2 Sheets—Sheet 1.

F. WEGMANN.

MACHINE FOR CRUSHING MEAL.

No. 182,250. Patented Sept. 12, 1876.

FIG. 2.

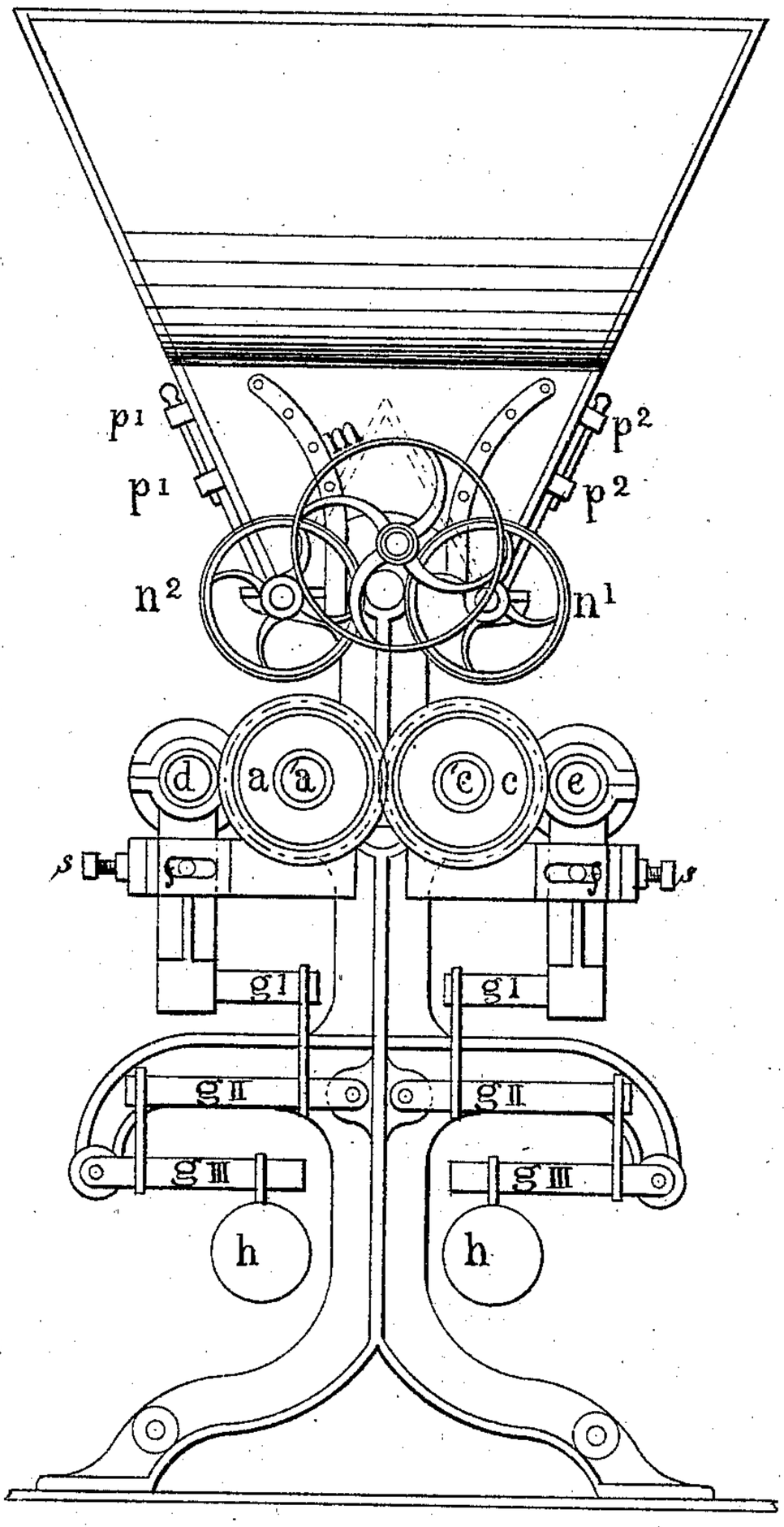
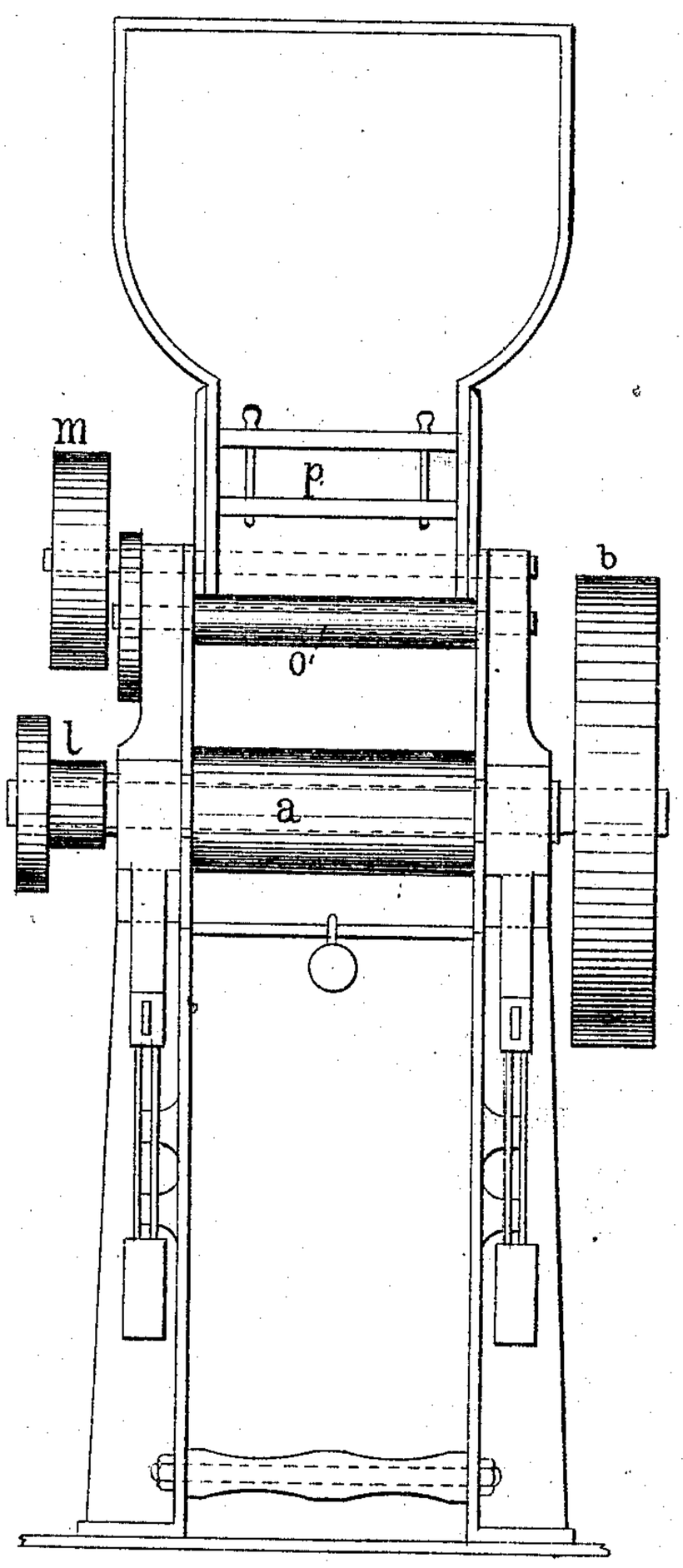


FIG. 1.



Witnesses:

Louis Pilske

George Kunz

Inventor:

F. Wegmann.

2 Sheets—Sheet 2.

F. WEGMANN.

MACHINE FOR CRUSHING MEAL.

No. 182,250. Patented Sept. 12, 1876.

FIG. 3.

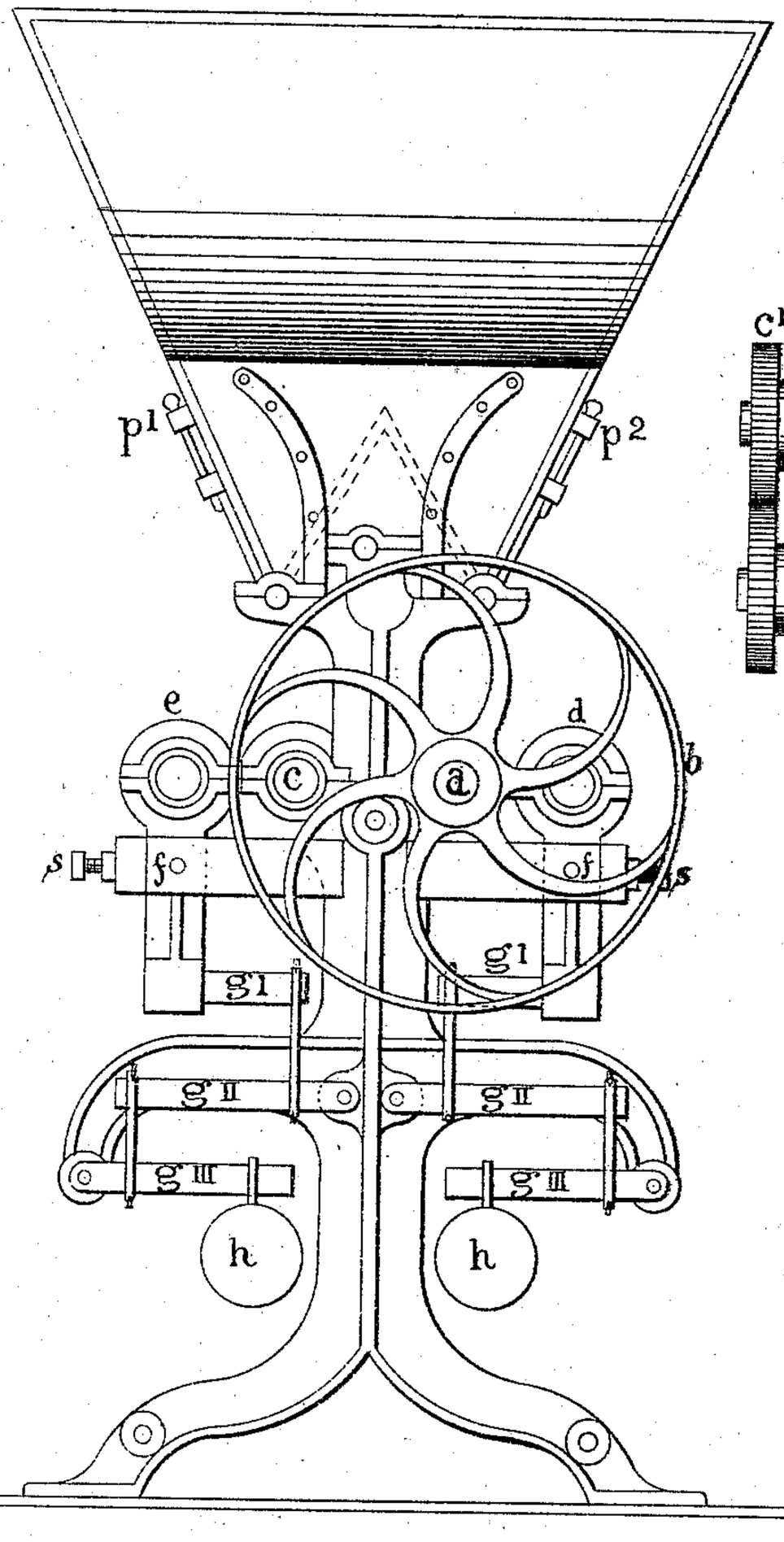


FIG. 4.

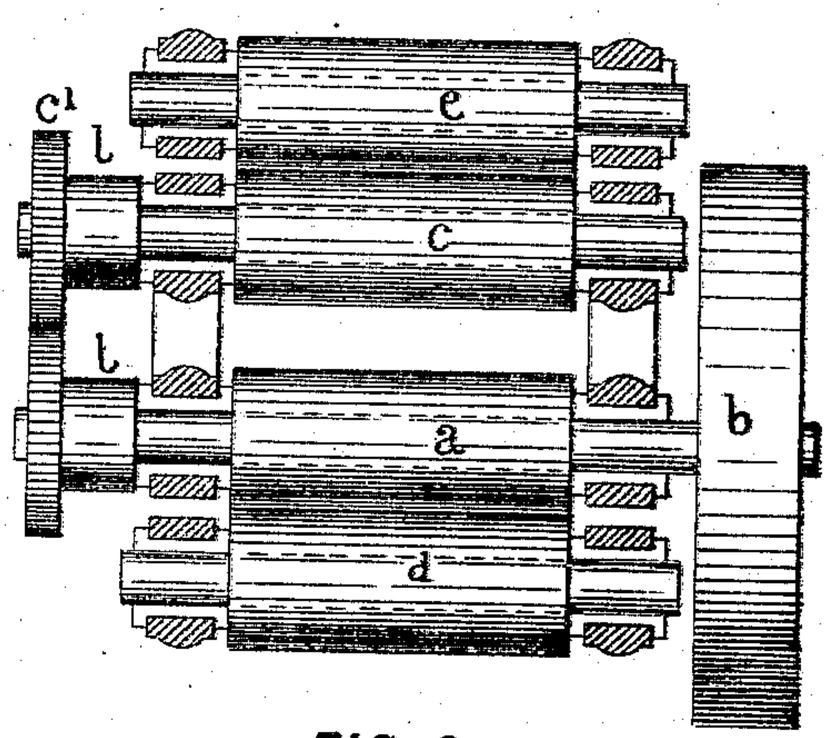


FIG. 6.

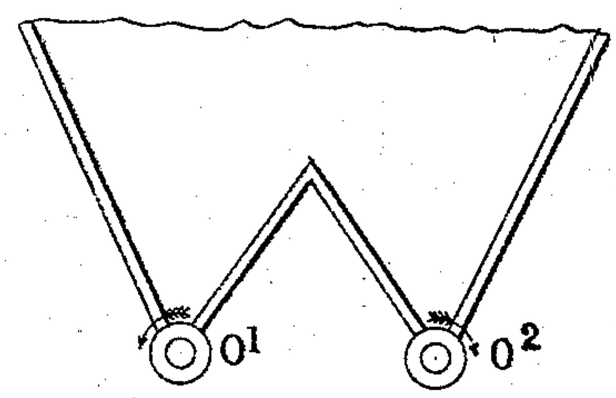
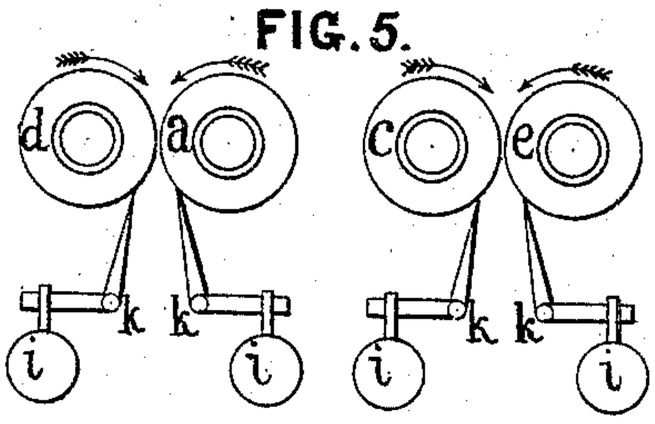


FIG. 5.



Witnesses:

Louis Tilele.
George Kunz.

F. Wegmann Inventor

UNITED STATES PATENT OFFICE.

FEDERIGO WEGMANN, OF NAPLES, ITALY.

IMPROVEMENT IN MACHINES FOR CRUSHING MEAL.

Specification forming part of Letters Patent No. **182,250**, dated September 12, 1876; application filed May 21, 1875.

To all whom it may concern:

Be it known that I, FEDERIGO WEGMANN, of Naples, Italy, have invented a certain new or Improved Machine or Apparatus for Treating or Preparing Meal, of which the following is a specification:

Figure 1 of the accompanying drawings is a front elevation of my machine or apparatus. Fig. 2 is a side elevation. Fig. 3 is an elevation of the opposite side. Fig. 4 is a plan of the squeezing-rolls. Fig. 5 is a side elevation of the scrapers applied to the squeezing-rolls; and Fig. 6 is a vertical cross-section of the hopper for the meal, which is to pass through the squeezing-rolls.

d a and *c e* are duplicate pairs of rolls, of which *a* is driven by strap on the strap-pulley *b*. The roll *c* receives motion from the spindle of the roll *a*, through wheel-gearing, as shown on Fig. 4. I find from two hundred and fifty to three hundred revolutions per minute a suitable speed. The rolls *a* and *c* have the bearings of their spindles in the framing of the machine, as shown, but the rolls *e* and *d* have their spindle-bearings in movable levers having each their fulcrum at H, on the point of an adjusting-screw, *s*, and are supported by pins *f* in slots, which permit an adjustment of said pins and their levers forward or backward, and by means of levers g', g'', and g''', and weights *h*, or by a lever actuated by a spring, are made to press the rolls *d* and *e*, respectively, against the rolls *a* and *c*, causing them to receive like revolving speed, and enabling substances harder than the coarse meal, which is to be squeezed, to pass through whole, because in such cases the rolls will open more. The coarse meal thus comes out in small flat cakes of the required fineness, which is regulated by the weights *h*, according to the consistency of the coarse meal, and the quantity of same passing through the rolls. The levers, which bear the spindles of the rollers *d e*, are supported by pins *f* resting in slots in the frame, and have their fulcrums upon the points of the screws *s*, whereby the pressure of the rollers *d e* may be regulated without shifting the position of the weights *h*, or their equivalent springs. Fig. 5 shows the arrangement of scrapers for scraping off the meal which may adhere to the rolls. The scrapers turn each at a fulcrum, *k*, and are, by means of lever and weight appliances, pressed against the rolls with any required pressure. The parts of the scrapers which come in contact with the rolls I prefer to make of glass or similar wear-resisting material. The spindles of the rolls *a* and *c* also carry two strap-pulleys, *l*, Fig. 4, one of which, by strap, moves the strap-pulley *m*, the spindle of which has a tooth-pinion gearing with another pinion, which again gears into two larger tooth-wheels, n^1 and n^2, thereby giving motion to the wooden feeding-rolls o^1 and o^2, Fig. 6. p^1 and p^2, Fig. 3, are two slides, adjustable by means of screws for regulating the quantity of meal to pass from the hopper. The smooth-pressed meal passes from the machine either to an Archimedean screw or into a box, and is, after intense sifting, at once turned partly into flour ready for use, and partly without any further operations, as heretofore, into clean fine bran.

The machine will only work quietly and with satisfactory results when the four squeezing-rolls are exactly round, as hard as possible, and very finely polished. I have found chilled cast-iron somewhat suitable, but even that in time gets out of truth, and loses its fine surfaces. Metal altogether is not suitable, because the flour gets colored by it. I, therefore, prefer to coat the rolls with a china lining put onto the iron-roll with putty, and finely turned with diamond-tools.

I am aware that grinding-surfaces have been commonly composed of material containing so much silica, that the flour will not be discolored; but there is a material difference between the action of grinding and crushing surfaces—the former depends upon the rough and broken condition of the surfaces, whereby the cells and fibers are torn asunder, while the latter depends upon the smoothness and polish of the crushing-surfaces, whereby the cells and fibers are crushed and broken down.

The advantages of this machine are: As no cellular fibers are torn, the power usually applied therefor is saved; because of the complete separation of the bran, the germ, and the membrane particles, the flour itself is finely ground, pure, and ready for use; and because of the separation of the cells contain-

ing the cereals, the flour so produced will not, even during fermentation, lose its color, wherefore it is very suitable for export and for storing.

I claim—

1. One or more rolls *a*, and corresponding rolls *d*, the latter being supported on pins *f* resting in slots, and fulcrumed upon the points of the adjusting-screw *s*, and pressed against the former automatically, substantially as and for the purposes set forth.

2. In a machine for preparing flour or meal, and in combination with the other operative members thereof, the crushing-rollers *a d*, constructed with unbroken surfaces of porcelain or other equivalent silicious substance, for the purpose set forth.

3. The scrapers *k k*, constructed of glass or other similar substance, and arranged as shown and described, with reference to Fig. 5.

FEDERIGO WEGMANN.

Witnesses:

LOUIS PILET,

GEORGE KUNZ.