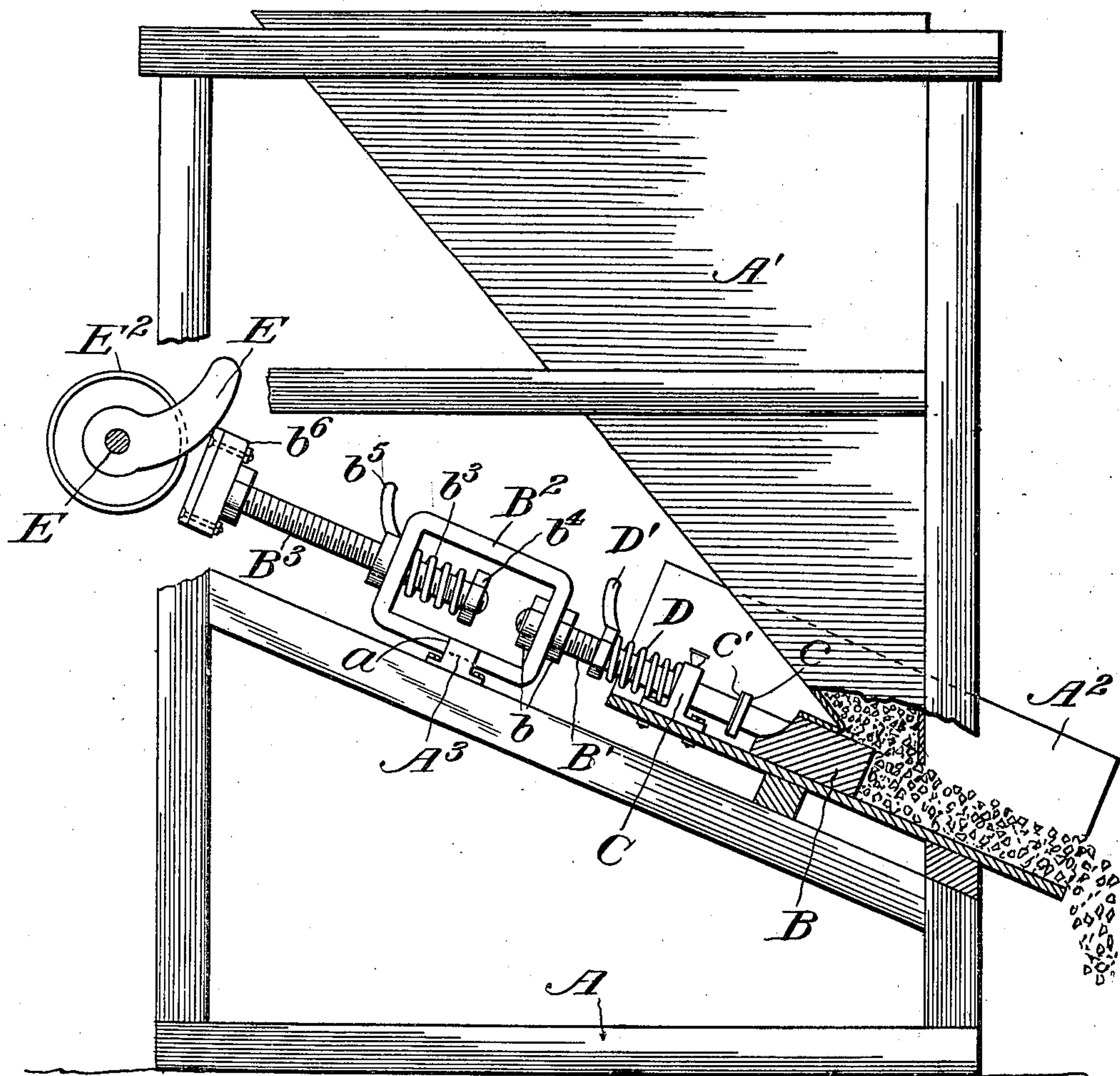


E. A. WALL.
ORE FEEDER.

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991,677.

Patented May 9, 1911.



Witnesses
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UNITED STATES PATENT OFFICE.

ENOS A. WALL, OF SALT LAKE CITY, UTAH.

ORE-FEEDER.

991,677.

Specification of Letters Patent.

Patented May 9, 1911.

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To all whom it may concern:

Be it known that I, ENOS A. WALL, a citizen of the United States, residing at Salt Lake City, in the county of Salt Lake and State of Utah, have invented certain new and useful Improvements in Ore-Feeders, of which the following is a specification.

My invention relates to feeders for ore crushers.

The object of the invention is to provide a feeder of the plunger type in which the plunger will be forced slowly forward to feed the ore and then given a quick return movement.

A further object of the invention is to provide means for regulating the length of stroke of the plunger, and also to regulate the force of its return movement.

These objects I accomplish by the construction shown in the accompanying drawing, in which—the figure is a sectional side elevation of a feeder containing my improvements.

A designates a frame provided with a hopper A', for the material to be fed. The bottom of the hopper inclines down to the outlet chute A².

B, designates an inclined plunger working across the outlet at the chute A², to push out through the chute the material descending thereon, as shown in the drawing.

The plunger rod, B', passes rearwardly through a guide C, mounted on the framework, and is provided in front thereof with a bumping collar c, having a rubber facing or washer c', while in rear of the guide C, the plunger rod is provided with a helical retracting spring D, bearing against the guide and against a hand-nut D', by means of which its tension may be regulated. To the rear end of the plunger rod is connected by nuts b, b, a vertically disposed yoke B², through the apertured opposite end of which yoke extends freely the threaded outer plunger rod member B³, provided within the yoke with a strong helical spring b³, held between a collar or nut b⁴, on the inner end of the plunger member B³ and the end of the yoke B². The plunger member B³ is provided against the outer side of the yoke B² with a handnut b⁵ by turning which the member B³ may be adjusted in and out of the yoke to shorten or lengthen the plunger rod as a whole. The spring b³ is strong enough to hold the nut b⁵ against the yoke at all times so that there will be no relative movement

between the member B³ and the yoke B² during the reciprocation of the plunger; the purpose of the spring b³ being to hold the parts rigidly connected while at the same time permitting of adjustment of the member B³, by the nut b⁵, even when the machine is in operation. The lower bar of the yoke B², works in a guide recess a, in a cross-bar A³, of the frame, which holds it from turning.

The outer end of the plunger member B³, is provided with a suitable head b⁶, against which works the rotary cam E, mounted on a shaft E', having a driving pulley E².

It will be seen that I have provided a construction specially adapted to the rapid feeding of ores, owing to the quick return of the plunger. This spring retraction, instead of retracting by an eccentric, of the plunger effects a more nearly continuous feed to the crusher, and this return movement may be regulated while the machine is in operation, by the hand-nut D'. The amount fed by the plunger may be regulated by turning the nut b⁵, to lengthen or shorten the throw of the plunger.

The plunger rod is sectional and extensible so as to regulate the throw of the plunger, but its two sections are rigidly held against any relative movement except when the nut b⁵, is turned.

What I claim is:

1. The combination, with a hopper having an outlet at its lower end, of a plunger at said outlet, a plunger rod in two sections, a yoke secured at its inner end to the inner plunger rod section; the outer plunger rod member or section extending freely through the opposite end of the yoke, a spring on the inner end of the outer plunger rod member and bearing at one end against the inner side of the yoke, and at its other end bearing against a part on the said outer section, a nut on the outer plunger rod section against the outer side of the yoke, by turning which the plunger rod may be lengthened or shortened, a retracting spring for the plunger rod, and a cam engaging the outer end of the plunger rod to move it in against its retracting spring and suddenly release it.

2. The combination, with a hopper having an outlet at its lower end, of a plunger working across said outlet, a two-part plunger rod, a guide for the outer rod member, a bumper on the rod member to cushion its inward movement, a retracting-spring on

said rod member, a nut on the said rod member to compress the spring against the outer side of the guide, a yoke fixed to the outer end of the inner rod-member and through 5 the opposite end of which the opposite rod member freely passes, a collar on the outer rod member within the yoke, a spring on the rod member between the yoke and collar, a nut on the outer rod member held rigidly 10 against the outer face of the yoke by said nut, and a rotary cam to move the plunger rod inwardly against the action of its projecting-spring and suddenly release it.

3. The combination, with a hopper having 15 an outlet, of a plunger working across said

outlet, a sectional extensible plunger rod having a spring tending normally to move the sections together, an adjustable nut on one section holding it from inward movement by the spring, on the other section, and 20 said spring being strong enough to hold the rod-sections together to work as a single rod, and means for actuating the plunger rod.

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

ENOS A. WALL.

Witnesses:

R. M. PARKINS,
GEO. H. EVANS.