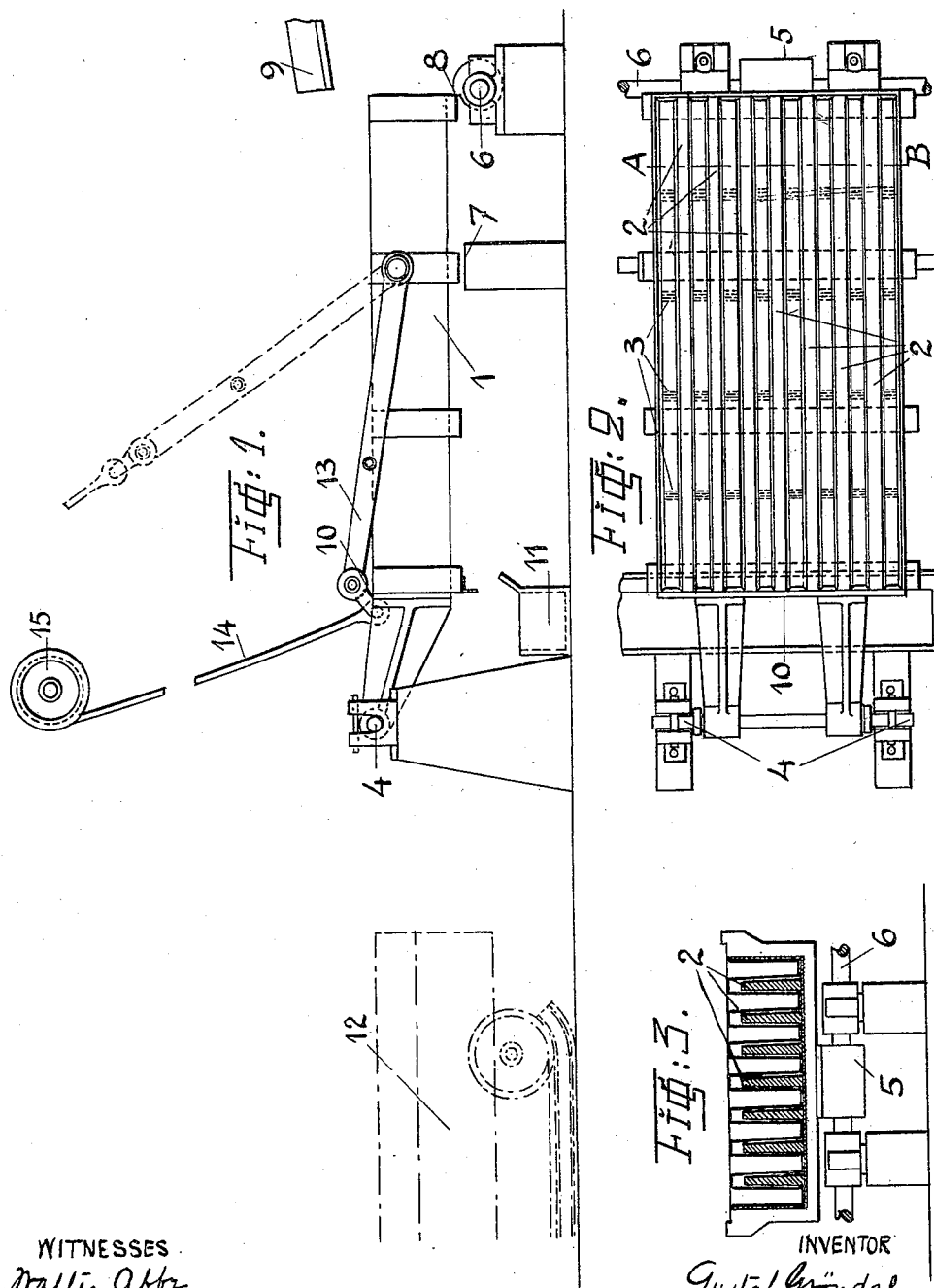


G. GRÖNDAL.
 APPARATUS FOR FORMING ORE BLOCKS FOR THE BRIQUETING FURNACE.
 APPLICATION FILED JUNE 28, 1907.

968,467.

Patented Aug. 23, 1910.



WITNESSES
 Walter Abbe
 L. H. Grote

INVENTOR
 Gustaf Gröndal
 BY

Horsom and Horsom
 ATTORNEYS

UNITED STATES PATENT OFFICE.

GUSTAF GRÖNDAL, OF DJURSHOLM, SWEDEN, ASSIGNOR TO AMERICAN GRÖNDAL KJELLIN COMPANY, OF NEW YORK, N. Y., A CORPORATION.

APPARATUS FOR FORMING ORE BLOCKS FOR THE BRIQUETING-FURNACE.

968,467.

Specification of Letters Patent.

Patented Aug. 23, 1910.

Application filed June 28, 1907. Serial No. 381,294.

To all whom it may concern:

Be it known that I, GUSTAF GRÖNDAL, a subject of the King of Sweden, and resident of Djursholm, Sweden, have invented new and useful Improvements in Apparatus for Forming Ore Blocks for the Briqueting-Furnace, of which the following is a specification.

In briqueting ore concentrate obtained by a wet process magnetic separation the moist granulated ore has hitherto been pressed into blocks which are then piled on trucks and pushed into the baking furnace. This process is expensive as well as slow.

The present invention relates to an apparatus by which said work may be for the most part dispensed with. The apparatus consists of a vessel of approximately the same size as the truck, into which vessel the wet ore is fed from the separators. The interior of the vessel is subdivided by suitable partitions to form briquets of the desired size. While the wet ore is being discharged into the vessel the latter is vibrated so that the ore settles and packs in the bottom of the vessel and the water fills up to the top and escapes over the rim of the vessel. The inflow of the wet ore is continued until the compartments of the vessel have been filled to the desired height. One end of the vessel is then lifted and the vessel is turned over and placed on an empty truck. By the shaking operation the ore concentrate becomes so firmly packed in the compartments of the vessel that it is practically solid and is deposited on the truck in the form of briquets of the desired size and shape. When the vessel is lifted again, spaces corresponding to the partitions of the vessel separate the briquets from each other. The partitions as well as the outer walls of the vessel should be tapered upward in order to facilitate the loosening of the ore-blocks from the compartments of the vessel. To this end also removable sheet-metal plates may be placed over the partitions and the inner face of the walls of the vessel. These plates are deposited on the truck with the briquets and may afterward be removed before the truck is pushed into the furnace, and used again.

In the accompanying drawing is represented, in one form, a suitable arrangement of the apparatus.

Figure 1 is a side elevation; Fig. 2 a plan

view of the apparatus; and Fig. 3 is a cross section of the vessel on the line A—B, in Fig. 2.

1 represents the vessel and 2 the longitudinal partition walls. Transverse partitions 3 (indicated in dotted lines) may be inserted if it is desired to form briquets of a smaller size. One end of the vessel is supported by the trunnions 4 in fixed bearings and below the other end of the vessel is a cam wheel 5 keyed on a shaft 6 which may be rotated in any suitable manner.

7 is a fixed stop against which the vessel strikes every time the cam 8 lets the vessel fall.

9 is the end of a trough leading the wet ore to the vessel. The separated water flows away over the rim 10 into a discharge trough 11.

12 represents a portion of a truck pushed into its place for receiving the molded blocks from the vessel 1 when the latter is inverted.

A cross bar 13 is hinged to the vessel 1 and has a rope 14 attached to it. This rope passes over a pulley 15 to a windlass (not shown). By means of said windlass the vessel after being filled to the desired height with the wet ore can be lifted and turned over, pivoting on the trunnions 4, and lowered upside down on the truck. After the briquets have been delivered on the truck the vessel is turned back again into position to be refilled. During the time required for filling the vessel again the truck loaded with briquets is conveyed to the furnace and an empty truck is brought forward to receive the fresh blocks.

I claim as my invention:

1. Apparatus for forming ore blocks for the briqueting furnace from a suspension of ore, comprising a pivoted vessel provided with longitudinal partitions with sides inclined to permit the free discharge of the briquets when said vessel is inverted, means for vibrating said vessel, and means for inverting said vessel to discharge the briquets formed, substantially as described.

2. Apparatus for forming ore blocks for the briqueting furnace from a suspension of ore, comprising a pivoted vessel provided with longitudinal and transverse partitions with sides inclined to permit the free discharge of the briquets when said vessel is inverted, means for vibrating said vessel,

and means for inverting said vessel to discharge the briquets formed, substantially as described.

3. Apparatus for forming ore blocks for
5 the briqueting furnace from a suspension
of ore, comprising a pivoted vessel provided
with stationary partitions forming briquet
molds, an independent lining for said par-
titions, means for vibrating said vessel and
10 means for inverting the same to discharge
the briquets formed together with the mold
linings, substantially as described.

4. Apparatus for forming ore blocks for
the briqueting furnace from a suspension
15 of ore, comprising a pivoted vessel provided

with partitions forming briquet molds, a
stop and a vibrator for lifting said vessel
therefrom and dropping it back again re-
peatedly to condense the ore in the molds,
an inlet for the blowing ore pump, and 20
means for turning said vessel over on its
pivot to discharge the briquets formed, sub-
stantially as described.

In testimony whereof I have signed my
name to this specification, in the presence 25
of two subscribing witnesses.

GUSTAF GRÖNDAL.

Witnesses:

CARL FRIBERG,
HJAHMAR ZETURSTROM.

Correction in Letters Patent No. 968,467.

It is hereby certified that in Letters Patent No. 968,467, granted August 23, 1910, upon the application of Gustaf Gröndal, of Djursholm, Sweden, for an improvement in "Apparatus for Forming Ore Blocks for the Briqueting-Furnace," an error appears in the printed specification requiring correction as follows: Page 2, line 20, the words "blowing ore pump" should read *flowing ore pulp*; and that the proper corrections have been made in the files and records of the Patent Office and are hereby made in said Letters Patent.

Signed and sealed this 11th day of October, A. D., 1910.

[SEAL.]

E. B. MOORE,
Commissioner of Patents.