opening contains a slot 70 into which the hook is rotated. The handle 68 is parallel to the hook 60 and extends in the same direction from the rod 62 as the hook so that when the handle is disposed in a downwardly directed position it will indicate that the hook 60 also extends downwardly into locking engagement with the slot 70.

It is also desirable to lock the dollies on the shelves during movement of the truck to and from the oven so that they will not accidentally slide off and so there is latch means 72 for this purpose. The latch means is associated with the rod 62 and hook 60 in such a way that when the hook 60 is moved into locking position the latch means 72 will release the dolly so that it may be moved from the truck into the oven compartments and when the hook 60 is disengaged the latch means will engage the dolly and lock it in place. The latch means 72 comprises a latch plate 74 mounted in vertically spaced slots 76 and 78 in the shelf and in the bracket 66 which has at its opposite edges shoulder members 80—80 (FIG. 9) which limit its upward and downward movement. The latch plate 74 contains a horizontal slot 82 and the rod 62 has an eccentric portion 84 intermediate its ends which passes through the slot 82 so that by rotation of the rod 62 the latch plate 74 will be raised and lowered by the eccentric portion 84. A portion 86 of the latch plate extends upwardly through the slot 76 and contains an opening 88 for receiving the hook 57 which is arranged to slide into and out of the opening 88. When the latch plate 74 is in its uppermost position the hook 57 is free to slide into and out of the

opening without interference. By rotating the rod 62 so as to draw the latch plate 74 downwardly the latch plate is brought into engagement with the hook so as to prevent its withdrawal. The eccentricity of the portion 84 is such that when the rod 62 is rotated to engage the hook 60 in the slot 70 the latch plate will be raised to the position shown in FIG. 7 to release the dolly to permit it to be moved from the truck into the oven compartment and when rotated to disengage the hook 60, after the dolly has been moved from the oven compartment onto the truck, it will move the plate downwardly to engage the hook and hence lock the dolly on the truck.

It is desirable to hold both the hook 60 and the latch plate 74 in each of its positions so that it will require positive manipulation of the handle to actuate the locking hook and the latch plate, and so there is mounted to the underside of the shelf a leaf spring 92 with one end fixed to the shelf and the other end yieldably bearing against the eccentric portion 84, as shown in FIG. 9.

The truck, as previously stated, can be provided with one or more shelves for disposition opposite one or more oven compartments, to wit, a compartment at the top of an oven structure or compartment at the upper and lower portions of the oven structure and also that there may be one or more supports within each oven compartment onto which dollies may be moved, in which case the truck will be provided with a corresponding number of shelves. It is to be understood also that the truck may be employed to transport and transfer trays of material which are to be processed from a refrigerator compartment to an oven compartment and that when it is used for this purpose the refrigerating compartment like the oven compartment will be provided with docking means and locking means to enable moving the truck up to the refrigerator compartment, withdrawing the material to be processed therefrom onto the truck and then moving it by means of the truck to the oven compartment for loading into the oven.

A typical use of the truck would be to place a stack of trays on the dolly, move the truck up to the oven compartment, lock it in place which simultaneously unlocks the dolly, move the dolly into the compartment and unlock the truck and move it away from the oven. When the material introduced into the oven has been completely processed the truck would be again moved up to the oven, locked to it, the dolly rolled out onto the shelf and the truck unlocked and moved away from the oven with the dolly locked to the shelf.

It should be understood that the present disclosure is for the purpose of illustration only and that this invention includes all modifications and equivalents falling within the scope of the appended claims.

I claim:

1. The combination with a compartment having a front wall with an opening providing access to the interior for receiving a dolly, a mobile truck movable to a position confronting the front opening of the compartment, said truck comprising a shelf mounted thereon for adjustment to a height corresponding to the compartment such that when the truck is moved to said confronting position a dolly mounted on the shelf may be rolled therefrom into the compartment, docking means on the truck interengageable with the opening in the compartment, and locking means for locking the truck to the compartment while transferring the dolly

5

from the shelf on the truck to the compartment and vice versa characterized in that said locking means comprises a rigid rod rotatably supported at the underside of the shelf and extending from the front to the back with a hook at the front end for engagement with a slot in the wall and a handle at the rear end for effecting manipulation of the locking means, said rod having an eccentric portion intermediate its ends, a latch plate situated on the eccentric portion perpendicular to the axis thereof with a portion extending upwardly through the shelf, said upwardly extending portion containing an opening, a lug on the underside of the dolly at a level to enter the aperture when the latch plate is elevated and to be locked to the latch plate when the latter is lowered, said eccentric portion of the rod being rotatable by manipulation of the handle to effect elevation and lowering of the latch plate, the disposition of the hook with respect to the eccentric portion of the rod being such that when the hook is engaged with the slot

6

in the wall the latch plate is elevated and when the hook is disengaged from the slot in the wall the latch plate is lowered.

2. The combination of claim 1, wherein the shelf contains a slot for slidably receiving the upper portion of the latch plate and there is means at the lower side of the shelf containing a slot for slidably receiving the lower part of the latch plate.

3. The combination according to claim 1, wherein there is spring means yieldably engaged with the eccentric portion of the rod operable to hold it in each of two positions; one in which the latch plate is elevated and the other in which the latch plate is lowered.

4. A combination according to claim 1, wherein the latch plate has a transversely extending slot for receiving the eccentric portion of the rod and laterally extending shoulders for limiting its vertical movement.

* * * * *

20

25

30

35

40

45

50

55

60

65