(No Model.)

J. W. GALLOWAY.

ROLLER MILL.

No. 313,312. Patented Mar. 3, 1885.

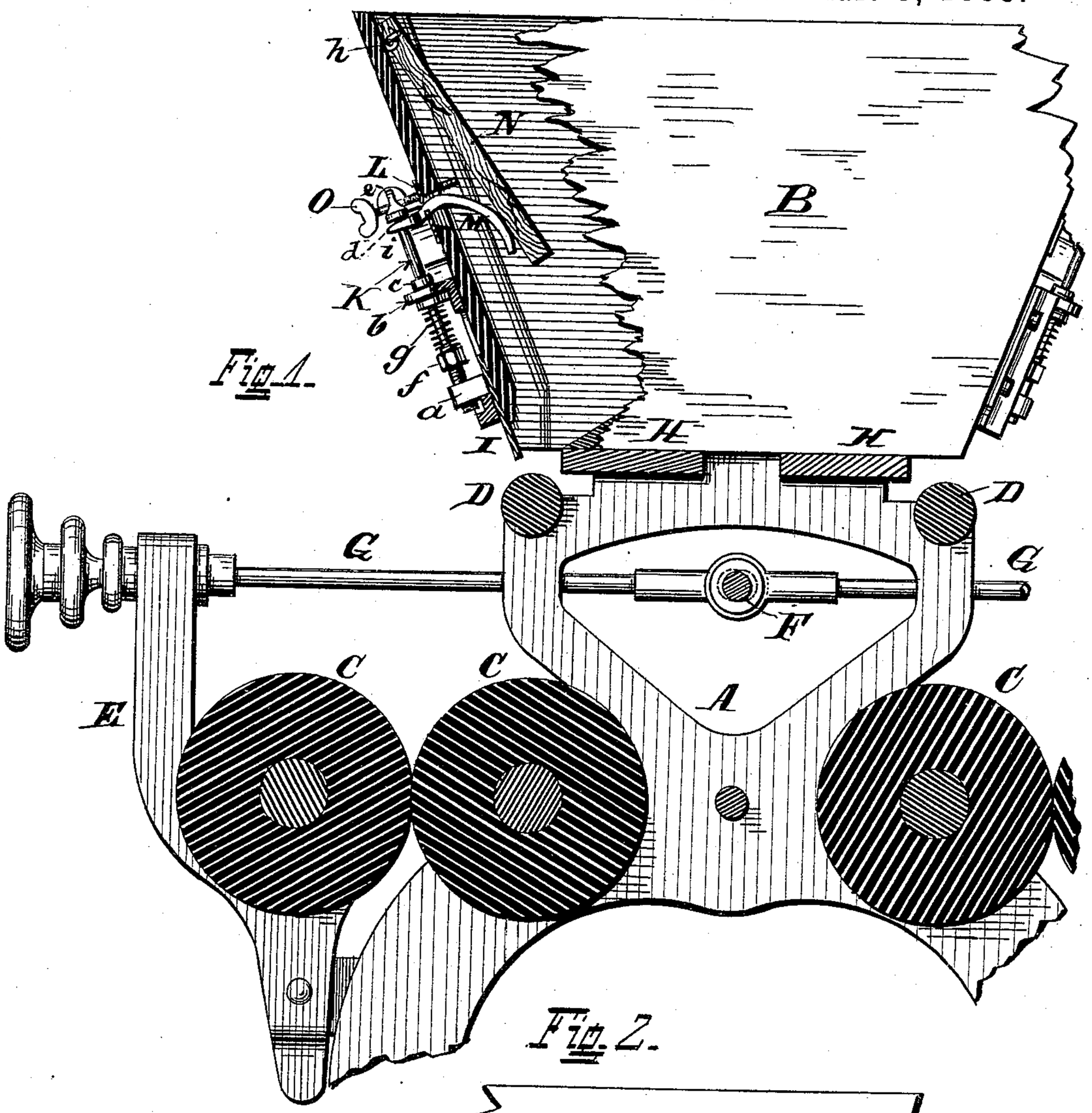

Fig. 1.

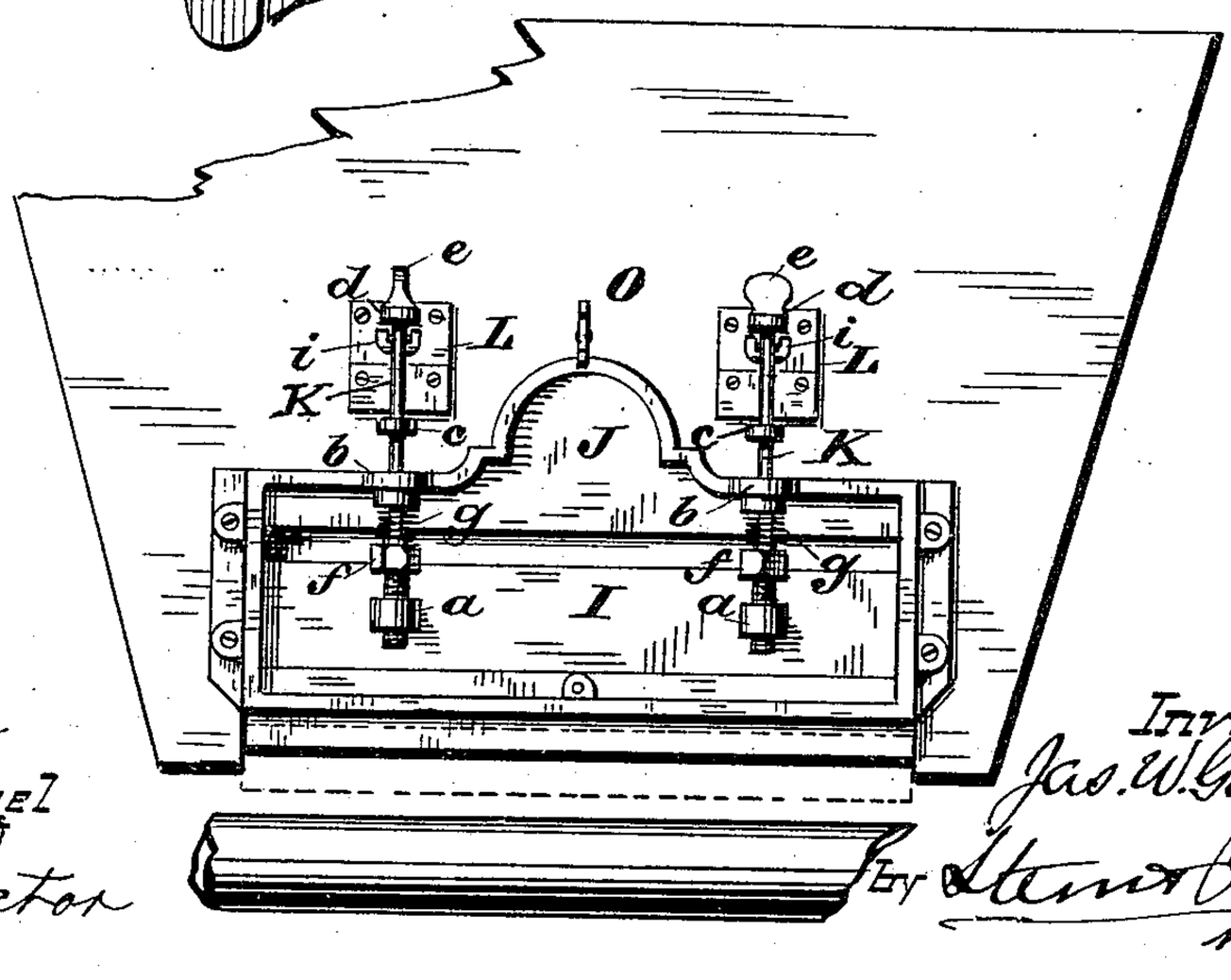

Fig. 2.

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UNITED STATES PATENT OFFICE.

JAMES W. GALLOWAY, OF DAYTON, OHIO, ASSIGNOR TO STOUT, MILLS & TEMPLE, OF SAME PLACE.

ROLLER-MILL.

SPECIFICATION forming part of Letters Patent No. 313,312, dated March 3, 1885.

Application filed May 29, 1884. (No model.)

To all whom it may concern:

Be it known that I, JAMES W. GALLOWAY, 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 product is fed into and from a hopper to one or more pairs of differentially-running grinding or crushing rolls, usually having corrugated dress, and has for its object the production of a novel automatic feed mechanism.

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

In the accompanying drawings, Figure 1 is a side elevation, partly in section, of so much of a double roller mill as illustrates my invention. Fig. 2 is an end elevation of the hopper, showing a front elevation of the adjusting-gate.

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

The general construction and frame-work of the mill may be that shown and described in the patents of John Livingston, No. 280,195, June 26, 1883; No. 284,135, August 28, 1883, and of H. J. Gilbert, No. 280,170, June 26, 1883, and I will only stop to say that A is the frame-work, B the hopper, C the grinding-rolls, D the feed-rolls, E the adjustable journal-arms, F the oscillating through-shaft, and G the rods connecting the journal-arms and the through-shaft.

H are the cut-off gates, operated by the mechanism shown in the Patent No. 280,195, above referred to, or by any other suitable mechanism.

I are the feed-adjusting gates upon the ends of the hopper, and supported by and sliding in a frame, J, of the usual or any suitable construction. Each of the gates I is supported and adjusted by two bolts, K, having enlarged lower threaded ends engaging with perforated and threaded lugs or ears *a*, projecting from the gate, as shown. The bolts pass up through suitably-perforated guide-ears *b*, projecting from the frame J, as shown, and have enlargements or collars *c* just above the ears *b*, and also second upper enlargements or collars, *d*, terminating in thumb-heads *e*. Upon the threaded lower portions of the bolts K are nuts *f*, between which and the ears *b*, and surrounding the bolts, are spiral springs *g*, which serve as tension-springs to hold the gate down, except as hereinafter stated. From this construction it will be seen that by turning the bolts K by hand the gate can be adjusted up or down by the lugs *a*, traveling up or down on the lower threaded ends of the bolts, without affecting the tension of the springs *g*, which can be independently regulated as desired by the nuts *f*.

Passing through apertures in the end of the hopper, and in this instance fulcrumed in slotted plates L, are two curved lever-arms, M, of the shape shown, whose outer projecting ends, *i*, are forked, so as to embrace the bolts K and bear against the under sides of the collars *d*.

Suitably hinged or pivoted at *h* is a pressure-board, N, within the hopper, and resting and supported in an inclined position upon the lever-arms M, as shown in Fig. 1. The expansive force of the springs *g*, in connection with the weight of the gate, holds the arms M up to their farthest limit, except at such times as the weight or pressure of the product on the board N presses them down, and through the medium of the forks *i* raises the gate, as will be readily understood. Upon the removal of the pressure, the springs, reacting, close the gate. The limit of play of the gate downward can be regulated by turning the bolts K, while its upward play is limited by a check-screw, O, passed through the end of the hopper, and against which the pressure-board strikes, and is arrested at any desired point. The degree of resistance in lifting the gate can be regulated by the adjustment of the tension of the springs *g* through the medium of the nuts *f*, and this tension once adjusted is not disturbed by the raising or lowering of the gate by turning the bolts K.

I do not wish to limit myself to the means detailed for uniting the lever-arms M and bolts

K, nor to the manner in which the lever-arms M are pivoted or fulcrumed; but,

Having thus fully described my invention, I claim—

1. The combination, with the hopper, the gate I, having ears or lugs *a*, and the frame J, having ears *b*, of the bolts K, threaded at their lower ends and engaging with said lugs upon the gate, and having collars engaging with said ears upon the frame and upper collars, the lifting-levers, and a hinged pressure-board within the hopper, substantially as described.

2. The combination, with the pressure-board N, lifting-levers M, gate I, and its frame J, of the bolts K, having enlarged lower threaded ends for engagement with the gate, and upper double collared ends, each terminating in a thumb-head, springs *g* surrounding the bolts, and tension-regulating nuts *f* upon the enlarged lower threaded ends of the bolts, substantially as described.

3. The combination, with the hinged pressure-board N, gate I, frame J, and actuating-bolts K, of the curved fulcrumed levers M, having their outer ends engaging with the bolts K and their inner ends with the pressure-board N, substantially as described.

4. The combination of the hinged pressure-board N, levers M, bolts K, gate I, and frame J, of a check-screw or adjustable stop, O, passed through the hopper and adapted to engage with the pressure-board at any point desired, substantially as described.

JAMES W. GALLOWAY.

Witnesses:
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