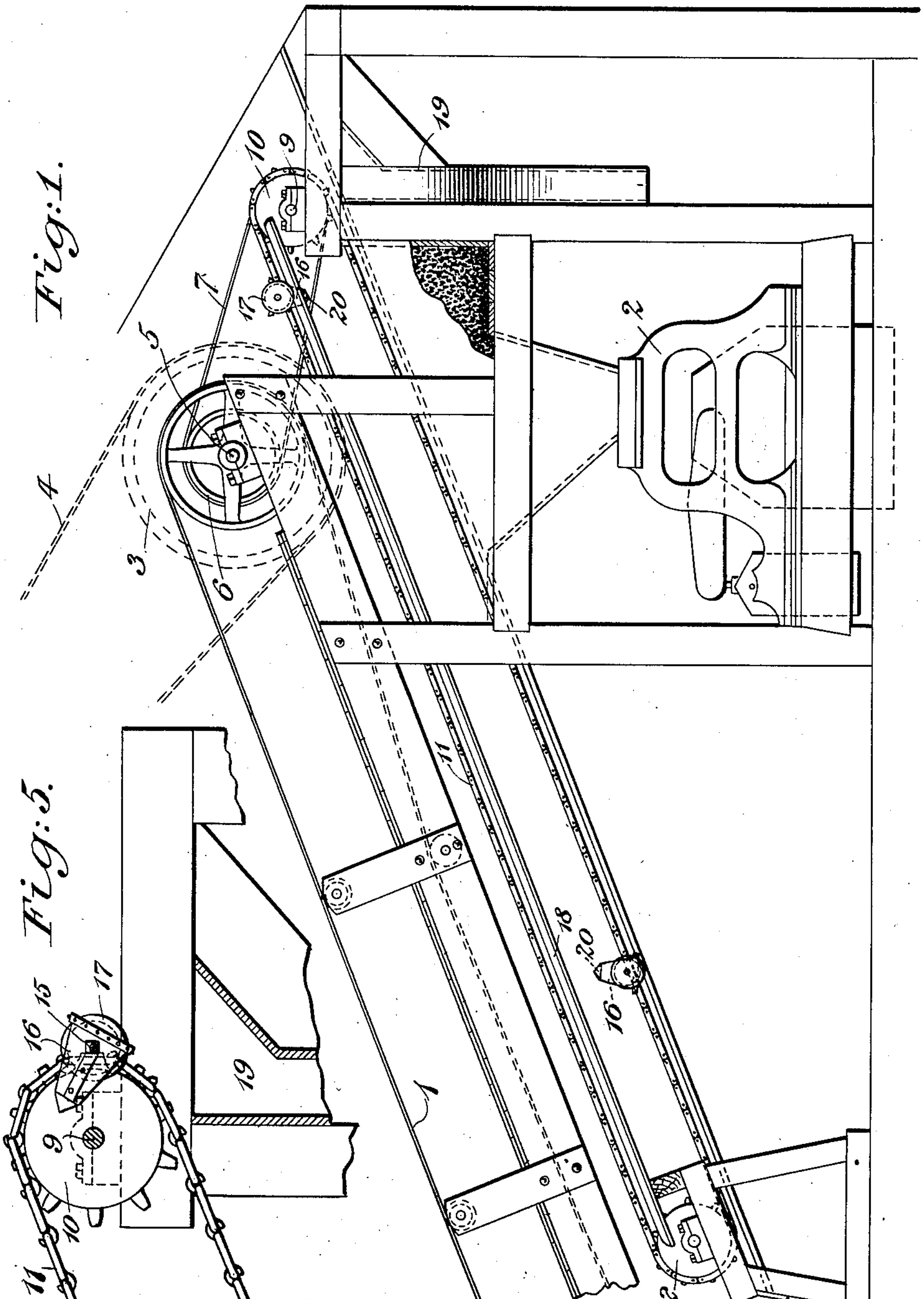
J. A. VAN MATER.

ORE SAMPLING APPARATUS.

APPLICATION FILED MAY 22, 1908.

946,744. **Patented Jan. 18, 1910.**

2 SHEETS—SHEET 1.



Witnesses:
Edw. W. Vaill Jr.
O.M. Pennington

Joseph A. Van Mater, Inventor

By his Attorneys

Betts, Sheffield, Betts & Betts

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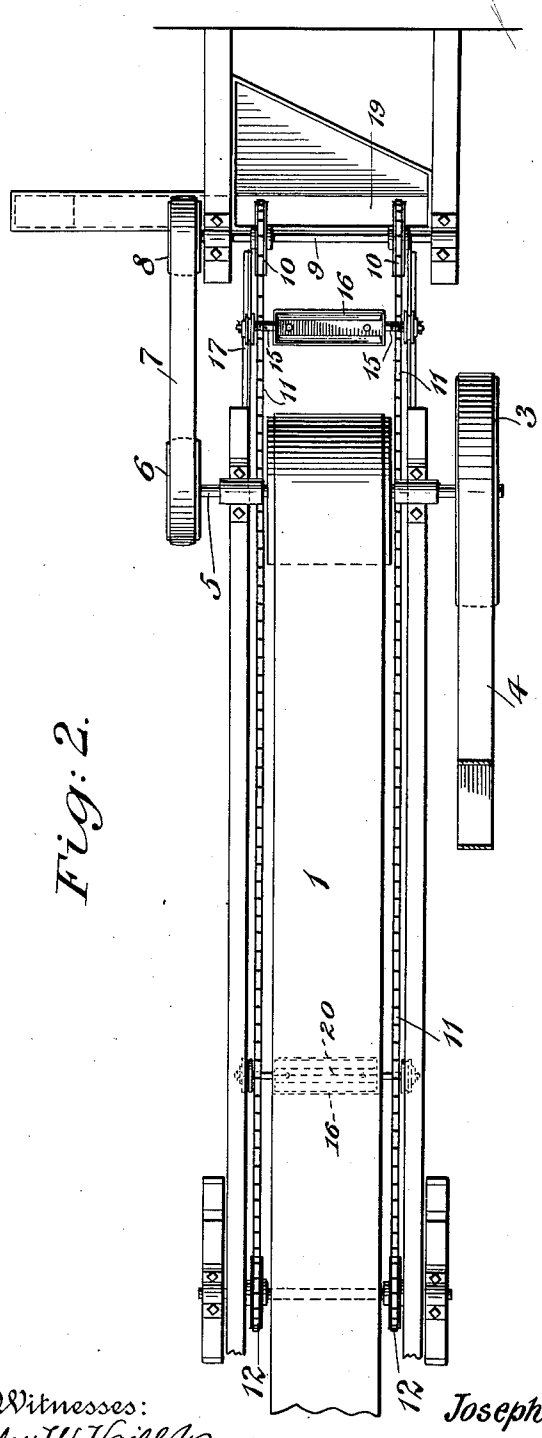

Fig. 2.

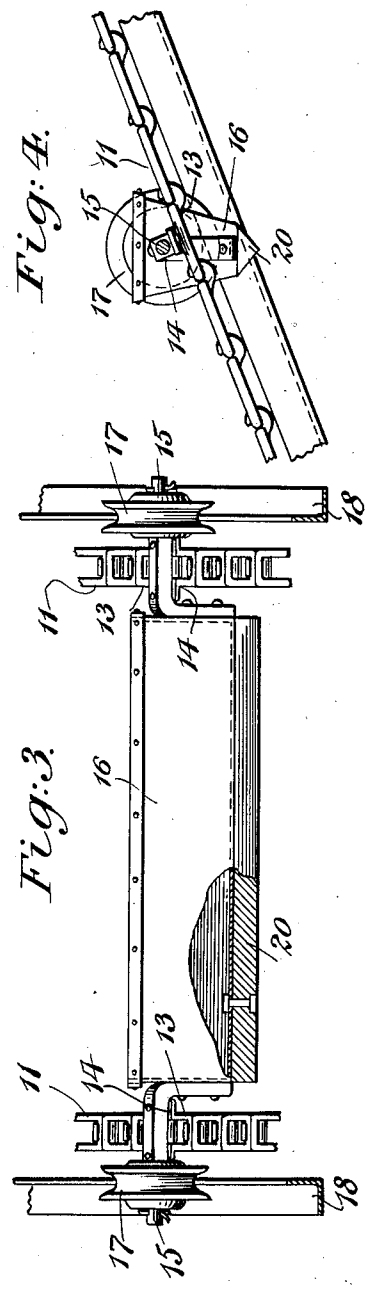

Fig. 4.

Fig. 3.

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UNITED STATES PATENT OFFICE.

JOSEPH A. VAN MATER, OF PLAINFIELD, NEW JERSEY, ASSIGNOR TO THE NEW JERSEY ZINC COMPANY, OF NEWARK, NEW JERSEY, A CORPORATION OF NEW JERSEY.

ORE-SAMPLING APPARATUS.

946,744. Specification of Letters Patent. Patented Jan. 18, 1910.

Application filed May 22, 1908. Serial No. 434,289.

To all whom it may concern:

Be it known that I, JOSEPH A. VAN MATER, a citizen of the United States, residing at Plainfield, county of Union, State of New Jersey, have invented certain new and useful Improvements in Ore-Sampling Apparatus, of which the following is a full, clear, and complete disclosure.

My invention relates to that class of devices by which samples of ore are withdrawn from bodies or quantities of ore being crushed, ground, or otherwise handled, during the various processes to which ores are subjected in the different arts.

Samples of the ore should be abstracted from the main body at definite and uniform intervals, in order that its quality and other characteristics may be determined at all times by suitable assays or other analytic tests. Heretofore the withdrawal of ore for sampling or testing purposes has usually been accomplished by hand, and has been subject to the inaccuracies and variableness usually consequent from manual operations.

The object of my invention is to produce a device for withdrawing samples from a traveling body of ore at definite and regular intervals and in uniform quantities and proportions relative to the main body of the ore or similar granular material.

A further object of my invention is to provide a device of the class mentioned which may be used in connection with the usual forms of conveyers and similar devices for carrying ores from one place to another and which may be easily adapted to any desired rate of sampling according to the percentage of the ore that it is necessary or preferred to test.

For a detailed description of one form of my invention which I at present deem preferable, reference may be had to the following specification and to the accompanying drawing forming a part thereof, in which—

Figure 1 is a side elevation of a belt conveyer having my improved sampling device applied thereto and showing the main driving pulley and belt in dotted lines to avoid confusion; Fig. 2 is a plan view of the same; Fig. 3 is a front elevation of the sampling bucket; Fig. 4 is an end elevation of the same as shown in Fig. 3; and Fig. 5 is an end elevation of the bucket as it passes around the sprocket wheel and discharges the sample.

Referring to the drawing, the numeral 1 indicates a belt conveyer constructed in any well-known manner, for conveying ore from one part of the ore treating plant to another, such as from a crusher to an automatic weighing scales, indicated at 2. The conveyer 1 is driven in the usual manner, such as by a pulley 3, about which runs a driving belt 4. The shaft 5, upon which the pulley 3 is carried, is also provided with a pulley 6, over which runs a belt 7. The belt 7 also passes over a second pulley 8, carried on a horizontal shaft 8. This shaft is provided with two sprocket wheels 10, adapted to carry the sprocket chains 11, which also run over to sprocket wheels 12 located at the other end of the sampling apparatus.

One or more of the links 13 of the sprocket chains 11 are provided with attachments 14, to which may be secured the horizontal trunnions or supports 15 for the sampling bucket 16. The trunnions 15 extend beyond the sprocket chains 11 at each end of the bucket 16, and are provided with grooved trolley wheels 17, adapted to run upon a suitable track, such as indicated by the angle irons 18. These angle irons are provided adjacent each run of the sprocket chains 11, in order that the buckets may be supported when moving toward and away from the body of ore discharged from the conveyer 1. Beneath the outer side of the sprocket wheels 10 a suitable chute or hopper 19 is situated, so as to receive the samples of ore discharged from the bucket or buckets 16 as they pass around said sprocket chains. These samples may be deposited in any suitable receptacle, such as a box or truck (not shown). The sampling bucket 16 is preferably made truncated in cross section, as indicated in Figs. 4 and 5, and the bottom thereof is provided with a V-shaped projection 20, so that when the bucket passes in the reverse direction through the stream of ore discharged from the conveyer 1, the ore will not be retained on the outside surface of the bucket.

In the operation of my improved sampling device it will be seen that the ore carried by the conveyer 1 falls from the belt as it passes over the drum at the upper end thereof, and passes downward in the form of a thin stream into the hopper of the automatic scales 12. Since the sprocket chains 11 are located so as to run beneath the end of the conveyer 1, the bucket or buckets 16, carried

by the chains 11, will periodically pass through the stream of ore falling into the scales 2. It will thus be seen that the speed of the chains 11 and the number of buckets carried thereby will determine the percentage of the ore abstracted from the main body of the ore as it passes to said automatic scales, and thus adjustment may be made to secure any definite percentage required for the purpose of testing the quality and characteristics of the main body of the ore. For simplicity in illustration, I have shown in Fig. 1 two such buckets carried by the link belts or chains 11, but it is obvious that a greater or less number of buckets may be used, according to the percentage desired for sampling purposes.

Having thus described one form of my invention, I do not wish to be understood as being limited to the exact details of form and arrangement of parts set forth, for various changes may be made without departing from the spirit and scope of my invention, and it will be appreciated that my improved sampling device may be used in other locations and in connection with other forms of ore handling apparatus than that shown in the drawings.

What I claim and desire to protect by Letters Patent is:

1. In combination with a belt conveyer for producing a falling stream of ore, a second conveyer comprising endless sprocket chains carrying a sampling bucket and disposed substantially parallel with said belt conveyer and adapted to carry said bucket through the stream of ore and to deliver the sample collected by the bucket, substantially as described.

2. The combination with a belt conveyer for conveying and delivering a falling stream of ore, of a second chain and bucket conveyer disposed beneath and substantially parallel with the first conveyer, and comprising a series of sampling buckets, spaced from each other at uniform intervals, and adapted to pass through and completely intersect the stream of falling ore and extract therefrom a pre-determined percentage of sample ore and to deliver the sample so collected, substantially as described.

3. In combination with a conveyer for conveying and delivering a falling stream of ore, a chain and bucket conveyer disposed beneath and substantially parallel with the first conveyer, and comprising one or more sampling buckets adapted to pass through and completely intersect the stream of falling ore and extract therefrom a predetermined percentage of sample ore and to deliver the sample so collected, substantially as described.

Signed at New York city, in the county and State of New York, this 21st day of May, 1908.

JOSEPH A. VAN MATER.

Witnesses:

WALTER S. JONES,

EDW. W. VAILL, Jr.