

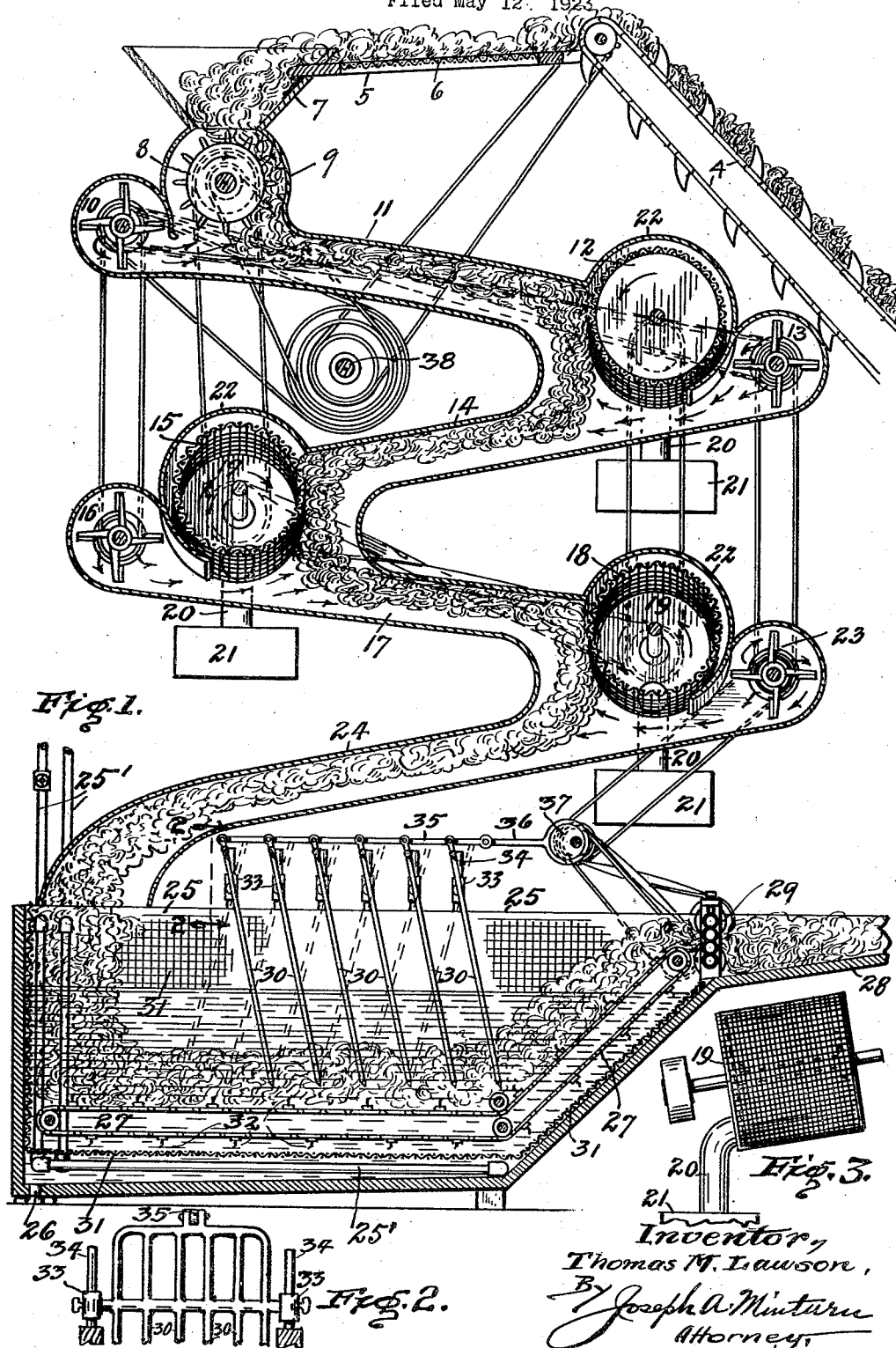
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MACHINE FOR RENOVATING USED WOOL AND COTTON JOURNAL BOX WASTE

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MACHINE FOR RENOVATING USED WOOL AND COTTON JOURNAL-BOX WASTE.

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To all whom it may concern:

Be it known that I, THOMAS M. LAWSON, a citizen of the United States, residing at Indianapolis, in the county of Marion and State of Indiana, have invented new and useful Improvements in Machines for Renovating Used Wool and Cotton Journal-Box Waste, of which the following is a specification.

This invention relates to the reclaiming of used wool and cotton packing waste for journal-boxes, and the object is to substitute mechanical means for hand-picking in separating and shredding the stiff ropy used and cast-off material to be reclaimed, so it will be in condition to absorb oil more freely in the hot oil bath to which it is then subjected, than it is possible to get it by hand-picking, thereby shortening the time required for reclaiming it, and thereby making it more uniform in fiber than it ever was, even when new.

A further object is to remove cinders and grit from the waste material by the aid of air and impact after said separating and shredding process.

Another object is to stir the loose shredded waste in a hot oil bath which will saturate every fiber of it with lubricant and also loosen and wash out all metallic, granular, or other refuse matter that has not already been removed; and the object also is to automatically drain the oil from the saturated waste and pass it through a wringer to remove the excess, or deposit it on a draining board for that purpose; all to produce a better product and in less time than is possible with the process described and patented to me December 21, 1920, in Patent No. 1,362,946.

I accomplish the above, and other objects which will be hereinafter disclosed, by the mechanism illustrated in the accompanying drawing, in which—

Fig. 1, is a diagrammatic assembly in vertical section of my complete apparatus. Fig. 2, is a detail in vertical cross section on the line 2—2 of Fig. 1, and Fig. 3 is a front view of one of the drum-screens showing same with its clean-out tube.

Like characters of reference indicate like parts in the several views of the drawing.

While I have here shown the apparatus in vertical series, it may be assembled horizontally or at any desired angle between a

horizontal and a vertical position, depending upon conditions such as the size and the shape of the building in which it is installed.

In the embodiment shown the refuse waste to be reclaimed is carried up by an endless conveyor 4, to a suitably elevated oblique table 5, having a wire-screen bottom 6, through which cinders and dirt loosened by the handling thus far, is removed by gravity. The slope of the table may be greater than is shown in the drawing if required to move the waste more rapidly.

Discharge from the table 5 is into a hopper 7, at the bottom of which is a rotating drum 8, with peripheral teeth that engage the ropy material coming down through the hopper and shred and tear it to pieces, the action being accelerated if desired by teeth in the housing 9.

A blower 10 discharges a current of air across the bottom of the drum 8, in a manner to release the shredded waste from the drum and moving it down a chute 11, throw it violently against the perforate cylindrical walls of a rotating drum 12. The perforate walls are preferably formed out of wire cloth of a mesh which will exclude the fibers from going through but which will allow cinders, grit and other dirt loosely adherent in the shredded waste to pass through into the drum. The latter rotates downwardly against the approaching waste, and a blower 13, blows a stream of air across the bottom of the drum, in the manner shown, to free the waste from the perforate drum-walls and drive it along a chute 14, and contact it violently against a second similar drum 15, whereby the other side of the moving body of waste is made to strike the perforate walls of this drum to drive the cinders and grit on that side out of the waste and into the drum. A third blower 16, forces the waste along the chute 17, into contact with a drum 18, and while I have here shown but three drums, all similarly made and operated except as to changes in direction of rotation as indicated by the arrows, the number may be increased; or a less number may be used as conditions warrant, the purpose being to drive out of the shredded waste all of the cinders and grit that may have become incorporated therein by the previous use of the waste for packing purposes and now being renovated and reclaimed.

Preferably the bottoms of the drums will

be oblique to the horizontal to cause the refuse material collected in them as blown from the product, to discharge by gravity.

The ends of the drums are closed by sheet metal heads, the lower ones 19, of which, remain stationary while the drums rotate, the lower heads being held by discharge pipes 20, that receive the cleanings and discharge them into receptacles 21. The drums are mounted within housings 22.

Near the last drum is a blower 23 that blows the waste from the drum through a chute 24, into the end of a tank 25, which is about two-thirds full of fluid lubricating oil heated to near the boiling point, or between 175° and 200° F., by steam pipes 25' coiled near the bottom of the tank. The tank bottom preferably slopes to a clean-out plug 26, at one end.

The waste deposited under treatment in the tank through chute 24, falls upon a slatted endless conveyor 27, that traverses the tank horizontally at a suitable distance above the steam pipes, and then in an upwardly oblique direction to a sloping drain-board or platform 28.

Preferably the product will pass through a wringer 29, located at the upper discharge end of the conveyor at the inner end of the drain platform, and by means of the wringer an excess of oil over that desired in it for use in packing journal-boxes is removed. But if there be prejudice against the use of a wringer on the theory that it grinds possible remaining gritty matter into the waste, which belief in practice is not well founded, the wringer may be omitted and the product allowed to drain from 1 to 6 hours on the platform, or on a similar platform (not shown) to which it may be conveyed so as to release the machine for other use, and the excess of oil there drained out.

While the product is passing on the conveyor 27, through the oil in the tank, it is stirred and agitated by a series of swinging fingers 30, that wash the waste in the oil, thereby loosening and removing all adherent or retained foreign matter. The latter drops by gravity through the slotted conveyor, to the bottom of the tank. Any waste that passes through the slatted conveyor is arrested by a wire basket 31, located below the conveyor-belt and above the bottom of the tank, and is grasped by conveyor-fingers 32 and is carried to the top of the conveyor and out with the rest of the product.

The mounting of the fingers is illustrated in Figs. 1 and 2. A series of six fingers are mounted across the tank on a hinge-rod supported by bearings 33, that are vertically adjustable on standards 34, to vary the projection of the fingers into the tank to regulate the distance of their lower ends above the conveyor 27. A cross-bar at the upper ends of the fingers is provided with ears

which are pivoted to a bar 35, connected with a pitman 36, having a ring that is actuated by an eccentric wheel 37.

The various operative parts are here shown as driven by straight or crossed belts, depending upon the desired direction of rotation, from a main shaft 38, which derives its power of rotation from any suitable source (not shown).

While I have here shown the best embodiment of my invention now known to me, it is obvious that many changes are possible without departing from the spirit of my invention, and I therefore do not desire to be held strictly to the particular mechanism and arrangement shown, or any more than is required by the appended claims.

What I claim is—

1. In a machine for reclaiming used waste, means for picking and shredding the material to loosen it, air means for throwing the loose material, a rotary perforate resistance in the path of the thrown material stopping the waste and allowing cinders, grit and dirt to pass to clean the waste, a tank containing hot liquid oil into which the waste is then deposited, means for agitating it in the oil and means for removing the oil excess from the product.

2. In a machine for reclaiming used waste, means for picking and shredding the material, a series of rotating drums with perforate sides, means including blowers for driving the shredded material against the sides of the drums and from one drum to the other to clean the material, a tank containing hot lubricating oil into which the product is then discharged, and means for agitating and stirring the product in the oil.

3. In a machine for reclaiming used waste, means for picking and shredding the material, a series of rotating screen drums, blower means for driving the material from drum to drum and for impacting it against the drum screens to clean it, a tank containing hot lubricating oil into which the cleaned material is deposited, a conveyor in the tank on which the material is received, means for agitating the material in the oil of the tank, and means for removing an excess of oil from the material after it is taken from the tank.

4. In a machine for reclaiming used waste, means for picking and shredding the material, a series of spaced apart drum screens, a continuous conduit from the picking and shredding means to the first drum and thence to all of the other drums in succession and discharging against each drum, a blower at the picking and shredding means and at each drum discharging air through the conduit to disengage the material and move it in the conduit successively into contact with all of the drums, means for subjecting the

product to a lubricating oil bath at a high temperature, and means for removing oil excess from the product.

5 In a machine for reclaiming used waste, means for picking and shredding the material, a series of spaced apart drum screens each rotating about a horizontally oblique axis, a continuous air tight conduit from the picking and shredding means to the first
10 drum and from thence to all of the other drums in succession and discharging against the near side of each drum, a blower on the

far side of the picking and shredding means and of each drum, said blowers discharging air to disengage the material and move it
15 in the conduit successively into contact with all of the drums, means for subjecting the product to a bath of lubricating oil at a high temperature, and means for removing oil
20 excess from the product.

Signed at Indianapolis, Indiana, this the 10th day of May, 1923.

THOMAS M. LAWSON.