

B. B. PHILLIPS.

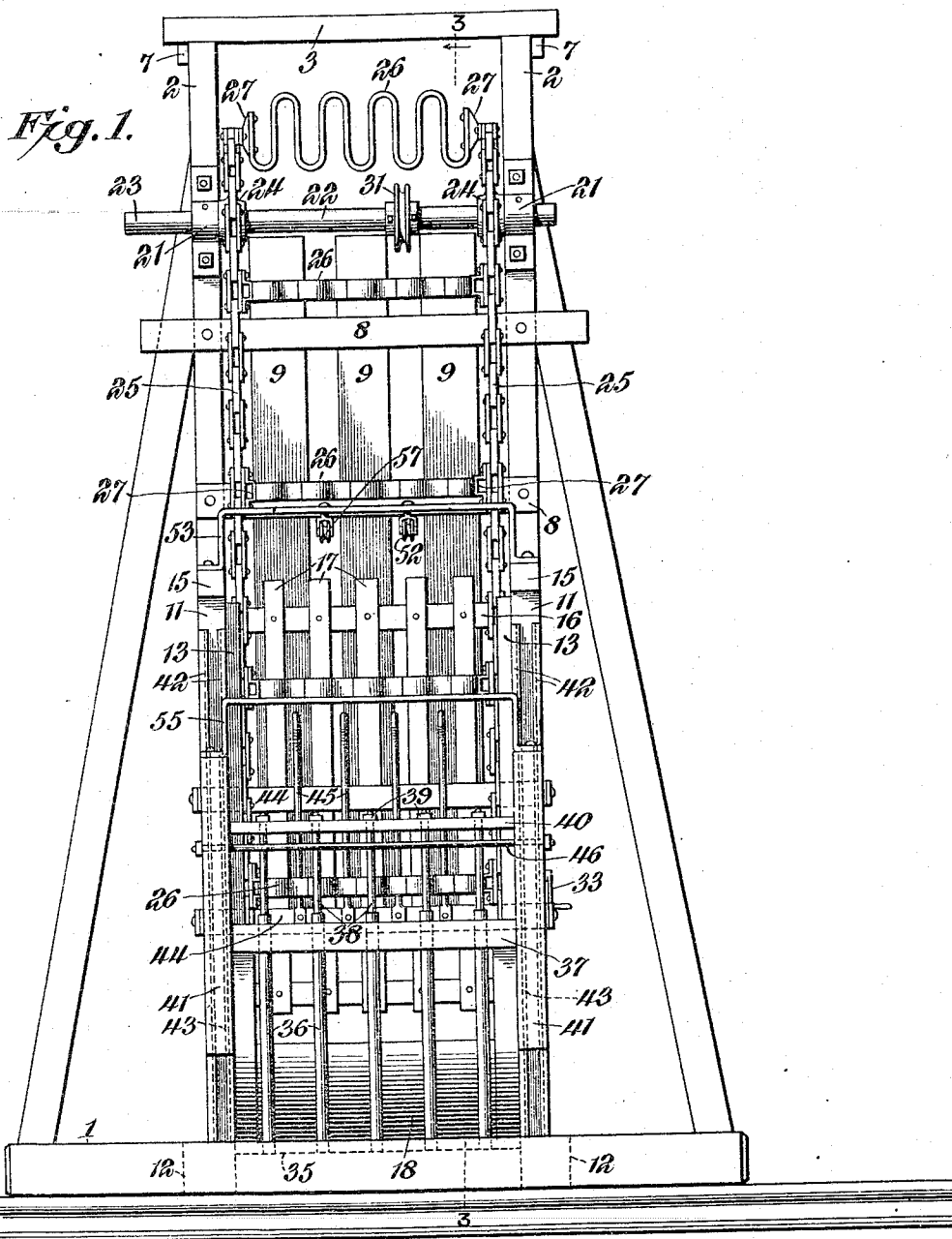
ICE CONVEYER.

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Patented Jan. 21, 1919.

3 SHEETS—SHEET 1.

1,292,039.



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Fig. 4.

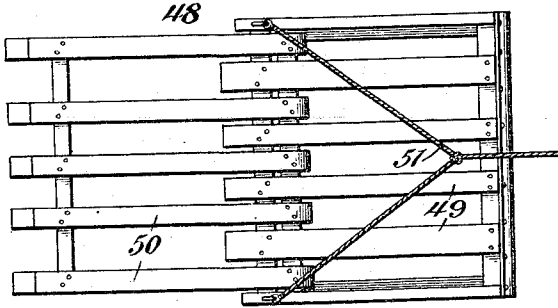
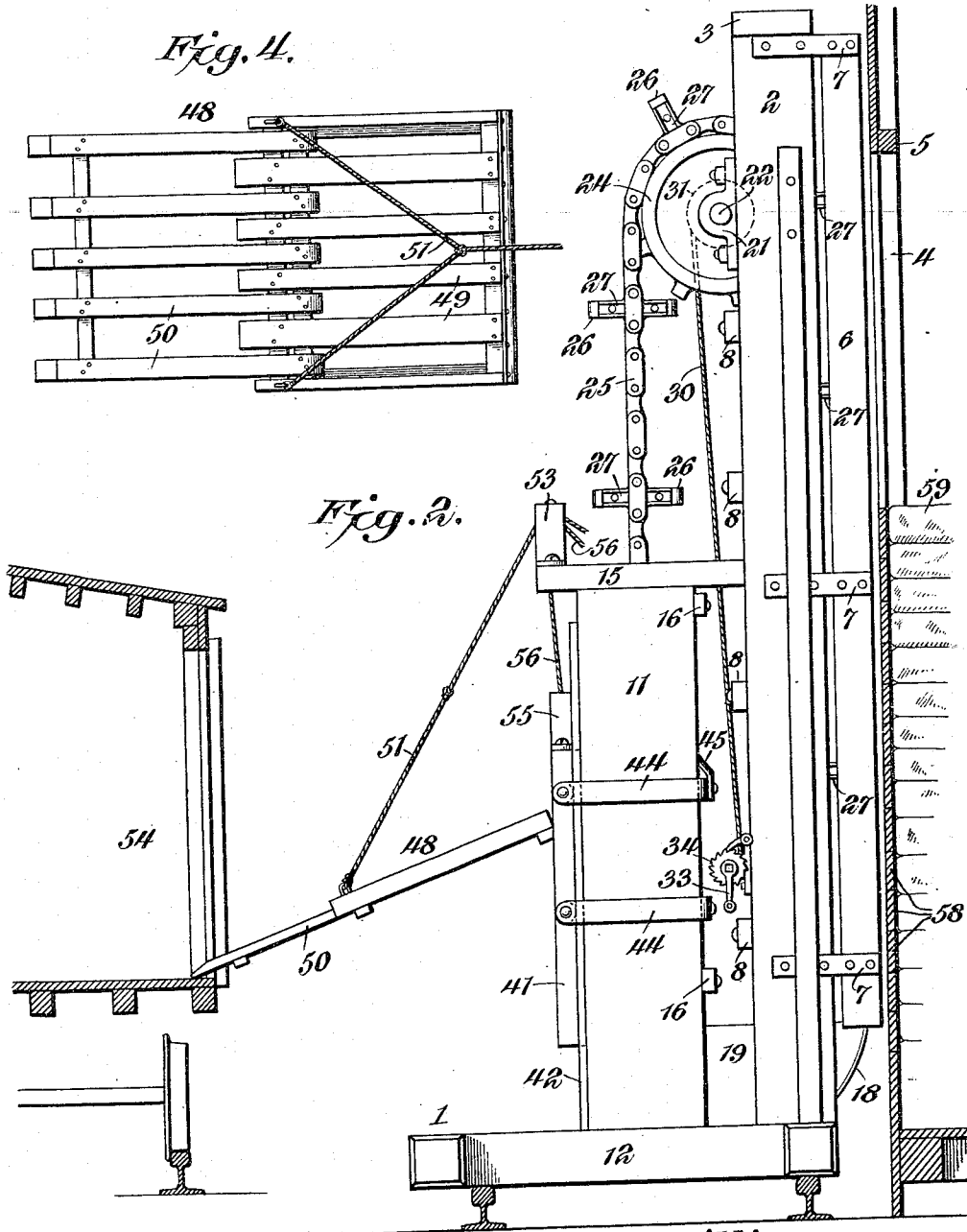


Fig. 2.



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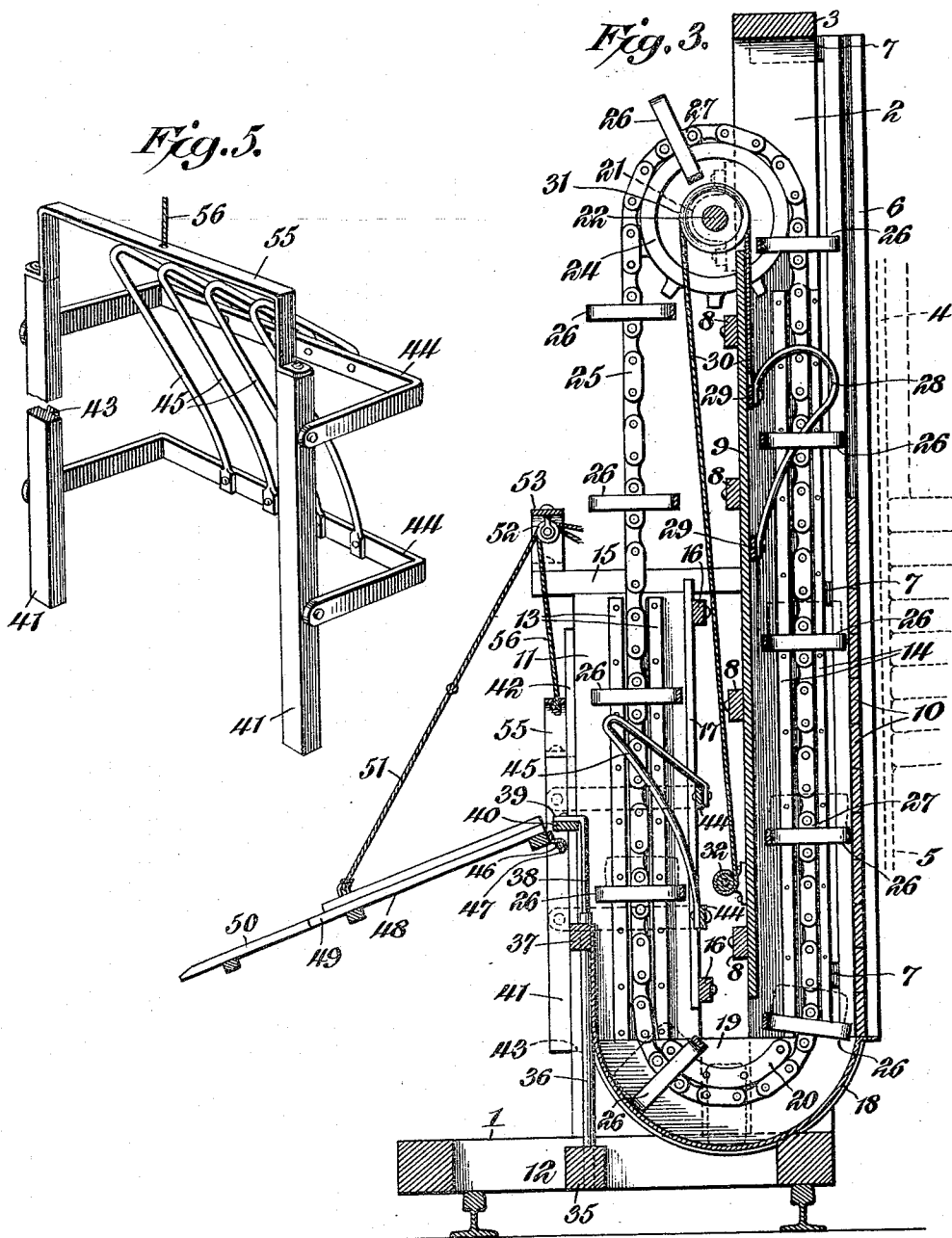
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3 SHEETS—SHEET 3.

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UNITED STATES PATENT OFFICE.

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ICE-CONVEYER.

1,292,039.

Specification of Letters Patent.

Patented Jan. 21, 1919.

Application filed July 3, 1917. Serial No. 178,451.

To all whom it may concern:

Be it known that I, BYRON B. PHILLIPS, a citizen of the United States, residing at Hudson, in the county of Columbia and State of New York, have invented a new and useful Ice-Conveyer, of which the following is a specification.

This invention has reference to ice conveyers, and while the invention, in whole or in part, may be used for conveying other materials than ice and is to be considered of sufficient scope to include such other materials the following description, for the sake of simplicity of expression, will refer to the use of the invention as an ice conveyer.

The object of the invention is primarily to load ice from an ice house into transportation vehicles such as freight cars or vessels, although the invention may be used in connection with wagons, trucks or similar vehicles, and its mode of action may be reversed so as to convey ice from vehicles into the ice house.

The conveyer is made portable and also of small depth so as to occupy a minimum of space outside of the icehouse and, for loading ice into vehicles, the action of the conveyer is largely automatic.

The invention provides an endless conveyer having suitable carrying flights with means for directing the blocks of ice onto the flights and other means for discharging the blocks of ice from the flights.

The several parts of the conveyer are of peculiar construction adapting them particularly for the service demanded; and, while the invention is an improvement upon Letters Patent No. 1,072,985, for a conveyer for handling ice, which patent was granted September 9, 1913, the present invention differs in many respects from the structure of the patent with the improved features greatly simplifying the construction and operation and improving the efficiency of the apparatus.

The invention will be best understood from a consideration of the following detailed description taken in connection with the accompanying drawings forming a part of this specification, with the understanding, however, that the invention is not confined to any strict conformity with the showing of the drawings, but may be changed and

modified so long as such changes and modifications come within the scope of the appended claims.

In the drawings:—

Figure 1 is an elevation of what may be termed the front of the conveyer.

Figure 2 is a side elevation, as seen from the right hand side of Fig. 1, and showing an ice house and a railroad car and some other parts in section.

Figure 3 is a section on the line 3—3 of Fig. 1, omitting the railroad car and indicating a part of the ice house in dotted lines.

Figure 4 is a plan view of the telescoping chute used in connection with the conveyer.

Figure 5 is a perspective view of a direction-changing means for ice blocks for delivering them to the chute or receiving them therefrom.

Referring to the drawings, there is shown a basic framework 1 of sufficient length and breadth to constitute a firm support. Erected on the framework 1 near one long side thereof, the frame being longer than wide, are posts 2 rising to a sufficient height for the purposes of the invention. These posts are connected at the top by a cross-piece 3 and may be of such construction as to provide a firm carrier for parts to be described. That long side of the basic member upon which the posts 2 are erected may be considered as the rear side of the conveyer structure, and the other side may be termed the front side. The rear side of the conveyer is, when the structure is in operation, placed close to a doorway or opening 4 of an ice house 5, the latter being more or less schematically indicated in the drawings.

The two posts 2 carry respectively, upright guides 6 which may be in the form of longitudinally grooved timbers, these guides being secured to the uprights 2 at suitable intervals by strips 7 or in any other appropriate manner. At the opposite or front sides of the posts 2 are cross bars 8 there uniting the uprights and preventing them from spreading and also serving as supports for upright slats 9, which latter, however, may be arranged in the form of a solid wall, instead of being spaced slats, as indicated in the drawings. The guides are arranged to receive boards 10 in upright series forming a wall opposed to the wall made up

of the slats 9, the said slats 9 and boards 10 being sufficiently spaced apart to provide a well.

On the base 1 in advance of the uprights 2 is another well formed of uprights 11 erected on the crossbeams 12 of the basic frame 1 in advance of the uprights 2. The uprights 11 have their inner faces provided with longitudinal guide strips 13 forming channels, and the uprights 2 have similar longitudinal guide strips 14 constituting channels. The uprights 11 are connected at their upper ends to the uprights 2 by beams 15 to stiffen and strengthen the parts and near the top and bottom the uprights 11 are joined by cross strips 16 carrying upright slats 17 forming a wall, similar to the wall made up of the slats 9 and constituting the rear wall of a well at the delivery part of the conveyer structure when conveying ice from the ice house to a point of deposition.

The two wells are joined at their bottom ends by a substantially semi-cylindrical apron 18 having end members 19 each carrying a curved guide 20.

Near the top of the uprights 2 on what constitutes their front portions are journal blocks 21 in which is mounted a shaft 22, shown in Fig. 1 as having one end 23 extended, so that power may be applied thereto, if desired, by means of a pulley or in any other suitable manner.

Mounted on the shaft 22 near the bearing blocks 21 are sprocket wheels 24 and these sprocket wheels carry endless sprocket chains 25 extending through the wells and underneath the guide blocks 20, the strips 13 and 14 also serving as guides for the sprocket chains so that these chains each have two substantially vertical runs.

Carried by certain of the sprocket links of the sprocket chains are flights 26, each comprising end brackets 27 made fast to appropriate links of the chains, and between the chains these flights are of sinuous form. Each flight may be made up of a single strip of metal bent upon itself, with the bends in spaced relation to form elongated and somewhat flattened alternating loops. The flights 26 are supported solely at the ends and are of sufficient width to readily carry a cake of ice of customary size, the wells through which the flights travel being also of suitable cross sectional area to permit the passage of the cakes of ice therethrough.

Adjacent to the wall made up of the slats 9 and within the well between the uprights 2 is a guide member composed of curved bars 28 fast to the ends of strips 29 movable along the inner faces of the slats 9 and guided thereby and by the adjacent strips 14. The bars 28 are capable of traveling up and down in the well in which they are located and bow toward the rear portion of the conveyer

structure, that is toward the ice house when the conveyer structure is in position. The guiding frame having the bars 28 is supported by a rope or cable 30 carried around a pulley 31 mounted loose upon the shaft 22 so as to rotate independently thereof and the cable is continued from the pulley 31 downwardly between the two walls made up of the slats 9 and 17 and to a windlass 32 having a crank 33 and pawl-and-ratchet mechanism 34 within convenient reach of an operator, so that the guide bars 28 may be raised or lowered as desired. The bars 28 are so located with reference to the loops of the flights as to enter between the side walls of the loops, thus permitting the flights to move lengthwise of the guide bars 28 without interference by or with them.

The basic member 1 is provided with a longitudinal beam 35 between the front and rear beams of the frame, and rising from the beam 35 are tubular posts 36 secured at their upper ends to a cross bar 37 fast in the uprights 11. Telescoping in the posts 36 are rods 38 having angle extensions 39 at their upper ends carrying a cross bar 40, which, at the ends, is made fast to slides 41 so spaced as to move in front of the front edges of the uprights 11. These front edges have dovetail upright guides 42 thereon in which engage dovetail tongues 43 extending lengthwise of the slides 41 so that these slides may move up and down but at the same time are held to the uprights 11. The slides 41 are connected by yokes 44 extending about the outer faces of the uprights 11 and across the space back of the uprights 11, thus maintaining the slides 41 together and providing a sliding frame capable of up and down movements along the uprights 11. Those portions of the yokes 44 which span the space between the rear edges of the uprights 11 carry a series of rods 45 so bent and shaped that they present a curved front toward the outer portion of the well inclosed by the uprights 11 and wall 17. These rods 45 are so situated that they move freely through the loops of the flights 26, or these flights move freely along the rods 45 without interference with or by them.

Carried by and extending between the slides 41 below the cross bar 40 is a rod 46 to which is hinged by means of a strap 47 one end of a telescoping chute 48 made up of two series of slats 49 and 50 respectively arranged alternately. This permits the chute to be elongated or shortened as may be found desirable. The hinged section of the chute 48 is carried by a chain or cable 51 rising to a pulley block 52 carried by a fixed strap 53 connecting the upper ends of the beams 15 and extending from one beam to the other. The chain or cable 51 and pulley 52 may be arranged so as to permit raising and lowering of the chute to accommodate it to differ-

ent elevations of vehicles or carriers conventionally represented in Fig. 2 by a box car 54, but which, it will be understood, may be replaced by any suitable transporting means.

5 The slides 41 are connected at their upper ends by a strap 55 carried by a chain or cable 56 which may be connected to another pulley 57 similar to the pulley 52.

10 The doorway 4 of the ice house 5 may be closed by removable members 58 to allow for the lower level of ice in the ice house, represented in Figs. 2 and 3 at 59.

15 When the level of ice in the ice house is considerably above the level of the floor of the receptacle 54 or accumulation of ice therein, no power is needed to cause the delivery of ice once deposited from the ice house onto the flights 26 to the receptacle 54, the operation being performed by gravity.

20 An operator moves the blocks of ice from the ice house onto an adjacent flight 26 in the well back of the wall 9 and the weight of the block of ice is sufficient to propel the endless carrier made up of the chains 25 and flights 26 toward the apron 18, subsequent blocks of ice following as rapidly as the flights present themselves in position to receive the cakes of ice from the ice house. Then the cakes of ice travel through the apron and ultimately reach the lowest part of the latter, from which the flights rise and consequently a flight propelled by a cake of ice into the apron 18 receives the preceding cake on its opposite face and then becomes an elevating flight for the cake of ice, lifting it until the cake of ice is engaged by the curved or otherwise suitably shaped rods 45. As the endless carrier continues to rise, the rods 45 propel the cake of ice toward the chute 48 and expel the cake of ice from the well through which the rising flight of the carrier travels. The chute 48 is always positioned so as to slant downwardly from the front of the apparatus toward the car and consequently the discharged cake of ice naturally gravitates to the car. So long as the level of ice in the ice house is sufficiently high above the receiving portion of the car, the travel of the conveyer is entirely automatic, the weight of the ice providing the propelling impulse. When gravity can no longer be utilized, power must be applied to the shaft 22 to actuate the conveyer.

55 The apparatus is equally useful for filling the ice house from vehicles transporting the ice to the ice house. The cakes of ice are moved along the chute 48, which in this case may slant downwardly, toward the conveyer structure, and the ice is directed by the rods 45 onto the flights 26 as the latter move downwardly into the forward well, the direction of movement of the runs being reversed from that first described. Now the cakes of ice are directed into the apron 18 and rise in the well adjacent the ice house,

ultimately reaching the bars 28 which curve toward the door of the ice house and consequently discharge the ice cakes from the flights carrying them into the ice house where they are suitably taken care of by 70 operatives. The reversal of movement of course requires a suitable adjustment of the directing devices carrying the rods or bars 28 and 45, the sets of rods operating either as directing means for lodging the cakes of ice on the flights or for discharging the cakes of ice from the flights, in accordance with the direction of movement of the flights in conveying the ice from or toward the ice house. The adjustments of the carrying 80 means for the directing or discharging bars is provided for in the windlass 32 controlling the bars 28 or the pulley 57 controlling the bars 45, while the direction of inclination of the chute 48 is determined by the adjustment 85 of the slides 41 and of the chain or cable 51.

By making the main frame of the machine in two upright portions spaced apart but relatively close together and constituting wells for the conveyer, the device is made 90 very compact so far as its extent from the ice house is concerned, wherefore the conveyer is useful under conditions where the available room is limited and the space in which the conveyer must be operated is narrow. The conveyer has two upright and substantially parallel runs, one traveling downwardly in one well and the other traveling upwardly in the other well and both runs being active. The arrangement is such that 100 the conveyer may be used for carrying ice, or any other commodity or containers housing commodities, and transporting such commodities in either direction.

105 The reversibility of the conveyer is made possible by the upright arrangement of the two runs of the conveyer and by the association with the two runs of separate direction changing devices, each capable of directing material into or from the conveyer. If, for 110 instance, the down run of the conveyer has the direction changing device associated therewith arranged to direct material into the conveyer, then the direction changing device associated with the up run of the conveyer is arranged to direct material from 115 the conveyer. The chute provided is connected with the corresponding direction changing device and is adjusted up and down therewith, while the other direction 120 changing device is adjustable up and down independently of the first named device. When ice or other commodity is directed from the storage house to a vehicle or the like, it is directed by the chute into the 125 vehicle and, when the material within the storage house is higher than the point of deposition in the vehicle, the operation of the conveyer may be entirely automatic, due to the action of gravity. When the level of 130

the commodity in the storage house is too low with relation to the vehicle to admit of propulsion of the conveyer by gravity, other power must be employed. When the device is reversed in action, it is usually necessary to employ power other than gravity to drive it.

The sinuous or undulatory flights permit the use of direction changing devices having fingers, which, in the present instance, are shown as formed of wires or bars bent into appropriate shape. These fingers are so located as to extend into the path of the flights from the rear of each run of the conveyer carrier, the fingers entering between those folds or loops of the flights opening on the same sides thereof. This permits the feeding fingers to be supported back of the respective flights and extend into the paths of the flights toward the fronts thereof beyond the mid line of travel of the conveyer flights so that the same feeding fingers or direction changing devices may be used for causing the ice or other commodity to move onto the flights or to move from the flights in accordance with the direction of travel of the endless carrier.

The runs of the chain have been referred to as substantially vertical. Such position need not be strictly adhered to, since under some circumstances the runs may be tilted. The compactness of the structure is due largely to the fact that the runs of the chain are substantially parallel whether the runs be upright or nearly so, or whether they be tilted to a material extent.

When ice is to be delivered from the ice house to a vehicle, the cakes are fed from the ice house edge on so as to engage the fingers 28 above a flight of the carrier already below the upper ends of said fingers 28. The curved or bevel form of the fingers causes the cake of ice to move on edge onto the flight receiving it, and at the same time prevents it from passing in the well far enough to permit the next cake in order to enter under the edge of the next higher flight, wherefore, when the first cake of ice completely enters the well, the next higher flight has been lowered sufficiently to cause the second cake of ice to enter on top of it and tilt as it follows the falling flight to come into the path of the third cake, causing the latter to be directed onto the top of the next succeeding flight. The ice cakes are therefore automatically directed onto the proper flights in order, so that the feeding, so far as the entry onto the flights is concerned, is wholly automatic, and it is impossible for more than one cake to get onto the carrier between two flights and to interfere with the motion of the flights or check the carrier.

What is claimed is:—

1. In a conveyer for the purpose de-

scribed, an endless carrier having two substantially parallel upright runs in close relation and provided with means for guiding material from one run to the other about the bottom loop of the endless carrier, and direction changing devices individual to the runs and each rising from the rear of the run toward the front thereof through the path of the run, whereby either direction changing device will guide material downwardly into and upwardly from the carrier, and the course of the material through the conveyer is first downward to and about the bottom loop of the carrier and then upward and from the carrier,

2. In a conveyer for the purpose described, an endless carrier having two substantially upright runs in close relation and provided with means for guiding material from one run to the other about the bottom loop of the endless carrier, and direction changing devices individual to the runs and each rising from the rear of the run through its path toward the front thereof, both of the direction changing devices being adjustable up and down, and one direction changing device having a chute associated and adjustable therewith and also adjustable for inclination toward or from the direction changing device with which it is associated, whereby articles delivered to one direction changing device are guided downwardly into the carrier and transmitted thereby around the bottom loop of the carrier and then upwardly along the other run of the carrier and are discharged by the other direction changing device, the chute associated with one of the direction changing devices constituting either the delivery or the receiving chute in accordance with the direction of travel of the runs of the carrier.

3. In a conveyer for the purpose described, an endless carrier having two substantially parallel upright runs with guiding means for material on the carrier about the lower loop of the carrier, and other guiding means for the material at higher points on the respective runs of the carrier, with each of the last named guiding means rising through the paths of the respective runs of the carrier from the rear toward the front thereof, whereby material delivered to the carrier on either side of the conveyer is caused to travel downwardly about the bottom loop of the carrier and then upwardly to the discharge point, in accordance with the direction of travel of the conveyer.

4. In a conveyer for the purpose described, an endless carrier having two substantially upright runs movable in either direction, means associated with each run for guiding material downwardly into the run or upwardly from the run in accordance with the direction of travel of the run, and means associated with the bottom loop of the

carrier for there sustaining and guiding the material from one run to the other.

5. In a conveyer for the purpose described, an endless carrier having two substantially parallel upright runs with flights alike on the opposite faces, direction changing devices individual to and mounted back of and projecting upwardly and through the respective runs toward but stopping short of the fronts of the respective runs, and said conveyer being provided with guiding means associated with the bottom loop of the carrier, whereby material directed downwardly into either run is conveyed to the other run and elevated thereon to the discharge point, in accordance with the direction of travel of the carrier.

6. In a conveyer for the purpose described, an endless carrier having two substantially parallel upright runs with flights operable in either direction of travel, and direction changing devices individual to and located back of, and projecting through the paths of the runs in a rising direction toward but stopping short of the fronts thereof, and the conveyer being provided with means coactively related to the bottom loop of the carrier to guide material on the flights about said bottom loop, whereby material may be carried in either direction through the conveyer with the entering material traveling downwardly and counter-balancing corresponding material moving upwardly toward the discharge portion of the conveyer.

7. In a conveyer for the purpose described, an endless carrier having two substantially parallel upright runs, and direction changing devices individual to the runs and each located back of the respective run at its lower end and rising through the path of the run toward but stopping short of the front thereof, the conveyer having means whereby material directed onto the carrier in a downward direction by either of the direction changing devices is conveyed about the bottom loop of the carrier and then upwardly to a discharge point.

8. In a conveyer for the purpose described, and endless carrier having two substantially upright runs, a direction changing device individual to one of the runs and extending across the path of the run from the rear thereof to the front, with the front end higher than the rear end and constituting either the receiving or the discharge means, and a direction changing device individual to the other run and extending in a rising direction across the path of the run from the rear toward the front thereof, with the front end higher than the rear end and constituting either the receiving or the discharge portion, and means associated with the bottom loop of the carrier for directing material entering downwardly into the conveyer about said bottom loop and upwardly into

the rising run of the conveyer for discharge therefrom.

9. In a conveyer for the purpose described, a supporting frame comprising two upright structures forming two adjacent upright wells, an endless carrier with transverse flights and arranged to travel in two upright runs traversing the respective wells, curved guiding means joining the bottom portions of the wells and traversed by the carrier, and direction changing devices traversing the respective wells in a rising direction from the rear portions toward the front portions thereof and also traversed by the carrier, whereby material entering one well is carried downwardly therethrough to the other well and upwardly therealong to the direction changing device therein.

10. In a conveyer for the purpose described, a frame having two adjacent upright portions spaced apart and constituting wells, with one well extending to a greater height than the other, a curved apron joining the lower ends of the wells and constituting a sustaining guide for material passing from one well to the other about the lower end of the conveyer, an endless carrier with transverse flights movable through the wells in two upright oppositely traveling runs individual to the respective wells and also through the guide formed by the curved apron, and direction changing devices individual to the wells and extending in opposite directions through the paths of the runs of the carrier from the adjacent or rear portions of the wells toward the outer portions of said wells, said direction changing devices each guiding material into or from the respective well in accordance with the direction of travel of the run of the conveyer with which it is associated.

11. In a conveyer for the purpose described, a frame having two adjacent upright portions spaced apart and constituting wells, with one well extending to a greater height than the other, a curved apron joining the lower ends of the wells and constituting a sustaining guide for material passing from one well to the other about the lower end of the conveyer, an endless carrier with transverse flights movable through the wells in two upright oppositely traveling runs individual to the respective wells and also through the guide formed by the curved apron, and direction changing devices individual to the wells and extending in opposite directions through the paths of the runs of the carrier from the adjacent or rear portions of the wells toward the outer portions of said wells, said direction changing devices each guiding material into or from the respective well in accordance with the direction of travel of the run of the conveyer with which it is associated, and each direction changing device being provided with means

for moving it lengthwise of the well in which it is located.

12. In a conveyer for the purpose described, a frame having two adjacent upright portions spaced apart and constituting wells, with one well extending to a greater height than the other, a curved apron joining the lower ends of the wells and constituting a sustaining guide for material passing from one well to the other about the lower end of the conveyer, an endless carrier with transverse flights movable through the wells in two upright oppositely traveling runs individual to the respective wells and also through the guide formed by the curved apron, and direction changing devices individual to the wells and extending in opposite directions through the paths of the runs of the carrier from the adjacent or rear portions of the wells toward the outer portions of said wells, said direction changing devices each guiding material into or from the respective well in accordance with the direction of travel of the run of the conveyer with which it is associated, and each direction changing device being provided with means for moving it lengthwise of the well in which it is located, and that direction changing device in the shorter well being provided with a chute carried thereby and participating in the up and down movements of the direction changing device carrying it.

13. In a conveyer for the purpose described, an endless carrier having two upright runs movable oppositely and in either direction, and downwardly directed guiding devices individual to the respective runs, each guiding device directing the material either into or from a respective run of the carrier and the other guiding device then directing the material either from or into the other run of the carrier in accordance with the direction of travel of said carrier, and the material while on the carrier always moving downwardly from the receiving point and then upwardly to the discharge point.

14. In a conveyer for the purpose described, a supporting frame having two adjacent upright wells, and an upright endless carrier having upright runs movable in opposite directions through the respective wells, an extensible and contractible wall for one of the wells, a direction changing device carried by the said wall and associated with one run of the carrier to direct material onto or from the carrier, an adjustable chute participating in the movements of the extensible and contractible wall, and associated with the respective direction changing device, another direction changing device associated with the other well and corresponding run of the carrier, and adjustable along the well independently of the first named direction changing device, and serving to direct

material from the carrier, and a sectional removable wall for the second named well, whereby to accommodate it for varying levels of feed or delivery.

15. In a conveyer for the purpose described, a supporting frame having two adjacent upright wells, an upright endless carrier having upright runs movable in opposite directions in respective wells, an extensible and contractible wall for one of the wells, a direction changing device carried by said wall and associated with one run of the conveyer to direct material either into or from the carrier, another direction changing device associated with the other well and corresponding run of the conveyer to direct material either onto or from the conveyer and adjustable along the well independently of the first-named direction changing device, and a removable closure for the second-named well, whereby to accommodate it for varying levels of feed or delivery.

16. The combination of a carrier having a downwardly movable receiving run and an upwardly movable delivery run with spaced flights for the reception of relatively flat articles, a direction changing means supported at the rear of each run of the carrier and projecting through the paths of the runs of said carrier into close approach to the fronts of the runs with the extent of projection of the direction changing means toward the front diminishing downwardly, and each direction changing device being of a length approximating the distance between the flights of the carrier, whereby a flat article entering the carrier is directed in an edgewise manner on the flight receiving it and interposed in the path of the next article in order to hold it back from entrance onto the carrier until the next succeeding flight is in position to receive the second named article.

17. In a conveyer for the purpose described, an endless carrier having two substantially upright runs in close relation and provided with means for guiding material from one run to the other about the bottom loop of the endless carrier, and direction changing devices individual to the runs and each rising from the rear of the run through its path toward the front thereof, one direction changing device having a chute associated therewith and adjustable for inclination toward and from the direction changing device with which it is associated, whereby articles delivered to one direction changing device are guided downwardly onto the carrier and transmitted thereby around the bottom loop of the carrier and then upwardly by the other run of the carrier and are discharged by the other direction changing device, the chute associated with one of the direction changing devices constituting either the delivery or the receiving chute in

accordance with the direction of travel of the runs of the carrier.

18. In a conveyer for the purpose described, a direction changing device comprising a frame mounted to move up and down, yokes carried by the frame and having their connecting portions spaced away from the frame, and rods each having a return portion at one end with the ends of the return portions and those ends of the rods remote from the return portions secured to the connecting portions of the yokes, with the rods at their return ends directed toward the slidable frame.

19. In a conveyer for the purpose described, a direction changing device comprising a frame mounted to move up and down and provided with spaced slides, yokes joining the slides with the connecting portions of the yokes spaced away from the slides, rods connected at the ends to the yokes and projecting therefrom toward the slides, another rod connecting the slides, and a chute carried by the last named rod, said chute participating in the up and down movements of the frame.

20. In a conveyer for the purpose described, an endless carrier having two substantially upright runs movable in either direction, means for guiding material from one run to the other about the bottom loop of the carrier, and double acting means as-

sociated with each run for either guiding material downwardly into the run or directing the material upwardly from the run in accordance with the direction of travel of the run and without making any change in said means, whereby the conveyer is double-acting and may be utilized for conveying the material from one side or the other at will.

21. In a conveyer for the purpose described, an endless carrier having two substantially upright runs movable in either direction, means for guiding material from one run to the other about the bottom loop of the carrier, and similar direction changing devices individual to the runs, each device being capable of guiding material into the run or directing the material out of the run without any change in the construction or adjustment of the device and solely by the direction of travel of the run, whereby the conveyer is double-acting and may be used for conveying material from one side to the other at will.

In testimony, that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

BYRON B. PHILLIPS.

Witnesses:

A. D. HEYL,

FRANK T. HUME.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."