

No. 812,084.

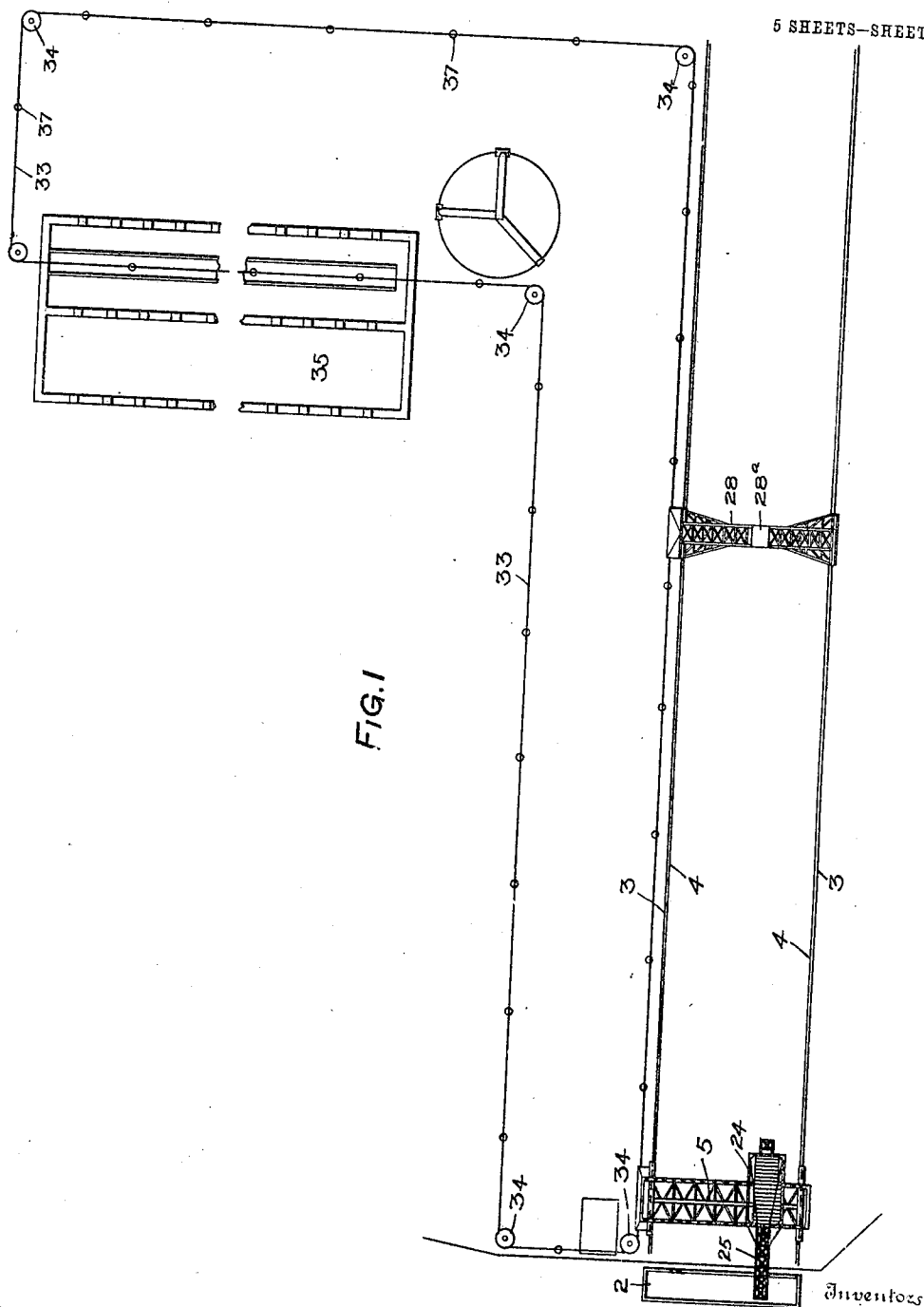
PATENTED FEB. 6, 1906.

W. J. PATTERSON & L. J. ROBB.

COAL HANDLING PLANT.

APPLICATION FILED JAN. 9, 1904.

5 SHEETS—SHEET 1.



Witnesses

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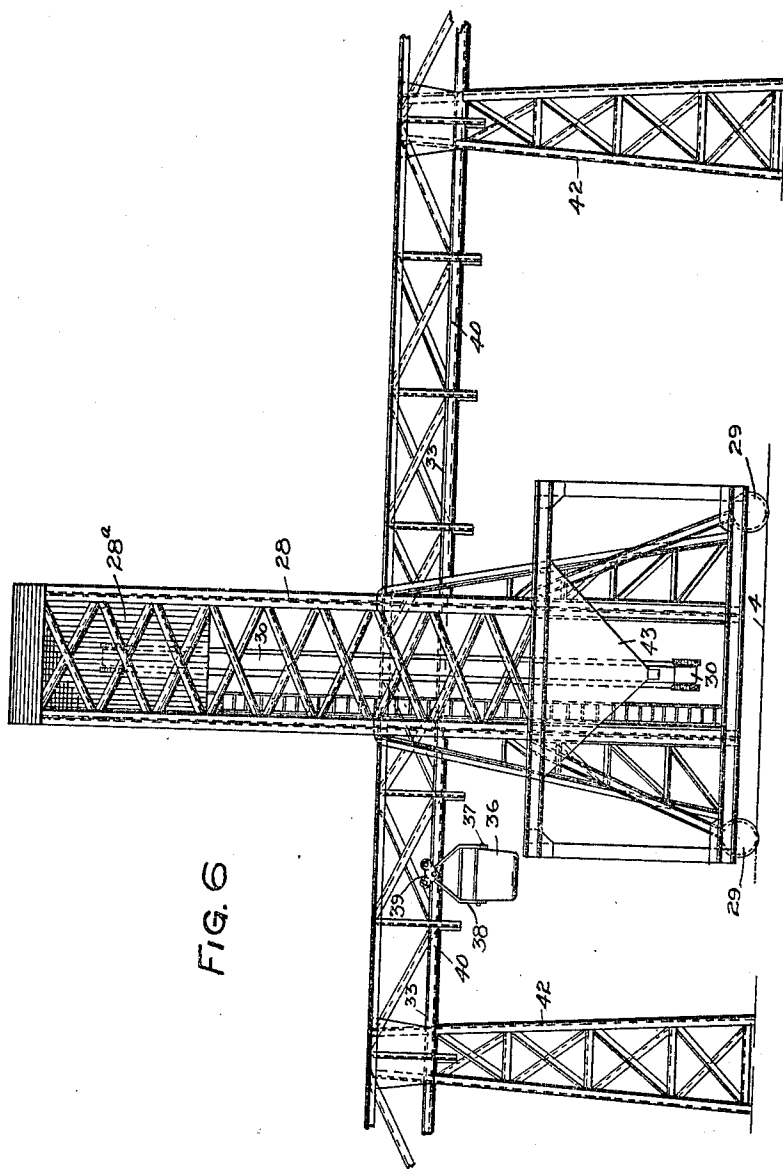
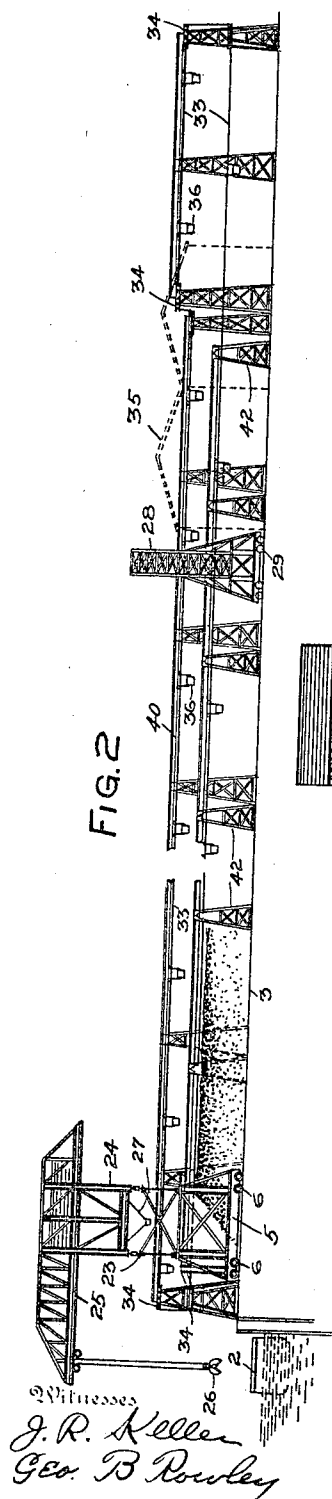
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5 SHEETS—SHEET 2



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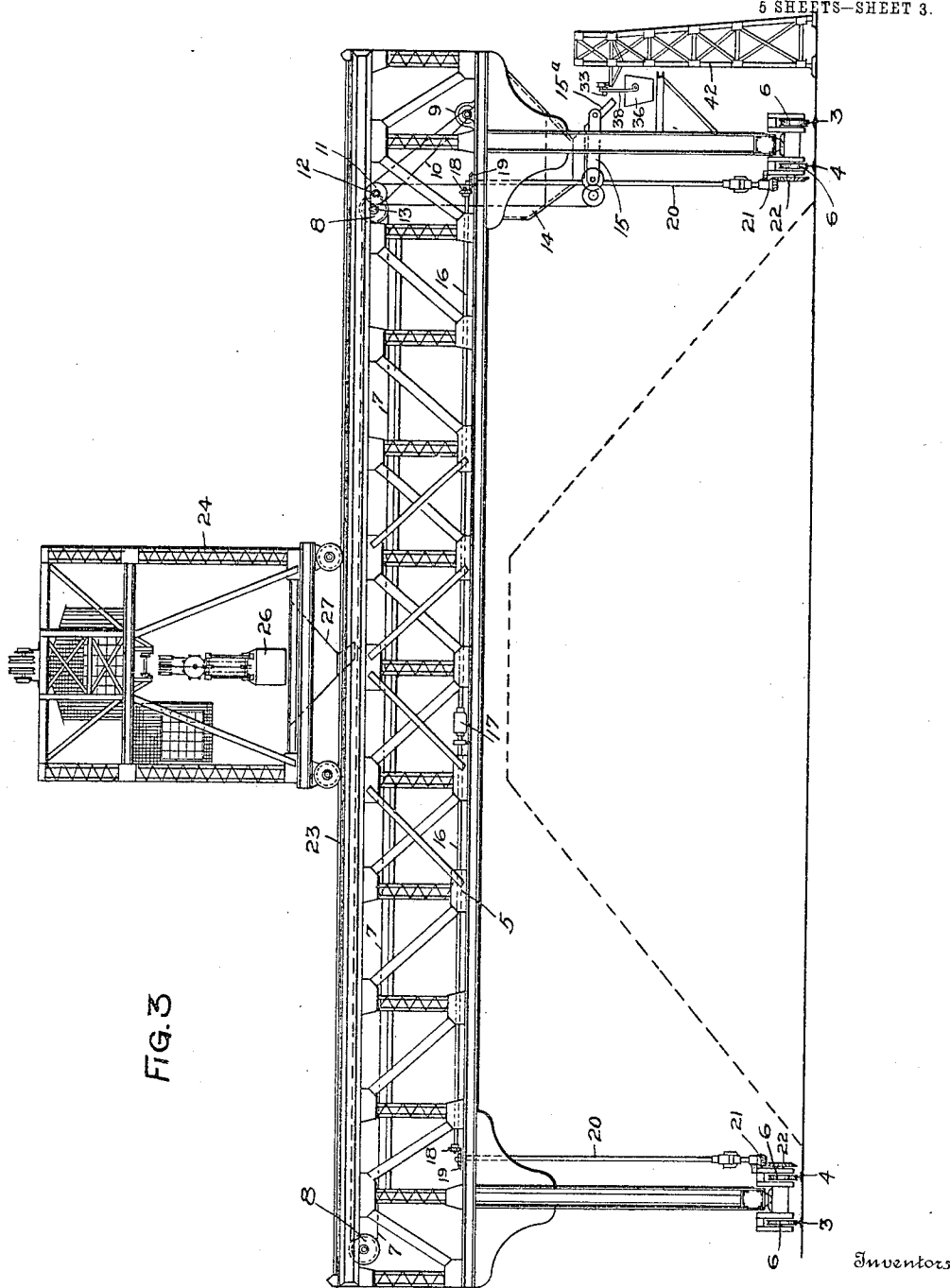
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5 SHEETS—SHEET 3.



Witnesses
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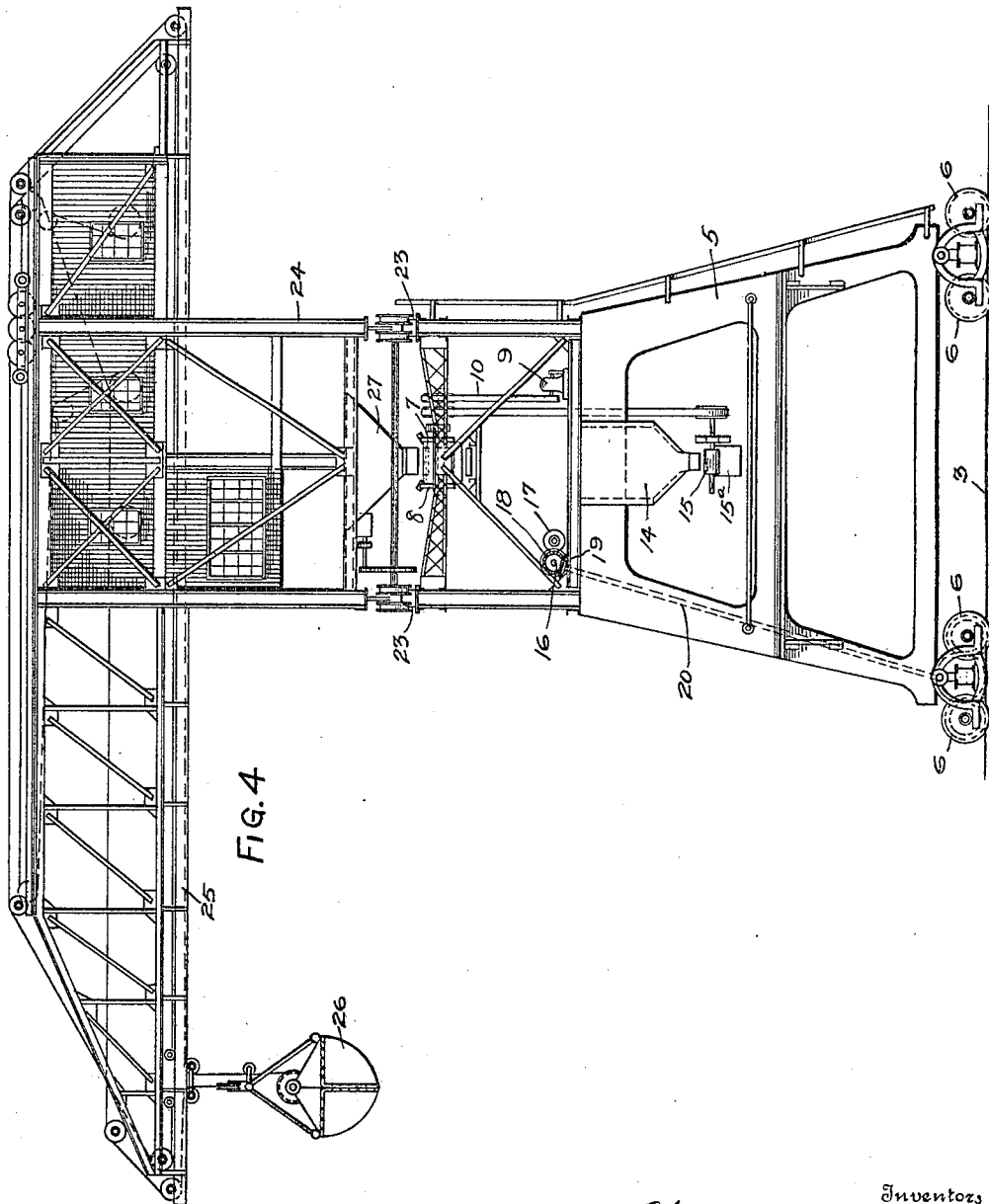
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5 SHEETS—SHEET 4.



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UNITED STATES PATENT OFFICE.

WILLIAM J. PATTERSON AND LEWIS J. ROBB, OF PITTSBURG, PENNSYLVANIA, ASSIGNORS TO HEYL & PATTERSON, OF PITTSBURG, PENNSYLVANIA, A COPARTNERSHIP.

COAL-HANDLING PLANT.

No. 812,084.

Specification of Letters Patent.

Patented Feb. 6, 1906.

Application filed January 9, 1904. Serial No. 188,355.

To all whom it may concern:

Be it known that we, WILLIAM J. PATTERSON and LEWIS J. ROBB, residents of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Coal-Handling Plants; and we do hereby declare the following to be a full, clear, and exact description thereof.

Our invention relates to a coal handling and storage plant, its object being to provide for the convenient and economical handling of coal where, for instance, the coal is unloaded from cars or barges and is to be transferred directly to the point of consumption or stored in piles for subsequent use.

Our invention comprises, generally stated, a traveling bridge adapted to move back and forth on a suitable track, said bridge having an outwardly - projecting frame mounted thereon and adapted to travel transversely of the bridge, said frame carrying mechanism for lifting coal from a car or other receptacle and mechanism on said bridge for conveying the coal so lifted to a suitable conveying mechanism arranged in proper position with reference to the said bridge, whereby the coal is deposited in said conveying mechanism and carried to the point of consumption or to a suitable device for distributing the coal in piles between the tracks upon which said traveling bridge travels.

To enable others skilled in the art to make and use our invention, we will describe the same more fully, referring to the accompanying drawings, in which—

Figure 1 is a diagrammatic plan view of our improved coal handling and storage plant. Fig. 2 is a side elevation of same. Fig. 3 is an enlarged rear view of the traveling bridge. Fig. 4 is an end view of same. Fig. 5 is an enlarged face view of the device for distributing the coal in piles, and Fig. 6 is an end view of same.

Like numerals indicate like parts in each of the figures.

Referring to Fig. 1, we have illustrated our invention in connection with an arrangement in which the coal is carried in barges to our improved handling and storage plant, and accordingly the numeral 2 designates a coal-boat or barge from which the coal is to be taken. Arranged at right angles to the said barge 2 and running back therefrom a suit-

able distance are the tracks 3 and 4, the tracks 3 being parallel with the outside of the tracks 4. Mounted on the tracks 3 and 4 is the traveling bridge 5, said bridge being formed of girders and angle-iron properly braced and supported, so as to give a structure of the requisite strength; but as the specific form of this bridge forms no part of our invention we will not describe the same in detail. This bridge 5 is provided with the wheels 6, which rest upon the tracks 3 and 4 and by means of which the said bridge is enabled to be moved back and forth upon said track. The bridge 5 is provided with the conveyer 7, which may be of any suitable construction, that shown being an endless belt and mounted upon the drums 8 on said bridge, said belt being driven by means of the motor 9, which is connected up by the belt 10 to the pulley 11, mounted on the shaft 12, the shaft 12 having a small pinion meshing with the gear-wheel upon the shaft 13. The bridge 5 is provided at one end with the hopper 14, and below said hopper is the conveyer 15 and a spout 15^a, so that the material deposited in said hopper 14 is conveyed by said conveyer 15 to the spout 15^a, whence it is deposited into the traveling buckets, hereinafter more fully described. To provide for the travel of the bridge 5, the bridge is provided with the shafts 16, driven by a motor 17, said shafts having the bevel-pinions 18 meshing with the bevel-pinions on the vertical shafts 20. The lower end of said shafts 20, having the bevel-pinion 21, engage with the large bevel-gear 22 on the shaft carrying the wheels 6, so that by the above connections the wheels 6 are driven in the proper direction to move the said bridge. Mounted on the tracks 23 of said bridge 5 is the carriage 24, which may be of any suitable construction, said carriage having projecting out therefrom the frame 25, said frame forming the support for suitable mechanism for handling the clam-shell bucket 26. As this arrangement for operating the clam-shell bucket forms no part of our invention and may be of any well-known construction, we have not illustrated or described the same in detail. Any suitable device may be employed for moving the carriage 24 along the bridge 5. The carriage 24 is further provided with the chute 27 for discharging the coal onto the endless conveyer 7 of the bridge 5.

In the rear of the bridge 5 and mounted upon the inner tracks 4 is the double inclined traveling frame 28, said frame being composed of beams and angle-bars so united as
5 to form a structure of the requisite strength and provided with the wheels 29, which travel on the track 4. At the upper end of this double inclined frame 28 is the cab 28^a, which forms a cover for the mechanism for
10 elevating the coal to the top of said frame.

An endless conveyer 30 is provided on one side of the inclined frame 28, said conveyer being driven by suitable mechanism contained within the cab 28^a, all as indicated in
15 dotted lines. Below the cab 28^a is the central hopper 31, into which the coal is discharged from the conveyer 30. At the side of the central hopper are the hoppers 32 for discharging the coal to both sides of the central
20 hopper to make a pile conforming generally to the shape of the double inclined frame 28.

At one side of the tracks 3 and 4 and parallel therewith is the endless cable 33, said cable passing around suitable guide-pulleys 34
25 and passing therefrom in a suitable course to and through the boiler-house 35 and back to the point of starting. This endless cable may be driven by any suitable power. Connected to said cable are the buckets 36, said
30 buckets being adapted to swing on the trunnions 37, engaging the arms 38, the upper ends of said arms having the trolley-wheels 39, adapted to engage the rail 40, supported upon the shelves 41 of the upright frames 42,
35 arranged at proper intervals. These buckets 36 are arranged in such relation to the bridge 5 and to the inclined frame 28 that said bucket will receive the material discharged from the spout 15^a of the bridge 5 and when
40 tilted will discharge their contents into the chute 43 of said inclined frame 28.

In the handling and storing of coal by the use of our invention the coal is brought by barge into proper position with reference to
45 the bridge 5, whereupon the carriage 24 is moved to one end of the bridge so as to bring the overhanging frame 25 into proper position to remove the coal by beginning at the end of the boat. The clam-shell bucket 26 is
50 then lowered and having been filled with coal the same is raised and by suitable mechanism is brought into position over the chute 27, whereupon said bucket is opened and the coal discharged into said chute. The coal
55 passes from said chute onto the endless conveyer 23, whence it is carried and deposited onto the chute 14, where it passes by the conveyer 15 and spout 15^a into one of the buckets 36, which is arranged to be in proper position
60 to receive the coal as it is discharged from the spout 15^a. The bucket when filled passes along either by direct course to the boiler-house, or in case it is desired to store the coal said coal is carried along until it reaches
65 the point where the double inclined frame 28

is located, whereupon by tipping said bucket its contents are discharged into the chute 43 and carried by the conveyer 30 up to the top of said frame and discharged into the chutes
70 31 or 32 to be distributed in a substantially uniform pile beneath said frame. Where the coal is discharged, as shown, into the center chute 31, said chute will fill up and what overflows will be carried by the chutes 32 to the
75 sides of the pile. By working in this manner the carriage 24 is moved across the bridge 5, taking the coal from the boat from one end to the other without moving the boat, while at the same time the coal thus lifted is carried directly to the boiler-house or is stored in the
80 storage pile by means of the double inclined frame 28. This frame 28 is moved along, as found necessary, in order to provide for the proper distribution of the coal.

When it is desired to draw from the storage pile, the bridge 5 is moved back into
85 proper position to permit the clam-shell bucket 26 to lift the coal from the pile, and the coal from the pile is then delivered into the buckets and carried directly to the boiler-house.
90

By our invention large quantities of coal may be handled and stored quickly and economically and the coal taken with equal facility directly from the boat or car or from the
95 reserve supply stored between the tracks upon which the bridge travels.

What we claim as our invention, and desire to secure by Letters Patent, is—

1. In a coal handling and storage plant, the
100 combination of a suitable track, an elevated traveling bridge on said track, a conveyer on said bridge, a carriage adapted to travel across said bridge, an outwardly-projecting frame on said carriage, a coal-lifting device
105 carried by said frame and adapted to discharge the coal onto said conveyer, and a conveyer traveling parallel with said track and adapted to receive the coal from said first-mentioned conveyer.
110

2. In a coal handling and storage plant, the
combination of a suitable track, a traveling bridge on said track, a coal lifting device carried by said bridge, a series of buckets traveling parallel with said track and adapted to
115 receive the coal from said coal-lifting device, a traveling frame on said track in the rear of said bridge, and an elevator on said frame adapted to receive the contents of said buckets.
120

3. In a coal handling and storage plant, the
combination of a suitable track, an overhead traveling bridge on said track, a coal-lifting device carried by said bridge, a series of overhead traveling buckets parallel with said
125 track and adapted to receive the coal from said coal-lifting device, a traveling frame on said track in the rear of said bridge, and an elevator on said frame adapted to receive the contents of said buckets.
130

4. In a coal handling and storage plant, the combination of a track, a double inclined traveling frame on said track, an inclined elevator on said frame, and a discharge-chute at the upper end of said frame into which said elevator discharges its contents.

5. In a coal handling and storage plant, the combination of a track, a series of overhead traveling buckets traveling parallel with said track, an elevated traveling frame on said track, an elevator on said frame adapted to receive the contents of said conveyer, and a discharge-chute at the upper end of said frame into which said elevator discharges its contents.

6. In a coal handling and storage plant, the combination of a track, a traveling frame on said track, an elevator on said frame, a chute at the lower end of said frame adapted to discharge into said elevator, and a discharge-chute at the upper end of said frame into which said elevator discharges its contents.

7. In a coal handling and storage plant, the combination of a track, a double inclined traveling frame on said track, an inclined elevator on said frame, and two or more discharge-chutes at the upper end of said frame into which said elevator discharges its contents.

8. In a coal handling and storage plant, the combination of a suitable track, a traveling bridge on said track, a coal-lifting device carried by said bridge, a conveyer traveling parallel with said track adapted to receive the coal from said coal-lifting device, a traveling frame on said track in the rear of said bridge, and an elevator on said frame adapted to receive the contents of said conveyer.

9. The combination with apparatus for unloading materials from cars, barges and the like, and means independent of said apparatus for placing said materials in storage, of means for adapting said unloading apparatus for use in reclaiming the stored materials from any desired point of the storage pile.

10. The combination with apparatus for

unloading materials from cars, barges and the like, and means independent of said apparatus for conveying said materials to a distance from the unloading apparatus and depositing them in storage, of means for adapting said unloading apparatus for use in reclaiming the stored materials from any desired point of the storage pile.

11. The combination with movable apparatus for unloading materials from cars, barges and the like, and means independent of said apparatus for conveying said materials to storage, of means for transporting said unloading apparatus to any desired point of the storage pile to be used in reclaiming the stored material from storage.

12. In a coal handling and storage plant, the combination of a suitable track, an elevated traveling bridge on said track, and coal or like lifting device carried by said bridge, independent means for placing in storage the coal lifted by said lifting device, and means for moving said traveling bridge along said track, whereby said lifting device may be employed to reclaim the coal from the storage pile at any desired point.

13. The combination with apparatus for unloading materials from cars, barges and the like, and means independent of said apparatus for conveying said materials to a distance from the unloading apparatus, means for depositing said materials in storage, means for adapting said unloading apparatus for use in reclaiming the stored materials from storage, and means for adapting said original conveying means to convey the materials so lifted by said unloading apparatus.

In testimony whereof we, the said WILLIAM J. PATTERSON and LEWIS J. ROBB, have hereunto set our hands.

WILLIAM J. PATTERSON.
LEWIS J. ROBB

Witnesses:

ROBERT C. TOTTEN,
F. W. WINTER.