No. 860,031. PATENTED JULY 16, 1907.

W. L. JONES.

CONCRETE MIXER.

APPLICATION FILED SEPT. 17, 1906.

2 SHEETS—SHEET 1.

Fig. 2.

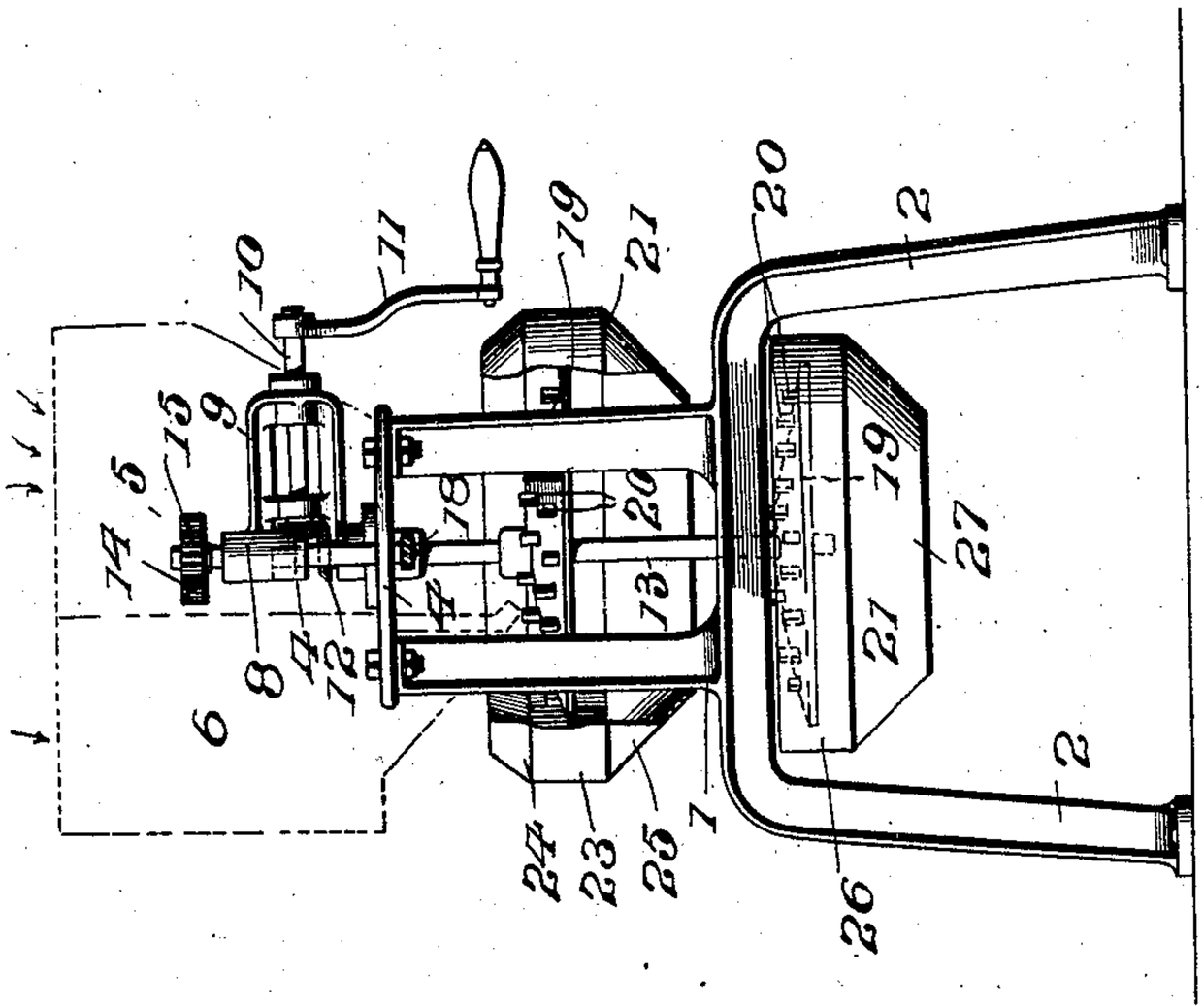
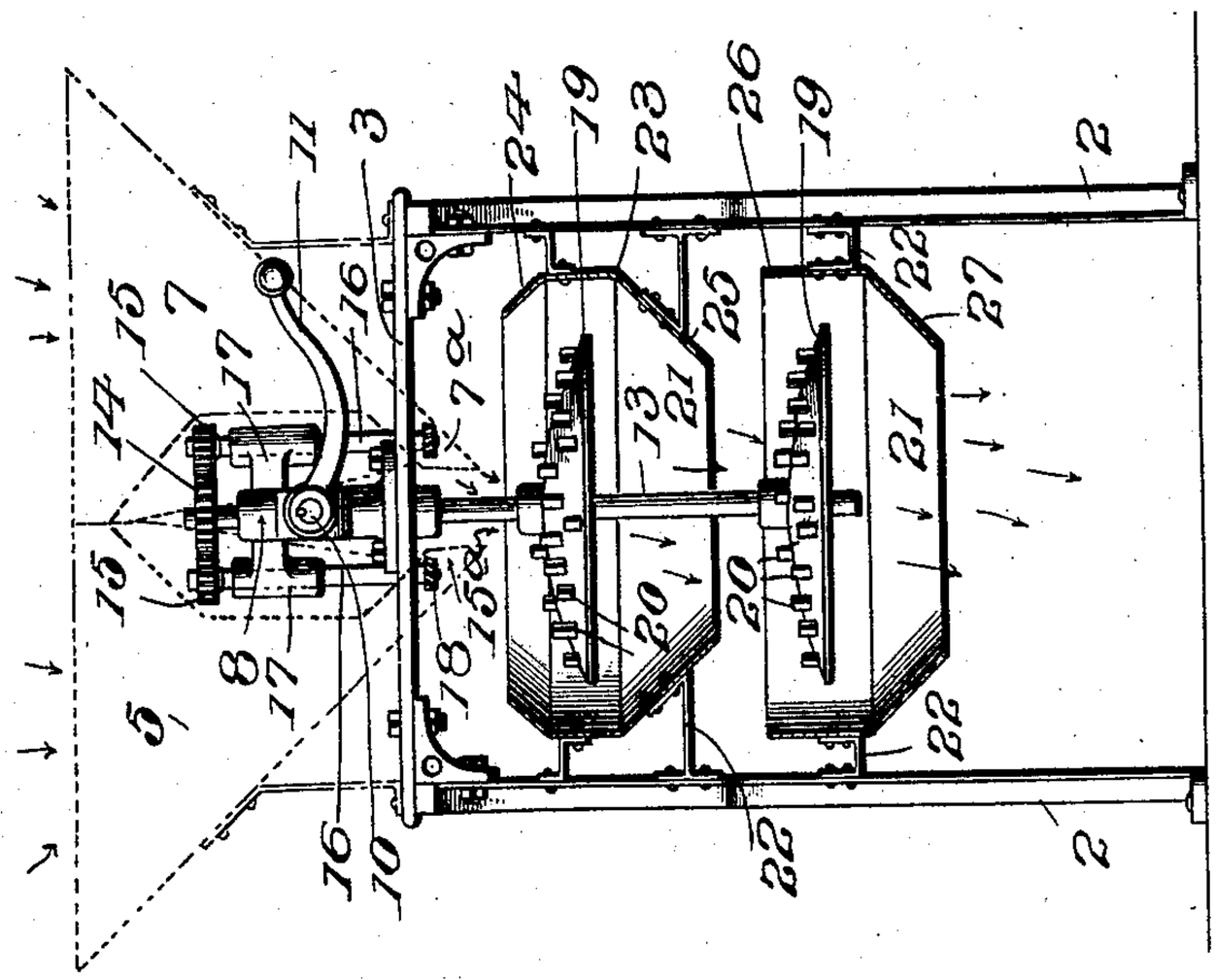


Fig. 1.



Witnesses:

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2 SHEETS—SHEET 2.

Fig. 3.

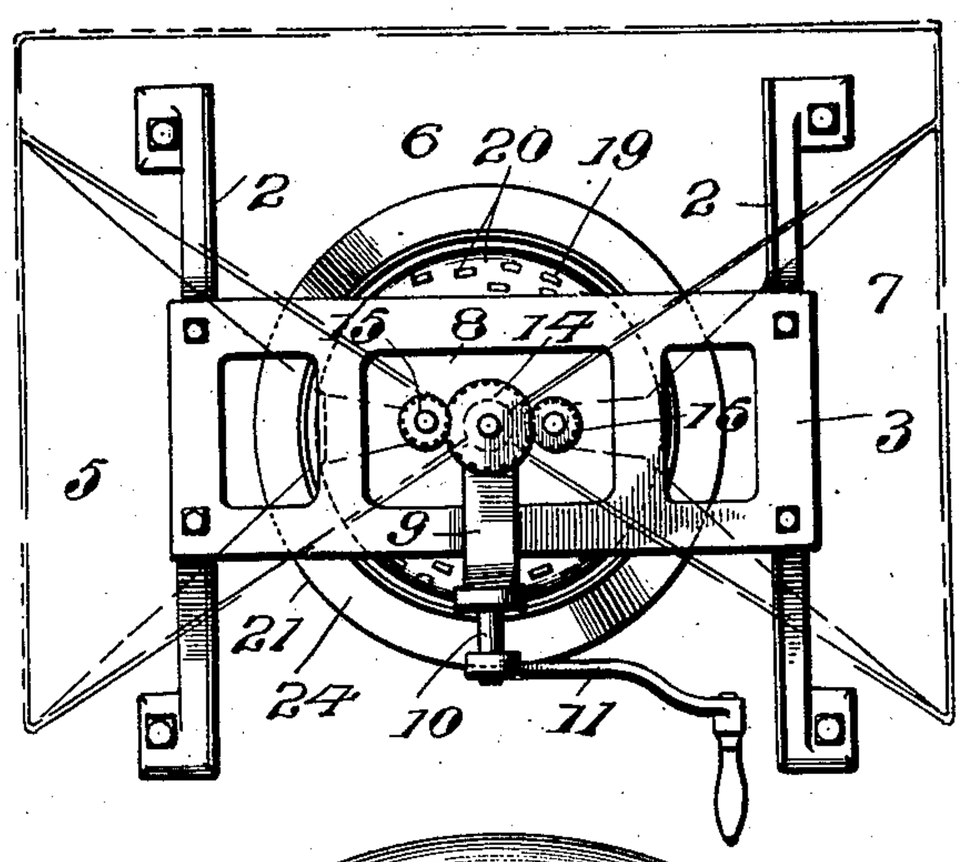


Fig. 4.

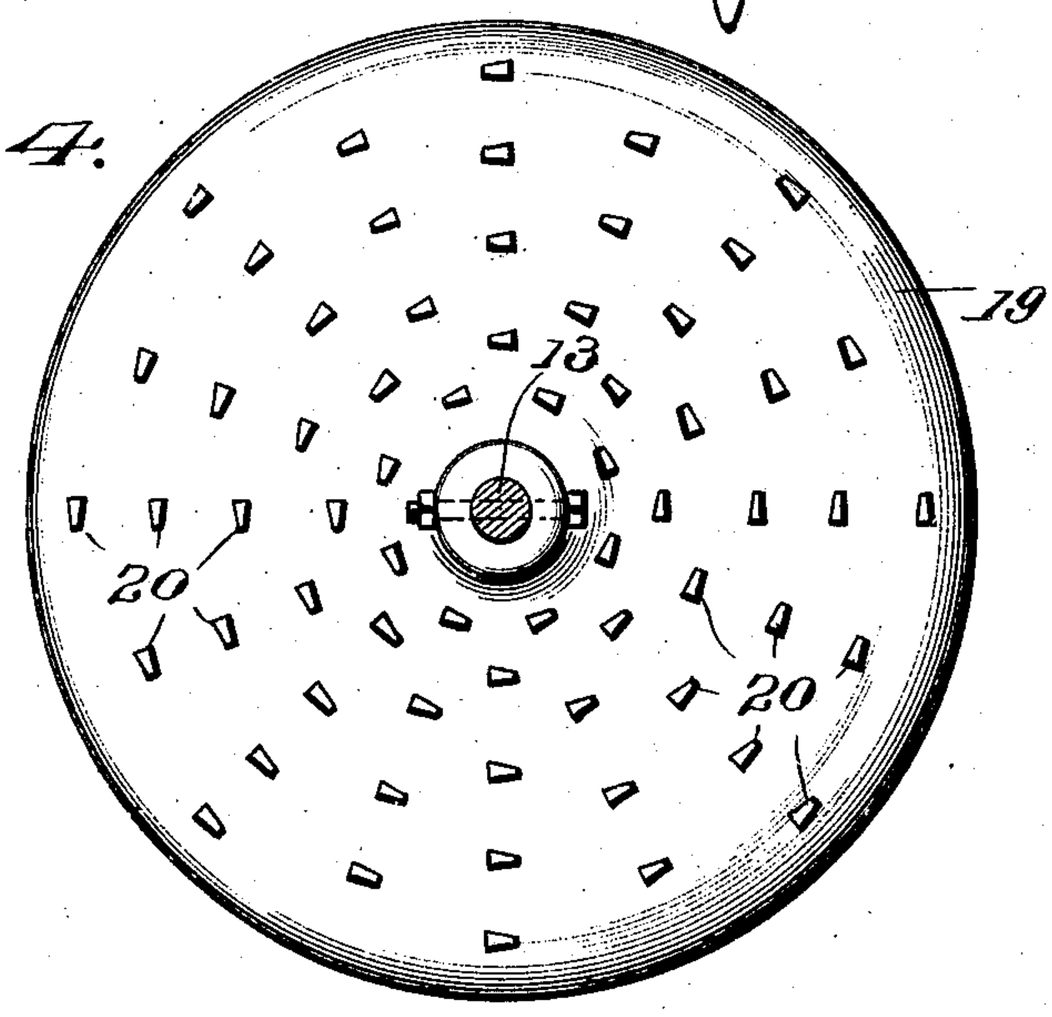
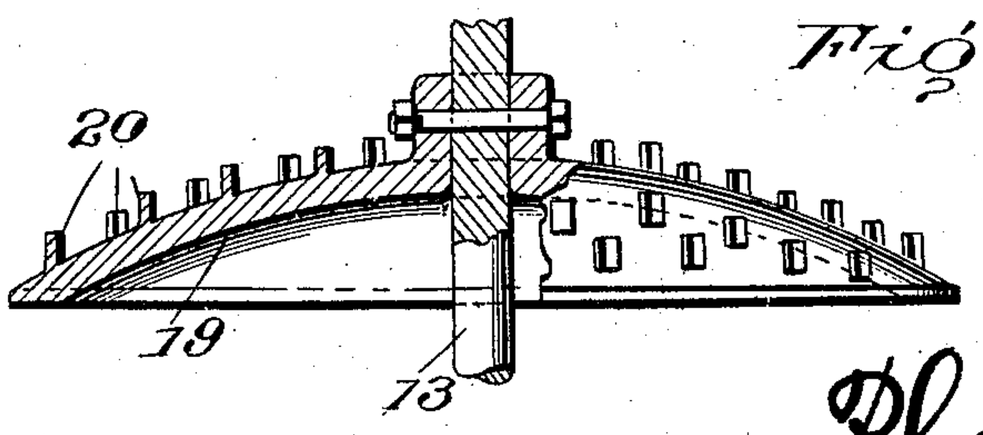


Fig. 5.



Witnesses

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UNITED STATES PATENT OFFICE.

WALTER L. JONES, OF STEVENVILLE, MICHIGAN.

CONCRETE-MIXER.

No. 860,031. Specification of Letters Patent. Patented July 16, 1907.

Application filed September 17, 1906. Serial No. 334,900.

To all whom it may concern:

Be it known that I, WALTER L. JONES, a citizen of the United States, residing at Stevenville, in the county of Berrien and State of Michigan, have invented certain new and useful Improvements in Concrete-Mixers, of which the following is a specification.

The object of my invention is to provide a concrete mixer of simple construction which will be durable and efficient in operation to effectively cut and commingle the desired materials such as gravel and cement and thoroughly mix them with water, the said ingredients being fed by means of mechanism actuated simultaneously with the mixing mechanism, and from a common shaft, down upon a series of two or more superposed disks provided on their upper surfaces with cutting projections of peculiar shape and designed to revolve in a horizontal plane so as to thoroughly mix together the ingredients by the disks in succession until the lowermost disk is reached and the concrete in a thoroughly mixed condition is deposited in the mortar box or similar receptacle.

The invention consists in certain constructions, arrangements and combinations of the parts hereinafter described and particularly pointed out in the appended claims.

For a full description of the invention and the merits thereof and also to acquire a knowledge of the details of construction of the means for effecting the result, reference is to be had to the following description and accompanying drawings, in which:

Figure 1 is a side elevation of my improved mixing machine. Fig. 2 is a similar view at right angles to Fig. 1. Fig. 3 is a top plan view. Figs. 4 and 5 are top plan and edge views respectively of one of the mixing disks.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings by the same reference characters.

The frame work of my improved mixing machine, comprises suitable castings 1 supported in an elevated position by means of legs 2, and a cross beam or supporting bar 3 connecting the castings or standards 1 at their upper ends. All of these parts are preferably of cast iron or steel and are rigidly bolted together and braced as shown.

5, 6 and 7 designate hoppers for gravel or sand, water and cement, respectively, said hoppers being supported above the cross beam 3 with their lower discharge end extending below said beam a short distance as illustrated best in Fig. 1. The discharge ends of the three hoppers are constructed as shown and all of them point towards the center of the machine. Mounted upon the cross bar 3 is a casting 8 which is provided with a lateral extension 9 formed with bearings in which the horizontally extending driving shaft 10 is journaled, said shaft being preferably provided with a crank 11 for operating it, although other means may be provided for this purpose. The inner end of the driving shaft 10 carries a miter pinion 4 meshing with a similar pinion 12 on a vertically extending mixing shaft 13. This shaft is journaled in the main portion of the bracket or casting 8 and on its upper end it is provided with a master gear 14 meshing with two pinions 15. Each of these two pinions is held upon the upper end of a feeding shaft 16 and said shafts 16 extend vertically and are journaled to turn about their longitudinal axes in side extensions 17 of the bracket 8. The lower ends of these feeding shafts 16 extend into the contracted discharge ends 5^a and 7^a of the gravel or sand and cement hoppers, as shown best in Fig. 1, and they are provided at their lower ends and within said contracted discharge ends of the hoppers with revoluble feeding devices 18.

The mixing shaft 13 is sustained by a suitable bearing in the beam 3 and extends below said beam down into the framework of the machine, where it is provided with two or more mixing disks 17 spaced from each other in vertical alinement. Each disk 19 is convex on its upper surface and is provided on said surface with a series of comparatively closely grouped short projections or teeth 20, which are prismatic or substantially triangular in horizontal section and are arranged preferably with their apices pointing toward the direction of revolution of the disks.

Each of the disks 19 is partially inclosed by a drum 21 supported rigidly within the framework by means of arms 22 and the upper one of these drums preferably comprises an intermediate cylindrical portion 23, an upper contracted portion 24 and a lower contracted portion 25. The lower drum preferably comprises a cylindrical upper portion 26 and a contracted lower portion 22 below which the mortar box or similar receptacle, (not shown), is to be placed.

In the practical operation of my improved mixing machine, the three hoppers are filled with their respective ingredients for the concrete, the water hopper being preferably provided with any suitable valve or faucet to control the flow of water. It will be seen that all of the discharge ends of the hoppers are located in juxtaposition to the upper surface of the uppermost mixing disk near the center thereof, hence, as the actuating shaft 10 is turned, it is manifest that the feeding shafts 16 will be turned through the instrumentality of the master gear 14 and pinions 15 and the materials will be fed on to the upper surface of the upper disk while the simultaneous rotation of the mixing shaft 13 will cause these disks 19 to revolve in a horizontal plane and the materials will be effectively cut and mixed by the triangular teeth 20, the materials being fed from one disk by gravity to the disk below and

being thrown out by the centrifugal action towards the wheels of the drums, finally passing in a thoroughly commingled condition to the mortar box or other receptacle.

From the foregoing description in connection with the accompanying drawings, it will be seen that I have provided a very simple and efficient construction of concrete mixer which may be easily operated by one attendant to thoroughly mix the materials as they are fed from the hoppers, the feeding mechanism being actuated from the mixing shaft directly and both of the feeding shafts and mixing shaft being driven from the one actuating shaft 10. The peculiar formation of the disks and their teeth will cause a thorough mixture to be effected, and this action will be assisted by the centrifugal action of the disks and their arrangement, as the materials will be thrown outwardly from the surface of the upper disk against the walls of the upper drum and thence directed by the lower contracted end of said drum, down upon the next disk below and towards the center thereof to again receive the mixing and cutting action before finally passing out of the machine.

Having thus described the invention, what is claimed as new is:

1. In a mixing machine, the combination of a mixing shaft, a series of superposed spaced apart mixing disks mounted on said shaft and arranged to revolve in a horizontal plane, the upper surface of each disk being provided with teeth, means for turning said shaft, means for feeding material on to the upper face of the upper disk, and drums surrounding each of said disks, the drum on the upper disk being provided with upper and lower contracted portions, the lower portion being adapted to direct the material towards the center of the next disk below.

2. In a mixing machine, the combination of a mixing shaft, mixing disks mounted on said shaft, one above the other in spaced apart relation, drums surrounding said disks, hoppers supported above the uppermost disk and provided with contracted discharge ends pointing towards the center of the upper disk, revolving feed devices working in the discharge end of said hoppers, shafts on which said devices are carried, a gearing connection between the mixing shaft and said feed shafts, and means for driving said mixing shaft.

3. A mixing machine, comprising a framework, a vertically extending mixing shaft mounted in said framework, a series of superposed spaced apart mixing disks mounted on said shaft and mounted to revolve on a horizontal plane, the upper surface of each disk being provided with a plurality of teeth which are prismatic in horizontal section and are disposed with their apices all pointing in the same direction, means for turning said shaft, means for feeding material on to the upper face of the upper disk and at the center thereof, and the drums surrounding each of said disks, the drum around the upper disk being provided with upper and lower contracted portions, the lower portion being adapted to direct the material from said disk towards the center of the next disk below.

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

WALTER L. JONES. [L. S.]

Witnesses:
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