

No. 766,040.

PATENTED JULY 26, 1904.

J. B. HUMPHREYS.
BELT CONVEYER APPARATUS.

APPLICATION FILED JAN. 7, 1901.

NO MODEL.

2 SHEETS—SHEET 2.

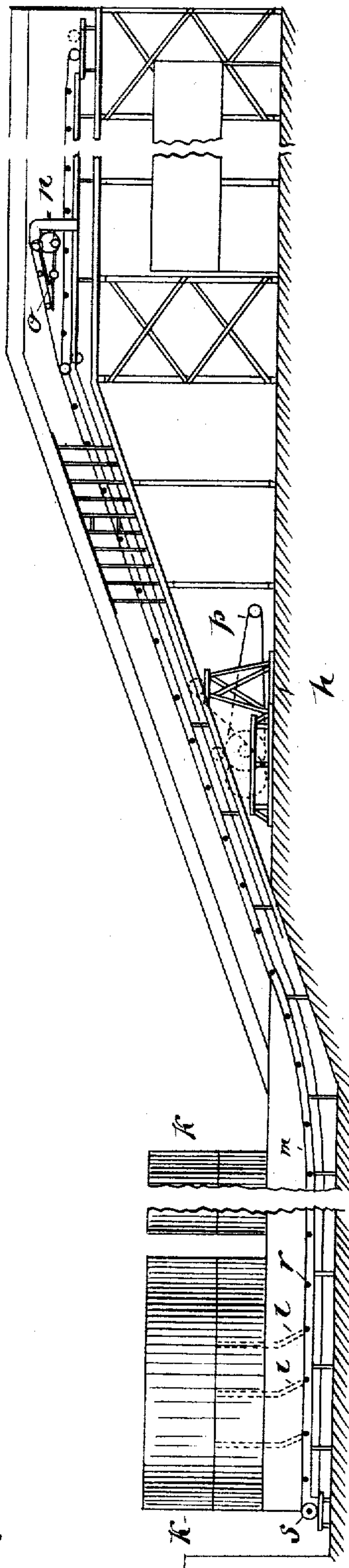
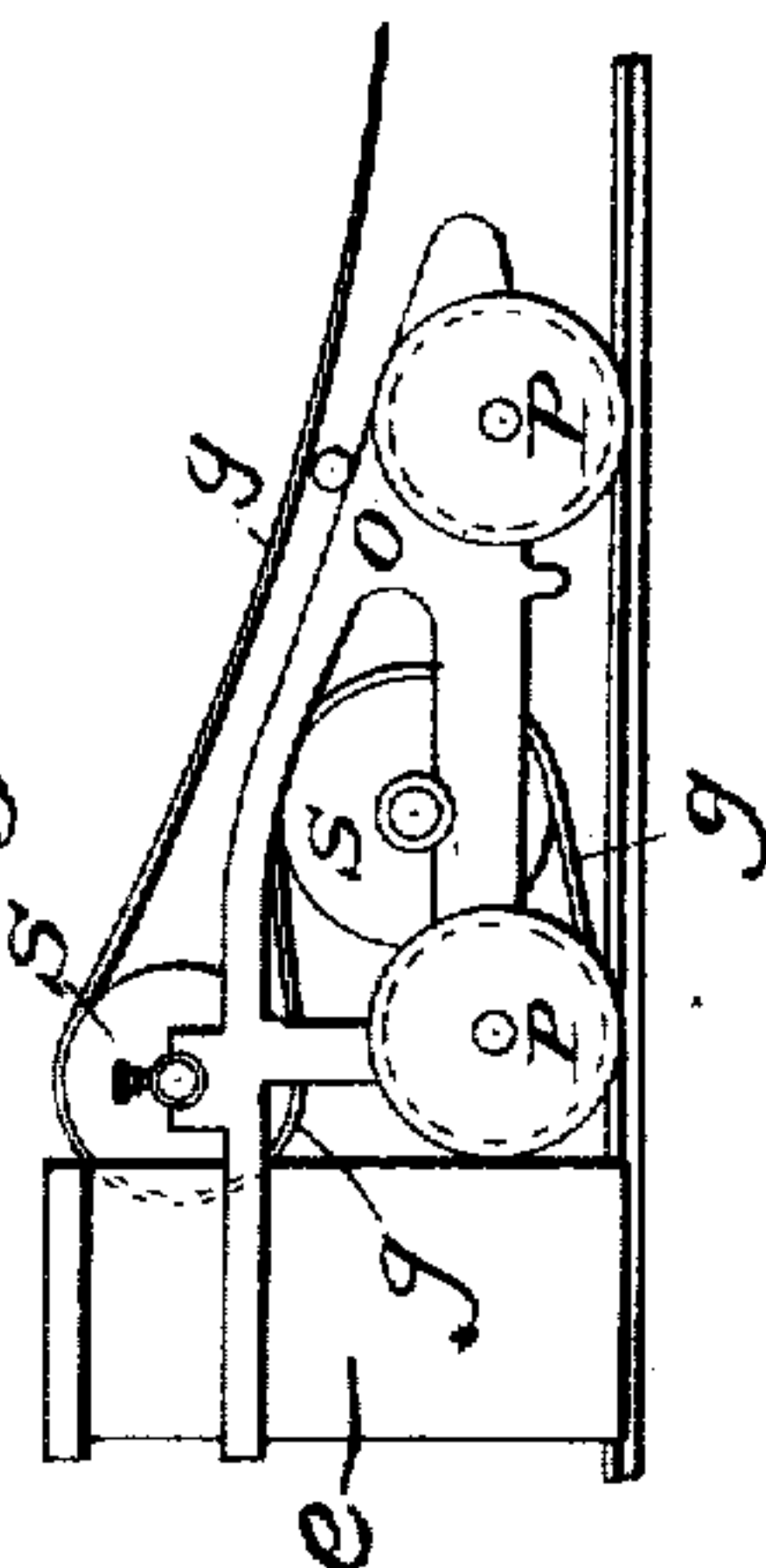


Fig. 3

Fig. 4.



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UNITED STATES PATENT OFFICE.

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BELT CONVEYER APPARATUS.

SPECIFICATION forming part of Letters Patent No. 766,040, dated July 26, 1904.

Application filed January 7, 1901. Serial No. 42,315. (No model.)

To all whom it may concern:

Be it known that I, JAMES BARNES HUMPHREYS, residing at No. 146 East Thirty-seventh street, in the borough of Manhattan, in the city and State of New York, have invented certain new and useful Improvements in Belt Conveyer Apparatus for Distributing Material into Tanks, &c., of which the following is a description, referring to the accompanying drawings, which form part of this specification.

This invention is particularly adapted to be used in conveying ores to leaching-tanks containing cyanid, the cyanid being used for the extraction of gold or other metals; but I by no means limit or restrict this invention to such use.

One common process heretofore in use has been to dump the ore from cars which are run on a trestle over the tank; but by this means the ore is dumped in one part of each tank, and as a result the finer particles remain in a mass and become packed together.

By the improved device a nearly-even distribution of the ore over the bottom of the tank is obtained, the action of the cyanid is more complete, and very low-grade ores may be worked at a profit.

In the drawings, Figure 1 is a side elevation of the ore-conveyer and leaching-tanks. Fig. 2 is a plan view of the same. Fig. 3 shows the settling-tanks in section and the apparatus used for elevating the ore to the level of the conveyer shown in Figs. 1 and 2. Fig. 4 is an enlarged detail view of a suitable tripper or delivering device.

In the drawings like reference-letters designate like parts.

The fine ore or pulp is discharged from the settling-tanks *k*, Fig. 3, through the pipes *l*, onto the conveying-belt *m*, which is carried on the idler-pulleys *r*, the idler-pulleys being arranged as shown at the right in Fig. 1. The conveying-belt *m* is actuated by the mechanism *h*, which is driven from a source of power *p*, the loaded portion of the belt passing from left to right up an incline, as shown.

When the belt reaches the tripping mechanism *o*, which tripping mechanism is the

same as that described in my patent application Serial No. 17,804, filed May 24, 1900, and patented No. 673,539, it discharges the ore from the belt into the chute *n*, which is also shown in Fig. 1.

In order to discharge the material from the conveyers, suitable trippers, as stated, are provided, one form of which is shown in Fig. 4. The framework *O* is provided with wheels *P*, a discharge-hopper *R*, and the upper and lower pulleys *S*, over which the belt *g* runs, in the form of an ogee curve, so that the material is delivered from the belt into the chute *e*. According to this construction it will be seen that the tripper may be moved in the direction of the length of the belt and may therefore deliver material from the belt at any desired point.

The leaching-tanks *c* contain the cyanid solution, and between them is erected the framework *d*, carrying the guides *z* and rails *d'*, upon which rest the wheels *v*. Upon these rails is mounted to travel a complete conveying-belt apparatus, the framework of which forms the traveling-bridge crane *b*, mounted on the wheels *v*. This mechanism is actuated by the motor *x*, which transmits power to the wheel *w* and the belt by appropriate gearing mechanism, as shown in Fig. 2. The motors *x* also impart motion to the frame *b* along the rails on the elevated structure *d*. This conveying-belt passes over the end wheels *w* and *w'* and is of sufficient length to reach below the chute *i* and extend over all of the leaching-tanks. A movable tripper *f*, for the purpose of delivering material from any point on the length of the bridge *b* upon which it is mounted, which is similar to that in my above-mentioned application and as above described, is mounted upon the bridge *b* and is free to travel across the same. The conveying-belt *g* discharges into the chute *e*, which chute travels with the tripper. This tripper mechanism is provided with automatic starting and stopping devices to allow of its being adjusted at any point upon the bridge.

The operation of the device is as follows: The ore in the tank *k* is discharged onto the conveying-belt *m*, from which it is discharged

through the chutes *n* and *l* onto the conveying-belt *g* by means of the tripper. It moves along the belt *g* until it reaches the tripper *f*, from whence it is discharged by the chute *e* into the tanks *c*. As will be seen from the drawings, the bridge *b* is mounted upon the wheels *v*, which travel on the rails *d'*. By this means the bridge *b* can be placed over any desired part of the tanks *c*, and by a further adjustment by means of the tripper *f* the ore can be evenly distributed over the surface of the tanks. By actuating the bridge continuously at a very slow speed—say at twenty or thirty feet per hour—and by actuating the tripper automatically, so that it will travel the length of the bridge and back again every few minutes, the material may be automatically distributed over the surface of the tanks. Where the circular tanks are used, the length of movement of the tripper should be varied at different portions of the tanks. The cars *q*, running upon the tracks *t*, receive the ore from the bottom of the leaching-tanks and by means of appropriate switches can be placed under any desired part of the tanks to receive the material from the tanks when it is desired to empty them.

According to this invention it will be seen that a plurality of cooperating belt conveyers are provided with delivering devices therefor adjustable relatively to the conveyers, and the conveyers may be adjusted to deliver a continuous stream of material from one of the delivering devices at any point in a given area. Means are provided for transferring material from one belt conveyer to the other, and the belt conveyers are relatively adjustable.

What I desire to claim as the novel and characteristic features of my invention are the following:

1. In combination in a conveying apparatus, a movable conveying-belt framework, means for movably supporting said framework, a conveying-belt mounted and actuated upon said framework, and means adjustable lengthwise of said belt for discharging material therefrom, substantially as set forth.

2. In combination in a conveying apparatus, a movable conveying-belt framework, means for laterally moving and supporting said framework, a conveying-belt mounted and actuated upon said framework, and means for discharging material from said belt, consisting of mechanism mounted upon said framework and adjustable lengthwise of the belt, substantially as set forth.

3. In combination in a conveying apparatus, a movable conveying-belt framework, means for movably supporting said framework, means for giving lateral motion to said framework, a conveying-belt mounted and actuated upon said framework, means for actuating said conveying-belt, and means for discharging material from said belt, consisting of mechanism mounted upon said framework

and adjustable lengthwise of the belt, substantially as set forth.

4. The combination of two conveyers disposed at an angle to each other and one adjustable relatively to the other and an adjustable discharging device cooperating with each conveyer, said discharging devices cooperating to discharge material at any point throughout the extent of the two conveyers.

5. The combination of a conveyer, a stationary support therefor, a movable bridge disposed at an angle to said conveyer and its stationary support, a conveyer on said movable bridge, a discharging device adjustable on the fixed support and cooperating with the conveyer thereon, and a discharging device on the movable bridge adjustable from end to end thereof and cooperating with the conveyer on the bridge to discharge material at any point throughout the length of the latter.

6. The combination with a fixed trackway and a conveyer thereon, of a traveling bridge disposed at right angles to said trackway, an endless conveyer extending lengthwise of said traveling bridge adapted to receive material from the first-mentioned conveyer at any point along the fixed trackway and an adjustable tripper on the bridge and cooperating with the conveyer thereon to discharge material from the bridge-conveyer at any point between the ends of the bridge.

7. The combination with a series of bins or receptacles and a rail at each side thereof forming a track, of a movable bridge mounted to run on said track and disposed over the bins or receptacles, an endless conveyer on the movable bridge, a stationary support disposed beside the series of bins or receptacles and at right angles to the movable bridge, a conveyer on the stationary support, an adjustable tripper adapted to discharge from the conveyer on the stationary support onto the conveyer on the bridge and an adjustable tripper on the bridge cooperating with the endless conveyer thereon to discharge material from said endless conveyer on the bridge into any part of any of the bins or receptacles.

8. The combination of a conveyer mounted on a stationary support, a traveling bridge disposed at an angle thereto, an endless conveyer on the bridge, means cooperating with the first-mentioned conveyer for discharging onto the conveyer on the traveling bridge and adjustable means cooperating with the conveyer on the bridge for discharging at an angle thereto.

9. The combination of a plurality of cooperating belt conveyers, delivering devices therefor adjustable relatively to the conveyers, and means for adjusting the said conveyers to deliver a continuous stream of material from one of the delivering devices at any point in a given area, for substantially the purposes set forth.

10. The combination of a plurality of coop-

erating belt conveyers and delivering devices therefor, and means for adjusting the said conveyers and delivering devices to deliver a continuous stream of material from one of the
5 delivering devices at any point in a given area, for substantially the purposes set forth.

11. The combination of a plurality of cooperating belt conveyers, means for transferring material from one to the other, and means
10 for delivering material from one of said conveyers in a continuous stream at any point in a given area, for substantially the purposes set forth.

12. A conveying system, comprising a plu-

ality of cooperating relatively adjustable 15 belt conveyers so arranged that material may be delivered from one to the other, the system being so constructed that a continuous stream of material may be delivered from one of the conveyers at any point in a given area, for 20 substantially the purposes set forth.

Signed this 4th day of January, 1901, at New York, N. Y.

JAMES BARNES HUMPHREYS.

Witnesses:

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THOMAS E. NASH.