J. NORBERG.

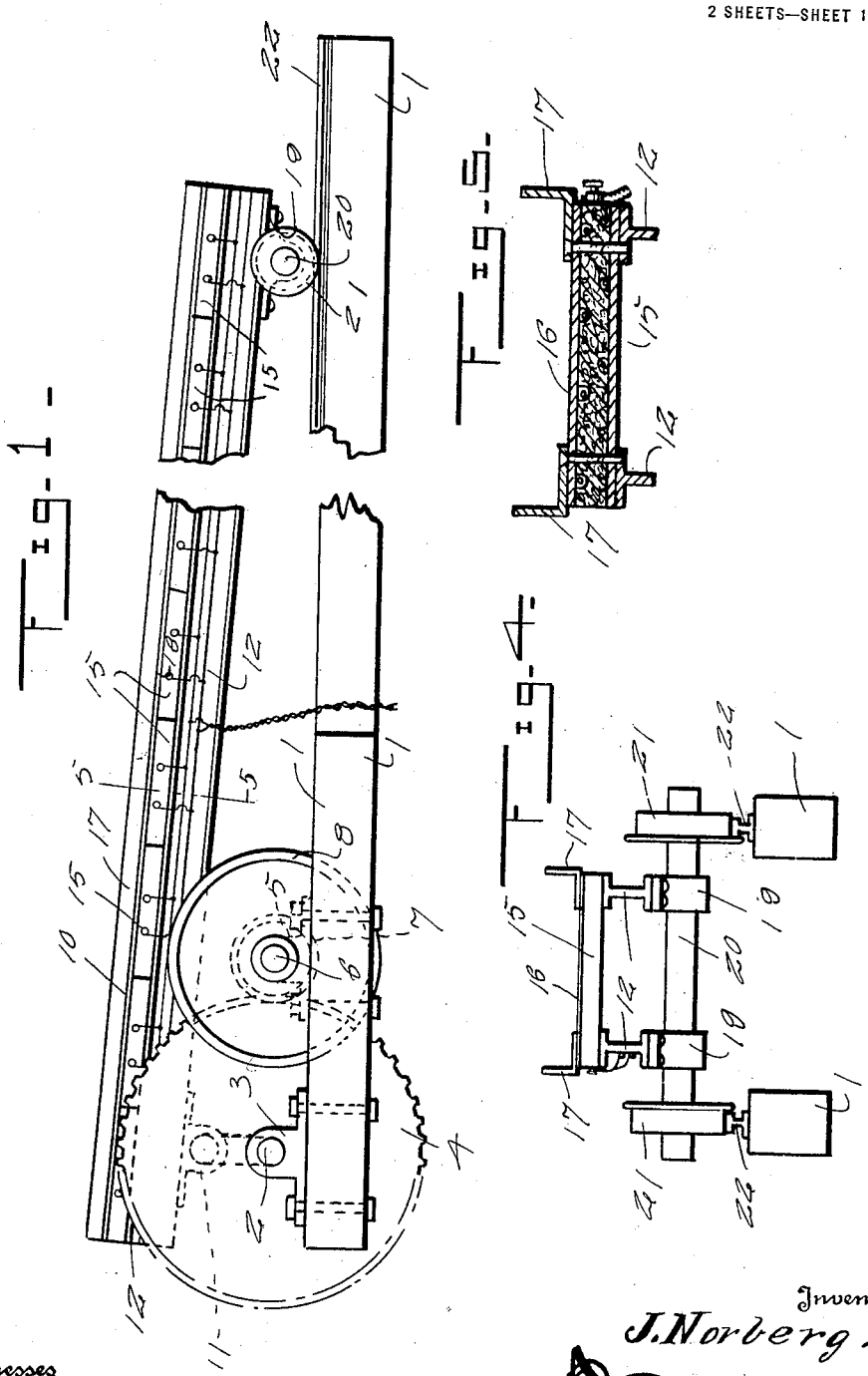
CONCENTRATE DRIER.

APPLICATION FILED APR. 4, 1918.

1,386,352.

Patented Aug. 2, 1921.

2 SHEETS—SHEET 1.



Witnesses

C. B. Beall.

Robt. Sleeper

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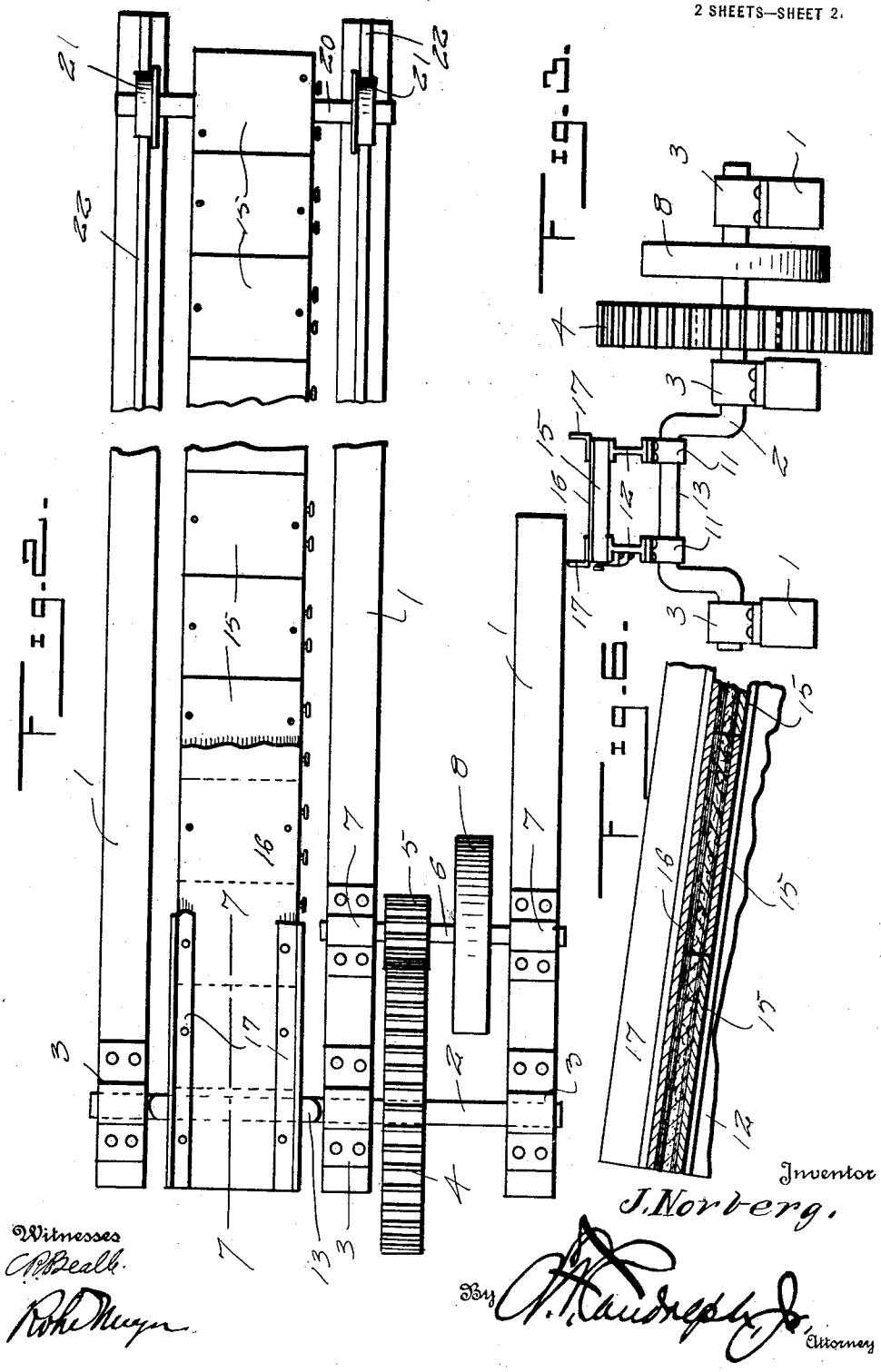
CONCENTRATE DRIER.

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2 SHEETS—SHEET 2.



Witnesses

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UNITED STATES PATENT OFFICE.

JONAS NORBERG, OF LATOUCHE, TERRITORY OF ALASKA.

CONCENTRATE-DRIER.

1,386,352. Specification of Letters Patent. Patented Aug. 2, 1921.

Application filed April 4, 1918. Serial No. 226,790.

To all whom it may concern:

Be it known that I, JONAS NORBERG, a citizen of the United States, residing at Latouche, Territory of Alaska, have invented certain new and useful Improvements in Concentrate-Driers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to a drier for drying ore concentrate after the same leaves the filter, sufficiently to permit shipping thereof to advantage.

More specifically, the object of this invention is to provide an ore concentrate drier which includes a pan structure positioned on an incline and having rollers carried by its lower end which ride over a track and its upper receiving end connected to a crank shaft which reciprocates, for jogging the pan or carrier structure to cause the ore concentrate to travel thereover.

With the foregoing and other objects in view this invention consists in such novel features of construction, combination and arrangement of parts as will be hereinafter more fully described illustrated in the accompanying drawings and claimed.

In describing the invention in detail, reference will be had to the accompanying drawings wherein like characters designate like and corresponding parts throughout the several views and in which:

Figure 1 is a side elevation of the improved drier having parts thereof broken away

Fig. 2 is a top plan of the drier having parts broken away

Fig. 3 is an end view of the drier looking at the receiving end thereof

Fig. 4 is an end view of the drier looking toward the delivery end of the drier

Fig. 5 is a section of the line 5—5 of Fig. 1

Fig. 6 is a section of the line 7—7 of Fig. 2.

Referring more particularly to the drawings, 1 designates the supporting structure of the drier which has a crank shaft 2 rotatably supported by suitable bearings 3 which are carried by the supporting structure 1. The crank shaft 2 has a gear 4 mounted thereon which meshes with a pinion 5 carried by a shaft 6. The shaft 6 is rotatably supported by suitable bearings 7 and it has a power pulley 8 mounted thereon through the medium of which power may be transmitted to the shaft 6 and to the shaft 2 through the medium of the gears 4 and 5.

The drier structure or pan has bearings 11 attached to the under surface of the supporting beams 12 thereof which bearings are mounted upon the wrist of the crank shaft 2, as clearly shown in Figs. 1 and 3 of the drawings.

A plurality of electric plates or heating elements 15 of the usual construction are mounted upon the upper surfaces of the I beams 12 and they have a sheet 16 of metal mounted upon their upper surfaces over which the ore concentrate travels.

As stated, the heating elements 15 are of usual and well known construction and are adapted to be connected to a suitable source of electricity through the medium of the usual binding post and suitable mains and means connected thereto, the mains being connected to the source of electricity by a suitable cord to permit reciprocation of the drier structure, as indicated in the drawings.

Angle strips 17 are attached to the electric plates 15 and their horizontal portions rest upon the upper surfaces of the sheet metal plate 16, as clearly shown in the drawings, while their vertical portions provide sides for the pan structure to prevent the ore concentrate from falling off the sides of the pan or drier structure.

The delivery end of the pan or drier structure is positioned, normally, lower than the receiving end and it has bearings 19 attached to the under surfaces of the I beams 12, which bearings support an axle 20. Suitable flanged supporting wheels 21 are mounted upon the axle 20 and ride upon T-rails 22 which are supported by a supporting structure 1.

Rotation is transmitted to the crank shaft 2 from any suitable prime mover, through the shaft 6 which rotation imparts a jogging movement to the drier pan of the concentrate drier and this jogging movement keeps the ore concentrate traveling downwardly over the upper surface of the sheet metal plate 16. The electric plates 15 heat the plates 16, which causes the evaporation of the greater portion of the moisture of the ore concentrate, delivering the concentrate from the lower delivery end of the drier pan in condition convenient for shipment.

Having thus fully described the invention what is claimed is:

1. An ore concentrate drier comprising a supporting structure, an inclined drier pan above said supporting structure, means beneath one end of said drier pan to permit of the same longitudinally of said supporting structure, an operating crank shaft mounted beneath the remaining end of said drier pan to cause a starting movement thereof, means for operating said crank shaft, and a heater element mounted beneath and adapted for movement with said drier pan.

2. An ore concentrate drier comprising a supporting structure having rails, an inclined drier pan positioned above said supporting structure and including a bottom plate, an electric heater secured to the under face of said bottom plate to supply heat thereto, a transverse shaft mounted beneath the lower end of said drier pan and heater, wheels mounted on said shaft and resting on said rails whereby the drier pan may travel longitudinally of said supporting structure, a crank shaft mounted transversely beneath the upper end of said drier pan and heater, an operating shaft, mounted on said supporting structure, and driving connection between said operating shaft and said crank shaft to impart a jogging movement to said drier pan.

In testimony whereof I affix my signature in presence of two witnesses.

JONAS NORBERG.

Witnesses:

BERT NORBERG,

A. F. ERICKSON.