

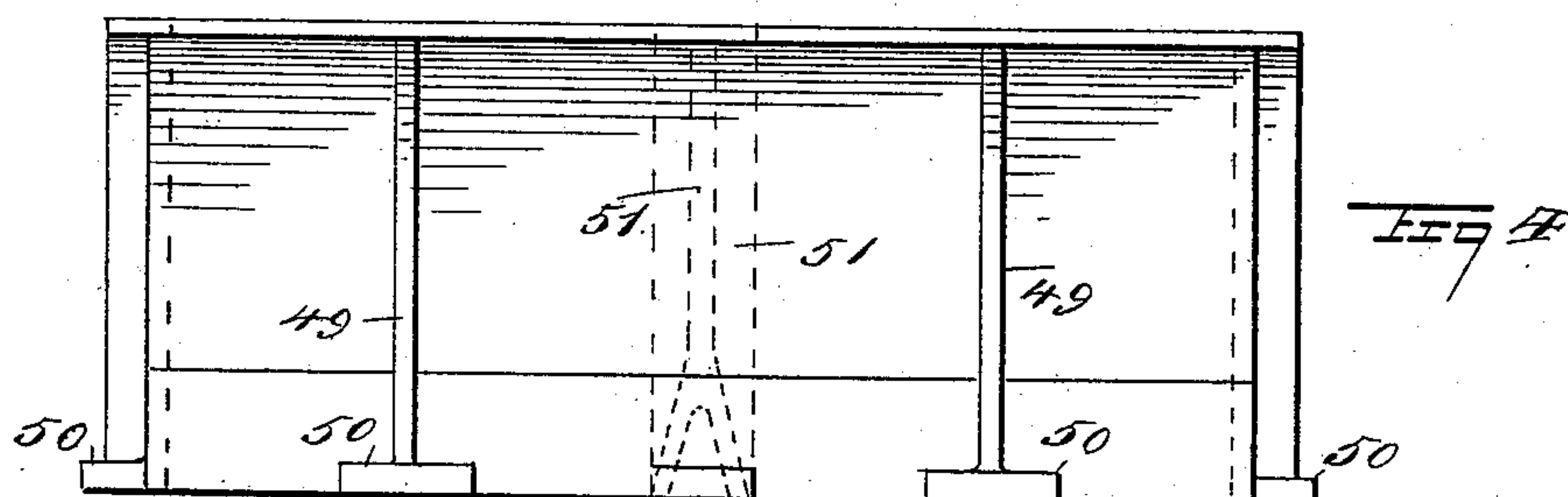
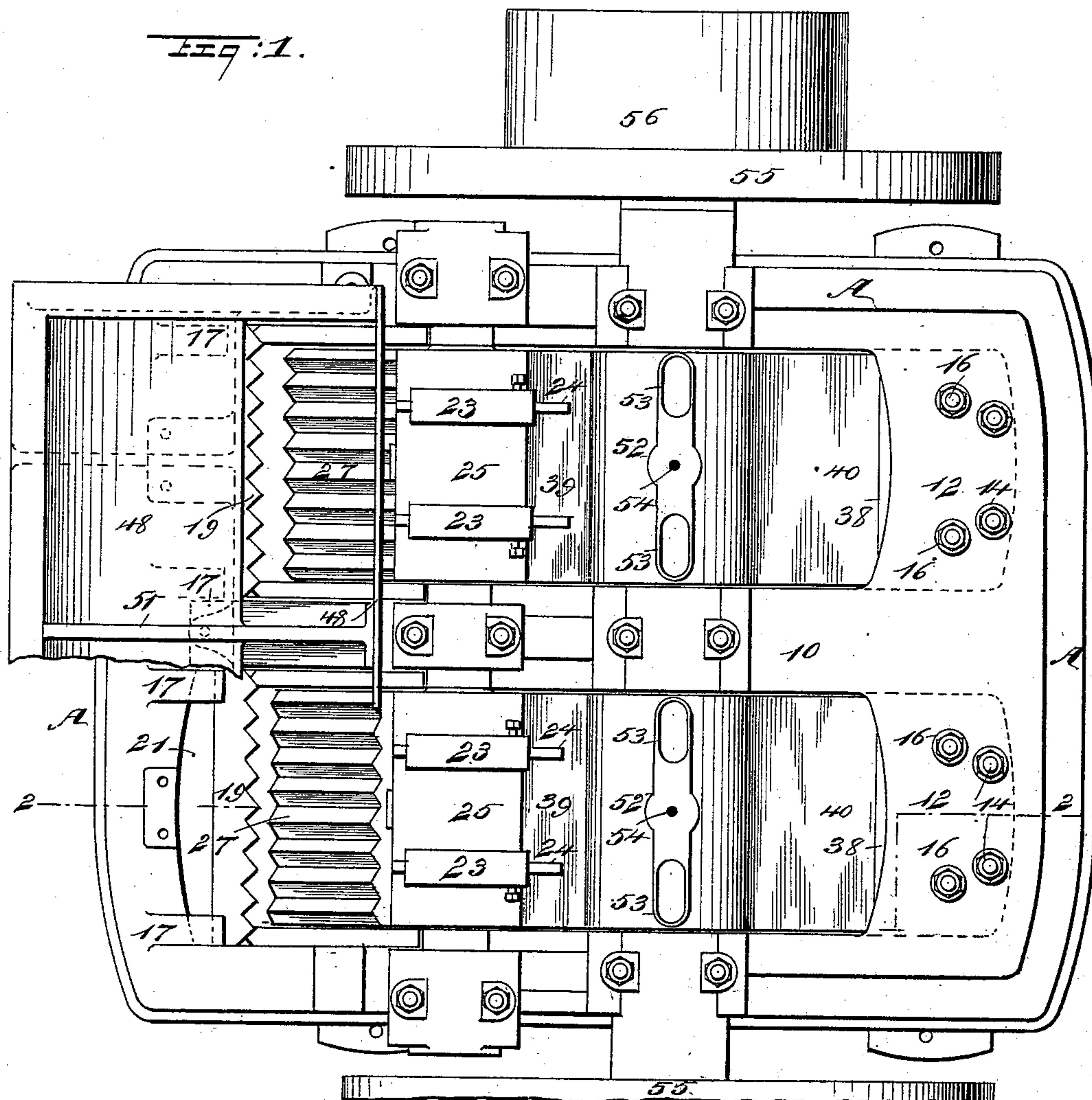
(No Model.)

2 Sheets—Sheet 1.

E. C. BACON.
STONE CRUSHER.

No. 539,972.

Patented May 28, 1895.



WITNESSES:

H. Walker
J. A. Acker

INVENTOR

E. C. Bacon
BY Munn & Co

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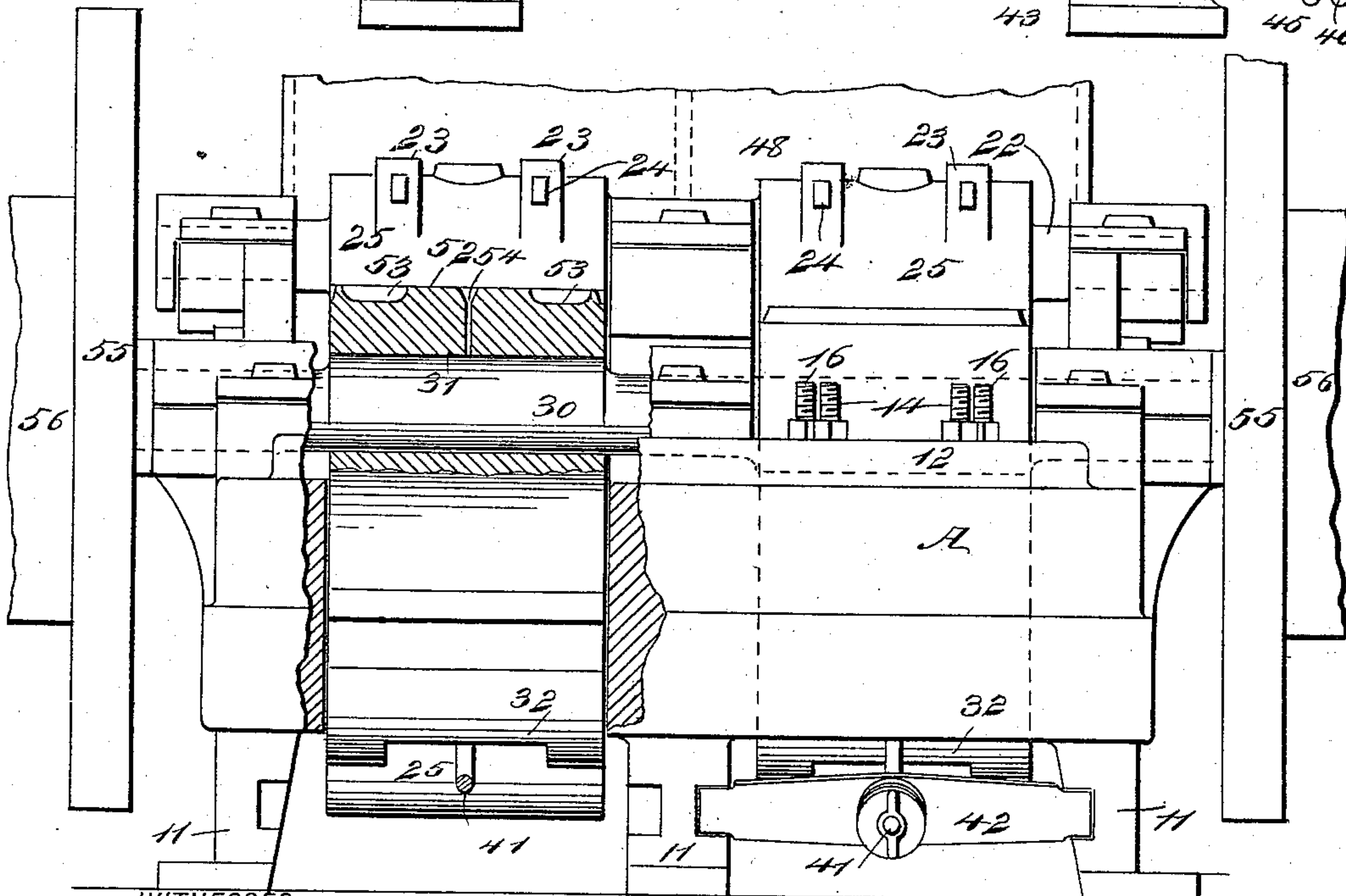
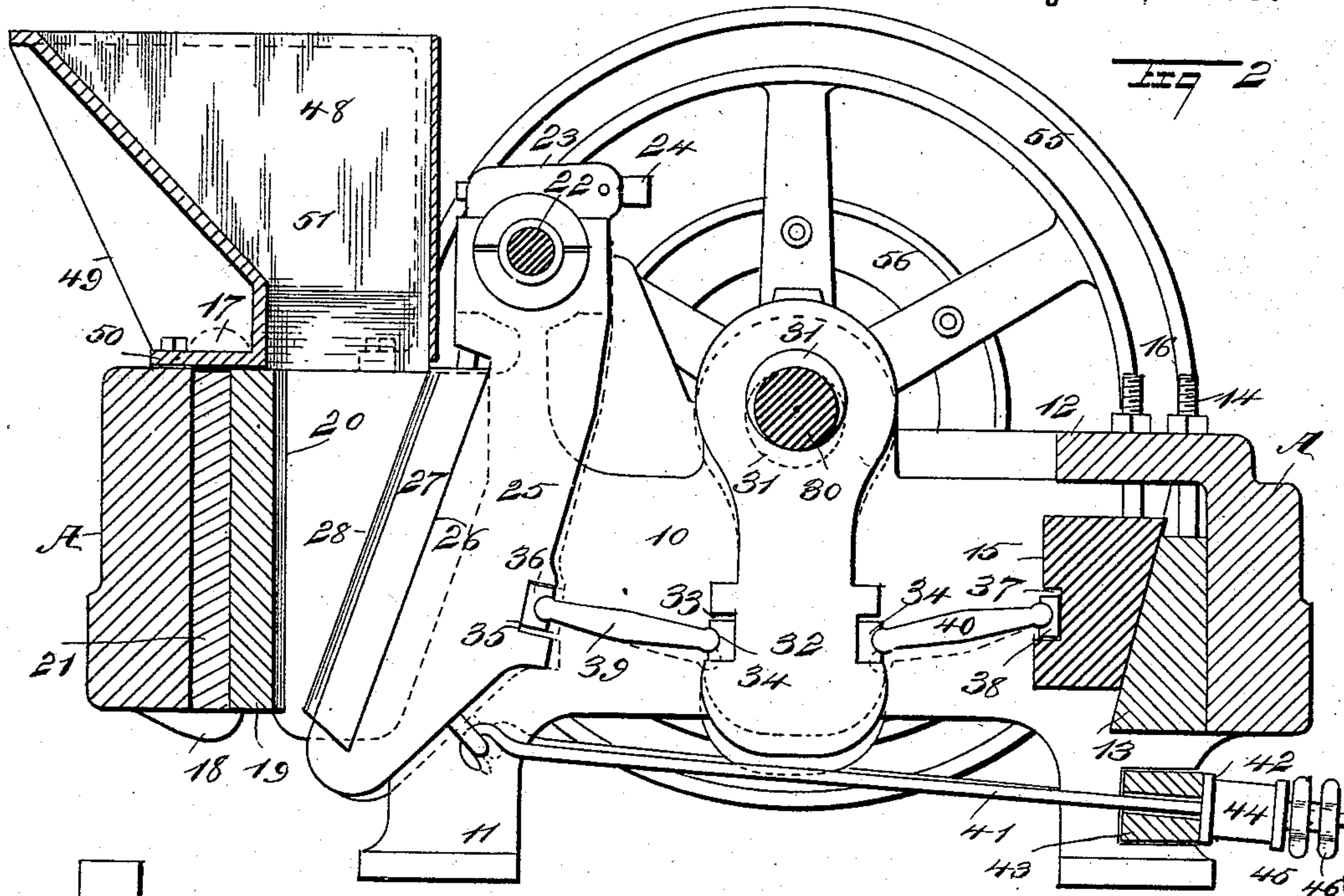
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UNITED STATES PATENT OFFICE.

EARLE C. BACON, OF NEW YORK, N. Y., ASSIGNOR TO THE FARRELL FOUNDRY AND MACHINE COMPANY, OF ANSONIA, CONNECTICUT.

STONE-CRUSHER.

SPECIFICATION forming part of Letters Patent No. 539,972, dated May 28, 1895.

Application filed April 11, 1894. Serial No. 507,162. (No model.)

To all whom it may concern:

Be it known that I, EARLE C. BACON, of New York city, in the county and State of New York, have invented a new and Improved
5 Stone-Crusher, of which the following is a full, clear, and exact description.

My invention relates to certain new and useful improvements in stone crushers, and the invention consists in the novel construction
10 and combination of the several parts, as will be hereinafter fully set forth and pointed out in the claim.

Reference is to be had to the accompanying drawings, forming a part of this specification,
15 in which similar figures and letters of reference indicate corresponding parts in all the views.

Figure 1 is a plan view of the frame in which two crushers are mounted, the hopper being
20 broken away to disclose the jaws of one crusher. Fig. 2 is a transverse vertical section taken essentially on the line 2 2 of Fig. 1. Fig. 3 is a rear elevation of the crusher, a part thereof being broken away to disclose
25 the driving-shaft; and Fig. 4 is a rear elevation of the hopper.

The frame A, may be of any desired dimensions, and is usually of skeleton form, being rectangular in general contour, and when two
30 crushers are to be mounted in one frame the frame is provided with a central vertical partition 10 which will divide it into two compartments. The frame is usually located upon legs 11, as shown in Fig. 2, whereby it may be
35 held at a desired elevation from the ground or other support; and preferably at the rear of the frame a horizontal web 12, is formed at the top thereof, which extends over the compartments in the frame in a forwardly direction; and immediately beneath each web
40 an adjusting block 13, is vertically supported by means of adjusting screws 14, the rear face of which block is preferably made straight to engage with the inner rear straight surface
45 of the frame, as shown in Fig. 2, while the forward or inner face of the said block 13 is made more or less inclined, the inclination being usually from the bottom in an upwardly and rearwardly direction. A second
50 adjusting block 15, provided with a rear inclined face is made to slide upon the inclined

surface of each of the rearmost adjusting blocks 13.

The forward adjusting blocks 15, are suspended and adjusted through the medium of
55 adjusting screws 16, which pass up through the web 12. In fact, as shown in Fig. 1, two adjusting screws are preferably provided for each of the blocks, since the blocks are usually made of such width as to extend from
60 side to side of the compartment in which they are located. Both of the blocks may be adjustable or only one of them, for example, the forward one in each compartment.

At top and bottom of each compartment in
65 the frame, lugs are formed upon the upper and lower surface of the forward wall, the upper lugs being designated as 17, and the lower ones as 18, and these lugs extend inwardly, or within the compartment, and are
70 located usually one at each side, as shown in Figs. 1 and 2. These lugs are adapted to hold between them in each compartment a forward jaw 19, which jaws are adapted to be
75 stationary, and are vertically placed, their inner faces being provided with teeth 20, serrations, or corrugations, or said faces are otherwise roughened; and preferably in locating the fixed jaw 19, a block 21, usually made of
80 lead is made to intervene their outer faces and the forward portion of the frame, as shown in both Figs. 1 and 2, in order that the frame shall not sustain any shock or vibration, to any appreciable extent, that may be
85 communicated to the fixed jaw.

At a predetermined point in front of the fixed jaws of the crushers a shaft 22, is journaled in the upper portion of the frame, extending from one side to the other, the frame
90 being provided with suitable boxes 23 to receive said shaft, and the boxes are provided with any suitable take-up mechanism 24, that shown in the drawings being on the principle of a wedge, and is of ordinary construction.

An arm 25 is pivotally mounted upon the
95 shaft 22 in each compartment of the frame, said arms being preferably of a width nearly corresponding to that of the compartments. The arms extend downward from the shaft and in an outwardly direction, their forward
100 faces being provided with a recess 26, the back wall of which is preferably inclined as

shown in Fig. 2, the inclination being downwardly and forwardly, whereby the lower portion of the recess 26 in each arm is much closer to the fixed jaw 19 opposing the arm 5 than the upper portion of the recess. The recess 26 in each of the swinging arms 25 is made to carry a jaw 27, secured therein in any suitable manner. Therefore, the jaws 27, which are the movable jaws of the crushers, 10 moving with the arms 25, are at an angle to the stationary and vertical jaws, converging toward the latter at their lower ends; and the forward or working face of the movable jaws 27 is provided with teeth 28, or is otherwise 15 roughened to correspond to the treatment of the working face of the stationary jaws.

The drive shaft 30 employed is mounted in suitable bearings located upon the frame, the drive shaft being at the rear of the shaft 22 20 and running parallel therewith.

The drive shaft 30 is provided with an eccentric surface 31 within each compartment; the eccentric surface located in one compartment of the frame being diametrically opposite the corresponding surface of the shaft in 25 the next frame compartment, as shown in Fig. 2, in which one of the said surfaces is shown in positive and the other in dotted lines, and are represented as at diametrically 30 opposite points on the shaft.

Upon each eccentric surface of the shaft a pendulum arm 32, is mounted, and the said pendulum arms are of a width corresponding to the width of the compartment in which 35 they are located, and they are provided upon both their front and rear faces with a horizontal groove or slide-way 33, which is usually rectangular in cross section. Each groove or slide-way contains a block 34 loosely fitted 40 in it, the said block being capable of vertical movement; and a like groove 35, is made in the rear face of each swinging arm 25, receiving a block 36 loosely fitted therein. A corresponding groove or channel 37, is made 45 in the forward face of the forward adjusting block 15, the latter groove or channel receiving loosely a block or bar 38.

The connection between the pendulum arms 32 and the adjusting blocks and the swinging jaw-carrying arms 25 is effected through 50 the medium of two links 39 and 40. These links are located one at the front and the other at the rear of each swinging arm, and their ends are made cylindrical and shaped to fit the forward link in a correspondingly 55 shaped recess in the block 36 of the swinging arm 25 and the block 34 of the pendulum arm 32, while the rear link 40, which is likewise cylindrical at its ends, is made to fit in corresponding recesses in the pendulum block 60 34 and the bar 38 of the adjusting block 15. Thus it will be observed that in the event a stone or other object harder than usual should offer resistance to the movable jaw, it will not 65 be communicated to the frame or pendulum

arm connected with the jaw to any appreciable extent, as the bearings for the links may move in a compensating degree in their supports. The length of the stroke of the swinging arms 25 carrying the inclined or movable 70 jaws 27, is regulated by adjusting either or both of the blocks 13 and 15.

When the swinging arms have been forced forward they are returned automatically by 75 connecting with their rear faces at their lower ends a link 41, the link from each arm being carried rearward beneath the pendulum arms, the pendulum arms being grooved to admit of the passage of the links; and each link is 80 made preferably to pass through a tension plate 42, located at the rear of the frame and bearing against a spring 43, of rubber or like material, as shown in Figs. 2 and 3, and each link is further provided with a sleeve 44 and 85 adjusting and lock nuts 45 and 46.

The hopper 48 employed is located at the front of the machine and extends from one side to the other. The hopper is provided with a straight inner face and an inclined 90 outer face, the outer face being strengthened by webs 49 49 terminating in offsets 50 at their lower ends. The offsets extend across the upper surface of the fixed jaws, and are engaged by the upper lugs 17 on the frame, which prevent the hopper from having lateral 95 movement. The bottom or outlet of the hopper is made of a width corresponding practically to the width between the jaws at the top, as shown in Fig. 2; and the hopper is 100 bolted to the frame at the front between each set of lugs 17; and furthermore the hopper is provided with one or more projections 51, according to the number of compartments in the frame and the number of crushers to be 105 fed.

The eccentrics 31 on the drive shaft are lubricated by forming upon the strap sections of the pendulum arms 32 an offset 52, shown best in Fig. 1, containing two cups 53, adapted 110 to contain oil, one being located at each side of the center of the offset; while a feed aperture 54 is produced in the center of the offset between the cups and extends downward to the shaft as shown in Fig. 3. Each cup is 115 adapted to contain a wick and the wicks are both led to an aperture 54.

In the operation of the machine, stones can not escape from between the jaws unless crushed to the desired degree; and when one set of jaws is working the other set will be 120 preparing to work; or in other words, the jaws of the crushers in the frame will operate alternately. The drive shaft is preferably provided at both of its ends with a balance wheel 55 and a driving pulley 56. 125

It will be understood that the eccentrics 31, may be so placed that the action of all the jaws may be simultaneous, and in some cases such an action is desired.

Having thus described my invention, I 130

claim as new and desire to secure by Letters Patent—

across the upper surfaces of which said offsets extend, substantially as shown and described.

In a stone crusher, a removably mounted hopper having outer strengthening ribs or webs terminating in offsets at their lower ends, combined with the frame having lugs engaging said offsets, and the fixed jaws

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Witnesses:

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