

(No Model.)

R. A. MURRAY.
METHOD OF ADJUSTING GRINDING ROLLS.

No. 453,376.

Patented June 2, 1891.

Fig. 1.

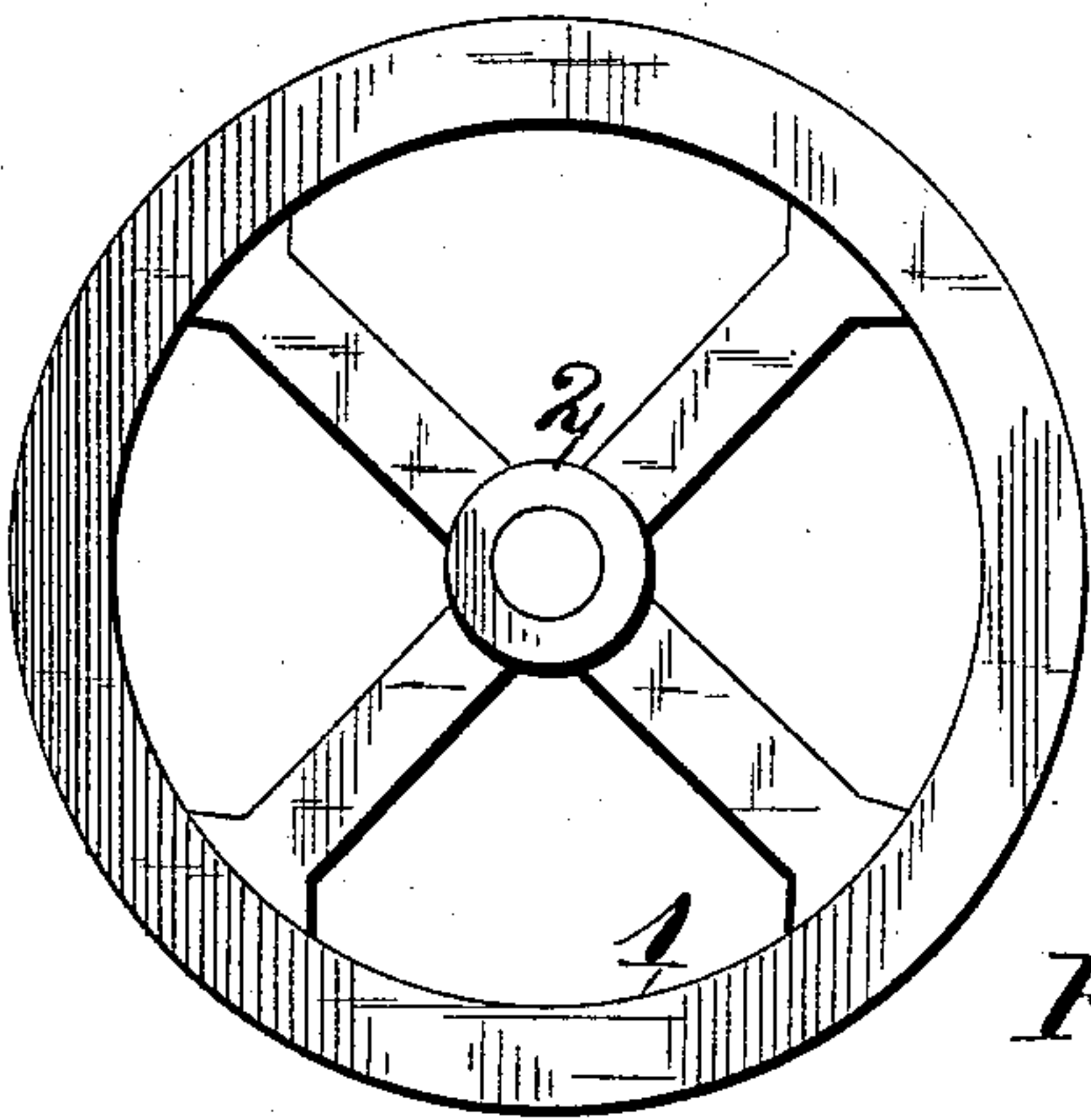


Fig. 2.

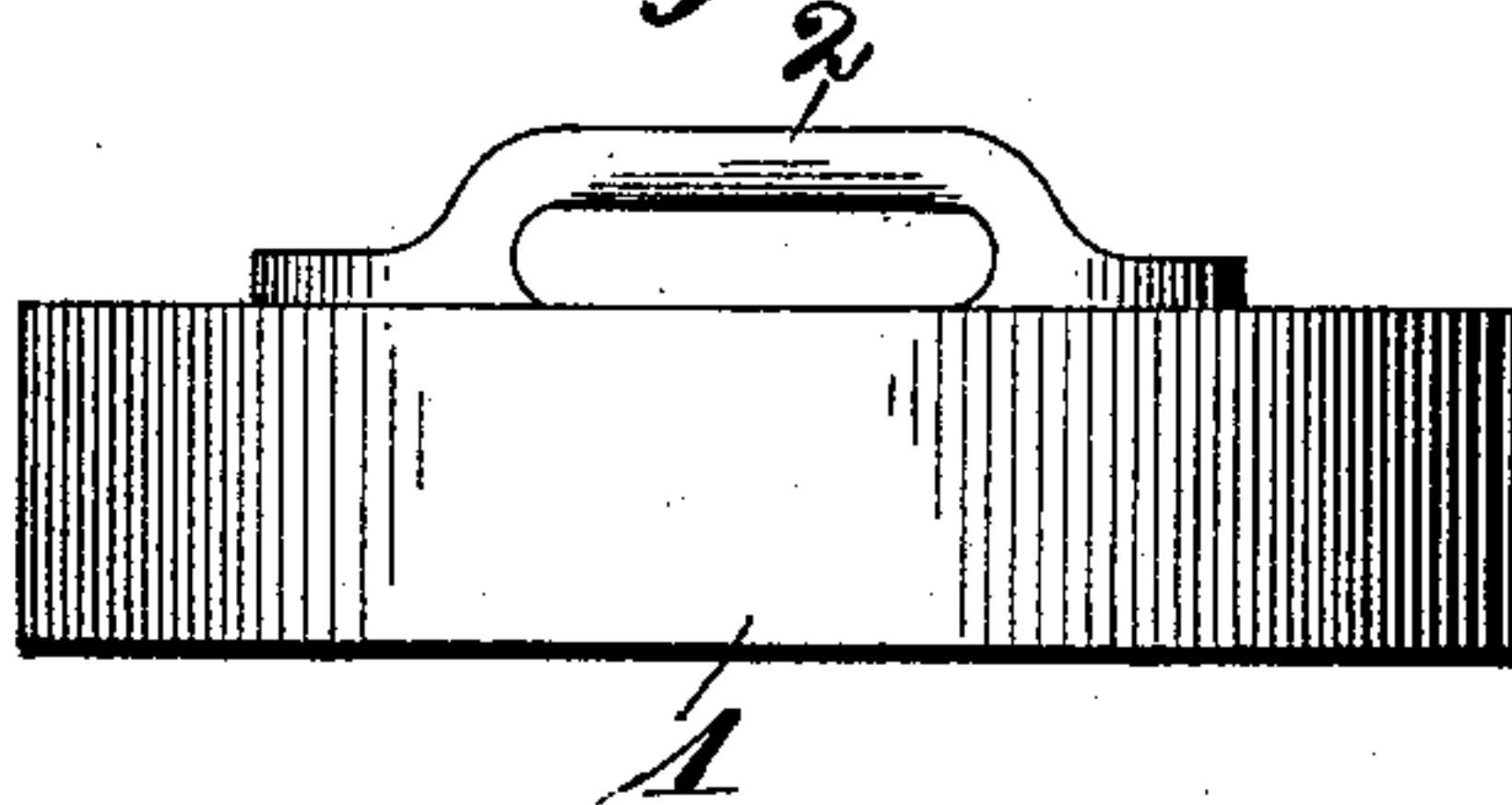


Fig. 3.

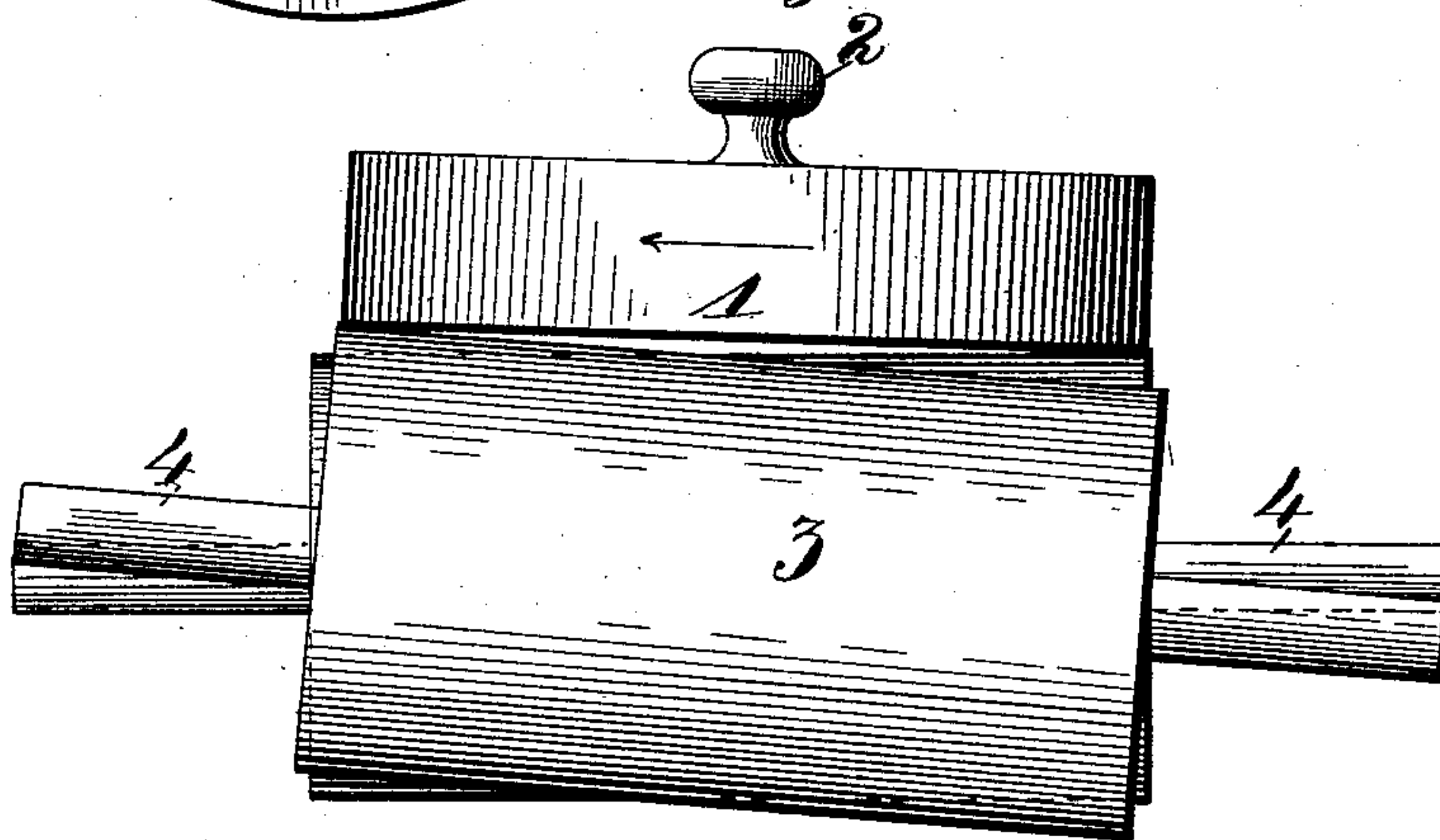
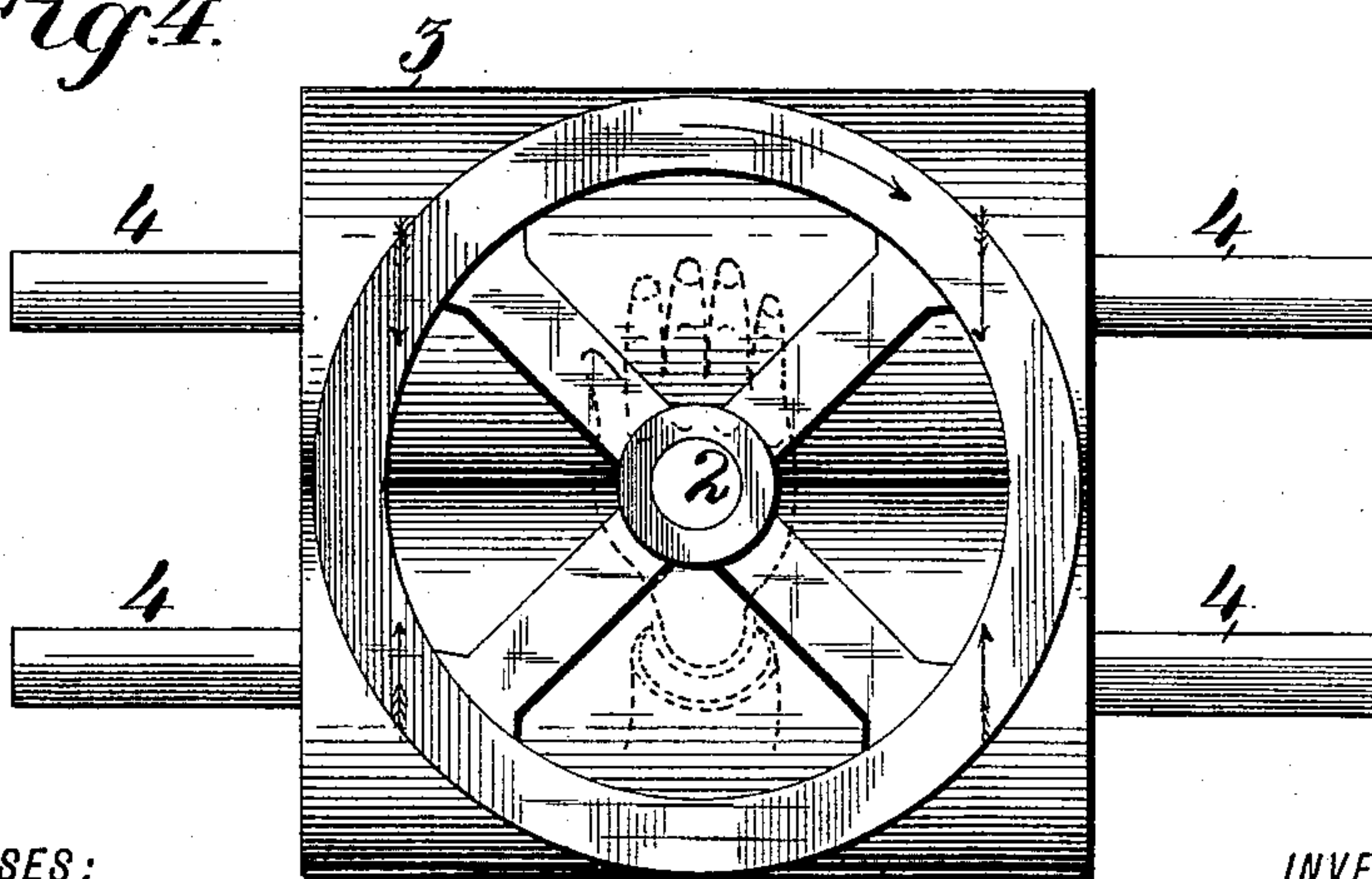


Fig. 4.



WITNESSES:

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METHOD OF ADJUSTING GRINDING-ROLLS.

SPECIFICATION forming part of Letters Patent No. 453,376, dated June 2, 1891.

Application filed October 18, 1890. Serial No. 368,567. (No model.)

To all whom it may concern:

Be it known that I, ROBERT A. MURRAY, of the city of Bonne Terre, St. Francois county, State of Missouri, have invented certain
5 new and useful Improvements in Method of and Means for Adjusting Grinding-Rolls, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.
10 My invention relates to improvements in methods of and means for adjusting grinding-rolls while they are in motion and working under full grinding pressure or strain; and it consists in the novel arrangement and
15 combination of parts, as will be hereinafter more fully described, and designated in the claim.

The object of my invention is to accurately adjust or tram the rolls while they are in operation with the full grinding pressure applied, and obviate the necessity which has existed heretofore of abating the operation of the rolls in order to accomplish the desired purpose.

25 Heretofore the rolls have been adjusted by adjusting the bearing of said rolls with a frame or instrument slid in at ends of rolls resting on the bearings or adjoining parts of bearing, or by a frame or plate placed on top of
30 rolls and tipping the plate to find the high and low points to be adjusted, which adjustments could only be accomplished by first stopping the revolution of the rolls and then effecting the desired adjustment. After this adjustment, when the rolls are put in motion the tension or force of the belt pulling down on the belt end of roller-shaft while the face or outside grinding-surface of roll is running with grinding pressure at a differential or faster
35 speed against the adjoining roll will again dislocate the roll out of proper grinding position.

My invention is to obviate the necessity of stopping the revolution of the rolls. I bring
45 about the proper adjustment by the knowledge of the friction of the grinding-surfaces of the rolls against a planometrical plate or disk while the same are in grinding motion and the grinding pressure applied.

50 In the drawings, Figure 1 is a top plan view of the radial disk or plate used in carrying out my invention. Fig. 2 is a side view of

the same. Fig. 3 is a side elevation of my invention as shown when applied to rolls when out of their proper adjustment. Fig. 4 is a
55 top plan view of the same as shown when applied to rolls when in their proper adjustment.

Referring to the drawings, 1 represents a planometrical wheel or plate of any shape or of any metallic or suitable substance, and
60 whose superficial dimensions correspond and are homologous to the plane surface tangentially described on the grinding-surface or circumference of the rolls while in motion when in proper order for performing the necessary functions. The contact-face of said
65 plate or disk should present a perfectly smooth surface, so that all the points or protruding molecules or atoms should lie in the same lineal plane.

2 represents an elevation or protuberance formed upon or attached to said plate, (which should always be centrally located,) which serves as a thumb-grip and pivotal attachment when said disk is applied to the rolls.
70 This may be dispensed with, if desirable so to do.

3 3 represent grinding-rolls of ordinary construction when out of proper adjustment and conceived to be mounted in suitable and ordinary frame-work. 4 4 are the journals on
80 which said rolls are respectively mounted. Said journals extend beyond the terminal portions of said rolls and are mounted in suitable bearings, whereby said bearings can be easily elevated or depressed and brought in proper adjustment, and consequently the rolls mounted thereon may be so adjusted.

Having sufficiently described my invention I will now proceed to describe more in detail
90 its application and use, in order that its essential features may be more fully appreciated.

When it is desired to adjust the rolls, which can be ascertained by inspecting the crushed
95 grain, to wit: when the rolls are out of the same tangential plane, the median portion of said rolls are brought in closer proximity by such dislocation, and consequently the grain which passes through said portions of the
100 rolls is ground finer than that which passes through other portions of the rolls. The ultimate tendency of such dislocation is to cause the median portion of the rolls to be worn

away or hollowed out, and thereby rendering them worthless for grinding purposes. The dislocation of the rolls being established by inspection of the crushed grain, as before
5 stated, the operator in proceeding to bring about the proper adjustment should grasp the elevated portion or handle and place his hand upon the center of the radial disk or
10 plate and gently apply it horizontally and simultaneously on the rolls while in functional revolution and grinding pressure applied. The contact parts of the rolls being
15 out of the same horizontal plane consequent from dislocation of the journals on which they are mounted, striking by friction against the surface of the disk or plate will impart to it a revolving motion, and this uneven motion will continue until all the contact points of
20 said rolls are brought in the same tangential plane, and then the disk or plate will adjust itself in *statu quo* in a plane parallel to the tangential plane of the rolls. It will be further observed that the tendency of the planometrical plate or disk to turn or revolve when
25 applied to the grinding-surfaces of the rolls indicates that the same are out of proper adjustment. After the proper adjustment of the rolls is made the disk or plate will lose its tendency to revolve, remaining stationary, or nearly so, which is ascertained
30 by the sense of touch, by which means the

operator is informed that the rollers are in proper relative position.

It is not necessary for the operator to firmly grasp the handle shown in Fig. 2 during use
35 of the disk, as such a hold upon it would prevent its rotation while in position upon the rolls; but this form of handle may be used much the same as the form shown in the other figures of the drawings by simply resting the
40 hand upon its upper surface, as will be readily understood.

Having fully described my invention, what I claim is—

The herein-described method of adjusting
45 the relative grinding-surfaces of two or more rolls while in motion, which consists in removably placing a planometrical disk or plate simultaneously in contact with the grinding-surfaces of said rolls in a plane tangential to
50 the circumference of the rolls, then adjusting the axes of said rolls until contact of their several grinding-surfaces is made with said plate or disk throughout the length of each roll, substantially as described. 55

In testimony whereof I affix my signature in presence of two witnesses.

ROBERT A. MURRAY.

Witnesses:

W. E. FITE,

G. W. GROVER.