2 Sheets--Sheet 1.

W. H. BROWN.

Elevator.

No. 166,496. Patented Aug. 10, 1875.

FIG. 2.

FIG. 1.

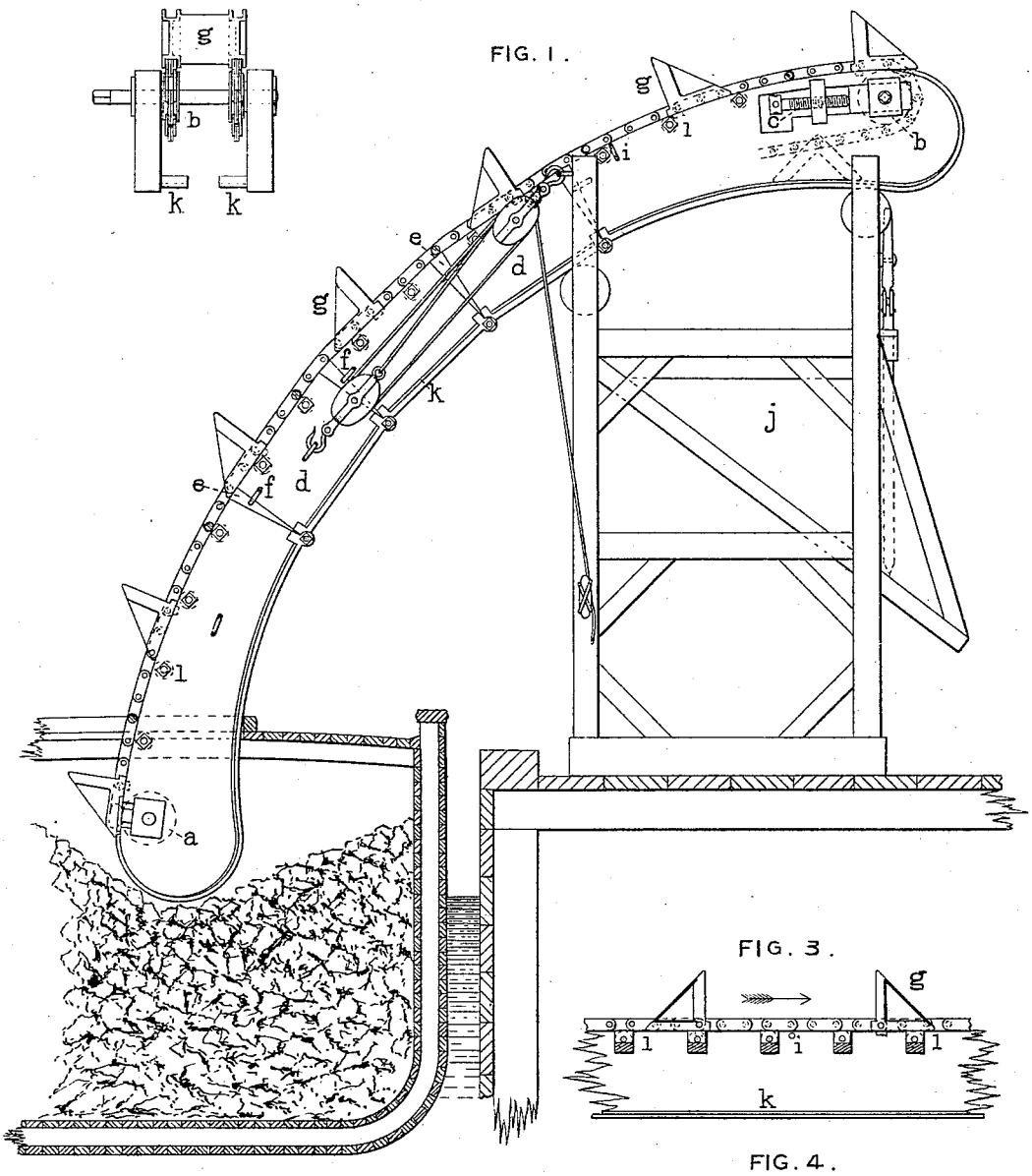
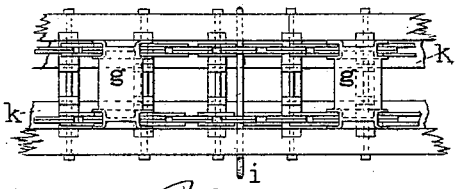


FIG. 3.

FIG. 4.



WITNESSES

David E Grymne

Wm Semble Hall.

Wm H Brown

INVENTOR

2 Sheets--Sheet 2.

W. H. BROWN.

Elevator.

No. 166,496. Patented Aug. 10, 1875.

FIG. 5.

FIG. 6.

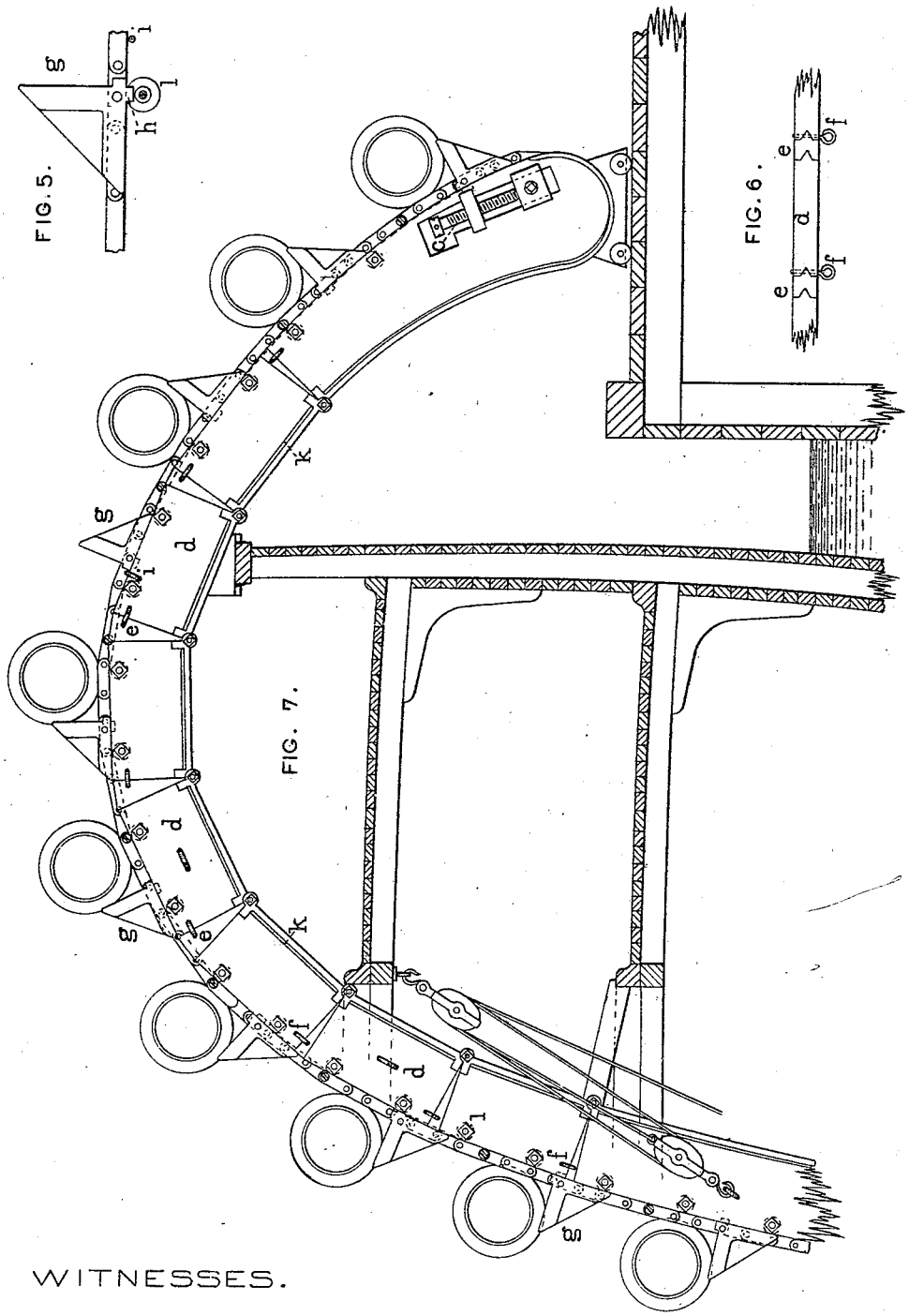


FIG. 7.

WITNESSES.

David E. Gwynne.
Wm Hemlee Hall.

Wm H Brown

INVENTOR.

UNITED STATES PATENT OFFICE.

WILLIAM H. BROWN, OF NEW YORK, N. Y.

IMPROVEMENT IN ELEVATORS.

Specification forming part of Letters Patent No. **166,496**, dated August 10, 1875; application filed February 8, 1875.

To all whom it may concern:

Be it known that I, WILLIAM H. BROWN, of New York, in the county and State of New York, have invented certain new and useful Improvements in Elevators, or apparatus for raising, transporting, lowering, and delivering cargoes, and for other similar purposes, of which the following is a specification:

The materials or packages to be conveyed are carried in buckets or on brackets, on endless chains, that pass over suitable rollers at each end of a frame that is made in movable sections, by the use or removal of which, and corresponding adjustments of the chains, the length of the apparatus may be regulated. Where it is desirable to follow a curve, angular pieces are fitted between the sections. In discharging coal or other similar material in bulk, the elevator is carried over a chute or hopper in an elevated frame, and the buckets are tripped at an adjustable point to deliver their contents to the chute. In delivering boxes, barrels, or packages up the hatches, over the bulwarks, and down to the wharf, the trip for reversing the bucket is placed near the highest point, so that when the load carried by a bracket is raised to that point, it slides clear from that bracket to the one below it in the order of progression, which has been reversed for its reception, and by which it is lowered to the place of delivery.

In the two sheets of drawings hereto annexed, Figure 1 is a side elevation of the apparatus arranged for delivering coal from a boat to a chute or hopper, from which it may be discharged as required by a suitable gate. Figs. 2, 3, 4, and 5 are separate views of parts of the chains, brackets, friction-rollers, and other details. Fig. 6 shows the character of the joints between the sections, and the sections and intervening angular pieces. Fig. 7 is a side elevation of the apparatus arranged for raising and lowering separate packages and barrels.

The end sections carry rollers *a* and *b*, suitably fitted with flat sides, or with projections to carry the chains. The journals of the roller *b* have adjusting-screws *c*, by which the chains may be properly tightened. The sections *d* are hinged together at the bottom, and the angular pieces *e* are fitted between them when required. The strain on the hinge-bolts at the under side, and on the chains at the upper, holds the sections rigidly together, and the angular joints between them (shown in Fig. 6) prevent any side motion. The pins *f* secure the angular pieces *e* from slipping.

The apparatus may be lengthened or shortened by the use or removal of the sections *d*, and the use or removal of corresponding sections of the chains.

The carriers *g* are made in the form of rectangular bell-cranks, and are jointed to the chains at their right angles. They have projections *h* at the joint, which are shown more clearly in Fig. 5, that catch on the bolt *i*, by which the carriers are tripped and reversed at any point where the trip may be placed.

In Fig. 1 the bolt *i* is placed to discharge the contents of the carriers into the hopper *j*, and in Fig. 7 it is placed just beyond the point of greatest elevation, to reverse the bracket for the reception of the load on the bracket following next in succession.

On passing around the upper end the brackets assume the position shown by that in dotted lines at the upper end of Fig. 1, and they have one edge suitably loaded for that purpose, if required. In returning, they slide on the ledges *k*, Fig. 2, placed on the inner sides of the lower edges of the sections, and on passing around the lower roller *a*, the projecting ends of the brackets pass through recesses or grooves in the friction-rollers *l*, that carry the upper parts of the chains. The brackets are made with projecting ledges to fit over the chains; but they may be made to hang between the chains, to carry a full load on an incline, or in any other way that may be convenient. The special point in this connection that constitutes a part of my invention is the provision for reversing them by contact with the adjustable bolt *i*.

The frame-work shown at the delivering end of the apparatus may be mounted on wheels, so that when the elevator is hauled up and secured by the blocks and falls shown in the drawings, or by means of other suitable tackle, the whole apparatus may be moved together.

The shaft of the roller *b*, by which the apparatus may be preferably worked, should be

fitted with a crank or belt-pulley, and the means used for communicating the power may be applied in such a manner that it will not be interfered with by the rising and falling of the tide; or a rotary engine may be carried on the upper section or applied directly to the shaft of the driving-roller *b*, and connected by a flexible steam-pipe with the boiler.

The engine may also be fitted with a crab or barrel for working the various falls and tackle.

I claim as my invention, and desire to secure by Letters Patent—

1. The combination of the portable and adjustable sections *d*, with the hinges and chains, the ledges *k*, and friction-rollers *l*, and the adjusting-screws *c*, substantially as described.

2. The wedge-shaped pieces *e* between the sections, in combination with the chains, carriers, and guides, for the purpose of curving the elevator, in such a manner as may be required.

3. The combination of the carriers with the trip *i*, by which the former may be reversed, in the manner and for the purposes described.

WM. H. BROWN.

Witnesses:

WM. KEMBLE HALL,

DAVID E. GWYNNE.