No. 881,287. PATENTED MAR. 10, 1908.

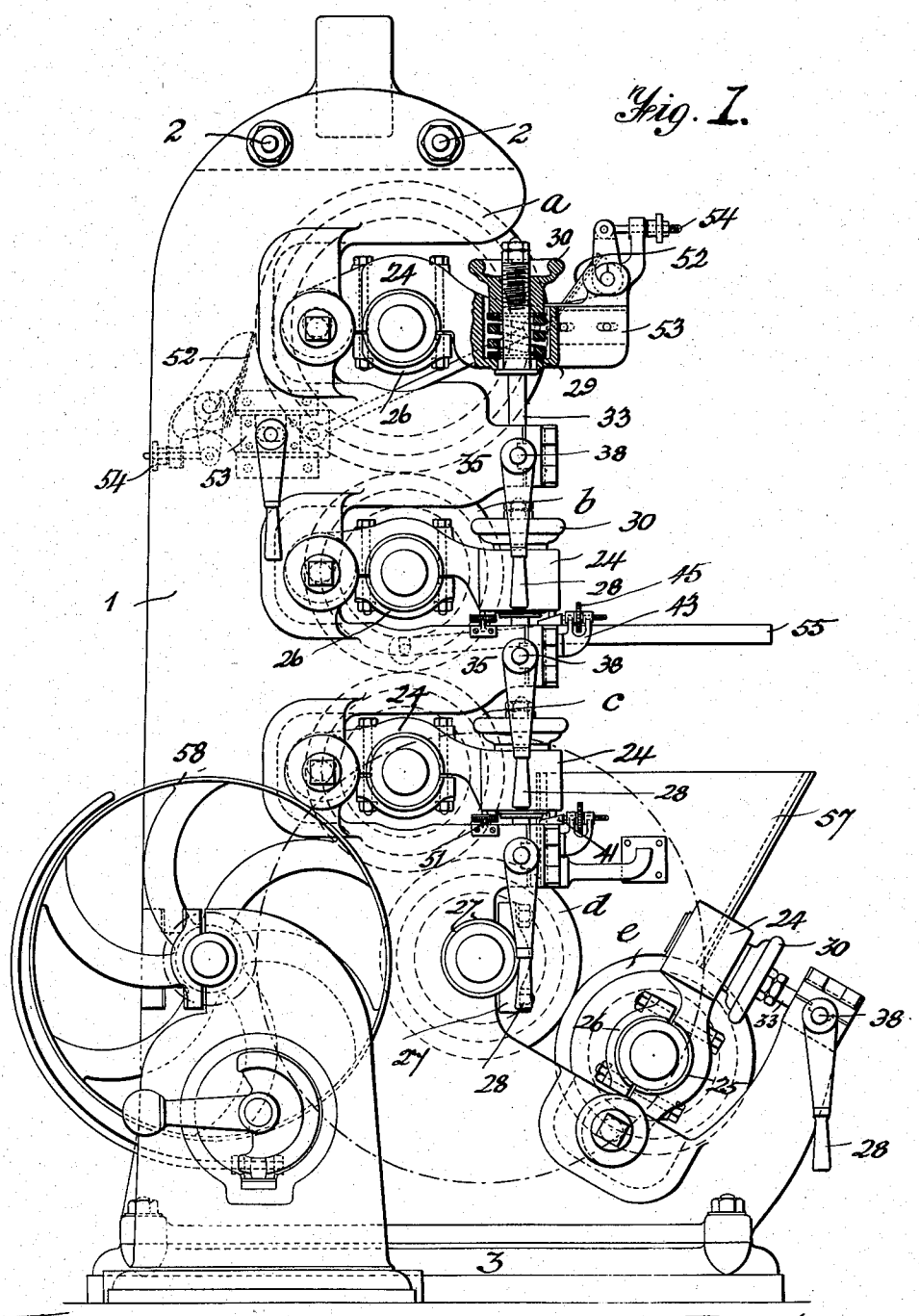
G. S. BAKER.

MACHINE FOR GRINDING PLASTIC SUBSTANCES, SUCH AS CHOCOLATE AND THE LIKE.

APPLICATION FILED AUG. 30, 1906.

2 SHEETS—SHEET 1.

Fig. 1.



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APPLICATION FILED AUG. 30, 1906.

2 SHEETS—SHEET 2.

Fig. 2.

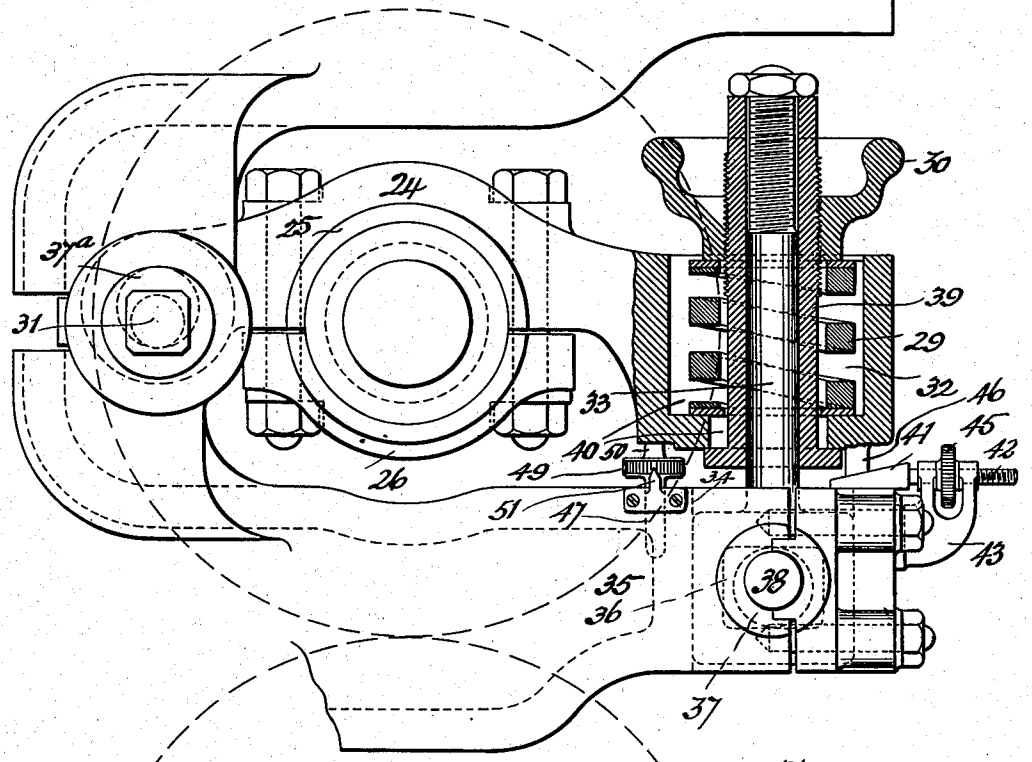
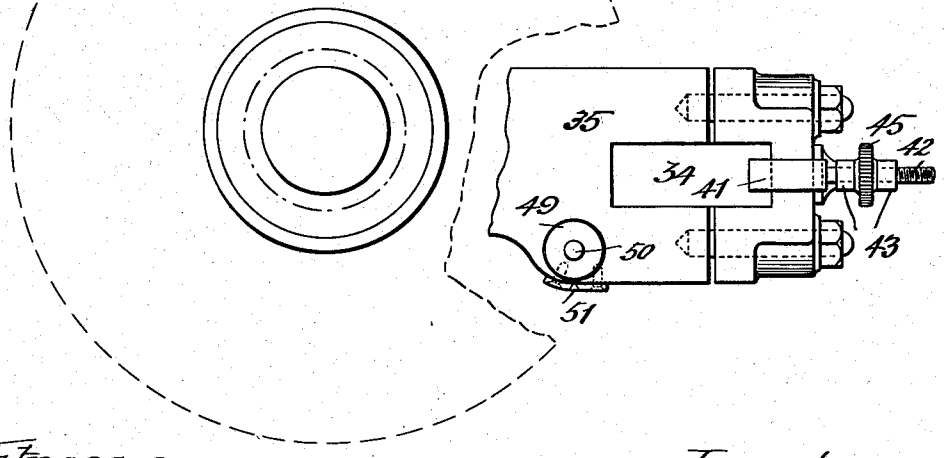


Fig. 3.



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UNITED STATES PATENT OFFICE.

GEORGE SAMUEL BAKER, OF LONDON, ENGLAND.

MACHINE FOR GRINDING PLASTIC SUBSTANCES, SUCH AS CHOCOLATE AND THE LIKE.

No. 881,287. Specification of Letters Patent. Patented March 10, 1908.

Application filed August 30, 1906. Serial No. 332,666.

To all whom it may concern:

Be it known that I, GEORGE SAMUEL BAKER, an engineer, of the firm of Joseph Baker & Sons, Limited, and a subject of the King of England, residing at London, England, have invented certain new and useful Improvements in Machines for Grinding Plastic Substances, such as Chocolate and the Like, of which the following is a specification.

This invention relates to improvements in grinding machines especially adapted for chocolate and like plastic substances and the object is to provide improved means for adjusting the pressure and regulating the distance between the respective rollers which perform the grinding operations, the invention being hereinafter described and shown as an example applied to a machine having the lower grinding roll and feed roll mounted in different planes to the main or upper grinding rollers. A form of such machine having three upper and two lower rolls is shown in the annexed drawings in which—

Figure 1 is a side elevation of the machine with the improvement applied thereto, Fig. 2 a sectional detail view of one of the bearing arms for certain of the rollers and showing its adjusting devices and Fig. 3 is a detail view of part of Fig. 2.

The machine shown in the drawings comprises two metal side frames 1 secured together by suitable cross bars 2 both frames being secured to a heavy base plate 3.

The three upper rolls *a b* and *c* and the lowermost roll *e* are carried in pivoted bearing arms 24 provided with bearing blocks and caps 25 and 26 respectively. The remaining roll *d* is preferably carried in solid bearings 27.

The rolls are separately adjusted by means of levers 28 adapted to be raised or lowered. The pressure between these rolls is regulated by a spring 29 and hand-wheel 30 carried on the end of the bearing arm 24, the parts being so arranged as to be set to any pressure, so that when the roll has been raised or put out of gear, and then lowered or put into gear again it will have exactly the same pressure on it as before. For this purpose the end of the bearing arm is provided with a pocket 32 Fig. 2, through the bottom of which passes a spindle 33 having an enlarged lower end engaging a slot 34 in the arm 35 of the machine frame. Said enlarged end is provided with an aperture 36 in which engages a cam or eccentric 37 mounted on a transverse shaft 38 on the end of which is mounted the aforesaid lever 28. A sleeve 39 surrounds the spindle 33 as shown, on which sleeve the internally screw-threaded hand-wheel 30 is adjustable, and between the lower surface of said hand-wheel and the bottom of the pocket 32 is inserted the aforesaid spring 29 encircling the sleeve 39.

The spring adjustment is independent at either end of the roll, but both ends may be raised and lowered simultaneously by the one movement of the lever 28 by means of the shaft 38 and coacting parts described.

The rolls may be adjusted to compensate for wear by means of the cams or eccentrics 37^a by means of which the pivotal point 31 of the arms 24 can be lowered to again bring the surfaces of the rolls in contact. This adjustment also brings the axis of the rolls slightly out of their original vertical plane, and to compensate for this variation sufficient space 40 is left in the pockets 32 as shown more particularly in Fig. 2.

To obtain a still finer adjustment or to accurately adjust the distances between the respective rolls, in combination with the above described adjusting means I use a wedge action adjustment comprising a sliding wedge piece 41 connected to a screw-spindle 42 mounted in brackets 43 attached to the arm 35 of the machine frame and acted on by a nut 45, held between said brackets, the inclined surface of said wedge piece being caused to engage a projection or stud 46 on the roller carrying arm 24. In place of said wedge I may use a simple screw adjustment comprising a screw-spindle 47 engaging a threaded aperture in the arms 35 and operated by a head or the like 49 having a projection 50 bearing against the under surface of the roller bearing arm 24. A pointer 51 may be provided adjacent the head for determining the degree of adjustment of the screw.

In both machines the rolls are connected together by means of wheel-gearing of such size as to give the required differential speeds to the rolls in the known manner.

The delivery or uppermost roll *a* may be fitted with an adjustable scraper 52 (Fig. 1) mounted in brackets 53 which may be bolted to the machine frame, or on the arm 24 which carries the roll, on either side of the roll as desired and provided with a device 54 for keeping it in contact with said roll to com-

pensate for wear of the latter, and means are provided for deflecting the ground material on to a receiving table, for instance, a delivery plate 55 as shown in the drawing (Fig. 1). A similar scraper may also be placed on the other side of the roll *a* as shown in dotted lines also in said Fig. 1.

57 indicates the feed hopper.

What I claim as my invention and desire to secure by Letters Patent of the United States is:—

1. In a machine for grinding plastic substances the combination with a frame, pivoted bearing arms mounted in said frame and each provided with a pocket and grinding rolls carried by said arms, of adjustable springs located in said pockets, screw threaded spindles in connection with said springs, eccentrics mounted in the frame, and adapted to act on said spindles, levers for operating said eccentrics and auxiliary adjusting means comprising slidable wedges adapted to act on said bearing arms, screw spindles connected to said wedges and nuts mounted in the machine frame for operating said screw spindles substantially as described for the purposes set forth.

2. In a machine for grinding plastic substances the combination with a frame, pivoted bearing arms mounted in said frame and each provided with a pocket and grinding rolls carried by said arms, of adjustable springs located in said pockets, screw threaded spindles in connection with said springs, eccentrics mounted in the frame and adapted to act on said spindles, levers for operating said eccentrics and auxiliary adjusting means comprising slidable wedges adapted to act on said bearing arms, screw spindles connected to said wedges, and nuts mounted in the machine frame for operating said screw spindles and means for adjusting the pivots of the bearing arms in the frame aforesaid substantially as described.

In witness whereof I have signed this specification in the presence of two witnesses.

GEORGE SAMUEL BAKER.

Witnesses:

PERCY E. MATTOCKS,

F. C. SMITH.