2 Sheets—Sheet 1.

L. NEMELKA.

Roller-Mill for Reducing Grain.

No. 209,829. **Patented Nov. 12, 1878.**

Fig. 3.

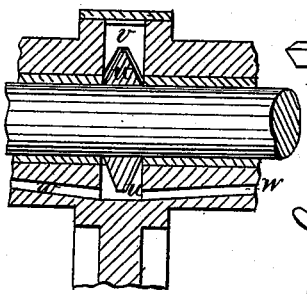

Fig. 1.

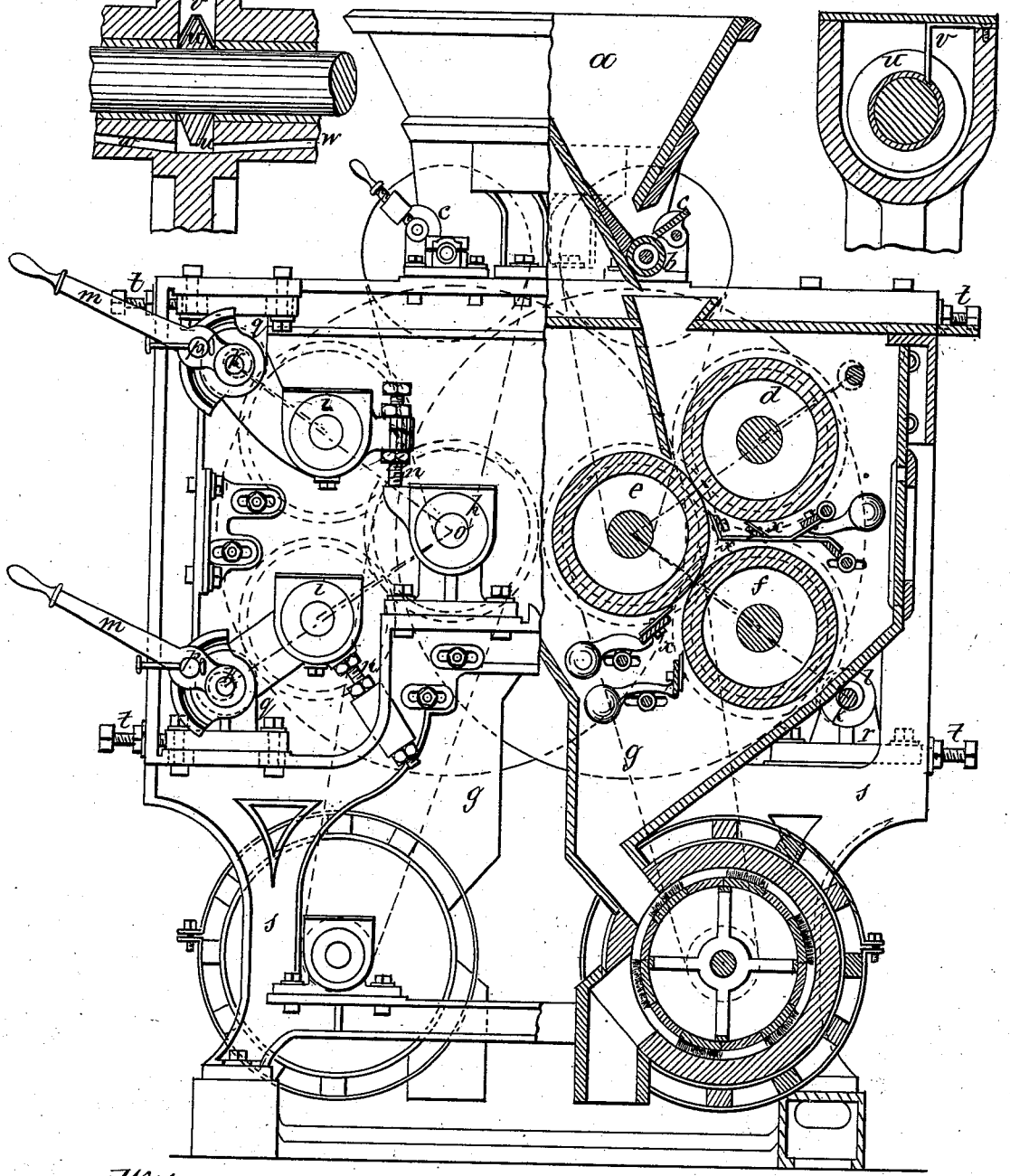

Fig. 4.

Witnesses.

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2 Sheets—Sheet 2.

L. NEMELKA.

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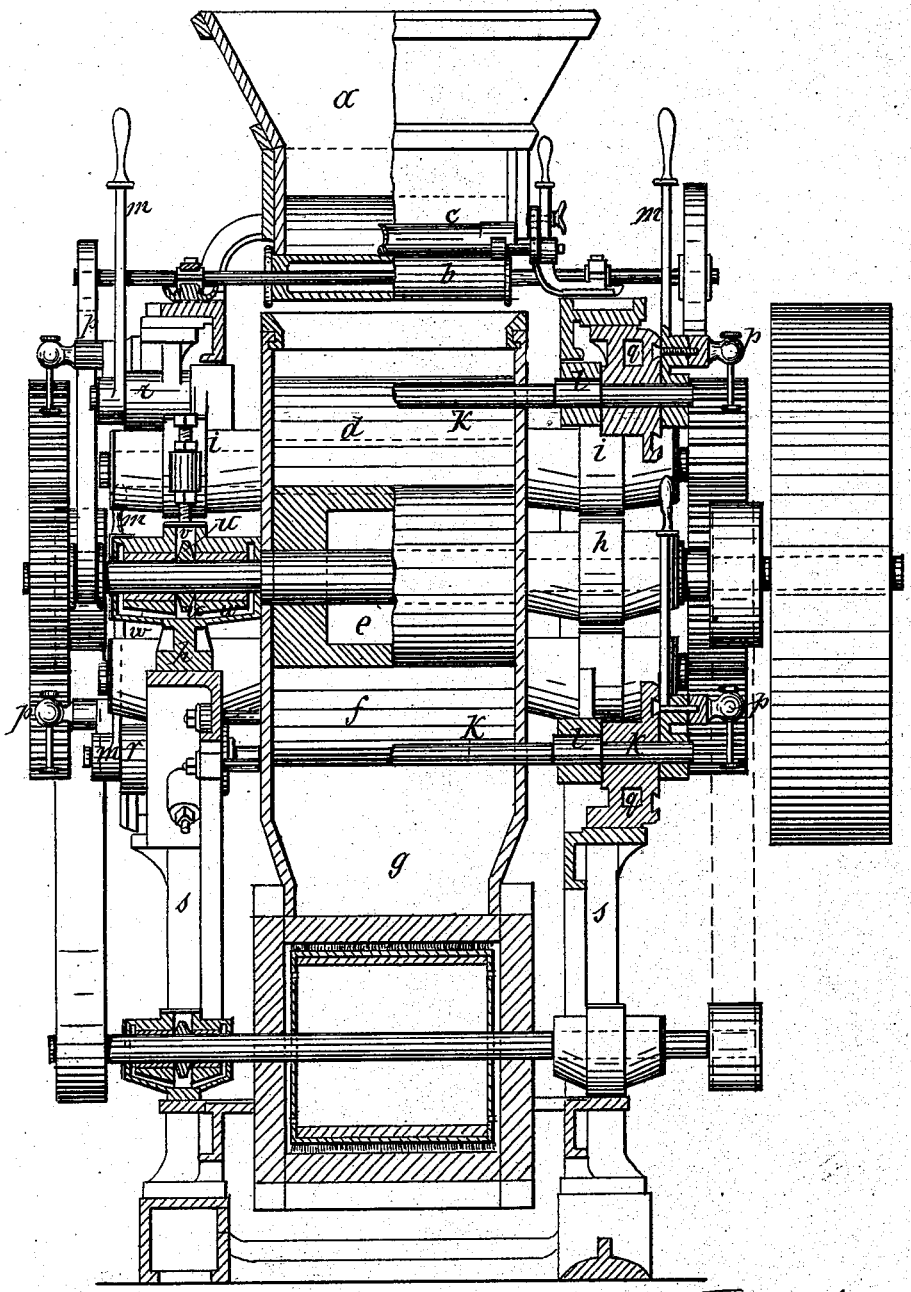
Fig. 2.



Witnesses
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UNITED STATES PATENT OFFICE.

LORENZ NEMELKA, OF SIMMERING, NEAR VIENNA, AUSTRIA.

IMPROVEMENT IN ROLLER-MILLS FOR REDUCING GRAIN.

Specification forming part of Letters Patent No. **209,829**, dated November 12, 1878; application filed May 11, 1878.

To all whom it may concern:

Be it known that I, LORENZ NEMELKA, of Simmering, near Vienna, in the Empire of Austria, have invented certain new and useful Improvements in Roller-Mills, of which the following is a specification:

The object of this invention is, first, to furnish means for adjusting the rollers of roller-mills for grinding into flour grain already coarsely ground, or what is known as "sharps" or "middlings," the said adjustment being effected in such a manner that the rollers will produce the best effect and with the required pressure, but without being liable to be jammed together, and yet allowing obstacles accidentally introduced to pass through without injuring the machinery; secondly, to enable the grain or flour to pass twice through the rollers while using only a set of three rollers; and, thirdly, to arrangements for lubricating the bearings of the rollers of roller-mills.

In the annexed drawings, Figure 1 is a side view, partly in section, and Fig. 2 a front view, partly in section, of a roller-mill constructed according to my invention. Fig. 3 is a longitudinal, and Fig. 4 a cross, section of the axle-bearings, with my arrangement for lubricating the same.

The construction of roller-mill shown in the drawings consists of two independent sets arranged in the same framing, and as both sets are of exactly the same construction the same letters of reference have been used for the single parts of each set; and it is evident that, without departing from the nature of this invention, the roller-mill may be constructed with a single set instead of double sets.

The sharps or middlings are introduced into the hopper *a*, and pass from here over the delivery-roller *b*, which is provided with a pivoted door, *c*, to regulate the quantity to be admitted. From hence they pass first between the middle grinding-roller, *e*, and upper grinding-roller, *d*, and then between the middle roller, *e*, and lowest roller, *f*, and are finally led off through the delivery-hopper *g*. The roller *e* is arranged in fixed bearings *h*, and cannot be displaced during the working; but the bearings of the two rollers *d* and *f* are arranged in swinging brackets *i*, pivoted at *k k* on the eccentrics *l l*, which are formed of one piece with the axles *k k*. It is evident that, by displacing the levers *m m*, which are keyed to the axles *k k*, the rollers *d* and *f* may be adjusted nearer to or farther from the roller *e*, as may be required by the material to be ground. To prevent the possibility of the adjustable rollers *d* and *f* being jammed to the non-adjustable roller *e*, their swinging brackets *i i* rest on the set-screws *n n*.

The central axial lines of the rollers *d* and *f* lie a little above the straight lines *o k*, drawn from the center of the axial line of the rollers to the center of the axles *k*; and it is evident that the nearer the central axial lines of the rollers *d* and *f* approach the straight lines *o k*, the greater will be the pressure of the rollers *d* and *f*, respectively, on the roller *e*. It is also evident that this pressure is self-acting, being caused by the weight of the swinging rollers *d* and *f*, and that therefore the said rollers *d* and *f* will give way and be lifted if an unusually hard substance should come between them and the roller *e*. By adjusting the screws *n n*, on which the bearings of the swinging rollers *d* and *f* rest, the pressure of the rollers *d* and *f* on the roller *e* may be varied as required.

The levers *m m* are provided with set-screws *p p*, the ends of which fit into slots formed in the standards *q*, and by means of these set-screws *p p* the levers *m m* may be fixed in any desired position.

The standards *q* and *r*, in which the axles *k k* have their bearings, are so arranged, as shown in Fig. 1, that when the bearings are worn the said standards may be adjusted by means of the set-screws *t*.

All the bearings of the rollers are provided with self-acting lubricating arrangements, as shown in Figs. 3 and 4. A lubricating-disk, *u*, is fixed to the shaft, and the oil raised by it from below is scraped off by the scraper *v* and distributed over both sides of the bearing. The oil then flows back through the passages *w* together into the middle, from whence it is again lifted by the disk *u*. Each roller is provided with a scraper, *x*.

It is evident that, without departing from the substance of this invention, the arrangement of the parts for enabling a roller of a

roller-mill to swing on an axle and to be adjustable, as described, may be used in a set of a pair of rollers instead of a set of three rollers, and that therefore either the roller *d* or the roller *f* may be omitted without altering the character of this invention.

I claim—

1. In a middlings-grinding machine, the means employed for adjusting the position of the yielding grinding-rolls relatively to that of the roll mounted in stationary bearings, which consist in the combination, with said yielding rolls, of the fulcrumed bearings *i*, shafts *k*, eccentrics *l*, levers *m*, and their grooved segments, the set-screws *p*, and the brackets *q*, all arranged and operating substantially as described.

2. The combination of the roller *d* or *f*, brackets *i*, axle *k*, eccentrics *l*, and levers *m*, essentially as described, and for the purpose described.

3. The combination of the roller *d* or *f* with brackets *i*, axle *k*, eccentric *l*, levers *m*, and set-screws *n*, essentially as described, and for the purpose described.

4. The means employed to prevent the yielding rolls from being jammed against the roll mounted in stationary bearings, which consist in the set-screws *n* and a fixed support or abutment for such set-screws either on the frame or fixed bearing *h*, in combination with said yielding or swinging bearings, substantially as shown and described.

In witness that I claim the foregoing I have hereunto set my hand this 23d day of March, 1878.

L. NEMELKA.

Witnesses:
C. O. PAGET,
T. BARTA.