

No. 756,285.

PATENTED APR. 5, 1904.

J. H. ROBERTI.
MACHINERY FOR SEPARATING IMPURITIES FROM GRANULAR
OR LIKE SUBSTANCES.

NO MODEL.

APPLICATION FILED APR. 10, 1903.

2 SHEETS—SHEET 1.

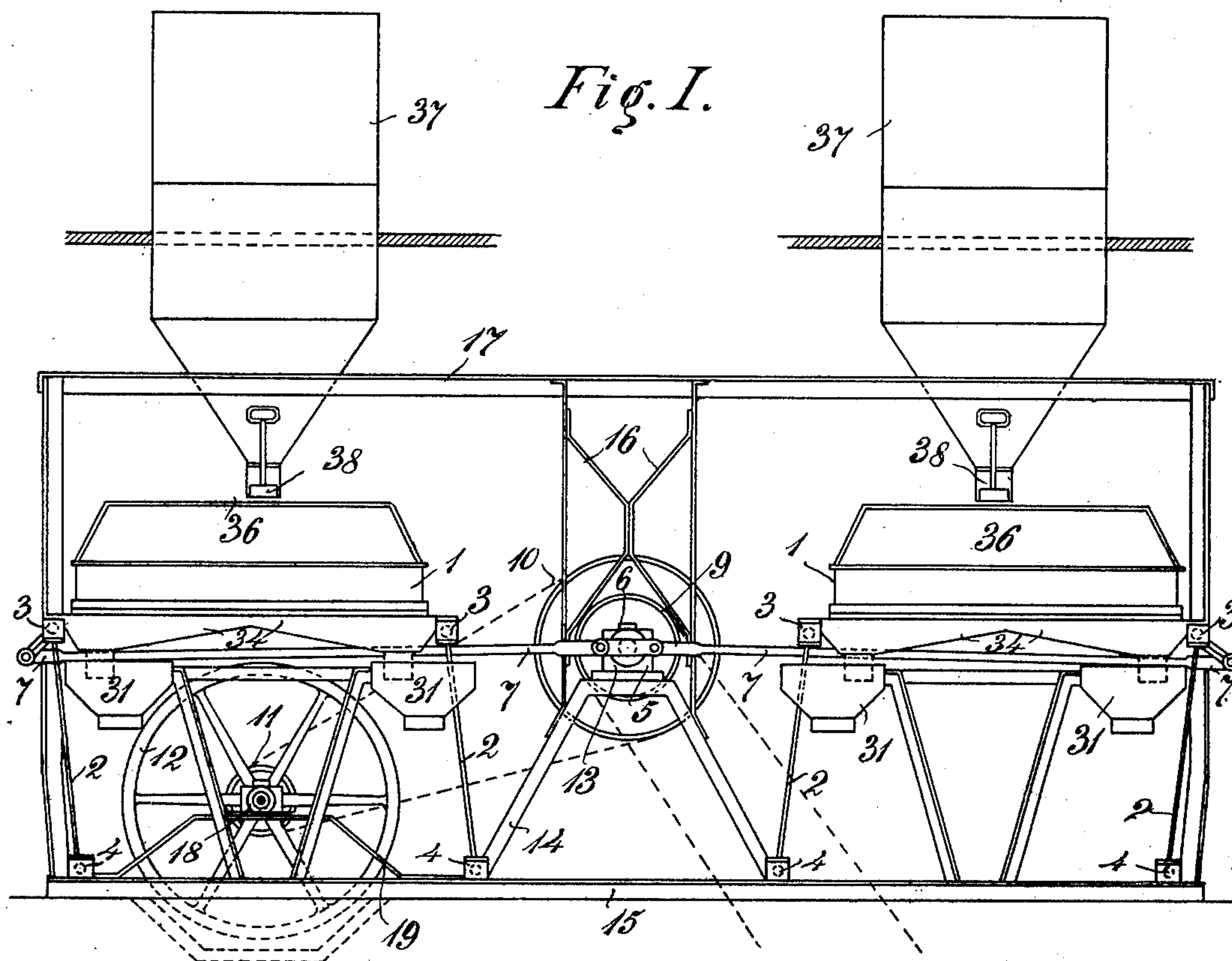
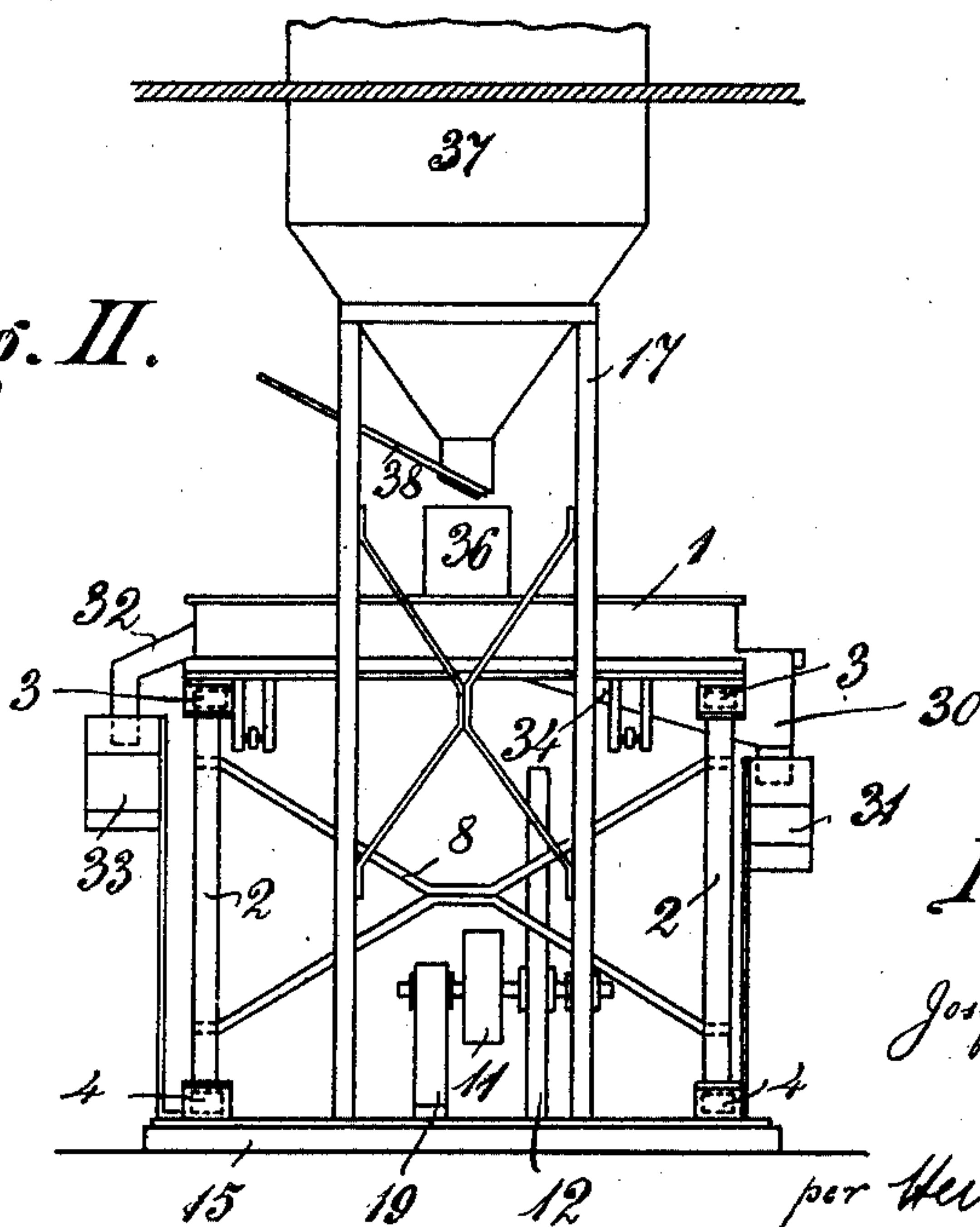


Fig. II.



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2 SHEETS—SHEET 2.

Fig. III.

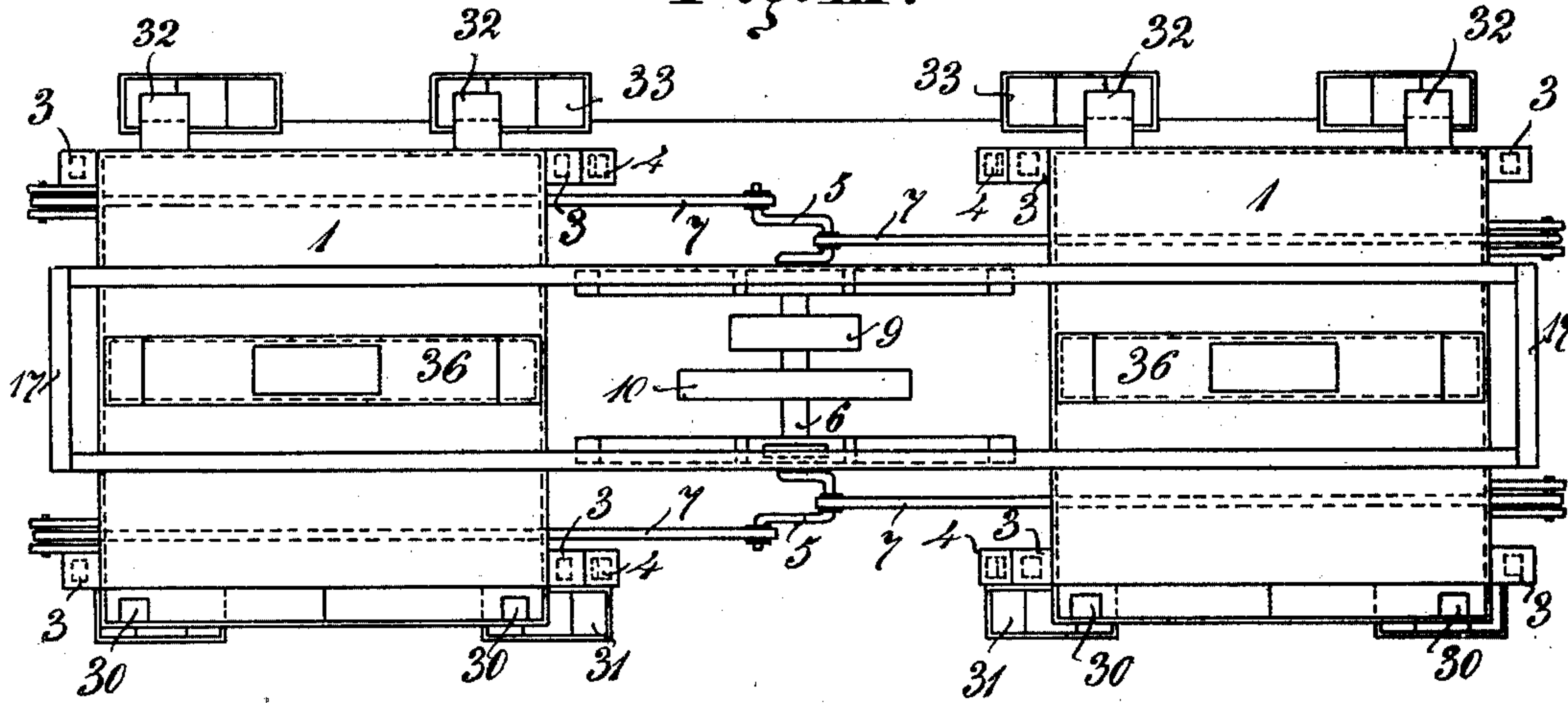


Fig. IV.

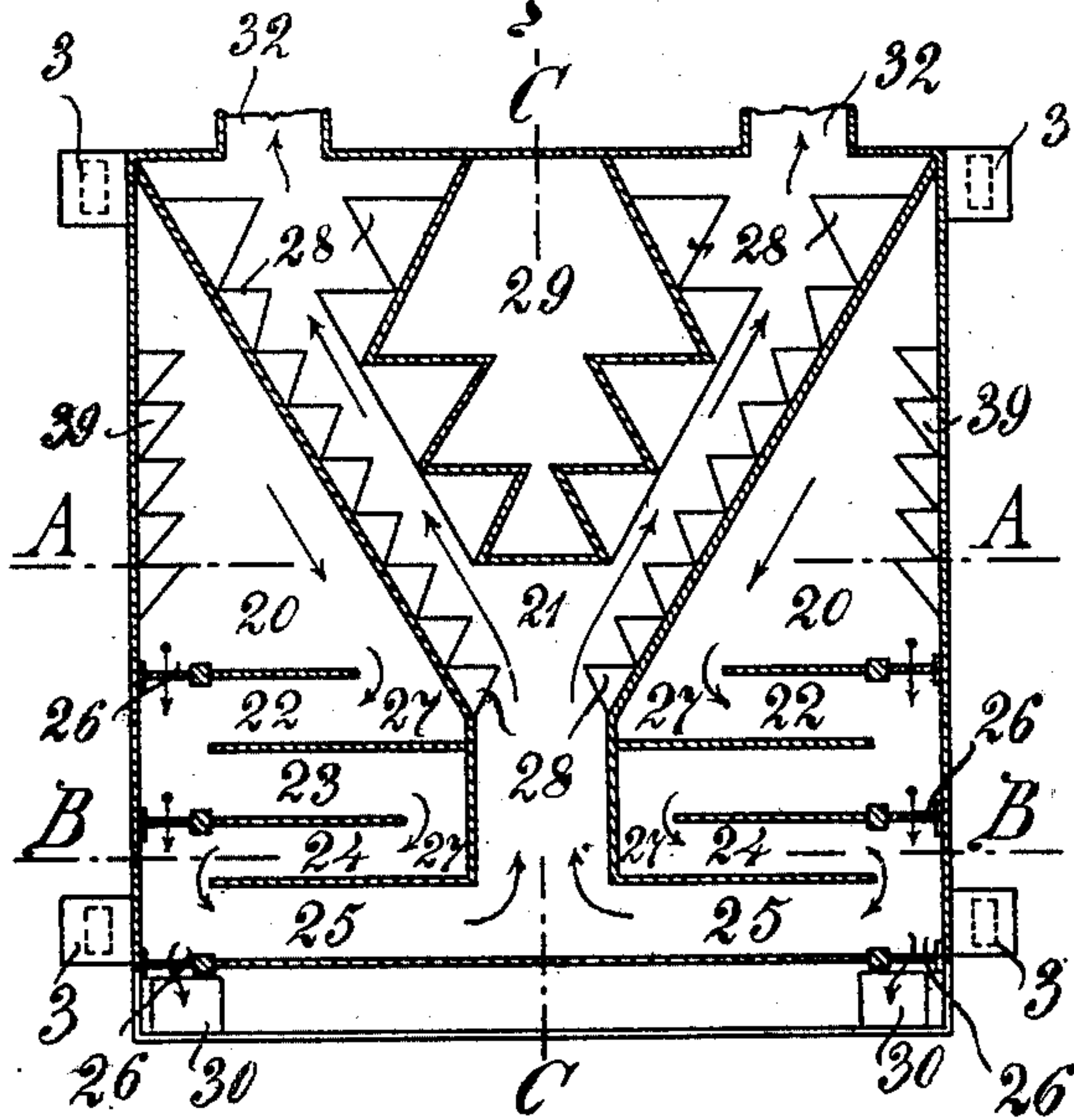


Fig. V.

A-A.

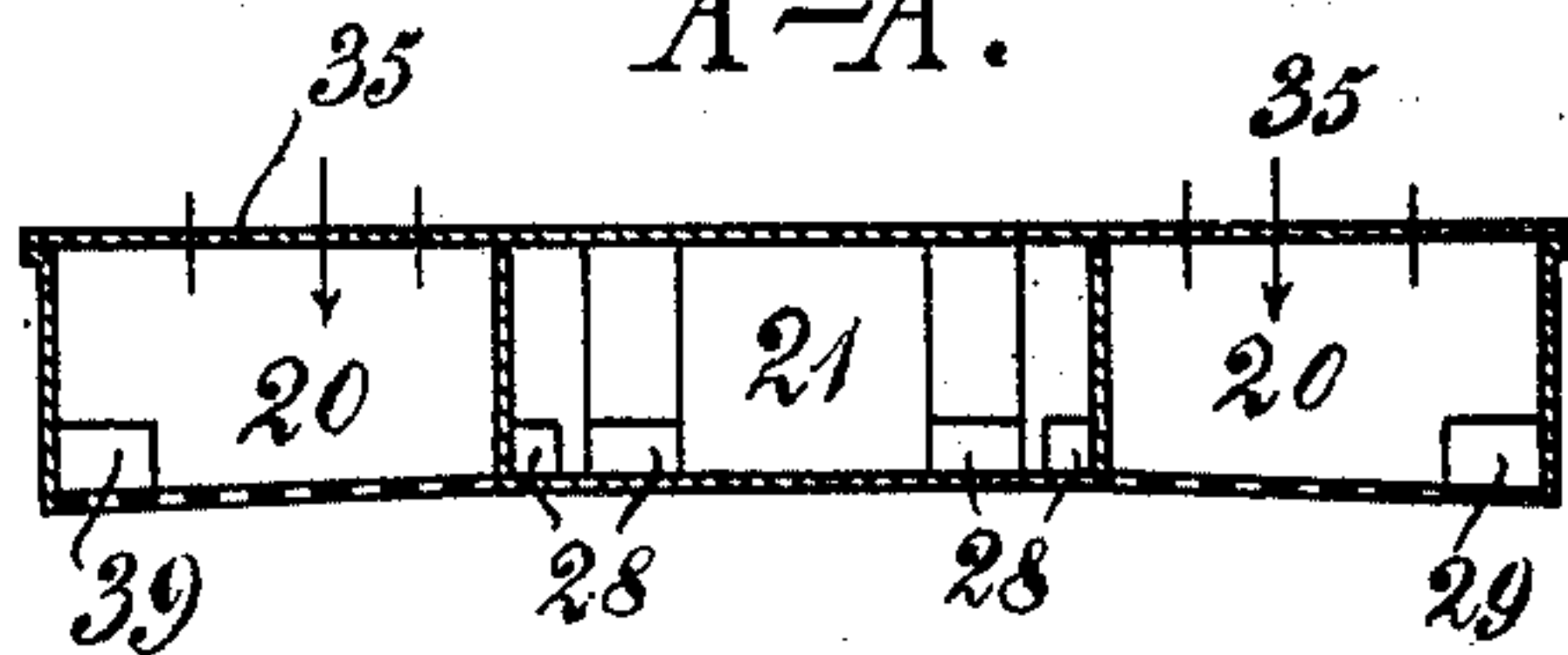


Fig. VI.

B-B.

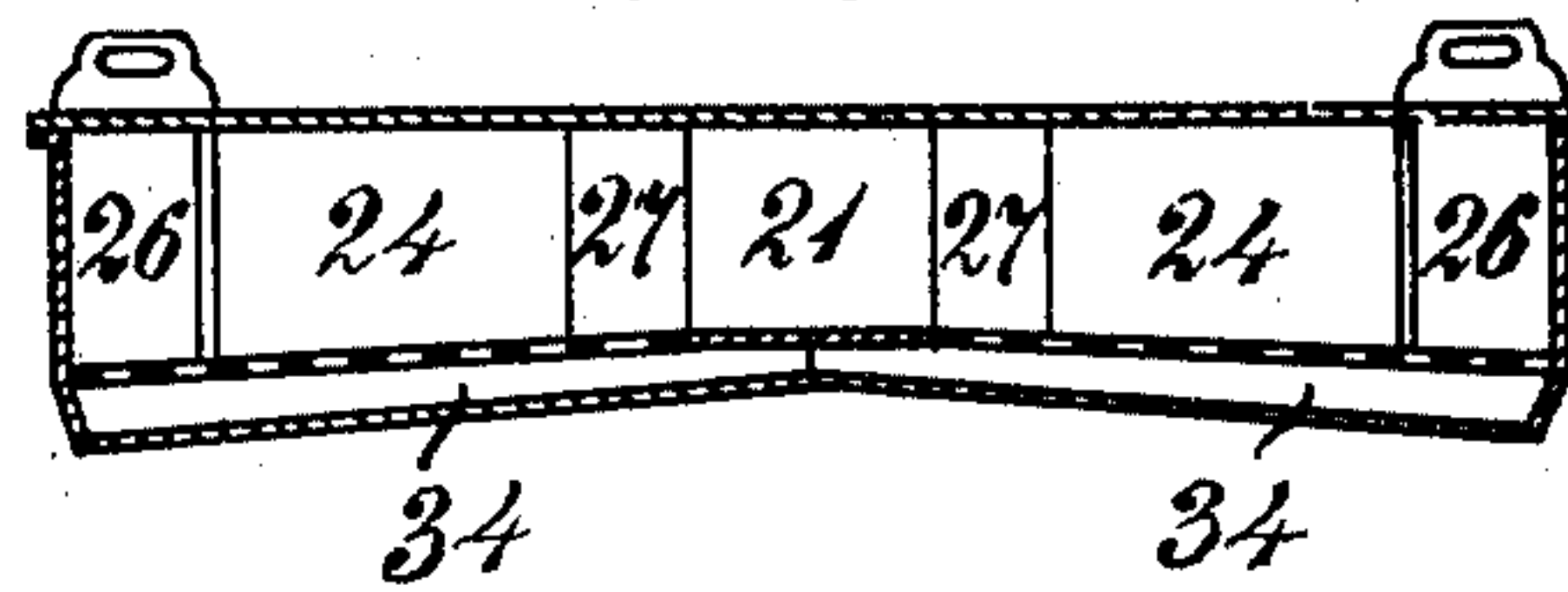
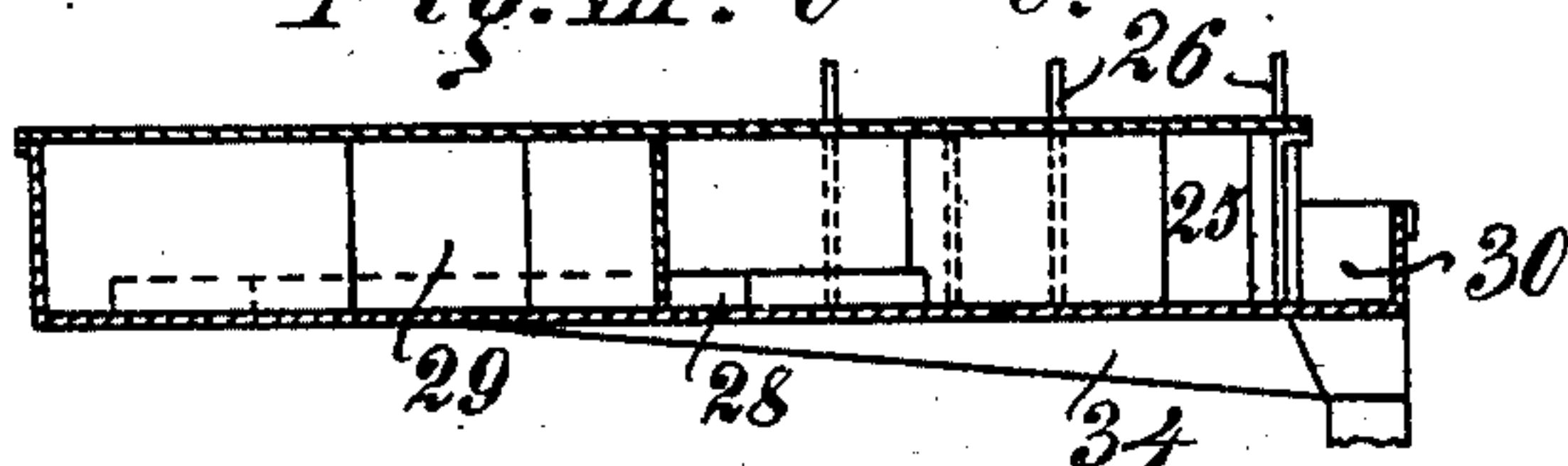


Fig. VII. C-C.



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UNITED STATES PATENT OFFICE.

JOSEF HUSTINX ROBERTI, OF MAASTRICHT, NETHERLANDS.

MACHINERY FOR SEPARATING IMPURITIES FROM GRANULAR OR LIKE SUBSTANCES.

SPECIFICATION forming part of Letters Patent No. 756,285, dated April 5, 1904.

Application filed April 10, 1903. Serial No. 152,080. (No model.)

To all whom it may concern:

Be it known that I, JOSEF HUSTINX ROBERTI, a subject of the Queen of the Netherlands, and a resident of Maastricht, Netherlands, have invented a new and useful Improvement in Machinery for Separating Impurities from Granular or Like Substances, of which the following is a specification.

The object of my present invention is the complete separation of all impurities, as stones, pearls, nails, shells, and the like, from coffee-beans, pulse, grain, wheat, and the like.

My new machine is illustrated in the accompanying drawings, in which—

Figure 1 is a front elevation. Fig. 2 is a side elevation. Fig. 3 is a plan view. Fig. 4 is a plan view of one-half of the machine drawn on a larger scale, the upper parts being supposed to be removed. Figs. 5, 6, 7 are sections on lines A A, B B, C C, respectively, of Fig. 4.

As shown in Figs. 1, 2, and 3, the machine consists of two equal parts, each containing a flat quadrangular casing, which I hereinafter call the "board." Each board rests upon four standards 2, terminating in the board-bearings 3 and the foot-bearings 4 and connected in pairs on each side by means of rods 8. By means of the four cranks 5 of the shaft 6, which preferably rotates at about one hundred and twenty-four revolutions per minute, and by means of the connecting-rods 7 the two boards 1 are equally and longitudinally reciprocated. Further, a slight up-and-down movement is given to said boards 1, because the upper ends of the standards 2, and thus the boards themselves, move on an arc. The shaft 6 has, further, two belt-pulleys 9 10, the first being the driving-wheel of the machine, while the latter rotates the fly-wheel 12 by means of the pulley 11. The shaft 6 rests in the bearings 13, the supports 14 of which are fastened on the ground-frame 15. The supports 14 are connected with the frame 17 by means of the lattice 16. Both ends of the fly-wheel shaft are resting in bearings the supports 19 of which are fastened on the foundation.

Each board comprises a quadrangular casing with three sections 20 20 21, Fig. 4, which

are separated one from another by partitions of the same height as that of the casing itself. The lateral sections 20 contain parallel passages 22 23 24 25, the walls of which are as high as those of the casing itself and contain slides 26 on one end, while other passages 27 are provided toward the center of the board. The passages 25 communicate with the central chamber 21, which joins onto two passages toward the back. These passages contain triangles 28, which are considerably lower and are closed at the top. Eight of said triangles inclose three great triangles 29 of a height equal to that of the casing. The outlets 30, provided at the front side of each board, are fitted with slides 26 and open into chests 31, Figs. 1, 2, 3, which are fastened on the foundation in any suitable way. Further outlets 32, Figs. 2, 3, 4, are provided on the back side of each casing and open into the chests 33, which are likewise fastened on the foundation. Receptacles or sacks are to be arranged under the chests 31 and 33.

The bottom of each board under the passages 22 23 24 25 consists of perforated sheet metal, Figs. 4, 6, and is inclined toward the front corners of the casing. Bottoms 34 are arranged underneath said perforated sheets, which bottoms sink toward both sides, Figs. 6, 7, and open into the casings 30. The cover of each board 1 has two apertures 35, and over each cover a receptacle 36 is provided, which participates in the movements of the board.

The matter to be treated is contained in the hoppers 37, the outlets of which can be closed or more or less opened by means of the slides 38.

The function and operation of my new machine are as follows: The machine is driven by any motor by means of the pulley 9, so that the boards are reciprocated by means of the cranks 5 and the connecting-bars 7 and simultaneously moved up and down, as explained above. The matter to be treated passes the slides 38, enters the receptacles 36, and from there, through the openings 35, the lateral chambers 20 of each board. The small impurities fall through the perforated bottoms on the bottoms 34, which carry them away. The material to be treated moves to the front,

owing to the shaking movement and the inclined arrangement of the bottom between the parallel passages 22 23 24 25. The matter to be treated rises, however, to the top, while the heavy admixtures, as stones and the like, collect at the lower parts of the bottom, so that they can be emptied out into the ducts 31 by opening the slides 26, which is effected about twice daily. The material to be treated rises from the front parallel passages to the central chamber 21 and from there to the passages connected therewith. During this movement it passes over the low triangles 28 and is pushed toward the outlets 32 by means of the high triangles 29. The heavy admixtures, which may be carried along by means of the shaking movement from the parallel passages 22 23 24 25 to the central chamber 21 and its two passages, remain underneath the matter to be treated, owing to their greater weight and are always pushed by means of the small and low triangles 28 in the opposite direction toward the front—i. e., toward the deepest part of the board. Because of the reciprocating movement of the boards the upper layers of the material after having left the front parallel passages are thus always pushed upward and toward the back and the outlets 32, while the heavier lower layers, as stones, concretions, and the like, which may possibly be still admixed, are pushed forward to the front by the small triangles 28. The purified material is discharged by the rear outlets 32 and the stones and the like by the front outlets 30.

The ten low triangles 39 in the lateral chambers 20 are only provided for a convenient and rapid emptying of the boards if the latter is to be cleaned thoroughly.

My machine eliminates not only the stones or other impurities from coffee-beans, pulse, grain, and the like, but separates completely all matters of a greater specific gravity. When leaving the machine, the material treated is free from the slightest admixture, which result has hitherto not been obtainable by means

of the separators already known. About one-half horse-power is necessary for cleaning three thousand kilograms within ten hours. The exact output, however, obviously depends somewhat upon the size of the boards.

What I claim is—

1. In apparatus for the separation of foreign bodies from granular substances, a casing, means for imparting motion to said casing, a perforated floor in said casing, a triple division of the interior of said casing, a middle set of triangles within the central division of a height equal to that of the divisions and two side sets of triangles of a height lower than that of the divisions, means for the access of material to the interior of the casing, and means for the delivery of the assorted contents therefrom.

2. In apparatus for the separation of foreign bodies from and sorting of granular substances, a rectangular casing means for imparting reciprocating motion to said casing, a perforated bottom to said casing doubly inclined at the sides at the half thereof nearest to the entrance for the materials, and flat for the remaining half, a threefold division of the interior into the spaces 20, 21, 20 by partitions of the same height as the casing, the system of triangles 29 of the same height as the partitions and adapted to separate lighter impurities, the system of triangles 28 of less height than the partitions and adapted to separate impurities of greater specific gravity, the auxiliary triangles 39, the winding passages 22, 23, 24, 25 within the casing, means for the supply of material, and outlets for the several separated materials, substantially as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOS. HUSTINX ROBERTI.

Witnesses:

STANFORD NEWEL,
I. I. HELSDON RIX.