

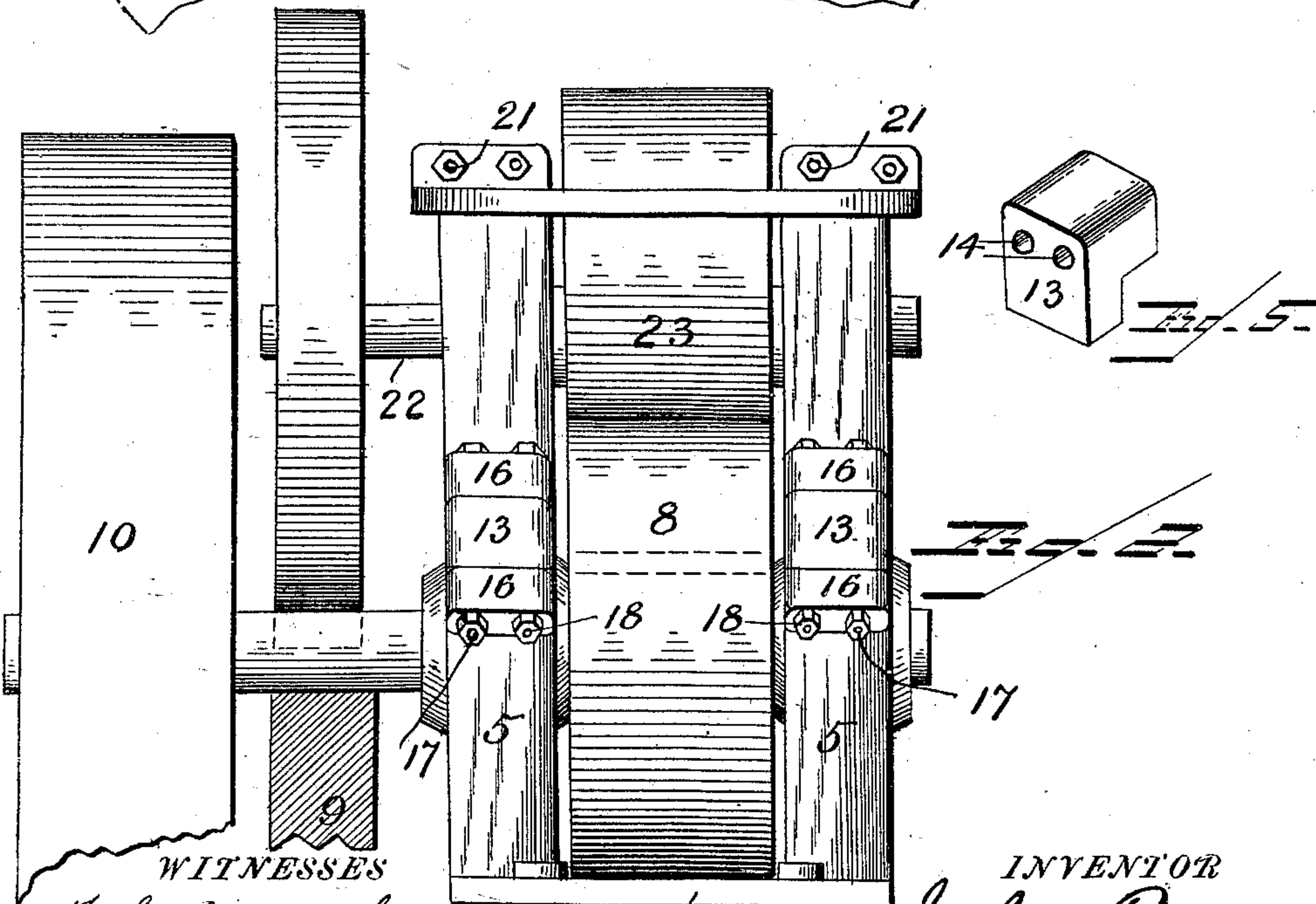
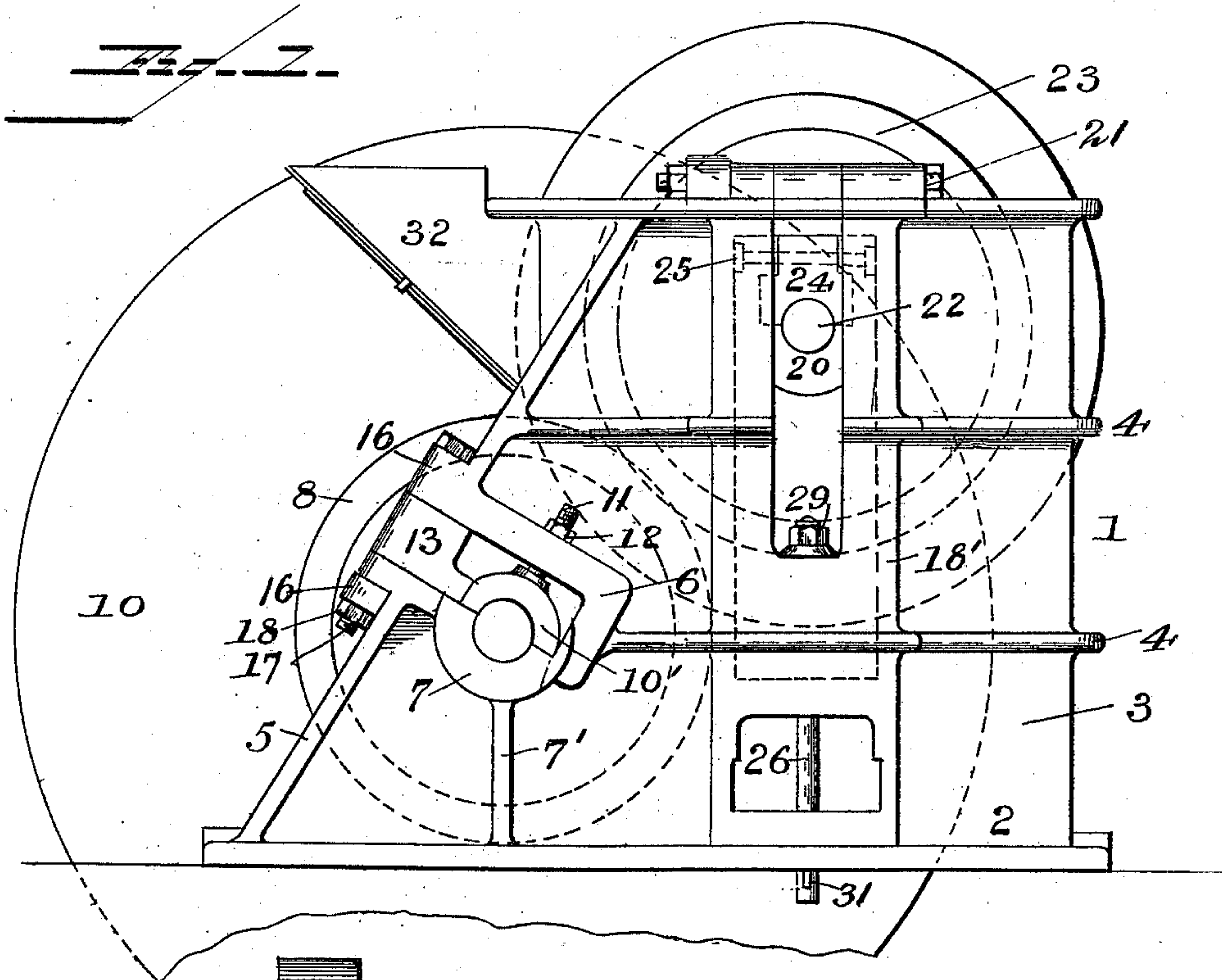
(No Model.)

2 Sheets—Sheet 1.

J. ROGER.
ORE CRUSHER.

No. 554,377.

Patented Feb. 11, 1896.



WITNESSES
F. L. Ourand
A. B. Suck

INVENTOR
John Roger,
By *[Signature]* Attorney

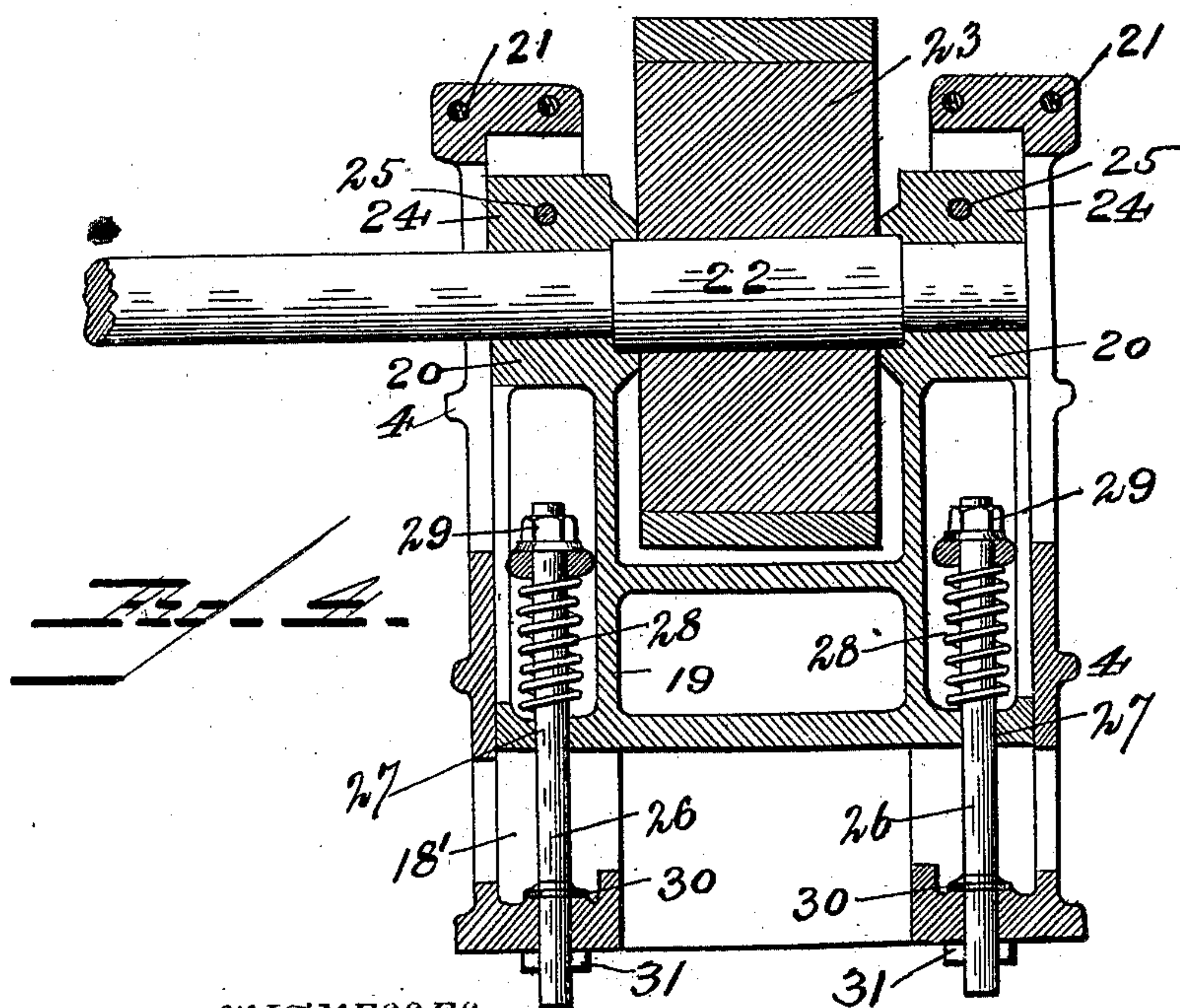
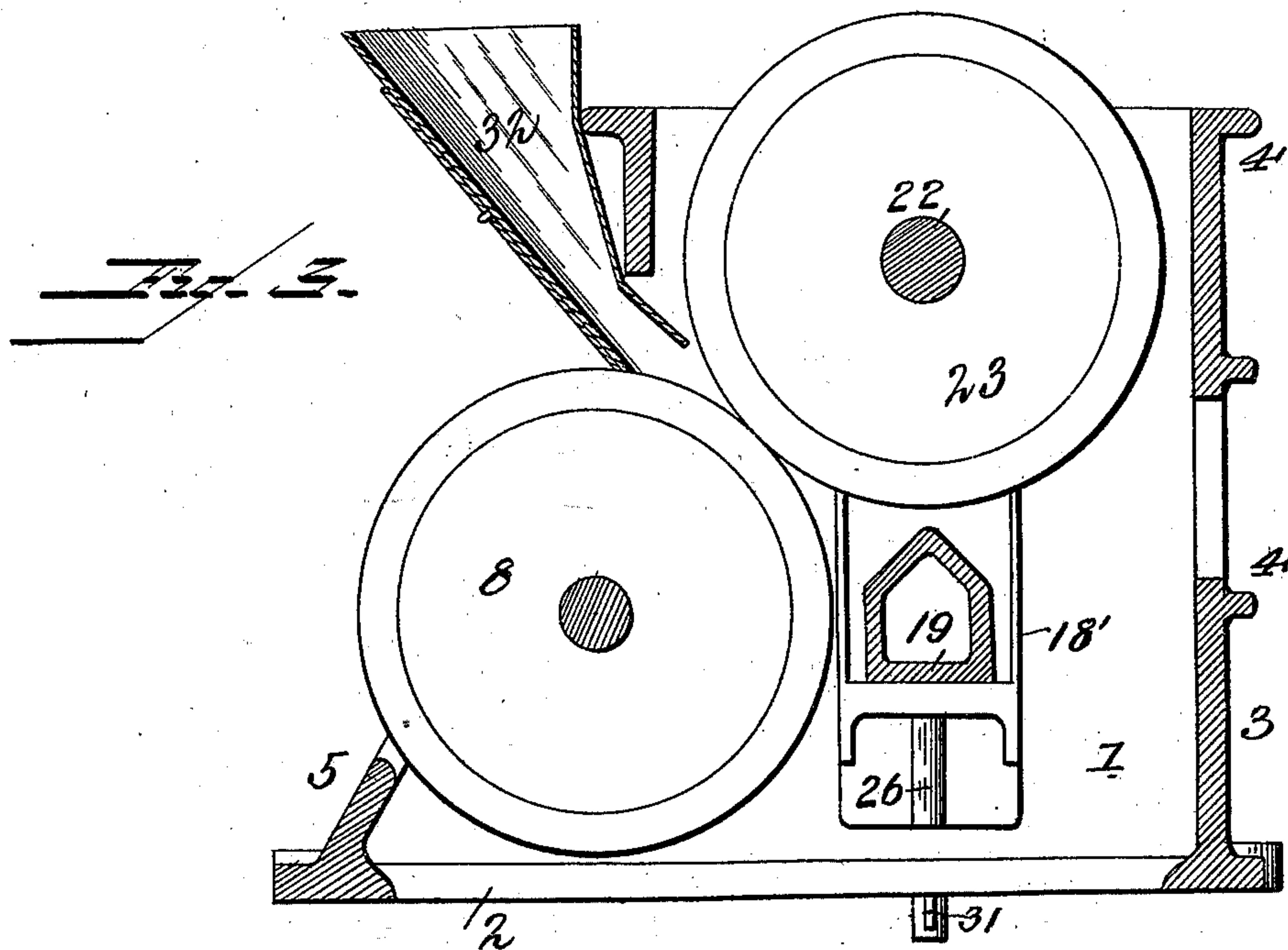
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INVENTOR

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UNITED STATES PATENT OFFICE.

JOHN ROGER, OF DENVER, COLORADO.

ORE-CRUSHER.

SPECIFICATION forming part of Letters Patent No. 554,377, dated February 11, 1896.

Application filed March 12, 1895. Serial No. 541,388. (No model.)

To all whom it may concern:

Be it known that I, JOHN ROGER, a subject of the Queen of England, residing at Denver, in the county of Arapahoe and State of Colorado, have invented certain new and useful Improvements in Ore-Crushers; and I do 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.

My invention relates to ore-crushers.

The object of my invention is to provide an ore-crusher which comprises two rolls, arranged one above the other, one of which has a free vertical movement with respect to the other and by its own weight crushes the ore; furthermore, to provide means for checking or limiting the upward movement of the roll and serve to exert a downward pressure on said roll, and, finally, to provide an ore-crusher which shall be simple of construction, durable in use and comparatively inexpensive of production.

With these objects in view the invention consists of certain features of construction and combination of parts which will be hereinafter fully described and claimed.

In the drawings, Figure 1 is a side view of my improved ore-crusher. Fig. 2 is a front view of the same with the hopper omitted. Fig. 3 is a longitudinal vertical sectional view of the machine. Fig. 4 is a transverse vertical sectional view.

In the drawings, 1 denotes the frame of the machine, which comprises the bed-plates 2 and the sides 2^a, having braces 3, 4, and 5, the front edges of the sides being formed intermediate their ends with U-shaped extensions 6, having bearings 7, supported by braces 7'. Mounted in these bearings is the shaft of the lower crusher-roll, 8, one end of which shaft is extended and is journaled in a bearing in a support 9 and is provided with a drive-pulley 10. To securely hold the shaft of the lower roll in the bearings 7, I provide a shoe 10', which partially embraces the shaft and is provided with a bolt 11 and adjusting-nut 12. An L-shaped block 13 abuts against the forward end of the shoe 10' and projects forward and is provided with perforations 14, which register with the perforations 15 in the ears 16 formed on the inclined post above and below

the U-shaped extension. Bolts 17 are passed through the perforations in the block and ears, and nuts 18 are screwed upon their ends, thus securely holding the shaft in its bearings in the frame and preventing the spreading or breaking of the U-shaped extension.

Rising from each bed-plate of the frame are two guides 18', between which slides a yoke-frame 19, which is preferably cast hollow, as shown, and which is provided at its upper ends with bearings 20. Bolts 21 are passed through the upper ends of each set of guides and serve to strengthen them. Mounted in the bearings 20 of the yoke-frame is a shaft 22 of the crusher-roll 23, which is supported above the crusher-roll 8 and preferably to one side of the same, as shown. Blocks 24 are inserted in the bearings of the yoke-frame above the shaft of the roll 23 and are retained therein, with their concave faces against the shaft, by means of bolts 25, which pass through holes in the upper ends of the yoke-frame and the blocks. These means provide a very strong and substantial bearing.

To prevent sudden jarring of the upper roll while the ore is passing between it and the lower roll, I provide buffers. These buffers comprise rods 26, which pass through holes in the base of the hollow yoke and through the bed-plates of the frame. Springs 28 are confined between adjusting-nuts 29 on the upper ends of the rods and the bottom of the yoke-frame. To prevent vertical movement of the rods, I form them with shoulders 30 on the top surface of the bed-pieces and insert pins 31 through holes in their extreme lower ends. These springs also serve to increase the pressure of the roll on the ore.

32 denotes a feed-hopper, the bottom of which opens directly above the point where the rolls contact.

Having thus described the construction of my invention, I will now proceed to set forth its operation.

The ore to be crushed is supplied to the hopper in any desired manner, and passes out through its bottom directly between the upper and lower rolls, between which it passes and is crushed. Should particularly hard or flinty rocks be fed to the rolls, the upper one will rise and allow them to pass without injury to the machine, while its buffers will re-

duce to a minimum the jarring incident to machines of this character.

Although I have shown the upper roll supported to one side of the lower roll, I would
5 have it understood that I do not wish to be confined to such an arrangement, but prefer the same in that it permits of the ore being more readily fed to the rolls.

From the foregoing description, taken in
10 connection with the accompanying drawings, the operation and advantages of my invention will be readily understood.

The machine is strong in construction and the parts are compactly assembled and are not
15 liable to become broken or get out of order.

What I claim, and desire to secure by Letters Patent, is—

1. In an ore-crushing machine, the combination with the main frame provided with vertical guides, of a crusher-roll journaled in the
20 main frame, a yoke-frame mounted to slide between said guides, a crusher-roll journaled in the yoke-frame above the first-named crusher-roll, means for producing a yielding
25 tension with respect to the said rolls, blocks seated in the bearings of said yoke-frame and having their concave faces bearing against the axis of the upper roll, and cross-bolts for
30 securing said blocks in position, substantially as set forth.

2. In an ore-crushing machine, the combination with a main frame provided with vertical guides and a hollow yoke-frame mounted to slide between said guides, of a crusher-roll
35 journaled in the main frame, a crusher-roll journaled in the yoke-frame, rods secured to the main frame against vertical movement and projecting upwardly into the yoke-frame and springs located in said yoke-frame and
40 confined between the upper end of said rod and the bottom of the yoke-frame.

3. In an ore-crushing machine, the combination with the main frame having U-shaped extensions provided with journal-bearings, a
45 roll having its shaft seated in said bearings, journal-caps and set-screws for clamping them around said shaft, blocks seated in said extensions with one end against the shoe and projecting forward, ears formed on the frame
50 above and below the extensions, bolts passed through apertures in the ears and block, and a vertically-movable roll supported above said first-named roll.

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

JOHN ROGER.

Witnesses:

JAMES HENDERSON,
BENJ. B. GIBSON.