

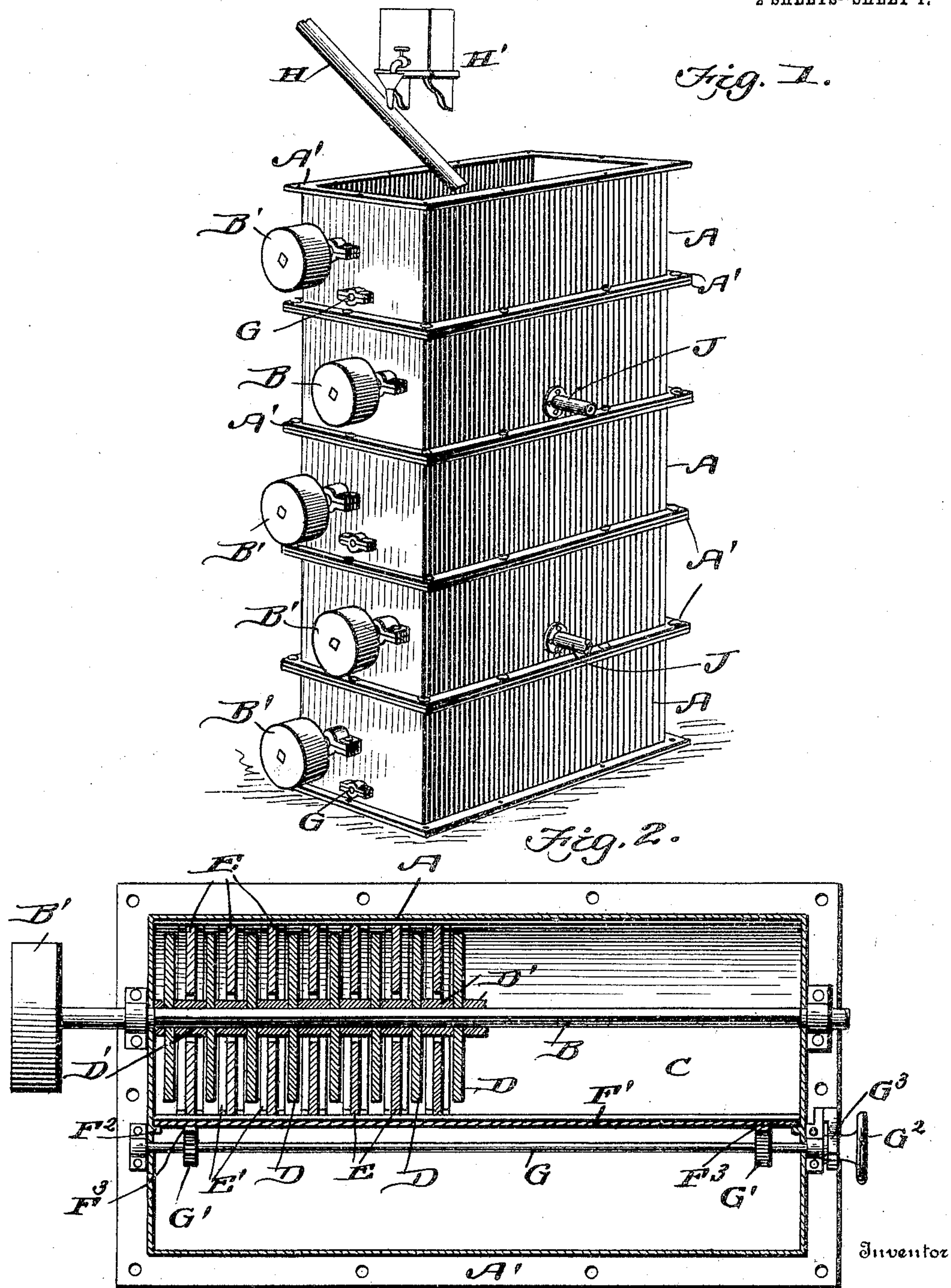
No. 793,450.

PATENTED JUNE 27, 1905.

J. T. LEONARD.  
GRAIN CLEANER.

APPLICATION FILED JAN. 6, 1904.

2 SHEETS—SHEET 1.



Witnesses  
M. S. Donald,  
Attorney at Law

J. T. Leonard,  
By  
O. M. Smith  
Attorneys



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Fig. 4.

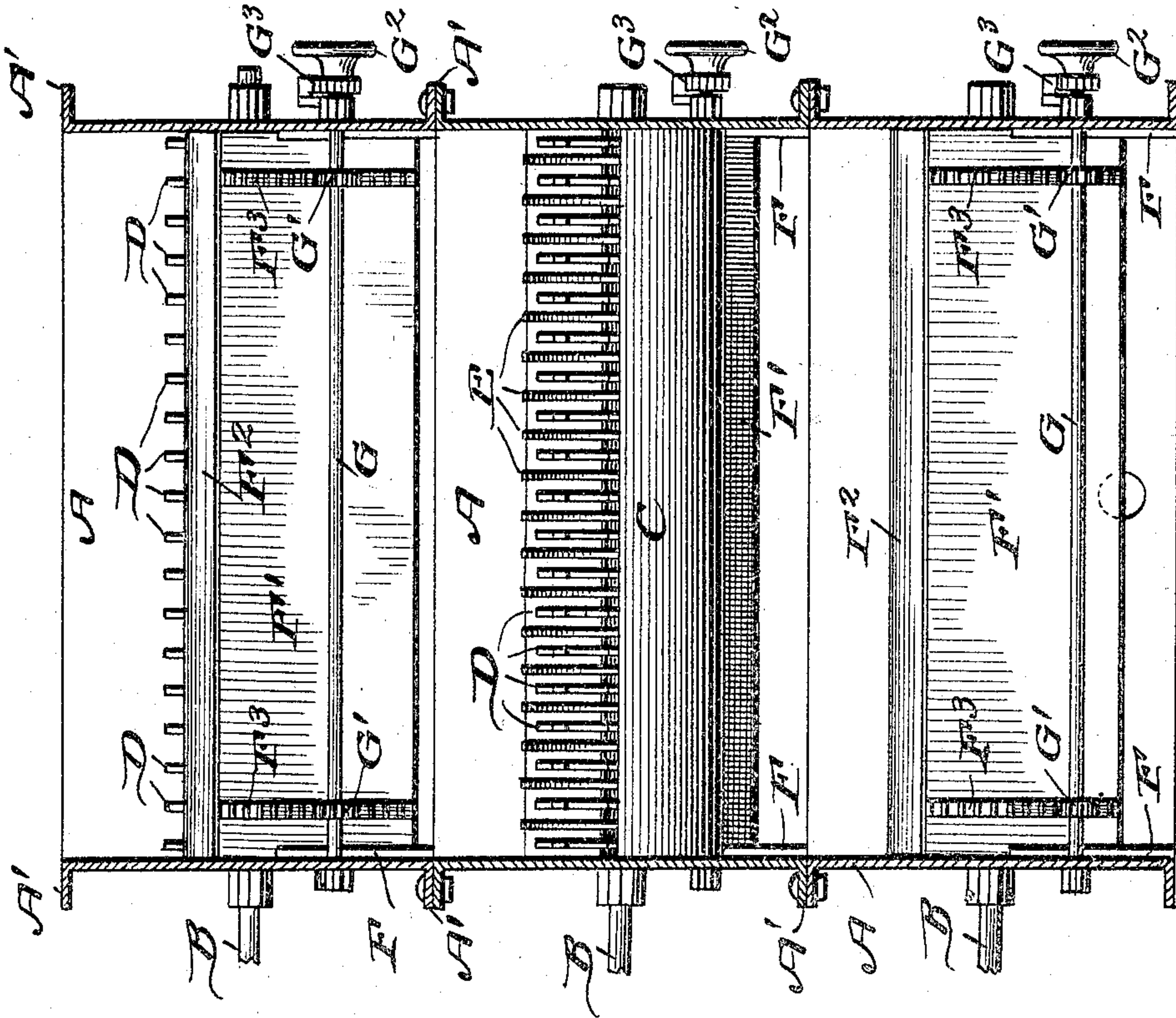
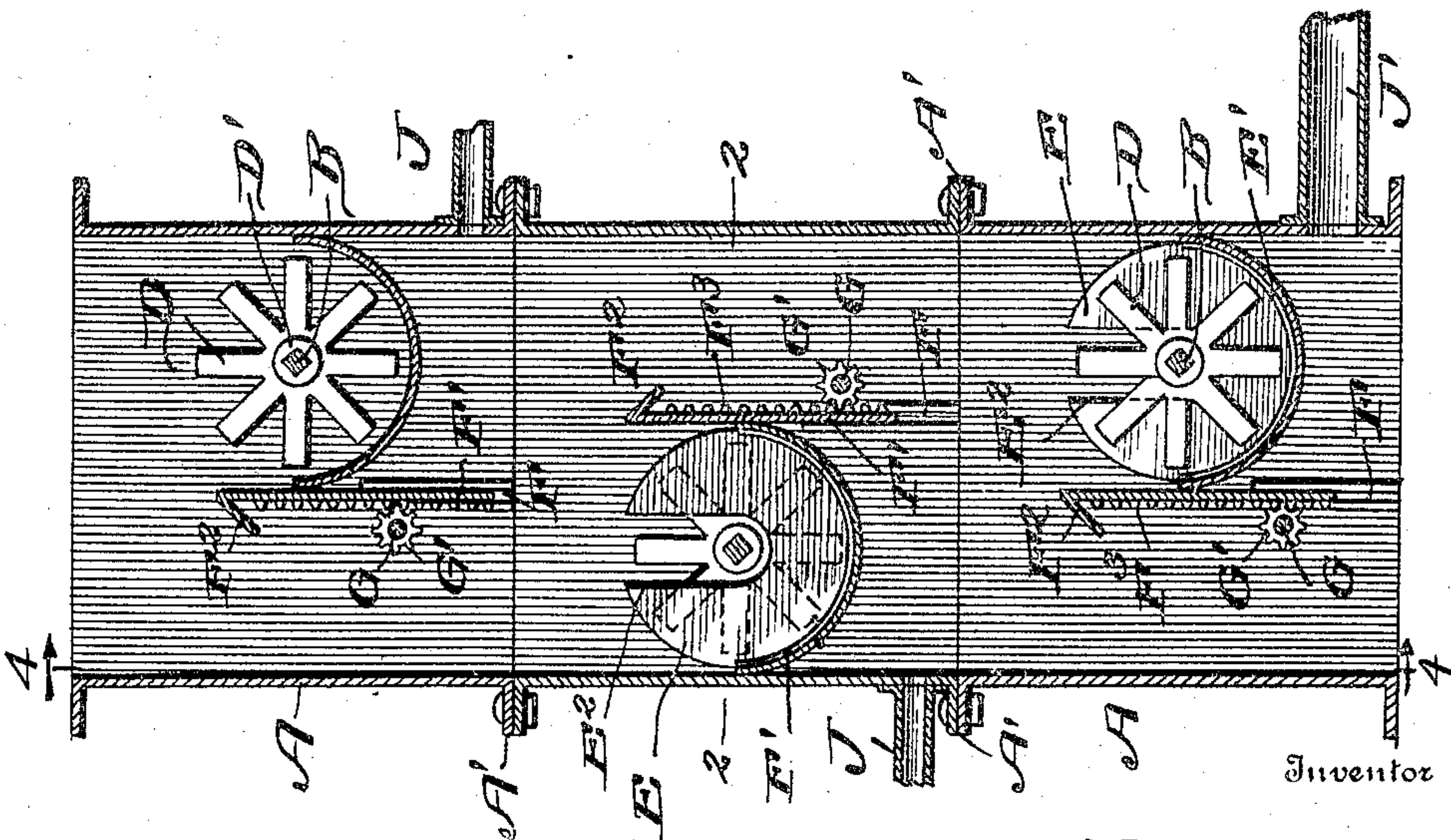


Fig. 3.



Witnesses  
*M. D. Plouffe*  
*Charles Shaw*

J. T. Leonard,

By *Olman & Brock*  
Attorneys



# UNITED STATES PATENT OFFICE.

JOSEPH THOMPSON LEONARD, OF ROLLING PRAIRIE, INDIANA.

## GRAIN-CLEANER.

SPECIFICATION forming part of Letters Patent No. 793,450, dated June 27, 1905.

Application filed January 6, 1904. Serial No. 187,921.

*To all whom it may concern:*

Be it known that I, JOSEPH THOMPSON LEONARD, a citizen of the United States, residing at Rolling Prairie, in the county of Laporte and State of Indiana, have invented a new and useful Improvement in Grain-Cleaners, of which the following is a specification.

My invention relates to a device for scouring, debranning, and cleaning grain of all kinds.

The object of the invention is to produce a sectional cleaner, each section being practically complete in itself and adapted to be combined and used with any number of similar sections whereby the grain can be cleaned to the extent deemed necessary in the judgment of the operator. This construction also enables the device to be installed in sections, the user adding additional sections as he may be able or as his business requires.

My invention consists in the novel features of construction and arrangement of parts hereinafter described, particularly pointed out in the claims, and shown in the accompanying drawings, in which—

Figure 1 is a perspective view of my cleaner, five sections being employed. Fig. 2 is a section on the line 2 2 of Fig. 3. Fig. 3 is a vertical transverse section. Fig. 4 is a vertical section on the line 4 4 of Fig. 3.

My complete device, as shown in Fig. 1, consists of a plurality of casings A, upwardly and downwardly open and arranged in vertical alinement. While the interior mechanism carried by these various casings is similar in all of them, yet where a number are used I prefer to omit certain parts from the uppermost casing, and it should be further understood that while the sections are complete in themselves and any number may be used one section alone does not make a complete device and that at least two should be used. Each section or casing A is provided at the top and bottom with outwardly-extending flanges A', whereby the sections when placed one upon the other may be bolted together. One of these sections will be described in de-

tail, and the manner of its operation will illustrate the general operation of the complete device.

Extending longitudinally through the casing A is a squared shaft B, which shaft is rounded adjacent its ends and journaled in the ends of the casing. A pulley B' is rigidly secured to one of the projecting ends of the shaft and is driven by a belt (not shown) from any source of power. This shaft is arranged adjacent one side of the casing. Secured to the side of the casing nearest the shaft B is a concave C, extending the entire length of the casing. This concave is in the form of a semi-cylinder, and the shaft B extends along the longitudinal axis of the concave, the concave being below the shaft.

A plurality of hubs, each having a square bore, and a plurality of radial arms D are arranged on the shaft and spaced apart by suitable washers D', also arranged on the shaft. These sets of radial arms are spaced about one inch apart, and their ends are at least one-half an inch from the sides of the concave C. Stationary partitions E are arranged between each set of arms D, the partitions being practically circular disks flanged, as at E', throughout a portion of their periphery to facilitate their connection to the concave. These disks are vertically slotted, as at E<sup>2</sup>, to fit over the washers D', the said washers being cylindrical in shape. The disks E are arranged midway the sets of radial arms, and consequently about one-half an inch from the arms.

Arranged at each end of the casing are parallel vertical guide-cleats in sets, as shown at F, and between these cleats a vertically-movable plate F' is arranged, the upper portion of the plate contacting with the front edge of the concave C. The upper edge of the plate carries an outwardly and downwardly extending flange F<sup>2</sup>. On its front surface, adjacent each end, the plate F' carries a rack-bar F<sup>3</sup>. Arranged in front of and parallel to the plate F' is a shaft G, journaled in the ends of the casing, and this shaft carries pinions G', which engage the rack-bars F<sup>3</sup>. At one end



the shaft G projects some distance beyond the casing and carries a small hand-wheel  $G^2$ , by which the shaft may be rotated. Between the handle and the casing is arranged a pawl-  
 5 and-ratchet mechanism  $G^3$ , of the usual construction, to prevent reverse rotation of the shaft.

It is obvious that grain fed into the concave will by rotation of the shaft and arms  
 10 be scoured between the arms and stationary plates E, and as the concave fills the grain will overflow, falling over the flange  $F^2$ , and it is also obvious that the height of said flange above the concave may be regulated by turn-  
 15 ing the hand-wheel  $G^2$ , thus raising or lowering the plate  $F'$ .

In forming a complete machine a number of the casings are arranged one above the other, and the casings are so arranged that the con-  
 20 caves and shafts will come alternately on opposite sides, as shown in Fig. 3, so that the grain falling over the flange  $F^2$  in one casing will fall into the concave of the casing immediately below. A discharge pipe or spout H  
 25 discharges the grain into the uppermost casing A and a water-receptacle  $H'$ , and when bran is being removed a small stream of water is allowed to flow in with the grain. In order that the grain may extend the entire  
 30 length of the concave and give work for all the arms, the stationary plates E are removed from the top casing. The grain, therefore, runs the entire length of this concave and is fed from it to the concaves in the lower cas-  
 35 ings. It will be noted that the plates  $F'$  do not come in vertical alinement and from the rear side of each casing—that is, the side to which the concave C is secured—leads a discharge-pipe. These pipes J lead to or through  
 40 a suitable fan-blower, (not shown,) and the suction draws off the bran and other matter scoured from the grain. In the lowermost casing a large pipe  $J'$  is employed, into which

the cleaned grain is drawn by means of air-suction produced in any desired manner.

By raising the plates  $F'$  the grain is retained a longer time in each concave and is more thoroughly scoured. The plates can be ad-justed to suit the various kinds or qualities of grain to be operated upon. The scouring-  
 faces of the arms D and plates E may be either smooth or rough, as may be required by different kinds of grain. It will be obvi-ous that any number of casings may be em-  
 ployed and that the more numerous they are the more thorough will be the cleaning process.

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

1. A device of the kind described comprising a plurality of casings arranged in vertical alinement, concaves arranged in said casings, a shaft arranged in each concave, radial arms carried by the shafts, a vertically-movable  
 plate arranged adjacent each concave, said plate being flanged along its upper edge, and means for vertically adjusting the plates.

2. In a device of the kind described, a casing upwardly and downwardly open, a con-  
 cave arranged in said casing and extending from end to end of the casing, a shaft ar-  
 ranged above and on the longitudinal axis of the concave, radial arms arranged in sets on  
 said shaft, stationary plates carried by the  
 concave and arranged between the sets of  
 arms, a vertically-adjustable plate arranged  
 in advance of the concave and in contact with  
 its front edge, means for feeding grain to the  
 concave, means for adjusting the last-men-  
 tioned plate, and means for driving the shaft,  
 as and for the purpose set forth.

JOSEPH THOMPSON LEONARD.

Witnesses:

WILLIAM STRUTZ,

JAMES D. SHELLINGER.