No. 783,129. PATENTED FEB. 21, 1905.

W. J. PATTERSON.

SAND HANDLING APPARATUS.

APPLICATION FILED MAR. 26, 1904.

2 SHEETS—SHEET 1.

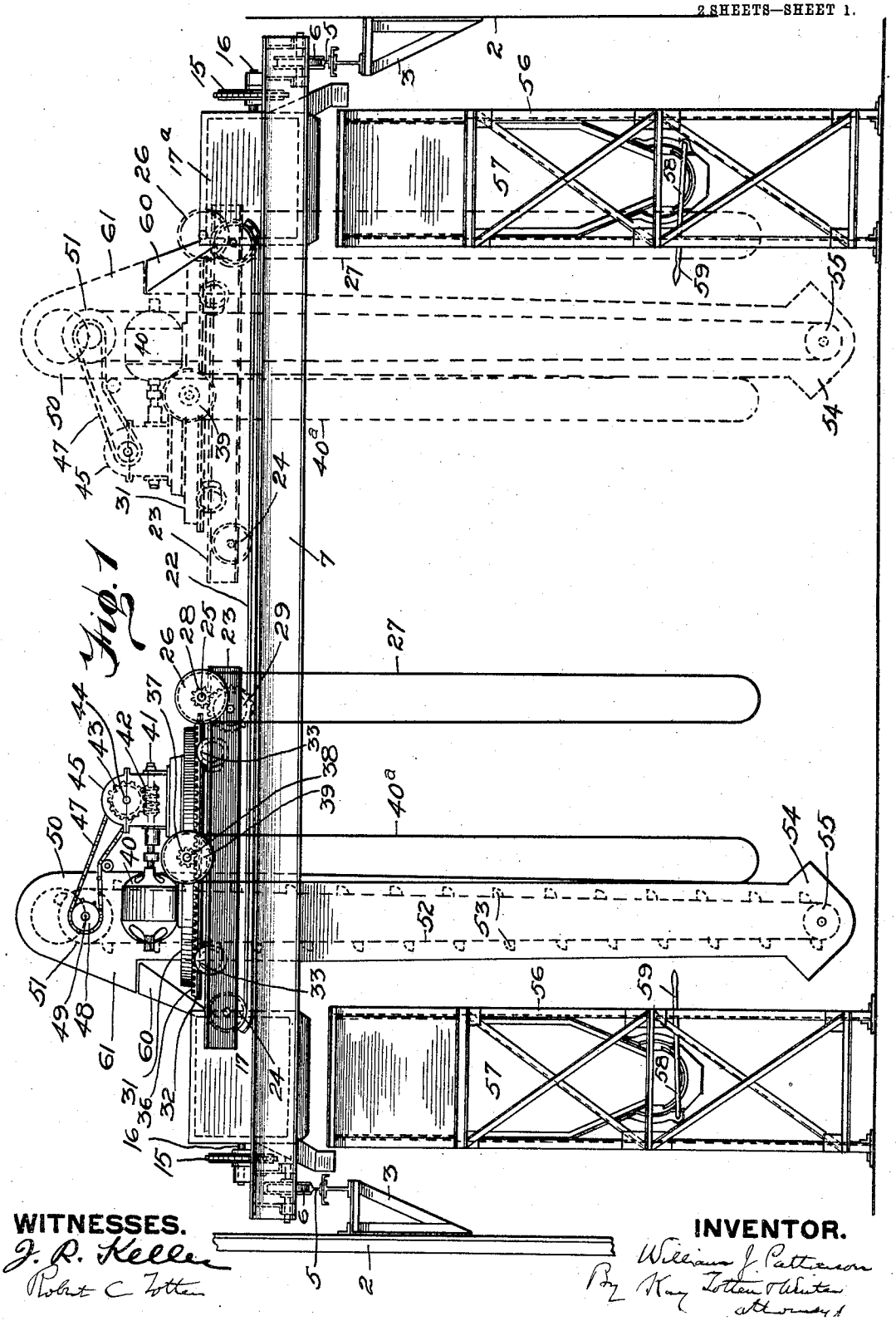


Fig. 1

WITNESSES.

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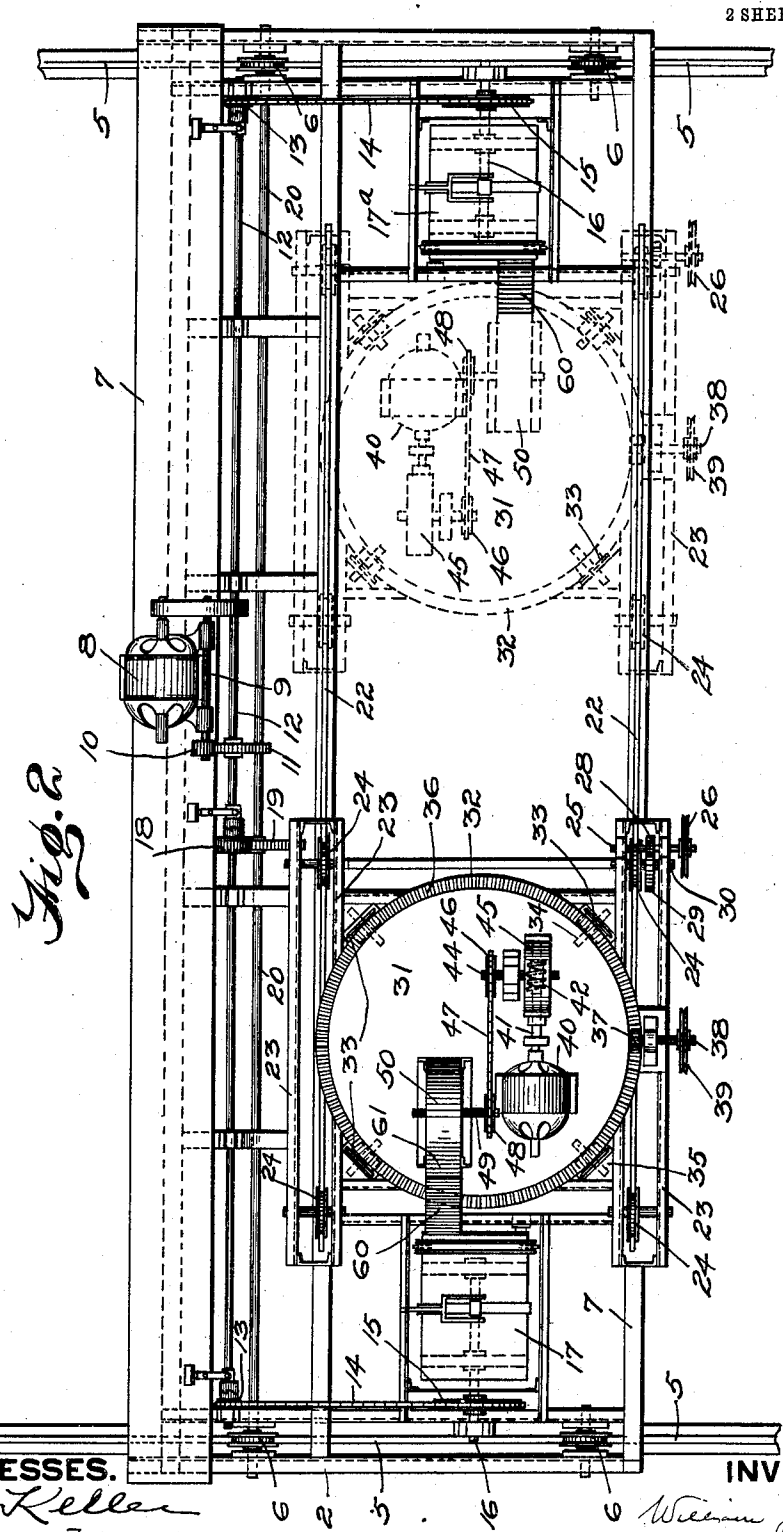


Fig. 2

WITNESSES.

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No. 783,129. Patented February 21, 1905.

UNITED STATES PATENT OFFICE.

WILLIAM J. PATTERSON, OF PITTSBURG, PENNSYLVANIA, ASSIGNOR TO HEYL & PATTERSON, INC., OF PITTSBURG, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

SAND-HANDLING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 783,129, dated February 21, 1905.

Application filed March 26, 1904. Serial No. 200,208.

To all whom it may concern:

Be it known that I, WILLIAM J. PATTERSON, a resident of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Sand-Handling Apparatus; and I do hereby declare the following to be a full, clear, and exact description thereof.

My invention relates to a device for handling sand or like material, its object being to provide a device by means of which sand in a foundry may be expeditiously handled so as to avoid the necessity of manual labor and provide sand in proper quantities for a continuous-molding process.

To these ends my invention comprises, generally stated, an overhead frame and carriage mounted on said frame and adapted to travel longitudinally thereof, an elevator carried by said carriage and depending therefrom, and a mechanism for turning said elevator, whereby the sand lifted by said elevator may be discharged into a screen or other receptacle at one end of said structure and may be afterward turned so as to discharge the sand into a like screen or receptacle at the other end of said structure.

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

Figure 1 is a side elevation of my improved sand-handling device. Fig. 2 is a plan view thereof.

Like numerals indicate like parts in each of the figures.

In the drawings the numeral 2 designates a suitable framework or building inclosing a foundry casting-room, and secured to said frame are the brackets 3, which support the tracks 5, extending longitudinally of the frame or structure 2. Mounted upon the tracks 5 is the traveling crane or bridge 7, which is adapted to travel along the tracks 5, said crane being provided with the wheels 6. Mounted on the crane 7 is the motor 8, said motor having the shaft 9, with the pinion 10 thereon, which meshes with the gear-wheel 11 on the shaft 12. This shaft 12 extends to the opposite ends of the crane, and mounted on the end of said shaft is the sprocket-wheel 13, which is connected, by means of a chain 14, with the sprocket-wheel 15, mounted on the shaft 16 of the rotary screen 17. While I have only specifically described one screen and the mechanism for operating same, a similar screen 17ª is employed at the opposite end of the bridge, together with similar mechanism for driving the same. As these screens and the mechanism for driving the same do not form any part of my invention, it has not been deemed necessary to illustrate or describe the same other than in the general manner set forth. Furthermore, the screen may be dispensed with and a chute or other receptacle employed for discharging the sand in proper position below on the foundry-floor for reuse in molding.

In order to provide for the traveling of the crane 7 along the tracks 5, the gear-wheel 18 on the shaft 12 meshes with gear-wheel 19 on the shaft 20. The shaft 20 carries at its ends the wheels 6 of the crane, and when said shaft 20 is driven said crane is caused to move along the tracks 5 for any desired distance. Suitable clutch mechanism may be employed for throwing the shaft 20 into and out of engagement with the operating mechanism; but as this forms no part of my invention it has not been deemed necessary to illustrate the same.

Mounted upon the crane 7 and extending between the screens 17 are the tracks 22, the ends of said tracks being slightly upturned. Upon the tracks 22 is mounted the carriage 23, which has the wheels 24 engaging the rails of said track. The shaft 25 is mounted in suitable bearings in the carriage 23, said shaft having on its outer end the sprocket-wheel 26, with which the chain 27 engages. A pinion 28 on the shaft 25 meshes with the gear-wheel 29 upon the shaft 30, said shaft 30 forming one of the axles of the carriage, and upon which are mounted the wheels 24. It is apparent that by pulling the chain 27 in one direction or the other the carriage 23 will be caused to travel along the tracks 22.

Mounted upon the carriage 23 is the turn-table 31, said turn-table having the flange 32, which rests upon the rollers 33. These rollers are mounted on the shafts 34, which are journaled in brackets 35 on said carriage. Upon the upper face of the flange 32 of the turn-table is the circular rack-face 36, with which the pinion 37 engages. This pinion 37 is mounted on the shaft 38, which is journaled in suitable bearings in the carriage 23, and on the outer end of said shaft 38 is the sprocket-wheel 39. A chain 40^a also engages the sprocket-wheel 39, so that by pulling on said chain the pinion 37 is rotated and a rotary movement is imparted to the turn-table.

Mounted upon the turn-table is the motor 40, whose shaft 41 carries the worm 42, which engages the worm-wheel 43 on the shaft 44, said worm-wheel being covered by the hood 45. A sprocket-wheel 46 on the shaft 44 is connected by the chain 47 with the sprocket-wheel 48 upon the shaft 49. This shaft 49 is the operating-shaft of the elevator 50, and said shaft carries the sprocket-wheel 51, around which the chain 52 passes, said chain 52 being provided with the buckets 53 for lifting the sand. At the lower end of the elevator 50 is the receptacle 54, and journaled in said receptacle is the lower sprocket-wheel 55 of the elevator.

Arranged at suitable intervals along the foundry-floor are the frames 56, provided with the hoppers 57, adapted to receive the sand from the screens, said hoppers being provided with the gates 58 at the lower end thereof, which are controlled by a lever 59, whereby the sand may be discharged from said hopper in the amount desired, it being usual to have the molding-machine beneath said hoppers.

Secured to the screen-frame is the stationary chute 60, which is adapted to coincide with the chute 61 of the elevator 50.

When my improved sand-handling device is in use and where the screen on the left-hand side of the drawings is the one in use, the carriage 23 will be over at the left-hand side of the track 22 in the position indicated in Figs. 1 and 2. The sand is shoveled into the receptacle 54 at the bottom of the elevator 50, and the motor 40 being put into operation the sand is lifted and discharged by the chute 61 into the chute 60, whence it passes into the screen 17. This is continued until it is desired to operate the screen 17^a at the other side of the frame, whereupon by drawing on the chain 27 the carriage 23 is moved to the other side of the frame across the track 22. The operator then draws on the chain 40, and through the mechanism described the turn-table 31 is revolved until the chute 61 is brought around in position to coincide with the chute 60. The elevator is then put into operation and the sand lifted and discharged in the same manner as before described into the screen at the right-hand end of the frame. In this manner one elevator may be employed for raising the sand from either side of the foundry-floor, and the necessity of employing two elevators or some form of conveying apparatus for carrying the lifted sand from the elevator to the opposite screen is avoided.

What I claim is—

1. In a sand-handling device for foundry purposes, the combination with a series of sand-receiving devices arranged in substantially parallel rows upon the foundry-floor with an intervening space between said rows, of an overhead traveling bridge, a carriage on said bridge adapted to travel transversely thereof, an elevator on said carriage extending down into said space, and means for turning said elevator to discharge the sand into either row of sand-receiving devices.

2. In a sand-handling device for foundry purposes, the combination with a series of sand-receiving devices arranged in substantially parallel rows upon the foundry-floor with an intervening space between said rows, of an overhead traveling bridge, a carriage on said bridge adapted to travel transversely thereof, mechanism for driving said carriage, an elevator on said carriage extending down into said space, and means for turning said elevator to discharge the sand lifted thereby into the sand-receiving devices of either row.

3. In a sand-handling device for foundry purposes, the combination with a series of sand-receiving devices arranged in substantially parallel rows upon the foundry-floor with an intervening space between said rows, of an overhead traveling bridge, a carriage on said bridge adapted to travel transversely thereof, a turn-table on said carriage, an elevator carried by said turn-table and extending down into said space, means for turning said turn-table to discharge the sand raised by said elevator into either row of said sand-receiving devices.

In testimony whereof I, the said WILLIAM J. PATTERSON, have hereunto set my hand.

WILLIAM J. PATTERSON.

Witnesses:
ROBERT C. TOTTEN,
G. KREMER.