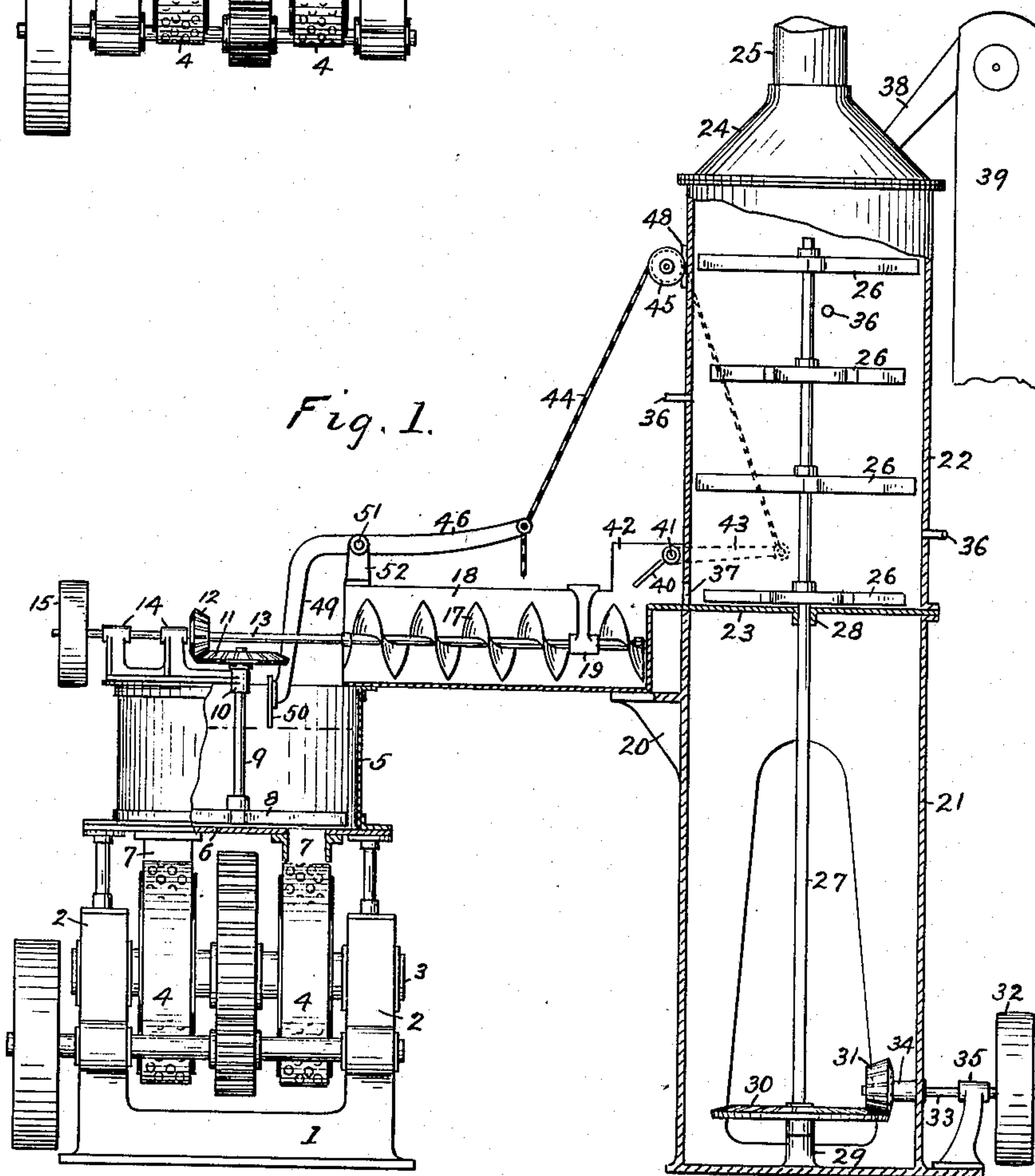
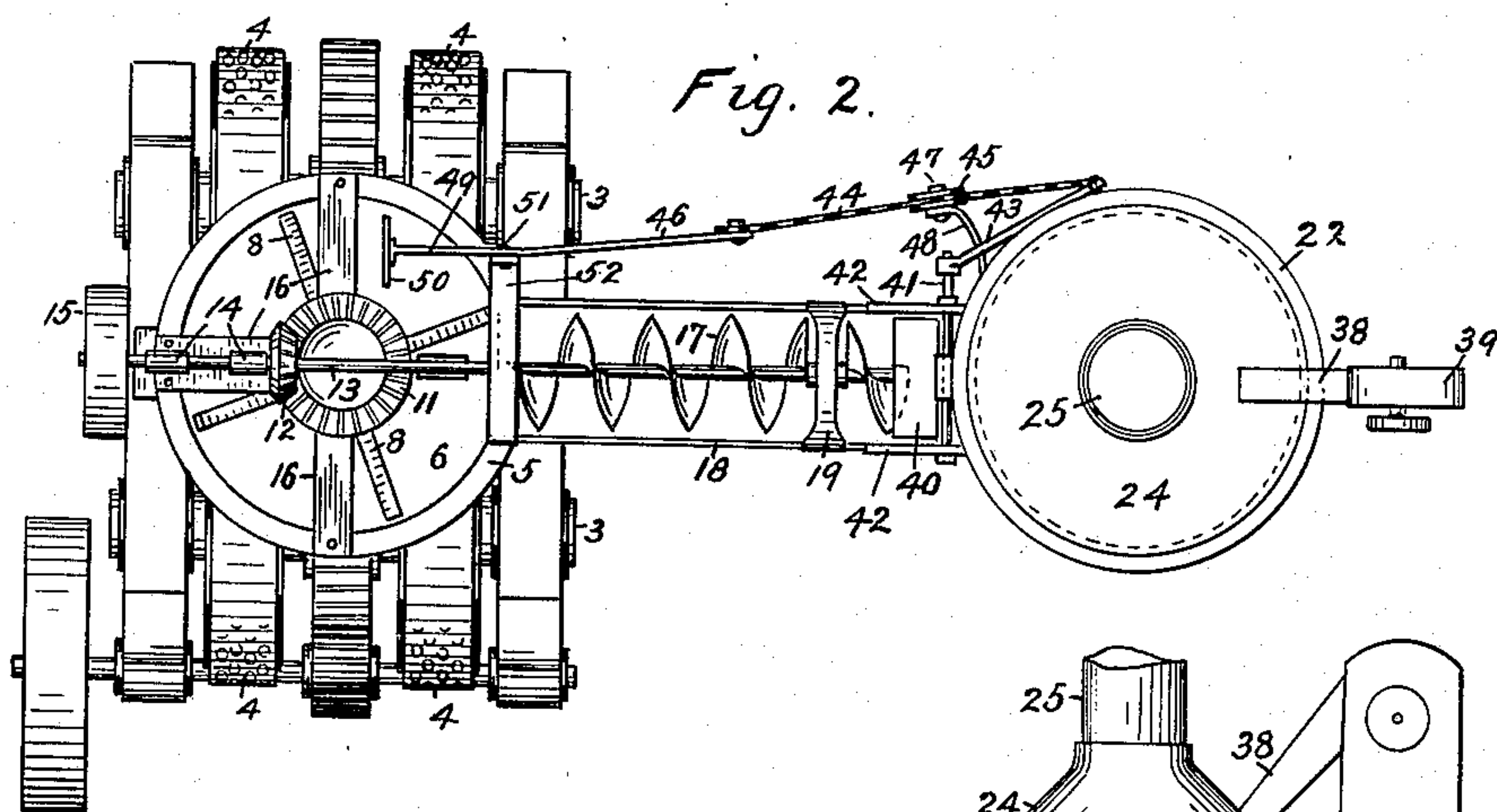


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FUEL BRIQUET MACHINERY.
APPLICATION FILED AUG. 29, 1908.

920,838.

Patented May 4, 1909.



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UNITED STATES PATENT OFFICE.

ROBERT DEVILLERS, OF NEW YORK, N. Y.

FUEL-BRIQUET MACHINERY.

No. 920,838.

Specification of Letters Patent.

Patented May 4, 1909.

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To all whom it may concern:

Be it known that I, ROBERT DEVILLERS, a subject of the King of Belgium, and resident of New York city, in the county of New York and State of New York, have invented certain new and useful Improvements in Fuel-Briquet Machinery, of which the following is a specification.

The invention relates to improvements in machinery for the manufacture of fuel briquets in which finely divided coal or other fuel is thoroughly mixed with a cementing material and the conglomerate or coal-paste delivered to a molding-press, wherein it is compressed in molds of convenient shape and size; and the object of the invention is to provide means for more effectually mixing the material and to automatically control its delivery to the molds of the press.

In describing the invention in detail, reference is had to the accompanying drawings, forming a part of this specification, and wherein like characters of reference are used to designate like parts throughout the several views, and in which;—

Figure 1 is a side elevation, partially in section, of the mechanism embodying the invention and including a mixer and molding-press and feeding means therebetween for automatically delivering the mixed material to the molds of the press; and Fig. 2 is a ground plan of the same.

Numeral 1 designates the base of a conventional molding-press, having uprights 2, in which are journaled a pair of shafts 3, carrying molding-cylinders 4, and provided with suitable gearing to rotate the opposing cylinders with their upper surfaces leading toward each other to receive the material to be compressed. Mounted upon the uprights is a feed-chamber 5, provided with a floor or bottom 6, in which are provided openings communicating with the spouts 7, for directing the material between the rotating molding-cylinders. Within the feed-chambers is rotatably mounted an agitator 8, formed with cross arms, and fixed upon the lower end of a vertical shaft 9, mounted in bearing 10 and rotated by the bevel gear 11 and pinion 12, the latter being fixed upon the horizontal shaft 13, which is mounted in bearings 14 and provided with the driving-pulley 15, the bearings 10 and 14 being supported upon the top of the feed-chamber by

the integrally-formed arms 16. Secured upon the shaft 13 is the feed-scroll 17, adapted to rotate within the housing or trough 18, upon which latter is mounted the bearing 19 for additionally supporting the feed-scroll, which is divided thereby in sections on opposite sides thereof. The trough for the feed-scroll is supported at its delivery end upon the top of the feed-chamber and its opposite end is carried by a bracket 20 formed on the base of the mixer.

21 designates the mixer-base or standard, upon which is mounted the cylindrical mixing-chamber 22, having the floor or bottom 23 and the hood 24, the latter terminating in a vent-pipe 25, of sufficient height to induce a slight draft therein. Within the mixing-cylinder are mounted a series of mixing-blades 26, fixed upon a central vertical shaft 27, which is rotatably mounted in an upper bearing 28, formed on the floor of the mixer, and a lower bearing 29, integral with the mixer-base. A bevel gear 30, fixed upon the shaft 27, and a pinion 31, engaging the bevel gear, imparts motion to the mixer-shaft 27 by means of the driving-pulley 32, the pinion and driving-pulley being fixed upon the short shaft 33, rotatably mounted in the bearings 34 and 35. Steam-pipes 36 lead at various levels to the interior of the mixer through the side walls thereof and supply steam at considerable pressure, which mingles with and sufficiently heats the contained material to melt the cementing ingredients thereof, preferably containing pitch or tar, and insuring complete intermixture with the coal by the action of the rotating mixer-blades 26. The intermixed material falls by gravity to the floor of the mixer and is discharged as a pasty mass through the outlet 37, the excess steam escaping through the vent-pipe 25. Extending through the hood of the mixer is a charging-pipe 38, which leads from the elevator 39, or other source of supply, by means of which the raw material may be fed in suitable proportions to the mixing-cylinder.

Exteriorly of the mixing-cylinder and adjacent the outlet thereof is a swing-valve 40, which is fixed upon a stem 41, mounted to turn in the side plates 42, formed in connection with the sides of the trough 18. Upon the valve-stem is fixed an arm 43, to the end of which is secured one end of a flexible band

or chain 44, the opposite end of said chain being passed over a direction-wheel 45 and secured to one end of a double-arm lever 46, the direction-wheel being rotatably mounted
 5 upon a stud 47, fixed in the bracket 48, which latter is carried by the body of the mixer. The lever 46 has a downwardly-bent opposite arm 49, provided with a terminal contact-plate 50, extending into and being
 10 adapted to rise and fall within the feed-chamber 5 by its oscillatory movement about its pivotally-supporting stud 51, which is fixed in the bracket 52, the latter being mounted upon the trough 18.

15 The discharge of the mixed material through the outlet 37 of the mixing-chamber 22 is regulated by the swing-valve 40, which permits the delivery of the required quantity to the feed-scroll 17, which in turn conveys
 20 it to the feed-chamber 5, wherein it is mechanically urged through the mold-spouts 7 by the adjacently-disposed rotating agitator-arms 8 which provide a continuous supply thereto and serve to move and level the ex-
 25 cess mass remaining within the feed-chamber. The upper surface of this material is automatically held at a substantially uniform level by its engagement with the contact-plate 50, which is elevated by the action
 30 of the material if the latter tends to rise in the feed-chamber, which motion is communicated through the double-arm lever to the chain 44, exerting a pull on the latter which tends to close valve 40 and thereby partially
 35 arrest the discharge of the material from the mixer. By the reversal of the actuating parts, the valve is automatically opened to increase the supply of material if its level should tend to fall within the feed-chamber.
 40 An adjustment of the valve with relation to its actuating contact-plate 50 may be obtained by varying the connection-length of chain 44 at its junction with the lever-arm 46 which adjustment being made to suit the
 45 character of the material treated, an automatic and continuous feed for the molding-press is assured.

The mixing-blades 26 are constructed with cross arms of the same general form as that of
 50 the agitator 9 of the feed-chamber, and the lower blade on the mixer-shaft 27 being disposed adjacent the floor of the mixer and opposite the outlet 37 assists by its rotation the delivery of the material from the mixer when
 55 the valve 40 is opened, which valve in connection with the side plates 42 and the adjacent extension of the mixer-floor 23 forms an exterior chamber in which the material may partially be arrested against the action
 60 of the rotating blade.

It is to be understood that while I illustrate and describe the preferred embodiment of the invention, it is susceptible of various changes as regards its form, proportions, de-
 65 tail construction, and arrangement of parts

without departing from the essential scope and spirit or sacrificing any of the advantages of the invention.

What I claim as my invention and desire to secure by Letters Patent, is:—

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1. In fuel-briquet mechanism, the combination of a molding-press, a feed-chamber therefor, a fuel-paste mixer having a valve-controlled outlet communicating with the feed-chamber, means for agitating the con-
 75 tents of the feed-chamber, and means operated by said movable contents for actuating the outlet-valve of the mixer.

2. In fuel-briquet mechanism, the combination of a molding-press, a feed-chamber
 80 therefor, a fuel-paste mixer having a valve-controlled outlet communicating with the feed-chamber, agitator-arms rotatable in the feed-chamber for moving the contents thereof, and means operated by said movable con-
 85 tents for actuating the outlet-valve of the mixer.

3. In fuel-briquet mechanism, the combination of a molding-press, a feed-chamber
 90 therefor, a fuel-paste mixer having a valve-controlled outlet communicating with the feed-chamber, agitator-arms rotatable in the feed-chamber, a contact-plate secured to a pivotal lever-arm and adapted for vertical
 95 movement within said feed-chamber, and a flexible connection between the lever-arm and the outlet valve of the mixer.

4. In fuel-briquet mechanism, the combination of a molding-press, a feed-chamber
 100 therefor, a fuel-paste mixer having a valve-controlled outlet, a scroll conveyer between the feed-chamber and the outlet of the mixer, agitator-arms rotatable in the feed-chamber for moving the contents thereof, and means
 105 operated by said movable contents for actuating the outlet-valve of the mixer.

5. In fuel-briquet mechanism, the combination of a molding-press, a fuel-paste mixer
 110 having a valve-controlled outlet, feeding mechanism between the outlet of the mixer and the molding-press including means for agitating the material, and means actuated by the agitated material for operating the
 115 outlet-valve of the mixer to arrest the feed of the material.

6. In fuel-briquet mechanism, the combination with a molding-press, of a fuel-paste
 120 mixer having a valve-controlled outlet and provided with rotatable mixer-blades, a charging-pipe leading to the mixer, a vent-pipe leading from said mixer, steam-pipes leading to the interior of said mixer, feeding
 125 mechanism between the outlet of the mixer and the molding-press including means for agitating the material, and means actuated by the agitated material for operating the
 130 outlet-valve of the mixer to arrest the feed of the material.

7. In fuel-briquet mechanism including a molding-press and a fuel-paste mixer pro-

vided with a valve-controlled discharge-outlet, feeding mechanism leading from the discharge-outlet of the mixer to the molding-press and comprising a feed-chamber disposed adjacent said press and having a feed-spout leading thereto, an agitating device in said feed-chamber, a feed-connection leading from the discharge-outlet of the mixer to the feed-chamber, a movable arm supported adjacent the feed-chamber and having a contact-plate adapted to engage the contents of said chamber, and connecting means operated by the movable arm for actuating the controlling-valve of the discharge-outlet of said mixer.

8. In fuel-briquet mechanism including a molding-press and a fuel-paste mixer provided with a valve-controlled discharge-outlet, feeding mechanism leading from the discharge-outlet of the mixer to the molding-

press and comprising a feed-chamber disposed adjacent said molding-press, a feed-spout leading from the feed-chamber to the molds of said press, an agitating device in said feed-chamber, a feed-trough leading from the discharge-outlet of the mixer to the feed-chamber, a scroll rotatable in said feed-trough, a movable arm supported adjacent the feed-chamber and having a contact-plate adapted to engage the contents of said chamber, and connecting means operated by the movable arm for actuating the controlling-valve of the discharge-outlet of said mixer.

Signed at New York in the county of New York and State of New York this twenty-sixth day of August A. D. 1908.

ROBERT DEVILLERS.

Witnesses:

F. MARTELL,
C. R. GOODNOW.