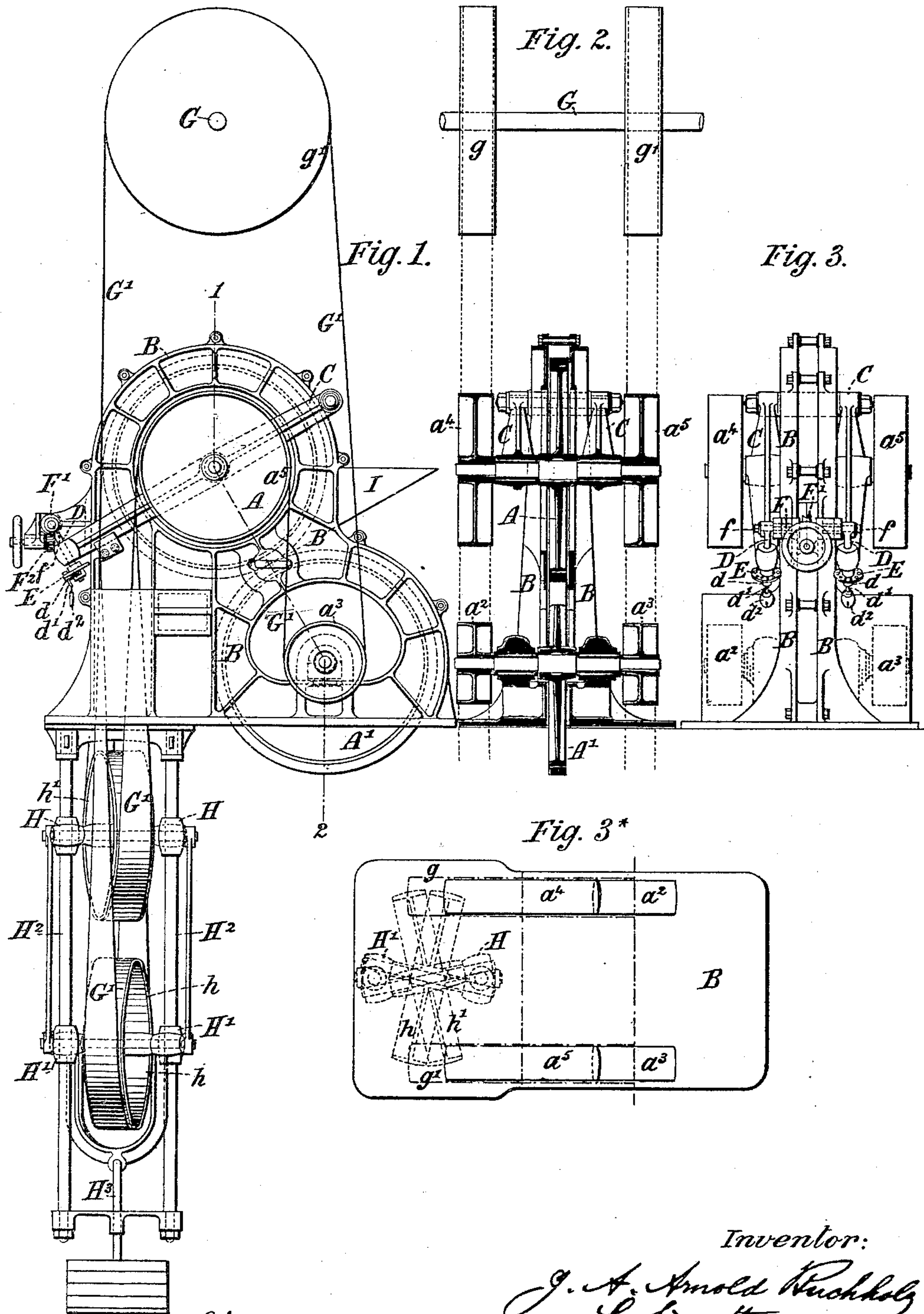


(No Model.)

J. A. A. BUCHHOLZ.  
ROLLER MILL.

No. 453,755.

Patented June 9, 1891.



Witnesses: { O. Sundagren  
Matthew Pollock

Inventor:  
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By his attorneys  
Brown & Hall



# UNITED STATES PATENT OFFICE.

JOHN A. ARNOLD BUCHHOLZ, OF TWICKENHAM, ENGLAND.

## ROLLER-MILL.

SPECIFICATION forming part of Letters Patent No. 453,755, dated June 9, 1891.

Application filed February 7, 1885. Serial No. 155,163. (No model.) Patented in England May 1, 1882, No. 2,054, and September 17, 1883, No. 4,439; in France October 31, 1882, No. 151,850, and in Germany May 24, 1884, No. 29,732.

*To all whom it may concern:*

Be it known that I, JOHN AUGUSTE ARNOLD BUCHHOLZ, engineer, of Twickenham, in the county of Middlesex, England, have  
5 invented a new and useful Improvement in Roller-Mills, (for which I have obtained British Letters Patent No. 2,054, dated May 1, 1882, and No. 4,439, dated September 17, 1883; French Brevet d'Invention, No. 151,850,  
10 dated October 31, 1882, and German Imperial Patent No. 29,732, dated May 24, 1884,) of which the following is a specification, reference being had to the accompanying drawings.

15 My invention consists in novel driving-gear, hereinafter described and claimed, for driving the crushing-rollers of a roller-mill, whereby a single driving-belt is made to run  
20 on pulleys on both ends of the shafts of both of said rollers, and is weighted to produce equal pressure on the pulleys at each end of each roller, and thereby to render the motion of the rollers certain, smooth, and regular.

In the accompanying drawings I have  
25 shown my invention applied to a disk or short-roller mill. It is, however, equally applicable to mills having rollers of the ordinary length.

Figure 1 represents a side elevation of the mill; Fig. 2, a vertical section at right angles  
30 to Fig. 1 on the line 1 2 thereof, and Fig. 3 a front view. Fig. 3\* exhibits a plan of the bed-plate of the mill and a diagram of all the driving-pulleys, the pulleys on the roller-shafts being shown in full outline and the  
35 other pulleys in dotted outline.

Similar letters of reference indicate corresponding parts in the several figures.

A A' designate the rollers. The axle of the lower roller A' turns in fixed bearings in the  
40 stationary framing B of the mill, and the axle of the upper roller is carried by a pair of arms C, pivoted at their rear end to the framing B. These arms C extend beyond the axle and toward the front of the mill, and  
45 are formed at their rear extremities with bosses through which pass screw-bolts D, which hang upon a crank-shaft F, which is mounted in bearings in the framing B. The said arms C are supported upon nuts on the

said bolts, which serve to adjust the said arms 50 and the upper roller A, and so adjust the distance between the rollers. As this adjustment is not part of the present invention, it needs no further description, but is only so far described to illustrate the provision for 55 weighting the upper roller hereinafter described.

G is the driving-shaft, which is to be supported in fixed bearings, and on which are placed two driving-pulleys  $g g'$  above similar 60 pulleys  $a^2 a^3$  on the opposite ends of the axle of the roller A', for the purpose of driving the rollers at both ends with one belt. This belt G' is passed from the driving-pulley  $g$  on the left-hand side of the machine under the pulley  $a^2$  65 of the axle of the roller A'. The belt then passes over the corresponding pulley  $a^4$  of the axle of the upper roller A, and it is next led out to and under a skewed guide-pulley  $h$ , which guides it up to the driving-pulley  $g'$ . 70 The belt then passes down to the pulley  $a^3$  on the right-hand side of the roller A', thence to a corresponding pulley  $a^5$  on the upper-roller axle, and by means of a second skewed guide-pulley  $h'$  the belt is conducted back to its 75 starting-point. The effect of this arrangement is to produce a perfect balance of all the strains of the driving-gear throughout every part of the machine. The said arrangement, moreover, serves, when the band is weighted, 80 to put the requisite downward pressure upon the upper roller. This weighting of the driving-band is effected in the following manner, the details of the arrangement being given in order to provide a complete description of the 85 mill in its most approved form.

The skewed guide-pulleys  $h h'$  (see Fig. 1, and also the plan view, Fig. 3\*) are carried by cross-heads H H', mounted between guide-rods  $H^2 H^2$ , pendent from the base-plate of the 90 mill. These cross-heads are connected rigidly, and they are free to slide on the guide-rods, they being held up by the band G'. Pendent from the coupled cross-heads is a weighted rod  $H^3$ , which is intended to hold 95 the driving-band G' at the desired tension.

I do not here claim the means herein represented for adjusting the rollers, such means

forming part of the subject-matter of my application for United States patent, Serial No. 155,472, filed February 10, 1885.

Having explained the nature of my invention, I wish it to be understood that I claim—

5 In a roller-mill, the combination, with the driving-shaft provided with two band-pulleys, suitable guide-pulleys, and two rollers having driving-pulleys at each end, of a single driv-

ing-band common to the pulleys on both ends of both rolls, substantially as and for the purpose herein described.

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Witnesses:

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