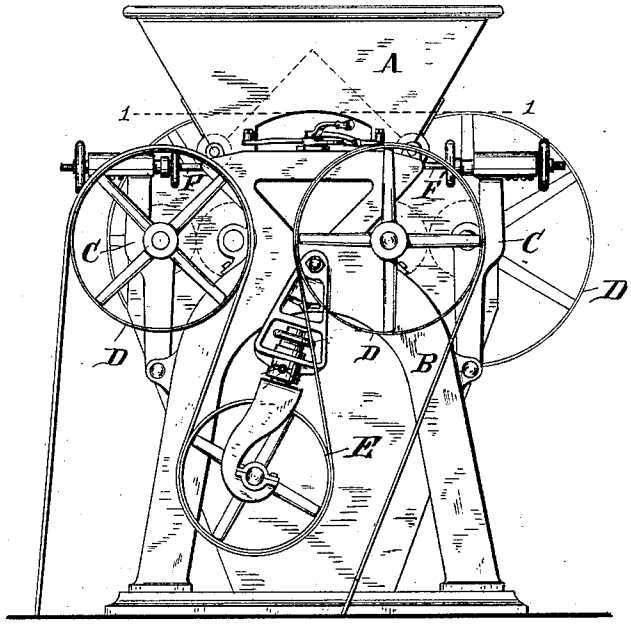
(No Model.) 2 Sheets—Sheet 1.

H. J. GILBERT.

ROLLER MILL.

No. 348,553. Patented Sept. 7, 1886.

Fig. 1.



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(No Model.) 2 Sheets—Sheet 2.

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Fig. 2.

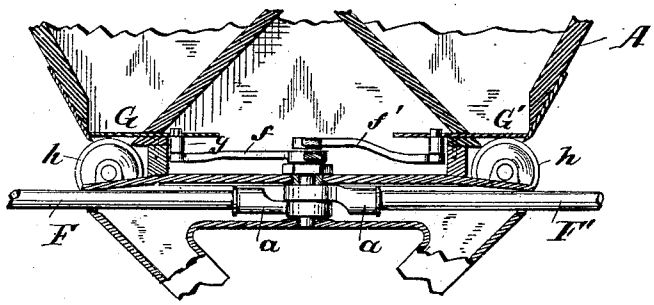


Fig. 3.

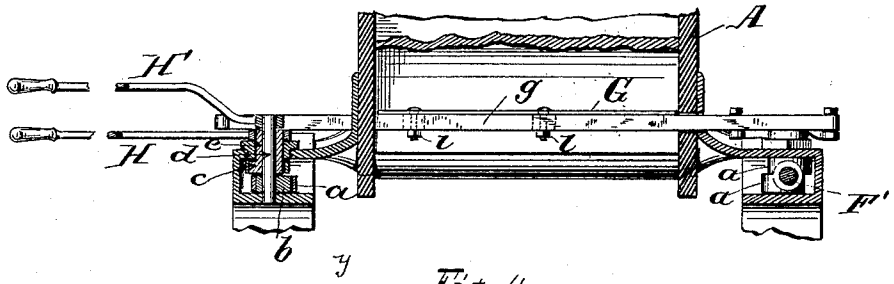
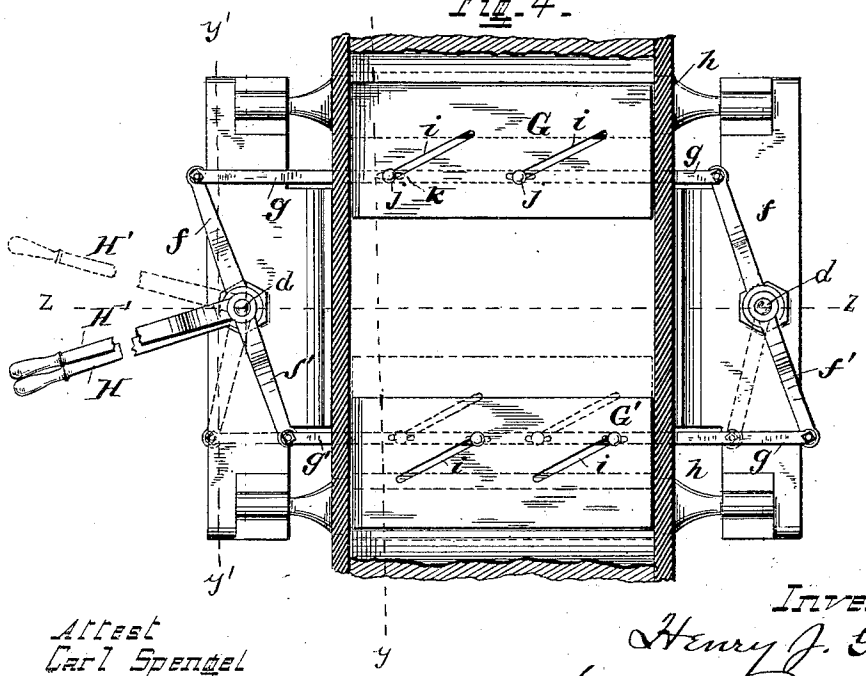


Fig. 4.



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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. 348,553, dated September 7, 1886.

Application filed November 3, 1884. Serial No. 147,069. (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, forming 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 one hopper to one or more pairs of differentially-running grinding or crushing rolls usually having a corrugated dress, and it relates more particularly to that class of mills known as "double mills," having two sets of grinding-rolls, each set receiving the product at different stages of the reduction, and being in reality independent mills arranged for convenience and economy in the same frame-work.

The novelty of my invention consists in the construction and combinations of the parts, as will be hereinafter set forth and specifically claimed.

In the accompanying drawings, Figure 1, Sheet 1, is a side elevation of a roller-mill containing my improvements. Fig. 2, Sheet 2, is a sectional side elevation through the frame-work and hopper, taken on two different planes, that of the hopper and gates being taken through the line *y y* of Fig. 4, and that of the frame-work and gate and roll actuating mechanism being taken through the line *y' y'* of Fig. 4. Fig. 3, Sheet 2, is a sectional end elevation of the same through the line *z z* of Fig. 4. Fig. 4, Sheet 2, is a sectional plan view at the bottom of the hopper through the line 1 1 of Fig. 1.

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

The general construction of the mill and its driving and tightening pulleys is preferably that shown in the patent to John Livingston, No. 284,135, dated August 28, 1883, which need not be here described further than to say that A is the hopper; B, the frame; C, the swinging journal-arms; D, the driving-pulleys, and E the tightener-pulley.

The shafts or rods F F' for adjusting the outer grinding-rolls out of or into working contact with the inner rolls are united to the journal-arms by spring connections, as shown in my prior patent of June 26, 1883, No. 280,170, or in any other suitable manner. Their inner ends are provided with eye-couplings *a*, which embrace horizontally-set eccentrics *b c* on each side of the machine, the former of which, *b*, is keyed to a short vertical shaft, *d*, on each side of the machine, suitably stepped and journaled in the frame-work, as seen in Figs. 3 and 4. Surrounding these shafts and free to turn thereon are sleeves *e*, on the lower ends of which are secured or formed the eccentrics *c*. Secured to and extending from the sleeves *e* are arms *f*, which, when the gates are closed, occupy about the position shown by the solid lines in Fig. 4, and whose outer ends are connected by a rod, *g*, extending under and close to the hopper-gate G. The hopper-gates, like those in the Livingston patent before referred to, slide horizontally to open or close the feed-channels directly over the feed-rollers *h*, and are provided with diagonal slots *i*, through which bolts *j* are passed down through slots *k* in the actuating-rods *g g'*, and are adjustably clamped by nuts *l* on their lower sides. Similar arms, *f'*, extend from the shafts *d*, and are connected to a rod, *g'*, which actuates the gate G' by the same connections as those of the gate G. Extending from the sleeve *e* is a horizontal hand-lever, H, and extending from the shaft *d* above the lever H is a second hand-lever, H', so curved or otherwise formed that either lever may be grasped and operated independently of the other.

From the above construction it will be seen that by vibrating the lever H, the arms *f'* are correspondingly vibrated, and the rod *g'* drawn in the direction of its length thereby, through the medium of the belts *j* acting upon the slots *i*, causing the gate G' to be drawn in to open the feed-channel to its fullest extent, as shown by the dotted lines in Fig. 4. At the same time, by the vibration of the lever H', the shafts *d* and their eccentrics *b* are partially rotated to cause the rods F to be drawn in, and thereby bringing the outer grinding-roll on that side of the machine into working contact with the inner roll. A reverse motion of the lever H closes the gate G' and throws the outer roll

away from the inner roll on that side of the machine. A similar operation of the lever H opens or closes the gate G, and simultaneously therewith, through the partial rotation of the eccentric *e*, draws in or throws out the outer roll on that side of the machine. Thus it will be seen that by means of the two levers H H′ and their described connections with the outer rolls and the hopper-gates, I am enabled to operate either side of the machine independently of the other, which is often a material advantage in the practical operation of these machines. By means of the slots *k* in the gate-actuating rods a lateral adjustment of the bolts *j* is permitted to enable the gate to be set and travel in perfectly true lines.

Having thus fully described my invention, I claim—

1. In a roller-mill, the combination of a suitable supporting-frame and grinding-rolls, swinging arms supporting one roll of each pair of the grinding-rolls, as described, rods F F′, spring connections securing said rods to said arms, horizontal eccentrics connected to the inner ends of said rods, upright shafts *d*, arms extending from said shafts, and rods *g g′*, connected thereto, horizontally-sliding hopper-gates above said rods *g g′* and connected thereto, and hand-levers H H′ for operating the rods F F′ *g g′* simultaneously, as set forth.

2. The combination, with the hopper and the reciprocating rod extending under the hopper, of the hopper-gate provided with diagonal slots, bolts passing through said slots and adjustably engaging said rod, as set forth.

HENRY J. GILBERT.

Witnesses:
ED. W. RECTOR,
OTTO RICHTER.