Feb. 9, 1943. A. HAUGE 2,310,236

FLOCK CUTTING MACHINE

Filed July 18, 1940

Fig. 1.

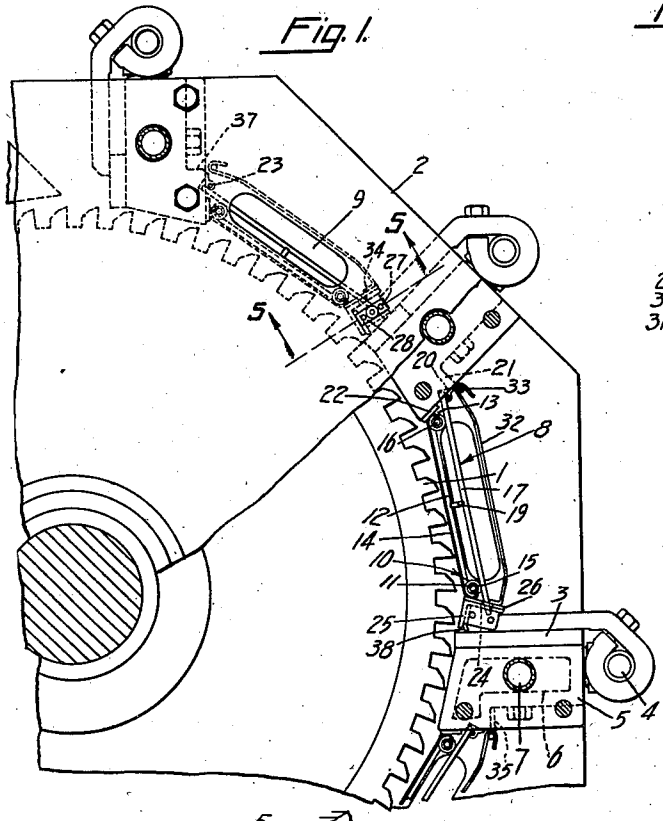


Fig. 2.

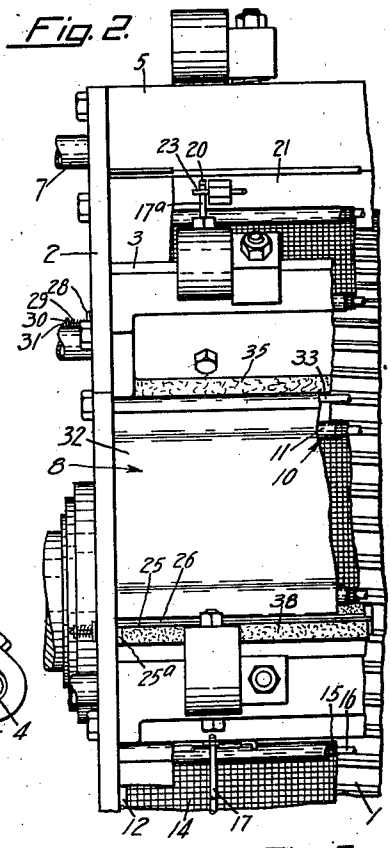


Fig. 3.

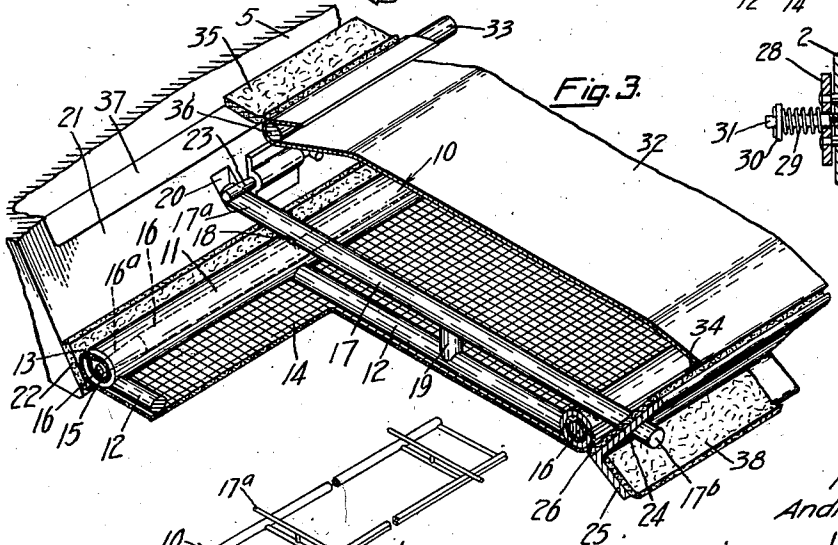


Fig. 5.

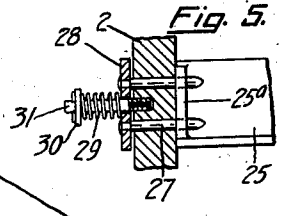
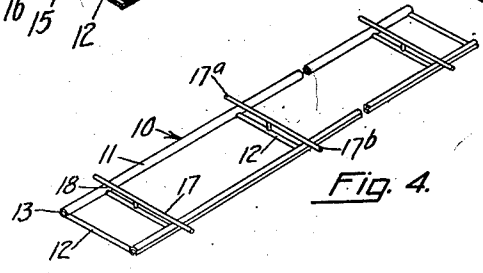


Fig. 4.



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2,310,236

FLOCK CUTTING MACHINE

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Application July 18, 1940, Serial No. 346,187

11 Claims. (Cl. 83—6)

My invention relates to flock cutting machines.

It has among its objects to provide an improved cuttings removing structure for machines of the type described and claimed in my Patent No. 2,145,177. A further object of my invention is to provide such an improved structure adapted to utilize an improved cuttings screen unit of an improved construction described and claimed in my copending application Serial No. 377,952, filed February 8, 1941, and adapted to be disposed in an improved manner to form a part of the enclosing casing of such a machine. A still further object of my invention is to provide improved means for supporting such an improved unit in operative position as a part of the casing while enabling the unit to be readily removed when desired. These and other objects and advantages of my improved construction will, however, hereinafter more fully appear.

In the accompanying drawing, I have shown for purposes of illustration one embodiment which my invention may assume in practice.

In the drawing:

Figure 1 is an end elevation of a flock cutter equipped with my improvements, the end member being broken away and certain parts also being shown in section to facilitate illustration;

Fig. 2 is a side elevation of the end of the machine shown in Figure 1;

Fig. 3 is an enlarged perspective view of a portion of the cuttings removing mechanism, parts being shown in section to facilitate illustration;

Fig. 4 is a perspective view of the frame of the screen carrying unit, and

Fig. 5 is a detail sectional view on line 5—5 of Figure 1.

In this illustrative construction, I have shown a flock cutter including a rotating cutter cylinder 1 suitably journaled at its opposite ends in end members 2 and rotatable in an enclosing casing having peripherally located, spaced, stationary knives 3 cooperating with the cylinder 1 and carried on longitudinally spaced hinges pivoted at 4 on knife rails 5 connecting the end members 2 and having longitudinally disposed cooling water passages 6 therein and cooling water pipes 7; my improved construction herein utilizing an improved screen unit, generally indicated at 8, removably supported on the machine casing in an improved manner, and disposed between adjacent rails 5 and including screens and passage forming means communicating with cuttings outlets 9 in one of the end members 2, all as hereinafter more specifically described.

Referring more particularly to the screen unit generally indicated at 8, it will be noted that the same includes a unitary frame 10. The latter includes a pair of longitudinally extending, parallel, spaced rods 11 connected at their ends and at spaced points along their length by transverse rods 12. Herein, the rods 11 are hollow, and the rods 12 are solid rods and suitably attached to the bottom halves of the rods 11 as by welding. Further, it will be noted that herein each of the rods 11 is provided with a longitudinal slit 13 in its outer face, and that usual screen material 14 extends under the frame 10 and has folded opposite longitudinal edges 15 inserted through these slits 13 and rods 16 having tapered ends 16a inserted longitudinally of the rods 10 and inside the folded edges of the screen cloth, in such manner as to tend to tighten the screen material 14 on the frame 10. Herein, also, a series of upper transverse rods 17 is suitably connected as by welding at 18, at spaced points along the rods 11, and these rods 17 are also connected to the lower transverse rods 12 by middle depending welded portions 19. Attention is also directed to the fact that the opposite ends 17a and 17b of the upper rods 17 project laterally beyond the longitudinal rods 11, while it will also be noted that these rods 17 are disposed in longitudinally spaced relation from each other along the frame 10, with the end rods 17 also longitudinally spaced from the ends of this frame.

Cooperating with this screen unit 8 is also improved means for mounting the same between adjacent rails 5 in such manner that any stationary knife 3 may be readily swung up about its hinge pivot 4 whenever desired. Herein, the laterally protruding ends 17a of the rods 17 are received in vertically disposed milled apertures 20 in a lateral extension 21 on one of the rails 5, while the longitudinal rod 11 on that side of the frame has the screen cloth 14 passing under this rod 11 and pressed thereby into engagement with a felt strip 22 along the bottom side face of this extension 21. Herein, also, two ends 17a are held in their milled apertures 20 by reciprocable longitudinally disposed overlying pins 23 also mounted on the side face of the extension 21. The other laterally extending ends 17b extend into apertures 24 in a longitudinally disposed angle member 25 closely adjacent the next knife 3, while a felt strip 26 also supports the screen fabric underlying the adjacent mem-

ber 11. As shown, this angle member 25 is also provided with transversely disposed end portions 25a fixed thereto and disposable against the inside faces of the end members 2, and these end portions 25a are each also apertured to receive parallel pins 27 carried on an outside plate 28 and normally projected through the adjacent end member 2 and portion 25a by a coiled spring 29 acting between the plate 28 and an abutment 30 on a stud 31 threaded into the end member 2. Here, also, it will be noted that a cover 32 overlies each frame 10 and is pivotally mounted on a longitudinal rod 33 carried on the end members 2, each cover also being provided with a depending edge 34 engaging the upper edge of the felt strip 26. Thus, with a felt strip 35 overlying the pivot portion 36 on the cover 32 and herein carried on the top surface 37 of the lateral extension 21, and another felt strip 33 on the bottom portion of the angle member 25 and engaging the adjacent knife 3, a tight closure is provided which prevents the escape of cuttings along the edges of the cover and between the adjacent rails 5.

In the use of my improved construction, it will be apparent that with the frame 10 in operative position, effective screening means will be provided, the screen material 14 being maintained tight across the under face of the frame 10 while the latter is securely positioned along its opposite edges on the rail 5 and angle 25. Thus, when a suitable suction is connected to an outlet 9 in one of the end members 2 of the frame, the cuttings will be drawn through the screens 14 and along the length of the longitudinal passage provided beneath the covers 32 and above the screens 14 for delivery through the outlet 9. Moreover, when it is desired to obtain access to knives 3, it will be observed that such access is readily obtainable by removing both the frames 10 and the angles 25, the hinged knives 3 then being thereupon readily swung upward about their pivots 4 upon suitable release of connections (not shown) normally connecting the knives 3 to their hinged members and clamping knives in operative position against the rails 5. In practice, the holding members 23 are retracted, and the frame 10 then lifted out with its ends 17a moving freely upward in the milled slots 20 and its opposite end 17b pivoting as necessary in the apertures 24 which are of sufficient size to permit this movement. Then, after removal of the unit 10, the pins 27 are retracted, thereby releasing the angle irons 25 for bodily removal. Similarly after, for example, the substitution of sharp knives 3, the hinged knives can be returned to their operative positions and the angles 25 and the frames 10 may be readily reinserted to permit the resumption of normal operation of the machine.

No claim is made herein to the screen unit per se, the same being claimed in my copending application mentioned, which is a continuation in part of this application.

While I have in this application specifically described one embodiment which my invention may assume in practice, it will be understood that the same is shown for purposes of illustration, and that the invention may be modified and embodied in various other forms without departing from its spirit or the scope of the appended claims.

What I claim as new and desire to secure by Letters Patent is:

1. In a flock cutter, a rotary cutter casing including longitudinal rails spaced from one another, a longitudinal screen unit support comprising a longitudinal member between said rails and adjacent one of the same, a screen supporting unit separably supported at its opposite longitudinal edges on said support and on the other rail and engageable by one longitudinal edge of said screen supporting unit, and means for enabling removal of said screen supporting unit independently of said screen unit support while the latter remains in operative position between said rails.

2. In a flock cutter, a rotary cutter casing including longitudinal rails spaced from one another and a knife pivotally supported on one of said rails and movable about its pivot away from said rail into an inoperative position, a longitudinal screen unit support comprising a longitudinal member removably mounted in said casing between said knife and the other rail and adjacent said knife and engageable by one longitudinal edge of a screen supporting unit, a screen supporting unit separably supported at its opposite longitudinal edges on said other rail and on said support, and means for enabling removal of said screen supporting unit independently of said screen unit support while the latter remains in operative position between said knife and rail.

3. In a flock cutter, a rotary cutter casing including longitudinal rails spaced from one another and a knife carried by one of said rails, a longitudinal screen unit support removably mounted in said casing between said knife and the other rail, a screen supporting unit separably supported at its opposite longitudinal edges on said other rail and on said support, means for enabling removal of said screen supporting unit independently of said screen unit support while the latter remains in operative position between said knife and rail, and connecting mechanisms at opposite ends of said casing for said support releasable to permit removal thereof to provide access to said knife.

4. In a flock cutter, a rotary cutter casing including longitudinal rails spaced from one another and a knife carried by one of said rails, a longitudinal screen unit support removably mounted in said casing between said knife and the other rail and having transverse end portions, a screen supporting unit separably supported at its opposite longitudinal edges on said other rail and on said support and removable independently of the latter, and latch mechanisms carried by the walls of said casing and releasably connecting said transverse portions to said casing.

5. In a flock cutter, a rotary cutter casing including rails spaced from one another, a screen unit support between said rails and adjacent one of the same, and a screen supporting unit separably supported at its opposite longitudinal edges on the other rail and on said support and removable independently of the latter, said other rail and said support having angularly related faces and said unit having screen cloth carrying portions engaging said faces and lateral projections seated in said faces.

6. In a flock cutter, a rotary cutter casing including rails spaced from one another, a screen unit support between said rails and adjacent one of the same, and a screen supporting unit separably supported at its opposite longitudinal edges on the other rail and said support and removable independently of the latter, said first mentioned rail having a knife hinged thereon and

disposed between the same and said support and said support being removable to permit swinging of said knife out of operative position in said casing.

7. In a flock cutter, a rotary cutter casing including longitudinal rails spaced from one another, a longitudinal screen unit support between said rails and adjacent one of the same, and a screen supporting unit separably supported at its opposite longitudinal edges on the other rail and said support and removable independently of the latter while the latter remains in operative position in the casing, said support and last mentioned rail having longitudinally spaced apertures therein and said unit including a plurality of laterally extending projections separably receivable in said apertures.

8. In a flock cutter, a rotary cutter casing including rails spaced from one another, a screen unit support between said rails and adjacent one of the same, and a screen supporting unit having laterally extending projections separably supported at its opposite longitudinal edges on the other rail and said support and removable independently of the latter, latch mechanism on said last mentioned rail cooperating with the ends of certain of said projections to position said unit, and cooperating latch mechanism on said casing cooperating with the ends of said support to position the latter.

9. In combination, a cutter enclosing casing having longitudinal rails and normally fixed cutter knives on the latter, and having a longitudinal support between one of said knives and the next adjacent rail, said support being adjacent but spaced from said knife, sealing means between said support and said knife, a removable screen unit between said support and the rail on the opposite side of said support from said knife and removable while said support remains in operative position in said casing, sealing means between the longitudinal edges of said screen unit and of said support and said last mentioned rail, and cooperating means on said support, said last mentioned rail and said unit for maintaining the latter in sealed relation to said support and said last mentioned rail and enabling removal of said unit while said support remains in operative position in said casing.

10. In combination, a casing having spaced longitudinal supports, means in said casing for delivering material to be screened toward the space between said supports, a screen unit disposed over said space comprising a frame having longitudinally extending side rods having longitudinal slits therein and screen material stretched over said frame and having longitudinal marginal portions secured in said slits, to form said unit, means on said supports for supporting said side rods including like relatively angularly disposed inclined supporting portions disposed in supporting relation to said side rods, and means for maintaining said side rods in operative position on said inclined supporting portions.

11. In combination, a casing having spaced longitudinal supports, means in said casing for delivering material to be screened toward the space between said supports, a screen unit disposed over said space comprising a frame having longitudinally extending side rods having longitudinal slits therein and screen material stretched over said frame and having longitudinal marginal portions under said rods and secured in said slits to form said unit, screen frame supporting means on said supports including like relatively angularly disposed inclined supporting portions and having sealing members extending longitudinally along said inclined portions and engaging and supporting said marginal portions, and means for maintaining said side rods in operative position on said sealing members.

ANDREW HAUGE.