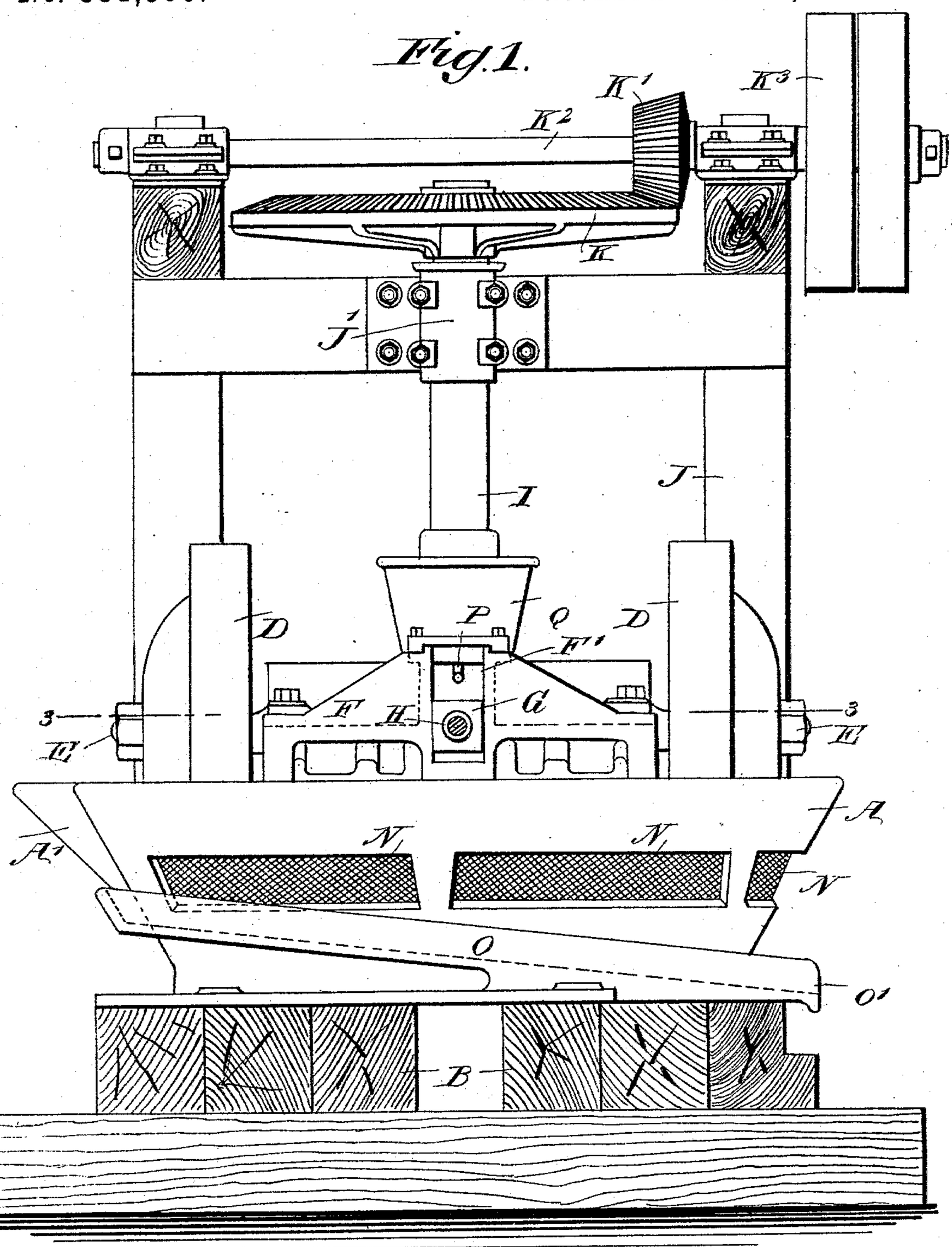
(No Model.) 4 Sheets—Sheet 1.

A. H. SCHIERHOLZ.

ORE CRUSHER.

No. 551,560. Patented Dec. 17, 1895.

Fig. 1.



WITNESSES:
F. M. Ardle.
C. Sedgwick

INVENTOR
A. H. Schierholz
BY
Munn & Co
ATTORNEYS.

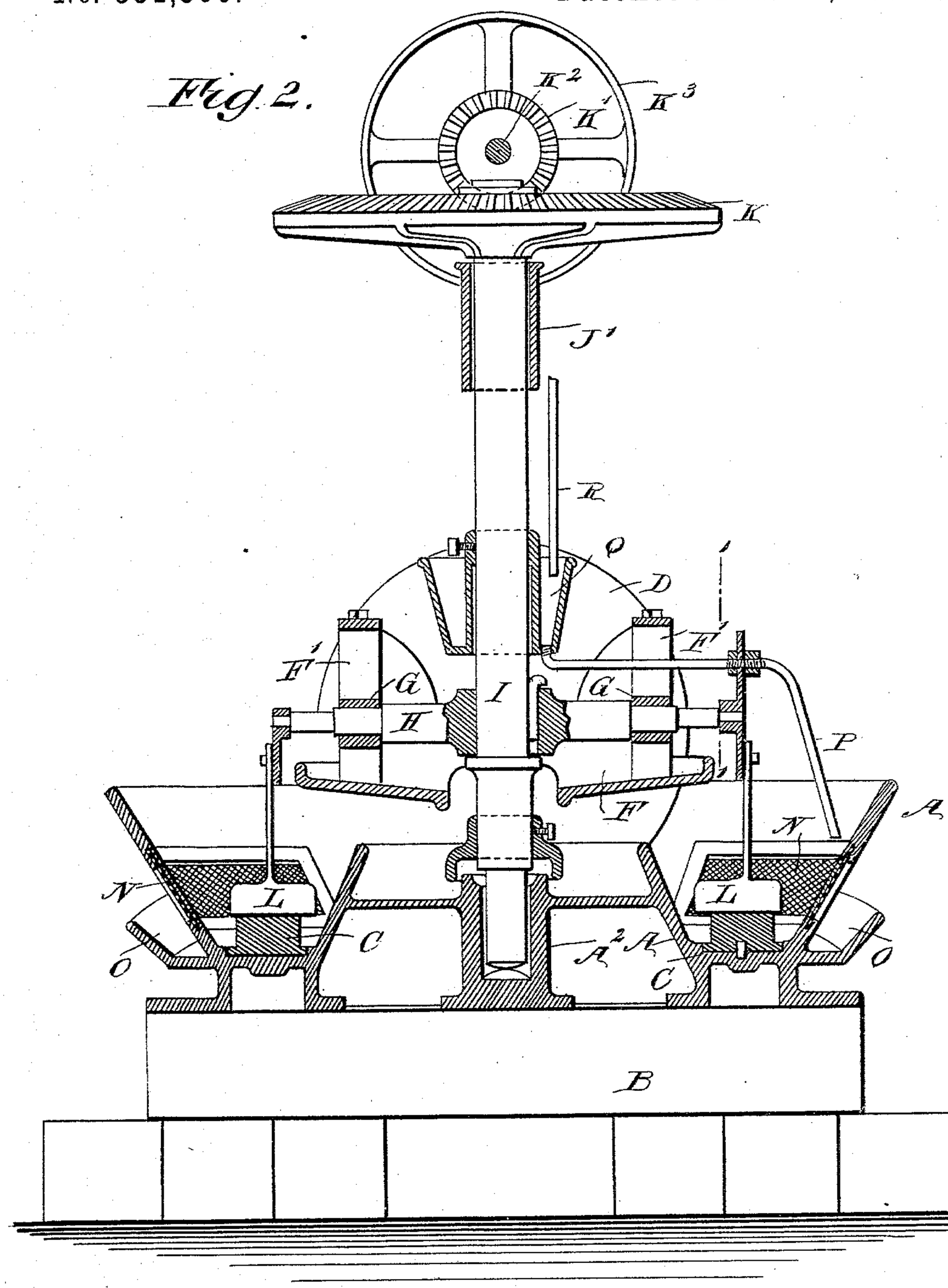
(No Model.) 4 Sheets—Sheet 2.

A. H. SCHIERHOLZ.

ORE CRUSHER.

No. 551,560. Patented Dec. 17, 1895.

Fig. 2.



WITNESSES:

F. McArdle.

C. Sedgwick

INVENTOR

A. H. Schierholz

BY Munn & Co

ATTORNEYS.

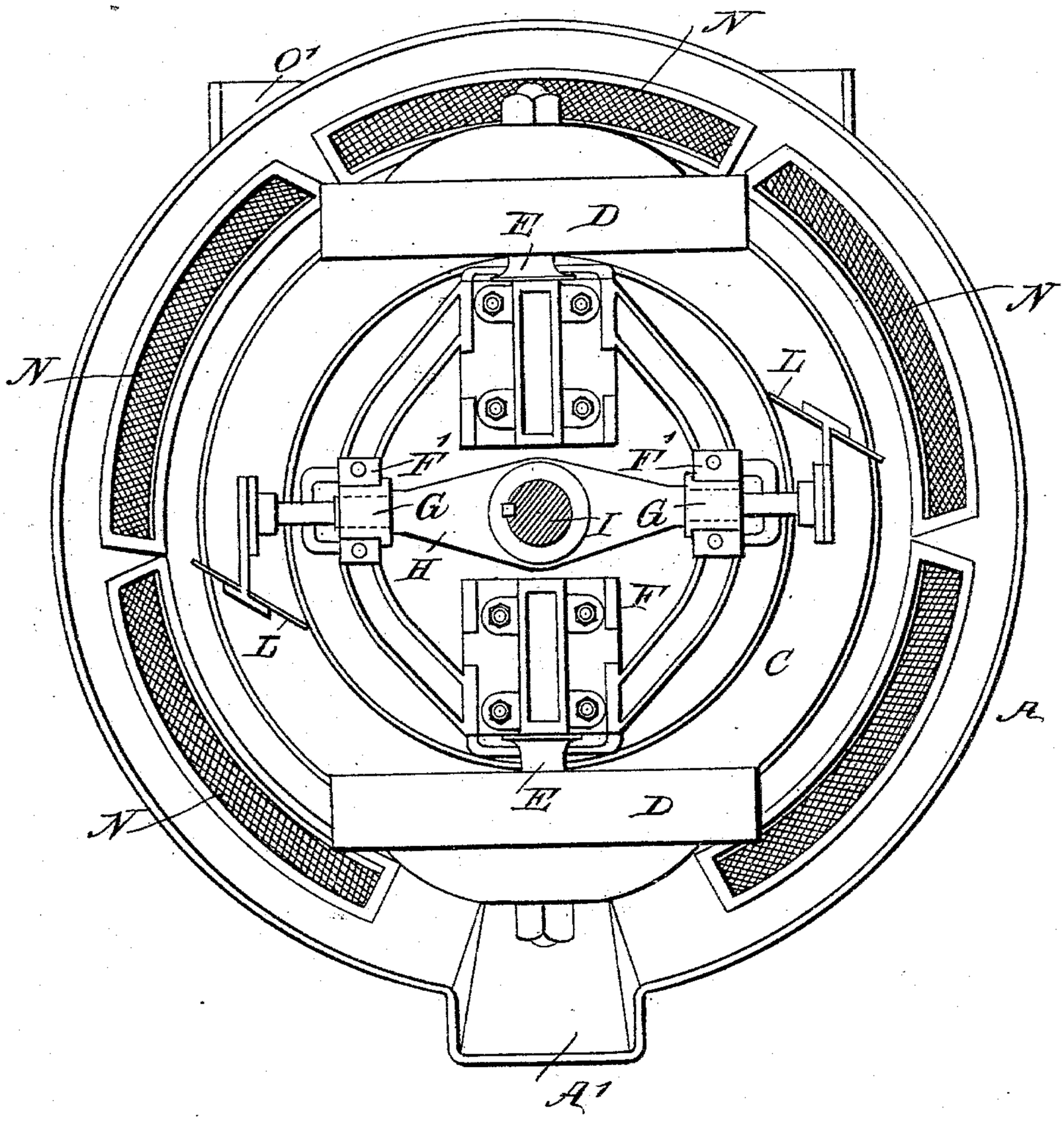
(No Model.) 4 Sheets—Sheet 3.

A. H. SCHIERHOLZ.

ORE CRUSHER.

No. 551,560. Patented Dec. 17, 1895.

Fig. 3.



WITNESSES:
F. M. Ardle.
C. Sedgwick

INVENTOR
A. H. Schierholz
BY Munn & Co
ATTORNEYS.

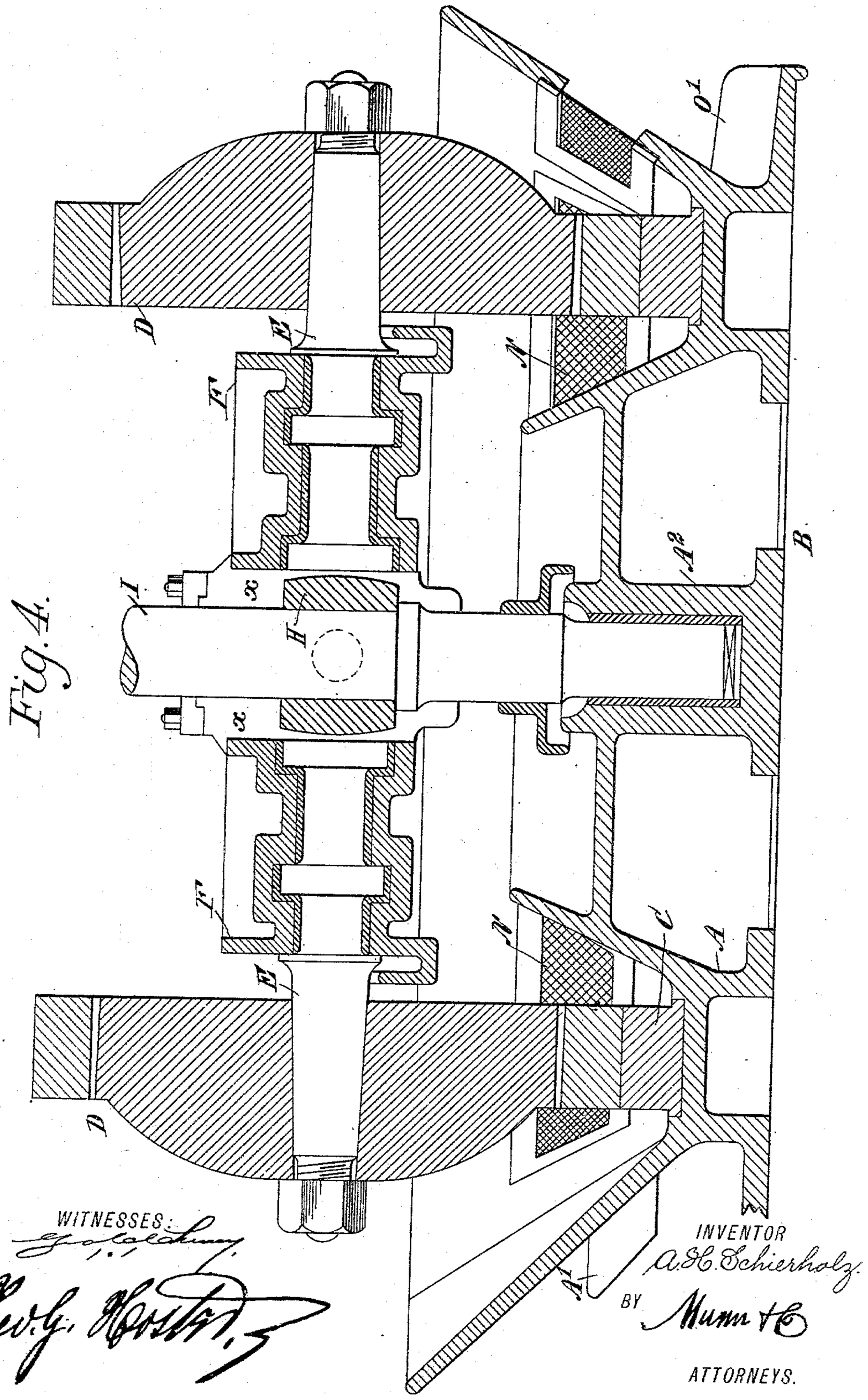
(No Model.)

4 Sheets—Sheet 4.

A. H. SCHIERHOLZ.

ORE CRUSHER.

No. 551,560. Patented Dec. 17, 1895.



UNITED STATES PATENT OFFICE.

AUGUST H. SCHIERHOLZ, OF SAN FRANCISCO, CALIFORNIA.

ORE-CRUSHER.

SPECIFICATION forming part of Letters Patent No. 551,560, dated December 17, 1895.

Application filed December 23, 1893. Serial No. 494,512. (No model.)

To all whom it may concern:

Be it known that I, AUGUST HENRY SCHIERHOLZ, of San Francisco, in the county of San Francisco and State of California, have invented a new and Improved Ore-Crusher, of which the following is a full, clear, and exact description.

The object of the invention is to provide a new and improved ore-crusher, which is comparatively simple and durable in construction, very effective in operation, and arranged to facilitate the crushing, pulverizing, and amalgamation of ores and the crushing and pulverizing of other materials.

The invention consists principally of a pan, crushing-rollers adapted to travel in the said pan, a frame in which the rollers are journaled, and a driving-arm engaging blocks held vertically adjustable on the said frame to permit the rollers to move up or down, according to the amount of the material under treatment.

The invention also consists of certain parts and details and combinations of the same, as will be hereinafter described 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 side elevation of the improvement, with parts removed and partly in section, on the line 1 1 in Fig. 2. Fig. 2 is a transverse section of the same. Fig. 3 is a sectional plan view of the same on the line 3 3 of Fig. 1, and Fig. 4 is a vertical section at right angles to Fig. 2.

The ore-crusher is provided with a circular pan A, having inclined sides and a feed-spout A′, as plainly illustrated in the drawings. The pan A is supported on a suitable foundation B, and in the bottom of the said pan is held a circular die C, on which travel the oppositely-arranged crushing-rollers D, to crush the material placed on the said die. The crushing-rollers D are journaled on axles E, secured in a frame F, which has a large opening x in the center, through which the driving-shaft I passes without contacting therewith. This frame F is provided on opposite sides and at right angles to the axles E with vertically-extending guideways F′, in which are fitted loosely the flanged bearing-blocks G, engaged by the shouldered driving-arm H, secured on the driving-shaft I, disposed vertically and centrally relative to the pan A. The lower end of this driving-shaft I is set in a suitable step A^2, forming part of the pan A, the upper end of the said shaft I being journaled in a bearing J′, secured to the general framework J of the machine.

On the extreme upper end of the shaft I is secured a bevel gear-wheel K, in mesh with a bevel-pinion K′, secured on a shaft K^2, journaled in the framework J and provided with the usual fast and loose pulleys K^3, connected by belt with suitable machinery to impart a rotary motion to the said shaft K^2 to cause the pinion K′ to rotate the gear-wheel K, and consequently the shaft I. The rotary motion of the latter is transmitted by the driving-arm H to the bearing-blocks G, held in the frame F, so that a rotary motion is given to the latter, and consequently the axles E, secured in the said frame, are carried around to move the crushing-rollers D around and to cause the same to roll over and crush the material on the circular die C in the bottom of the pan A.

On the outer ends of the driving-arm H are secured adjustable scrapers L, moving in advance of the rollers D, directly over the die C, so as to place the ore which may lie outside of the circular die uncrushed before the said rollers to facilitate the crushing of the ore by the rollers. In the outer side of the pan A are arranged openings covered by screens N, through which the crushed material is discharged to the outside of the pan and into an inclined circular trough O, provided at its lowermost end with a discharge-spout O′.

The screens N are washed, so as to keep their meshes open, by water passing through a pipe P, carried by the driving-arm H and connected with a water-tank Q, attached directly to the shaft I above the driving-arm H. Into this tank Q discharges a supply-pipe R, connected with a suitable source of water-supply, so that a continuous stream of water is discharged onto the screens N as the shaft I revolves to properly wash the crushed material through the screens into the trough O.

It is understood that the driving-arm H indirectly drives the crushing-rollers D, so that

the latter are free to move up or down according to the amount of material placed on the die C and acted on by the said rollers. The scrapers L have the function of scraping the greater part of the uncrushed material which may be thrown outside of the path of the crushing-rolls before and in the path of the said rolls. The top surface of the die C is about level with the lower part of the screens N, so that the crushed material, assisted by the necessary quantity of water fed with the ore into the pan, readily passes to the said screens and out of the same into the trough O, further assisted by the water passing down the pipe P against the screens N.

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

1. An ore crusher, comprising a circular pan, a pair of crushing rolls adapted to travel in the pan, a frame in which the rolls are journaled provided with a central opening through which a central driving shaft passes without contacting therewith, and with vertically disposed guide ways flanged blocks held in the guide ways and shouldered driving arms engaging the said blocks, whereby provision is made for permitting the crushing rolls to travel in a circular path and at the same time permitting them to move up and down according to the amount of material under them, substantially as shown and described.

2. In an ore crusher, the combination with a pan, and a driving shaft, of a frame through which the driving shaft loosely passes, provided with oppositely arranged vertical guide ways, crushing rolls mounted in the said frame, a driving arm secured to the shaft, bearing blocks loose in the guide ways of the frame and with which the members of the driving arms engage, and means for operating the drive shaft, substantially as described.

3. An ore crusher, comprising a pan, a drive shaft, a frame through which the drive shaft loosely passes provided with oppositely arranged vertical guide ways, bearing blocks loosely mounted in the guide ways, a driving arm secured to the drive shaft and having its ends projecting through the bearing blocks, scrapers on the ends of the driving arm, crushing rollers mounted in the frame, and means for operating the driving shaft, substantially as described.

AUGUST H. SCHIERHOLZ.

Witnesses:
THEO. MICHELS,
CHAS. L. QUAST.