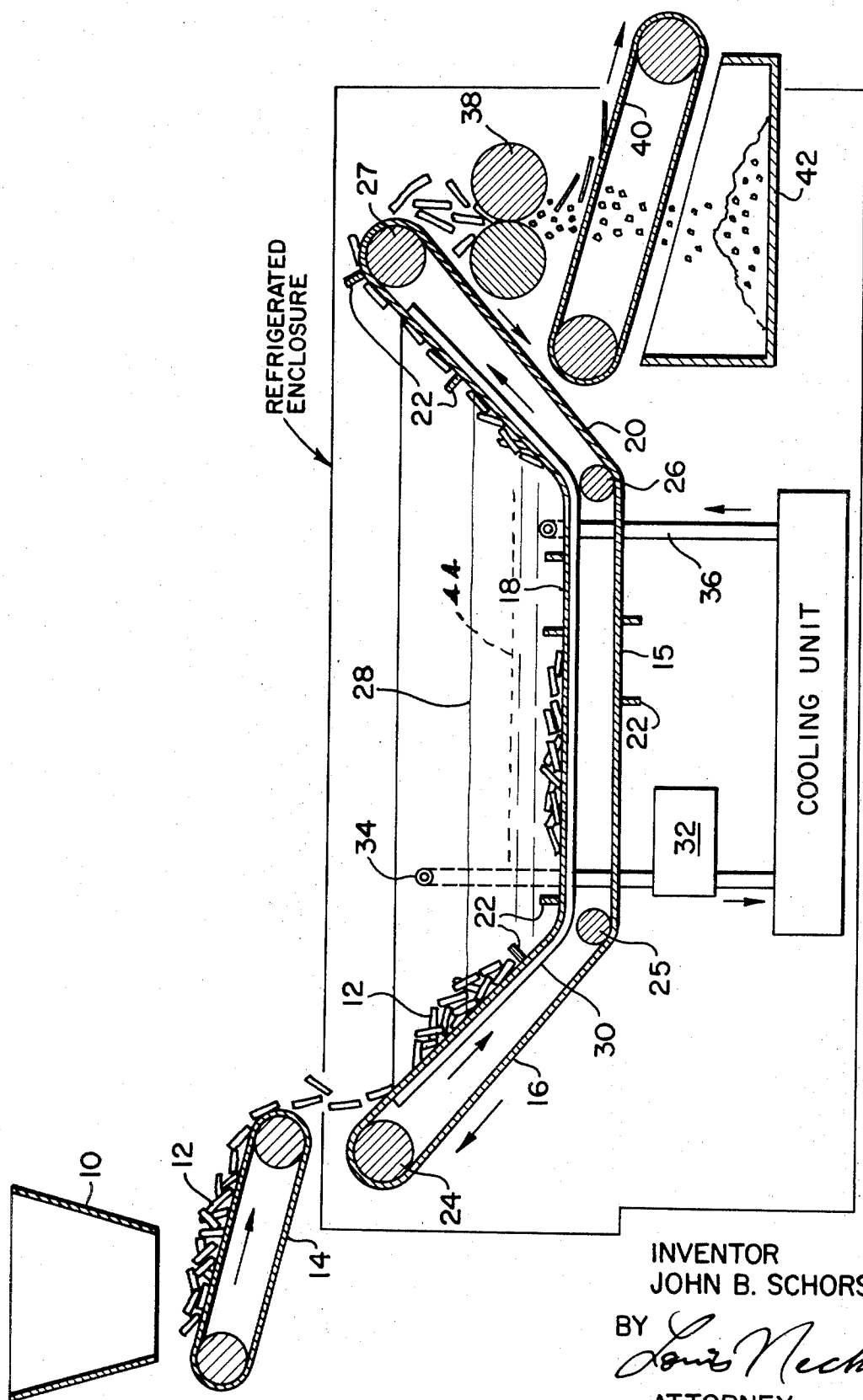


Sept. 8, 1970

J. B. SCHORSCH
METHOD AND APPARATUS FOR STRIPPING THE
INSULATION FROM METALLIC WIRE
Filed Nov. 14, 1967

3,527,414



INVENTOR
JOHN B. SCHORSCH
BY *Louis Necho*
ATTORNEY

1

3,527,414

METHOD AND APPARATUS FOR STRIPPING THE INSULATION FROM METALLIC WIRE

John B. Schorsch, Rydal, Pa., assignor to The Union Corporation, Verona, Pa., a corporation of New Jersey

Filed Nov. 14, 1967, Ser. No. 682,826

Int. Cl. B02c 11/08

U.S. Cl. 241—23

2 Claims

ABSTRACT OF THE DISCLOSURE

A low temperature refrigerating tank; means feeding insulated wire staples into the tank to render the insulation brittle; crushing rolls for pulverizing the insulation, and a separating screen for separating the metallic from the insulation components.

THE INVENTION

The ever-increasing use of insulated wire, and the progressive depletion of natural resources, has made reclamation of the metallic content of insulated wiring mandatory. To this end, it has been proposed to burn off the insulation. This method works, but the resulting air-pollution creates a serious problem. It also has been proposed to subject the insulated wire to a heat sufficient to soften it, for removal. For obvious reasons, this method was found to be not practical. Other, even less practical, expedients have been tried.

According to my invention, I subject the insulation wire to a temperature low enough to render the insulation brittle, and I subject the refrigerated wire to the action of crushing rolls which break the insulation into pieces small enough to pass through the openings of a separating screen which deposits the stripped wire onto a conveyor for removal.

In the drawings, the single figure is a diagrammatic side elevational view showing one method and one apparatus for carrying out the invention.

The apparatus illustrated includes a hopper 10 for receiving a constant supply of insulated wire chopped into staples 12 of an inch or two in length, more, or less. From the hopper, the staples are delivered to a feed conveyor 14 by means of a valve or other control device.

Conveyor 14 drops the staples onto the slanted entering portion 16 of a conveyor 15, which includes a central submerged portion 18 and an exit portion 20. This conveyor is preferably provided with flights 22 to prevent the staples from falling off conveyor portions 16 and 20. The conveyor travels endlessly over rolls 24, 25, 26, and 27, one of which is driven by a motor in any conventional manner. The upper run of the conveyor travels through a liquid, or gaseous, refrigerant 28, in a tank 30. In other words, in travelling from left to right, as viewed in FIG. 1, the conveyor moves through the refrigerant, and in moving from right to left, it travels outside of the tank. The liquid refrigerant may be liquid CO₂, glycol, alcohol, or glycerin, or any other fluid having a freezing point low enough to permit cooling the

2

wire insulation to the point at which it becomes brittle. In practice, a temperature of between minus 20° C. and 195° C. below zero centigrade, is enough.

The liquid in the tank is kept cold by circulating it through a conventional evaporative coil or other cooling means. To this end, I provide pump 32 which sucks liquid through pipe 34, and forces it through the cooling unit and through pipe 36, back into the tank.

The refrigerated staples are delivered to the nip of crusher rolls 38 which break the now, brittle insulation into pieces which are small enough to pass through screen 40. A screen having holes of the order of one-quarter of one inch, more or less, will do, but it will be appreciated that this is a matter of choice which is influenced by the fragmentation of the insulation and by the length of the staples and by the thickness of the metallic components. In any event, the crushed insulation falls through the top run of the screen onto the bottom run thereof and then into a receptacle 42, and the bare staples of core material are propelled in the direction of the arrow.

If the staples exhibit a tendency to float, a screen or other baffle 44 which is shown in phantom in the drawing can be used.

While the apparatus described is operative, it is within the scope of the invention to refrigerate the grinding rolls in any well known manner, such as by contact with evaporative coils or by placing the grinder, or the entire apparatus in a cooled enclosure such as a walk-in refrigerator or the like.

What I claim is:

1. A method of continuously stripping insulation from an insulation-covered core, which method includes the step of comminuting the insulation-covered core into staples of a predetermined length, the step of propelling the staples through a refrigerated fluid to render the insulation brittle, the step of passing the staples between grinding rolls to fragment the embrittled insulation, the step of separating the fragmented insulation from the core staples, and refrigerating said fluid.

2. The method defined in claim 1 wherein, at least the grinding mechanism is refrigerated.

References Cited

UNITED STATES PATENTS

1,129,142	2/1915	Torrance et al.	241—66
1,978,204	10/1934	Hurt	241—23
2,059,970	11/1936	Robillard	241—65
2,225,797	12/1940	Plauson	241—66
2,854,360	9/1958	Pajes	134—17
2,956,717	10/1960	Scharf	225—1
2,977,255	3/1961	Lowry	241—17
3,101,757	8/1963	Hanson	81—9.51
3,160,993	12/1964	McCormick	51—314

GERALD A. DOST, Primary Examiner

U.S. Cl. X.R.

83—16; 134—17; 241—65