

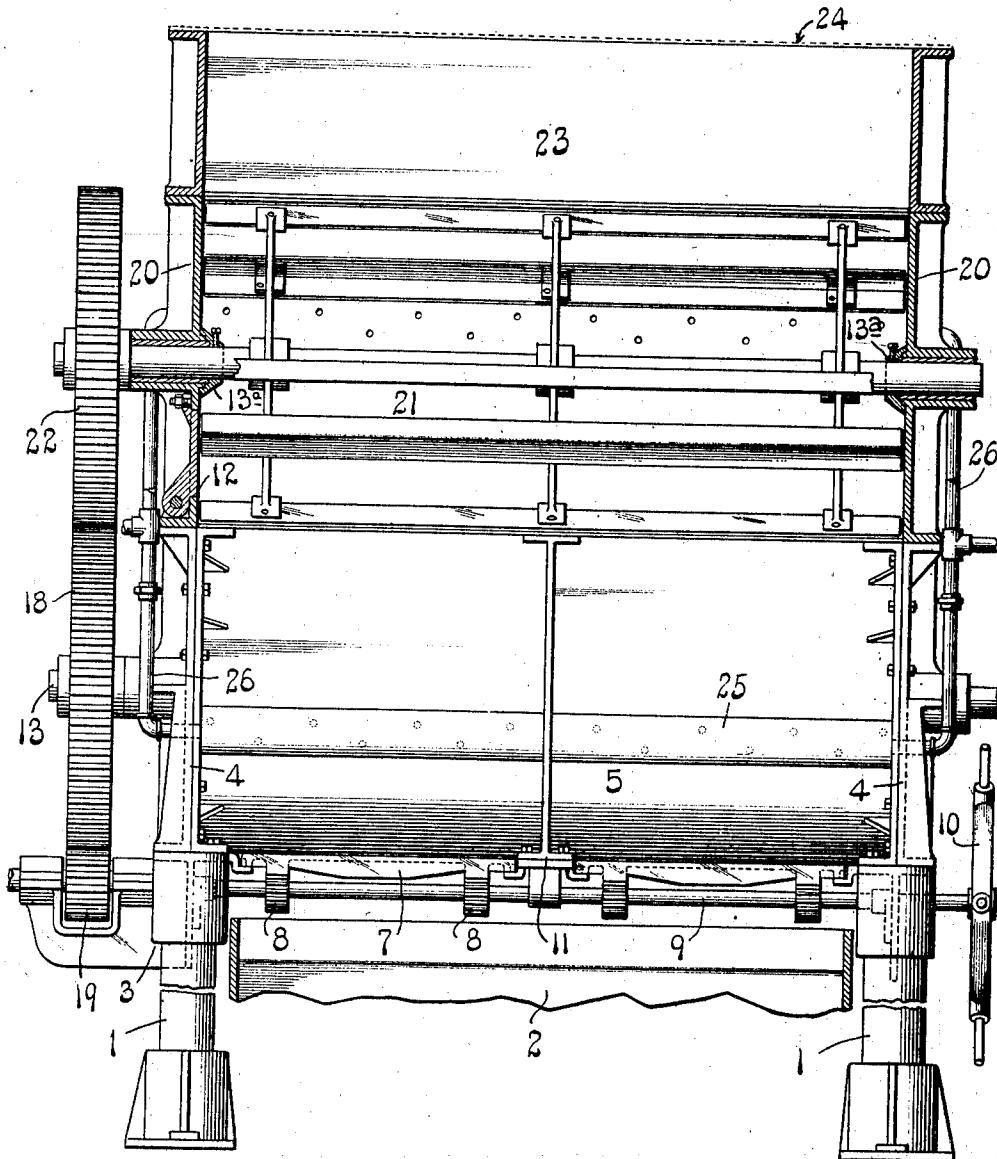
G. KOMAREK.
MIXING APPARATUS FOR BRIQUET MACHINES.
APPLICATION FILED FEB. 9, 1909.

959,062.

Patented May 24, 1910.

2 SHEETS—SHEET 1.

Fig. 1.



Witnesses
A. J. McCauley
Lena Clark.

Inventor:
Gustav Komarek
by J. R. Cornwall
Atty.

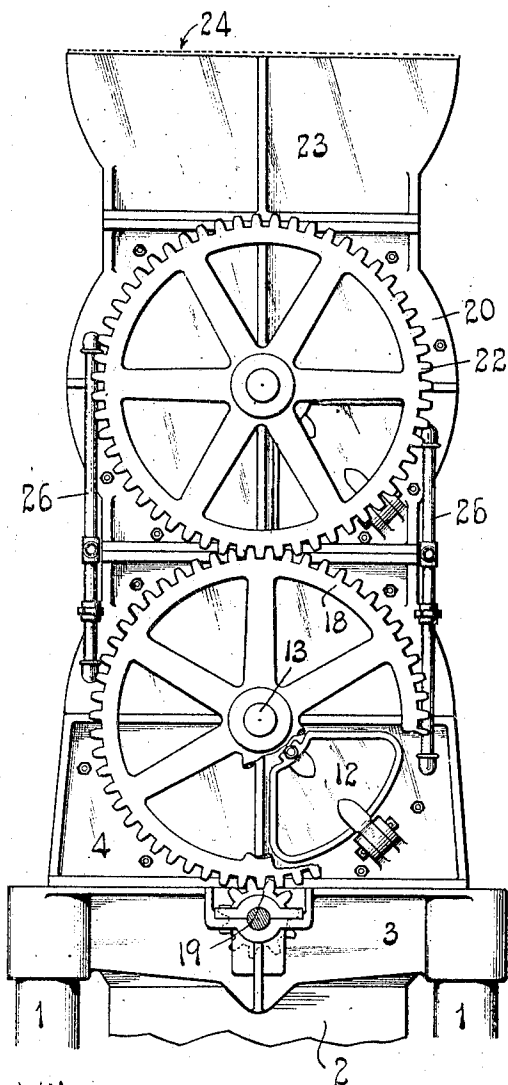
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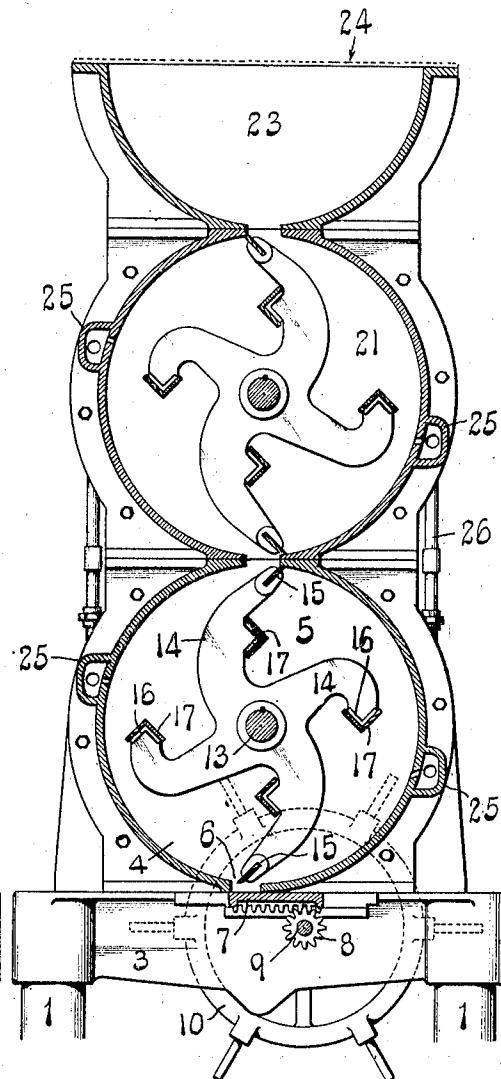
2 SHEETS—SHEET 2.

Fig. 2.



Witnesses
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Fig. 3.



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UNITED STATES PATENT OFFICE.

GUSTAV KOMAREK, OF ST. LOUIS, MISSOURI.

MIXING APPARATUS FOR BRIQUET-MACHINES.

959,062.

Specification of Letters Patent.

Patented May 24, 1910.

Application filed February 9, 1909. Serial No. 476,889.

To all whom it may concern:

Be it known that I, GUSTAV KOMAREK, a citizen of the United States, residing at St. Louis, Missouri, have invented a certain new and useful Improvement in Mixing Apparatus for Briquet-Machines, of which the following is a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a side elevational view, partly in section, of my improved apparatus. Fig. 2 is an end elevational view. Fig. 3 is a vertical cross sectional view.

This invention relates to a new and useful improvement in mixing apparatus for briquet machines, the object being to construct a machine of the character described which is simple, cheap and durable, and one which can be arranged in position to feed the material directly into the briquet machine.

The briquet machine with which my present improvement is designed to cooperate is illustrated in United States application filed by me December 21st, 1908, serially numbered 468,494.

In the drawings, 1 indicates posts for supporting the apparatus in position above the hopper 2 of the briquet machine.

3 are castings mounted upon the upper ends of posts 1 and forming the supports for side castings 4, constituting heads of the lower mixing cylinder.

5 indicates the lower mixing cylinder in the form of two halves which are parted vertically to provide inlet and outlet openings, said halves having flanges for connection to the heads 4. Under the outlet opening 6 is a gate 7 having gear teeth on its under side with which mesh pinions 8, mounted on a shaft 9, said shaft extending outwardly beyond the end casting and being provided with an end wheel 10. The shaft is located to one side of the exit opening 6 which is divided at about the center of the cylinder by a bracket extension 11 forming a support for the shaft 9 and the two gates 7 arranged on each side thereof. The gate 7 may be reinforced by longitudinally disposed flanges. Access may be had to the cylinder through a manhole 12 (see Fig. 2).

13 indicates a shaft journaled in the head castings 4, said shaft carrying arms 14

within the cylinder in the outer ends of which are mounted angled flights constituting scraping blades 15 traveling in a path close to the inner face of the cylinder. These arms are also provided with rectangular shelf-like extensions 16, to which are secured angle bars 17, each of said angle bars being located at different distances from the shaft 13 so that they travel in different paths. One end of shaft 13 is provided with a gear 18, meshing with a pinion 19. The shaft of said pinion 19 is connected with suitable power, as by means of a belt and pulley, not shown. In order to protect the journal bearings of shaft 13, I arrange a collar 13^a thereon, adjacent the head castings (see shaft in the upper cylinder, Fig. 1), which collars are held in position by suitable screws, as shown.

20 indicates head castings bolted to the head castings 4, between which are arranged the two half castings of the upper cylinder 21. This upper cylinder contains agitating and mixing arms and blades similar to the lower cylinder, which are driven by means of an external gear 22 meshing with the gear 18. It is believed to be unnecessary to describe this upper cylinder in detail, as the description of the lower cylinder and its parts applies hereto. These cylinders and their mixing and agitating devices can be built up, one upon the other, as many as desired, but I have found that two will answer in ordinary practice.

Above the upper cylinder is arranged a hopper 23 which has an opening throughout its length registering with the inward opening of the upper cylinder. If desired, this feed hopper may have cover plate 24 secured thereto, which cover plate 24 is, of course, cut away to provide an opening for the introduction of the material to be treated and mixed. The object of this cover plate is to retain the heat and steam in the apparatus.

25 indicates steam chambers arranged on each side of the upper and lower cylinders, into which steam is let by means of pipes 26. Perforations connect these steam chambers with the interior of the cylinders.

In operation, the material to be treated and mixed preparatory to being formed into briquets, is fed into the hopper whence it falls into the opening of the upper cylinder and is there subjected to the action of steam and at the same time is thoroughly mixed by the revolving agitators. From the

upper cylinder, the material falls into the lower cylinder where the mixing operation is continued in the presence of steam. From the lower cylinder, the now thoroughly mixed and steam treated mass falls through the discharge openings 7 and into the hopper 2 of the briquet machine. Various ingredients may be used in preparing the mass for the briquet machine but these form no part of my present invention.

I am aware that minor changes in the construction and arrangement of the several parts of my apparatus may be made and substituted for those herein shown and described, without in the least departing from the nature and principle of my invention.

Having thus described my invention, what I claim is:

1. In an apparatus of the character described, a series of superposed cylinders connected by communicating openings extending substantially the entire length thereof and revolving agitators in said cylinders.

2. In an apparatus of the character described, two superposed cylinders connected by a communicating opening extending substantially the entire length thereof and oppositely revolving agitators in said cylinders.

3. In an apparatus of the character described, a plurality of superposed cylinders connected by a communicating opening extending substantially the entire length thereof, agitators in said cylinders and steam chambers arranged along the sides of said cylinders and connected with the interior thereof by openings.

4. In an apparatus of the character described, the combination with head castings, two separated semi-cylindrical castings forming a cylinder, a shaft mounted in the head castings and agitators mounted on said shaft, one of said agitators traveling in a path adjacent said semi-cylindrical castings and across the separating space between them.

5. In an apparatus of the character described, the combination with head castings, semi-cylindrical castings arranged therebetween, and spaced apart to form inlet and

outlet openings along their entire length, steam chambers in the side walls of said cylinder castings, and gates for closing the outlet opening.

6. In an apparatus of the character described, the combination with two superposed cylinders connected by a communicating opening and extending the entire length thereof, means for feeding material into the upper cylinder, oppositely rotating agitators in said cylinders, gates for closing the discharge opening in said lower cylinder and means for opening and closing said gates.

7. In an apparatus of the character described, the combination with superposed cylinders, a hopper arranged above the upper cylinder, said cylinders communicating with each other by openings extending the entire length thereof, and gates for closing the discharge openings of the lower cylinder.

8. In an apparatus of the character described, the combination with posts, head castings secured on said posts, superposed cylinders communicating with each other by openings extending their entire length, agitators in said cylinders, said agitators being arranged at different distances from their axes of rotation, the outermost agitator traveling in a path adjacent the walls of the cylinders, and sweeping said openings, and gates controlling the discharge opening from the lower cylinder; substantially as described.

9. In an apparatus of the character described, a mixing cylinder and an agitator therein, said agitator comprising spider arms mounted on a suitable shaft, scraping blades at the ends of the arms traveling adjacent cylinder, and angled flights carried by said arms at different distances from the axis of rotation.

In testimony whereof I hereunto affix my signature in the presence of two witnesses, this 5th day of February, 1909.

GUSTAV KOMAREK.

Witnesses:

F. R. CORNWALL,
LEONORE CLARK.