L. E. SIMPSON.

GRINDING MILL.

APPLICATION FILED AUG. 6, 1908.

950,580.

Patented Mar. 1, 1910.

2 SHEETS—SHEET 1.

Fig 1

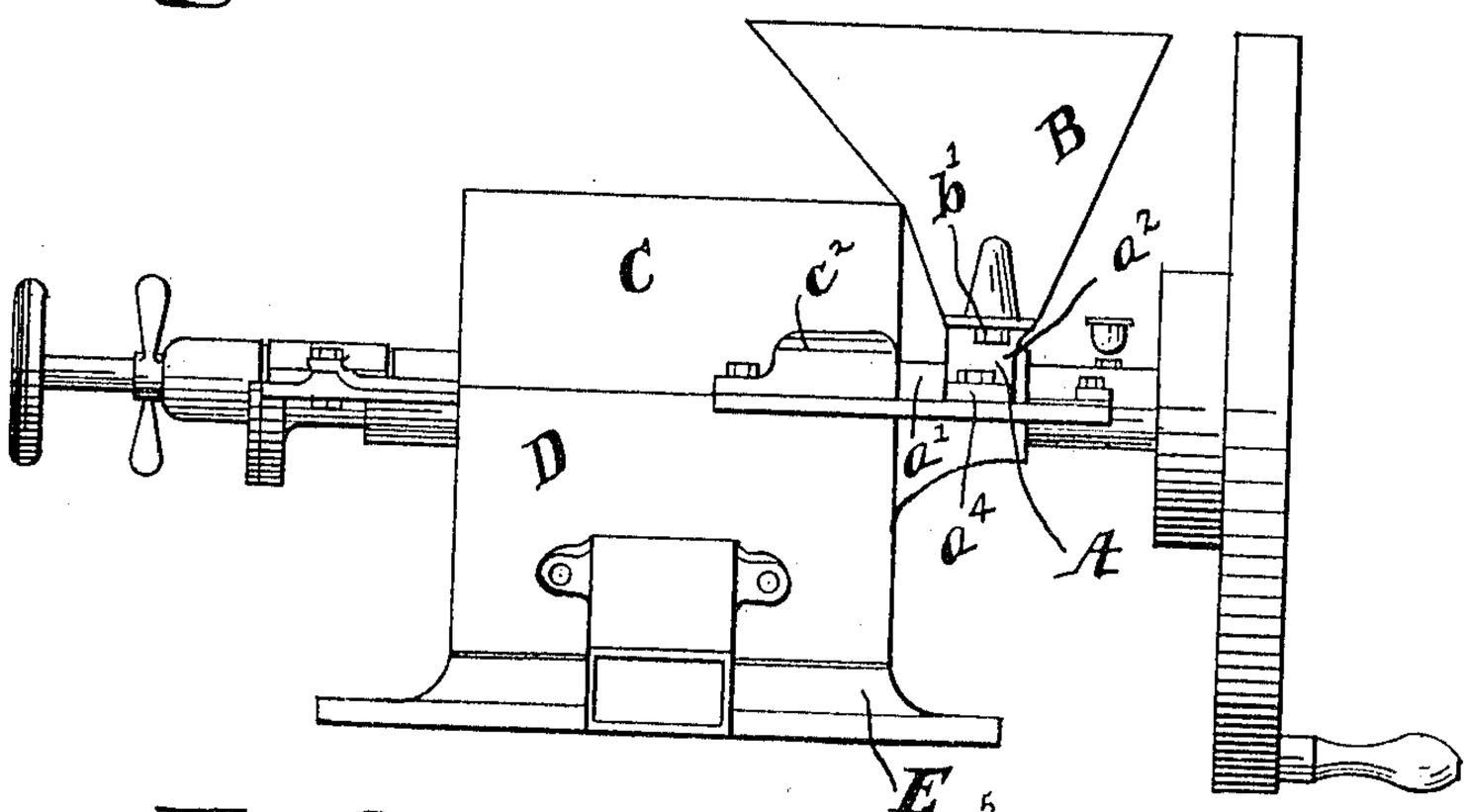


Fig 2

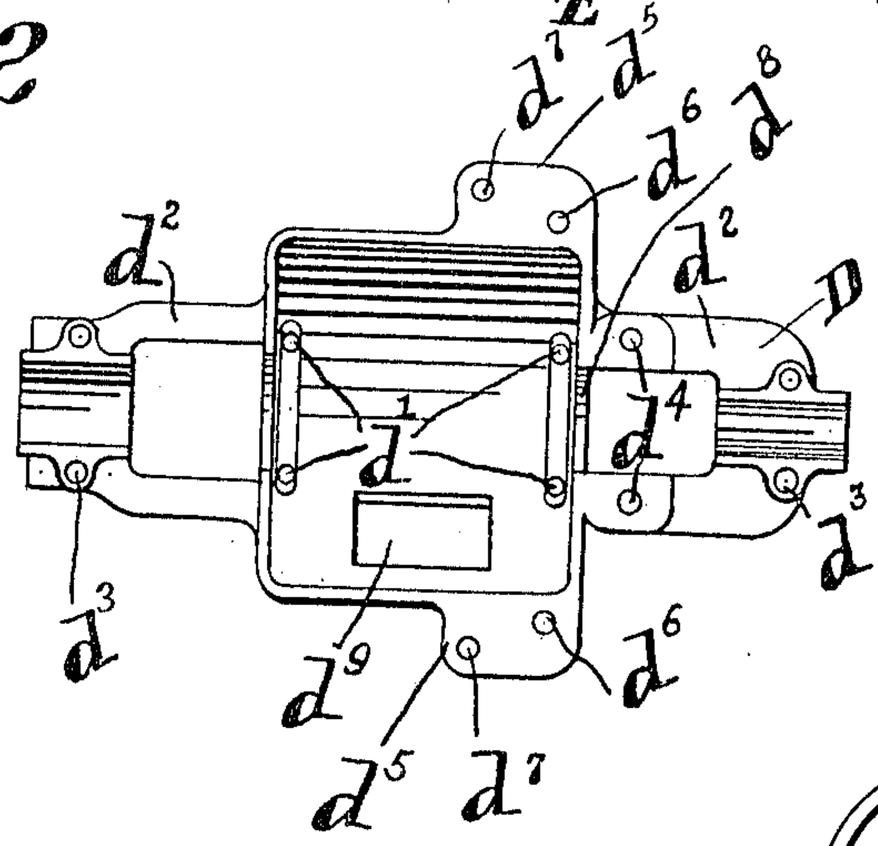
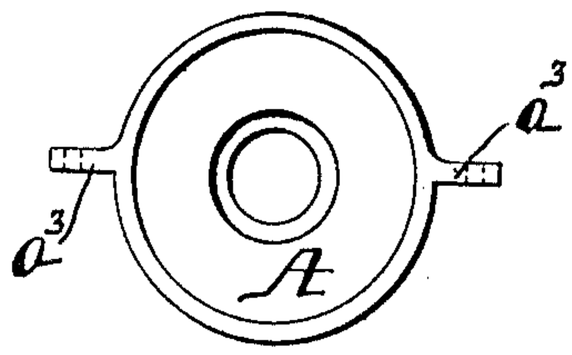


Fig 3



Witnesses

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Fig 4

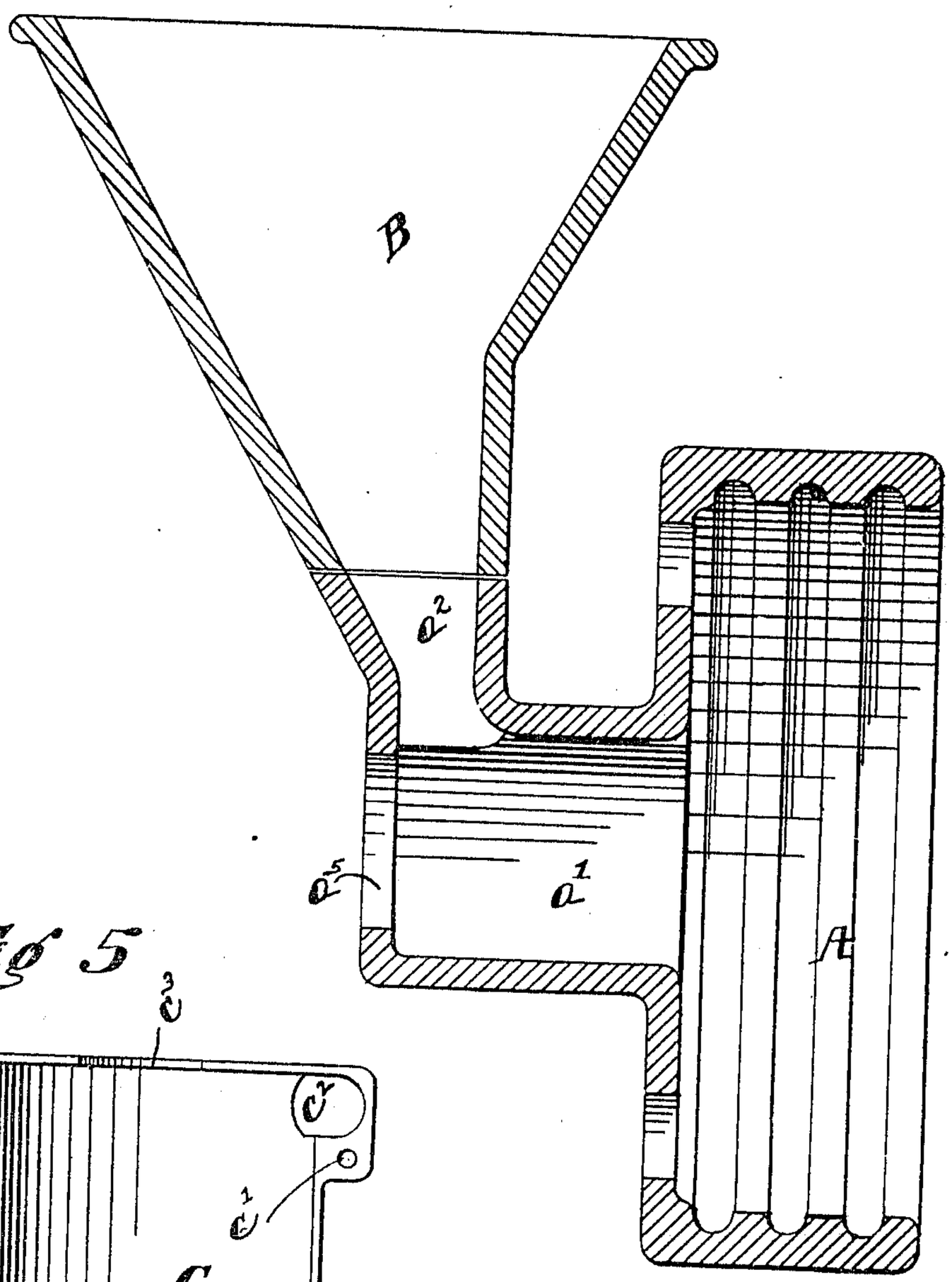

Fig 5

Witnesses

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UNITED STATES PATENT OFFICE.

LOWE E. SIMPSON, OF COLLEGE HILL, OHIO.

GRINDING-MILL.

950,580. Specification of Letters Patent. Patented Mar. 1, 1910.

Application filed August 6, 1908. Serial No. 447,227.

To all whom it may concern:

Be it known that I, LOWE E. SIMPSON, a citizen of the United States, residing at College Hill, in the county of Hamilton and State of Ohio, have invented new and useful Improvements in Grinding-Mills, of which the following is a specification.

This invention relates to new and useful improvements in grinding mills, and especially that type of mill in which the main housing is parted in a plane parallel to the axis of the driving shaft.

Heretofore in mills of this class it has been found difficult to construct and arrange the hopper and feed passages so as to maintain suitable access to the fixed bur-casing or socket for tramming, and at the same time preserve a tight closure of the housing to prevent the escape of ground material otherwheres than at the spout.

The object of this invention is to provide an improved construction for holding the fixed bur or "bed stone" and supporting the hopper and feed-passages, that shall afford ready access for truing, and avoid all danger of choking or leakage of ground products from the housing.

To this end my invention consists in an improved structure of a mill of this class, embodying a bur socket and feed-passage made integral, or rigidly connected together as one structure, adapted to be secured upon the supporting frame, independently of the upper and removable part of the main housing, and permitting the ready removal and replacing of the hopper and of the upper housing and the stones and their connected parts without disturbing other parts.

In the drawings herewith, illustrating my invention, in which the figures are not confined to the same scale:—Figure 1, is a side elevation of a common type of mill embodying my invention. Fig. 2, is a top plan view of the supporting frame embodying the bottom part of the main housing with the journal bearings of the mill-spindle (but omitting the base plate). Fig. 3, is an end elevation of the socket piece for carrying the fixed bur or "bed-stone." Fig. 4, is a vertical axial cross-section of the socket shown in Fig. 2, showing the axial feed passage terminating in a base or seat for the hopper which is here shown in position. Fig. 5, is an under plan view of the top part of the main housing, removed.

Referring now to the drawings, D, designates the supporting frame of the grinding mill, being the lower part of the cylindrical housing of the bur-stones (not shown). It rests upon a base plate, E, and has extensions, d^2, at each end, formed with and supporting the lower half of the journal-bearings for the mill-spindle. C designates the upper half or hood of the housing. In general form and functions these parts do not differ materially from the corresponding parts of grinding mills of this class, except as I shall herein point out in detail.

The main constructive feature of my invention is the bed-stone socket, A, shown in Figs. 3 and 4 of the drawings, which consists of a shallow cylinder or cup-shaped socket, to receive and hold the bed-stone, and is provided with an axial extension, a^1, in the form of a hollow sleeve at the rear of the socket. This sleeve terminates in a short upward extension, a^2, squared above and flared to the contour of the hopper, B, which is removably seated thereon and held by bolts b^1.

The socket, A, is provided with lateral supporting ears, a^3, at diametrically opposite sides, by which it is held in the cavity of the frame, D, by fastening bolts upon corresponding ears, d^5, of the shell of said frame. These latter ears are sufficiently enlarged to contain bolt holes, d^6, for fastening the supporting ears, a^3, of the socket, A, and similar bolt holes, d^7, for fastening the hood, C, which is provided with enlargements, c^2, so as to completely cover the ears, a^3, and the heads of the fastening bolts, as indicated in Figs. 1 and 5.

The socket-piece,—including the socket, A, and its tubular extension, a^1, considered as one,—is also provided with another set of lateral ears, a^4, in the same axial plane as the ears, a^3, but at the other end of the structure opposite the upward extension, a^2. These ears extend outward over and rest upon the two corresponding parts, or parallel braces constituting the extension, d^2, at the receiving end of the machine, and are held by bolts passed through bolt holes, d^4.

It may now be explained that the socket, A, rests just within the vertical end-wall of the frame, D, with its sleeve, a^1, extending outward through a suitably formed depression, d^8, of said wall, and is secured in position by the support of its lugs or ears, a^3 and a^4, fastened upon the frame as described; so that the axis of the cylindrical

opening carried through the socket and its sleeve is co-incident with that of the mill-spindle which, when seated in its journal bearings, passes through an end-aperture, a^5, in the socket piece, shown in Fig. 4. This aperture through the socket-piece, when the bed-stone is secured in the socket, A, registers with and becomes an extension of the axial aperture or "eye" of the bed-stone. The usual feeding devices (not shown) upon the mill-spindle operate in the aperture of the tubular extension, a^1.

It will be thus apparent that the feed-passage from the hopper, B, through the sleeve, a^1, and through the central aperture of the bed-stone (not shown), when seated in its socket, A, is uniform and practically integral up to the grinding surfaces of the stones, and no clogging or leakage can take place. It will also be seen that the bed-stone and its immediately connected parts are thus anchored securely and permanently to the frame, and the exact alinement once made is never lost. The construction is such also that the entire socket-piece, with bed-stone in place, can, when desired, be removed from the machine, placed upon a mandrel and the face of the bed-stone "trued up" to exact relations with the axis of the mill spindle; and, in like manner the mandrel and its revolving stone can be removed and trued without disturbing the bed-stone.

The general operation is such as is common to this class of machines. The certainty of the feed resulting from the features of the construction described precludes any escape of material through loose joints and any "backing up" of the ground material from its normal discharge passage, d^9.

I claim and desire to secure by Letters Patent of the United States:—

An improved grinding mill embodying in combination with a bed frame, a shaft and its bearings, an integral bed-stone socket, formed as a shallow cylinder, with a hollow extension concentric with the projected cylinder axis, said extension having a hollow vertical projection fitted to seat and maintain the feed hopper; said socket and extension being adapted to be supported upon the bed frame in axial coincidence with the shaft bearings.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

LOWE E. SIMPSON.

Witnesses:

CHAS. HERBERT JONES,

CARROLL H. RICHARDS.