(No Model.)

H. J. GILBERT.

ROLLER MILL.

No. 280,170. Patented June 26, 1883.

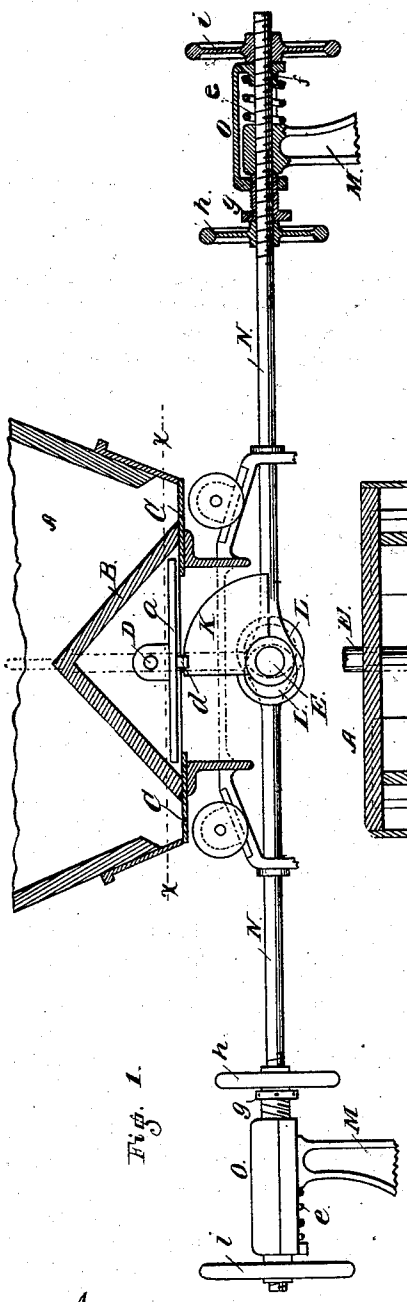


Fig. 1.

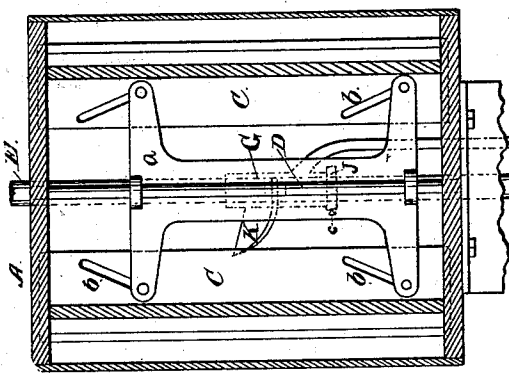


Fig. 2.

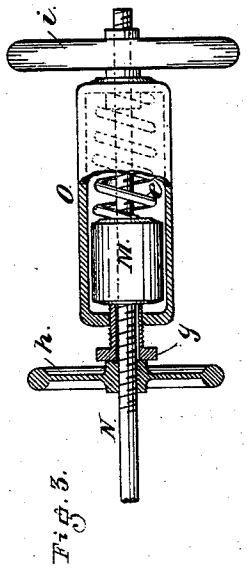
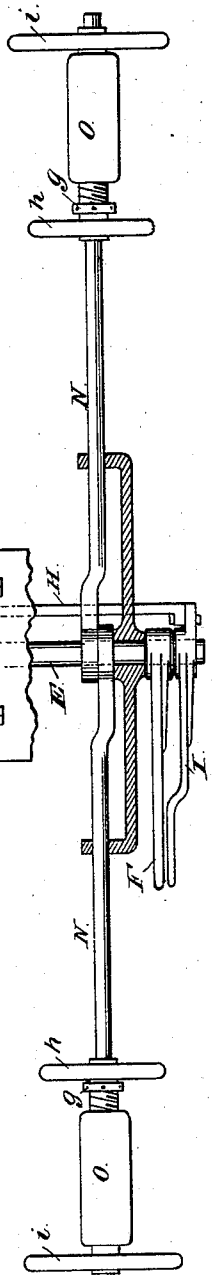


Fig. 3.



Attest:

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UNITED STATES PATENT OFFICE.

HENRY J. GILBERT, OF DAYTON, OHIO, ASSIGNOR TO STOUT, MILLS & TEMPLE, OF SAME PLACE.

ROLLER-MILL.

SPECIFICATION forming part of Letters Patent No. 280,170, dated June 26, 1883.

Application filed March 26, 1883. (No model.)

To all whom it may concern:

Be it known that I, HENRY J. GILBERT, a citizen of the United States, residing at Dayton, in the county of Montgomery and State of Ohio, have invented certain new and useful Improvements in Roller-Mills, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making a part of this specification.

My invention relates to that class of roller-mills for making flour known as "gradual-reduction mills," in which the grain or middlings is fed from a hopper to one or more pairs of differentially-running grinding or crushing rolls, usually having a corrugated dress.

The object of my present invention is to provide housed spring-connections for uniting the outer pivoted roll-supporting arms and their operating-rods which can be simultaneously operated by cams or eccentrics, (shown in the application of John Livingston, filed simultaneously with this, which I will presently describe,) or by any other suitable means.

The novelty consists in the construction and combination of the parts, as will be herein set forth and specifically claimed.

In the accompanying drawings, Figure 1 is a sectional view, in side elevation, through the upper part and hopper of the machine, showing so much thereof as is necessary to illustrate my present invention. Fig. 2 is a sectional plan view through the line *x x* of Fig. 1 of the hopper-bottom. Fig. 3 is an enlarged plan view, with portions broken away, of the head of one of the swinging roll-arms and spring-casing applied thereto.

The same letters of reference are used to indicate like parts in all the figures.

Without going into a description of the details of the machine, which could be built to suit the requirements of the manufacturer, I would thus describe my present invention, and also that part of Livingston's to which I have referred, by which the operation of the device will be more clearly understood.

A is the hopper of the machine, having a raised bottom, B, sloping each way from the center, with discharge-outlets for the grain on each side, and extending the entire width of the hopper. These outlets are opened and closed to admit, regulate, or cut off the flow of grain by means of horizontally-sliding gates C, which are simultaneously operated by a superimposed horizontally-sliding frame or spider, *a*, hung upon a central guide-rod, D, and provided with pins confined in oblique slots *b* in the gates, as shown. Running under the hopper from side to side, and suitably journaled in the frame-work, is a through-shaft, E, capable of oscillation by means of a lever, F, keyed or fastened near its outer end on one side of the machine. Upon this through-shaft, under the hopper, is journaled a sleeve, G, so as to be capable of oscillation independent of the shaft E, and extending from and integral with said sleeve, if desired, is an arm, H, which extends out and under the shaft E.

Pivoted loosely upon the outer end of the shaft E, and side by side with the lever F, is a second hand-lever, I, whose lower end is bolted or otherwise securely attached to the outer end of the arm H, in such manner that the swinging of the lever I will cause the oscillation of the sleeve G, as will be readily understood. In addition to its attachment to the lever I, the sleeve G is held from sliding upon the shaft E by means of a collar, J, bearing against its outer end, and secured to said shaft by a set-screw, *c*. Upon the sleeve G is a screw-pitched quadrant or wing, K, whose outer edge or periphery is confined between lugs *d* on the under side of the sliding frame or spider *a*.

From the above construction it will be readily seen that by turning the lever I the sleeve G will be oscillated, the spider *a* caused to slide on its rod by means of the quadrant-wing, and the gates simultaneously operated for any purpose required, whether to open, close, or adjust them, and this without the necessity of moving the lever F or oscillating the shaft E. The shaft E has on each side of the machine double diametrically-opposite cams or eccentrics L, upon which are loosely fitted the eyes of the inner ends of the rods N, extending to and operating the swinging roll supports or arms M. These rods N extend out through apertures in the heads of the roll-supporting arms M, and are secured thereto in the following manner: Over each head is fitted a housing-cap, O, Fig. 3, open on its under side,

and containing a coiled spring, *e*, which is confined between the outer side of the head and the outer end of the housing, which, on its inner side, is provided with a retaining-boss, *f*, as shown. The rods N likewise pass through the ends of the housing O. The inner head of each housing has tapped into it a female nut, *g*, bearing against the inner side of the head, and through which the rod N loosely passes, and just on the inner side of the female nut *g*, upon the threaded end of the rod N, is a jam-nut or wheel, *h*. Upon the threaded outer end of each of the rods N is an adjusting nut or wheel, *i*.

From this description it will be readily seen that by means of the female nut *g* and wheel *i* the adjustment of the roll-supporting arms M and the initial tension of the springs *e* can be regulated to a nicety for the purpose of adjusting the rolls of each pair to each other and regulating their yielding point.

I have not shown the manner of mounting the pivoted swinging arms M, as this is well known.

From the description I have given it will be seen that by operating the lever F the arms M, carrying the outer rolls, will be thrown apart or brought together, as desired, so as to spread the rolls apart or bring them into working position.

Having thus fully described my invention, I claim—

The combination, with the rods N and journal-arms M, of the spring-housing O, spring *e*, hand-wheel *i*, female nut *g*, and jam-nut *h*, substantially as described, and for the purpose specified.

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Witnesses:
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E. W. RECTOR.