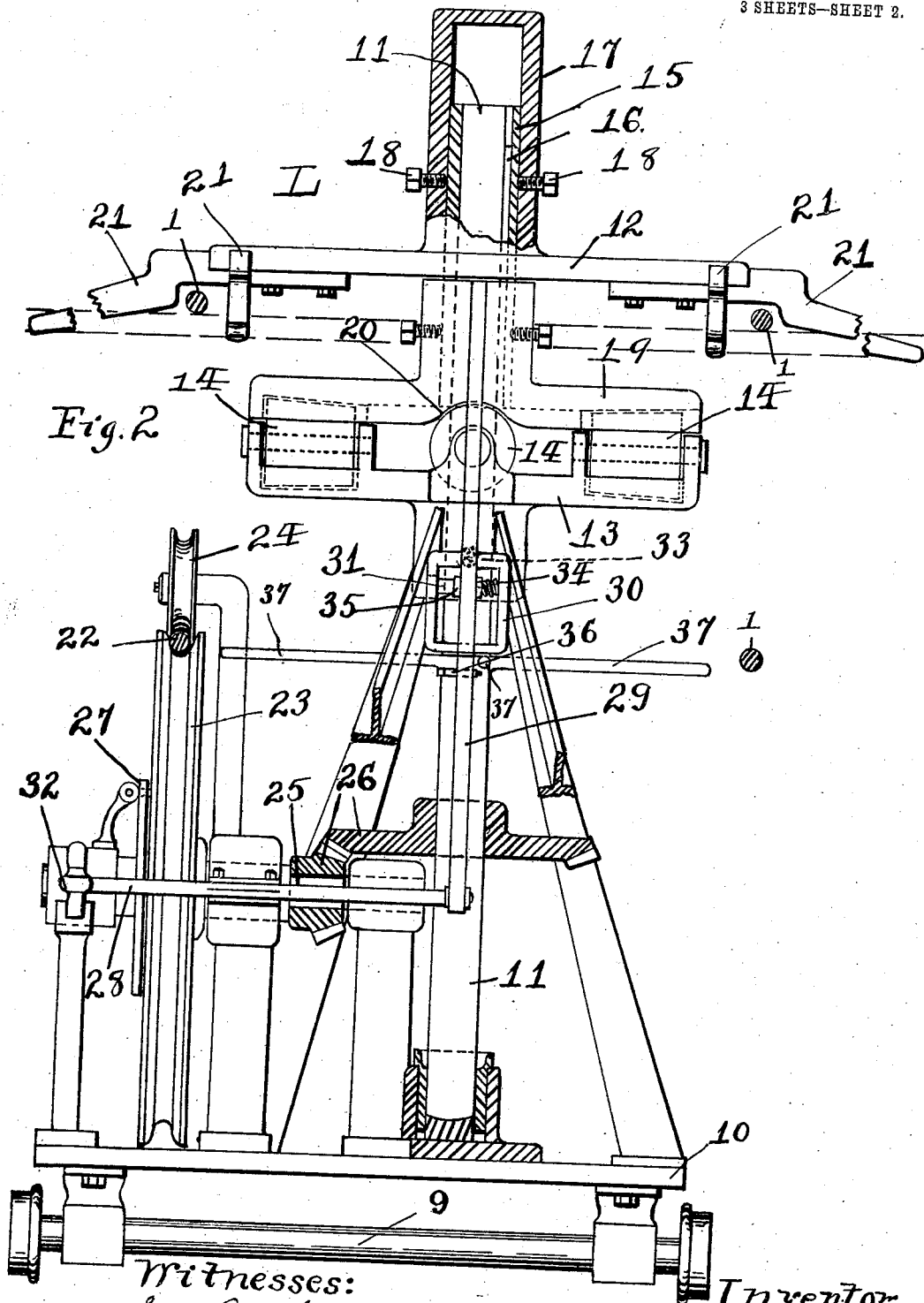


No. 853,365.

PATENTED MAY 14, 1907.

C. H. KLEIN.
BRICK CONVEYER.
APPLICATION FILED MAR. 15, 1906.

3 SHEETS—SHEET 2.



Witnesses:
E. W. Bessel
A. R. Fischer by: *Charles H. Klein,*
Attorney.

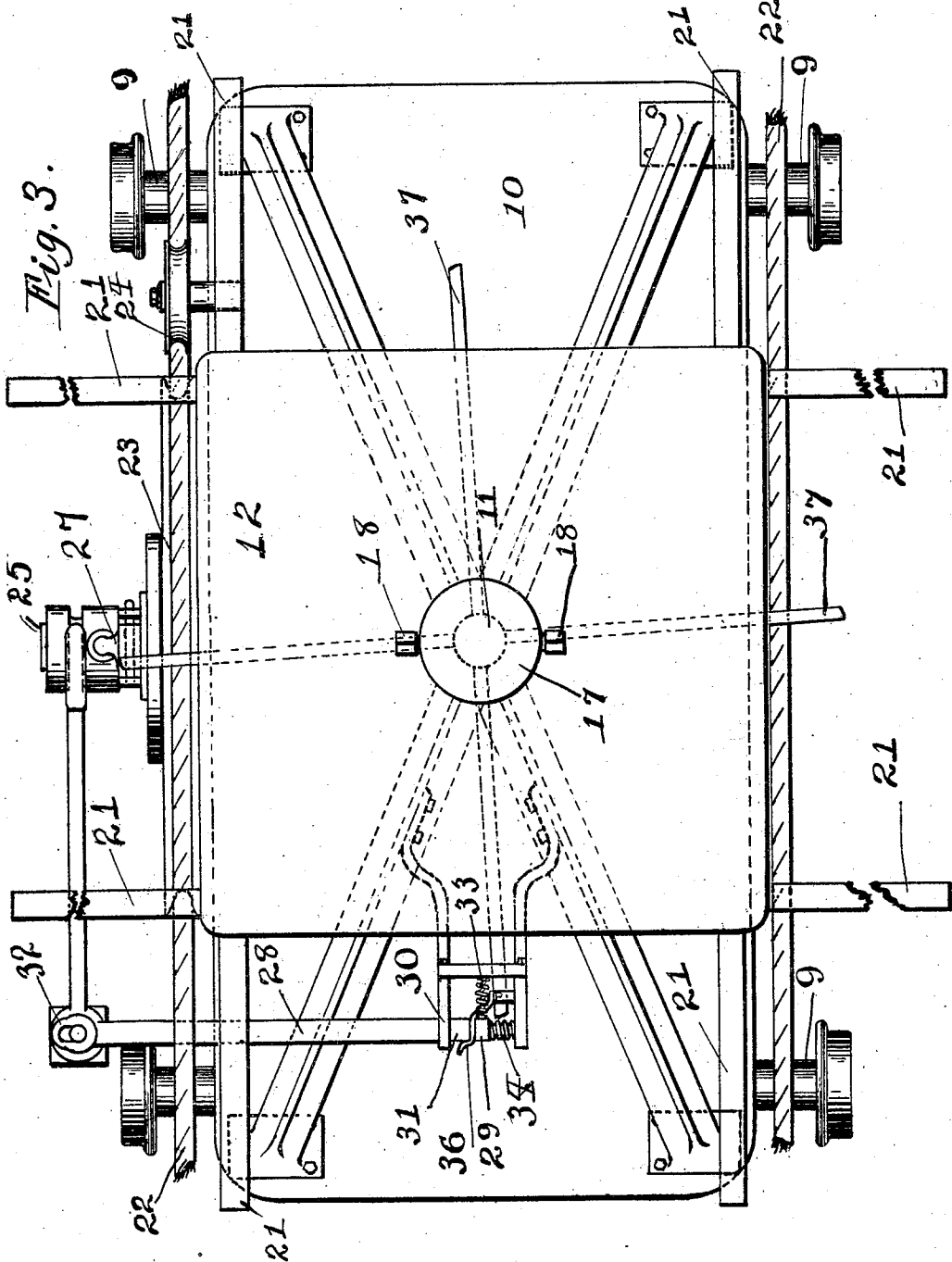
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3 SHEETS—SHEET 3.



Witnesses:
L. M. Biesel.
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UNITED STATES PATENT OFFICE.

CHARLES H. KLEIN, OF CHASKA, MINNESOTA.

BRICK-CONVEYER.

No. 853,365.

Specification of Letters Patent.

Patented May 14, 1907.

Application filed March 15, 1906. Serial No. 306,178.

To all whom it may concern:

Be it known that I, CHARLES H. KLEIN, a citizen of the United States, residing at Chaska, in the county of Carver and State of Minnesota, have invented a new and useful Brick-Conveyer, of which the following is a specification.

My invention relates to improvements in brick conveyers and has for its object improved means for conveying brick from the press to the drying sheds in brick yards and thence to the kiln and out again.

Among other objects are the saving of time, labor and expense in the manufacture of brick and the production of a conveyer which is simple in construction and efficient in operation.

With brick conveyers in use prior to my invention trouble has been experienced by wet clay adhering to the working parts. My invention completely overcomes this objection and much less power is required to operate the mechanism.

In the accompanying drawings forming part of this specification, Figure 1 is a diagrammatic plan showing my invention applied in use; Fig. 2 is an enlarged side view, partly in section, of the transfer used for shifting the loaded pallets from the main conveyer to any of its branches; Fig. 3 is a plan view of Fig. 2, and Figs. 4, 5, 6 and 7 are detail views of automatic mechanism for throwing the transfer into and out of operation.

In a general way my invention includes a rope conveyer comprising a pair of endless cables, which are arranged as shown in the drawings and carry the brick from the brick press to the drying sheds or into the kiln on pallets.

In the drawings A represents the brick press, B the drying sheds, and E a kiln of a brick yard. The arrangement of the conveyer and its branches may be as desired. In the plan illustrated the main conveyer F travels in front of the row of drying sheds B, and branch conveyers G and H extend from the main conveyer along the sides of the drying sheds. The branch conveyer G also extends into the kiln E. A longitudinal conveyer I running parallel to the main conveyer intersects the branches G and H on the opposite side of the row of drying sheds to assist in conveying the brick from the drying sheds into the kiln.

The conveyers are similar in construction

and each is provided with a pair of endless cables 1, passing over grooved wheels 2, and idle pulleys 3, which support the cables to prevent them from sagging. Each pair of cables constituting a conveyer is operated by a main drive shaft 4, which is journaled in supports 5 and carries a drive pulley 6, by which it is adapted to be revolved. Connected with the main drive shaft through intermediary bevel gears 7 are a series of shafts 8, by means of which the several conveyers are driven at the same surface speed. The bricks as received from the press A are loaded on pallets M in the customary manner. These pallets are placed across the cables of the main conveyer either by hand or a mechanical device, as desired, and advance toward the drying sheds or kiln, where they are unloaded.

At one end of each conveyer is provided the slack adjusting device J, of ordinary construction. Below the conveyers F and I are tracks, each of which comprises a pair of rails K. On each track a transfer device L is adapted to move. The function of the transfer devices is to shift the pallets loaded with brick from one conveyer to an intersecting or transverse conveyer automatically.

The transfer devices are similar in construction and each comprises a truck 9, which travels upon the track rails so that each transfer device can be moved to operate in connection with either of the branch conveyers G or H. On the frame 10 of this truck is journaled a vertical shaft 11, which carries a turn table 12. The upper end of the frame supports a stationary plate 13, on which are journaled antifriction rollers 14. The upper end of the vertical shaft is provided with a sleeve 15, which is connected to said shaft by means of a feather 16 to permit the sleeve to slide vertically thereon. The turn table 12 has a cap 17 over the sleeve and is adjusted thereon by means of set bolts 18. Below the turn table and rigidly connected to the sleeve is a cam plate 19, which is adapted to revolve step by step on the antifriction rollers 14. Cam grooves 20 in the lower surface of this plate cause the plate to rise and lower as the shaft 11 revolves.

The turn table 12 is provided with four pairs of oppositely arranged arms 21, which are adapted to lower between the pairs of conveyer cables to receive and lift the pallets one at a time and transfer them to the transverse conveyer. These pallet lifting

arms have their upper edges inclined down toward their outer ends to receive approaching pallets and deposit them on the transverse cables and are adjusted vertically and horizontally between the cables by means of the set bolts 18 passing through the cap 17 on the table 12 and impinging against the sleeve 15. The vertical shaft is revolved by the lower lap 22 of one of the conveyer cables which passes over a pulley 23. This lap of the cable is held in frictional engagement with the pulley 23 by means of an idle roller 24. The pulley 23 is mounted upon a shaft 25, which is journaled upon the frame of the truck and operatively connected with the vertical shaft by means of intermeshing bevel gears 26. A friction clutch 27 carried by the shaft 25 is adapted to be thrown into and out of engagement with the drive pulley 23 by means of a bell crank lever 28 and a trip arm 29. The trip arm is pivoted between its ends on a bracket 30 by means of a pivot 31. The upper end of this trip arm is disposed in the path of the pallets between the cables constituting a conveyer, on which the pallets are approaching their destination. The lower end of the trip arm is loosely pivoted to one end of the bell crank lever, the other end of the bell crank lever being connected with the friction clutch and its angle loosely pivoted at 32 on the frame. A coil spring 33 tends to tilt the upper end of the trip lever forward and release the clutch, and another coil spring 34 on the pivot 31 presses the trip lever against a shoulder 35 on said pivot. A spring dog 36 on the bracket is adapted to engage the trip lever when the pallet on the conveyer impinges against it to hold it in shifted position, whereupon the clutch 27 engages the pulley 23 and revolves the turn table. During this operation the turn table is raised by means of the cam surface 20 on the plate 19 and revolved on the rollers 14 until a quarter revolution has been made. Trip arms 37, which are carried on the vertical shaft, sweep against the trip lever and cause it to slide forward on the pivot 31 against the compression spring 34 until it has been released from engagement with the dog 36, whereupon the spring 33 swings it forward into normal position. During this movement of the trip lever the clutch 27 is opened and the turn table is lowered by the rollers 14 entering the cam grooves 20. The arms 21 pass between the conveyer cables and the pallet which they carry is deposited upon the transverse conveyer which is advancing toward the destination of the loaded pallets. This transferring of the pallets from one conveyer to another may be carried on as often as desired until they reach the drying sheds or kiln, where they may be unloaded by hand or machinery. The transfer devices may be moved on the tracks to co-operate with any intersecting conveyer, such, for example, as

with conveyer G. When the transfer devices are in position, the truck wheels are blocked on the tracks or the truck frames fastened by means of stakes driven into the ground.

It is obvious that any suitable transfer device may be used in connection with this system of conveyers; also that the simplicity of construction by using cables as conveyers instead of belts, which have previously been used, enables the conveyer to be quickly and easily installed. One advantage derived by this feature is the use of the conveyer in a kiln, for, when the kiln is being loaded with brick previous to firing, it may be quickly installed therein for conveying the brick to it, and after the kiln has been fired, it may be emptied with a less amount of hand labor than has heretofore been necessary. The supports for the pulleys or wheels over which the endless cables are passed may be staked or otherwise fastened to the ground. One mode of fastening the supports is to build a concrete foundation with anchor bolts 38 therein, to which the frames of the conveyers may be easily and quickly attached. These anchor bolts constitute one form of detachable means by which the conveyer is removably connected with the kiln. When the kiln is being emptied of brick after firing, the conveyers are reversed by revolving the drive shafts in the opposite direction.

In accordance with the patent statutes, I have described the principle of operation of my invention, together with the apparatus which I now consider to represent the best embodiment thereof, but I desire to have it understood that the apparatus shown is only illustrative and that the invention can be carried out by other means and applied to other brick manufacturing plants than as illustrated.

Having described my invention, what I claim as new and desire to protect by Letters Patent, is:—

1. A conveyer, comprising, in combination, longitudinal cables spaced apart, on which pallets are adapted to be placed, transverse cables also spaced apart, means for driving said cables at the same surface speed to advance said pallets and means for lifting said pallets from one set onto the other set of cables.

2. Apparatus of the class set forth, comprising, in combination, pairs of transverse endless cables in parallel relation and spaced apart to support pallets, pulleys over which said cables are adapted to travel, means for driving said cables at the same speed, means for taking up the slack of said cables and means for lifting said pallets from one set of cables onto a transverse set.

3. A brick conveyer, comprising, in combination, pairs of longitudinal cables which are spaced apart, said pairs being arranged to

operate in transverse directions, means for driving the cables of each pair at substantially the same speed, and transfer devices between the transverse pairs of cables to shift the articles being conveyed from one pair to another pair.

4. Apparatus of the class set forth, comprising, in combination, a main conveyer and a branch conveyer, provided with endless pairs of cables substantially equally spaced apart, pulleys over which said cables are adapted to travel, means for driving said cables at substantially the same surface speed, and means for transferring the articles being conveyed from the main conveyer to the transverse conveyer.

5. A conveyer for pallets of brick, comprising, in combination, a main conveyer for pallets or similar articles, a transverse conveyer, means for driving said conveyers, and

means for automatically lifting said pallets from said main conveyer to said transverse conveyer; each of said conveyers comprising endless cables spaced apart and traveling at substantially the same surface speed.

6. A conveyer for pallets of brick, comprising, in combination with a kiln, a conveyer comprising endless cables in parallel relation and separated, means for driving said cables at substantially equal surface speed, and means for removably fastening said conveyer in said kiln.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CHARLES H. KLEIN.

Witnesses:

E. M. BOESEL,
F. G. BRADBURY.