

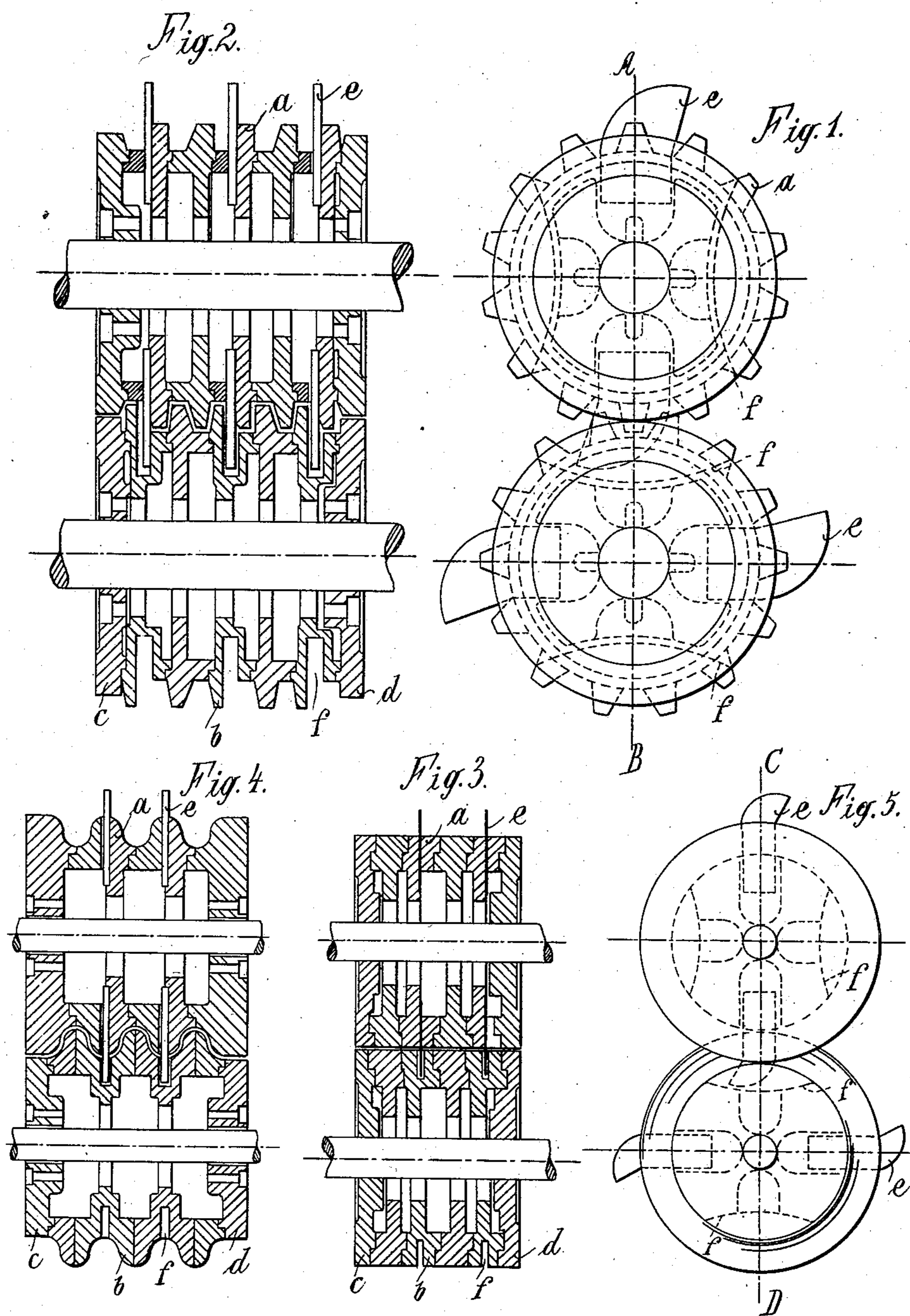
No. 744,296.

PATENTED NOV. 17, 1903.

M. CONDULA.
CRUSHING ROLLS.

APPLICATION FILED FEB. 13, 1900.

NO MODEL.



Witnesses:
Carl Mewel, *Periturner*.
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UNITED STATES PATENT OFFICE.

MAX CONDULA, OF BUDAPEST, AUSTRIA-HUNGARY.

CRUSHING-ROLL.

SPECIFICATION forming part of Letters Patent No. 744,296, dated November 17, 1903.

Application filed February 13, 1900. Serial No. 5,053. (No model.)

To all whom it may concern:

Be it known that I, MAX CONDULA, factory manager, a subject of the Emperor of Austria-Hungary, residing at Budapest, tenth district, Austria-Hungary, have invented a certain new and useful Crushing-Roll, of which the following is a specification.

This invention has reference to crushing and kneading rollers, such as are used in the ceramic industries for the treatment of the clay used therein, and it is especially designed to obviate the difficulty of the rollers heretofore in use, which very often failed to catch hold of the clay fed to them, which defect was partly due to the slippery condition of the clay and also to the accumulation of the material in the feeding-hopper when pieces of clay of a somewhat larger size were being used. This was a serious drawback in the devices as used heretofore which very seriously detracted from the output of the machine and caused frequent stoppages and repairs, which increased working expenses considerably, the more as it became necessary to have special help employed to remove the difficulties in feeding. All these manipulations, moreover, entailed great danger for the men working at the rollers, it being a frequent occurrence that the tools of the men used in the feeding manipulation were caught by the rollers, dragging the incautious workmen along with them. All these difficulties are avoided by my invention, as set forth in this specification and pointed out in the claims, the annexed drawings showing a preferred form of construction of a pair of rollers embodying my invention.

In the drawings, Figure 1 shows the application to crushing-rollers provided with feeding-knives. Fig. 2 is a sectional view of Fig. 1 on the line A B. Fig. 3 illustrates in horizontal longitudinal section a pair of smooth rollers, showing the attachment of the feeding-knives. Fig. 4 is a side view, Fig. 5 a section, of undulatory rollers.

The rollers themselves are composed of several rings *a b* and cover-rings *c d*, connected with each other, the said rings *a b* being of a shape so as to form one smooth uniform undulatory surface when put together. As a result the clay which is placed between the

rollers is fed continuously to the feeding-knives, which cause it to be more securely and uniformly carried along by the rollers. The number of the rings *a b* employed varies with the amount of work which the machine is expected to yield.

e represents specially-shaped feeding-knives attached to the rings *a*, while slots *f* are provided at the rings *b*. The feeding-knives project over the surface of the rollers, and upon the rotation of the rollers they engage with the said slots *f* opposite thereto. The rings *a*, to which the feeding-knives *e* are attached, alternate with the rings *b*, having the slots *f*, each ring *a*, with its knife *e*, being opposite a ring *b*, with slot *f*. The clay which is fed to the rollers is at once caught by the feeding-knives *e*, which serve to comminute it and by which it is pressed against the opposite roller. Hence the clay is continuously fed forward by the rollers, and the accumulation of material in the feeding-hopper becomes impossible.

This invention shows the further advantage that the diameter of the rollers may be considerably less than that of the ordinary rollers without in any way interfering with the output of the device, a saving of labor being even accomplished thereby. The sizes of the feeding-knives *e* and of the slots *f* are adjusted to suit the different materials under treatment.

It is obvious that this combination of rollers with feeding-knives can also be used to produce a kneading action and that it may be applied to other material having plastic properties. I am aware that rollers having studs to register with recesses of the adjacent rollers are old and that it is old to use inclined cutting-blades in connection with crushing-rolls; but these constructions were deficient, inasmuch as they failed to effect the cutting of the plastic material, which can only be effected by providing recesses for the blades to enter without interfering with the contact of the roller-surface, as is done in my invention. I therefore do not claim, broadly, blades or projections in connection with rollers; but

What I claim, and desire to secure by Letters Patent of the United States, is—

1. The combination of two crushing-rolls forming a roller pair, the perimeter of which is provided with projections and grooves alternating with each other, the projections of one roller registering at suitable intervals with the grooves of the adjacent roller, flat projecting blades on any of the projections, alternating with slots at the bottom of the grooves and serving for the reception of the said knives, substantially as described.

2. The combination of two crushing-rolls forming a roller pair, the perimeter of which is provided with projections and grooves, alternating with each other and registering at suitable intervals with the grooves and projections of the adjacent roll, projecting blades and slots alternating with each other and in planes at right angle to the axis of the rolls, the projecting blades being attached to the projections of the perimeter at the highest points of the same, and the slots being at the

bottom of the grooves, substantially as described.

3. The combination of the two crushing-rolls forming a roller pair; said rollers being grooved to present an annularly-fluted or undulating surface and being provided with projecting knives and slots at right angle to the axis of the rollers, the slots receiving the knives of the opposing roll as they pass suitable points of registry.

4. The combination of two crushing-rolls forming a roller pair said rolls registering with each other and being provided with flat blades and slots at right angle to the plane of rotation, substantially as described.

In witness whereof I have hereunto set my hand in presence of two witnesses.

MAX CONDULA.

Witnesses:

LÁDÓ RÁICS,
RAYMOND WILLEY.