CLEANERS FOR BELT CONVEYORS

Alfred D. Sinden, Aurora, Ill., assignor to Stephens-Adamson Mfg. Co., a corporation of Illinois

Application April 29, 1935, Serial No. 351,958
3 Claims. (Cl. 198—230)

Many materials hauled on belt conveyors stick more or less to the supporting surface of the belt, and must be removed before that surface reaches the supporting roller on the return run.

The belt cleaner of my Patent No. 1,975,591, October 2, 1934, successfully cleaned the belt; but, with many materials such as iron ore, the cleanings would gather on the resilient bars 29 in a large mass that would not shed automatically.

The principal object of this invention is to remove that objection and make the cleanings fall away clear of the wiper blades and supports.

Generally speaking, this is accomplished by using leaf springs for the wiper blades, each having a body portion substantially flat horizontally, and an arm portion at an angle thereto substantially flat vertically to provide a clearance path for the cleanings.

In the drawings showing the preferred embodiment of the invention:

Fig. 1 is a side elevation of the belt cleaner and a fragment of the conveyor belt and head pulley;

Fig. 2 is a top plan view of the same with parts broken away;

Fig. 3 is a lay-out of the springs or brackets for the wiper blades before bending;

Fig. 4 is a side elevation of the same after bending;

Fig. 5 is a plan view of the same; and

Fig. 6 is a diagrammatic, perspective view of a similar embodiment of the conveyor belt cleaner, arranged for positioning at 180° with respect to the device of Figure 1.

These drawings and the corresponding description are for the purpose of illustrative disclosure only, and are not intended to impose unnecessary limitations on the claims.

In Fig. 1, 10 indicates a conveyor belt driven by a head pulley 11 suitably mounted on a frame indicated by the fragment 12.

The belt cleaner includes a mounting assembly made up of two angular mounting clips 13 adapted to be bolted to the frame 12 at 14, an adjustable length hanger arm 15 for each mounting clip, and an adjustable angle arm set 16 for each hanger arm fitted to the opposite ends of a supporting pipe 17 to form a sort of U-shaped support spaced from the adjustable hanger arms 15.

The wiper assembly includes a cross angle 18 mounted to rotate and to slide on the supporting pipe 17 by a plurality of C clips 19 fixed to the cross angle, an adjusting lever 20 fixed on one end of the cross angle, and a wing nut 21 cooperating with the threaded stud 22 on one of the adjustable angle arm sets to fasten the wiper assembly in position. The stud 22 extends through an arcuate opening 23 formed in lever 20.

The cross angle 18 is fitted with a plurality of spaced, substantially parallel leaf spring brackets 24 made fast at one end to the cross angle by bolts 25 and provided at their free ends with reversible steel wiper blades 26 made fast by bolts 27 cooperating with nuts 27a and lock washers 28.

As indicated in Figs. 3, 4, and 5, the springs or brackets are made from a strip of steel bent along the line 29 (Fig. 3) to turn the arm 30 vertically with respect to the body portion 31 when that is horizontal, as shown in Fig. 4, and bent in another place along the line 32 to provide the flange 33 which serves as the wiper blade bearing portion by directly supporting a wiper blade 26.

In one form that has been found satisfactory in practice, the spring or bracket is made from a strip of 12-gauge steel 12" long and 1½" wide. The bend at 29 sets the arm 30 at 25 degrees with respect to the body portion 31, and the flange 33 substantially as shown in Figs. 4 and 5.

When assembled on the cross angle 19, the body portions are substantially parallel at an inclination of 20 degrees to the general direction of the belt 10.

That arrangement provides, as will be seen from Figs. 2 and 6, large clearance spaces 35 through which the cleanings drop.

With the wiper blade assembly in place on the mounting as shown in Fig. 1, the wing nut 21 is loosened, and the adjusting lever 20 is moved counterclockwise to bring the wiper blades 26 against the under side of the belt 10 with enough pressure to insure contact and effective removal of dirt and water. Then, the wing nut is turned up against the lever to retain the parts in that position.

The wiper blade assembly may be readily removed from the mounting assembly by taking off the wing nut 21 and sliding the wiper assembly laterally along the supporting pipe until the C clips 19 pass the nearest adjustable angle arm. The assembly is returned to service by reversing that operation, and made fast by replacing the wing nut.

The belt cleaner shown in Figure 6 is composed of parts identical to those of the cleaner of Figure 1, but reversed in the manner illustrated.

1 claim:

1. A conveyor belt adapted to engage the belt on the return run from below including a support adapted to be mounted crosswise to the belt to be cleaned, and a plurality of leaf springs each having at one end a horizontal portion secured flatwise to said support and inclined uniformly thereto in a horizontal plane and each spring having at its other end a wiper blade-bearing portion at an angle to said inclination and with its width in a substantially vertical plane and connected to the mounting portion by a flat arm disposed in a substantially vertical plane to let the cleanings fall between the vertical arms and bearing portions of adjacent springs.

2. A cleaner for a conveyor belt adapted to engage the belt on the return run from below including a leaf spring adapted to be mounted flatwise below and inclined side-wise to the belt, said spring having a free end provided with an arm with its width in a substantially vertical plane terminating in an angular flange also in a substantially vertical plane to mount a wiper blade.

3. A cleaner for a conveyor belt adapted to engage the belt on the return run from below including a leaf spring having a body portion substantially flat and mounted in a substantially horizontal plane, an arm portion at an angle thereto and disposed in a substantially vertical plane, and a vertical plane flange on the other to mount a wiper blade.

References Cited in the file of this patent

UNITED STATES PATENTS
1,875,442 Greg ----------------- Sept. 6, 1932
1,975,591 Sinden ----------------- Oct. 2, 1934
2,393,724 Vickers ---------------- Jan. 26, 1946