S. L. DENNEY.

Sugar Cane Mill.

No. 21,601. Patented Sept. 28, 1858.

UNITED STATES PATENT OFFICE.

SAMUEL L. DENNEY, OF THE COUNTY OF LANCASTER, PENNSYLVANIA.

IMPROVEMENT IN SUGAR-MILLS.

Specification forming part of Letters Patent No. **21,601**, dated September 28, 1858.

To all whom it may concern:

Be it known that I, SAML. L. DENNEY, of the county of Lancaster and State of Pennsylvania, have invented a new and useful Improvement in Sorghum or Chinese Sugar-Cane Mill; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making a part of this specification—

Figure 1 being a front view; Fig. 2, an end elevation; Fig. 3, a vertical section exhibiting the eccentric bearings R, with their arms *c*, as connected together by the connecting-rod D, with an end view of the rolls B B B. Figs. 4 and 5 are views representing the eccentric bearings R R and their arms *c* detached.

Similar letters indicate like parts in all the figures.

The respective movements of my improved sorghum or Chinese sugar-cane mill are combined with the eccentric bearings, being connected together in such a manner as to effect an instantaneous enlargement or diminution of the space between the rolls simultaneously with the movement of the lever F, substantially as hereinafter set forth.

I construct the frames of my mill in the usual way, the bottom or juice-pan secured firmly to the ends of frame. I extend two bars, *k*, across the upper part of the mill, which serve to brace the frame and also to support the ends of the arch H in its required position. In the end frames apertures are formed to receive the journals of the rolls B B B. One of the lower rolls has its permanent bearings in the aperture. For the other two, the apertures are of a larger size, to admit the eccentric bearings R R and to allow them to move freely therein. The journals of said rolls revolve within the eccentric bearings R R. To said bearings are attached the arms *c c*. The arms attached to the bearings of the upper roll are curved and come together over the center of the rolls, to form the lever F. The arms attached to the lower bearings are connected to those of the upper by the connecting-rod D.

On the protruding ends of the roll-shafts I Iis fitted cog-gearing E E E, which communicates motion to all of said rolls.

Connected to the lever F is a sliding bolt, *g*, which is held in its proper position by the guard P, and works upon a pivot at the lower end of the hand-piece M. The hand-piece M is also secured by a pivot, *o*, to lever F. The arch is provided with a suitable number of notches into which the bolt *g* enters, being held there by the spring Q.

It will be perceived that by grasping the handle of lever F along with the hand-piece M the bolt *g* will be lifted from its detent. The lever F will then be free to be operated in the direction desired, to enlarge or diminish the space between the rolls B B B. The moving of the lever F causes the eccentric bearings to revolve in their berths simultaneously, thus causing the rolls to recede from or approach each other in the direction indicated by the arrows, and at the same time they are kept in perfect parallelism with each other.

The particular advantage gained in my arrangement of eccentric bearings is that the mill can at any time, while in motion, be instantly adjusted to any degree of proximity that may be necessary to induce a thorough expression of the juices from the different-sized canes. The spaces between the rolls at the receiving and discharging sides will always vary in the same proportion.

It is well known that the sorghum or Chinese sugar-cane varies much in size. In preparing the cane for the mill it is necessary to select it into two grades, large and small; by then adjusting the mill to suit the sizes, the juices can be thoroughly expressed without an unnecessary consumption of motive power. In the ordinary construction of mills, the small canes will either not be effectually crushed, or else there will be an unnecessary consumption of motive power in crushing the larger canes to a degree which is altogether unnecessary to obtain all of the juices.

In case, as often it happens, the mill is stalled by allowing too much cane to get into it, instant relief can be given to the rolls by allowing them to recede for an instant until they regain their motion. It will be seen also that when the rolls are made to approach each other closely, the gearing-wheels are made to gear correspondingly deeper, which gives to

the gearing the greatest strength at the time it is most needed—that is, when the greatest pressure comes upon the rolls.

What I claim as my invention, and desire to secure by Letters Patent, is—

The combination of eccentric bearings R R, their arms *c c*, connecting-rod D, lever F, sliding bolt *g*, hand-piece M, and arch H, or their equivalent, substantially in the manner and for the purpose herein set forth.

The above specification of my new and useful improvement in sorghum or Chinese sugar-cane mills signed and witnessed this 3d day of September, 1858.

SAML. L. DENNEY.

Witnesses:
SYLVESTER KENNEDY,
MARTHA KENNEDY.