(No Model.)

A. CARSTENS & D. J. McCORMACK.

AUTOMATIC ORE FEEDER.

No. 522,779. Patented July 10, 1894.

Fig. 1.

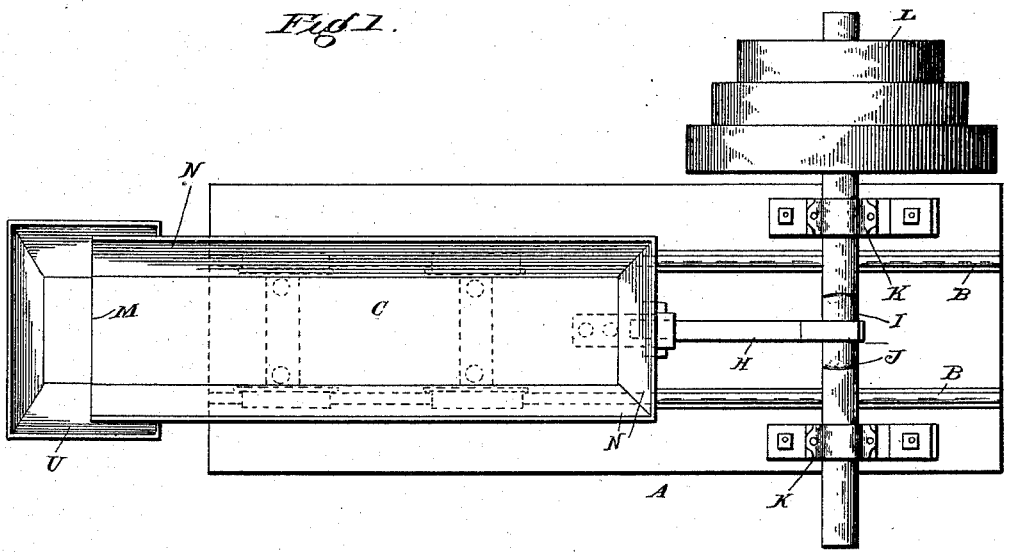
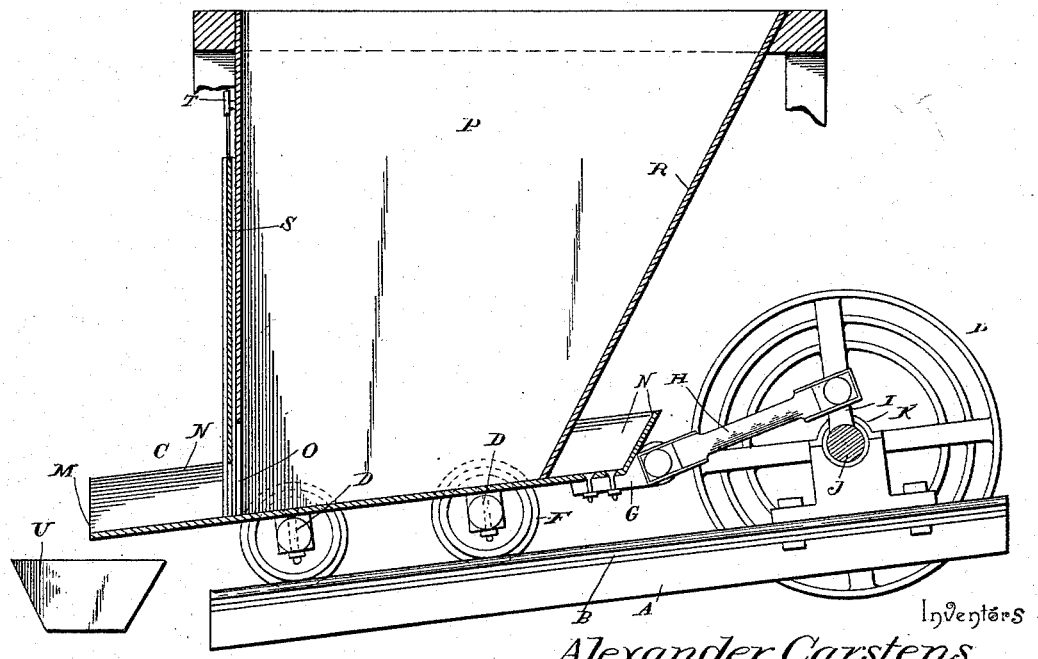


Fig. 2.



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UNITED STATES PATENT OFFICE.

ALEXANDER CARSTENS AND DANIEL JAMES McCORMACK, OF ASPEN, COLORADO.

AUTOMATIC ORE-FEEDER.

SPECIFICATION forming part of Letters Patent No. 522,779, dated July 10, 1894.

Application filed June 29, 1893. Serial No. 479,154. (No model.)

To all whom it may concern:

Be it known that we, ALEXANDER CARSTENS and DANIEL JAMES MCCORMACK, citizens of the United States, residing at Aspen, in the county of Pitkin and State of Colorado, have invented a new and useful Automatic Ore-Feeder, of which the following is a specification.

This invention relates to automatic ore feeders; and it has for its object to provide certain improvements in machines of this character whereby ore and rock can be evenly and automatically fed to crushers, rolls, stamp batteries, screens, &c.

To this end the main and primary object of the present invention is to construct a simple and efficient ore feeder which will positively feed all sizes of ore and rock automatically and without choking.

With these and other objects in view which will readily appear as the nature of the invention is better understood, the same consists in the novel construction, combination and arrangement of parts hereinafter more fully described, illustrated and claimed.

In the accompanying drawings:—Figure 1 is a top plan view of an ore feeder constructed in accordance with this invention, the ore bin or box being removed. Fig. 2 is a central vertical sectional view of the feeder showing the ore bin or box in its proper position directly over the reciprocating feed pan.

Referring to the accompanying drawings, A represents a suitably supported inclined track table to which are secured the track rails B. The track rails B, support the reciprocating feed pan C, having attached to the bottom thereof the transverse axle bars D, which carry at each end the truck wheels F, rolling over the track as the said pan reciprocates. The reciprocating feed pan C, is thus supported at an inclination so as to reciprocate at an inclination, and has attached to its bottom at the higher end thereof the attaching lug G, to which is pivotally connected one end of the connecting rod or pitman H, the other end of which is attached to the crank I, of the crank shaft J. The crank shaft J, is journaled transversely of the track table and in the opposite bearings K, secured thereto at the higher end thereof, and said crank shaft J, carries at one end the cone pulley L, which receives a belt from the engine or suitable drive machinery whereby motion will be imparted to the crank shaft in order to rapidly reciprocate the feed pan over the inclined track.

Referring more particularly to the feed pan C, the same is provided with a lower open discharge end M, and is inclosed at its sides and higher end by the flared side and end walls N. The flared side and end walls N, of the reciprocating feed pan, flare from the edges of the bottom of the pan in order to confine the material thereon, and prevent the same from working off at any point except through the lower front discharge opening O, of the stationary feed bin or box P.

The stationary feed bin or box P, is supported independently of the feed pan in any suitable manner and is adapted to contain the ore and rock to be fed by the feed pan, and is provided with a rear inclined wall R, which directs the material toward its front discharge opening, and the inclosing walls of the said bin or box extend into the reciprocating feed pan to a point in close contact with its bottom, so that the pan bottom forms the bottom of the stationary feed bin, and the only discharge opening is that located in the lower front wall of said bin. The front discharge opening O, is normally partly closed by the self-adjusting front gate S. The front gate S, is mounted to slide vertically in the guides, *s*, attached to the bin or box, and is always sufficiently open to permit ordinary sizes of ore and rock to pass thereunder, and by reason of its sliding movement, large sizes of ore and rock can readily pass thereunder by forcing the sliding gate upward, after which the gate drops to its normal position. The said gate S, can of course be adjusted to any set height by means of a suitable lifting device or lever T, arranged at one side of the bin or box.

The feed hopper U, of the crusher or other machine is arranged under the lower open discharge end of the reciprocating feed pan in order to receive the discharged material therefrom.

From the foregoing it is thought that the construction as well as the operation of the

herein described feeder will be readily apparent to those skilled in the art. The forward movement of the pan carries, according to the gate opening, the material outward through the front discharge opening of the bin or box and beyond such bin or box, and as the pan recedes on the reverse backward movement, the body of the material in the bin or box which has fallen to replace that just carried out, of course prevents the material carried forward from returning, and thereby causes it to drop into the feed hopper U, of the machine being fed, and it is to be further observed at this point that by reason of having the pan C, reciprocate in close contact with the bottom edges of the feed bin or box P, an effective bottom for said bin or box is formed, which prevents the material from working through any open joints and necessarily compels the same to be worked entirely through the front lower discharge opening O.

Changes in the form, proportion, and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention.

It is to be noted that the important feature of the improvement herein-described is to provide a machine for regularly and automatically feeding crushers with ore directly as it comes from the mines in its unsized condition. Ordinarily, ore feeding machines are only adapted to feed regularly sized material, and in this particular the present invention possesses many advantages over the ordinary machines. The feeding of the unsized ore is accomplished in the present machine by reason of the inclination of the reciprocating pan C, and the automatic upward adjustment of the front gate S. It has already been described that the gate S, is connected with a lifting device or lever T, for adjusting the same to its normal position, and it is of course to be understood that the connection between the gate and the lever T, is by means of a chain rope or other flexible connection which, while providing means for holding the gate in its lowest adjusted position, at the same time permits a free adjustment or automatic movement of the gate upward when a coarse rock or bowlder is worked thereunder by the reciprocations of the feed pan C, and it is to be further noted that the lever or lifting device T, may be secured in a stationary position by any well known adjustment device. Now it will be clear that when a coarse rock or bowlder comes to the gate, such rock or bowlder, aided by the finer material surrounding it and which is constantly passing around it, works the gate up very gradually until the large rock or bowlder passes out, after which the gate drops back again to its original elevation, thereby completing an operation which adapts the machine for feeding every size of rock that is dumped therein, without hard wear on any part of the machine.

Having thus described the invention, what is claimed, and desired to be secured by Letters Patent, is—

In an ore feeder of the class described, the combination of a stationary upright feed bin or box open at its bottom and provided with a front lower discharge opening, a stationary inclined track table arranged below the open bottom of said feed bin or box, a wheeled inclined feed pan mounted to reciprocate on said track table and provided with flared sides and a lower open discharge end, said wheeled feed pan being arranged to have its flat bottom slide in close contact with the lower bottom edges of the stationary independently supported feed bin or box, a gate mounted to slide freely on the front wall of said bin or box over the front lower discharge opening thereof, and means for supporting said gate to normally partly close said front lower discharge opening and to admit of an automatic upward adjustment of the same in response to the lifting tendency of large sized material fed forward by the inclined feed pan, substantially as set forth.

In testimony that we claim the foregoing as our own we have hereto affixed our signatures in the presence of two witnesses.

ALEX. CARSTENS.
DANIEL JAMES McCORMACK.

Witnesses:
J. W. DWYER,
W. B. McNEIL.