(No Model.)

R. H. TRUMBULL.

BAND SAW WHEEL.

No. 389,723. Patented Sept. 18, 1888.

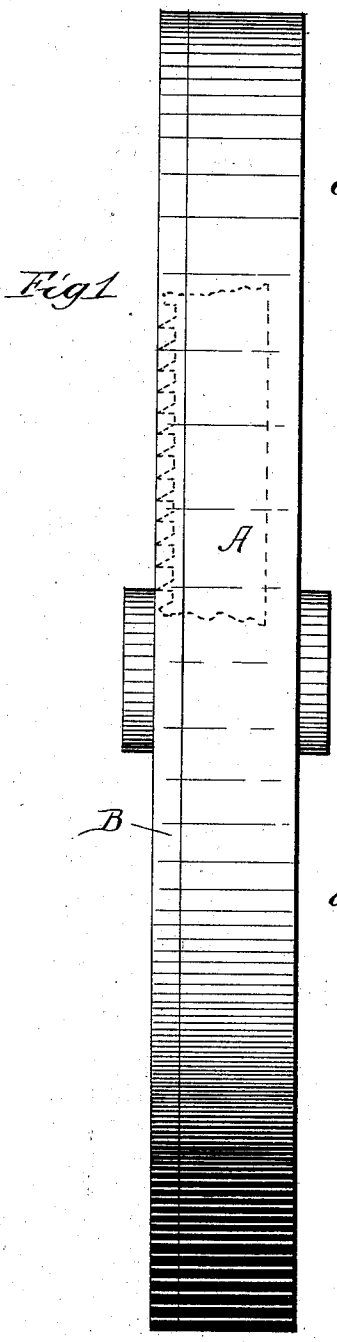


Fig 1

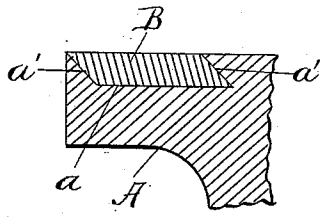


Fig 3

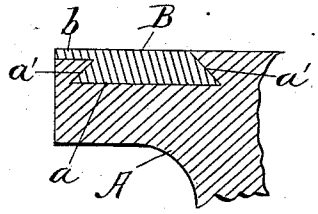


Fig 4

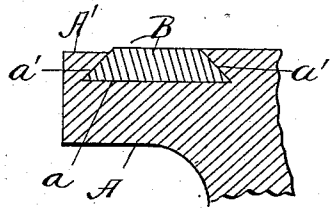


Fig 5

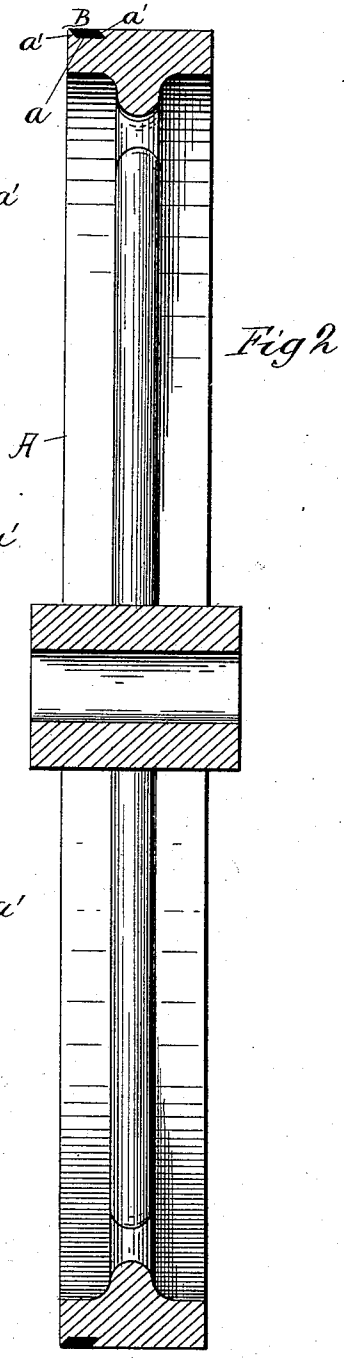


Fig 2

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UNITED STATES PATENT OFFICE.

ROLLIN H. TRUMBULL, OF EVANSTON, ILLINOIS.

BAND-SAW WHEEL.

SPECIFICATION forming part of Letters Patent No. 389,723, dated September 18, 1888.

Application filed September 19, 1887. Serial No. 250,136. (No model.)

To all whom it may concern:

Be it known that I, ROLLIN H. TRUMBULL, a citizen of the United States, residing at Evanston, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Band-Saw Wheels, which is fully set forth in the following specification, reference being had to the accompanying drawings, in which—

Figure 1 is an elevation of a band-saw wheel embodying my invention; Fig. 2, a central sectional view of the same; Fig. 3, a detail view of the upper portion of Fig. 2, enlarged; Fig. 4, a view similar to Fig. 3, showing a modification; and Fig. 5, another similar view, showing another modification.

Like letters refer to like parts in all the figures of the drawings.

My invention relates to band-saw wheels, and has for its object to provide a wheel of this description which shall effectually prevent injury to and wear of the saw which travels upon the same, and shall at the same time possess superior durability and cheapness. These band-wheels, which are the wheels over which the band-saw runs and by means of which they are driven and supported, are constructed of iron, and in order to prevent their peripheral surface from injuring the saw by contact therewith they are commonly covered on their periphery with wood or other like soft and fibrous material, in order that the set of the saw shall not be damaged by contact with the iron. One of the chief objections to this construction is that when the mill is stopped the lower wheel, which rests in a pit of fresh and consequently moist sawdust, will have its wooden covering dampened by absorbing the moisture from the sawdust, so that the wood will swell and not only produce an inequality or inequalities in the wheel, which will seriously hinder its effective operation by throwing it out of balance, but will also tend to permanently damage the structure of the wheel itself, owing to the alternate swelling and shrinking of the wood. Moisture from other causes will of course produce a similar effect, and not only in the lower but also in the upper wheel. The other fibrous materials employed as substitutes for wood are also open to the same objections.

It is the object of my present invention to overcome these difficulties by providing a wheel which shall have a bearing-surface upon its periphery which will prevent injury to the saw, and which at the same time will not be subject to damage from these variations of moisture and temperature.

To these ends my invention consists in a band-saw wheel having a portion or the whole of its peripheral surface constructed of lead or other soft metal, upon which the teeth of the band-saw may bear when in operation.

I will now proceed to describe a construction in which I have practically carried out my invention in one form, and will then particularly point out in the claims those features which I deem to be new and desire to protect by Letters Patent.

In the drawings, A represents a band-saw wheel which may be either the upper or lower wheel of the mill and which is constructed of iron in the usual manner. In the periphery of this wheel, and preferably near one edge thereof, I form a groove, *a*, having inclined walls *a'*. In Figs. 2 and 3 of the drawings the outer wall, *a'*, is inclined in the same direction as the inner wall, *a'*, and extends to the edge or corner of the wheel.

Within the groove *a* is cast or otherwise secured a ring or band, B, of lead or other soft metal, which is preferably flush with the remainder of the peripheral surface of the wheel A, and which forms a bearing surface upon which the band-saw, or that portion thereof which is provided with teeth, may run, as shown in dotted lines in Fig. 1 of the drawings. In Fig. 4 of the drawings I have shown the leaden bearing-surface B as secured in a somewhat different manner, the outer wall, *a'*, of the wheel A being inclined in an opposite direction to that of the inner wall and not being carried up so high, while the ring or band B is provided with a flange, *b*, which extends to the edge of the wheel from the top of the outer wall, *a'*. This flange may, however, be omitted, and in that case a construction such as that shown in Fig. 5 will result, in which

the outer portion of the periphery of the wheel A, between the lead bearing-surface B and the edge of the wheel, is depressed below the rest of the periphery of the wheel, as shown at A′, so that if the saw runs off the bearing-surface at that side it will not come in contact with the iron surface of the wheel proper.

The lead bearing-surface may be formed upon or secured to the wheel in any desired manner, and may cover the whole of its periphery, although for reasons of economy I prefer some such construction as that shown in the drawings. In operation the soft bearing-surface provided by the lead or other soft metal employed will receive the band-saw or that portion thereof which is provided with teeth, and will present to the teeth a bearing-surface which will not wear them down or otherwise injure them. Moreover, this surface, if defaced or cut up by the set of the saw-teeth in course of time, may be readily repaired or restored to its original condition by being smoothed down with a hammer or in any other suitable manner, whereas in the case of wood or other fibrous bearing-surface the destruction of the surface renders it necessary to entirely remove the same and substitute a new covering.

It will be at once seen that a wheel provided with a leaden bearing-surface may be exposed to all the varying conditions of moisture and dryness to which a band-saw mill is in practice subjected without in any way impairing its efficiency or affecting its structure. The same is true as to changes of temperature. Furthermore, the original cost is much less than that of constructing and securing a covering of wood or other fibrous material, and the cost of repairs is merely nominal. Moreover, the construction which I have devised possesses a further advantage over the ordinary construction, which is as follows: In sawing resinous wood the pitch and other resinous substances tend to cling to the wheel, and the sawdust, adhering to the pitch, forms lumps or inequalities upon the wheel, which render its action uneven, thus subjecting the saw to varying and unequal strains, which will cause it to slip and tend to break. To overcome this, scrapers are commonly employed; but in the case of a wheel provided with a peripheral covering of wood or other fibrous material, or even of rubber, it is in practice found impossible to scrape the surface of the wheel clean. With my construction, however, in which the wheel presents a smooth metallic surface to the action of the scraper, all adhering substances will be entirely removed by the action of the scraper, so that no danger of slipping or breakage will be incurred. It will thus be seen that I provide a cheap, durable, and efficient band-saw wheel, which obviates the difficulties and objections attendant upon the construction hereinbefore employed, and which possesses manifold advantages, some of which have been pointed out above.

As hereinbefore stated, the precise mode of applying the leaden bearing-surface to the wheel is immaterial, and various modifications may be made without departing from the principle of my invention. Moreover, other soft metals or alloys may be substituted for lead, although this material would seem preferable on account of its superior cheapness and economy. I therefore do not wish to be understood as limiting myself strictly to the precise details hereinbefore described, and shown in the drawings.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A band-saw wheel having a portion or the whole of its peripheral surface of soft metal, substantially as and for the purposes specified.

2. A band-saw wheel provided with a groove or seat in its periphery, in combination with a bearing-surface of soft metal secured within the same, substantially as and for the purposes specified.

3. The combination, with the band-saw wheel A, provided with groove *a*, having inclined walls *a′*, of the band B, constructed of soft metal, seated within the groove *a*, and flush with the peripheral surface of the wheel, substantially as and for the purposes specified.

ROLLIN H. TRUMBULL.

Witnesses:
IRVINE MILLER,
JNO. R. SALL.