(No Model.)

T. A. TOPHAM.

ORE SAMPLER.

No. 563,101. Patented June 30, 1896.

Fig. 1

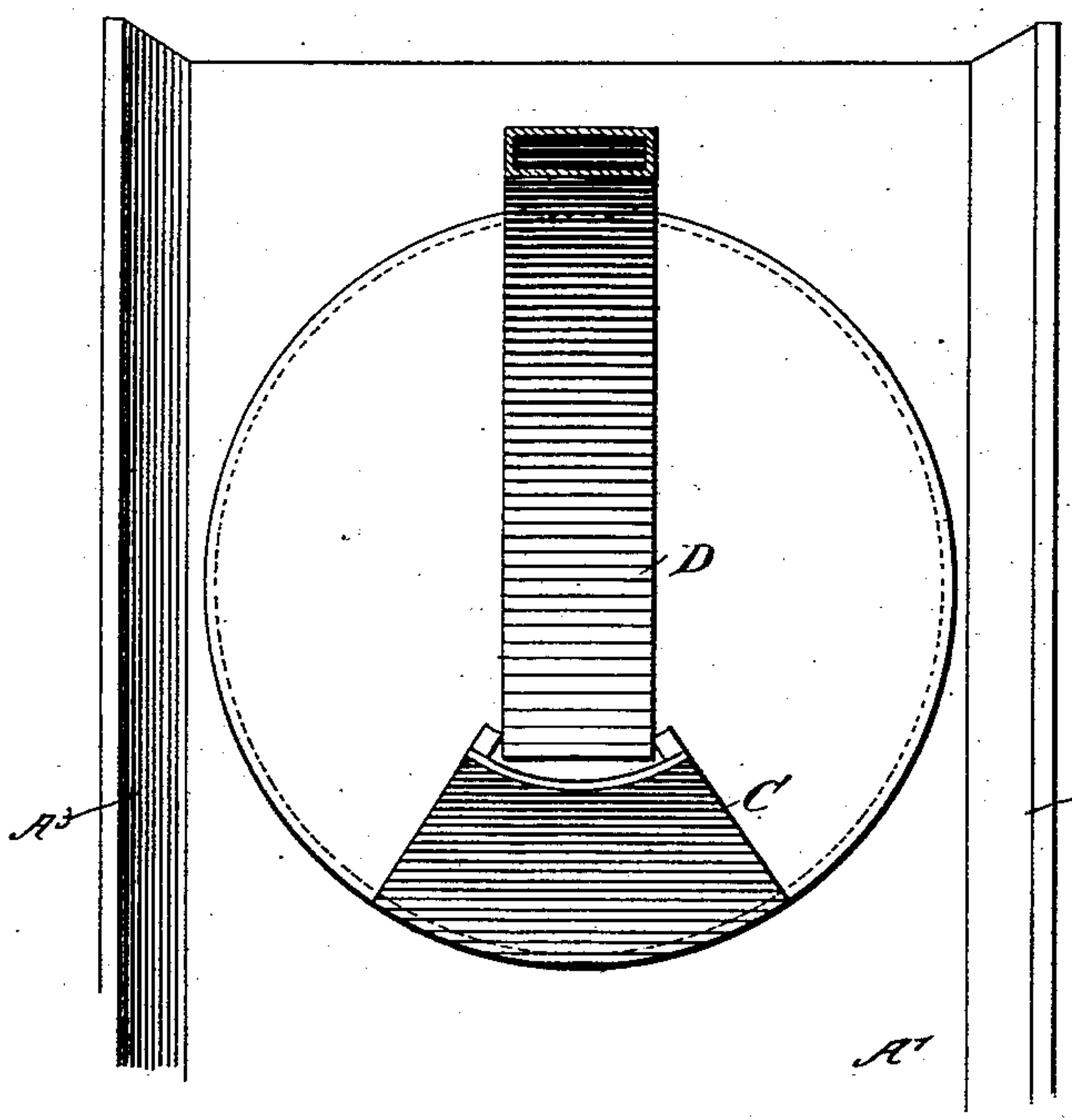
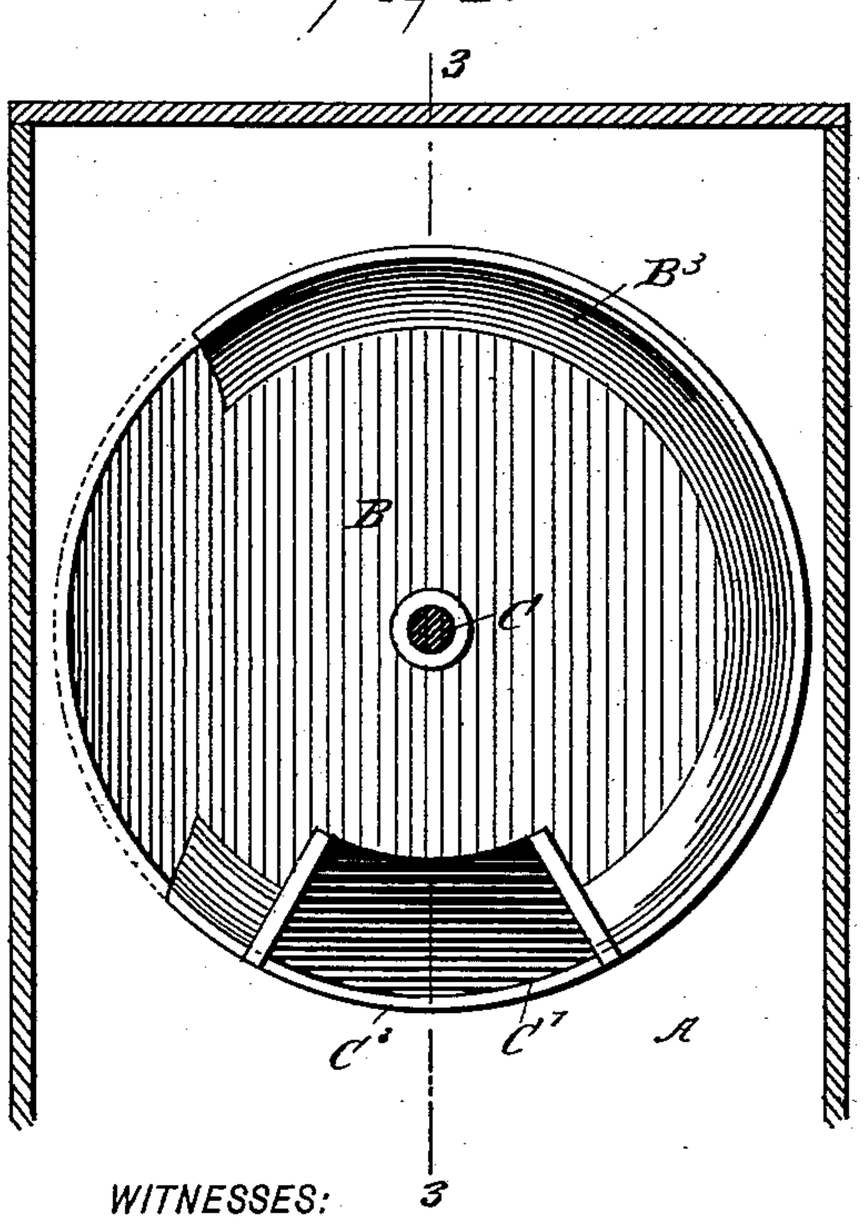
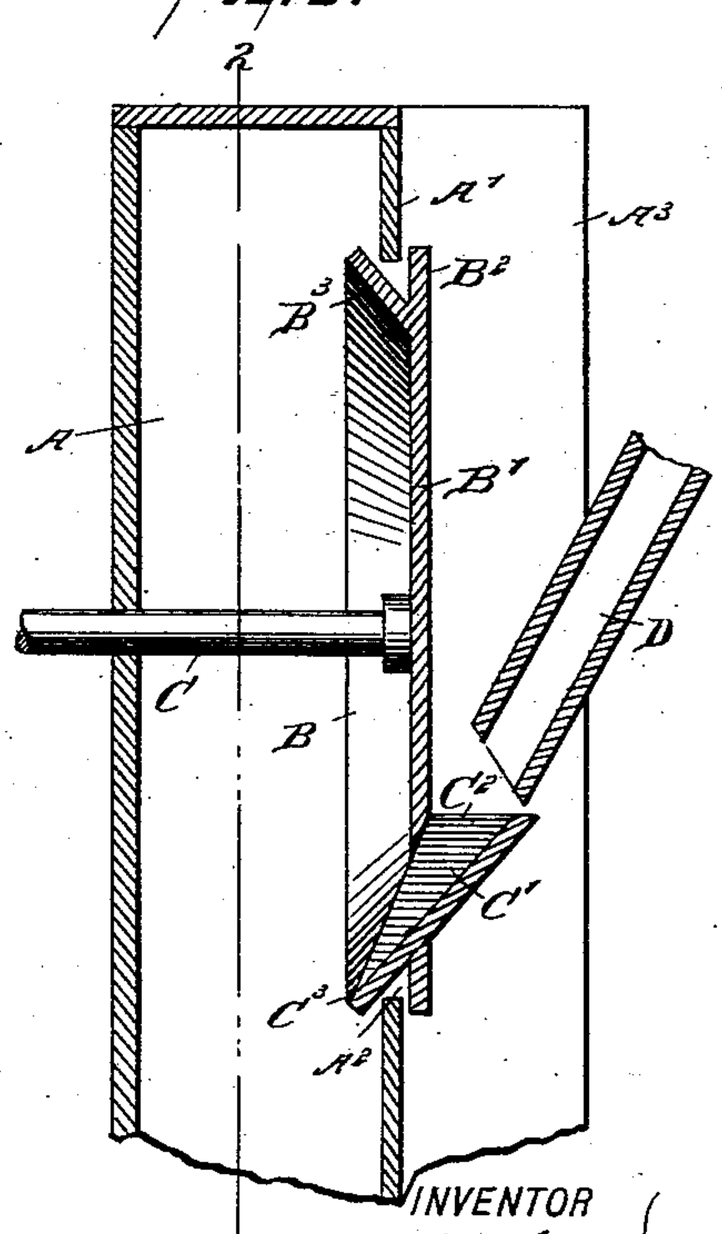


Fig. 2.

Fig. 3.





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THOMAS ARTHUR TOPHAM, OF ASPEN, COLORADO.

ORE-SAMPLER.

SPECIFICATION forming part of Letters Patent No. 563,101, dated June 30, 1896.

Application filed April 23, 1895. Serial No. 546,914. (No model.)

To all whom it may concern:

Be it known that I, THOMAS ARTHUR TOPHAM, of Aspen, in the county of Pitkin and State of Colorado, have invented a new and Improved Ore-Sampler, of which the following is a full, clear, and exact description.

The object of the invention is to provide a new and improved ore-sampler which is simple and durable in construction, very effective and accurate in operation, and arranged to cut out samples from a quantity of ore, to accurately represent the contents of the whole.

The invention consists of a wheel mounted to rotate at a high rate of speed, and provided in its web with a chute extending from the back of the web to the front thereof and in an outward direction, to cause the ore entering the chute near the center of the wheel and at the bottom of the web to be delivered by centrifugal force to the front of the wheel.

The invention also consists of certain parts and details and combinations of the same, as will be fully described hereinafter, and then pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a rear face view of the improvement. Fig. 2 is a sectional front view of the same on the line 2 2 of Fig. 3, and Fig. 3 is a transverse section of the same on the line 3 3 of Fig. 2.

The improved ore-sampler is provided with a casing A, formed in its back A′ with a circular opening A^2, in which is mounted to rotate loosely a wheel B, secured on a shaft C, connected by pulleys and belt or other means with suitable machinery for imparting a rotary motion to the said shaft C and the wheel B, to cause the latter to revolve at a comparatively high rate of speed.

The wheel B is provided with a web B′, having its outer end B^2 extending upon the back A′, and from the web extends inwardly an annular flange B^3, inclined outwardly, as is plainly shown in Fig. 3, to extend with its outer edge within the casing A.

In the web B′ of the wheel B is arranged a chute C′, having its opening C^2 at the back of the web B′, to receive part of the ore passing down a supply-spout D, through which the entire lot of ore to be sampled is passed. The inner end C^3 of the chute C′ terminates in the flange B^3, it being understood that the said chute C′ is arranged in an inclined position relative to the web B′, and with the opening C^2 nearer the center of the wheel than the outer end C^3. The chute C′ is so arranged relative to the spout D that the wheel in rotating brings the chute C′ under the spout D to take up the material passing down the spout. The material passing into the chute C′ is caused by centrifugal force to pass outwardly in the chute to be finally scattered within the casing A. The material or sample thus obtained drops into the casing to be collected at the bottom thereof. Now it will be seen that as the wheel B rotates at a high rate of speed it cuts out a sample from a quantity of ore passing down the spout D at every revolution of the said wheel, and consequently the higher the speed of the wheel B the more samples will be cut from the quantity of ore passing down the spout.

It will be seen that the ends of the chute coinciding with two of the radii of any circle whose center is the axis of the wheel, (said radii forming, say, an angle of seventy-two degrees or one-fifth of a circle,) the segment of any such circle thus formed will comprise one-fifth of its whole. Therefore the top of the chute will be under the spout during one-fifth of each revolution of the wheel, and the wheel B will be cut out of, say, a cubic foot of ore passing down the spout D ten parts, each forming one-fiftieth of a cubic foot, so that very accurate samples are obtained.

An important particularity in the operation of my ore-sampler is that the material is discharged in such a direction from the stationary spout D that when said material enters the periodically-registering inner end of the revolving chute C′ said material has a motion in a direction away from the axis of the wheel, or, in other words, the material is fed to the said chute C′ in a direction away from the axis of the wheel. The advantage of this arrangement is that the impetus or force which feeds the material to the chute C′ will act in the same direction as centrifugal force. Hence there is no danger of clogging the chute or throwing out the major portion of the mate-

rial, such as would exist if the material at the time it reaches the inlet C^2 of the chute C′ moved toward the axis of the wheel, that is, in opposition to centrifugal force. When, as above described, gravity is employed to feed the material to the chute C′, said chute will be so arranged that its inlet C^2 when registering with the stationary spout D and receiving the material therefrom will be below the outlet of the spout and also below the axis of the wheel. It will be obvious that owing to this arrangement both gravity and centrifugal force will act on the material in the same direction as soon as it enters the inlet C^2 of the revolving chute C′.

It will be further observed that at the moment of registry the stationary spout D and the revolving chute will be in approximate longitudinal or axial alinement, it being understood that the longitudinal axis of the revolving chute is arranged at an angle to the axis of the wheel.

By reason of the several features of arrangement above pointed out, the material will readily pass into the chute C′ and through the same when the wheel is revolving at the high rate of speed which is necessary for the highest efficiency and successful operation of an ore-sampler.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent—

1. An ore-sampler, consisting of a wheel mounted to rotate and having located between its axis and periphery a chute which passes diagonally through the wheel and which has its outer end in line with the periphery of the wheel, and its inner end nearest to the axis thereof, and a spout juxtaposed to inner end of the chute and having its discharge end below the axis of the wheel, substantially as described.

2. An ore-sampler, comprising a chute mounted to revolve about an approximately horizontal axis, and a stationary feed-spout whose delivery end is located below the axis of the rotation of the revolving chute and periodically registers with the inlet of said chute, as and for the purpose set forth.

3. An ore-sampler, comprising a stationary spout arranged to feed the material in a downward direction, and a chute mounted to revolve about an approximately horizontal axis and having its own longitudinal axis arranged at an angle to said axis of rotation, the inner end of said revoluble chute having an inlet arranged to periodically come into operative relation to the outlet of the stationary feed-spout during the revolution of the chute when said inlet is below the axis of rotation of the chute, whereby both centrifugal force and the feed will act in substantially same direction at the inlet of the revoluble chute, as and for the purpose set forth.

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