

No. 698,379.

Patented Apr. 22, 1902.

F. ELIZONDO.

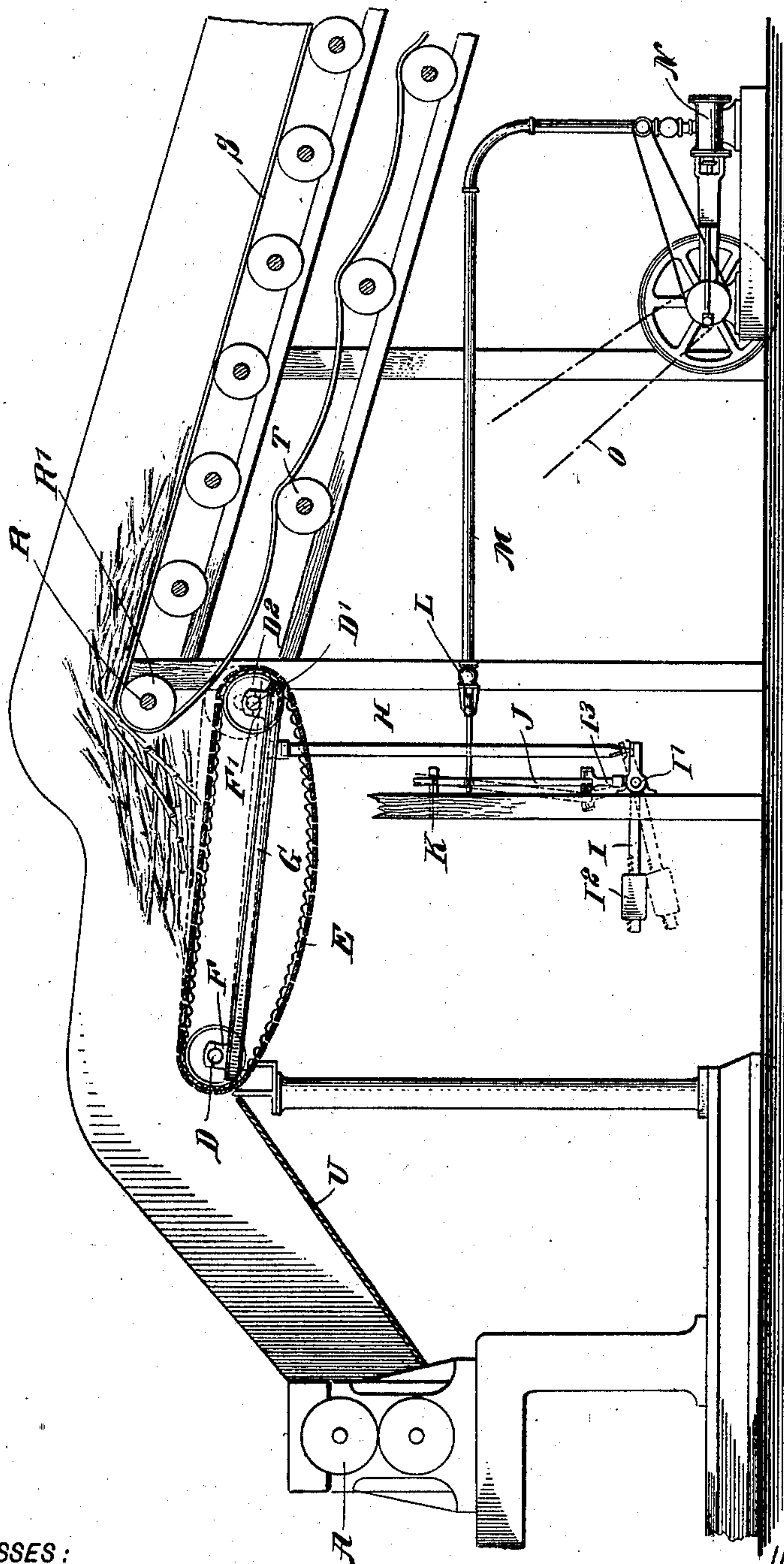
CANE FEEDING MECHANISM FOR CANE MILLS.

(Application filed Oct. 3, 1901.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1.



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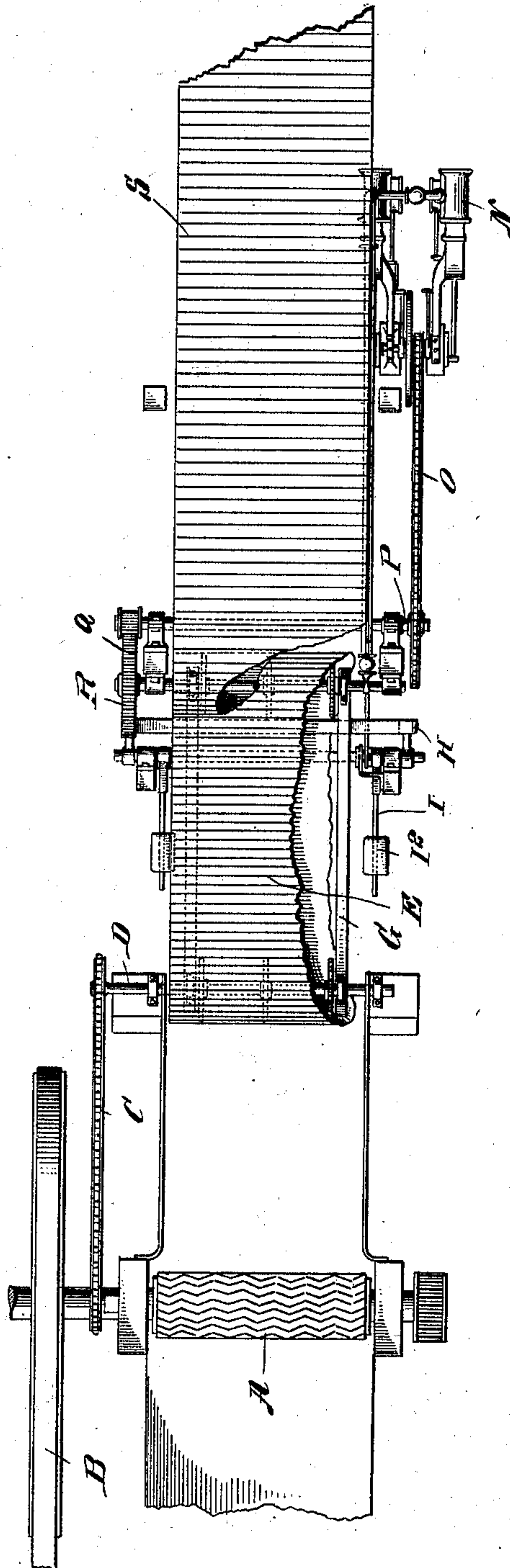
CANE FEEDING MECHANISM FOR CANE MILLS.

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(No Model.)

2 Sheets—Sheet 2.

Fig. 2--



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UNITED STATES PATENT OFFICE.

FRANCISCO ELIZONDO, OF CHUCHO DE PUEBLO NUEVO, CUBA.

CANE-FEEDING MECHANISM FOR CANE-MILLS.

SPECIFICATION forming part of Letters Patent No. 698,379, dated April 22, 1902.

Application filed October 3, 1901. Serial No. 77,409. (No model.)

To all whom it may concern:

Be it known that I, FRANCISCO ELIZONDO, a citizen of Cuba, and a resident of Chuchó de Pueblo Nuevo, Cuba, have invented a new and Improved Cane-Feeding Mechanism for Cane-Mills, of which the following is a full, clear, and exact description.

My invention relates to a cane-feeding mechanism for cane-mills, and has for its object to automatically regulate the supply of sugar-cane to the mill, so as to, on the one hand, avoid crowding, and, on the other hand, keep up a sufficient supply.

The principle underlying my invention consists in the use of two conveyers, one of which travels continuously and is driven in unison with the mill, feeding the material thereto directly. The other, which feeds the material to the first conveyer, is driven only intermittently to replenish the supply whenever necessary. To accomplish this automatically, the first conveyer is movable vertically by the weight of the material resting thereon, and, according to the rise or fall of the said conveyer, the driving mechanism of the second conveyer is thrown into or out of action. This principle may be carried out in various manners, and as an example I have illustrated one practical form of my invention in the accompanying drawings.

The novel features of the invention will be pointed out in the appended claims.

In the drawings, Figure 1 is a side elevation of part of a sugar-cane mill with my improved cane-feeding mechanism attached thereto, and Fig. 2 is a plan thereof with parts broken away.

A indicates the crushing-rollers of the mill, it being understood that my invention has no special reference to the mill proper. B indicates the driving-belt for said crushing-rollers. From the shaft of one of the said rollers motion is transmitted, by means of a chain C, to one of the shafts D of the first or permanently-driven conveyer E, which may be of any suitable construction—for instance, a series of parallel connected slats.

On the shaft D is hung a bearing F, which is attached to the frame G, at the other end of which is journaled in a similar bearing F' the shaft D', carrying the supporting-wheels D² for the other end of the conveyer. It will

be understood that the frame G can thus move pivotally upon the shaft D as a fulcrum without interfering with the driving of the conveyer E. With the said frame is connected a rod H, extending downward and attached at its free end to a lever I, fulcrumed at I'. Preferably the opposite end of the lever carries a counterweight I², which may be adjustable, as shown.

The lever I has an upwardly-extending arm I³, forming a toggle-joint with a rod J, received in a stationary guide K. With the said arm is connected operatively a throttle-valve L, which is arranged in a pipe M, supplying the driving agent, such as steam, to a suitable engine N. This engine has a driving connection—for instance, by means of a belt or chain O, shaft P, and gearing Q—with the shaft R, carrying the supporting wheels or rollers R' for the second intermittently-driven conveyer S. This conveyer is suitably supported upon idlers T and may be constructed of slats, as shown, or in any other suitable manner.

The operation of my improved feeding mechanism will be readily understood. Each of the conveyers is upwardly inclined toward its discharge end, so that the accidental feeding of the material is prevented. The conveyer E is driven permanently as long as the mill is in operation. At the beginning of the operation there will be no material on the conveyer E, and therefore under the influence of the counterweight I² the frame G, with the said conveyer, will swing into its uppermost position, as indicated by dotted lines in Fig. 1. This movement opens the valve L, and thus causes the engine N to be set in motion, the said engine driving the second conveyer S. It will be understood that the sugar-cane is fed to the said conveyer S in the ordinary way. The conveyer S being set in motion, part of the cane resting thereon will be transferred to the first conveyer E, the discharge end of the conveyer S being for this purpose arranged above the receiving end of the conveyer E. The material thus transferred will be carried by the conveyer E to the feed-chute U, which leads to the crushing-rollers, and owing to the weight of the material resting on the conveyer E the frame G will be swung down-

ward, which movement causes the valve L to be closed. As soon as this takes place the motor N will stop, and consequently the supply of material from the second conveyer S to the first conveyer E will be arrested, while the feed of the material from the continuously-driven conveyer E to the mill will proceed. As the supply of material on the conveyer E gradually diminishes the counterweight I² will cause the said conveyer to rise, and at the proper moment the valve L will again be opened and the conveyer S caused to throw a new supply of cane upon the conveyer E, and this series of operations will be repeated indefinitely as long as the cane is supplied to the conveyer S.

The apparatus hereinbefore described thus automatically proportions the amount of cane fed to the mill to the capacity thereof—that is, the automatic movement of the conveyer-frame G will regulate the supply of material to the conveyer E in such a manner as to maintain a regular feed irrespective of the greater or lesser regularity with which the material is deposited upon the conveyer S.

It will be obvious that instead of the counterweight I², I may employ as an equivalent springs or the like and that the valve L is, broadly speaking, a controlling device for the motive agent, and in the event that an electric motor should be used a switch would of course be substituted for the valve.

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

1. A feeding device, comprising a first conveyer, means for actuating the same, a movable frame carrying said conveyer and arranged to change its position according to the load resting on the conveyer, a second con-

veyer arranged to discharge the material on the first conveyer, a driving mechanism connected with the second conveyer, a controlling device for throwing said driving mechanism into or out of action, and an operative connection for governing the position of said controlling device according to the movement of the frame of the first conveyer.

2. The combination of a first conveyer, a movable frame carrying said conveyer, counterbalancing means for governing the position of the frame according to the load resting thereon, means for driving the first conveyer, a second conveyer arranged to discharge the material upon the first conveyer, driving mechanism connected with the second conveyer, a controlling device governing the action of said driving mechanism, and an operative connection from the movable frame to the said controlling device.

3. The combination of a first conveyer having at one of its ends a shaft journaled in stationary bearings, a conveyer-frame pivotally hung on said shaft and provided at its free end with bearings for the shaft at the other end of the conveyer, a second conveyer arranged to discharge material upon the first conveyer, a driving mechanism for the second conveyer, a controlling device governing the action of the said driving mechanism, and an operative connection from the swinging conveyer-frame to the said controlling device.

In witness whereof I have signed my name to this specification in the presence of two subscribing witnesses.

FRANCISCO ELIZONDO.

Witnesses:

JOSÉ A. FREYRE,
JUAN DOMINGUEZ.