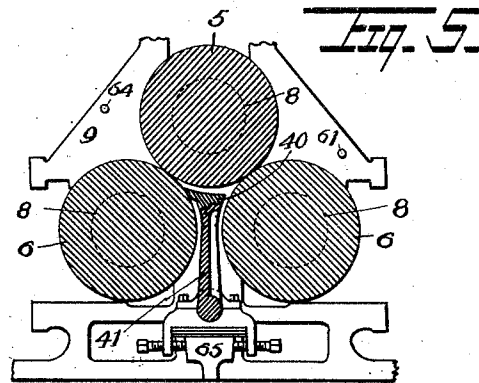
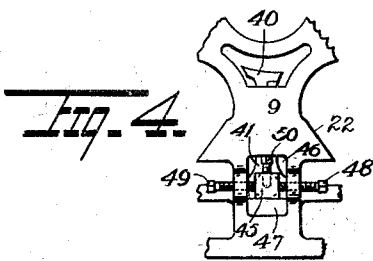
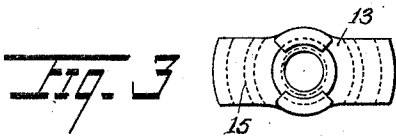
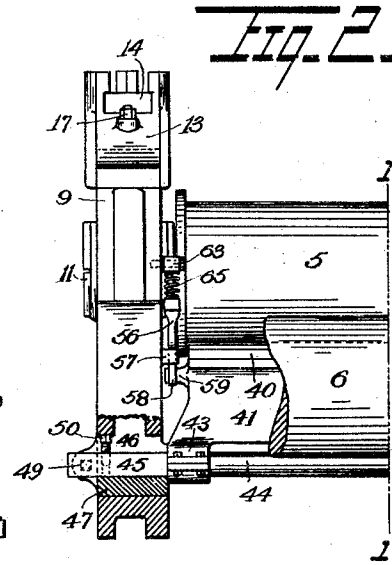
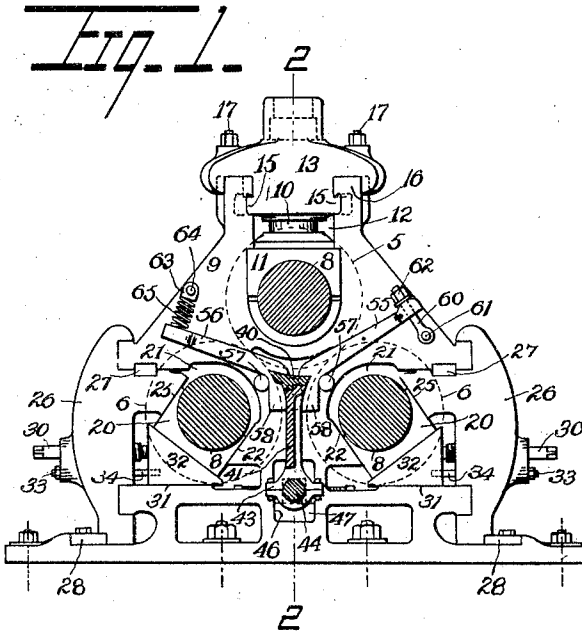


J. I. BOYER.  
SUGAR MILL.

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1,044,127.

Patented Nov. 12, 1912.



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Witnesses

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# UNITED STATES PATENT OFFICE.

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## SUGAR-MILL.

1,044,127.

Specification of Letters Patent.

Patented Nov. 12, 1912.

Application filed July 11, 1912. Serial No. 708,823.

*To all whom it may concern:*

Be it known that I, JESSE I. BOYER, a citizen of the United States, and a resident of the city of Reading, in the county of Berks and State of Pennsylvania, have invented certain new and useful Improvements in Sugar-Mills, of which the following is a specification.

My invention relates particularly to sugar cane mills and consists in improved means for supporting the triangularly arranged rolls in properly adjusted relative positions, and for adjustably setting the guiding "turn plate" in proper position relative to the adjusted rolls, as fully described in connection with the accompanying drawings, the novel features being specifically pointed out in the claims.

Figure 1 is an inside elevation of one of the pair of housings of a sugar mill having my invention applied thereto; the turn plate being shown in cross-section on the line 1—1 of Fig. 2, and the rolls in cross-section through their journal-bearing ends, the working faces of the latter being indicated by dotted circles. Fig. 2 is mainly a front or edge view of one of the housings, showing the turn plate mounting therein and the setting mechanism for said turn plate; the housing being partly in section on the line 2—2 of Fig. 1. Fig. 3 is a plan view of the top housing cap. Fig. 4 is a fragmentary outside elevation of the housing showing the adjustable mounting of the turn plate pivot bar. Fig. 5 indicates a modified mounting of the turn plate upon the housing.

As is well known in sugar cane mill construction, the triangularly arranged upper roll 5 and lower rolls 6, 6, have their reduced journal ends 8 mounted in similar end housings 9, in such manner as to permit of properly adjusting the lower rolls relative to the upper one, and so as to permit of a yielding movement of the upper roll as required to avoid possible undue strains. The partially crushed cane is transferred from the front lower roll to the rear one by means of a turn-plate which is carried by the housings and is adapted to be set into proper operative relation to the adjusted rolls. My improvements provide a simple and advantageous construction involving these well known general features, the main objects

being to facilitate construction and the making of repairs and operating adjustments, and at the same time insure requisite strength to safely withstand the great strains incident to operation.

The journal box or bearing 11 of the upper roll 5 is backed by a hydraulic plunger 10 so as to permit of the raising of the roll in the journal box recess 12 of the housing when it is subjected to undue strains as stated; these strains being transmitted to the upper cap 13 of the housing, as indicated, through a plunger plug 14 which is removably secured to the cap as more fully shown in Patent No. 976,144, issued to me November 22nd, 1910. In my present construction this cap 13 is directly secured to the housing, being provided on its under side with locking ears 15 which are adapted to be set into or out of engagement with locking-lug extensions 16 provided on the housing, by a partial turning of the cap in reverse directions; the cap being normally retained in locked position, as shown, by means of relatively small bolts 17 the removal of which permits of the cap itself being readily disengaged or removed, though the removal of the plunger plug 14 only is required for ordinary repairs.

Each of the lower rolls 6, 6 has its reduced ends 8 journaled in bearing boxes 20, which are slidable in inclined ways formed in the inner portion of the journal box recesses 21 of the respective housings. Each of these recesses opens horizontally, at the front and rear of the housings respectively, and is formed with one wall, 22, of said inclined way, while the opposite wall 23 of said way is formed by an inward extension 25 on the vertically arranged lower housing cap 26. Each cap 26 is rigidly secured to the housing, as shown, by means of keys 27, 28; and each is provided with an adjusting screw 30 extending therethrough into the recess. Slidingly carried upon the lower horizontal wall 31 of the recess is a wedge block 32, which forms an adjustable backing for the bearing box 20, it being forcibly moved inward by the adjusting screw 30 to raise the roll as required, and being conveniently withdrawn to lower the roll, as indicated by operating a nut 33 on the end of a fixed extension 34 on the wedge which passes through the cap.

The construction described permits of the lower rolls 6, 6 being located as close together as possible, which is advantageous because it reduces the distance which the cane must be carried by the turn plate mechanism hereinafter referred to, in transferring it from the front to the rear roll, and also because the lines of strain through the roll axes are brought nearer to the vertical. In my improved construction the lateral strains are easily carried by the lower housing caps 26, and the adjustment of the rolls is conveniently effected, while at the same time the construction and assembling of the machine is facilitated.

The "turn plate" device which I employ comprises a turn plate 40, and a rest bar or web plate 41 therefor, both extending between the housings as usual. The device is adjustably mounted upon the latter, and also arranged to be swung forward or rearward, so as to provide for accurately locating the plate 40 relative to the three rolls. In my preferred construction shown, the lower edge of the rest bar 41 is pivotally connected at 43 to a separate pivot bar 44, the squared ends 45 of which latter are extended through housing openings 46, in which they are adjustably secured to the housing. This adjustment is provided for, as shown, by bottom plates 47 in said opening, upon which the bar rests and which are varied in thickness to raise or lower it; and by set screws 48, 49 and 50, which permit adjustment thereof forward or rearward and the securing of the bar in adjusted position. The pivotal setting of the plate 40 is effected, as shown, by means of a pair of levers, 55, 56, upon each housing. These levers are mounted upon separate fulcrum lugs 57, 57 on the housing, and have their adjacent ends 58, 58 arranged in engagement with an end lug 59 on the turn plate device, while their oppositely extended ends are connected to the housing so as to permit of their being accurately adjusted to swing and hold the device as desired. These connections consist of an adjusting link 60 which is pivoted to the housing at 61 and upon which one of said levers is engaged so as to be moved thereon by means of an adjusting nut 62; and a similar link 63 for the other lever, pivoted to the housing at 64 and upon which said lever is engaged so as to be yieldingly pressed into action by a spring 65. By operating the adjusting nut 62 in one direction or the other the levers are jointly operated so as to set the plate 40 forward or backward as required; which adjustment, in connection with the separate adjustment of the pivot bar 44 previously described, enables the plate 40 to be conveniently set with the nicety required, to insure proper feeding of the material.

The preferred construction specifically described may be readily modified without departing from the invention as defined in the subjoined claims. In Fig. 5 for instance the pivoted turn-plate device is shown as adjustably mounted upon inwardly extending housing brackets 65, the adjustment of the pivotal axis provided for in such case being less conveniently effected than in the preferred construction as it does not permit of free access from outside the housings, but the setting mechanism employed being otherwise the same.

What I claim is:—

1. A sugar mill having a housing formed with a vertically-opening upper-roll journal-box recess, and with horizontally-opening journal-box recesses for the lower rolls having reversely inclined journal-box ways, a horizontally secured top cap and vertically secured lower caps for the respective recesses, roll bearings diagonally guided in said lower recesses, and means operable through said lower caps to adjust said bearings.

2. A sugar mill having a housing formed with a vertically-opening upper-roll journal-box recess, and with horizontally-opening journal-box recesses for the lower rolls having reversely inclined journal-box ways, in combination with a fixed cap for each of said horizontally-opening recesses, a wedge-block in said recess, and means carried by said cap for adjusting said block.

3. A sugar mill having a housing formed with a vertically-opening upper-roll journal-box recess, and with horizontally-opening journal-box recesses for the lower rolls having reversely inclined journal-box ways, in combination with a fixed cap for each of said horizontally-opening recesses having an inclined-way extension, a wedge-block in said recess, and means carried by said cap for adjusting said block.

4. A sugar mill housing having a vertically opening upper-roll journal-box recess and oppositely arranged locking-lug extensions, a housing cap provided with locking ears adapted to be turned into and out of engagement with said locking-lug extension, and means for securing said cap in engaged position.

5. In a sugar mill, a pair of roll housings, a turn-plate device swingingly mounted at its opposite ends upon said housings, and setting means for said device comprising controlling levers therefor fulcrumed upon the housings and housing-connected adjusting means for said levers.

6. In a sugar mill, a pair of roll housings, a turn-plate device swingingly mounted at its opposite ends upon said housings, and a pair of controlling levers separately fulcrumed upon one of the housings, one of said levers having its opposite end spring-

connected to the housing and the other having its opposite end adjustably connected thereto.

7. In a sugar mill, a roll housing having  
5 an opening therethrough forming a turn-plate support, a turn-plate device pivotally mounted in said support, means for adjusting the pivotal axis of said device, and means for adjustably setting said pivoted  
10 device in determined swinging position upon said axis substantially as set forth.

8. In a sugar mill, a roll housing having an opening therethrough forming a turn-plate support, a turn-plate device pivotally  
15 mounted in said support, means for vertically and laterally adjusting the pivotal axis of said device, and means for adjust-

ably setting said pivoted device in determined swinging position upon said axis substantially as set forth.

9. In a sugar mill, a roll housing having  
20 a turn-plate support and a pair of lever fulcrums, a swinging turn-plate device adjustably mounted upon said supports, and  
25 a pair of adjusting levers for said turn-plate having adjusting connections between their reversely extended ends and the housing, substantially as set forth.

In testimony whereof, I affix my signature, in the presence of two witnesses.

JESSE I. BOYER.

Witnesses:

JONAS S. ROMIG,  
WM. F. WEBER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."