(No Model.) 2 Sheets—Sheet 1.

W. O. DUNLAP.

CANE MILL.

No. 420,147. Patented Jan. 28, 1890.

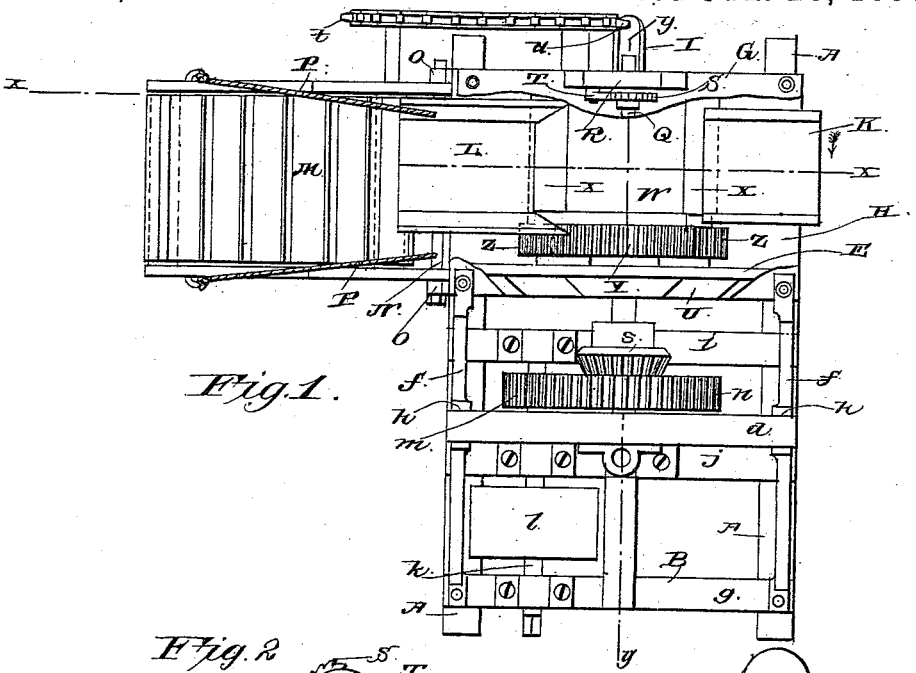

Fig. 1.

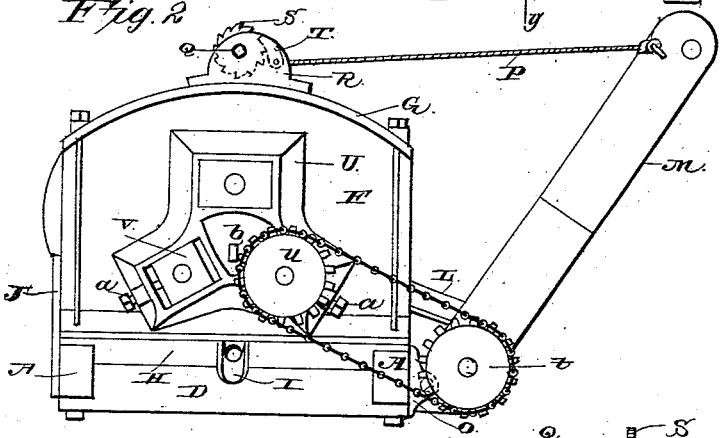

Fig. 2.

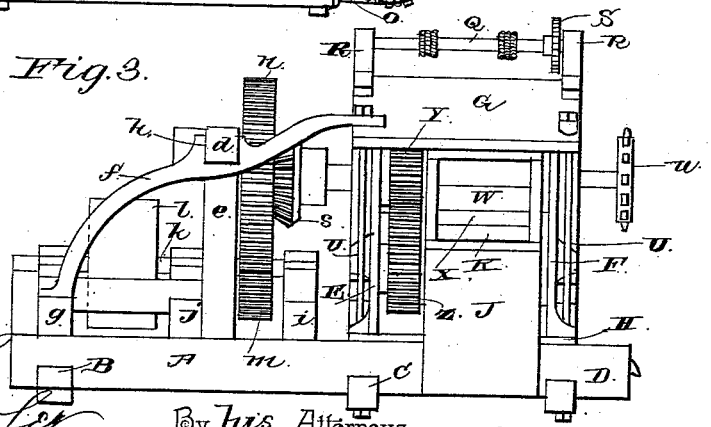

Fig. 3.

Witnesses

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(No Model.) 2 Sheets—Sheet 2.

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Fig. 4.

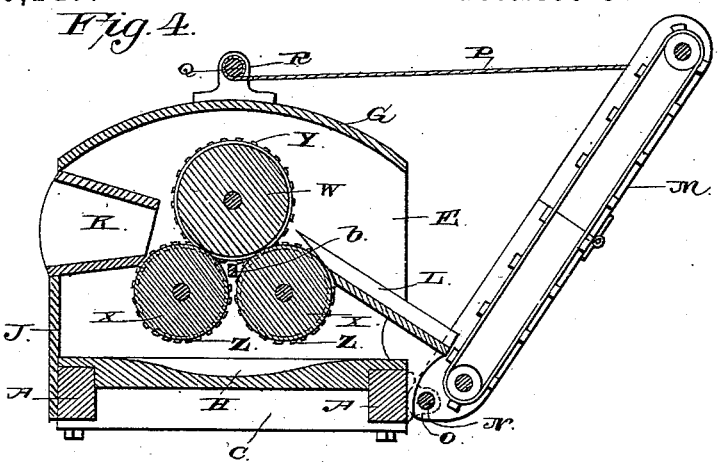


Fig. 5.

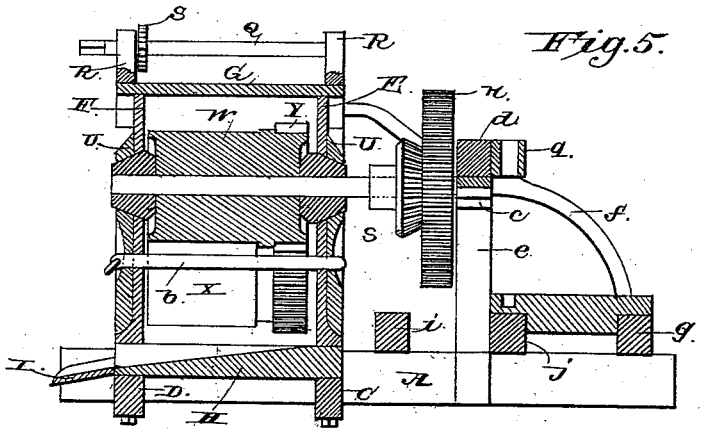
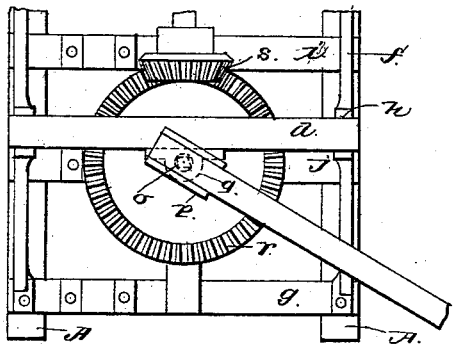


Fig. 6.



Witnesses

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UNITED STATES PATENT OFFICE.

WILLIAM O. DUNLAP, OF GEORGE'S CREEK, TEXAS.

CANE-MILL.

SPECIFICATION forming part of Letters Patent No. 420,147, dated January 28, 1890.

Application filed August 8, 1889. Serial No. 320,144. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM O. DUNLAP, a citizen of the United States, residing at George's Creek, in the county of Somervell and State of Texas, have invented a new and useful Cane-Mill, of which the following is a specification.

My invention relates to improvements in cane-mills; and it consists in certain novel features hereinafter claimed and described.

In the accompanying drawings, Figure 1 is a plan view of my improved mill with the roof of the housing removed. Fig. 2 is an end view of the same. Fig. 3 is a front elevation. Fig. 4 is a vertical transverse section on the line *x x* of Fig. 1, and Fig. 5 is a longitudinal vertical section upon the line *y y* of Fig. 1. Fig. 6 is a detail view showing the device arranged to be operated by a sweep or rotary lever.

In carrying out my invention I form the base or supporting-frame of the sills or beams A A, which are connected by the cross-bars B C D, as shown, the bars C and D being arranged directly beneath the walls of the housing, (hereinafter referred to,) so as to lend great strength to the device. The cross-bar B is arranged near the ends of the beams A A, and serves to re-enforce the same and give them the desired stability. The housing is supported by the beams A A, and consists of the side walls E F, the roof G, secured to the upper edges of the side walls, and the floor H, secured to the cross-bars C D, and the beams or sills A between the side walls E F, and the said floor is inclined toward its outer edge, so as to direct the sirup into a spout I, from which it is discharged into a suitable receptacle.

At the front side of the device I provide the standard or supporting-plate J, to the upper end of which a hopper or feed-chute K is secured, and the said hopper extends inward to a point near the crushing-rolls, which are mounted in suitable bearings in the side walls of the housing. At the rear side of the device I provide the trough L, through which the crushed cane passes to a carrier M, and the said carrier conveys the crushed stalks to the desired point. This carrier is pivotally secured to the frame of the device by means of a rod N, inserted through the ends of the side bars of the carrier and fitted in suitable brackets O on the rear beam A. The carrier is held at the desired inclination by means of the supporting-ropes P, secured to the outer ends of the side bars of the carrier and extending to a windlass Q, journaled in suitable bearing-boxes R on the roof of the housing, as shown. This windlass is provided with a ratchet-wheel S, which is engaged by a pawl T, so as to prevent retrograde movement of the windlass and to hold the carrier at the desired inclination.

In the side walls of the housing I form triangular-shaped openings, in which frames U are fitted, and within the said frames I mount the journal-boxes V W X X, in which the crushing-rolls are mounted. The upper crushing-roll W is provided at one end with the gear-wheel Y, which engages the gear-wheels Z Z on the ends of the lower crushing-rolls X X, and thereby imparts motion to the said lower rolls. The said lower rolls can be adjusted to and away from the upper roll, so as to take up lost motion and also to regulate the pressure on the cane, by means of the set-screws *a*, mounted in the frames U and bearing on the journal-boxes V of said lower rolls. A guard *b* is fitted in the side walls of the housing and extends between the lower rolls and parallel therewith, so as to prevent the cane passing down between the said rolls.

The spindle or axle of the upper roll W is extended through the side wall of the housing, and is journaled in a suitable bearing-box *c*, which is secured to the cross-bar *d*, supported by standards *e*, secured to the beams A. This cross-bar *d* is braced in its position and prevented from lateral movement by the braces *f*, which have their upper ends secured to the housing and their lower ends secured on the cross-bars *g*, which are secured on the beams A over the cross-bars B. The braces are provided at about their centers on their upper sides with the notches *h*, which engage the ends of the cross-bar *d*, as clearly shown.

On the upper sides of the beam A, I secure the cross-bars *i* and *j*, and on the said cross-bars and the cross-bars *g*, I secure suitable journal-boxes, in which the driving-shaft *k* is mounted. This driving-shaft is provided with an angular end, so that it may be connected with the tumbling-rod of a horse-power, and

is also provided with a band-pulley *l*, so that it may be driven by a belt from the steam-engine. Near the inner end of the said shaft I secure a gear-wheel *m*, which meshes with a gear-wheel *n* on the shaft or spindle of the upper crushing-roll, so that the motion of the driving-shaft will be imparted to the said roll and the machinery thereby operated.

It may sometimes be preferred to operate the device by hand-power by means of a sweep or rotary lever instead of the horse-power or steam-engine. When it is desired to so operate the machine, a vertical shaft *o*, having a shoe *p* at its upper end to receive the sweep, is journaled in a suitable bearing *q* on the cross-bar *d*, and its lower end is stepped in the cross-bar *j*, and this shaft is provided with a bevel gear-wheel *r*, which meshes with a bevel-pinion *s* on the extended spindle of the upper crushing-roll W.

The gear-wheel *n* and the bevel-pinion *s* are at all times carried by the spindle of the upper crushing-roll, so that loss of the same is prevented. They are keyed on the spindle and can be readily interchanged in their positions to bring one or the other nearer the end of the spindle into position to be engaged by the driving-wheel, accordingly as the machine is driven by one or the other form of power.

The carrier-frame is made of two sections, so that it can be folded into a small space when the machine is not in use, and the carrier is driven by means of a sprocket-wheel *t* on the extended end of its lower roller and connected by an endless sprocket-chain with a similar sprocket-wheel *u* on the extended spindle of one of the lower crushing-rolls.

In practice the cane is fed into the mill through the hopper K and passed between the crushing-rolls. The sirup will drop to the floor and pass therefrom through the discharge-spout into a suitable receptacle, while the crushed cane will pass over the trough L onto the carrier, and by the carrier will be conveyed to a suitable place of deposit.

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

1. The combination of the frame, the housing mounted thereon, the standards on the frame, the cross-bar *d*, supported by said standards, the braces extending between the outer end of the frame and the housing and provided with notches engaging the ends of the cross-bar *d*, the driving-shaft mounted in the frame, the crushing-rolls in the housing, and intermediate gearing between the driving-shaft and the crushing-rolls, as set forth.

2. The combination of the housing, the brackets O on the side of the same, the folding carrier, the pivot-rod N, passed through the lower end of the carrier and the brackets O, the windlass on the roof of the housing, the ropes secured to the said windlass and the upper end of the folding carrier, the lower roller in the carrier having an extending spindle, the sprocket-wheel on said spindle, the crushing-rolls mounted in the housing, one of said rolls having an extended spindle, the sprocket-wheel on said spindle, and the sprocket-chain connecting the sprocket-wheels, as set forth.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

WILLIAM O. DUNLAP.

Witnesses:
H. T. HALL,
L. E. BARROW.