(No Model.) 2 Sheets—Sheet 1.

H. W. THOMAS.

BEARING FOR ROLLS OF ROLLING MILLS.

No. 526,466. Patented Sept. 25, 1894.

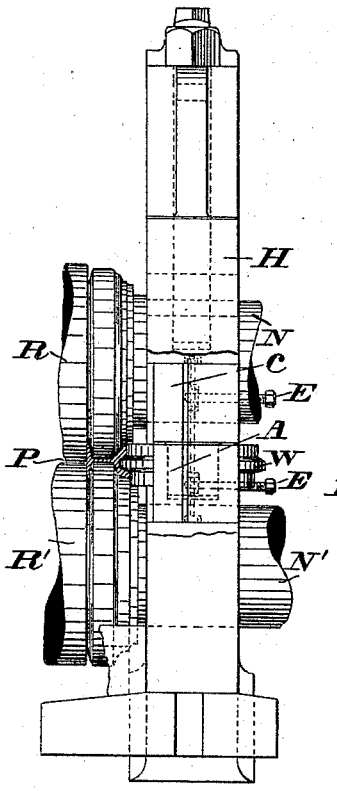

Fig. 3.

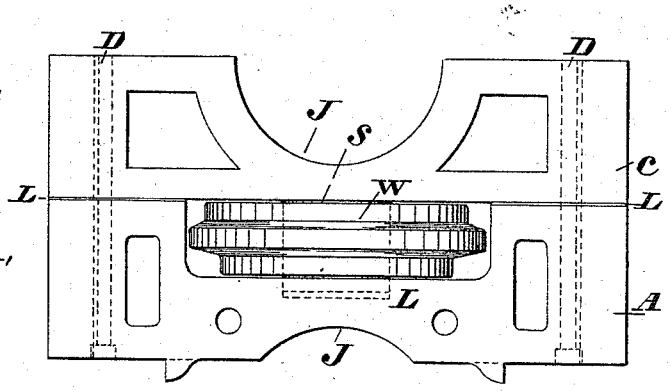

Fig. 1.

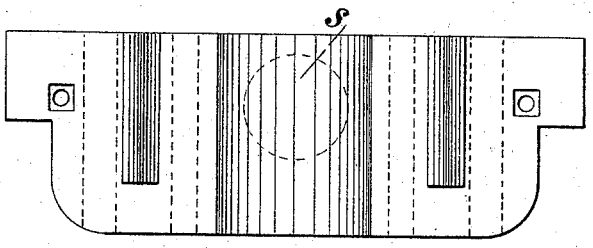

Fig. 2.

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(No Model.) 2 Sheets—Sheet 2.

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BEARING FOR ROLLS OF ROLLING MILLS.

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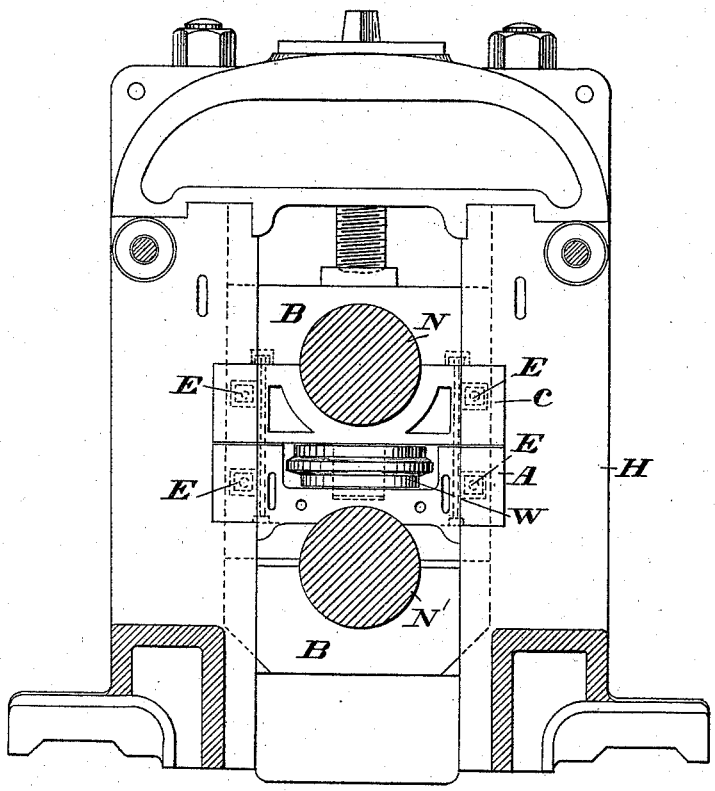

Fig. 4.

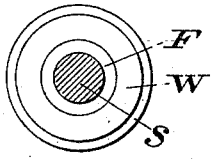

Fig. 5.

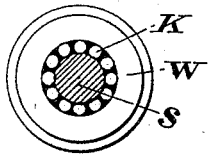

Fig. 6.

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UNITED STATES PATENT OFFICE.

HENRY W. THOMAS, OF JOHNSTOWN, PENNSYLVANIA, ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE JOHNSON COMPANY, OF PENNSYLVANIA.

BEARINGS FOR ROLLS OF ROLLING-MILLS.

SPECIFICATION forming part of Letters Patent No. 526,466, dated September 25, 1894.

Application filed April 24, 1893. Serial No. 471,628. (No model.)

To all whom it may concern:

Be it known that I, HENRY W. THOMAS, a citizen of the United States, residing at Johnstown, county of Cambria, State of Pennsylvania, have invented a new and useful Improvement in Rolling-Mills, of which the following is a true and exact description, due reference being had to the accompanying drawings.

The object of my invention is to provide an improvement in that part of the rolling mill which carries or supports one or more of the rolls, particularly those auxiliary ones known as "end" or "side" rolls, which are employed for the purpose of effecting a side action upon the bar being rolled, while the main rolls are at the same time acting upon the top and bottom of the bar and which are revolved by the friction of the piece being rolled and not by torsional power applied to the roll in the usual method. These rolls lying as they do between the necks of the main rolls cause a large part of the metal between the rolls to be cut away and as this metal between the roll necks forms the support of the top roll this support is thereby greatly weakened. As usually formed the side roll has its shaft secured thereto so that the shaft revolves in bearings in the metal forming the distance piece between the main rolls and consequently there is no directly supporting line of metal between the two main roll necks the distance piece having to bridge the aperture made for the side roll. By means of my invention a direct line of solid metal adapted to sustain the pressure of the rolls is provided between the main rolls to a degree not heretofore attained.

Referring to the drawings in which like letters refer to the same parts: Figure 1 represents a side elevation of the roll carrier forming the subject of this invention, the roll being shown mounted therein. Fig. 2 shows a top view of the same. Fig. 3 represents one end of a pair of rolls mounted in their housing, showing the location of the carrier therein, part of the housing being cut away to better illustrate the invention. Fig. 4 is an end view of the main rolls also showing the carrier and housings. Figs. 5 and 6 are details of construction hereinafter described.

R, and R′ represent one end of the two main rolls showing one pass *p* of which the side roll W forms a part. The bearing blocks B, B with the two parts of the side roll carrier C and A form the bearings in which the necks N, N′ of rolls R, R′ revolve.

H is the housing in which the rolls are mounted in the usual manner, except that in place of the usual block or blocks between the two necks N and N′ the side roll carrier Fig. 1 is substituted.

As this carrier is shown in Figs. 1 and 2, C and A are the two parts each having a bearing J for a roll neck. A is shown having a depression in the middle for the side roll W. The shaft S on which the roll W revolves is shown integral with the top piece C and entering a pocket or recess in the lower piece A. Said shaft might be made separate from C however, and rigidly secured thereto.

It is necessary that this carrier should be as strong and rigid as is possible, as it must withstand the thrust of the roll while it is acting upon the metal in the pass and also carry the weight of the upper roll, and it is also necessary that the distance between the main rolls may be adjustable. To secure these two requirements I construct the carrier in two parts and by inserting liners or thin pieces of metal L between the two parts the distance from center to center of bearings J, J may be varied. At the same time that I put liners between the two pieces I also put them under the shaft S at L so that when the two pieces are drawn together by the bolts D, D there is no vacant space below shaft S, and the two form one rigid piece with the wheel W between them free to turn upon the shaft S.

The manner of setting the carrier in place is this: The lower roll R′ having been placed in the housing the carrier is next put in as shown in Fig. 3 where enough of the housing is cut away to show the end of the carrier. When it is in place and the upper roll and top bearing secured the carrier is pressed forward as far as desired by means of the four

set screws E. It will thus be seen that by means of these set screws and the liners L, adjustment is secured for the side roll both in vertical and horizontal directions.

By making the shaft S integral with the piece C the thin section through the center of C is greatly strengthened and I am enabled to make the roll W with wider face than I could if the shaft S revolved in bearings in the two pieces C and A.

Figs. 5 and 6 illustrate two ways of mounting the roll W upon the shaft S. In Fig. 5, S is the shaft, W the roll and F a bushing of any antifriction metal secured to the roll W. In Fig. 6 in place of the antifriction bushing F are the rollers K interposed between the shaft and roll thus reducing the friction to a minimum.

Having described my invention, what I claim, and desire to protect by Letters Patent, is—

A side roll frame for rolling mills, said frame being adapted to be inserted between the necks of the main rolls and having an orifice or recess adapted to contain the side roll; and a shaft extending across said orifice and secured to the opposing portions of the frame; the side roll revolving upon the said stationary shaft whereby said shaft is adapted to form a strut across the orifice between the opposing members of the frame.

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

HENRY W. THOMAS.

Witnesses:
H. W. SMITH,
WM. A. DONALDSON.