

No. 708,495.

Patented Sept. 2, 1902.

D. C. ROBINSON.  
STONE AND ORE CRUSHER.

(Application filed Sept. 27, 1901.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1.

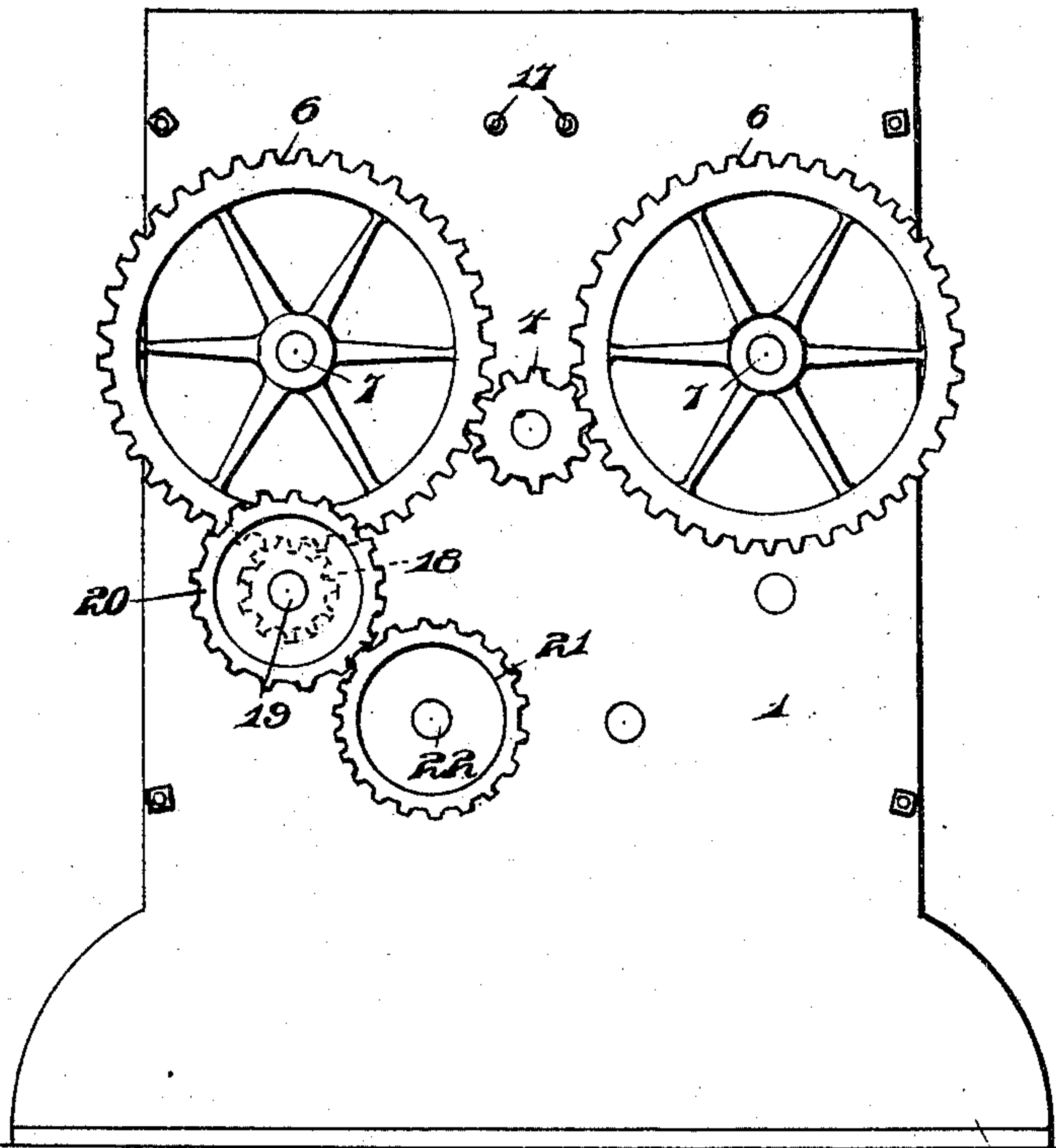


Fig. 2.

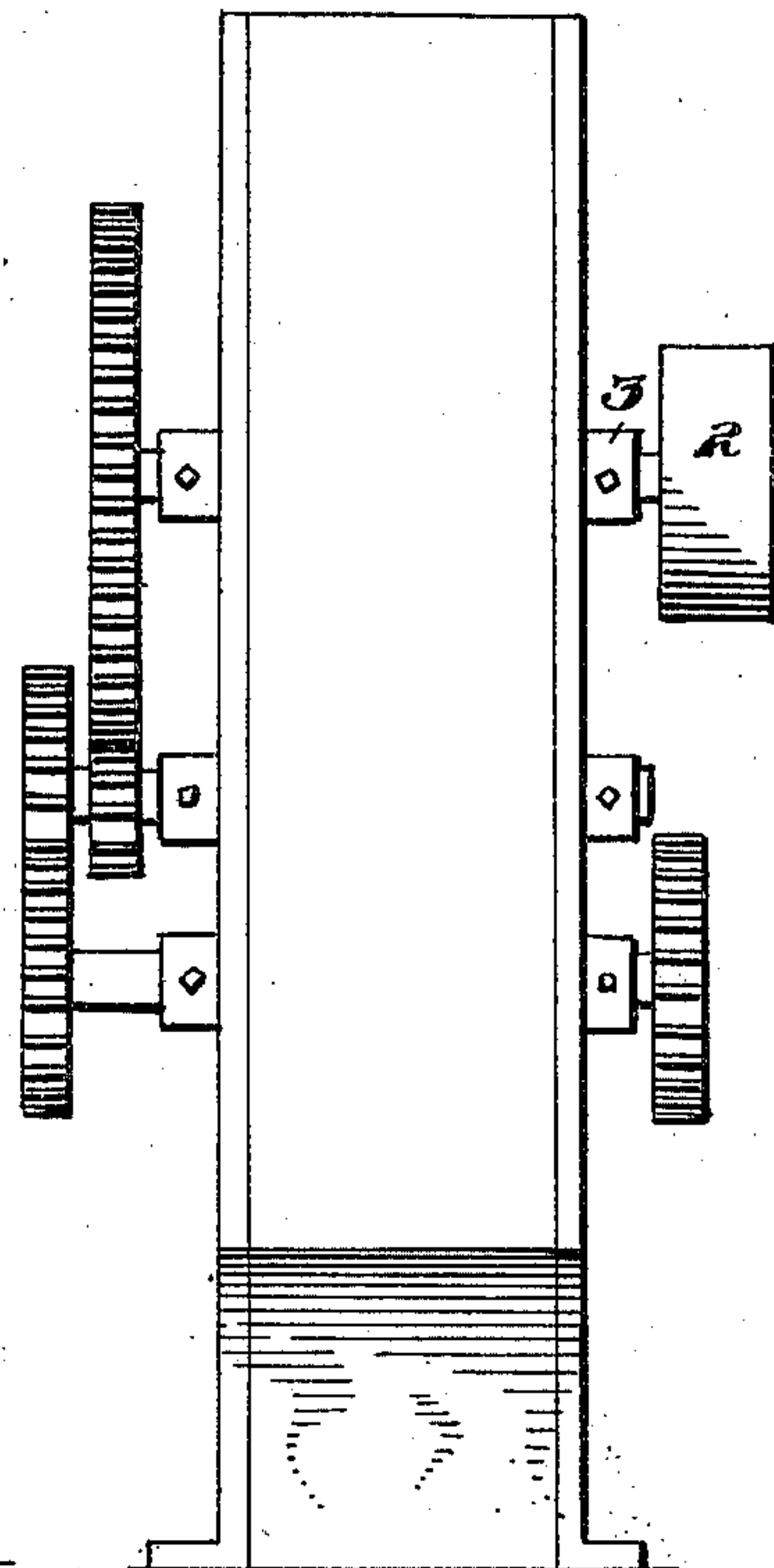
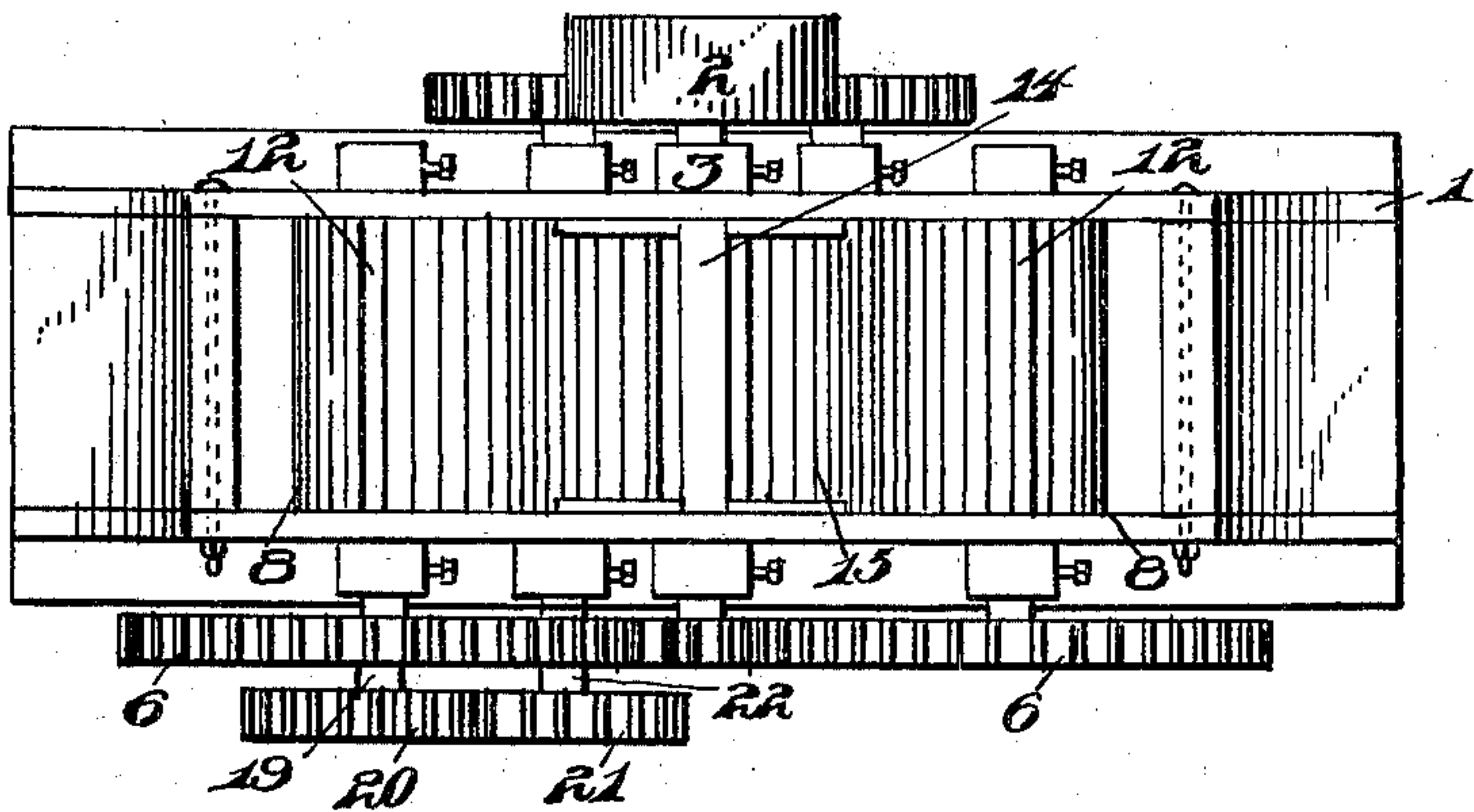


Fig. 3.



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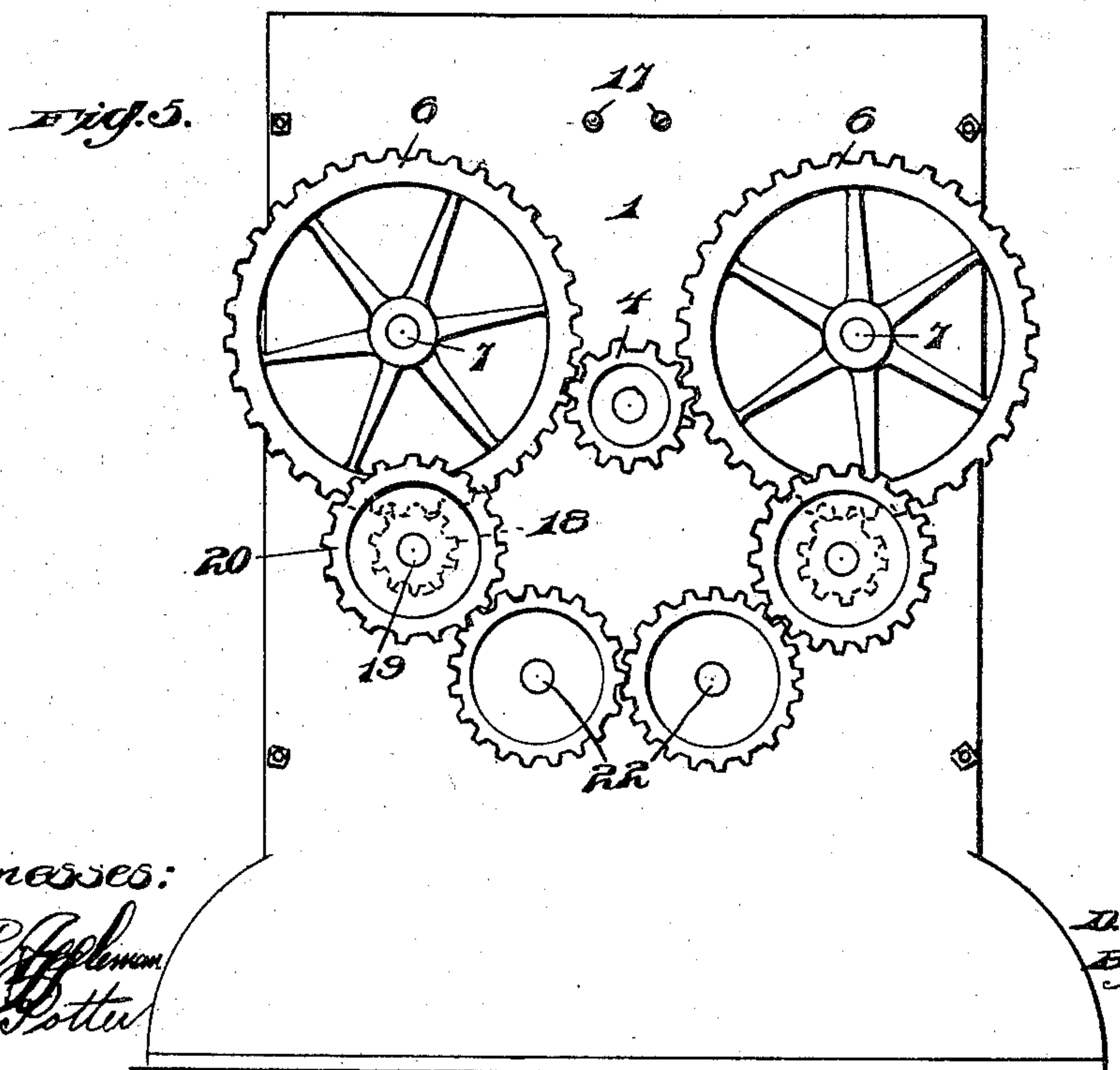
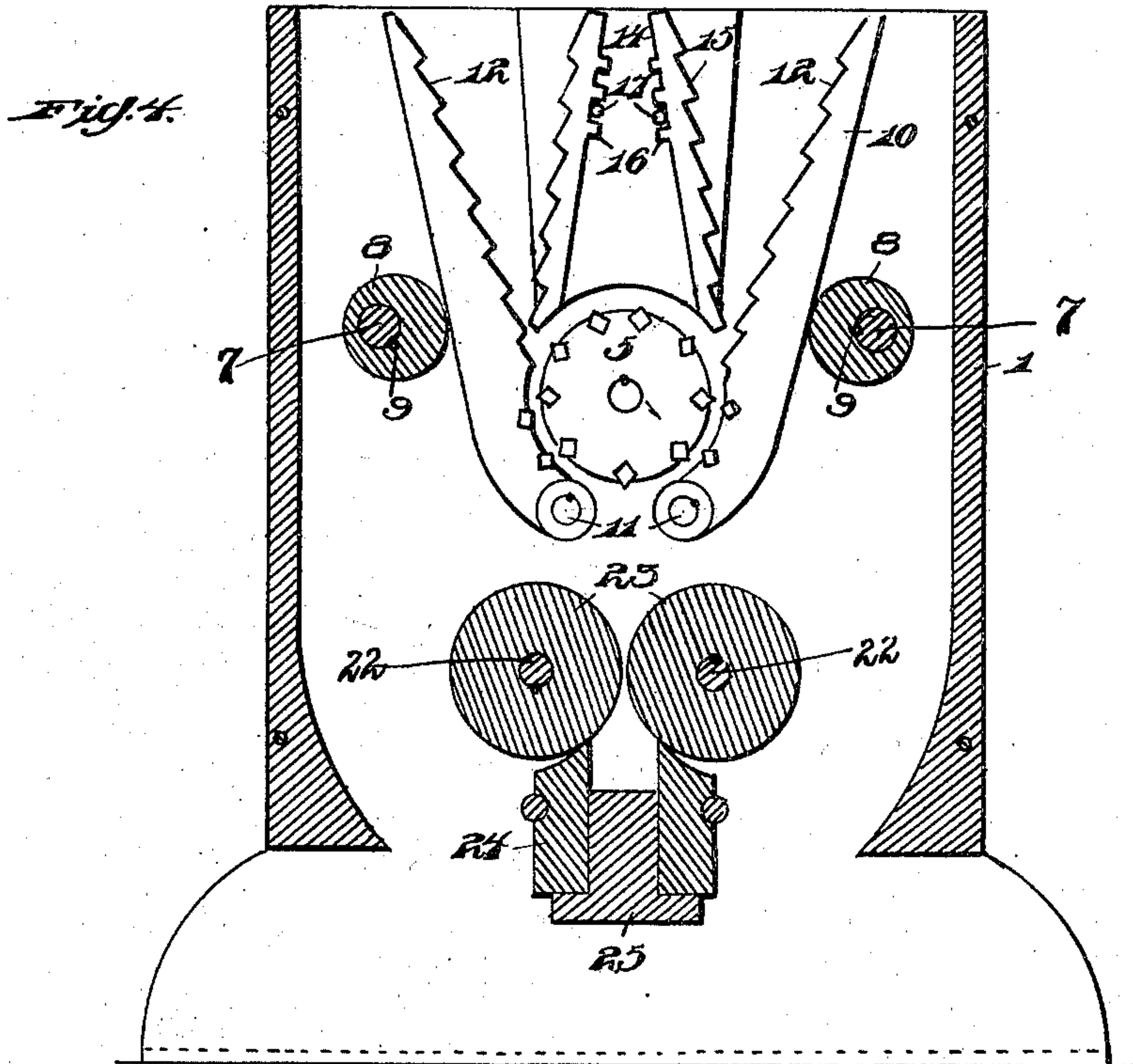
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# UNITED STATES PATENT OFFICE.

DANIEL C. ROBINSON, OF MONESSEN, PENNSYLVANIA.

## STONE OR ORE CRUSHER.

SPECIFICATION forming part of Letters Patent No. 708,495, dated September 2, 1902.

Application filed September 27, 1901. Serial No. 76,772. (No model.)

*To all whom it may concern:*

Be it known that I, DANIEL C. ROBINSON, a citizen of the United States of America, residing at Monessen, in the county of West-

moreland and State of Pennsylvania, have invented certain new and useful Improvements in Stone or Ore Crushers, of which the following is a specification, reference being had therein to the accompanying drawings.

10 This invention relates to certain new and useful improvements in stone, ore, and coke crushers, and relates more particularly to crushers in general.

The object of the present invention is to construct a crusher that may be regulated to crush ore or other substance to a fine granulation or to crush it to a coarser grain.

Another object of this invention is to provide a hopper having movable sides that will materially assist in crushing and feeding the substance to the breaking-rolls and to the crusher-rolls; furthermore, to provide movable sides in the hopper that will allow the substance to be fed into the crusher in a greater or smaller quantity, as desired.

A still further object of my invention is to construct a crusher that will be extremely simple in construction, strong, durable, comparatively inexpensive to manufacture, and highly efficient in its use; furthermore, one wherein the parts will not become deranged or out of order.

With the above and other objects in view the invention consists in the novel combination and arrangement of parts to be hereinafter more fully described, and specifically pointed out in the claims.

In describing the invention in detail reference is had to the accompanying drawings, forming a part of this specification, and wherein like numerals of reference indicate corresponding parts throughout the several views, in which—

Figure 1 is a side elevation of my improved crusher. Fig. 2 is an end elevation thereof. Fig. 3 is a top plan view thereof. Fig. 4 is a vertical sectional view of the same. Fig. 5 is a front elevation showing a modified form of gearing.

50 In the drawings the reference-numeral 1 indicates a casing which is rectangular in

form, to which is secured a driven pulley 2, mounted upon a shaft 3, extending through the casing 1 and carries on its other end a cog-wheel 4. Upon said shaft 3 in the casing is also mounted a break-down roll 5. The said small cog-wheel 4 meshes with larger cog-wheels 6 6, which cog-wheels are secured upon shafts 7 7. These cog-wheels and shafts are driven in opposite directions, and the said shafts carry eccentrics 8, which are keyed thereto, as shown at 9 9, and are adapted to operate against the movable sides 10 of the hopper, which are pivoted at 11 in the casing, the inner faces of said movable sides of the hopper forming jaws 12.

The reference-numeral 14 represents a central partition, to which are secured adjustable jaws 15, having formed on their inner faces projections 16, between which the pins 17, rigidly secured upon the partition, are arranged, serving to retain the jaws in proper position.

The reference-numeral 18 represents a pinion meshing with one or both of the cog-wheels 6, as shown in Figs. 1 and 5 of the drawings, said pinions being idlers and are mounted upon shafts 19, carrying on their outer ends cog-wheels 20 to increase the speed of the machine. To said cog-wheel or cog-wheels are secured cog-wheels 21 of equal size, which are mounted upon a shaft or shafts 22, carrying crushing-rolls 23.

The reference-numeral 24 indicates scrapers mounted in the bearing 25, said scrapers being adjustably secured therein and form an engagement with the under face of the crushing-rolls.

The operation of my improved crusher is as follows: The stone, ore, coke, or other material is placed in the divided hopper, and by the rotation of the shafts 7 the eccentrics 8 will tend to close or open the jaws forming the sides of the hopper, which operation will partially break the substance, and the latter will be conveyed by gravity downwardly between the jaws and the breaking-down roll, from which it will fall by gravity between the crusher-rolls and there conveyed into a suitable discharge.

The many advantages obtained by the use of my improved machine will be readily apparent from the foregoing description, taken

in connection with the accompanying drawings.

It will be noted that various changes may be made in the details of construction without departing from the general spirit of my invention.

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

10 1. In a crusher, a casing, a pair of suitably-pivoted sides forming a hopper in said casing, shafts mounted in said casing carrying eccentrics for engagement with said sides, means for operating said shafts in unison, a breaking-down roll secured between said sides of  
15 the hopper, and a pair of inclined stationary jaws above said breaking-down roll, said jaws carrying projections on their rear faces, and

pins carried by the casing whereby said jaws may be adjusted, substantially as described. 20

2. In a crusher, the combination of a casing, a hopper secured in said casing, movable sides forming jaws of said hopper, means to operate said jaws inwardly and outwardly, a breaking-down roll between the lower part of  
25 said jaws, crusher-rolls secured under said breaking-down roll, and means whereby said jaws and rolls are driven in unison, substantially as described.

In testimony whereof I affix my signature 30 in the presence of two witnesses.

DANIEL C. ROBINSON.

Witnesses:

JOHN NOLAND,  
E. E. POTTER.