2 Sheets--Sheet 1.

W. STANTON.

Grain-Conveyor.

No. 160,479. Patented March 2, 1875.

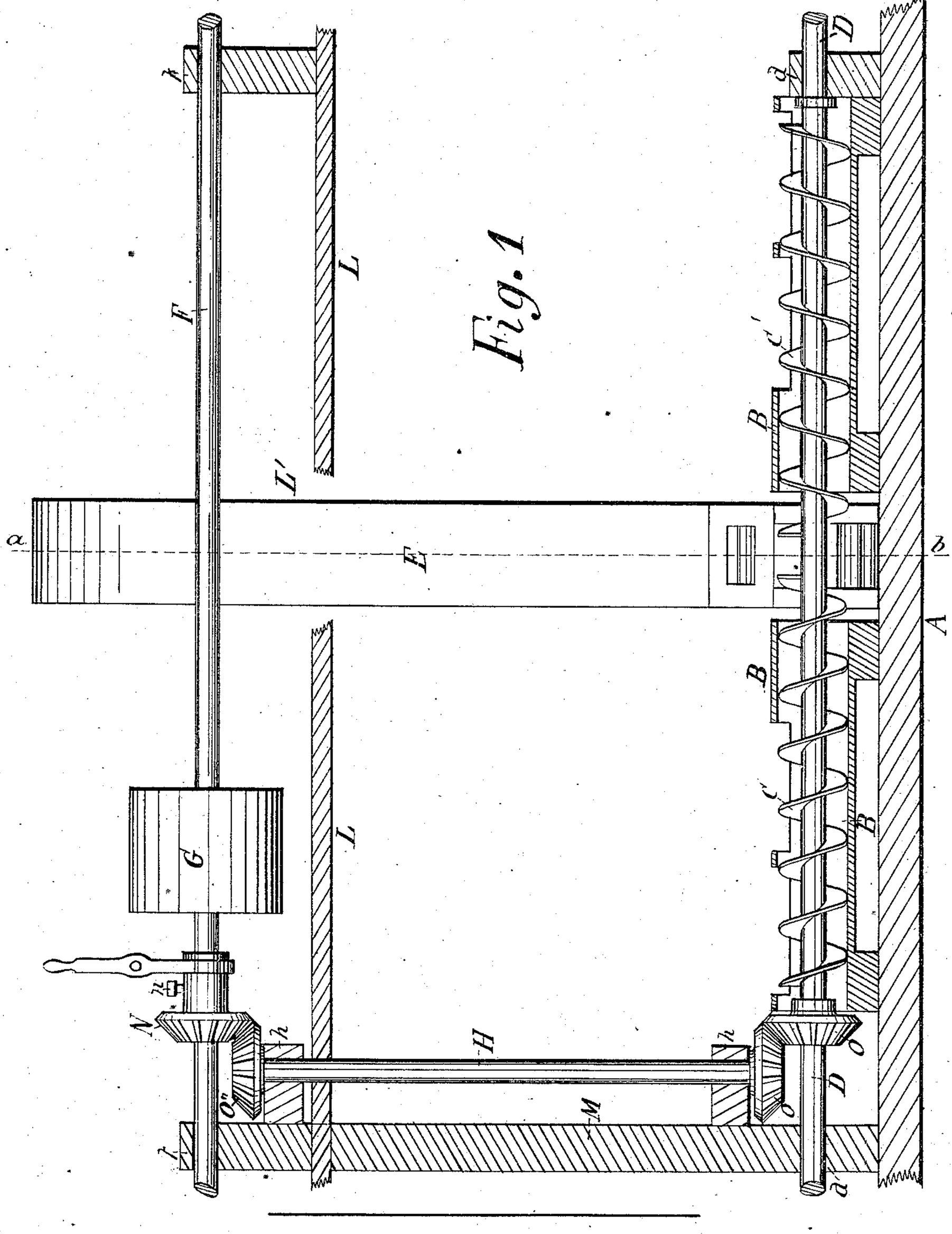

Fig. 1

Witnesses:
M. E. Dunlap
W. W. Lott

Inventor:
William Stanton

2 Sheets--Sheet 2.

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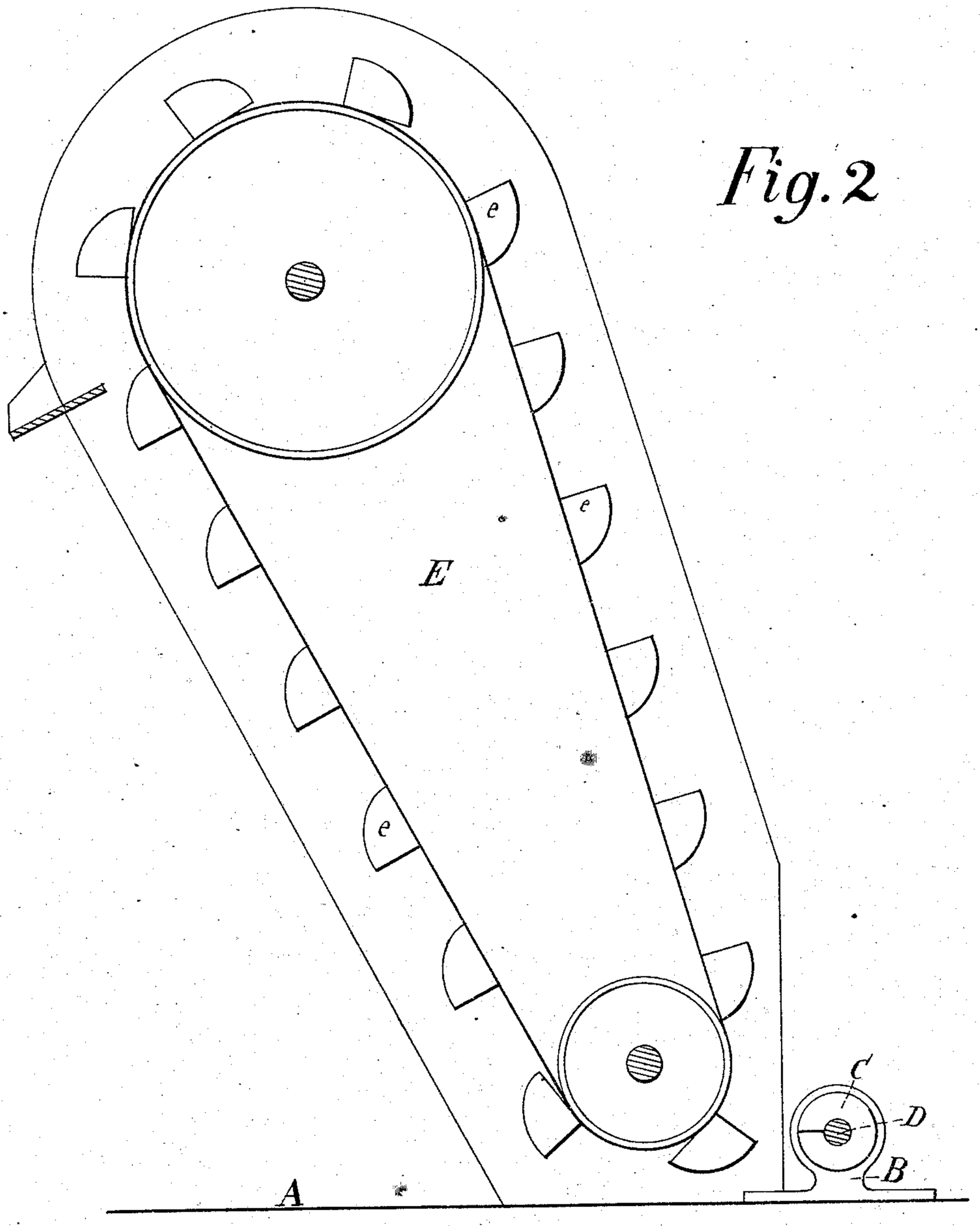

Fig. 2

Witnesses:
M. E. Dunlop
W. A. Lott.

Inventor:
William S. Canton

UNITED STATES PATENT OFFICE.

WILLIAM STANTON, OF ERIE, PENNSYLVANIA.

IMPROVEMENT IN GRAIN-CONVEYERS.

Specification forming part of Letters Patent No. **160,479**, dated March 2, 1875; application filed January 21, 1875.

To all whom it may concern:

Be it known that I, WILLIAM STANTON, of the city of Erie, in the county of Erie and State of Pennsylvania, have invented a new and useful Improvement for Transferring Grain from Vessels, of which the following is a specification:

The object of my invention is to facilitate the unloading of grain from vessels by means of the "leg" of an elevator-building, which leg, being movable, is passed through the hatchways, and, with its lower open end resting upon the grain, elevates it by an endless band of buckets driven by a power from the elevator-building, until the leg has taken up all it can without shoveling the grain to the point where the revolving buckets will pass into it. It is at this point, in unloading the vessel, that my improvement is available to continue the work; and to this end my invention consists of a new method of transferring grain from ships' holds, and in carrying out said method I employ in the several grain-compartments into which the ship's hold is divided right and left closely-incased screw-conveyers, open at the top, in combination with gearing connecting shafts, and a line driving shaft connecting the separated conveyers with the elevator-leg, and shifting gear-wheels on the line-shaft connecting with the conveyers of each compartment, whereby the banked-up grain in the bottom of the hold is reached and conveyed to the leg, and in this way each compartment is cleared of its cargo, and the leg changed to the next one, and at the proper moment the conveyer in that compartment is set in operation by the gearing on the line-shaft.

In the accompanying drawings, Figure 1 represents a vertical section of the conveyer apparatus, its gearing and driving line-shaft, and the elevator-leg, as arranged in the hold of a vessel for joint operation from separate motors; and Fig. 2, a section of the elevator-leg when arranged to form a junction with the conveyer-box.

In the drawings, A may represent the bottom of the ship's hold, and M L one end and the deck of the compartment wherein the grain is stored. A right and left screw-conveyer, C C′, is arranged to work closely in a box, B, secured lengthwise upon the bottom of the ship's hold, and partly open at the top to allow the grain to enter on top of the conveyers along their length, and be carried within said box from the remote ends of the hold toward the center, or at an opening in the box B, where the two conveyers terminate. These conveyers are placed in each separate compartment of the vessel's hold, and each is operated independently of the other, although each is connected with and operated by the same driving-shaft, by means of a bevel-wheel, O, on one end of the conveyer-shaft D, matching with a bevel-wheel, O′, protected from the grain, on the lower end of a vertical shaft, H, secured in bearings *h h* between the ship's decks, and gearing by a bevel-wheel, O″, with a gear, N, on a line-shaft, F, extending between the decks the length of the grain-storing compartments, and connecting with the steam or other power of the vessel by a band from a pulley, G, located at any suitable point. The conveyers of each compartment are put into and out of operation by shifting the bevel-gear N, and securing it by the screw *n* or a clutch device. The elevator-leg E is passed through the hatchway L′, and, with its open end resting upon the grain, receives and elevates it by the endless chain of buckets, (shown in Fig. 2,) and conveys it into the building, so long as the grain can be taken up by it. It is operated by a power in the building, and independent of that which operates the conveyers, so that the conveyers are not brought into action until the leg ceases to take up the grain from around its open end, when the leg E is placed in position at the opening of the box B, at which point the right and left conveyers bring the grain resting within their open-top boxes B from the remote ends of the ship's compartments, and discharges at the line *a b*, where the leg can take and continue to carry it up; and when all the back grain has been thus removed, that remaining upon the floor and in the corners is shoveled into the open top of the conveyer-box, and the unloading of each compartment of the ship is thus finished at a great saving of time, labor, and expense.

The length and diameter of the conveyers are suited to the capacity of the storage-com-

partment. The conveyer may be built as a fixture with the vessel's hold, or made removable for convenience in storing other freight, by making it in two or more sections, coupled together by a short removable coupling in the line of the leg. The right and left conveyers may be of equal or unequal length, to suit the position of the hatchway, through which the leg of the elevator is operated.

I am aware that a grain-elevator has been combined with a horizontal screw-conveyer, for taking the grain from a thrashing-machine and delivering it to a measuring device attached to said device, and that a right and left screw-conveyer has been employed to distribute fertilizers through the openings in a wide hopper, in connection with a stirrer; but it is obvious that these things are very different from the organization of my invention and method of unloading grain from a ship's hold, and arrangement for that purpose of the machinery between the decks to operate in conjunction with the movable leg of an elevator-building.

I claim—

1. In the several grain-compartments of a ship's hold, right and left closely-incased screw-conveyers C C′, open at the top, in combination with the gearing connecting shafts H and the line driving shaft F, connecting the separated conveyers, the elevator-leg E, and the shifting-gear N, as set forth.

2. The combination, with the right and left conveyers C C′ and their operating gearing O O′ O″ N, arranged in each separate grain-storing compartment of a ship's hold, of the line-shaft F, connected with the separate conveyers, to operate each independently of the other as each separate compartment is emptied of its grain, and the leg is shifted from an empty to a filled compartment, as herein set forth.

WILLIAM STANTON.

Witnesses:
M. E. DUNLAP,
W. A. LOTT.