G. P. SALISBURY.

Rolls for Rolling Metal.

No. 168,584. Patented Oct. 11, 1875.

Fig. 2.

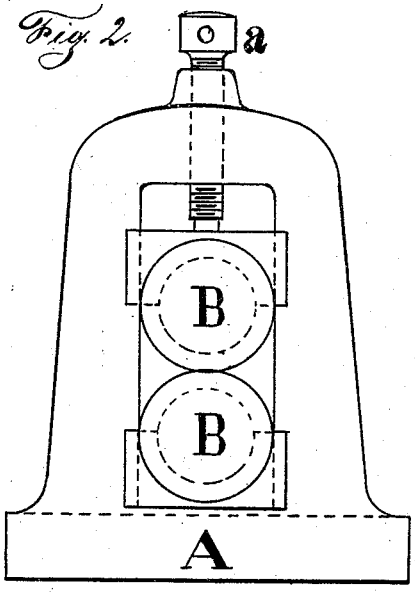
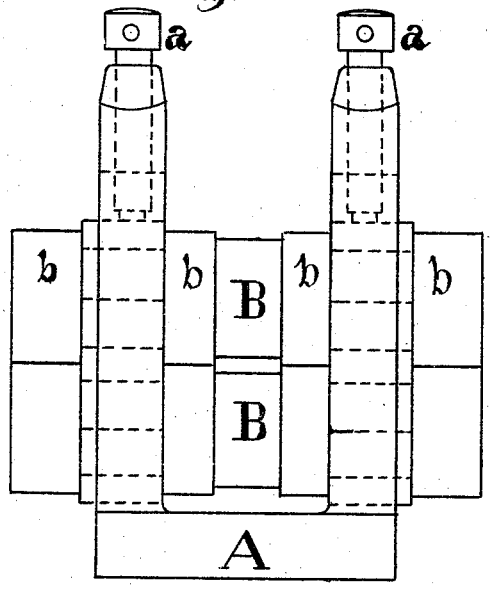


Fig. 1.



Witnesses
Geo. W. Shelton
William Hartley.

Inventor
George P. Salisbury
by his Attorney
George Terry

UNITED STATES PATENT OFFICE.

GEORGE P. SALISBURY, OF NEW HAVEN, CONNECTICUT.

IMPROVEMENT IN ROLLS FOR ROLLING METAL.

Specification forming part of Letters Patent No. **168,584**, dated October 11, 1875; application filed June 2, 1875.

To all whom it may concern:

Be it known that I, GEORGE P. SALISBURY, of the city and county of New Haven and State of Connecticut, have invented a certain new and useful Improvement in Rolls for Rolling Metal; and I do hereby 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 it, reference being had to the accompanying drawing, which forms a part of this specification.

The properties of different metals and of different alloys are such that they can only be rolled with advantage at different temperatures. For example, iron is most easily rolled at or above a red heat; zinc, only at or near the temperature of 300° Fahrenheit; whereas, the alloy brass, and some of the metals can only be rolled at ordinary temperatures, or, as we say, cold.

It is obvious that the metals and the alloys which are rolled cold produce the greatest strain on the rolls, and, of course, that the rolls are most likely to spring in rolling cold metal. In illustration of this fact, a cross-section of a strip of rolled brass is always thickest in the middle, showing that the rolls spring during the rolling. At intervals during the operation of rolling cold metal it is frequently necessary to anneal the metal as it becomes too hard to be further rolled. In the case of brass, the partially-rolled metal is placed in an oven and raised to a temperature approaching redness. From the unevenness of the heat the metal is unequally annealed, and hard places in it from this cause, as well as from the imperfect mixture of the metal, occur, causing the rolls to spring, and the rolled metal to be uneven in thickness.

The object of my invention is to stiffen the rolls, and prevent, as far as possible, their springing.

The invention consists in a novel construction of the rolls, which is hereinafter more fully set forth and claimed.

Figure 1 is a front view of the rolls, in position in the frame. Fig. 2 is a view of the ends of the rolls, and of the side of the frame.

The frame A, in which the rolls are placed, is made in the usual way. The upright parts are made with long slots, in which the boxes for the journals of the rolls are fitted, and are provided with screws *a a*, which come in contact with the upper sides of the upper boxes, and are the means by which the rolls are adjusted at any required distance apart, or are brought in contact. Unlike ordinary rolls, the rolls B B are longer, and extend beyond and outside of the frame A. They are also made with the enlargements *b b b b*. The roll is best proportioned when its two ends outside the frame A equal in length the part of the roll within the frame; or, in other words, when each outside end equals one-half of the length of the part of the roll within the frame.

The roll may be cast with the enlargements, or may be turned down to make them. The enlargements within the frame are narrow, and serve to prevent the springing together of the rolls by the pressure of the screws, when the enlarged ends are in contact. The whole of the roll outside the frame is enlarged, and all of the enlargements are equal in diameter. The journals should be made as large as possible, and the two rolls alike.

These rolls are intended for finishing-rolls, to be used with their enlargements in contact. When the rolls are in contact, the inclosed diameter of the enlargements over the other parts of the rolls will be the thickness of the metal rolled.

Motion is given to the rolls by connecting the end of the lower roll, made longer for the purpose, if need be, with a revolving shaft, when the upper roll, if resting on the lower, is turned by friction, and, if in use, by the moving metal between them. The rolls may also be connected by gears, so as to turn together.

With the above description of my improved rolls, their increased stiffness and strength will be readily understood. The rolling is done on those parts of the rolls between the enlargements within the frame. Before the rolls are screwed together they will spring when in use, in the same way as any rolls of the same material and size, and as they spring their ends outside the frame will ap-

proach each other; but when they are screwed tightly together, and their enlargements are in contact, they will have all the increased stiffness and strength due to the fact that their enlarged ends are in contact.

I claim as my invention—

Rolls, for rolling metal, extending outside the frame A, and having the enlargements *b b b b*, substantially as and for the purpose specified.

GEORGE P. SALISBURY.

Witnesses:

GEORGE TERRY,

CHARLES S. WELLS.