No. 748,481. PATENTED DEC. 29, 1903.

T. A. COFFIN & M. C. LEWIS.

ENDLESS CONVEYER AND ELEVATOR.

APPLICATION FILED MAY 19, 1903.

NO MODEL. 2 SHEETS—SHEET 1.

Fig. 1.

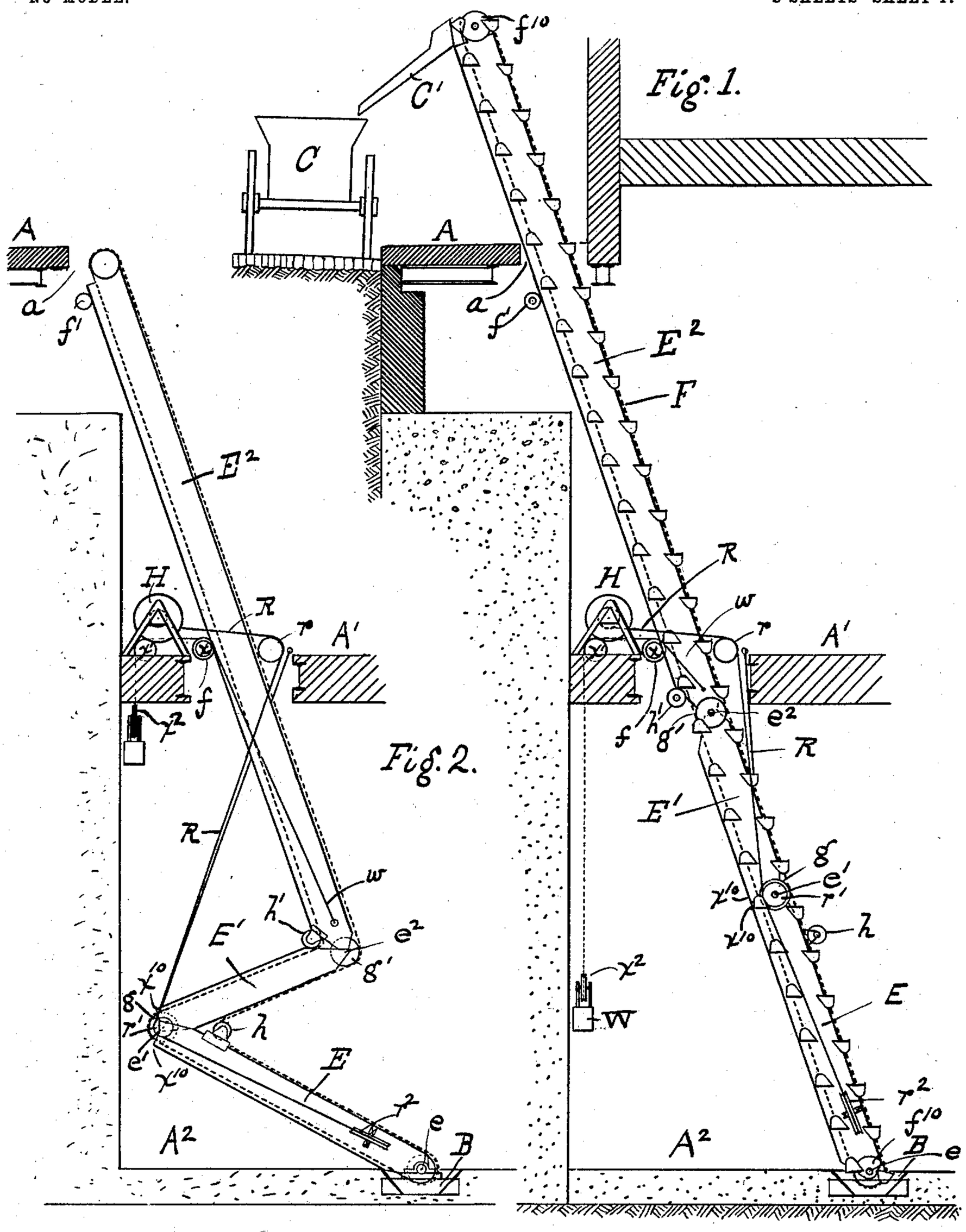

Fig. 2.

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NO MODEL. 2 SHEETS—SHEET 2.

Fig. 3.

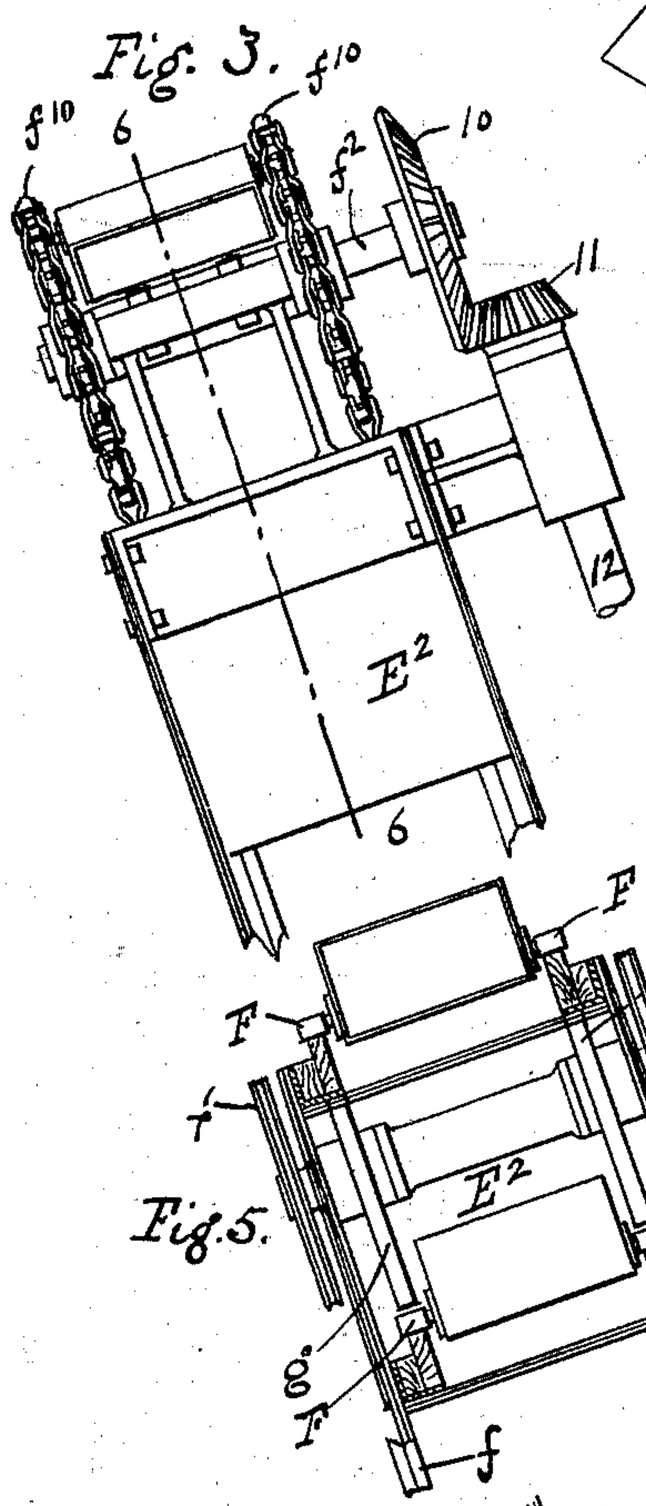


Fig. 4.

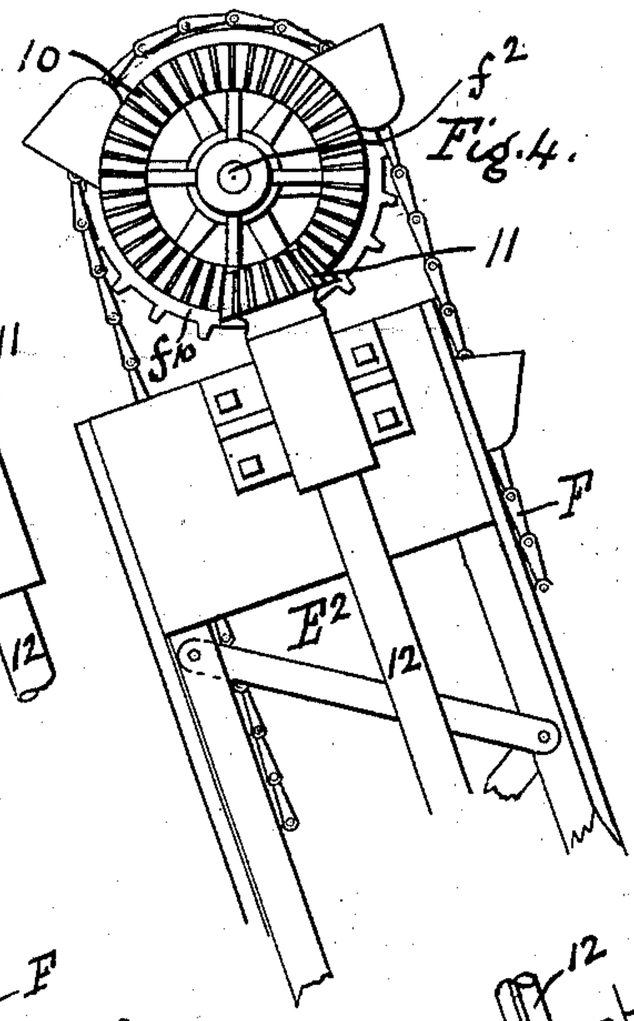


Fig. 6.

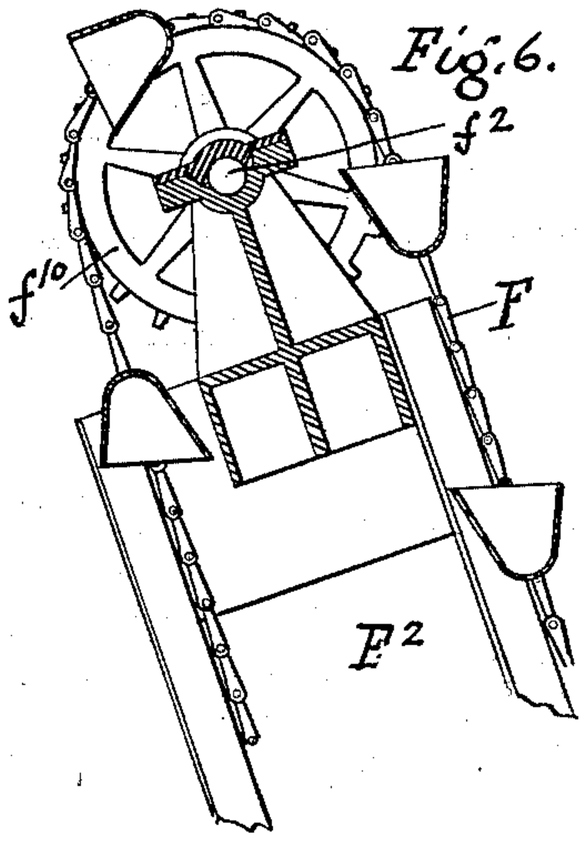
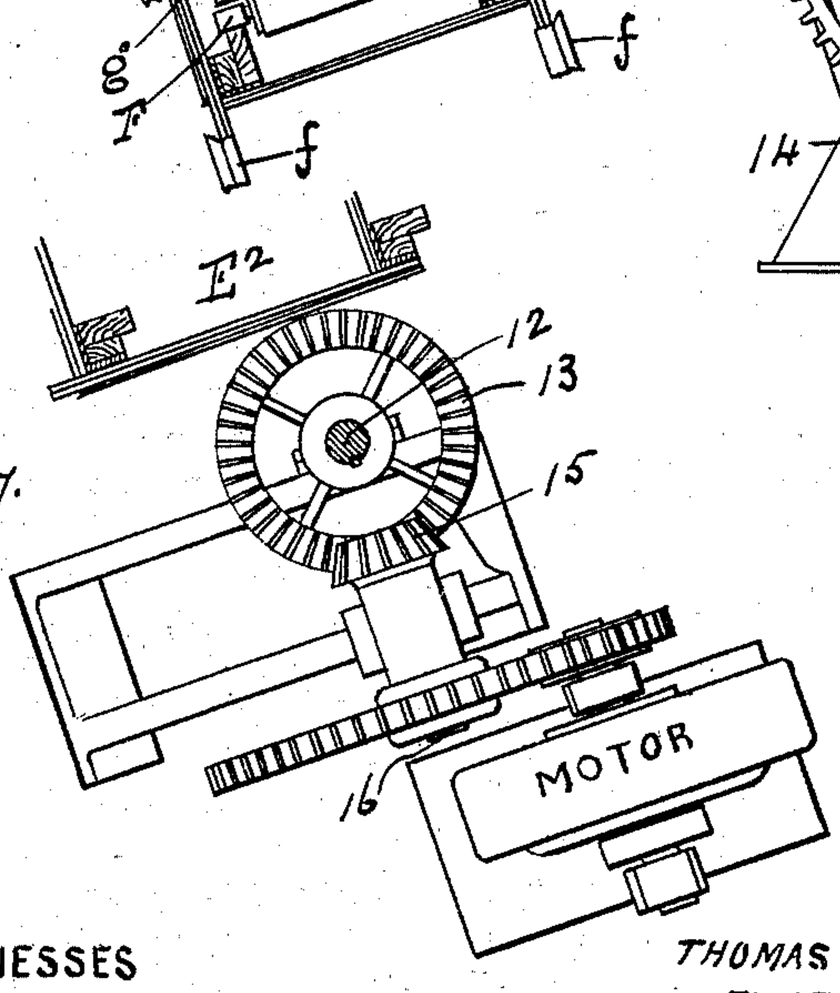
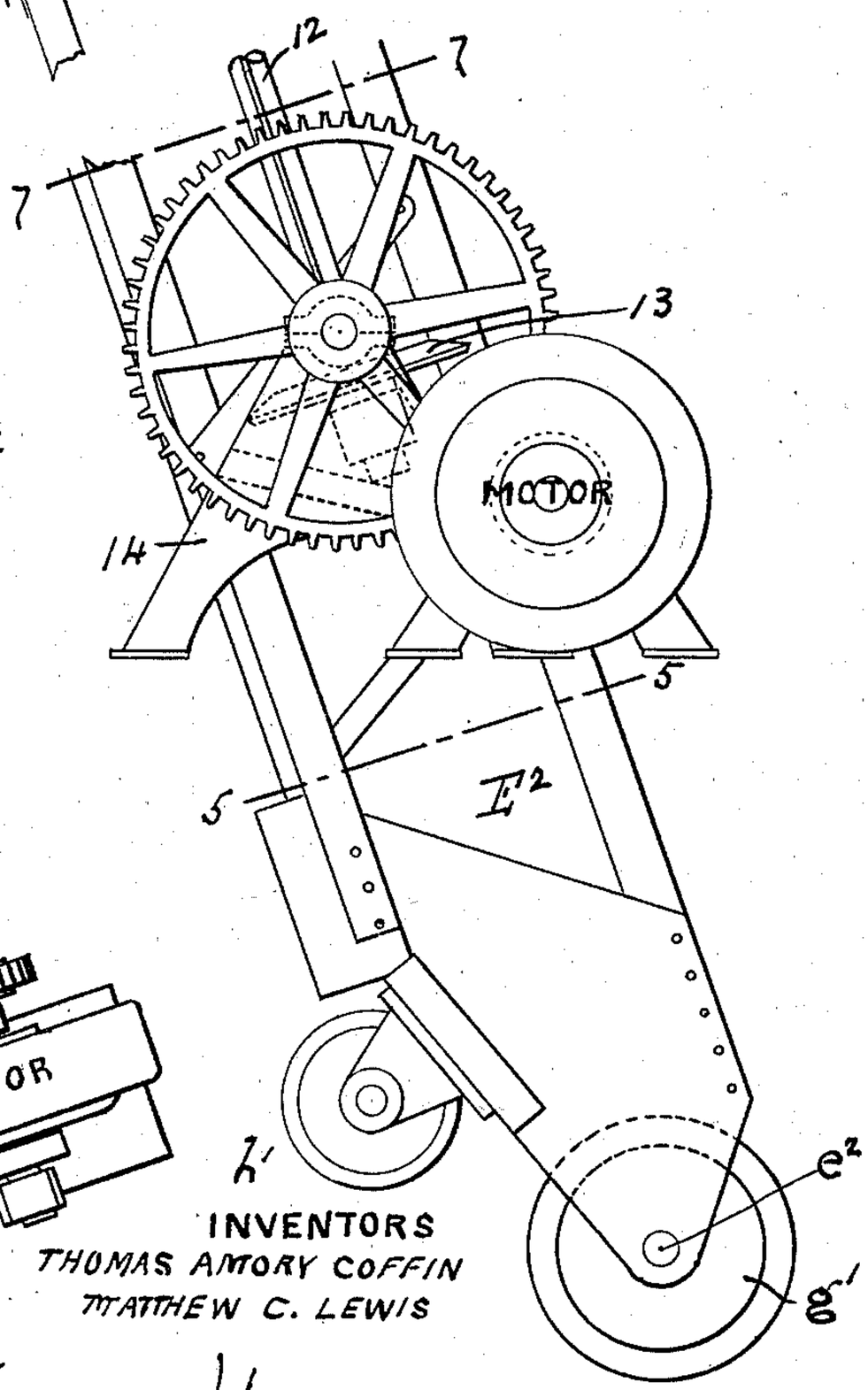


Fig. 5.

Fig. 7.





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No. 748,481. Patented December 29, 1903.

UNITED STATES PATENT OFFICE.

THOMAS AMORY COFFIN, OF WEST NEW BRIGHTON, AND MATTHEW C. LEWIS, OF HAMDEN, NEW YORK.

ENDLESS CONVEYER AND ELEVATOR.

SPECIFICATION forming part of Letters Patent No. 748,481, dated December 29, 1903.

Application filed May 19, 1903. Serial No. 157,751. (No model.)

To all whom it may concern:

Be it known that we, THOMAS AMORY COFFIN, a resident of West New Brighton, Staten Island, borough of Richmond, and MATTHEW C. LEWIS, residing at Hamden, in the county of Delaware, State of New York, both citizens of the United States of America, have invented an Improved Endless Conveyer and Elevator, of which the following is a specification.

Our elevating conveying apparatus has been primarily designed for use in elevating ashes from cellars or subbasements of large buildings to the sidewalk, to be there delivered into receiving-carts; but our invention is applicable to other uses and purposes, as will be readily understood.

One of the principal features of our invention is the construction whereby the elevator can be moved out of the way when not in use.

In the accompanying drawings, Figure 1 is a diagrammatic sectional elevation of our elevating-conveyer when in use to elevate ashes from a cellar or subbasement up to the sidewalk, to be there delivered into carts. Fig. 2 is a somewhat similar diagram illustrating the positions of the parts when the elevator is out of use and moved out of the way. Fig. 3 is a partial side elevation of the upper part of the conveyer, drawn to larger scale and showing the driving means. Fig. 4 is a front view of the upper end of the conveyer. Fig. 5 is a section on the line 5 5, Fig. 4. Fig. 6 is a section on the line 6 6, Fig. 3; and Fig. 7 is a section on the line 7 7, Fig. 4.

In Figs. 1 and 2, A is the sidewalk, through an opening *a* in which the conveyer projects to deliver the ashes or other material into a receiving-cart C.

A′ represents a basement-floor of the building, and A^2 the cellar or subbasement from which the material is to be elevated.

B is the boot or hopper, into which the ashes are delivered from the furnaces, and on suitable foundations there the lower end of the frame of the elevator is hinged at *e*. This elevator-frame is made in three sections E, E′, and E^2, hinged together at *e′* and e^2, so that they may be partially closed on each other, like the blade of a pocket-knife, as indicated in Fig. 2. The hinge at *e′* is adapted to fold up in one direction, (the joint moving to the left in Fig. 2 with a three-joint action,) while the other hinge e^2 folds in the opposite way. On the other hand, when the three sections are brought into straight line again, as shown in Fig. 1, shoulders at x^{10} x^{10} on the adjacent frames prevent the hinge *e′* from swinging further over. When the elevator-sections are straightened out to stand in the inclined position shown in Fig. 1, the upper end of the upper section E^2, which has been elevated in the direction of its length, projects up through the sidewalk to a sufficient height to be able to discharge through a chute C′ into the receiving-cart C. This chute may be hinged or in any suitable way attached or attachable to the upper end of the elevator-frame. When the sections are folded or partially folded, the bottom section E is lowered to the left on the bottom hinge *e* and the second section E′ folds down over the first section on the hinge *e′*, while the uppermost and longest section simply descends in the direction of its length, with its side frames running upon the supporting and guiding rollers *f f′*, which are mounted at suitable points in the structure of the building. This folding or collapsing of the conveyer-frame is carried just far enough to bring the top of the conveyer below the level of the sidewalk, as shown in Fig. 2.

Suitable counterweighting means are provided to aid in raising the conveyer to the working position. For this purpose there may be attached to the lower ends of the side frames of the uppermost section the end of a chain or wire rope *w*, passing over wheels *x x′* and the loop of the chain or rope passing round a pulley x^2 on a weight W.

To raise and lower the collapsible elevator, I provide a rope R, to be wound up on a hoisting-drum H, which may be conveniently mounted on the floor A′ under the elevator. Thence this rope R passes over a pulley *r* on the opposite side of the elevator from the hoisting-drum, thence over a pulley *r′* at the knee-joint *e′*, thence round a sheave r^2 within the lower section E, this sheave being at right angles to the pulleys *r* and *r′*. From the sheave r^2 the rope passes back over pulleys at the same points as the pulleys *r* and *r′*, but on the other side of the elevator-frame

from that shown in Fig. 2, and thence to the hoisting-drum or to a fixed point. By this arrangement of the hoisting-rope the frame is guyed, as it were, and the straightening of the sections is aided when the hoisting strain is applied to raise the conveyer.

The endless chain of buckets F may be of any suitable construction, passing over suitable guide-wheels f^{10} f^{10} at the top and bottom. Additional guide-wheels g and g' are provided for the endless chains on the sides where the sections fold up toward each other, and near them at the hinging-points e' and e^2 are provided guide-pulleys h h'. By the joint action of these two sets of guide-wheels g g' and h h' the endless chains are kept in position when the elevator is collapsed, whereas the chains would otherwise be apt to get off the wheels and be tangled up.

Any suitable means may be provided for driving the endless chains of buckets; but we prefer to drive them from the chain-wheels at the top, as shown more fully in Figs. 3, 4, and 7. As shown in these figures, we mount upon the extended end of the shaft f^2, which carries the top chain-wheels f^{10}, a bevel-wheel 10, into which gears a bevel-pinion 11 on the upper end of a longitudinal driving-shaft 12. This shaft has a key-and-groove connection with a bevel-wheel 13, through which it can slide longitudinally. This wheel 13 is mounted in bearings in a fixed frame 14, which may be mounted upon the floor A'. Into this wheel gears a bevel-pinion 15 on a suitable driven shaft 16.

We claim as our invention—

1. The herein-described collapsible elevator conveyer, comprising a frame having a bottom, a top and an intermediate section hinged to each other to fold in different directions, and the bottom section being hinged on a foundation, in combination with guides for the top section allowing it motion in the direction of its length, and an endless conveying means on said frame.

2. The herein-described collapsible elevator conveyer, comprising a frame having a bottom section, a top section, and an intermediate section hinged to each other to fold in different directions, the bottom section being hinged on a foundation, and guides for the top section to permit it motion in the direction of its length, in combination with an endless conveying means on said frame, and means for pivotally moving the lower and intermediate sections to lower or raise the top section.

3. The herein-described collapsible elevator conveyer, comprising a frame in three sections, hinged to each other to fold in different directions, and the bottom section being hinged on a foundation, in combination with an endless conveying means on said frame, and guide-pulleys at the section-joints to take the endless conveying-chains when the elevator is collapsed.

4. The herein-described collapsible elevator conveyer, comprising a frame in three sections, hinged to each other to fold in different directions and the bottom section being hinged on a foundation, in combination with an endless conveying means on said frame, and a hoisting-rope to raise the sections to the straight-line position, said hoisting-rope passing over pulleys on the frame adjacent to one of the joints, as and for the purpose described.

5. The herein-described collapsible ash-elevator, comprising an endless conveying means, a frame in sections hinged to each other to fold up, the bottom section being hinged to a foundation below the sidewalk, in combination with means for supporting and guiding the upper section, whereby its upper end may be projected above the sidewalk, when the sections are unfolded.

6. The herein-described collapsible ash-elevator, comprising an endless conveying means, a frame in sections hinged to each other to fold up, the bottom section being hinged to a foundation below the sidewalk, in combination with means for supporting and guiding the upper section, and guide-pulleys where the sections are jointed to each other to take the endless conveyer-chains when the elevator is collapsed.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

THOMAS AMORY COFFIN.
MATTHEW C. LEWIS.

Witnesses:
HUBERT HOWSON,
C. SEDGWICK.