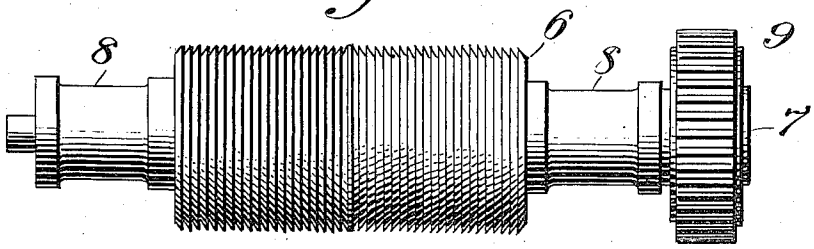
R. R. HIND & G. F. RENTON.

SUGAR CANE MILL ROLLER.

APPLICATION FILED MAR. 20, 1914.

1,144,597. Patented June 29, 1915.

Fig 1



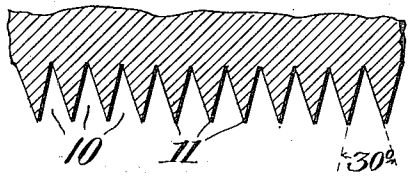


Fig. 2.

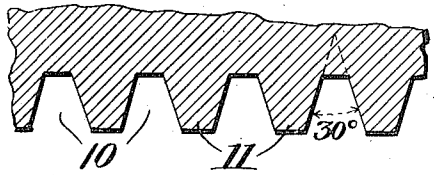


Fig. 4.

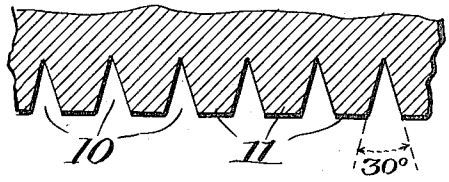


Fig. 3.

Witnesses.
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UNITED STATES PATENT OFFICE.

ROBERT RENTON HIND AND GEORGE F. RENTON, OF EWA, TERRITORY OF HAWAII.

SUGAR-CANE-MILL ROLLER.

1,144,597. Specification of Letters Patent. Patented June 29, 1915.

Application filed March 20, 1914. Serial No. 826,127.

To all whom it may concern:

Be it known that we, ROBERT RENTON HIND and GEORGE F. RENTON, citizens of the United States, residing at Ewa, in the county of Honolulu and Territory of Hawaii, have invented certain new and useful Improvements in Sugar-Cane-Mill Rollers; and we 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 the same.

This invention relates to sugar-cane mills, and particularly to improvements in the rollers used in the same.

The rollers of sugar-cane mills usually consist of a cast iron roll or shell pressed onto and keyed to a steel shaft having suitable journals. Each shaft is provided with a pinion. The top or driven roller of a three roller mill, by means of these pinions, thus drives the two lower or front and rear rollers, respectively termed the feed roller and the discharge roller. The rolls are usually grooved transversely to their axis with V-shaped grooves, for the purpose of increasing the effective surface of the rolls. These grooves are generally from 5 to 8 to the inch and from 60 to 90 degrees, as, for example, is shown in U. S. Letters Patent No. 733,125, issued July 7, 1903, to J. J. E. Bekker. The ability of the rolls to grip the cane or bagasse and cause them to take the feed has heretofore depended largely, however, upon the roughness of their surface texture, special grades of iron being used in casting the rolls in order to insure of their always having the requisite roughness.

The present invention contemplates a roller for sugar-cane mills entirely of steel, preferably made in a single piece, and provided with novel grooving adapted to cause the rolls to take the feed. Rollers if entirely of steel and grooved with the ordinary type of grooving above mentioned would not take the feed. We have found, however, that by grooving the rolls with our acute angle grooves, as hereinafter described, the feeding of the cane or bagasse is independent of the roughness of their surfaces, as the cane or bagasse is gripped and wedged between the steeply inclined sides of the grooves by the ridges or wedges formed between the grooves of the co-acting roll. These steel rollers depend, therefore, upon our special grooving for gripping the cane or bagasse, and they take the feed even when their surfaces are smooth. As the rollers, therefore, can be made all of steel, the cost of manufacture is materially reduced, while their strength and durability is increased, and the troubles attendant upon rollers with the shaft loose in the roll are eliminated. Frequent regrooving of the rolls is also unnecessary. It has been found in practice that the extraction has been increased between 1% and 2% by using our novel acute angle grooving of the rolls.

In the accompanying drawings, forming a part of this specification, Figure 1 represents a roller for sugar-cane mills embodying the present invention. Fig. 2 is a sectional view of a portion of a roll showing one form of our acute angle grooving of the symmetrical type. Fig. 3 is a view similar to Fig. 2 but showing the points or tops removed of the ridges or wedges formed between the grooves. Fig. 4 shows a modification of Fig. 3 in which the bottoms of the grooves are flat and the points of the wedges are removed.

Referring to the drawings, the roll 6 and the shaft 7 are of steel and preferably made in one piece. The shaft 7 is provided with the journals 8. The pinion 9 is keyed to the shaft 7 in the usual manner. The grooves 10 have a more acute angle, and consequently the ridges 11 formed between the grooves 10 are much sharper, than has heretofore been used. We find that grooves having acute angles of less than thirty-five degrees and preferably between thirty and thirty-five degrees give good results. The co-acting rolls are of course grooved so as to mesh with one another. The cane or bagasse is, therefore, gripped between the inclined sides of the grooves 10 by the points or ridges 11 formed between the grooves of the co-acting roll. When all-steel rollers are employed, the feeding of the cane or bagasse to the mill is dependent upon this novel grooving and not upon the roughness of the surface texture of the rolls. These acute angle grooves 10 may be of any suitable arrangement, for example, of the type as shown in Fig. 2. The tops or points of the ridges 11 formed between the grooves 10 may be flat as shown in Fig. 3. The bottoms of the grooves 10 may also be flat as shown in Fig. 4.

The usual scraper plates may be employed and arranged to keep the grooves 10 free of bagasse.

We are aware that, as hereinabove stated, it has been customary to groove rolls to increase their effective surface, but

We claim:

A sugar-cane mill roller provided with a plurality of acute angle grooves of less than thirty-five degrees adapted to anchor on the roller a portion of the bagasse, whereby a gripping surface formed of the bagasse itself is presented to the sugar-cane passing through the mill.

In testimony whereof we affix our signatures, in presence of two witnesses.

R. RENTON HIND.
GEORGE F. RENTON.

Witnesses:
R. HATTIE,
JAS. A. HATTIE.