

(No Model.)

2 Sheets—Sheet 1.

N. W. HOLT.

ROLLER MILL.

No. 294,236.

Patented Feb. 26, 1884.

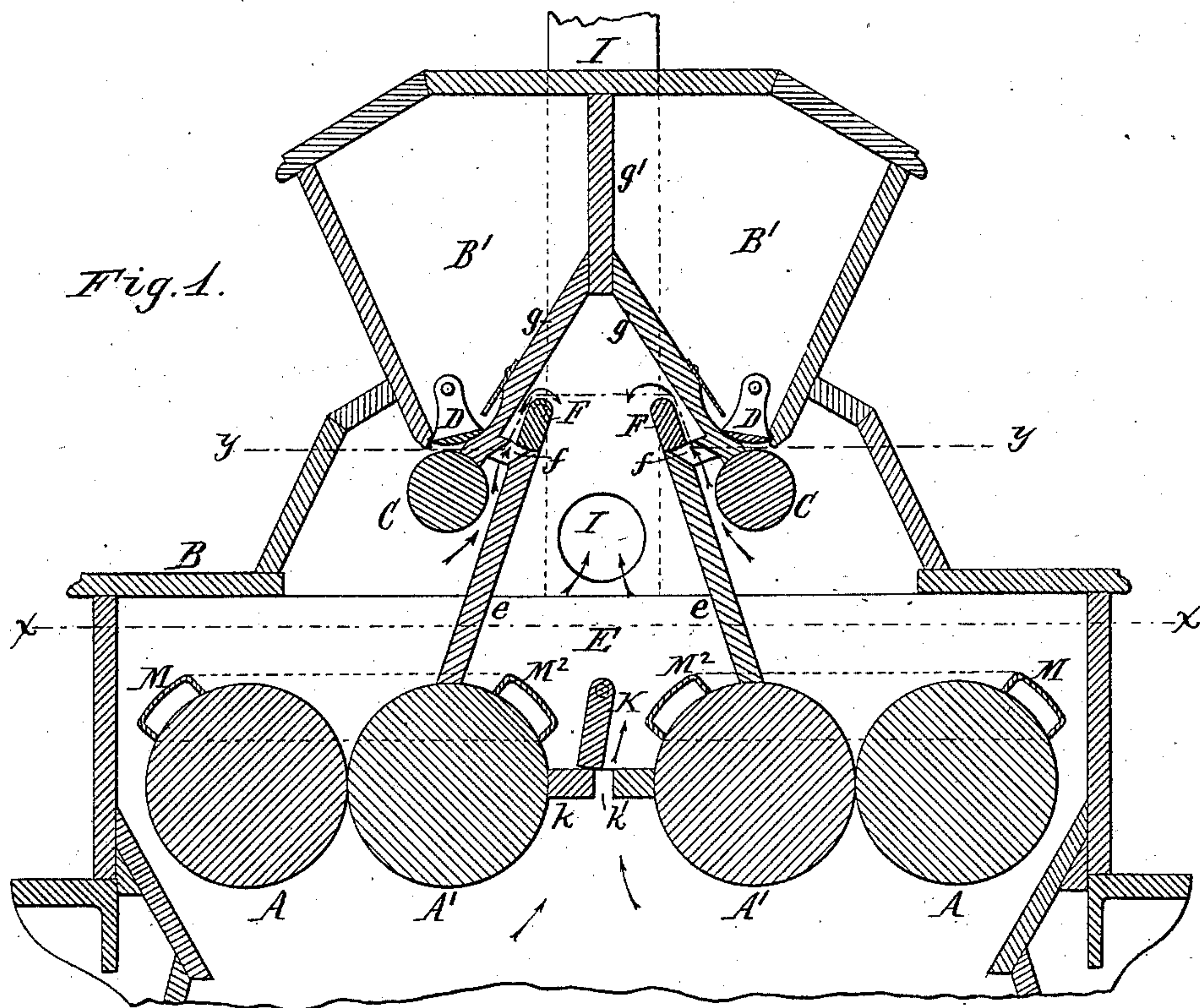


Fig. 2.

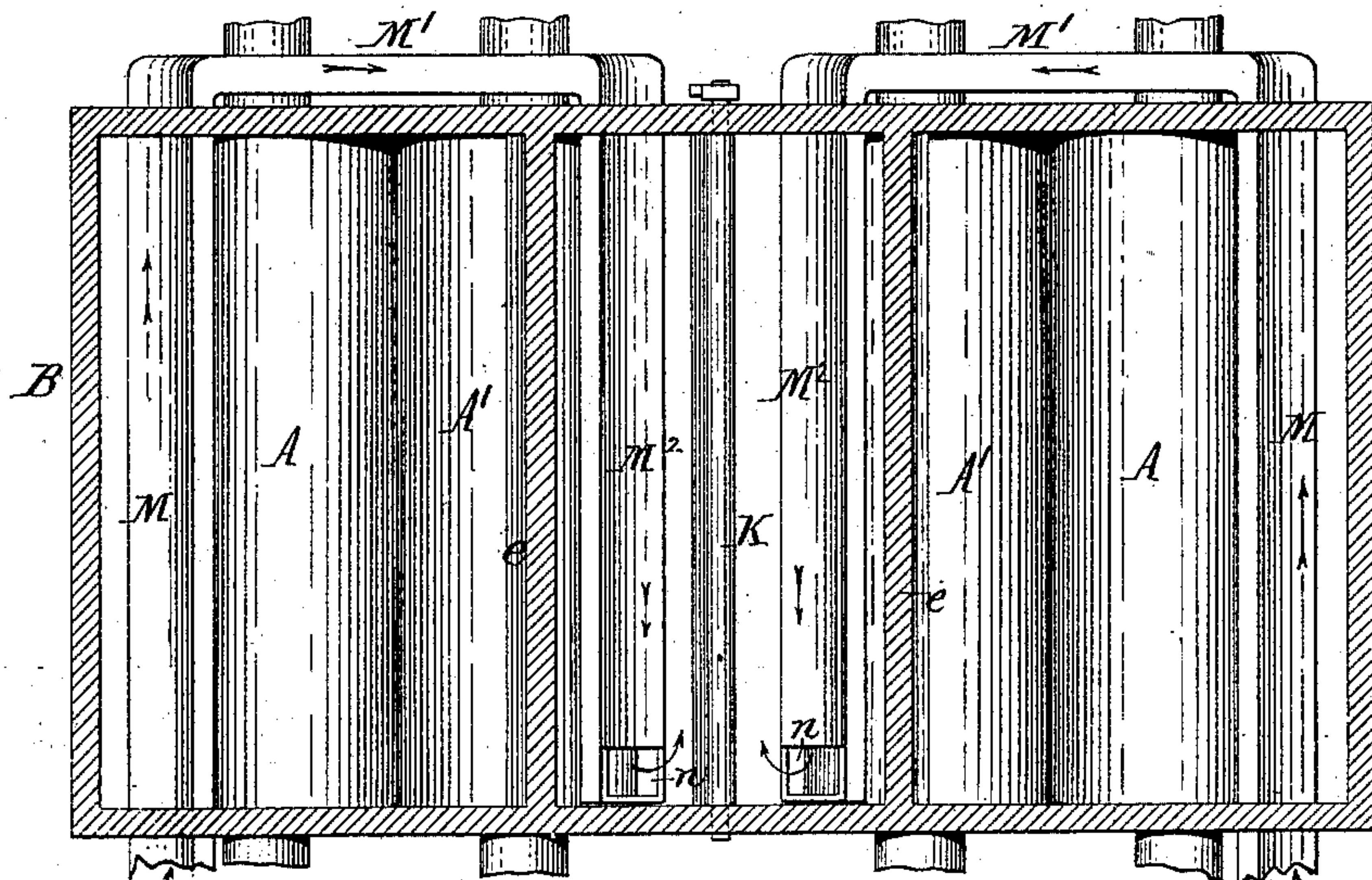
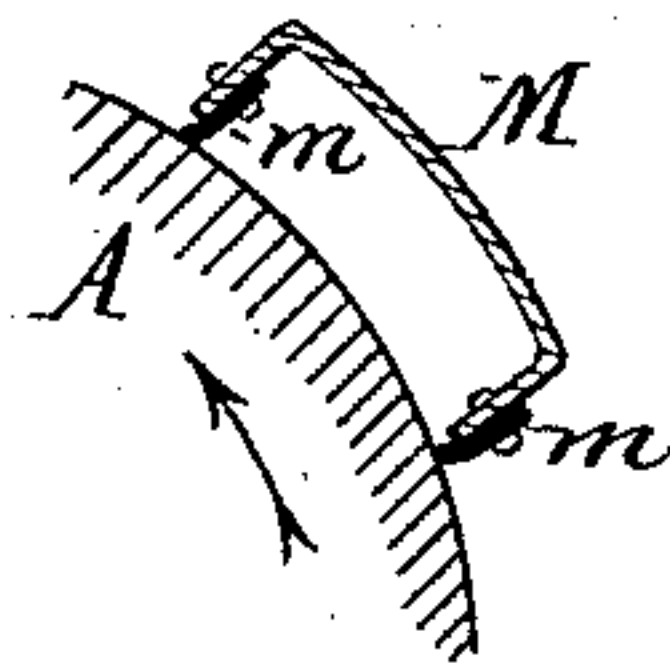


Fig. 3.



Theo. L. Popp
Chas. Buchheit } Witnesses.

Noah W. Holt } Inventor.
By Wilhelm & Formel } Attorneys.

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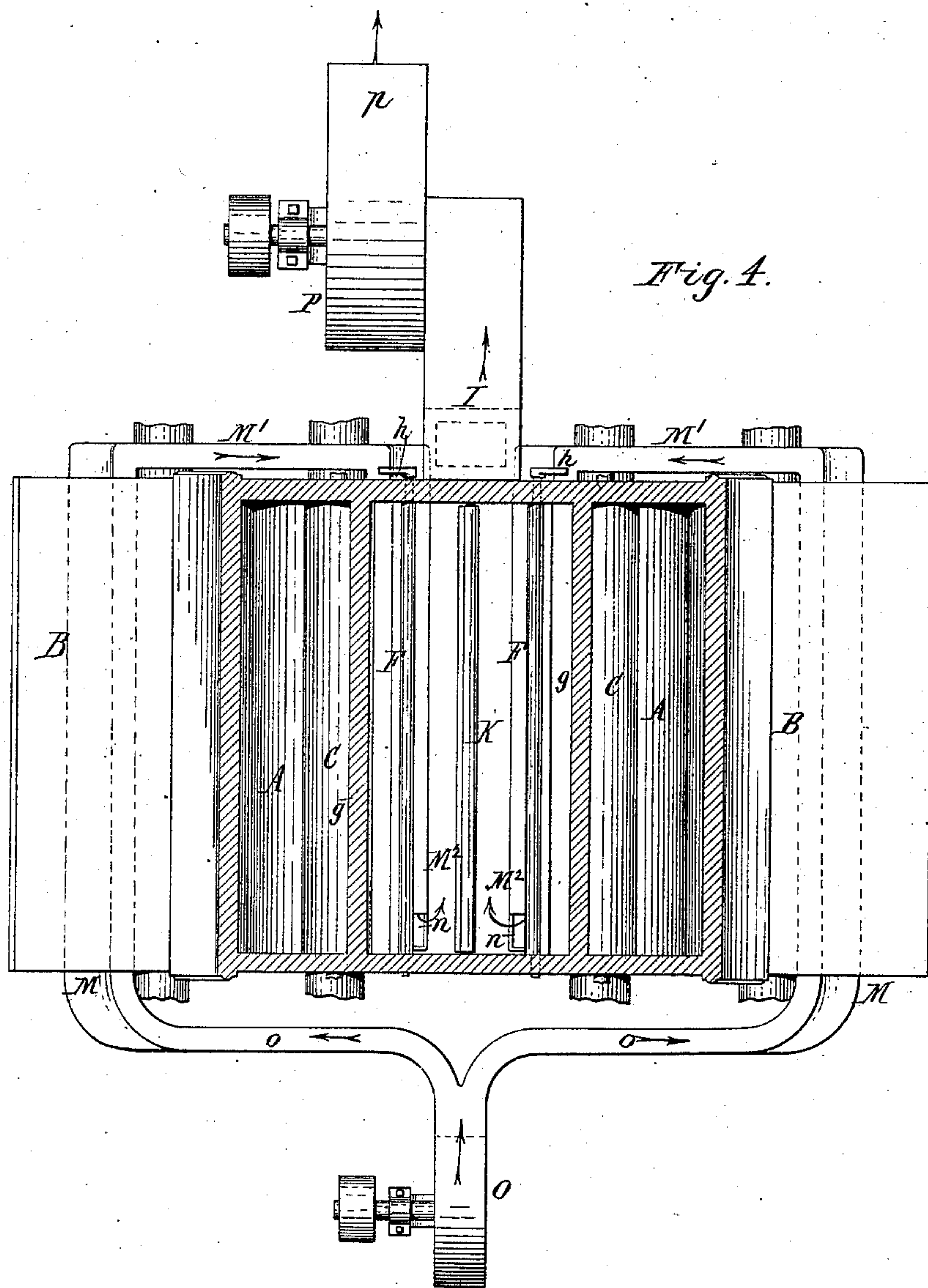
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Noah W. Holt Inventor.
By Wilhelm & Bonner
Attorneys.

UNITED STATES PATENT OFFICE.

NOAH W. HOLT, OF BUFFALO, NEW YORK.

ROLLER-MILL.

SPECIFICATION forming part of Letters Patent No. 294,236, dated February 26, 1884.

Application filed September 11, 1883. (No model.)

To all whom it may concern:

Be it known that I, NOAH W. HOLT, of the city of Buffalo, in the county of Erie and State of New York, have invented new and useful
5 Improvements in Roller-Mills, of which the following is a specification.

This invention relates to an improvement in that class of roller-mills which are employed for the reduction of grain in the manufacture
10 of flour and similar products.

My invention has the object to provide means for keeping the rollers clean and cool, and for carrying off the floating dust from the roller-mill casing.

15 My invention consists, to these ends, of the improvements which will be hereinafter fully set forth, and pointed out in the claims.

In the accompanying drawings, consisting of two sheets, Figure 1 represents a vertical section of a roller-mill provided with my improvements. Fig. 2 represents a horizontal section in line *x x*, Fig. 1. Fig. 3 is a cross-section of one of the air-pipes on an enlarged scale. Fig. 4 represents a partly sectional top
20 plan view of the machine, the section being taken in line *y y*, Fig. 1.

Like letters of reference refer to like parts in the several figures.

30 *A A'* represent two pairs of grinding or reducing rollers arranged in the same casing, *B*, in a well-known manner.

B' B' represent the two feed-hoppers, arranged, respectively, over the two pairs of grinding-rollers.

35 *C C* represent the feed-rollers, and *D D* the feed-slides, all of ordinary and well-known construction.

E represents an air-chamber arranged between the side walls of the roller-casing above and between the inner rollers, *A'*, below the feed-hoppers, and between the feed-rollers.

40 *e* represents the outer walls of the air-chamber *E*, extending upwardly from the inner rollers, *A'*, and provided on the rear side of each feed-roller *C* with an air passage or opening, *f*, which is provided with an adjustable gate or valve, *F*.

45 *g* represents the inner inclined walls of the feed-hoppers, extending upwardly from the upper sides of the feed-rollers to a central partition, *g'*. The openings *f* are arranged near the lower ends of the inclined walls *g*, and in

rear of the latter. The gates *F* are arranged in the air-chamber *E*, and pivoted in the side walls of the roller-casing, and provided on the outside of the casing with handles *h*, by which they can be adjusted. 55

I represents an air spout or pipe communicating with the chamber *E*, and forming an exit-passage through which the air escapes from the chamber *E*. 60

k represents the bottom plate of the chamber *E*, located between the inner rollers, *A'*, and provided with an opening or air-passage, *k'*. 65

K represents an adjustable gate or valve arranged above the opening *k'*, to regulate the flow of air through the same.

M M' represent air-passages arranged, respectively, against the outer sides of the rollers *A A'*, running lengthwise of the same, and *M'* are air passages or tubes, whereby each passage *M* is connected with the passage *M'*, so that the air will pass from the passage *M* through the passage *M'* into the passage *M'*. 70
75 The passages *M M'* are constructed in the form of troughs or tubes having a longitudinal opening on one side, the open sides of the troughs or tubes resting against the rollers, as clearly shown in Figs. 1 and 3. The edges of the troughs may be provided with packing-strips *m* of leather or other flexible material, resting against the rollers, as shown in Fig. 3. The passages *M* are fitted against the outer rollers, *A*, and the passages *M'* against the inner rollers, *A'*. Those portions of these passages which extend beyond the rollers as well as the passages *M'* are constructed in the form of tight tubes. The passages *M'* are arranged in the air-chamber *E*, and their ends farthest removed from the pipes *M'* are provided with apertures *n*, which open into said air-chamber. 80
85

O represents a blast-fan having its blast-spout *o* connected with the air-passages *M M'* in such manner that air-currents are driven by said fan through the air-passages *M M' M'* into the chamber *E* in the direction of the arrows in Fig. 2. The air-currents flowing through the passages *M M'* pass along the surfaces of the rollers *A A'*, and remove therefrom the dust and light fuzzy material adhering to the same, and at the same time keep the rollers cool. The action of the air-currents is confined 95
100

to the portions of the roller-surfaces which are covered by the air-passages, and the air-currents do not in any way interfere with or affect the grinding action of the rolls or the passage
5 of the material to and from the rolls.

P represents a suction-fan, having its eye connected with the air-trunk I, so as to exhaust the air from the chamber E. The exhaustion of the chamber E causes air-currents to enter
10 the chamber E from the interior of the casing B through the openings *f* and *k'*. The air-currents entering through the openings *f* pass through the streams of grain escaping from the feed-rollers and past the rear sides of the
15 feed-rollers, and remove the dust contained in the grain or adhering to the feed-rollers. By this means the dust removed from the feed-roller is not again brought in contact with the material escaping from the feed-roller. The
20 lower portion of the casing B has openings admitting the external air in the usual manner. A portion of the air entering the casing B passes through the opening *k'* into the chamber E, and carries with it any dust or light
25 particles floating in the casing B below the rollers A A'. The exhaustion of the chamber E will also cause air-currents through the passages M M' M² in the proper direction in the absence of a blast-fan, O, and the latter may
30 be dispensed with, if desired. The blast-spout *p* of the fan P discharges the dust-laden air into a suitable dust-room or dust-collector.

When a number of roller-mills are employed, a single fan may be connected with all of the
35 roller-mills by suitable branch spouts.

The mechanism for cooling and cleaning the rollers may be used independently of the mechanism for cleaning the feed-rollers, and instead of connecting the two air-passages of
40 each pair of rollers, so that the air-current passes successively along both rollers, each air-conduit may be directly connected with the fan or other device whereby the air-current is created; but I prefer the construction shown

and described, as being very simple, compact, 45 and effective.

I am aware that rollers have been provided with air-pipes whereby air-currents are directed against the surface of the rollers, and this I do not claim. 50

I claim as my invention—

1. The combination, with a revolving roller, of an air passage or conduit fitted with its open side lengthwise against the roller, and mechanism whereby an air-current is caused to flow
55 through said conduit or passage along the portion of the roller-face which is covered by said conduit or passage, substantially as set forth.

2. The combination, with two revolving rollers, of air passages or conduits fitted with
60 their open sides lengthwise against the rollers, a conduit whereby said passages are connected, and mechanism whereby an air-current is caused to flow successively along both rollers through both of said conduits or passages, substantially as set forth. 65

3. The combination, with rollers A A', of air-conduits arranged along the rollers, a chamber, E, into which the several air-conduits open, and an exit-spout, I, through which the
70 air is discharged from the chamber E, substantially as set forth.

4. The combination, with the reducing-rollers A A', feed-rollers C, and inclosing-casing B, of an air-chamber, E, having open-
75 ings *f* and *k'*, substantially as set forth.

5. The combination, with the reducing-rollers A A', feed-rollers C, and inclosing-casing B, of an air-chamber, E, having open-
80 ings *f*, and air-conduits M², opening into the chamber E, substantially as set forth.

Witness my hand this 13th day of August, 1883.

NOAH W. HOLT.

Witnesses:

CARL F. GEYER,
JNO. J. BONNER.