

(No Model.)

C. ENGRAND.

GRAIN SILO.

No. 349,213.

Patented Sept. 14, 1886.

Fig. 2

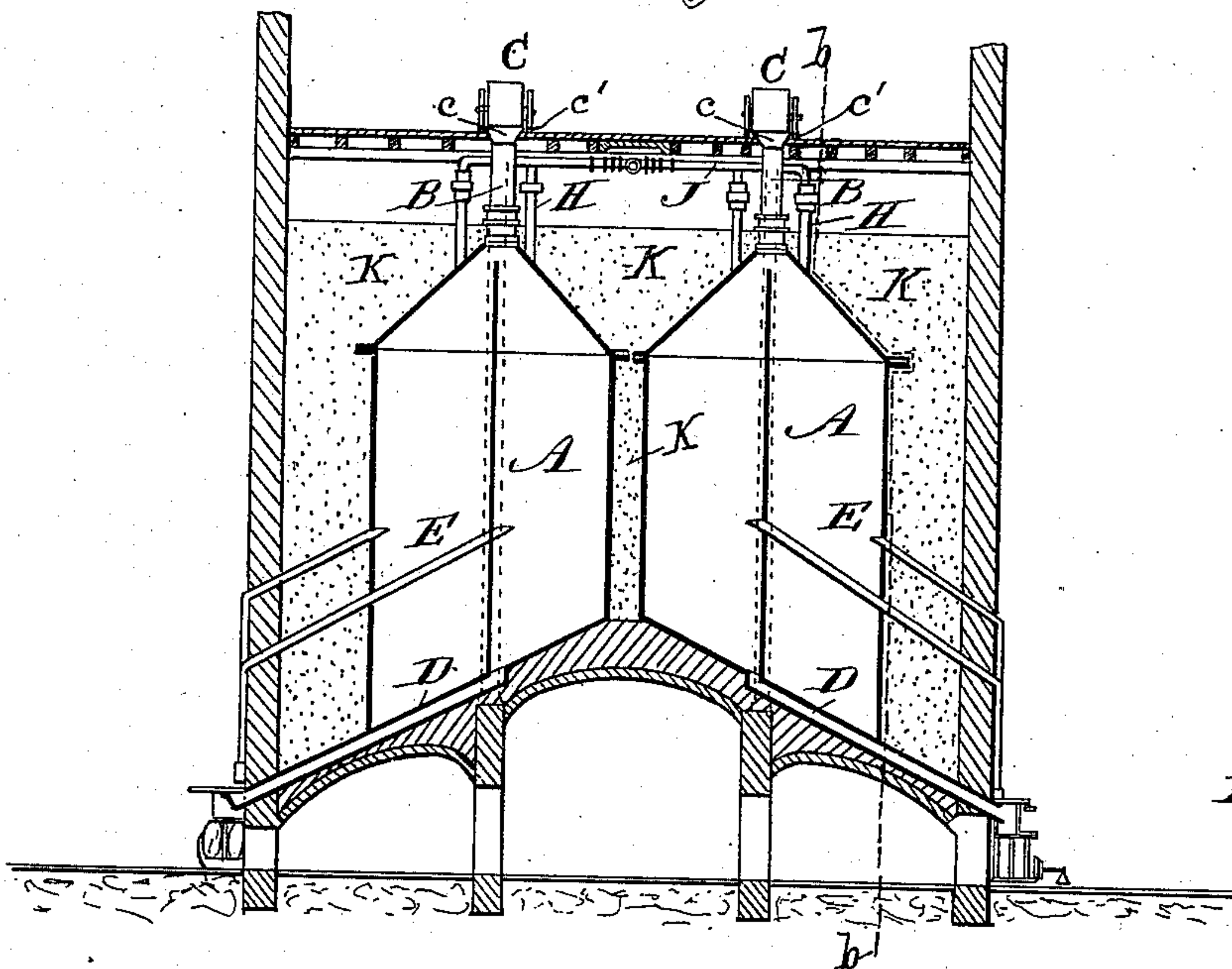
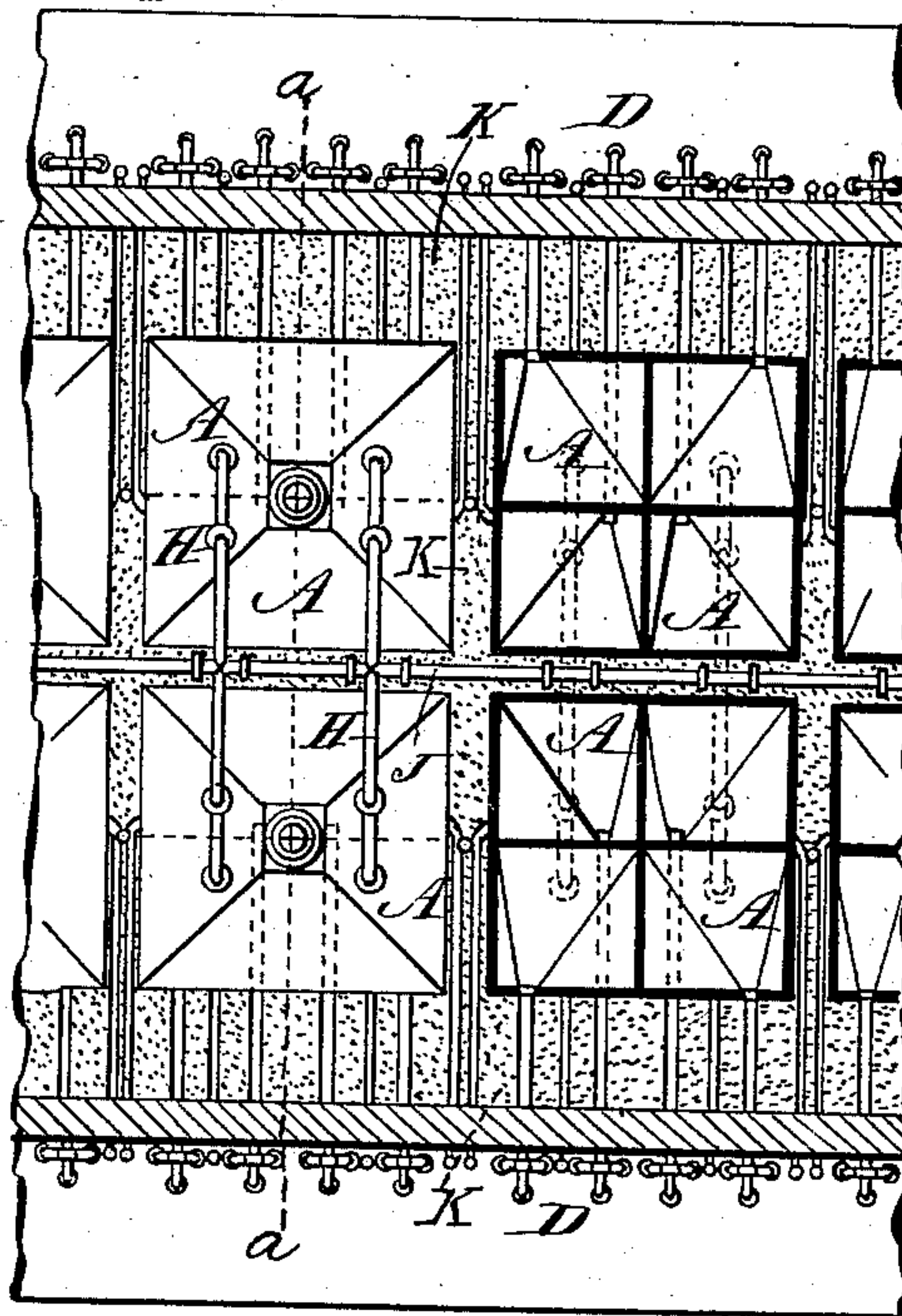
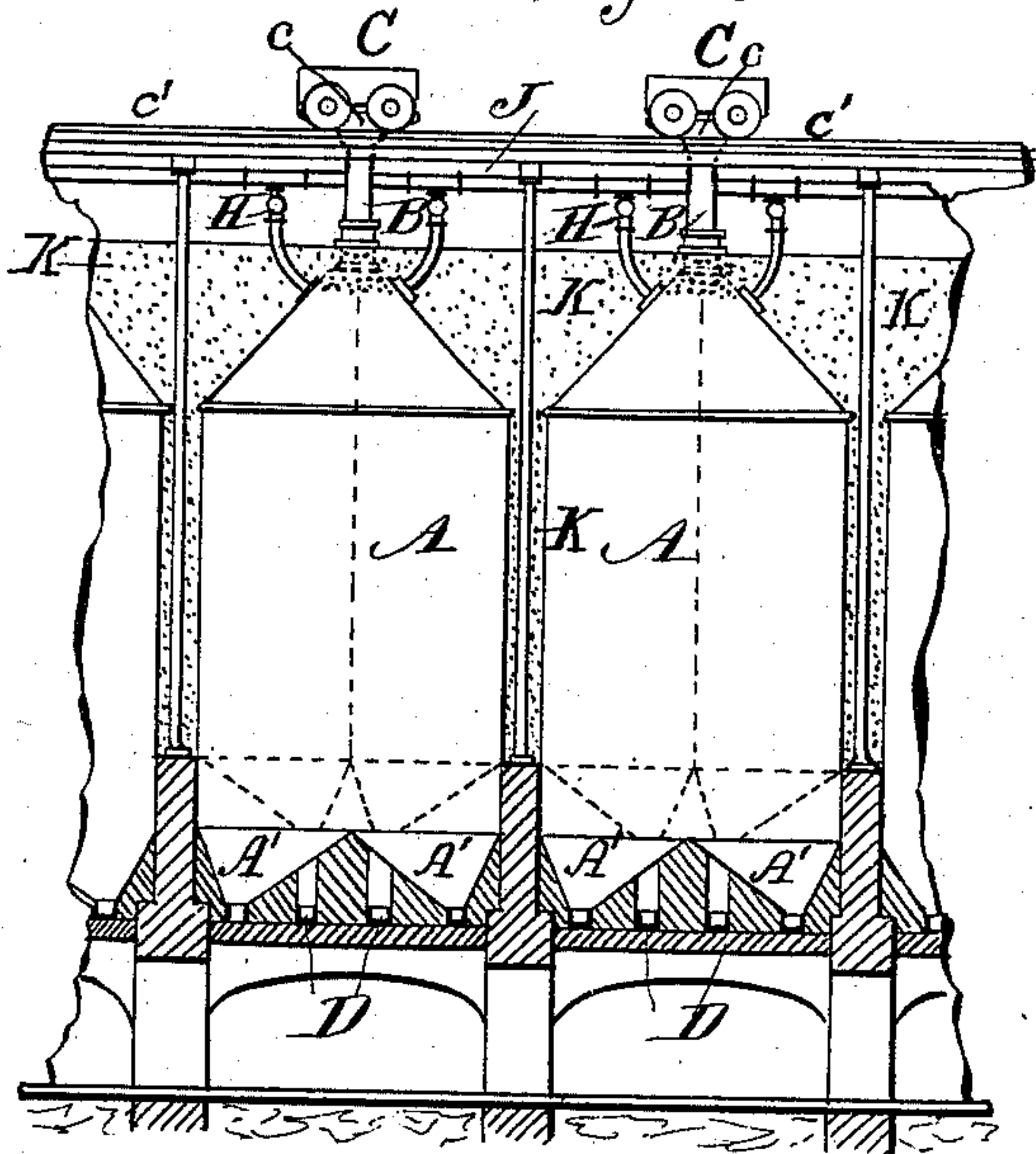


Fig. 1

Fig. 3



WITNESSES:

C. Neveu
C. Sedgwick

INVENTOR:

C. Engrand
BY *Munn & Co.*
ATTORNEYS.

UNITED STATES PATENT OFFICE.

CELESTIN ENGRAND, OF MARSEILLES, FRANCE.

GRAIN-SILO.

SPECIFICATION forming part of Letters Patent No. 349,213, dated September 14, 1886.

Application filed September 17, 1885. Serial No. 177,412. (No model.) Patented in Italy May 12, 1885, XIX, 18,225, and in France August 18, 1885, No. 167,890.

To all whom it may concern:

Be it known that I, CELESTIN ENGRAND, of Marseilles, France, have invented a new and Improved Grain-Silo, of which the following is a full, clear, and exact description.

The object of my invention is to provide a new and improved system of silos for storing and conserving wheat and other grains.

The invention consists in the construction and combination of parts and details, as will be fully described and set forth hereinafter.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a sectional plan view of part of my improved grain-silo. Fig. 2 is a cross-sectional elevation of the same on line *a a*. Fig. 3 is a longitudinal sectional elevation of a part of the same, taken on the line *b b* of Fig. 2.

The silo is constructed with a series of compartments, A, made of cast or sheet iron, wood, masonry, brick-work, or other suitable material, sheet-iron being preferred. They are each provided with an inclined chute like bottom, A', made absolutely air-tight, and are surrounded by a layer, K K, of earth, sand, ashes, or any other like or suitable non-conducting material. The layer K K should be two meters thick at the sides, and one and a half meter thick at the top, for the purpose of protecting the chambers or compartments from heat, cold, or moisture, and, more particularly for the purpose of maintaining in the said compartments an even temperature, sufficiently low to preclude the generation of insects.

The compartments A may have any desired shape in horizontal section, and may be built upon the ground or placed in a suitable building. At their upper ends they are each provided with a neck, B, which is provided in practice with an air-tight valve or any other suitable contrivance placed at both ends of the neck; also, at the upper ends of the necks B of the compartments A are provided hoppers *c*, into which is dumped the grain from cars

C, run upon tracks *c'* so disposed that one rail will be on each side of the hoppers, as shown, whereby the cars are enabled to be brought into such a relation with said hoppers that their bottoms may be directly over said hoppers. At the bottom of each compartment one or more outlet-pipes, D, are provided, which project from the sides of the building, and are provided at their outer ends with hermetically-closing valves or similar suitable contrivances. When said valves are opened the grain can be discharged from the outlet-pipes into sacks. Pipes E, also provided with hermetically-closing valves or similar contrivances extend from the middle parts of the compartments, and are used for drawing off samples of the grain to ascertain the condition of the same, or for any other purpose. Each compartment is connected by pipes H with a pipe, J, connected with an air-suction apparatus in order to remove the air, if desired, from the several compartments, and thus insure a perfect conservation of the grain.

The grain can be kept at a low cost in my improved silo for a long time, it does not decrease in quality or value, it need not be shoveled, and can be filled into bags very easily and rapidly.

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

A grain-silo comprising the compartments provided at their upper ends with necks having hoppers, and with inclined outlet-pipes connected to their bottoms, the series of pneumatic pipes connecting with the compartments, a pipe connecting with all of said pneumatic pipes, and a layer of non-conducting material surrounding each compartment, substantially as and for the purpose set forth.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

CELESTIN ENGRAND.

Witnesses:

J. S. MARTIN, Jr.,
PARLROSE.