(No Model.)

A. RODGERS.

FEED ROLL.

No. 342,228. Patented May 18, 1886.

Fig. 1

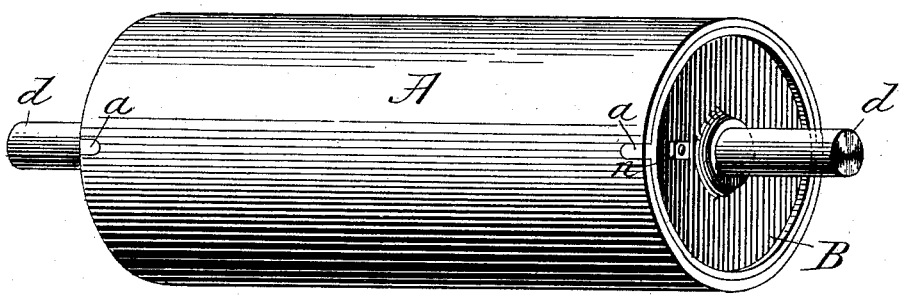


Fig. 2.

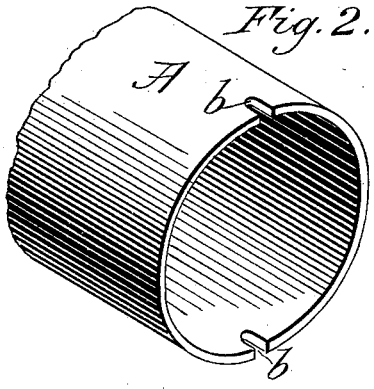


Fig. 3.

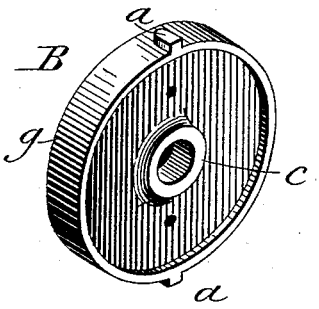


Fig. 4.

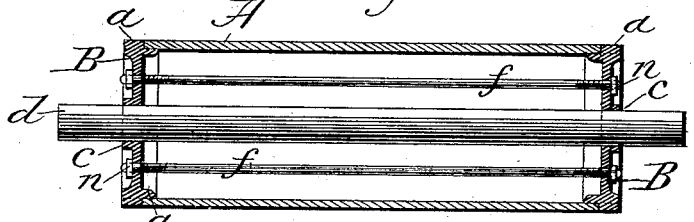
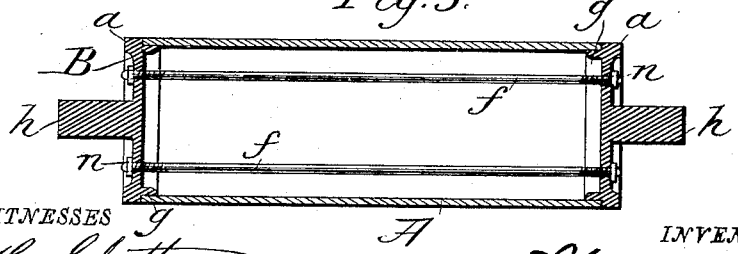


Fig. 5.



WITNESSES

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UNITED STATES PATENT OFFICE.

ALEXANDER RODGERS, OF MUSKEGON, MICHIGAN.

FEED-ROLL.

SPECIFICATION forming part of Letters Patent No. 342,228, dated May 18, 1886.

Application filed September 12, 1885. Serial No. 176,882. (No model.)

To all whom it may concern:

Be it known that I, ALEXANDER RODGERS, a citizen of the United States, residing at Muskegon, in the county of Muskegon and State of Michigan, have invented certain new and useful Improvements in Feed-Rolls, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to an improvement in that class of rolls employed as feed or carrying rolls in saw-mills and other classes of machinery where such rolls are needed. It is a desideratum in these rolls that they shall be light and of great strength, especially in gang-saw mills, for which use they have commonly been made of hollow iron castings fitted upon a wrought-iron shaft. The objection to these is their great weight and liability to breakage from sudden blows, as when a large log is turned over upon them after having been flattened upon two sides. Lighter and cheaper rolls have been made of wood, sometimes having an iron axle or shaft through them; but these are unfitted for use as feed-rolls by reason of their lack of rigidity and strength and the comparative softness of the surface, which is soon broken and worn. Rolls have also been made of wrought-iron tubes secured upon a central shaft by means of cast-metal heads provided with flanges, to which the ends of the tube were riveted. This form of roll, though better than either of the preceding, was objectionable, from the fact that in cases of breakage of either of the parts, the whole was rendered useless, while the great amount of manual labor required by the riveting process made them costly. Another plan has been to ream out the ends of the tube so as to form a tapering seat for the reception of the head-flanges, which were given a corresponding taper, and forced or drawn into the opposite ends of the tube by means of screw-bolts passing through the heads and through the interior of the roll between the central shaft and tube. This last-named construction, although it enabled the several parts to be used again in cases of breakage, was subject to the defect that the force employed to firmly seat the heads was liable to split the tube, and that if this accident did not occur they were continually working loose, owing to the expansion of the ends of the tubes when in use, necessitating the frequent screwing up of the bolts to keep them in a serviceable condition. I am also aware that a patent has been granted for a roll constructed with a cylindrical shell having beveled ends which are caught and held under a correspondingly-beveled flange upon the outer edge of the cast-metal heads, said heads being drawn toward each other by screw-bolts, causing the flange to firmly clamp the beveled ends of the cylindrical shell. The only objection to this form of roll is that the flanges are liable to be broken off by blows from logs or other heavy pieces of lumber, as the wrought-iron shell does not cover them, and consequently forms no protection. In order to avoid these defects this invention provides a means of securing the cast-metal heads in the ends of the wrought-metal tube, forming the body of the roll, which enables them to be readily taken to pieces, and a disabled part replaced by a new piece, and at the same time effectually retains the strength of all the parts composing the roll. This is accomplished by forming the heads with projections on their peripheries, which enter corresponding recesses formed in the ends of the tube which receive the draft of the bolts that hold the heads in position, all as hereinafter fully described.

Figure 1 is a perspective view of a roll embodying my improvements. Fig. 2 is a section of the same, showing one end of the outer casing. Fig. 3 is a perspective view of one of the heads. Fig. 4 is a longitudinal section of the roll, and Fig. 5 is a section showing a modification.

The outer casing of the roll is formed of a metal tube, which may be of any desired diameter and cut to any suitable length, the tube preferred being the ordinary welded wrought-iron tubing now manufactured and in use for boiler-flues, Artesian-well tubing, and many other purposes requiring a strong and perfectly cylindrical tube. The outer extremities of these pieces of tube are provided with two or more slots or recesses, *b*, formed for the reception of the lugs *a*, which are cast upon and project from the periphery of the heads B. These heads are provided with broad flanges *g* at their circumference, which forms a support for the end of the tube, and are thickened to form a hub, *c*, toward the center, through which

passes the shaft *d*, held in place by a key, set-screw, or any of the well-known devices employed to keep a shaft in position. The ends of this shaft form the journals upon which the roll revolves; or these heads may be cast with projections *h*, of suitable shape to form the journals of the roll, if desired, and the work they are to perform not too heavy to allow of this construction. Through the heads pass the tightening-rods *f*, which draw the heads into place by means of the nuts *n*, and retain them in position.

This roll is easily and quickly constructed, the heads being placed within the metallic tube, care being taken to place the lugs opposite the slots or recesses, the tightening-rods are put through the heads, and the nuts being set up the heads are drawn securely into position, the lugs fitting tightly in the recesses in the tube, the shaft being then introduced through the aperture provided in the heads, and being keyed in position the roll is complete.

Having thus described my invention, I claim as new and desire to secure by Letters Patent the following:

As an improvement in feed or bearing rolls for saw-mills, the tubular casing A, forming the bearing-surface of said roll, provided at each end with two or more recesses, *b*, in combination with the circular cast-iron heads B, having on their peripheries projections *a*, corresponding in number and form to the recesses in the ends of the tube, suitable journals secured to or formed integral with said heads, and bolts *f*, provided with nuts *n*, drawing the heads into the ends of the tube and holding them firmly in position, as and for the purpose specified.

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

ALEXANDER RODGERS.

Witnesses:

JAMES C. MCLAUGHLIN,

FRED SUTCLIFFE.