Dec. 2, 1924. 1,517,783

J. L. HARRIS

ATTACHMENT FOR BEATING ENGINES

Filed Dec. 24, 1923

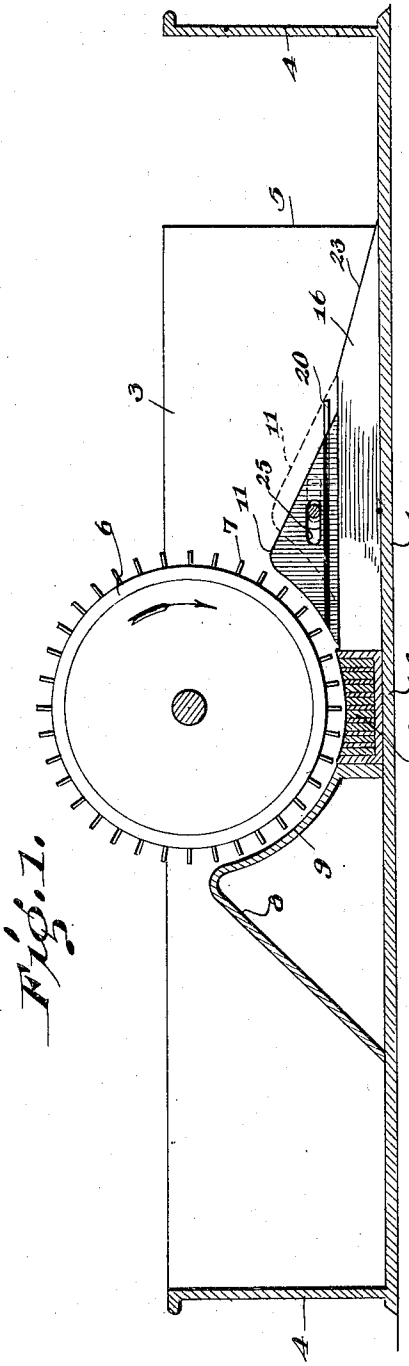


Fig. 1.

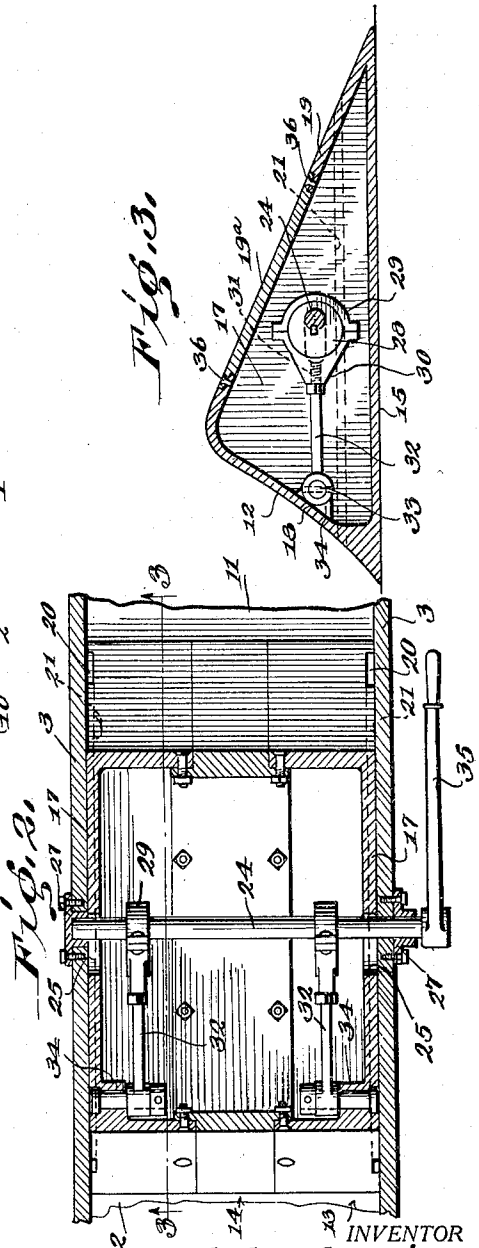


Fig. 2.

Fig. 3.

INVENTOR

J. L. Harris

BY Munn & Co.

ATTORNEYS

Patented Dec. 2, 1924. 1,517,783

UNITED STATES PATENT OFFICE.

JOHN LAWRENCE HARRIS, OF THOMSON, NEW YORK.

ATTACHMENT FOR BEATING ENGINES.

Application filed December 24, 1923. Serial No. 682,440.

To all whom it may concern:

Be it known that I, JOHN L. HARRIS, a citizen of the United States, and a resident of Thomson, in the county of Washington and State of New York, have made certain new and useful Improvements in Attachments for Beating Engines, of which the following is a specification.

My invention relates to improvements in attachments for beating engines, and an object thereof is to increase the efficiency of beating engines of otherwise ordinary construction by providing means for cooperating with the beater roll to regulate the feeding of stock between the knives of the beater roll and the stationary knives and for effecting the removal of the paper stock from the beater roll without there being any necessity of making use of the usual paddles.

A further object of the invention is to provide an attachment of the character described which is adjustable in size to adapt it for use with beater rolls of various lengths.

Other objects and advantages will be apparent from the following description considered in conjunction with the accompanying drawings, in which:—

Figure 1 is a view mainly in longitudinal vertical section, and partly in side elevation showing a beater roll positioned in a channel and showing an attachment embodying the invention associated with the beater roll;

Figure 2 is a fragmentary horizontal section through the attachment and the supporting means therefor, and,

Figure 3 is a section along the line 3—3 of Fig. 2.

In Fig. 1 I show a channel portion 1 of a beater vat or tub. The channel 1 has a bottom plate 2 from which arises pairs of spaced parallel sides 3 and ends 4, one of the sides 3 being cut away at 5 to provide an inlet for the channel. A beater roll 6 is mounted to rotate within the channel 1 between the sides 3 and comprises a cylinder having radial knives or blades 7 extending from its peripheral wall. A backfall 8 is disposed upon the bottom 2 and includes a wall 9 which is curved to conform substantially to the contour of the peripheral wall of the cylinder and which is positioned at one side and partially beneath the beater roll in spaced adjacent relation to the outer ends of the knives or blades of the beater roll. Fixed knives or projections 10 are supported upon the bottom plate 2 directly beneath the beater roll and at the inner end of the backfall.

The construction described so far is ordinary and forms no part of my invention except in so far as it cooperates with the parts which will now be described.

In carrying out the present invention, I provide a deflector block 11 which comprises a hollow body formed by casting or in any other suitable known manner, and consisting of a pair of end sections 12 and 13, respectively, connected together by an intermediate section 14, so that the block as a whole is substantially triangular in longitudinal sectional contour, and has a flat bottom 15 adapted to slide upon the flat upper face of a supporting base or block 16, a pair of vertical spaced apart parallel sides 17 which respectively are positioned in sliding contact with the inner faces of the sides of the channel 1, and inclined upper walls 18 and 19, respectively, which converge together at their upper end and join the side walls 17 to the bottom 15. The upper wall 19 includes a removable section 19^a.

The sides 3 of the channel are provided with inwardly extending horizontal ribs 20, which are located in a horizontal plane extending above the upper face of the support 15. The ribs 20 engage with horizontal grooves 21 in the sides 17 of the deflector block so that the latter will be held against vertical displacement from the support 16 while permitted to move horizontally on the latter between the sides 3 of the channel.

The support 16 extends from the fixed knives 10 along the channel 3 toward the inlet 5 and the flat horizontal upper face of the support is merged at one end into an inclined surface 23 which is inclined downwardly toward the inlet 5. The upper wall 18 of the deflector block is concavely curved to conform to the curvature of the peripheral wall of the beater roll. This deflector block may be moved on the support 16 toward and away from the beater roll to vary the space between the peripheral wall of the beater roll and the concavely curved upper wall 18 of the deflector block. The means now preferred by me for sliding the deflector block on the support 16 comprises a rock shaft 24, which extends through alined horizontal slots 25 in the sides of the deflector block, and is

journaled adjacent to its opposite ends in bearings 26 and 27 respectively, carried by the sides 3 of the channel. A pair of spaced apart disks 28 are disposed within the deflector block and are mounted eccentrically on the rock shaft 24. Each of these disks 28 is rotatably received in a bearing sleeve at 29, which has a radially extending boss or enlargement 30 provided with a threaded opening 31 adjustably engageable with an end portion of a connecting rod 32, which is pivotally attached at its other end, as at 33, to one of a pair of lugs 34, which extend within the deflector block from the upper wall 18. The rock shaft 24 extends at one end through one of the sides 3 and the extending end portion is provided with an operating arm 35, which is adapted to be grasped and manipulated conveniently to rock the shaft 24.

It will be understood that the parts just described as being disposed within the interior of the deflector block 11 are arranged therewithin when the removable section 19[a] has been displaced and that the deflector block will be entirely closed when the removable section 19[a] has been secured in place, as may be accomplished through the use of screws 36 or like fastening devices.

From the foregoing description of the various parts of the device the operation thereof may be readily understood. The paper stock which is to be broken up by the beating engine may enter the channel 1 through the inlet 5 and pass upwardly along the inclined surface 23 on to the inclined upper wall 19 of the deflector block, and thence between the inclined wall 18 of the deflector block, and the peripheral wall of the beater roll, being carried by the knives of the beater roll which rotates in a clockwise direction between the knives of the beater roll and the fixed knives 10 and subsequently discharged over the backfall 8. The mass of material fed between the fixed knives and the knives on the beater roll can be regulated by adjusting the position of the deflector block 11 in respect to the peripheral wall of the beater roll. This can be conveniently accomplished by manipulating the operating arm 35 since rocking of the shaft in one direction will cause the deflector block to be moved on the support 16 toward the beater roll, as for example, to the position indicated by the full lines in Fig. 1, while rocking of the shaft 24 in the opposite direction will cause the deflector block to be slid on the support 16, away from the deflector roll and toward the position indicated by the dotted lines in Fig. 1. It will be obvious that the feeding of the stock between the fixed knives and the rotating beater roll may be regulated so that just sufficient material is fed between the roll and the fixed knives to insure a continuous flow of thoroughly broken up and macerated material without permitting the accumulation of sufficient material beneath the beater roll to tend to cause clogging of the beater roll or to require undue consumption of power for the operation of the beater roll. The beater roll thus will be kept clean without the necessity of using the usual beater paddles.

For example, I may provide a crank shaft having the cranks thereof attached to the connecting rods 32 in lieu of the rock shaft 24 and the eccentric disks 28 since such crank shaft would be adapted to transmit motion to the deflector block in substantially the same manner as the shaft 24 and eccentric disks 28.

Obviously, my invention is susceptible of embodiment in forms other than that exhibited in the accompanying drawings, and I therefore consider as my own all such modifications and adaptations thereof as fairly fall within the scope of the appended claims.

I claim:—

1. The combination with a beater roll, of a deflector block supported at the front side of the beater roll for cooperating with the beater roll to regulate the feeding of stock to the beater roll, said deflector block having limited movement toward and away from the peripheral wall of said beater roll.

2. The combination with a beater roll, of a deflector block, means for supporting the deflector block in adjacent relation to the peripheral wall of the beater roll in front of the latter, said deflector block being adapted to cooperate with the beater roll to regulate the feeding of stock to the beater roll, and means operable to move said block toward and away from said beater roll.

3. The combination with a beater roll, of a deflector block, means for supporting the deflector block in adjacent relation to the peripheral wall of the beater roll in front of the latter, said deflector block being adapted to cooperate with the beater roll to regulate the feeding of stock to the beater roll, means operable to move said block toward and away from said beater roll, the wall of said deflector block proximate to said beater roll being curved to correspond with the curvature of the peripheral wall of the beater roll.

4. In combination with a beater roll, having radial knives extending from its peripheral wall, fixed knives positioned beneath said beater roll, and a deflector block supported at the level of the upper ends of said fixed knives and adjacent to said fixed knives, said deflector block being disposed at the front side of the beater roll and being movable horizontally toward and away from said beater roll for cooperating with the latter to regulate the feeding of stock

between the knives on the beater roll and said fixed knives.

5. In combination, a beater roll having outwardly extending radial blades on its peripheral wall, fixed blades positioned beneath said beater roll for cooperating with the first named blades, a support terminating at one end adjacent to said fixed knives, said support having a flat upper face, a deflector block slidable on the upper face of said support toward and away from said beater roll, and adjustable means operable to slide said deflector block on said support.

6. The combination with a beater roll, of a support positioned adjacent thereto, and below the level thereof, a pair of side walls extending upwardly from said support and at the ends of said beater roll, a hollow deflector block slidable in said support between said sides toward and away from said beater roll, said deflector block having alined horizontal slots in the side walls thereof, a rock shaft extending through said slots, eccentric disks mounted on said rock shaft within said deflector block, connecting members having bearing portions receiving said disk for connecting the latter to said deflector block, where rocking of the shaft will occasion sliding movement of said deflector block on said support and an operating arm for said rock shaft.

7. The combination with a beater roll, of a deflector block supported at the front side of the beater roll for limited movement toward and away from the peripheral wall of said beater roll, said deflector block being adapted to cooperate with the beater roll to regulate the feeding of stock to the beater roll and comprising a hollow body consisting of similar end sections and an intermediate section connecting said end sections together, and means whereby said deflector block may be moved toward and away from said beater roll.

JOHN LAWRENCE HARRIS.