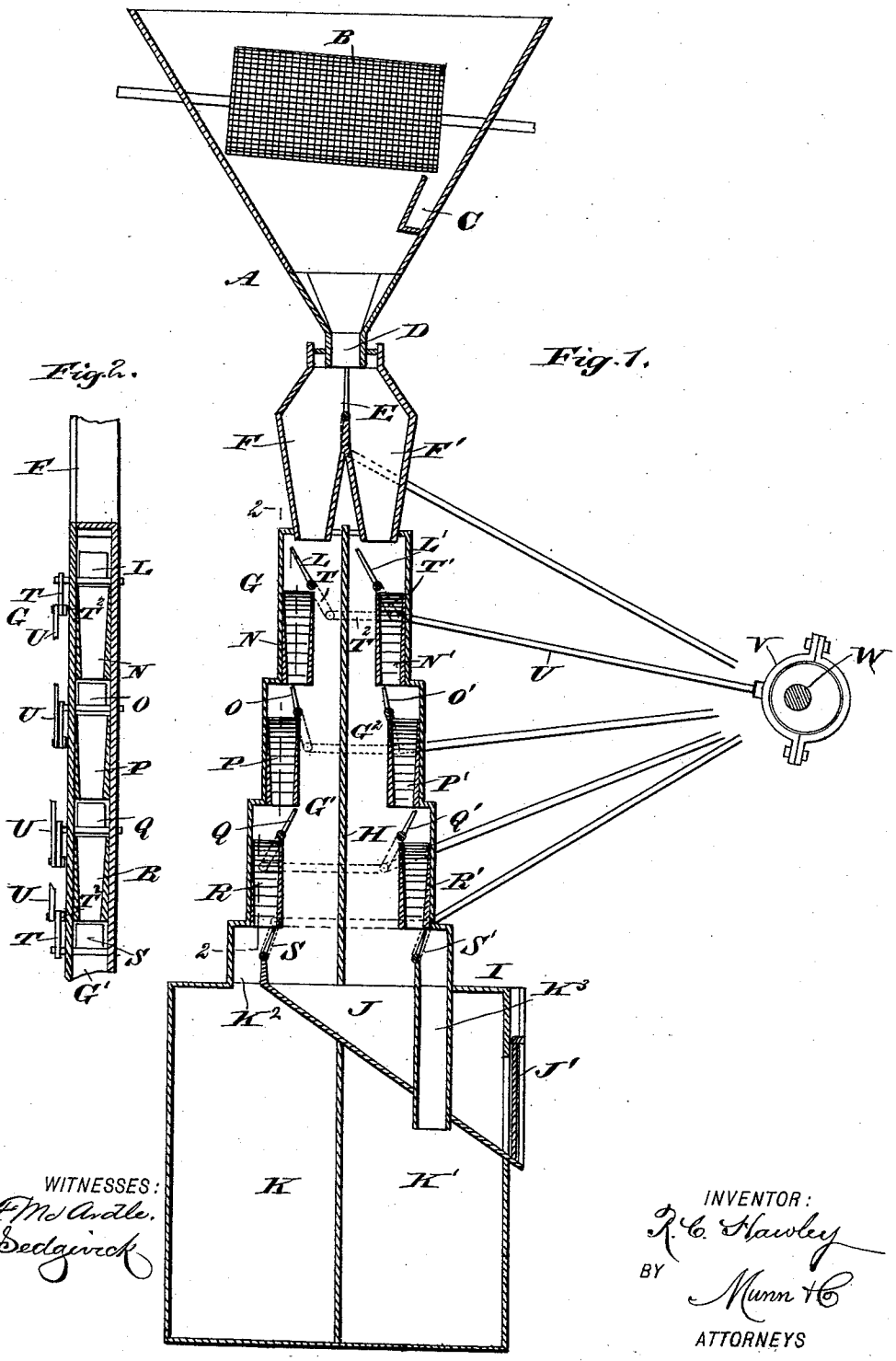
(No Model.)

R. C. HAWLEY.

ORE SAMPLING DEVICE.

No. 475,557. Patented May 24, 1892.



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ROBERT C. HAWLEY, OF PUEBLO, COLORADO.

ORE-SAMPLING DEVICE.

SPECIFICATION forming part of Letters Patent No. 475,557, dated May 24, 1892.

Application filed January 20, 1892. Serial No. 418,652. (No model.)

To all whom it may concern:

Be it known that I, ROBERT C. HAWLEY, of Pueblo, in the county of Pueblo and State of Colorado, have invented a new and Improved Ore-Sampling Device, of which the following is a full, clear, and exact description.

The invention relates to ore-sampling devices, such as shown and described in the Letters Patent of the United States No. 463,509, granted to me on the date of November 17, 1891.

The object of the present invention is to provide a new and improved ore-sampling machine arranged to produce two samples of the ore supplied, the samples being both alike and the one serving as a duplicate or check sample to prove the accuracy of the work performed by the machine.

The invention consists of a delivery device for the ore, a dividing or oscillating wing arranged under the said delivery device, branch hoppers into which the ore equally divided by the said oscillating wing passes, and a casing having a transverse partition to form two compartments, each provided with a series of hoppers arranged one above the other, and oscillating wings arranged alternately with the hoppers in each compartment, the wings of the two compartments oscillating simultaneously.

The invention also consists of certain parts and details and combinations of the same, as will be hereinafter described and claimed.

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 sectional side elevation of the improvement, and Fig. 2 is a transverse section of part of the same on the line 2 2 of Fig. 1.

The improved ore-sampling device, as shown, is arranged below a main hopper A, in which is a rotary screen B, preferably set at an incline, for screening the ore delivered into the hopper previous to the discharge of the ore to the device for forming the samples, and in said hopper is arranged an overflow C, into which the lower end of the rotary screen B discharges. It will be understood, however, that if found desirable other suitable devices for delivering the ore to the sampling device may be employed in lieu of the hopper and rotary screen—such as, for instance, a crushing-machine. The lower end of the hopper A is provided with a mouth D, below which is arranged a wing E, mounted to swing with its free end at the lower edge of the mouth D, so that the ore passing down the hopper A is divided by the oscillating wing and passes in equal parts into the branch hoppers F and F′, located opposite each other and containing the said oscillating wing E.

The two branch hoppers F and F′ discharge into the upper end of a casing G, formed with a transverse partition H, dividing the said casing G into the two compartments G′ and G^2, into which the two hoppers F and F′ discharge, respectively. The casing G is set on a base I, formed in the shape of a box and containing an outlet J, into which discharge the lower ends of the compartments G′ and G^2, as hereinafter more fully described, it being understood that the bulk of the ore passes into the said outlet J. The latter is provided with an inclined bottom and with a door J′, for passing the bulk of the ore to one side of the base I. In the latter are also formed the two compartments K and K′, receiving the two samples of the ore in the manner presently to be described.

In the upper parts of the compartments G′ and G^2, and directly below the inlets of the hoppers F and F′, are arranged the oscillating wings L and L′, respectively, each oscillating similar to the dividing wing E to divide the incoming ore of the respective hoppers F and F′ into two equal parts, of which one part drops down the respective compartment and the other passes into a hopper N or N′, respectively, so that the quantity passing down this respective hopper is one-fourth of the original amount passing through the mouth D, it being understood that the first division is made by the wing E.

On the lower ends of the hoppers N and N′ are arranged the oscillating wings O and O′, dividing the quantity of the ore coming down the said hoppers into two equal parts, of which one part drops down the respective compartment and the other part passes into the hopper P or P′, respectively, below which are ar-

ranged the wings Q and Q′, respectively, again dividing the quantity of ore passing down the hoppers P and P′ into two equal parts, one part dropping down the respective compartment and the other into a hopper R or R^4, respectively.

On the lower ends of the hoppers R and R′ are arranged the oscillating wings S and S′, dividing the ore passing down the hoppers R and R′ into two equal parts, of which one part is discharged into the respective compartment G′ or G^2, while the other part passes to the channels K^2 or K^3, leading to the sample-receiving compartments K and K′, respectively, arranged in the base I.

It is understood that the bulk of the ore dropping in the compartments G′ and G^2 from the several wings L L′, O O′, Q Q′, and S S′ fall into the outlet J to be discharged through the door J′ to one side of the machine. The samples passing finally through the channels K^2 and K^3 into the sampling-compartments K and K′ are both alike in quality and quantity, and one sample forms a duplicate or check sample to prove the accuracy of the work done by the machine. As shown in the drawings, the several shafts of the oscillating wings carry at their outer ends arms T T′, connected with each other by links T^2, and also connected with eccentric-rods U to eccentrics V, secured on a common shaft W, receiving a rotary motion from suitable machinery. Thus when the shaft W is turned, the several eccentrics V impart an oscillating motion to all the wings by the respective connections just described, so that the dividing of the ore takes place to form the samples in the manner above described.

Although the wings cross the stream of ore about one hundred and fifty times a minute, the distance they travel is rather short, so that the wings cause no draft of air, and an accurate division of the dust, as well as the coarser particles of the ore takes place, thus giving an absolutely-perfect sample of all the ore passing through the machine. The rapid movement of the wings also insures a perfect sampling of the ore having very rich and very poor streaks, or, in other words, a spotted ore.

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

1. An ore-sampling device comprising a delivery device for the ore, a dividing or oscillating wing arranged under the said delivery device, branch hoppers into which the ore divided by the said wing passes, and a casing having a transverse partition to form two compartments, each provided with hoppers arranged one above the other and also with oscillating wings arranged alternately with the hoppers in each compartment, the wings of the two compartments oscillating simultaneously, substantially as described.

2. An ore-sampling device comprising a main hopper, a dividing or oscillating wing arranged under the said main hopper, branch hoppers into which the ore divided by the said wing passes, a casing having a transverse partition to form two compartments, each provided with hoppers arranged one above the other and also with oscillating wings arranged alternately with the hoppers in each compartment, and a base formed with an outlet into which the said compartments discharge and provided with sampling compartments into which the lowermost set of wings discharge, substantially as shown and described.

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