

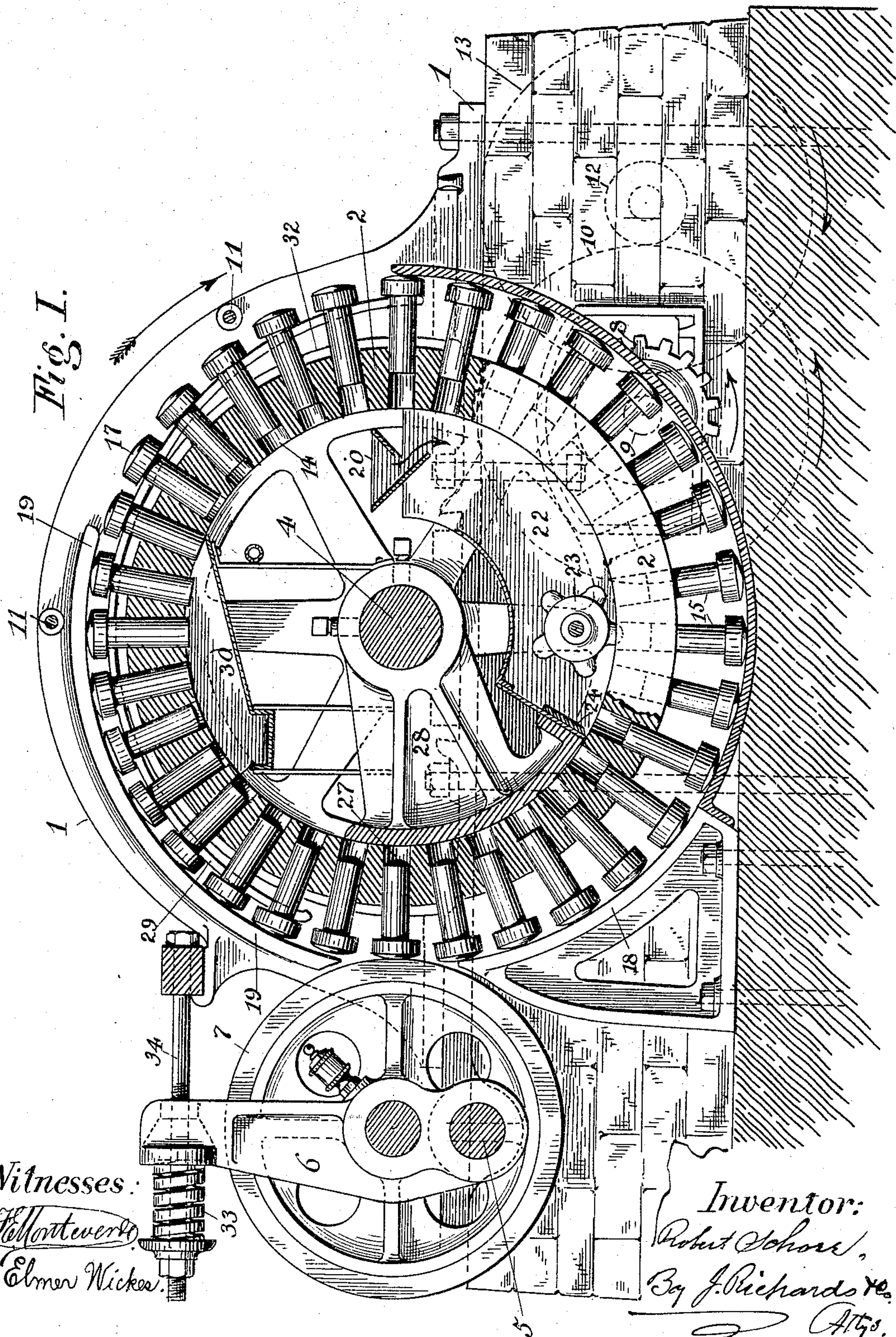
No. 782,470.

PATENTED FEB. 14, 1905.

R. SCHORR.  
BRIQUET MACHINE.

APPLICATION FILED MAY 12, 1904.

2 SHEETS—SHEET 1.



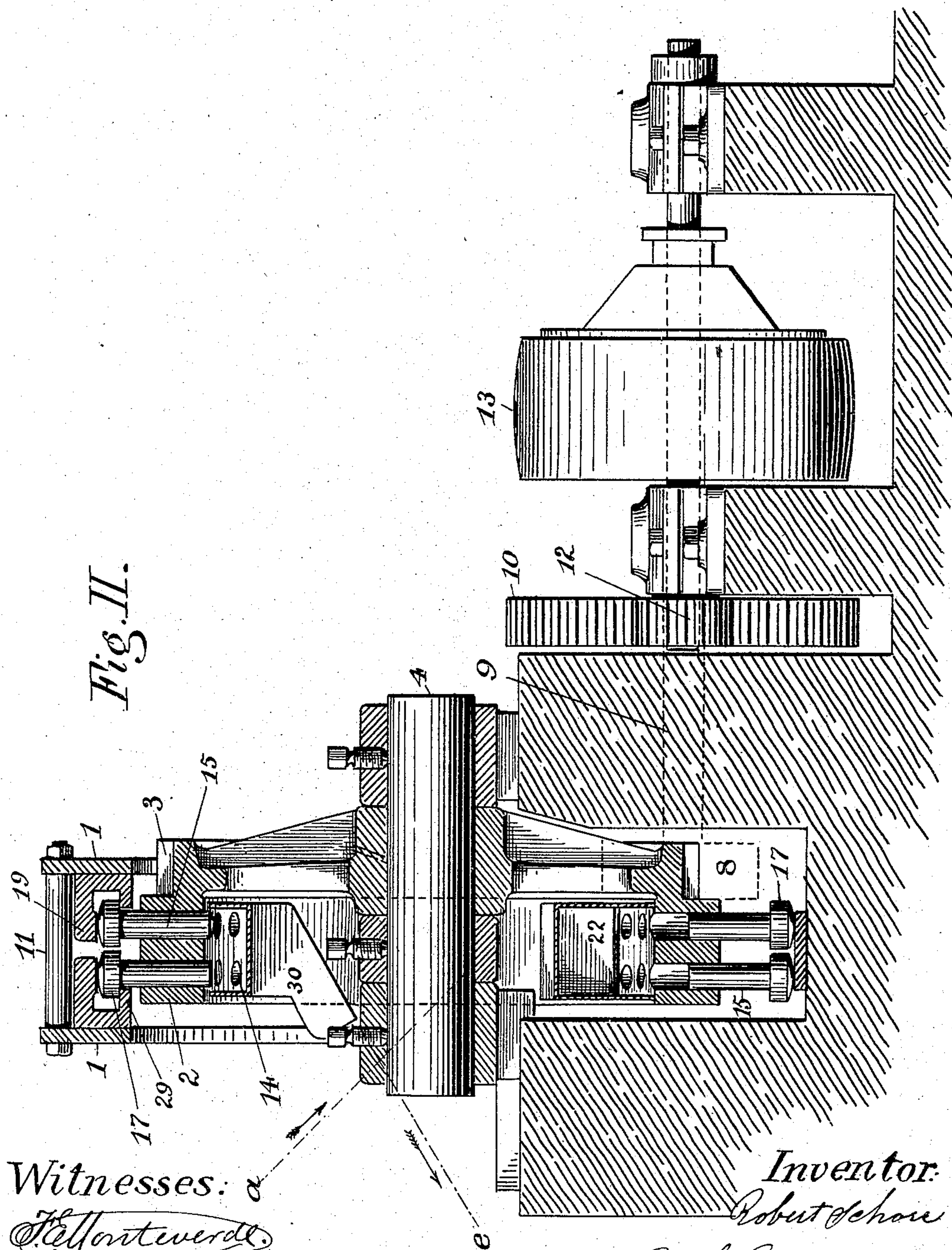


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# UNITED STATES PATENT OFFICE.

ROBERT SCHORR, OF SAN FRANCISCO, CALIFORNIA.

## BRIQUET-MACHINE.

SPECIFICATION forming part of Letters Patent No. 782,470, dated February 14, 1905.

Application filed May 12, 1904. Serial No. 207,706.

*To all whom it may concern:*

Be it known that I, ROBERT SCHORR, a citizen of the United States of America, residing at San Francisco, county of San Francisco, and State of California, have invented certain new and useful Improvements in Briquet-Machines; and I hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification.

This invention relates to certain useful improvements in machines for pressing and forming fuel-briquets.

My improvements consist in an annular molding or die ring within the interior of which and in its plane are disposed the main operating parts, including the supply of material from which the briquets are formed; in mounting this die-ring on a main impelling gear-wheel concentric with the latter and revolving on the same shaft on which is also sustained an abutting member to receive and absorb the main or final thrust of the pistons that compress the briquets, the whole being mounted and disposed in a narrow plane; also, in utilizing the effect of centrifugal force in filling the molds and in means to supply the material radially to the molds to secure the filling of the same aided by centrifugal force; means for preventing an overcharge of the same and to prevent disruptive strain on the parts, with other features and parts that form a part of this specification.

The objects of my invention are to dispose in a narrow plane all the operating parts of the machine, to absorb the principal strains in this plane and apply the strains centrally on the structure, to supply the material to the molds in the direction of centrifugal force, to reduce the machine to the smallest dimensions and reduce cost of constructing such machines and the space required therefor, in promoting celerity of performance, with other objects that will be pointed out in the description subjoined.

Referring to the drawings, Figure I is a side view, partially in section, of a briquet-machine constructed according to my invention.

Fig. II is a central transverse section through

Fig. I, showing the driving-gearing and other parts visible in that plane.

In briquet-machines of the rotary type it is common to supply the material inwardly to the molds against centrifugal force, which is considerable when the machines are driven at full speed, also is common to provide an abutment for thrust outside the mold-ring difficult to resist by the framing because occupying about ninety degrees of arc. These and other impediments I avoid by the construction now to be explained.

1 is a main frame disposed in two parts cross-joined by struts 11 and disposed at each side of the mold-ring 2 and the main driving-wheel 3. This frame 1 receives in strong bearings the central shaft 4, also the axis or pivot 5 of the strong lever 6, on which is mounted the pressing-wheel 7, that exerts the final and intense pressure to form the briquets.

The main impelling gear-wheel 3 is mounted loosely on the central shaft 4 and is made integral with or may be bolted to the mold-ring 2. This gear-wheel 3 is driven by a pinion 8, shaft 9, gear-wheel 10, pinion 12, and a clutched pulley 13 or by any other suitable gearing of transmission such as is employed in such cases.

Through the rim of the mold-ring 2 are a series of radial holes 14, that form molds, and in these are sliding plungers 15, disposed in one or more rows or tiers, according to the required size and capacity of the machine, two rows being shown in the present drawings. The holes or molds 14 can be made in the solid metal or be fitted with lining-shells of hard or non-corrosive metal and may have a round, polygonal, or oval section. The plungers 15 are shown of cylindrical form, with convexly-formed heads 17, so they may turn when in use to wear uniformly, and are preferably made hard at the ends to withstand abrasive wear on the material and against the guides 18 19 29 and the pressing-wheel 7.

The culm or other material to be formed into briquets is supplied by any suitable means on the line *a* in Fig. II to the hopper 20 and passes down into the chamber 22, rest-



ing over and filling the molds 14 at the bottom by gravity and centrifugal force unless the material is in a plastic condition and will not fall or flow, in which case I employ rollers, as shown at 23 in Fig. I, or other suitable means to insure charging. When the molds 14 are filled, they pass a fixed scraper 24, that slightly compresses the material in the molds 14 and produces a flush face to pass under the abutting member 28, where preliminary compression begins by action of the plungers 15, that are pressed inward by the volute guide 18, as shown in Fig. I. The plungers 15 being thus moved inward first by the volute guide 18 partially compress the material, then come in contact with the pressing-wheel 7, which without sliding action on the pins 15 exerts the final and intense force, reducing the material to the dimensions indicated at 27 and to a briquet, the inward pressure on the briquets being received on the member 28, that presents a concentric arc to the inner face of the mold-ring 2, as shown in Fig. I. When the plungers 15 pass the pressing-wheel 7 and the abutment member 28, they come in contact with the two eccentric guides 19 and 29, the former pressing the plungers inward and discharging the compressed briquets, which fall into a hopper 30, from where they are conveyed to some place of use or deposit, as indicated by the line *e* in Fig. II. The eccentric guide 29 fits under the heads on the plungers 15, as shown in Fig. II, and draws them outward into contact with the concentric guide 32, as shown in Fig. I, leaving the molds 14 free for another charge from the chamber 22. In case of any metallic or other obstruction entering with the culm or entering the machine by accident, the lever 6 and pressing-wheel 7 yield to abnormal pressure by reason of the adjustable spring 33 on the tension-rod 34 to avoid fracture of the parts by overstrain. In this manner it will be seen that the locus of principal strain falls within the continuous framing 1 and on the shafts 4 and 5, the latter being supported as indicated by dotted lines in Fig. I, also that the machinery is disposed in a narrow vertical plane, so the material and briquets are received and discharged by gravity.

Having thus described the nature and objects of my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a briquet-machine, a revoluble mold-ring, a gear-wheel connected therewith, both mounted on a common shaft, means for driving said gear-wheel and mold-ring, the latter being provided with radial mold-apertures, means to supply material to said mold-apertures from the inside of the revoluble mold-ring, sliding plungers in said mold-apertures, with heads on the outside, eccentric guides outside of said heads to press the plungers inward, guides to move the plungers outward by

engagement with the under sides of the heads, and a pressing-wheel outside of the mold-ring, between said guides, bearing against said plunger-heads in succession to give the final compressive thrusts thereto, substantially as specified.

2. In a briquet-machine, a fixed shaft, an annular mold-ring revolubly mounted thereon, means to revolve said mold-ring, the latter being provided with a series of radial mold-apertures in which are sliding plungers with heads on the outside, means to move said plungers successively inward and outward, means to give a final compressive thrust on said plungers from the outside, a fixed abutment within the mold-ring to resist the thrust of said plungers, and means to supply material to said mold-apertures from the interior of the mold-ring, substantially as specified.

3. In a briquet-machine, a fixed shaft, an annular mold-ring revolubly mounted thereon, means to revolve said mold-ring, the latter being provided with radial mold-apertures, in which are sliding plungers with heads on the outside, guides to move said plungers successively inward and outward, a pressing-wheel to give the final compressive thrust upon the plungers, an abutment within the mold-ring to resist the plunger thrust, and means to supply material to said mold-apertures from the interior of the revoluble mold-ring, substantially as specified.

4. In a briquet-machine a revoluble mold or die ring, a gear wheel to revolve the same, both loosely mounted on a central shaft, plungers in the molds and means to move these forcibly inward, a resisting concentric abutting member 28 to sustain the inward thrust of the plungers and material in the molds supported on the central shaft concentrically with the mold or die ring, substantially as specified.

5. In a briquet-machine, a main frame, cross-tied, a fixed shaft mounted in said frame, a mold-ring and connected gear-wheel revolubly mounted on said shaft within said frame, means to drive said gear-wheel and mold-ring, the latter being provided with radial mold-apertures, sliding plungers in said mold-apertures, means to move said plungers successively inward and outward, means to exert a final compressive thrust upon the plungers in succession, an abutment within the mold-ring to resist the final thrust, means to supply material to said mold-apertures from the interior of the mold-ring, and means to convey away the compressed product from said interior when discharged from said mold-apertures, substantially as specified.

6. In a briquet-machine, a revoluble mold-ring, radially perforated with mold-apertures, sliding plungers in said apertures, means for revolving said mold-ring, means for charging said mold-apertures from the interior with the material to be compressed, means for succes-

sively moving said plungers inward and outward, means for exerting a final compressive thrust on the plungers in succession from the outside, and means for discharging and removing the compressed product from the interior of the mold-ring, substantially as specified.

In testimony whereof I have signed my name

to this specification in the presence of two subscribing witnesses.

ROBERT SCHORR.

Witnesses:

HENRY C. DROGER,

ELMER WICKES.