

A. E. JOHNSON.
ZINC LATHE.

APPLICATION FILED NOV. 29, 1907.

932,782.

Patented Aug. 31, 1909.

3 SHEETS—SHEET 1.

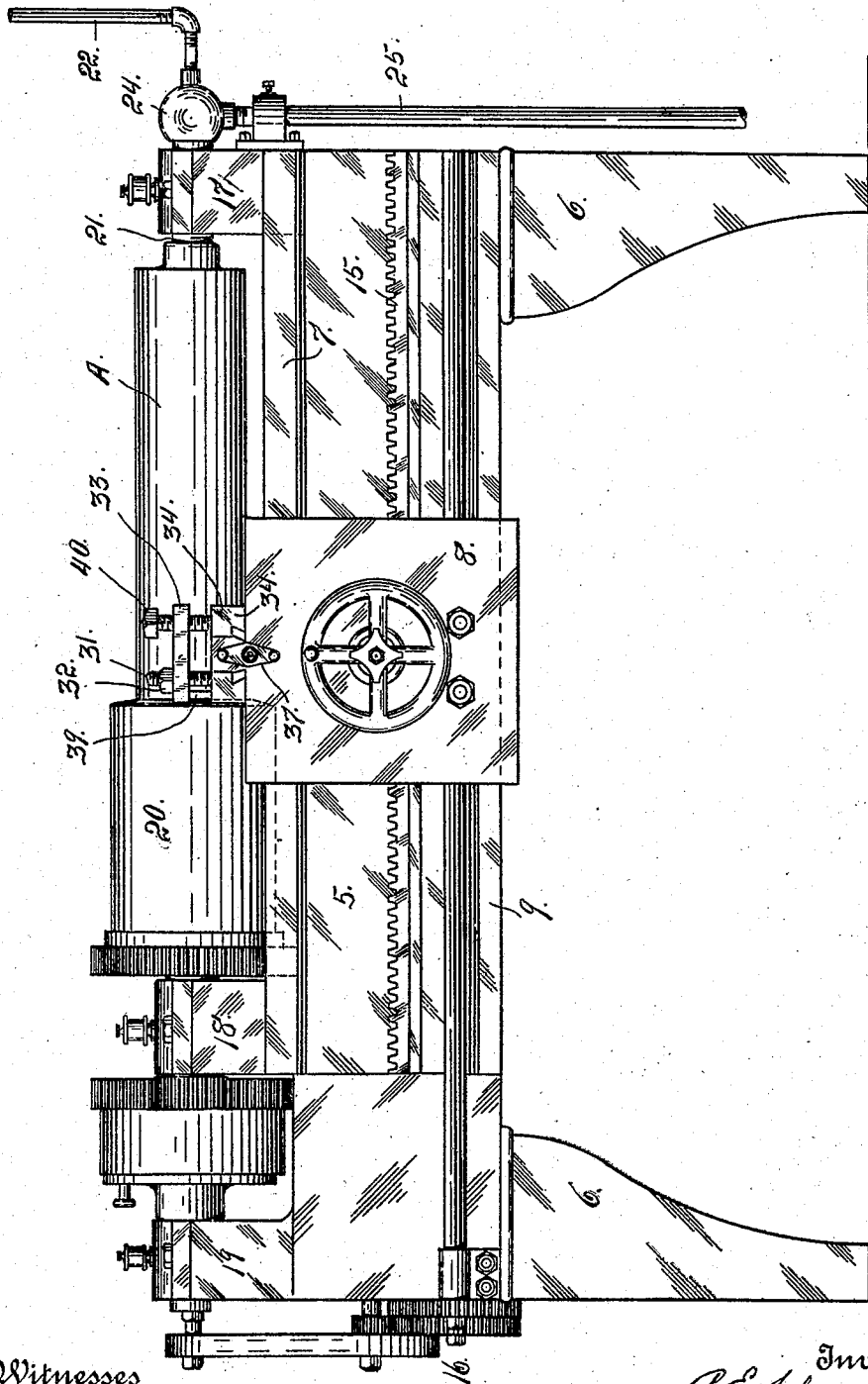


Fig. 1

Witnesses

J. D. Thornburgh.
Otto E. Haddick.

Inventor

A. E. Johnson.

By: A. E. Johnson

Attorney

A. E. JOHNSON.

ZINC LATHE.

APPLICATION FILED NOV. 29, 1907.

932,782.

Patented Aug. 31, 1909.

3 SHEETS—SHEET 2.

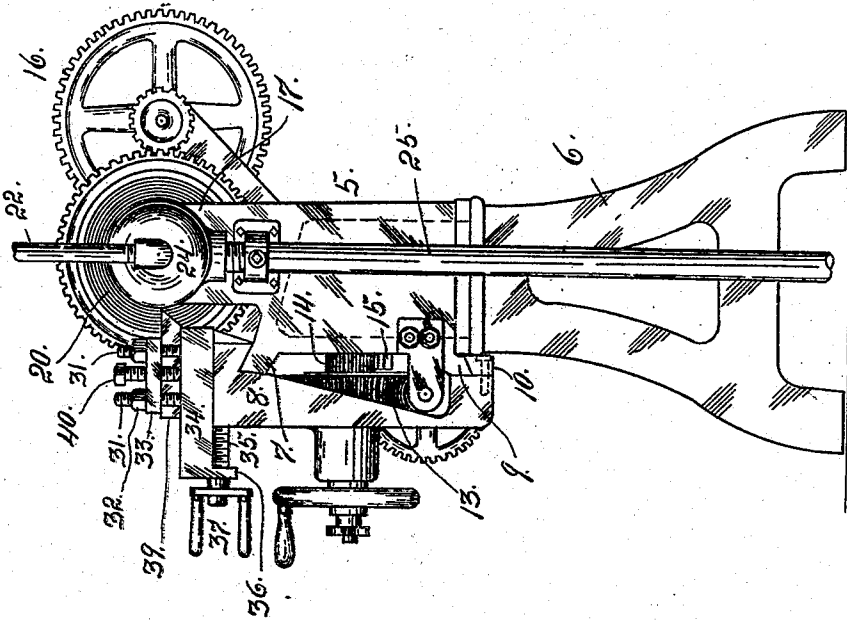


Fig. 2.

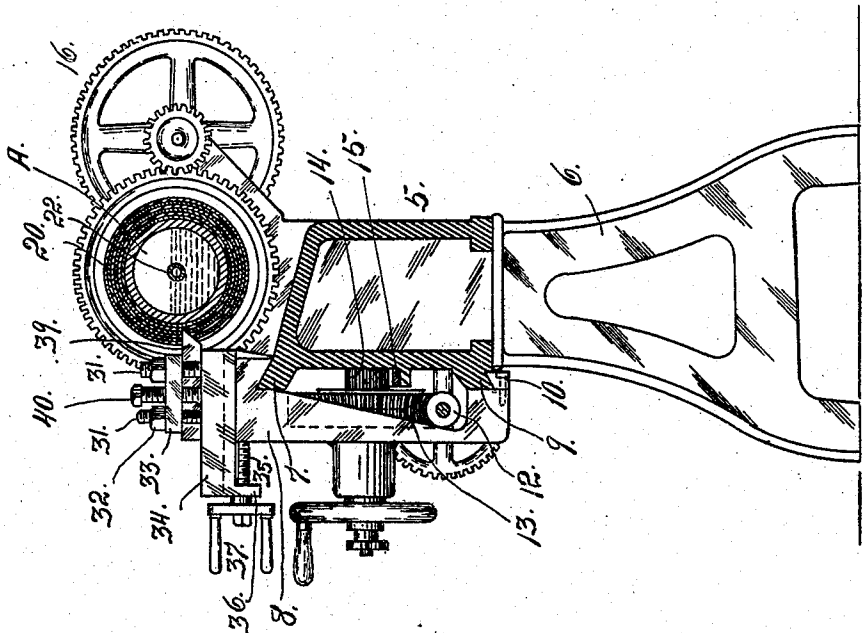


Fig. 3.

Witnesses
I. D. Thornburgh.
Otto E. Heddick.

Inventor
A. E. Johnson.
By J. H. D. Men
Attorney

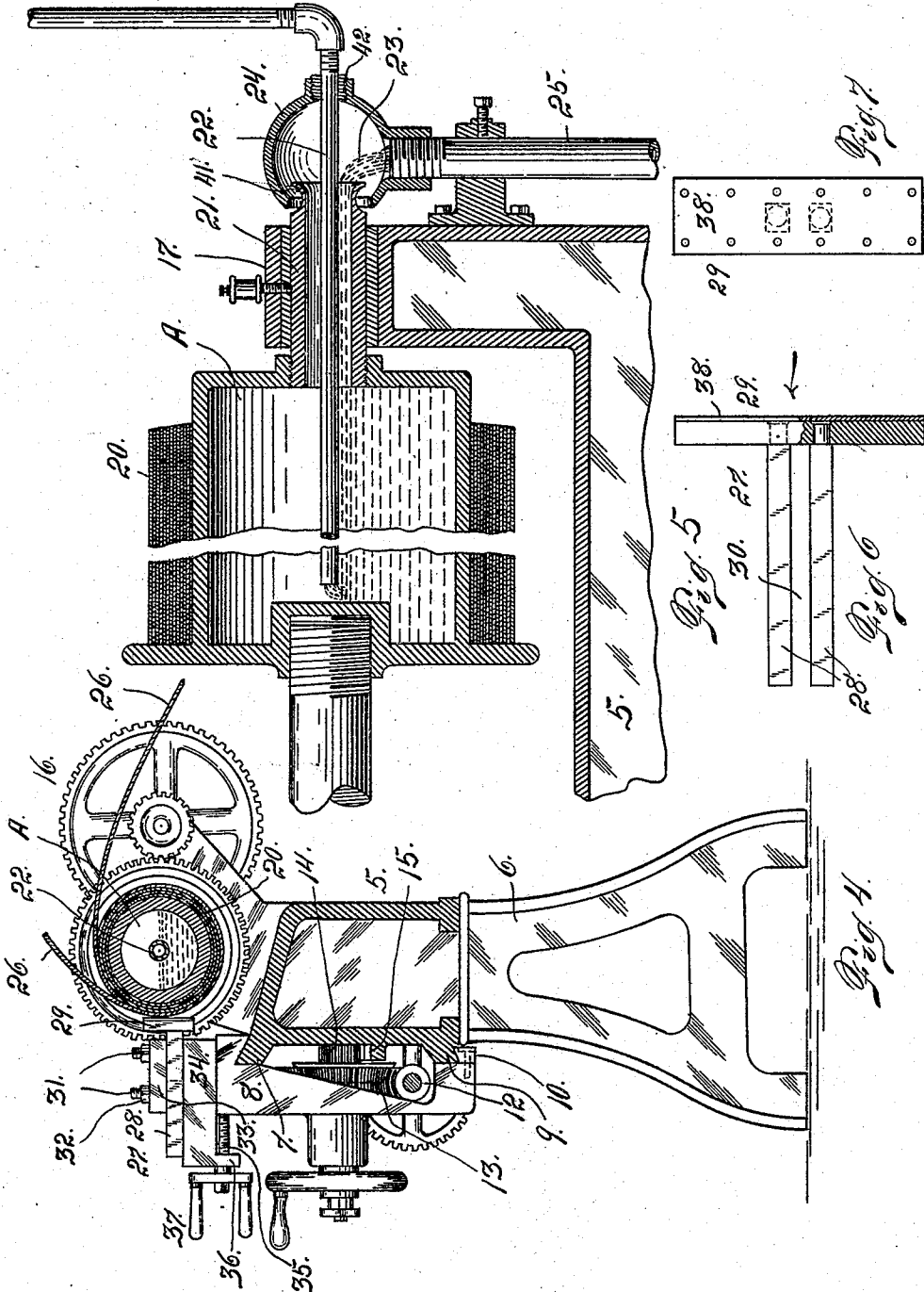
A. E. JOHNSON.
ZINC LATHE.

APPLICATION FILED NOV. 29, 1907.

932,782.

Patented Aug. 31, 1909.

3 SHEETS—SHEET 3.



Witnesses
J. D. Thornburgh.
Otto E. Haddock.

Inventor
A. E. Johnson.
By J. J. Brown
Attorney

UNITED STATES PATENT OFFICE.

ALFRED E. JOHNSON, OF DENVER, COLORADO.

ZINC-LATHE.

932,782.

Specification of Letters Patent. Patented Aug. 31, 1909.

Application filed November 29, 1907. Serial No. 404,350.

To all whom it may concern:

Be it known that I, ALFRED E. JOHNSON, a citizen of the United States, residing in the city and county of Denver and State of Colorado, have invented certain new and useful Improvements in Zinc-Lathes; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the characters of reference marked thereon, which form a part of this specification.

My invention relates to improvements in zinc lathes or lathes for cutting zinc shavings which are used for the extraction of precious metals from their ores. This lathe is of the type which employs zinc sheets wound on an arbor, the cutting of the shavings from the said sheets being done by a side cutting tool that is caused to travel longitudinally at a slow rate of speed cutting a thin shaving from the edge of the body of wound sheets.

In my improved construction the arbor carrying the zinc sheets, is formed hollow and provision is made for introducing cooling water which is continuously entering and passing out of the arbor through a hollow spindle or journal. This cooling water prevents the rapid rise of temperature due to cutting at a high speed, which if not checked is injurious to the quality of the product.

Having briefly outlined my improved construction, I will proceed to describe the same in detail reference being made to the accompanying drawing in which is illustrated an embodiment thereof.

In this drawing, Figure 1 is a front elevation of my improved zinc lathe. Fig. 2 is an end elevation viewed from a position at the right of Fig. 1. Fig. 3 is a similar view, with the hollow arbor and a portion of the frame sectionized. Fig. 4 is a similar view illustrating the manner of winding the zinc sheet upon the arbor. Fig. 5 is a longitudinal section taken through the hollow arbor, the mechanism being partly broken away. Fig. 6 is a detail view of the pressure device

used in winding the zinc sheets upon the hollow arbor. Fig. 7 is a face view of the same device, or a view looking in the direction of the arrow in Fig. 6.

The same reference characters indicate the same parts in all the views.

Let the numeral 5 designate an inverted box-shaped longitudinally disposed framework mounted upon end supports 6. The upper portion of this frame member 5 is provided with a forwardly and upwardly projecting flange 7 which forms a support or guide track for the carriage 8. The lower forward portion of the frame also has a flange 9 which engages a detachable strip 10, applied to the carriage after the latter is placed in position upon the frame. These two members 7 and 10 form upper and lower guide tracks for the carriage. This carriage is propelled by ordinary mechanism and travels longitudinally in a direction parallel with the frame, by virtue of an operating worm 12 engaging a worm wheel 13 which operates a gear 14 meshing with a rack 15 fast on the framework 5. The worm 12 is actuated by gearing 16. The details of the operating mechanism will not be set forth since nothing is claimed thereon.

The hollow arbor A is journaled in suitable boxes 17, 18 and 19 mounted on the framework 5, the said boxes being so arranged that the outer curved surface of the arbor shall project rearwardly of the framework 5 so that when the shavings are cut from the mass of zinc 20 wound thereon, the said shavings will fall in the rear of the frame 5. The arbor is provided at one extremity with a hollow journal 21, through which is passed a water supply pipe 22 which projects into the hollow arbor and supplies the same with water which is continuously in circulation. That is to say when the water has accumulated within the arbor sufficiently, it flows continuously out through the hollow journal as shown at 23. Then as long as the supply of water through the pipe 22 is kept up, there will be a continuous circulation of water through the arbor, whereby the same is kept sufficiently cool to keep down the temperature and prevent the rise

in temperature from interfering with the zinc shavings product. If the mass of zinc upon the arbor, becomes considerably heated, it results in a brittle product, making the shavings short, which is undesirable. The outer extremity of the hollow journal is bell-shaped or outwardly flared as shown at 41 whereby the water escapes freely therefrom without leakage or back flow around the outside of the journal as would be the case in the absence of the flaring or bell-shaped construction. The centrifugal force due to the arbor's rotation, facilitates the discharge of the water from the bell-shaped mouth of the journal. The water as it issues from the hollow journal 21, enters a spherical shaped chamber 24 and passes thence downward through a drain pipe 25 whose upper extremity is connected with the chamber 24. The supply pipe 22 is stationary being connected with the chamber 24 as shown at 42. This supply pipe passes approximately through the center of the hollow journal being therefore entirely free therefrom thus not interfering in any way with the rotation of the arbor.

When the device is in use, the body of the zinc 20 mounted upon the arbor, is wound thereon by the use of zinc sheets 26. During the winding operation, a pressure device 27 having a shank 28 is provided with a head 29 which engages the zinc sheets with sufficient pressure to cause the sheets to wind closely thereon. The shank 28 is slotted as shown at 30 (see Fig. 6) to straddle screw studs 31 which are provided with tightening nuts 32. These studs 31 pass through a plate 33 and are threaded into a movable holder 34 slidably mounted on the carriage 8 and adapted to be actuated by a screw 35 having its inner extremity swiveled in the carriage, the said screw being threaded in a depending lug 36 formed on the plate 34. This screw 35 is provided with a manipulating handle 37. By regulating the nuts 32, the pressure device may be so adjusted that it will be forced away from the arbor as the diameter of the latter increases due to the winding of the zinc sheets thereon. In this winding operation, just before the winding of one sheet is completed, another sheet is put in position in such a manner that the previous sheet is made to overlap it and hold it securely in place (see Fig. 4). The head 29 of the pressure device is provided with a facing of some soft material as leather 38.

After the winding of the zinc sheets upon the arbor has been completed, the operation of cutting the zinc shavings may then be commenced. This is illustrated in Figs. 2 and 3 of the drawing. A knife or cutter 39, is placed between the plate 33 and the holder 34 and is clamped in place by means of the screw studs 31 and the nuts 32. Since it is necessary that this cutter should be held se-

curely in place or locked against movement, an additional screw stud 40 is threaded in the plate 33 at some distance from the studs 31 (see Fig. 1). This screw stud 31 is threaded in the plate 33 and as it is screwed downwardly, the clamping plate 33 is raised where the stud 40 is located while its opposite edge or that in direct engagement with the cutter, is forced downwardly thus giving additional security to the cutter.

When the cutter is in place or in the position shown in Figs. 2 and 3 of the drawing, the lathe is set in motion, whereby the arbor is rotated and the carriage 8 caused to travel longitudinally upon the framework 5. This operation is accomplished by suitable power acting on mechanism which need not be described in detail. As the arbor is rotated, the inner extremity of the cutter acts upon the edge of the mass of zinc wound on the arbor, and gradually cuts the zinc away forming it into shavings, the feed of the carriage being so regulated as to keep pace with the cutting operation. As these shavings are formed, they fall in the rear of the frame 5, since the arbor projects slightly in the rear of the frame. By having the arbor hollow and water cooled, the machine may be operated much more rapidly than lathes of ordinary construction, since a speed which would be impracticable when using an ordinary lathe, may be used with my improved construction since there is no danger of unduly heating the zinc.

During the operation of the machine, water is introduced to the hollow arbor through the supply pipe 22 and is continually passing out through the hollow journal 21 into the spherical chamber 24 and thence down the drain pipe 25 as heretofore explained.

By virtue of my special construction for the supply of water to the hollow arbor and the escape of the water therefrom through the hollow journal, all necessity for stuffing boxes either for the purpose of introducing the water to the arbor or allowing it to escape therefrom, is obviated.

Having thus described my invention, what I claim is:

1. A lathe provided with a hollow rotatable arbor closed at one end and having a hollow journal located in the other end whose outer extremity is bell shaped or outwardly flared to facilitate the escape of the water from the arbor, and means for introducing water into the arbor comprising a stationary pipe passing through the hollow journal.

2. A lathe provided with a hollow rotatable arbor closed at its inner extremity whose outer extremity is outwardly flared to facilitate the escape of the water from the arbor, a chamber inclosing the discharge extremity of the journal, and a stationary

supply pipe mounted on the last named chamber and passing through the hollow journal, substantially as described.

3. A lathe comprising a frame work, having a top bed downwardly inclined from its forward extremity and a hollow, rotatable arbor, mounted above the bed and projecting in the rear thereof to allow shavings from the material on the arbor to fall in the rear of the bed, means for supplying the arbor

with cooling water, and a tool carrier, mounted to travel on the forward edge of the inclined bed.

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

ALFRED E. JOHNSON.

Witnesses:

DENA NELSON,
JESSIE HOBART.