

No. 731,443.

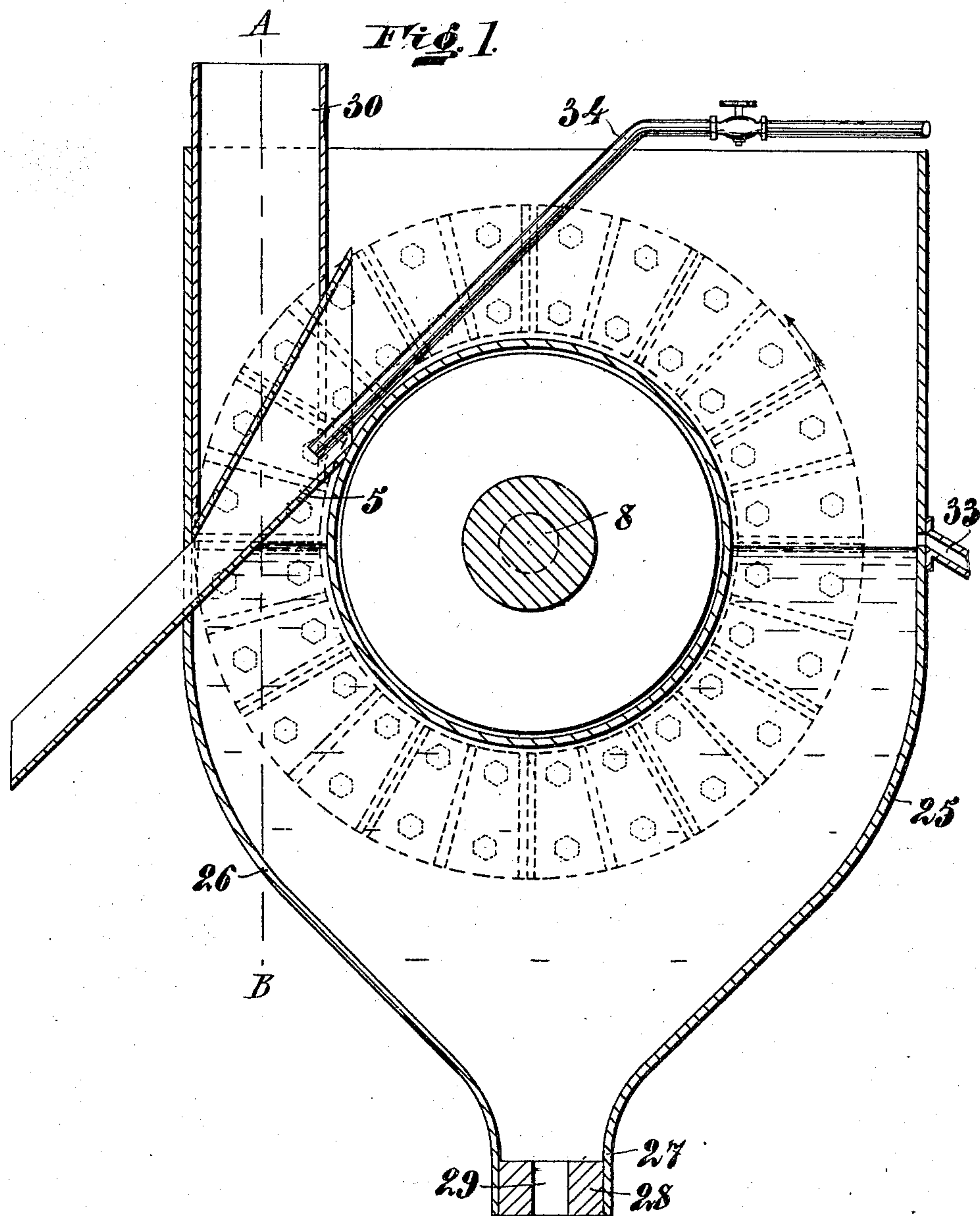
PATENTED JUNE 23, 1903.

K. V. A. ERIKSSON.  
MAGNETIC ORE SEPARATOR.

APPLICATION FILED DEC. 3, 1901.

NO MODEL.

3 SHEETS—SHEET 1.



Witnesses  
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Inventor:  
*Knut V. A. Eriksson*  
by *Olof Dahl*  
his att'y

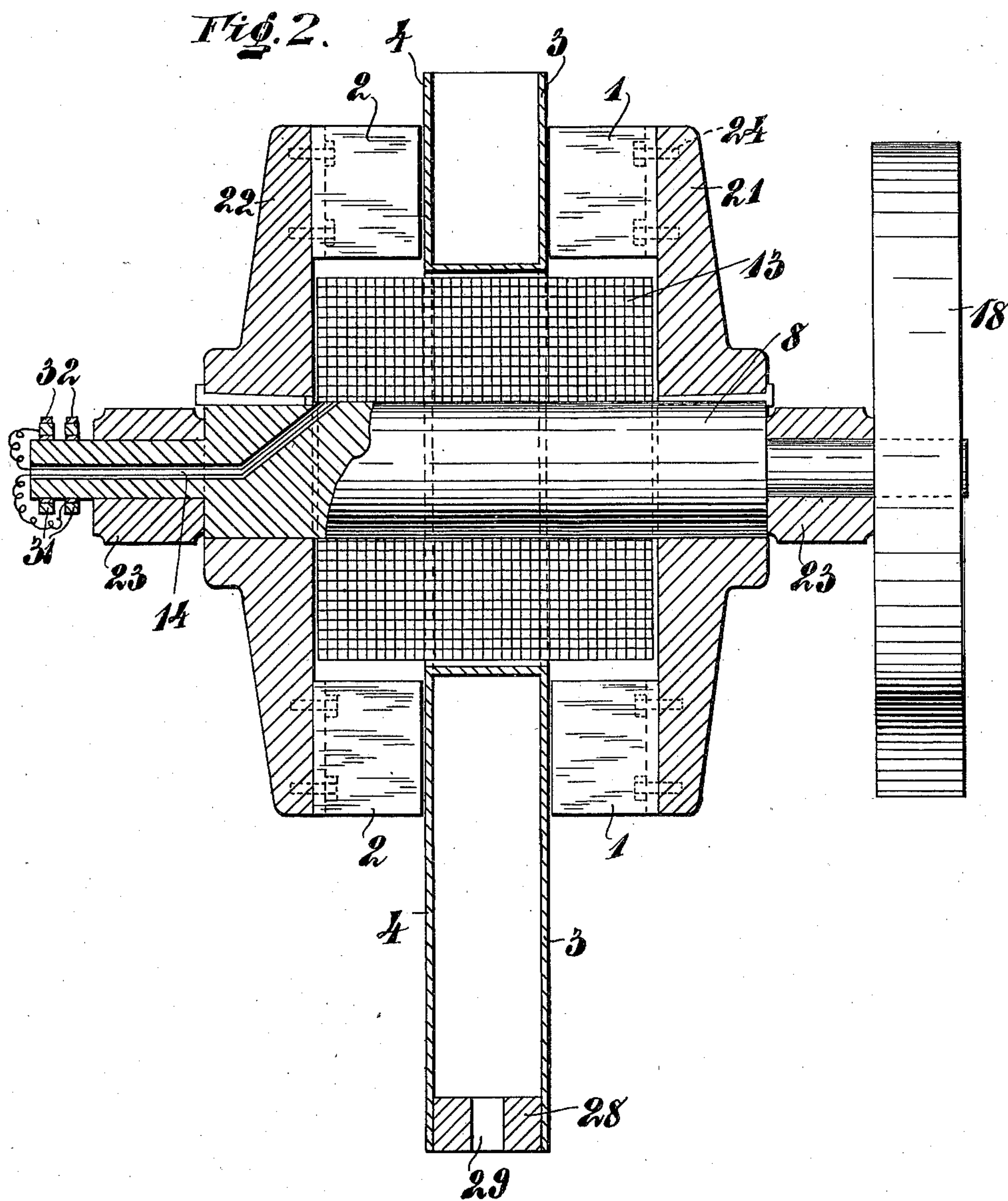
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3 SHEETS—SHEET 2.



Witnesses:

Gustaf Isfält  
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Inventor:

Knut V. A. Eriksson

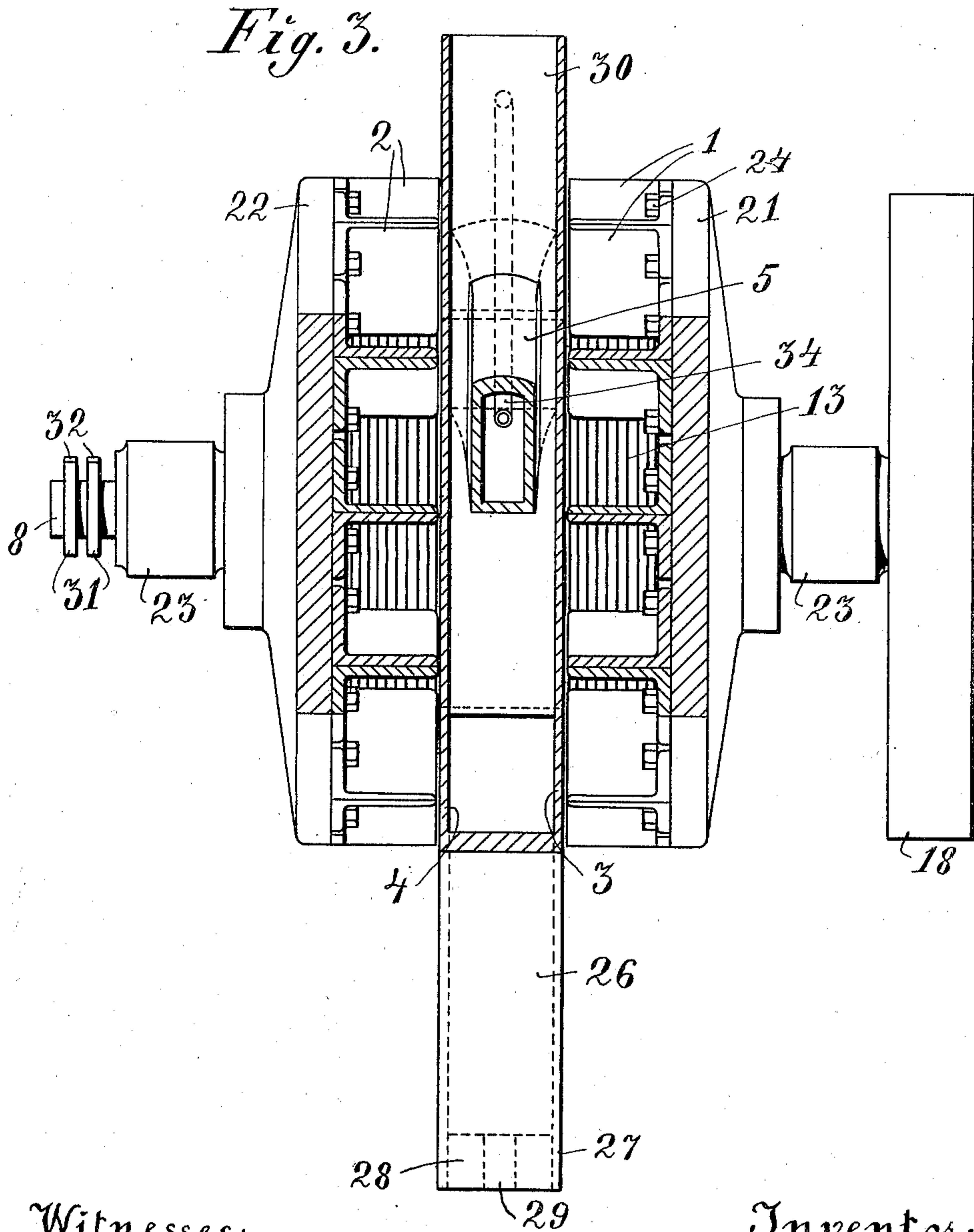
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NO MODEL.

3 SHEETS—SHEET 3.



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# UNITED STATES PATENT OFFICE.

KNUT VIKTOR ARKADIUS ERIKSSON, OF FALUN, SWEDEN, ASSIGNOR TO  
ANDERS ERIC SALWÉN, OF GRÄNGESBERG, SWEDEN.

## MAGNETIC ORE-SEPARATOR.

SPECIFICATION forming part of Letters Patent No. 731,443, dated June 23, 1903.

Application filed December 3, 1901. Serial No. 84,537. (No model.)

*To all whom it may concern:*

Be it known that I, KNUT VIKTOR ARKADIUS ERIKSSON, a subject of the King of Sweden and Norway, and a resident of Falun, Sweden, have invented new and useful Improvements in Magnetic Ore-Separators, of which the following is a specification, reference being had to the drawings accompanying and forming a part hereof.

This invention relates to improvements in magnetic ore-separators.

The object of the invention is to provide a magnetic ore-separator which will be cheap to build and maintain, inasmuch as it will be simple in construction and economical as to the consumption of electric current, as well as reliable in its working.

The invention consists in the combinations and arrangements of parts hereinafter described and claimed.

In the accompanying drawings, Figures 1 and 2 show in longitudinal and cross section a suitable constructional form of my invention, and Fig. 3 shows a section on line A B in Fig. 1.

Referring to the drawings, two disks 21 and 22, to which are attached a number of magnet-poles 1 and 2, are rigidly fixed to a shaft 8, rotatably journaled in bearings 23. Each of said pole-pieces 1 and 2 consists, preferably, of two angle-irons fixed by means of screws 24 to the said disks 21 and 22, but may be made in any other convenient manner. The said shaft 8 may be rotated by means of the belt-pulley 18 or in any other suitable manner. Between the said magnet-poles 1 and 2 is arranged a preferably water-tight separating-chamber formed by two vertical plates 3 and 4 and side walls 25 and 26.

The field-magnets of this separator are very similar to those used in the old Mordey alternators having rotating field-magnets and stationary armature, the latter corresponding to the separating-chamber of this separator. The said vessel is provided with a central cylindrical opening, through which the shaft 8 and the electric winding 13 are inserted. At the bottom the vessel is formed as a funnel and provided with a pipe 27, in which may be inserted a stopper 28 or the like, provided with an outlet-opening 29. A feeding-channel

30 is arranged at the top of said vessel, the lower end of said feeding-channel entering between the magnet-poles, as shown in Fig. 2. A division-wall 5, formed as an inclined channel, traverses the said feeding-channel 30 or runs at the side of the same between the magnetic field. The ends of the electric winding 13 are carried out through the channel 14 and connected to two insulated contact-rings 31, attached to the shaft 8. The electric current is fed to said contact-rings in well-known manner by means of sliding contacts 32.

The working of the apparatus is as follows: The magnet-poles 1 and 2 are rotated, for instance, in the direction of the arrow in Fig. 1, and the magnetic and non-magnetic material is fed into the separating-room through the channel 30. The magnetic material will be caught by the magnetic field inside the separating-chamber and be carried along until it arrives to the channel 5, by which it will be prevented from following the magnets any further, but will be caused to slide down out from the apparatus, whereas the non-magnetic material will drop down to the bottom of the separating-chamber and out through the opening 29. If water be let in through the channel 30 simultaneously with the magnetic and non-magnetic material, the feeding of the water may be regulated in such manner that the water-surface inside the separating-chamber will stand approximately in level with the center of the disks 21 22. The water is used in well-known manner to wash the magnetic material carried along in the separating-chamber. In order to keep the water-level at a constant height, the separating vessel is suitably provided with an outlet-pipe 33, through which the superfluous water flows out. Since the magnetic field inside the separating-chamber tends to prevent the magnetic material in the channel 5 from sliding down in the same, a water-current may preferably be let in from above into the said channel 5, the said water-current forcing the magnetic material out from the apparatus. For this purpose a water-pipe 34 is introduced in the upper part of the separating-chamber in such manner that it will throw a current of water into the said channel.



Having now described my invention and how it may be carried out, what I claim, and desire to secure by United States Letters Patent, is—

- 5 1. In a magnetic ore-separator the combination of, a separating-chamber formed by vertical plates, a transverse opening in said separating-chamber, a rotatable shaft inserted through said opening, means for rotating  
10 said shaft, an electric winding on said shaft, means for feeding electric current to said winding, two disks rigidly fixed to said shaft, a number of magnet-poles on each of said disks adapted to run close to the walls of said  
15 separating-chamber, a feeding-channel entering with its lower end between the said magnet-poles, and a discharge-channel for the magnetic material traversing the said feeding-channel, substantially as and for the purpose set forth.

- 20 2. In a magnetic ore-separator the combination of, a separating-chamber formed by vertical plates, a transverse opening in said separating-chamber, a rotatable shaft inserted

ed through said opening, means for rotating 2  
said shaft, an electric winding on said shaft, means for feeding electric current to said winding, two disks rigidly fixed to said shaft, a number of magnet-poles on each of said disks adapted to run close to the walls of said 3  
separating-chamber, a feeding-channel entering with its lower end between the said magnet-poles, a discharge-channel for the magnetic material traversing the said feeding-channel, a water-pipe adapted to let in water 3  
from above into said discharge-channel, an opening at the bottom of said separating-chamber, a stopper in said opening, an outlet-opening in said stopper and an overflow-pipe in said separating-chamber, substantially as and for the purpose set forth.

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

KNUT VIKTOR ARKADIUS ERIKSSON.

Witnesses:

GERDA RINDKVIST,  
GUSTAF ISFALT.