

(No Model.)

A. WESTLEY.
BEARING FOR NECKS OF ROLLS.

No. 531,885.

Patented Jan. 1, 1895.

Fig. 1.

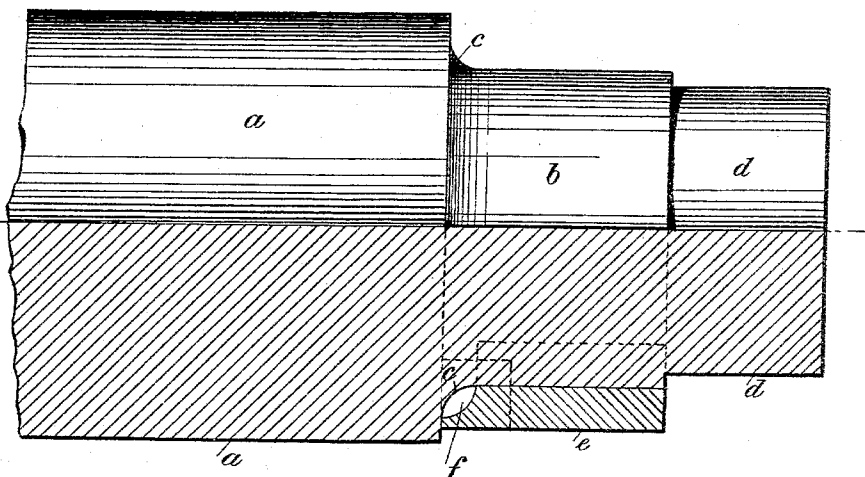


Fig. 2.

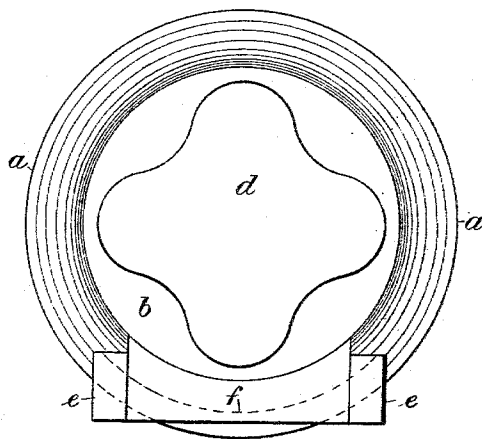


Fig. 3.

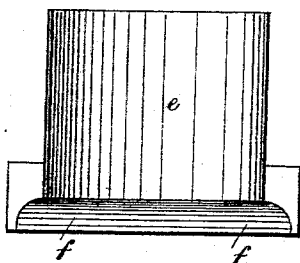


Fig. 4.

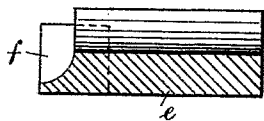


Fig. 5.



Witnesses:—

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Inventor:—

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UNITED STATES PATENT OFFICE.

ARTHUR WESTLEY, OF DUDLEY, ENGLAND.

BEARING FOR NECKS OF ROLLS.

SPECIFICATION forming part of Letters Patent No. 531,885, dated January 1, 1895.

Application filed September 13, 1894. Serial No. 522,942. (No model.) Patented in England May 4, 1892, No. 8,446.

To all whom it may concern:

Be it known that I, ARTHUR WESTLEY, a subject of the Queen of Great Britain, residing at Dudley, England, have invented a certain new and useful Improved Bearing for the Necks of Rolls, (for which I have obtained Letters Patent of Great Britain, No. 8,446, dated May 4, 1892;) and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

My invention consists of a new or improved bearing for the necks of rolls constructed as hereinafter described.

Bearings of the kind to which my invention refers are commonly called hot neck bearings and are principally used for supporting the necks of tin plate mill rolls, iron and steel sheet and plate mill rolls and other like rolls.

The object of my invention is so to construct the bearings of the necks of the said rolls as to reduce to a minimum the tendency of the said necks to break at the "fillet" or the curved shoulder of the neck where the neck joins the body of the roll.

By the use of bearings of the ordinary kind fine surface cracks are formed at the "fillet" or curved shoulder of the neck of the roll in consequence of the excessive friction at and overheating of that part of the roll, and at the said cracks the necks frequently break or split. I prevent the production of the said fine surface cracks and thereby reduce to a minimum the breaking of the necks at the "fillet" or curved shoulder by the use of bearings constructed according to my invention.

In a bearing of the ordinary kind the inner end of the bearing situated under the "fillet" or curved shoulder of the neck of the roll is curved or made convex for the "fillet" or curved shoulder of the neck of the roll to seat itself closely upon, the whole of the neck of the roll resting on the bearing, that is, the cylindrical part of the neck rests on the horizontal part of the bearing and the "fillet" or curved shoulder on the convex inner end of the bearing.

In making a bearing according to my invention I form a recess at the inner end of the bearing and at that face when the bearing is in use which is presented to the "fillet" or

curved shoulder of the neck of the roll so that the said "fillet" or curved shoulder of the neck does not come in contact with the bearing, the whole bearing surface of the neck of the roll being supported on the horizontal part of the bearing so that overheating at the "fillet" part of the neck of the roll is wholly prevented. The rolls are kept in position by the snugs and collars bearing against the body of the rolls sidewise as usual.

I prefer to make my improved bearing of bronze the recess situated under the "fillet" or curved shoulder of the neck extending nearly across the bearing and the bottom of the recess may either be curved or angular.

In addition to preserving the necks of the rolls, bearings made according to my invention possess the minor advantages that less friction being produced at the neck a reduced quantity of lubricant is necessary and less power is required for driving the rolling mill.

Figure 1 of the accompanying drawings represents in side elevation partly in longitudinal section, a portion of a cylindrical roll to which a bottom hot neck bearing constructed according to my invention is applied, and Fig. 2 represents an end elevation of the same. Fig. 3 represents in plan, Fig. 4 in longitudinal section and Fig. 5 in end elevation, taken at the recessed inner end, my improved bearing detached from the roll.

The same letters of reference indicate the same parts in the several figures of the drawings.

a is the cylindrical body of the roll.

b is the neck of the roll and *c* the fillet or curved shoulder where the neck joins the body of the roll.

d is the wabblor of the roll.

The bottom bearing of the neck constructed according to my invention is marked *e, f*. The bearing is of the ordinary kind excepting at the inner end or that end which when the bearing is in use is presented to the fillet or curved shoulder *c* of the roll. At the said inner or fillet end of the bearing I make the recess *f* which extends nearly from side to side of the said bearing. The shape and position of the said recess *f* will be understood by an examination of Fig. 1 and the separate bearing Fig. 3. The said recess *f* is curved at bottom, but the said recess may be square or of

other angular figure instead of curved as represented in the drawings.

It will be seen by an examination of Fig. 1 that when the bearing is in use, the recess *f* at its inner end, is situated under the fillet or curved shoulder *c* of the neck of the roll and that the said fillet or shoulder does not come in contact with the bearing, the whole bearing surface of the neck of the roll being supported on the horizontal seat part *e* of the bearing, instead of the whole of the neck resting on the bearing as usual. By the absence at the inner end of the bearing of the usual curved or convex projecting part for bearing against and supporting the fillet or curved shoulder of the neck of the roll, overheating at the fillet part of the neck of the roll is wholly prevented and the tendency of the said neck to break or split at the fillet is thereby prevented or reduced to a minimum and as less friction is produced at the neck, a less quantity of lubricant is required as before stated.

The side and top bearings at the neck of the roll (not represented) are constructed and applied in the manner described and repre-

sented with respect to a bottom bearing, that is, each side and top bearing has at its inner or fillet end a curved or angular recess which is situated under the fillet part of the neck of the roll.

The bottom, top and side bearings of the rolls are supported in the housings in the ordinary way and are kept in position by the ordinary appliances which I do not think it necessary either to describe or to represent.

Having now particularly described and ascertained the nature of my invention and the manner in which the same is to be performed, I declare that I claim as my invention—

A new or improved bearing for the necks of rolls provided at its inner or fillet end with a curved or annular recess extending nearly from side to side of the said inner end so that the fillet or curved shoulder of the neck of the roll does not come in contact at that part with the bearing for the purposes and substantially as set forth and shown.

ARTHUR WESTLEY. [L. S.]

Witnesses:

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