(No Model.)

N. W. HOLT.

ROLLER MILL.

No. 252,945. Patented Jan. 31, 1882.

Fig. 4.

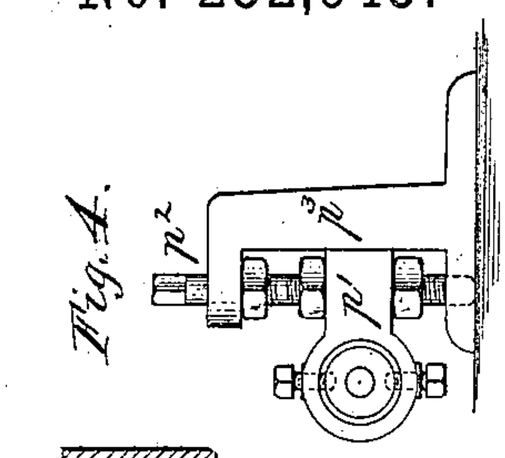


Fig. 3.

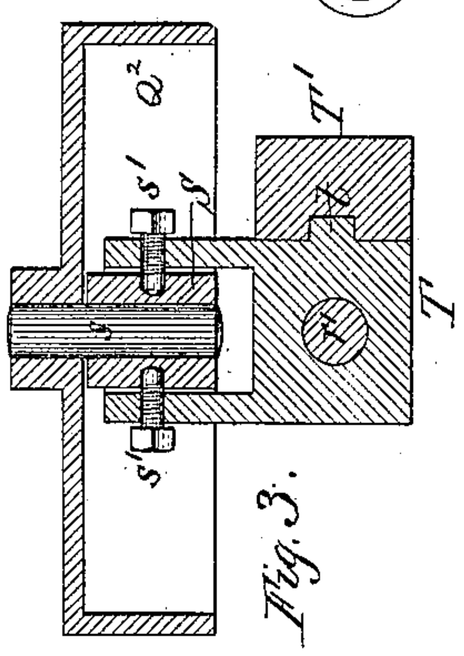


Fig. 2.

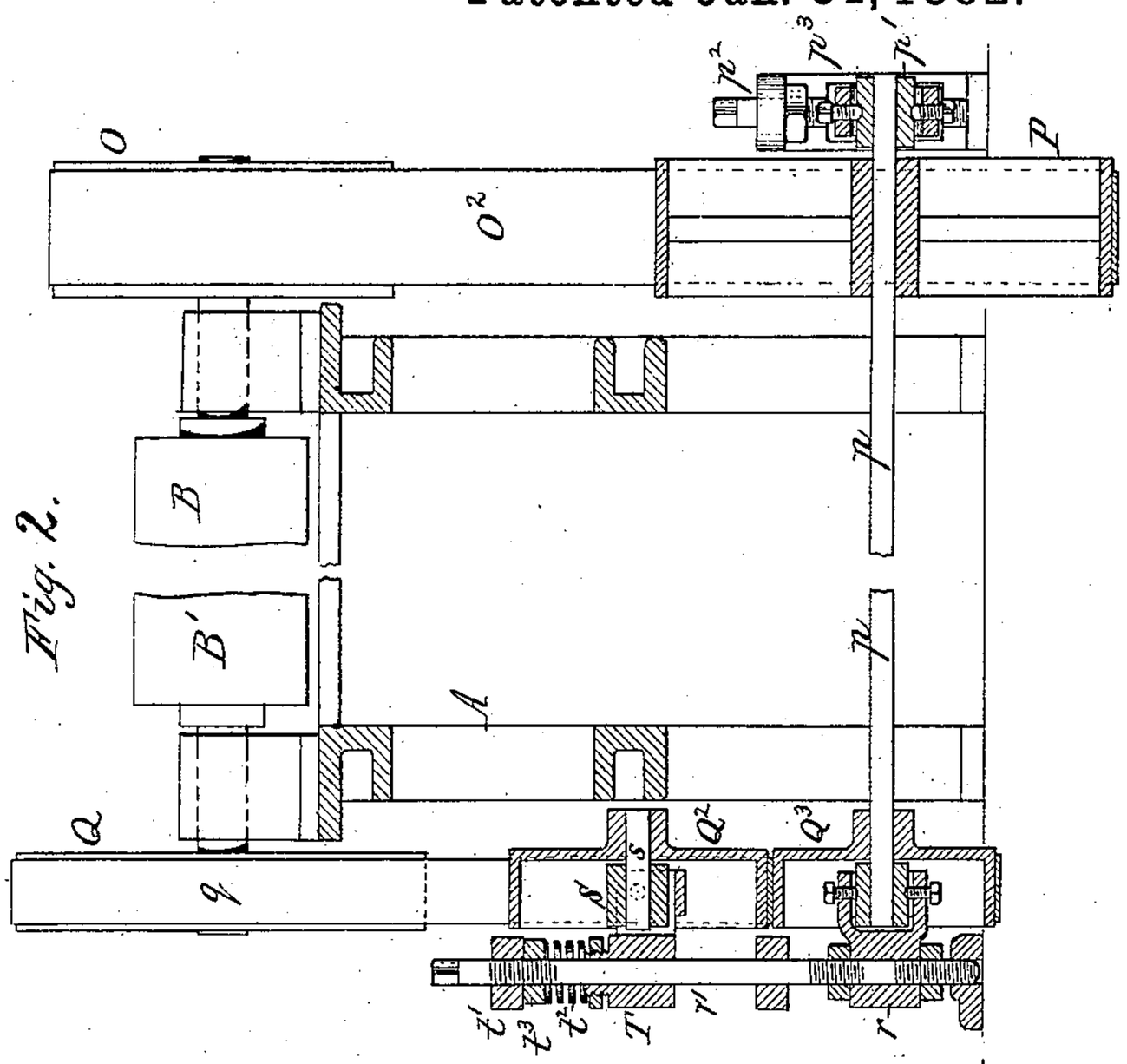
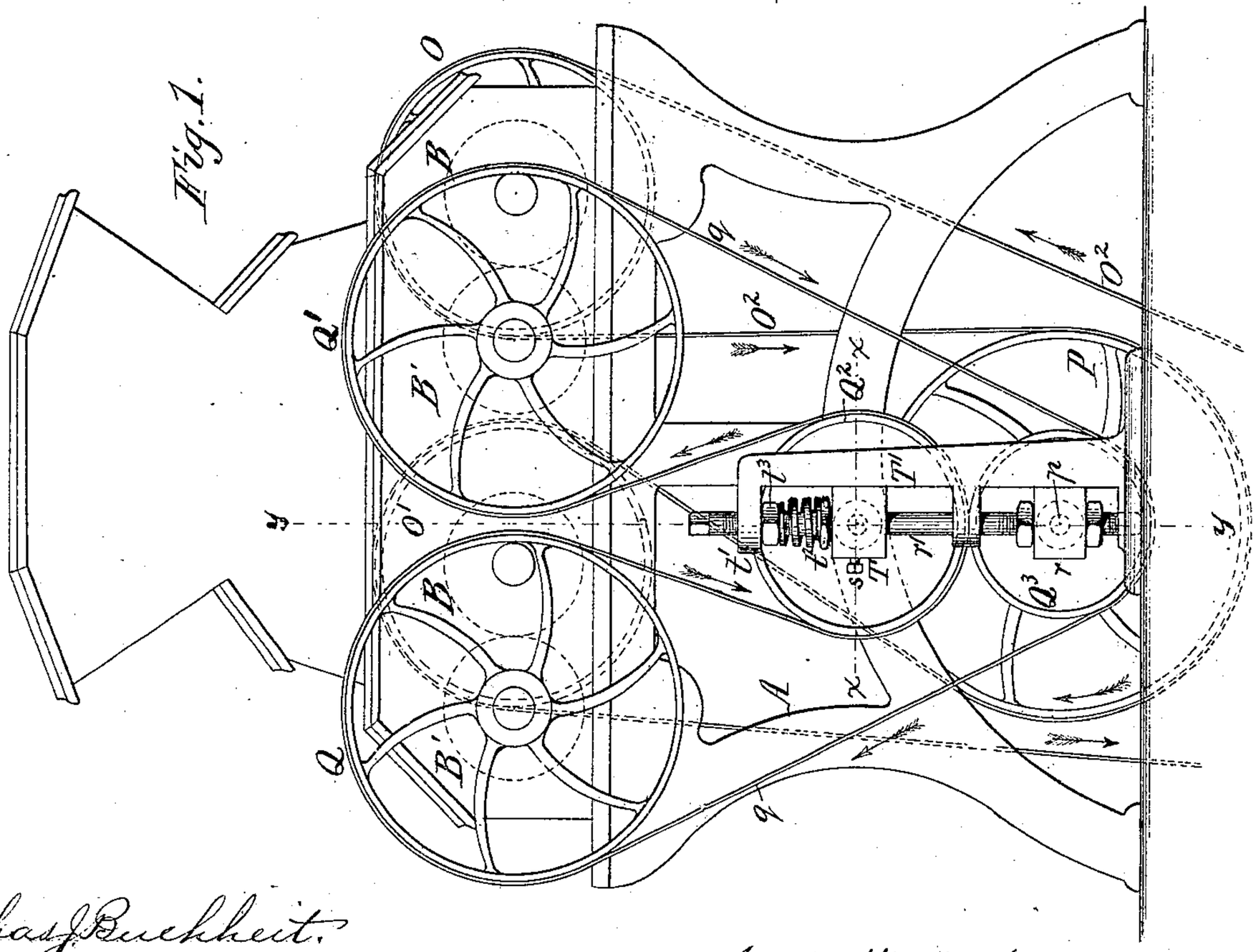


Fig. 1.



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UNITED STATES PATENT OFFICE.

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ROLLER-MILL.

SPECIFICATION forming part of Letters Patent No. 252,945, dated January 31, 1882.

Application filed November 21, 1881. (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 Improvements in Roller-Mills, of which the following is a specification.

This invention relates to that class of roller-mills which are employed for the reduction of grain and similar substances, and has reference more particularly to the means for driving the rollers of a mill containing two pairs of rollers.

It has for its object to avoid the slipping of the driving-belts and to prevent the slow rollers from gathering speed by direct or indirect contact with the fast rollers.

My invention consists of the peculiar driving mechanism which will be hereinafter fully described.

In the accompanying drawings, Figure 1 is a side elevation of a roller-mill provided with my improvement. Fig. 2 is a cross-section in line *y y*, Fig. 1. Fig. 3 is a horizontal section in line *x x*, Fig. 1. Fig. 4 is a side elevation of one of the adjustable bearings of the driving-shaft.

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

A A represent the stationary side frames of the roller-mill.

B B represent the fast rollers, and B′ B′ the slow rollers, all mounted in suitable bearings, which are secured to the side frames, A.

O O′ represent two pulleys of equal size, mounted on the shafts of the fast rollers B B; and O^2 represents the endless driving-belt, which runs over a driving-pulley below (not shown in the drawings) and over the pulley O in the direction of the arrow in Fig. 1, thence downward and around a pulley, P, secured to a counter-shaft, *p*, thence upward and around the pulley O′, and thence downward and around the driving-pulley below. The counter-shaft *p* is supported adjacent to the pulley P in an adjustable bearing, *p′*, which is attached by a vertical adjusting-screw, p^2, to a standard, p^3.

Q Q′ represent two pulleys mounted on the shafts of the slow rollers B′ B′ on the opposite side of the machine; and *q* represents the endless driving-belt, which runs around the pulley Q, thence downward and around a friction-pulley, Q^2, thence upward and around the pulley Q′, thence downward and around the driving-pulley Q^3, and thence upward to the pulley Q. The driving-pulley Q^3 is secured to the counter-shaft *p* near its end, which latter is supported in a bearing, *r*, made adjustable on a vertical screw-bolt, *r′*. The friction-pulley Q^2 is secured to a short shaft, *s*, which turns in a bearing, S. The latter is attached by screw-bolts *s′* to a carrier, T, which slides on the upper portion of the vertical bolt *r′*, and which is also provided with a rib, *t*, which slides in a vertical groove in a standard, T′. The latter is secured with its base to the floor and provided at its upper end with a lug, *t′*, through which the threaded upper end of the bolt *r′* projects. t^2 represents a spiral spring, which bears upon the carrier T, and whose tension is adjusted by a screw-nut, t^3, applied to the upper threaded portion of the bolt *r′*. By this means the friction-pulley Q^3 and the belt *q* surrounding it are firmly pressed against the driving-pulley Q^3, whereby the belt Q is compelled to follow the movement of the driving-pulley Q^3 without slipping and the slow rollers are prevented from gaining speed by contact with the fast rollers.

I claim as my invention—

1. In a roller-mill, the combination, with pulleys Q Q′, a driving-pulley, Q^3, and an endless driving-belt, *q*, of a friction-pulley, Q^2, which is partially surrounded by the driving-belt *q*, whereby the latter is pressed against the driving-pulley Q^3, substantially as set forth.

2. The combination, with two fast rollers provided with pulleys O O′ and two slow rollers provided with pulleys Q Q′, of the main driving-belt O^2, pulleys P and Q^3, mounted on a counter-shaft, *p*, secondary driving-belt *q*, friction-pulley Q^2, and mechanism whereby the pulley Q^2 and the belt *q* surrounding it are pressed against the pulley Q^3, substantially as set forth.

3. The combination, with the pulleys Q Q′, driving-pulley Q^3, and endless driving-belt *q*, of the friction-pulley Q^2, movable bearing T S,

suitable support therefor, and spring t^2, whereby the friction-pulley Q^2 is pressed against the driving-pulley Q^3, substantially as set forth.

4. The combination, with the pulleys Q Q′, driving-pulley Q^3, and endless driving-belt q, of the friction-pulley Q^2, which is partially surrounded by the belt q, and whereby the latter is pressed against the pulley Q^3, adjustable bearing r, adjustable carrier T, provided with bearing S, spring t^2, screw-bolt r', suitable support therefor, and adjusting-nut t^3, substantially as set forth.

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