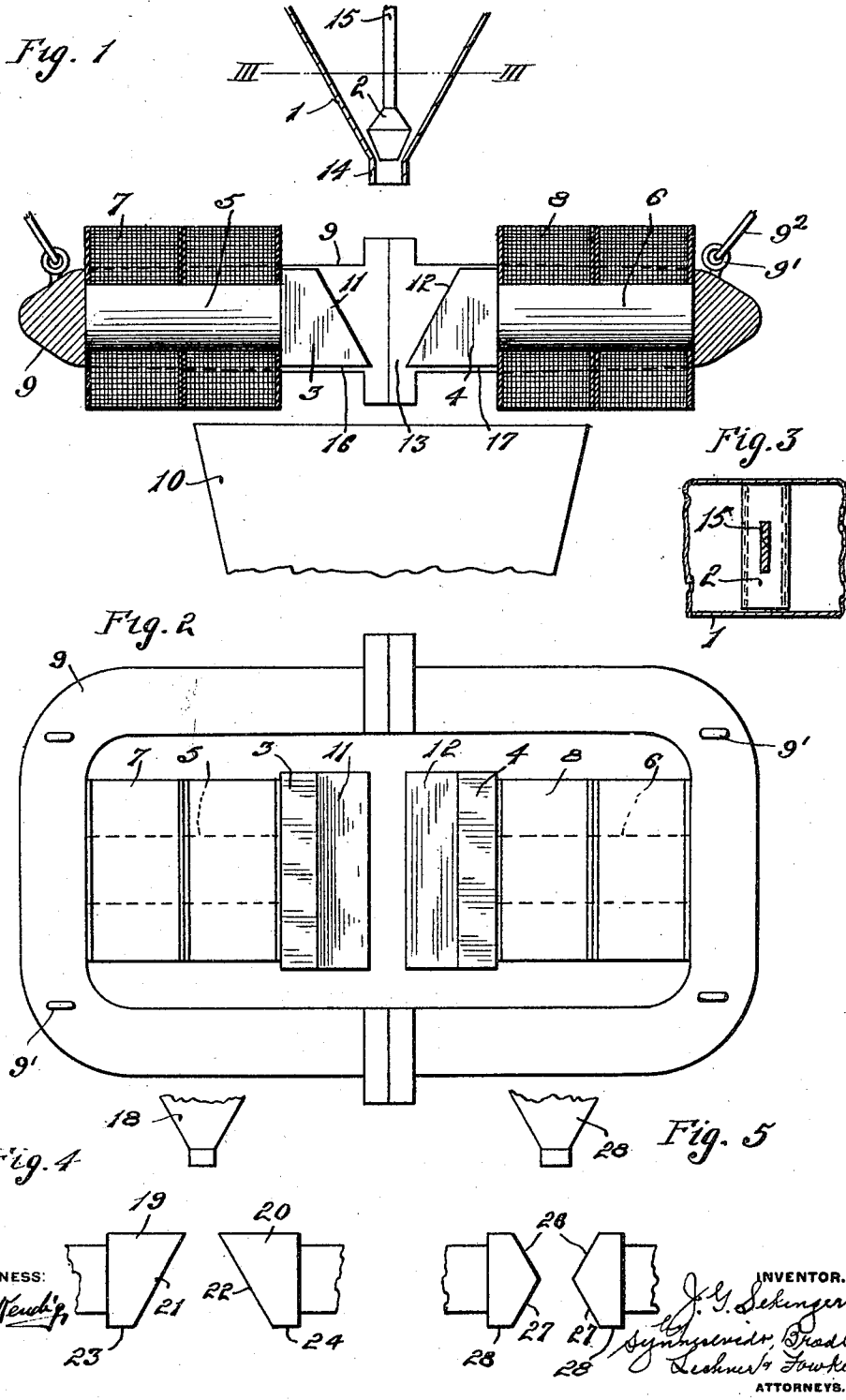


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MAGNETIC SEPARATOR.

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1,317,992.

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UNITED STATES PATENT OFFICE.

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MAGNETIC SEPARATOR.

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To all whom it may concern:

Be it known that I, JOHN G. SEKINGER, a citizen of the United States, residing at Ford City, in the county of Armstrong and State of Pennsylvania, have invented certain new and useful Improvements in Magnetic Separators, of which the following is a specification.

The invention relates to magnetic separators, the particular embodiment illustrated herein being designed for use in removing magnetic particles, such as iron, steel, iron rust, and the like from the batch employed in the manufacture of glass. The primary objects of the invention are the provision of a cheap, simple construction which will effectively separate from the batch the magnetic materials contained therein; the provision of a separator which will accomplish the function above stated without causing any unmixing of the batch; and the provision of a cheap, simple construction and compact form. Certain embodiments of the invention are illustrated in the accompanying drawings wherein—

Figure 1 is a vertical section through the apparatus embodying my invention, Fig. 2 is a plan view of that part of the apparatus of Fig. 1 below the discharge hopper, Fig. 3 is a section on the line III—III of Fig. 1, Fig. 4 is a diagrammatic side elevation view of a modification, and Fig. 5 is a diagrammatic side elevation of still another modification.

Referring to Figs. 1, 2 and 3; 1 is the batch hopper containing the material from which it is desired to remove magnetic particles; 2 is a valve for controlling the flow of material from the hopper; 3 and 4 are pole pieces having shanks 5 and 6 carrying the windings 7 and 8; 9 is a collar carrying the shanks 5 and 6 and constituting the means to which suspending means for supporting the separator may be attached; and 10 is a bucket or conveyor into which the material passing the separator is discharged.

The pole pieces 3 and 4 have their end faces 11 and 12 inclined as indicated in Fig. 1, the lower portions of such faces approaching each other to form a narrow slot 13. The outlet 14 of the hopper comprises an elongated slot of relatively small diameter spaced a considerable distance above the

pole pieces. The valve 2 is of tapered elongated form as will be seen by reference to Fig. 3 in connection with Fig. 1 and is provided with a shank 15 by means of which the valve is raised and lowered. The shanks of the pole pieces are securely attached to the horizontal collar 9 preferably of cast iron, and it is by means of this collar that the separator is suspended by the eyes 9' and cables 9" at any desired elevation with respect to the hopper 1.

In operation, after the receiving bucket 10 has been placed in position, the valve 2 is raised and the material allowed to flow through the spout 14. The resistance of air to the downward flow of material causes the relatively thin stream to spread out and strike the inclined faces 11 and 12 thus giving the magnetic forces an opportunity to act upon any magnetic particles contained in the batch. These magnetic particles are worked downwardly along the faces 11 and 12 by the stream of batch and finally reach a position upon the lower horizontal faces 16 and 17 of the pole pieces. When the bucket 10 is filled the valve 2 is closed and the bucket removed. The magnetic particles adhering to the surfaces 16 and 17 are then easily removed by breaking the current through the windings 7 and 8.

Fig. 4 illustrates a modified form of apparatus wherein the hopper 18 discharges between the pole pieces 19 and 20 having the inclination of their front faces 21 and 22 the reverse of that shown in Fig. 1. The operation is substantially the same as that heretofore described except that a portion of the magnetic material collected upon the faces 21 and 22 remains upon such faces instead of all being carried to the horizontal faces 23 and 24 as is the case in the construction of Fig. 1.

Fig. 5 illustrates another modification in which the opposing faces of the pole pieces are inclined as indicated at 26 and 27, the material from the hopper 28 falling upon the inclined faces 26 corresponding to the faces 11 and 12 in the construction of Fig. 1. The magnetic particles collect upon the inclined faces 27 and horizontal faces 28. Aside from the pole pieces, the constructions in Figs. 4 and 5 follow that of Fig. 1.

What I claim is:

1. In combination, a pair of aligned sub-

- stantially horizontal pole pieces spaced apart and having inclined opposing end faces forming a tapering passageway and substantially horizontal bottom faces meeting the inclined faces and forming acute angles therewith, windings for energizing the pole pieces, and means for supplying material into said passageway and upon the inclined opposing faces. 15
2. In combination, a pair of aligned substantially horizontal pole pieces spaced apart and having inclined opposing end faces forming a tapering passageway, and having substantially horizontal bottom faces supported free to receive magnetic particles and with such faces accessible from beneath, windings for energizing the pole pieces, and a passage for supplying material to said passageway, said passage having its lower end terminating at a substantial distance above the upper edges of the inclined faces to permit the material to spread before it reaches such faces. 20
- JOHN G. SEKINGER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."