

No. 745,786.

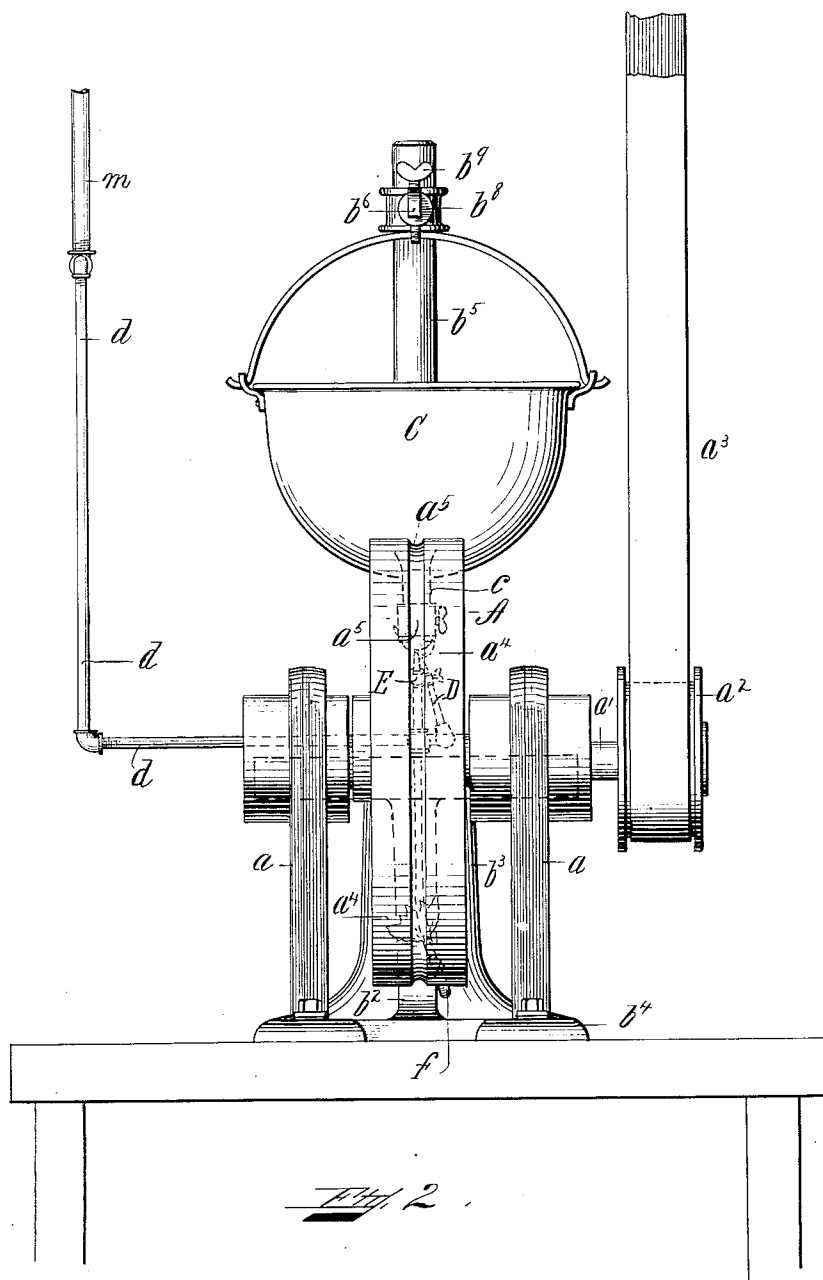
PATENTED DEC. 1, 1903.

A. L. COLE.
MACHINE FOR FIBERING METALS.

APPLICATION FILED AUG. 18, 1902.

NO MODEL.

2 SHEETS—SHEET 2.



Witnesses:
A. L. Hodgdon.
E. A. Allen.

Inventor:
Albert L. Cole
by Francis J. W. Dakin
att'y

UNITED STATES PATENT OFFICE.

ALBERT L. COLE, OF AUBURNDALE, MASSACHUSETTS.

MACHINE FOR FIBERING METALS.

SPECIFICATION forming part of Letters Patent No. 745,786, dated December 1, 1903.

Application filed August 18, 1902. Serial No. 119,989. (No model.)

To all whom it may concern:

Be it known that I, ALBERT L. COLE, a citizen of the United States, residing at Auburndale, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Machines for Fibering Metals, of which the following is a specification.

My invention relates to improvements in machines for fibering metals in which a rotary grooved wheel operates in conjunction with a receptacle for molten metal; and the objects of my invention are, first, to provide means for delivering molten metal upon a rotary wheel, and, second, to convert the metal into filaments or fibers. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of my machine, and Fig. 2 is a front elevation of the same.

Similar letters refer to similar parts throughout both views.

In my machine the wheel A is journaled in the two supporting-standards a^1 and a^2 , the axle a^3 of said wheel A being lengthened on one side to hold the belt-pulley a^4 , which is intended for the belt a^5 , by means of which the wheel A is rotated. Any other suitable means may be employed for the purpose of rotating said wheel A. The periphery a^6 of A is flat, and in the center is a groove a^7 semicircular in cross-section. Other grooves of different forms of cross-section may be added to the wheel for the purpose of securing different forms of fibers and filaments.

The framework B of the machine consists of the table b^1 , with its supporting-standards b^2 and b^3 and the base-board b^4 , which holds the entire structure. The standard b^3 extends above the table b^1 , and in its upper face is set the round standard or shaft b^5 . Upon b^5 is the bar b^6 , having one end bored to receive the standard b^5 and having in the rear a thumb-screw b^7 for the purpose of fastening or securing in position the bar b^6 , which can be raised or lowered on the standard b^5 . The horizontal bar b^6 supports a sliding hook b^8 , which also has a thumb-screw b^9 to secure the hook in any desired position and to prevent it from sliding back or forth on the bar b^6 . On the hook b^8 is hung the melting-receptacle C, which holds the liquid metal. By

this arrangement of the sliding bar b^6 and sliding hook b^8 the receptacle C can be held in any position desired either by raising or lowering or swinging the bar b^6 or moving the sliding hook b^8 on the bar. The receptacle C is provided with a nozzle c in one side slightly above the bottom, which may be opened or closed by means of the small cock c' and the flow of molten metal from the receptacle C thereby regulated and controlled. Under the receptacle C is a Bunsen gas-burner D, which is used for the purpose of melting the metal and keeping it in liquid form; but any suitable heating means may be employed for this purpose. The receptacle C is when in use so placed that the nozzle c is turned against the periphery of the wheel A, the end being almost in contact with the wheel A at about three-quarters height of the wheel. Just below the point of the wheel nearest to the nozzle c is a gas burner or jet E, which is turned against the nozzle c for the purpose of keeping it heated, and thus prevents a cooling of the metal as it flows through the nozzle onto the wheel. I have found it necessary in order to get the best results to have the wheel A hot, and for this purpose I provide the burner F underneath the wheel. These three burners are connected with the gas-main m by necessary tubing d , e , and f .

The operation of my machine is as follows: The metal to be fibered is placed in the receptacle C and the burner D lighted. When the metal has been thoroughly melted and is in a liquid state, it is then prepared for fibering. The gas-jets E and F are lighted and the nozzle c and wheel A are heated, the latter being slowly rotated and allowed to become thoroughly heated before being used. The wheel A is always turned so that its ascending side is toward the kettle C, and when it has been sufficiently heated so that the metal will not stick to it the small cock c' is opened and the liquid metal allowed to flow out. As the thin stream of metal strikes the rapidly-ascending side of the wheel A it is carried up in the groove a^7 and after reaching the top is thrown from the wheel by the centrifugal force, and cooling in the air it comes down as a long round thin metallic fiber or filament.

By adjusting the flow of metal through the

nozzle *c* by means of the cock *c'* and regulating the speed of the wheel *A* the metal fiber can be made in any size from that of fine hair to that of a common string. The shape and size of the fiber will depend to some extent upon the shape and size of the groove or grooves on the wheel, and the wheel may be made broad or narrow and may contain a number of grooves of varying shape and size.

By means of a wide shallow groove the fibers will take the form of a thin ribbon and the form of the fiber can be varied to suit the purpose for which it is to be used.

Obviously my invention may be embodied in many different forms without departing from the spirit thereof, and I desire to claim my invention in the broadest manner legally possible.

What I claim is—

1. In a machine for forming a continuous metal fiber or filament, the combination of a rotary wheel provided with a groove of the size of such fiber or filament and a melting-tank provided with means for regulating the flow of the metal in quantities necessary to form said fiber or filament.

2. In a machine for making a continuous metal fiber or filament, the combination of a rotary wheel provided with a groove of the size of such fiber or filament; a melting-tank provided with means for regulating the flow of the metal in quantities necessary to form said fiber or filament and means for adjusting said tank in relation to said wheel.

3. In a machine for forming metal fibers or filaments, the combination of a rotary wheel

provided with a groove of the size of such fiber or filament and a melting-tank having a nozzle provided with a cock adapted to regulate the flow of the metal in quantities necessary to form said fiber or filament and means for adjusting said tank in relation to said wheel.

4. In a machine for fibering metals, the combination of means for forming a continuous string or filament of metal including a rotary wheel provided with a groove of the size of such string or filament and a melting-tank having a nozzle provided with a cock adapted to regulate the flow of the metal in quantities sufficient to form said fiber or filament with means for adjusting the nozzle of said tank in close proximity to said wheel, substantially as described.

5. In a machine for fibering metals, the combination of means for forming a continuous string or filament of metal including a rotating wheel provided with a groove of the size of such string or filament and a melting-tank having a nozzle provided with a cock adapted to regulate the flow of the metal in quantities necessary to form said fiber or filament together with means for adjusting the nozzle of said tank in close proximity to said wheel and means for heating said wheel, tank and nozzle, substantially as described.

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

ALBERT L. COLE.

Witnesses:

A. L. HODGDON,
M. E. COVENLY.