(No Model.) 2 Sheets—Sheet 1.

C. CHAMBERS, Jr.

CLAY ELEVATOR.

No. 421,857. Patented Feb. 18, 1890.

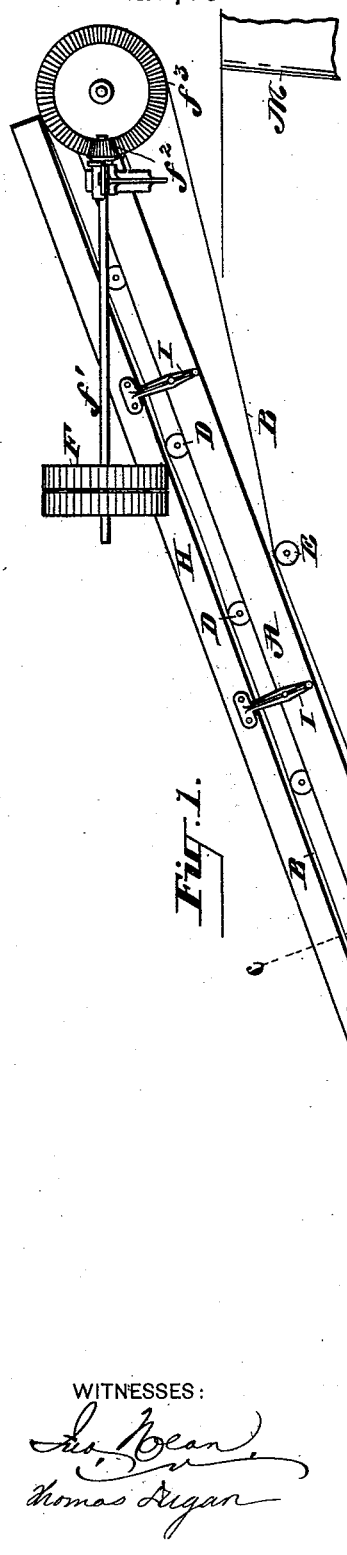

Fig. 1.

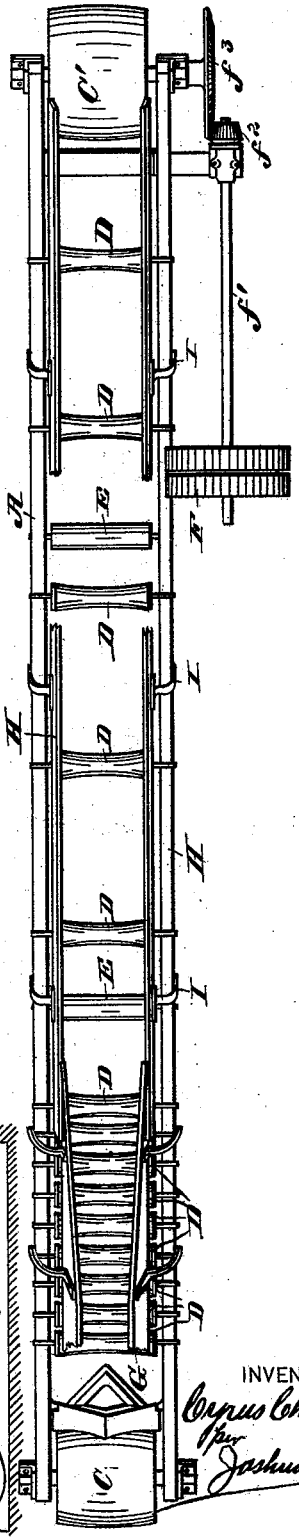

Fig. 2.

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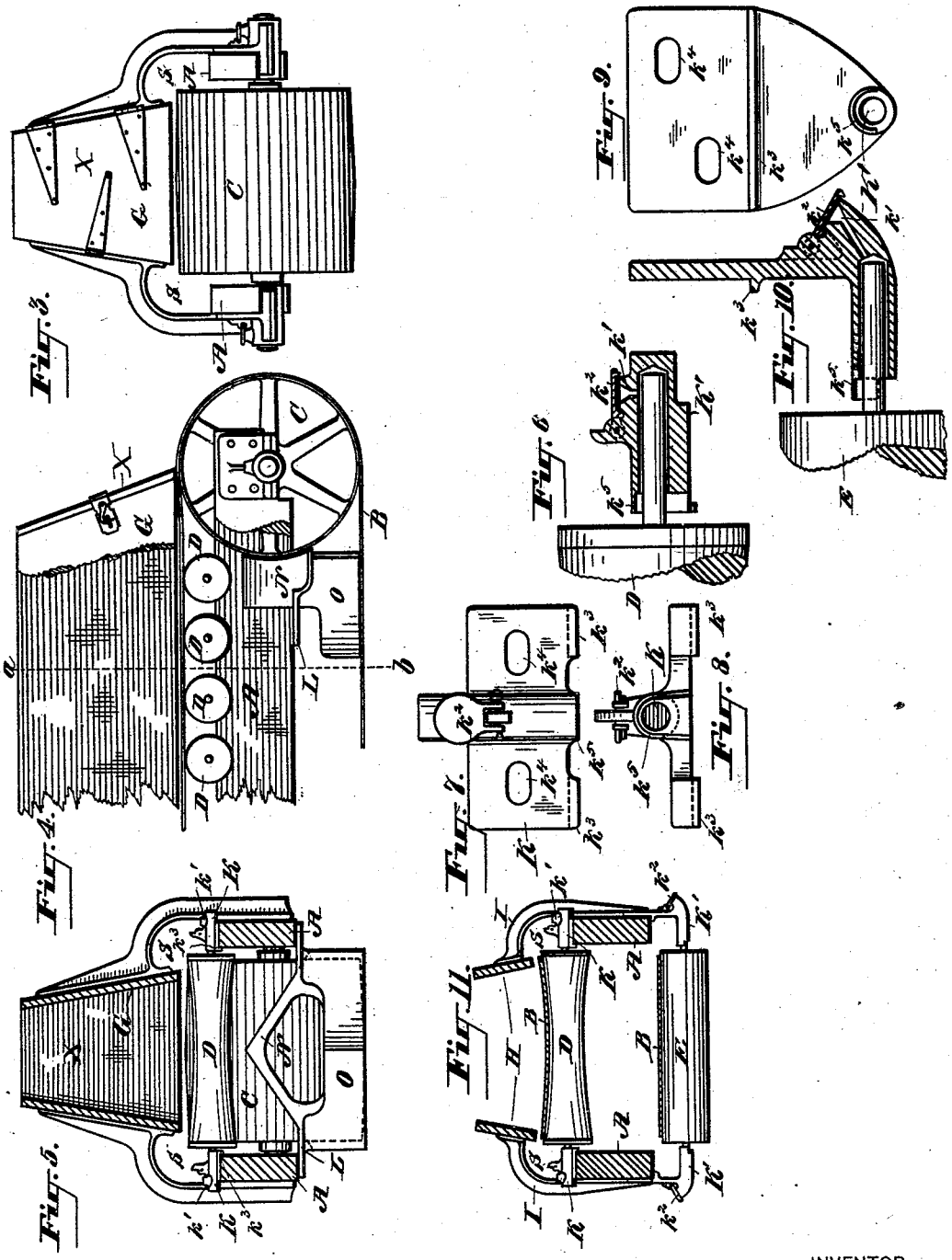

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UNITED STATES PATENT OFFICE.

CYRUS CHAMBERS, JR., OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO THE CHAMBERS BROTHERS COMPANY, OF SAME PLACE.

CLAY-ELEVATOR.

SPECIFICATION forming part of Letters Patent No. 421,857, dated February 18, 1890.

Application filed March 31, 1887. Serial No. 233,139. (No model.)

To all whom it may concern:

Be it known that I, CYRUS CHAMBERS, Jr., a citizen of the United States, residing at the city and county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Clay-Elevators, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, of which—

Figure 1 is a side elevation; Fig. 2, a plan with elevator-belt removed and lower end of hopper broken off; Fig. 3, an end view of the lower part; Fig. 4, a sectional elevation of the lower or hopper end (enlarged from Fig. 1;) Fig. 5, a section, as on line *a b*, Figs. 1 and 4, looking toward the pulley; Fig. 6, a longitudinal section of one of the belt-supporting roller-boxes with journal and end of roller; Fig. 7, a plan of said box detached; Fig. 8, an end elevation of the same; Fig. 9, an end elevation of one of the return-belt roller-boxes; Fig. 10, a section thereof with journal and part of end of roller; Fig. 11, a section, as on line *c d*, Fig. 1.

My invention relates to that class of elevators for conveying clay wherein an endless belt or apron is mounted in an inclined frame, with suitable mechanism for driving said apron.

The improvements consist as follows: First, in the combination, with the supporting-frame and the belt, of side boards along the top of said frame, which boards are above the belt and inclined inwardly, so as to retain the clay in place as it is carried up by the moving belt; secondly, in the combination, with said frame and belt, of concaved supporting-rollers beneath the latter for allowing the transverse sagging of the belt and thereby directing the lumps of clay toward the middle line of the belt; thirdly, in the combination, with said frame and belt and concaved rollers, of the aforesaid inclined side boards; fourthly, in the combination, with said frame and belt, of a hopper over the lower end of the apron, made narrower at the top than at the bottom, so as to throw the large lumps of clay toward the middle of the belt and to allow the smaller lumps to fall toward the outer edge, thereby tending to prevent the larger lumps from rolling off the belt after passing out from beneath the hopper; fifthly, in a combined pulley-scraper and belt-cleaner adapted and arranged to clear the pulleys of clay or dirt and to keep clear the return part of the belt which comes next the pulleys; sixthly, in an improved construction of the boxes in which the rollers for supporting said belt and the rollers which support the return part thereof are journaled.

Referring to the annexed drawings, A, Figs. 1 and 2, marks the inclined longitudinal supporting-frame, the lower or hopper end of which is usually located in a pit P, sunk below the surface of the floor *p'*, for convenience of dumping or shoveling clay into the hopper, while the upper end is located over the hopper M, Fig. 1, of the brick-machine—such, for example, as the well-known Chambers brick-machine, described in several United States Letters Patent granted to me.

B is the endless belt or apron, which runs over the pulley C (which runs in pit P) and pulley C', journaled at the respective ends of the frame, and which belt is supported by the rollers D and the underneath or return part thereof by rollers E. The belt is driven from a pulley F on shaft *f'*, having thereon a bevel-pinion f^2, gearing with a bevel-wheel f^3 on the shaft of the upper pulley C'. Secured to the sides of the frame A, at the lower end of the same, over the belt, is a hopper G, which is wider at the bottom, adjacent to the belt, than at the top, as clearly shown in Figs. 2, 3, and 5. This hopper is for the reception of the clay to be carried up to the hopper of the brick-machine upon the endless belt, and, owing to the inclination of the sides, the larger lumps of clay, striking or bearing against the same, are caused to keep to the middle portion of the belt, while the small lumps fall toward the edge, and thus aid in retaining the larger lumps in place—that is, prevent them from rolling off after leaving the hopper. The lower end of the hopper is provided with a hinged door X, which, when closed, keeps the clay from falling down as it is dumped into the hopper, but which is opened in order to allow any clay that has fallen or has been dumped into

the said pit to be readily shoveled from the latter onto the moving belt. The mass or line of clay is held in place and the main body thereof toward the middle, as the belt advances, by means of inwardly-inclined side boards H, extending above the belt, their lower edges being close to the edges of the latter, as seen more clearly in Fig. 11. These side boards are secured to the ends, which overhang the side rails of the frame A, of brackets I, that are fastened to the outside of said rails, whereby a space *s*, Figs. 3, 5, and 11, is left to allow lateral shifting of the belt without the edge of the latter coming into contact with said brackets or the lower edge of the side boards. In order to still further cause the lumps of clay to tend toward the middle line of the belt, I make the supporting-rollers D concave, as seen in Figs. 2, 5, and 11. The boxes K, in which these rollers are journaled, are constructed as follows, particular reference being had to Figs. 7 and 8. The box is made in one piece and its outer end is closed, and it is provided with an oil-cup k' and lid k^2, near the closed end, as shown. The box is also provided with downwardly-projecting lugs or flanges k^3, in order to secure ready and proper adjustment of the box on the top of the frame. It is also provided with slots k^4, through which the bolts pass that hold the box to the frame, and whereby the boxes may be readily adjusted longitudinally, so as to bring the rollers in line properly with relation to the belt. On the upper side of the box, on its inner edge, is a projecting flange k^5, or what I term a "dirt-band," whose function is to protect the journals of the rollers and to keep the dirt from working into the bearings. This box, with the closed end and oil-cup near the same, is particularly well adapted for use where considerable dirt and clay are floating about, as is the case when a brick-machine is in operation.

The boxes K′ for the return-rollers E (shown in Figs. 5 and 6) embody a construction similar to that of the boxes for the supporting-rollers just described, the difference being only such as is required by the difference in location. The former have the closed ends, oil-cup, and lid, lugs for adjusting the box to the side of the rails, and the slots for longitudinal adjustment.

As the face of the lower belt-pulley C is apt to gather bits of clay thereon, as also the return part of said belt which comes against the pulley, I provide an efficient device for cleaning the same, which may be termed a "duplex cleaner," and which I shall now describe. It consists of a bar or bracket-piece L, secured to the under side of the side rails A. From the upper side of this piece projects a scraper N, inclined from the middle outwardly, with the edge bearing against or close to the periphery of the pulley C. The clay, &c., scraped from the latter falls away on the inclines, outside of the edge of the belt underneath. Projecting from the under side of the bar L is another V-shaped scraper or plough O, as broad or broader than the belt, whose edge just clears the upper side of the belt, its point extending back to meet the forward motion of the latter. It thrusts off the clay, &c., from the belt, and by reason of its V shape and width the clay thus removed is forced out beyond the edge of the belt.

I remark that I sometimes dispense with the inclined side boards H and rely upon the concavity of the rollers to retain the clay in place.

Having thus described my invention, I claim as new and wish to secure by Letters Patent—

1. In an elevator for clay or other substances, the combination, with an endless carrier and its frame, of inclined side boards running parallel with said carrier and converging above the same, substantially as described.

2. In an elevator for clay or other substances, the combination, with an endless carrier, of concave supporting-rollers and inclined side boards running parallel with said carrier and converging above the same, substantially as described.

3. In an elevator for clay or other substances, the combination, with an endless carrier, of a hopper larger at the bottom than at the top located above said carrier, substantially as described.

4. In an elevator for clay or other substances, the combination, with an endless carrier, of a hopper located over said carrier, said hopper having upwardly-converging sides, substantially as and for the purposes set forth.

5. In an elevator for clay or other substances, the combination, with an endless carrier, of a hopper located over said carrier, said hopper having upwardly-converging sides and being provided with a door near its lower extremity, substantially as described.

6. In combination with the pulley C and the belt B, the angular scraper and return-belt cleaner, constructed, arranged, and adapted to operate substantially as described.

7. In a clay-elevator, the combination, with the endless belt and its supporting-rollers, of a cleaner provided with duplex edges adapted to engage the belt and one of said rollers, respectively, substantially as described.

8. In a clay-elevator, the combination, with an endless belt and its supporting-roller, of a cleaner provided with a rigid belt-engaging edge, a portion of said cleaner engaging said belt being in advance of other portions, substantially as described.

9. In a clay-elevator, the combination, with the endless belt and means for supporting and operating the same, of a cleaner provided with a rigid V-shaped edge adapted to engage the said belt, substantially as described.

10. In a clay-elevator, the combination, with

the endless belt and its supporting-rollers, of a cleaner provided with duplex V-shaped edges adapted to engage the belt and one of said rollers, respectively, substantially as described.

11. A duplex belt-cleaner having its edges adapted to engage the belt and a roller operating in connection with said belt, substantially as described.

12. In a clay-elevator, the combination, with the endless belt and its supporting-rollers, of a bracket secured to a stationary part, a V-shaped cleaner secured to said bracket and engaging said belt, and another V-shaped cleaner extending from said bracket and engaging the face of one of said pulleys, substantially as described.

In testimony whereof I have hereunto affixed my signature this 28th day of March, A. D. 1887.

CYRUS CHAMBERS, JR.

Witnesses:
H. LAUSSAT GEYELIN,
JNO. NOLAN.