Aug. 21, 1962 E. C. GREMBECKI ETAL 3,049,997

BLANKET ROLLER CLEANING DEVICE

Filed March 4, 1960 2 Sheets-Sheet 1

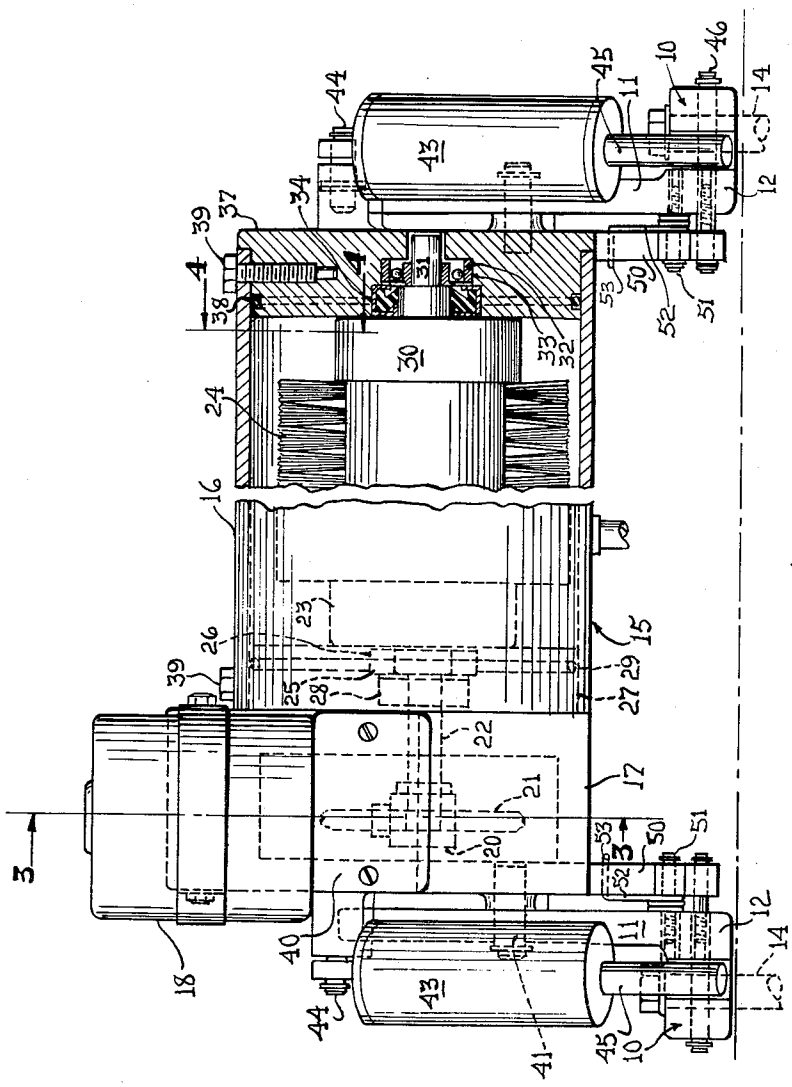

Fig. 1.

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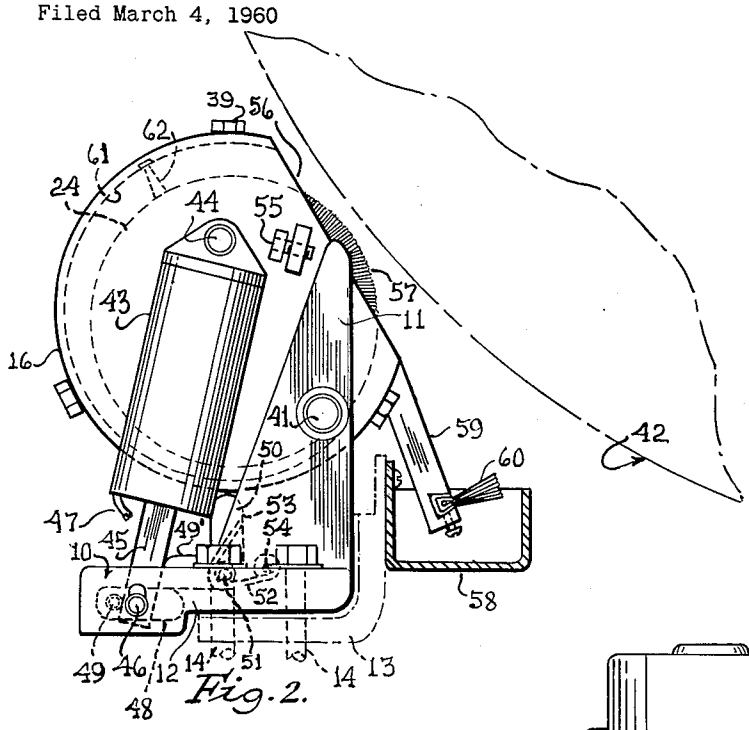

Fig. 2.

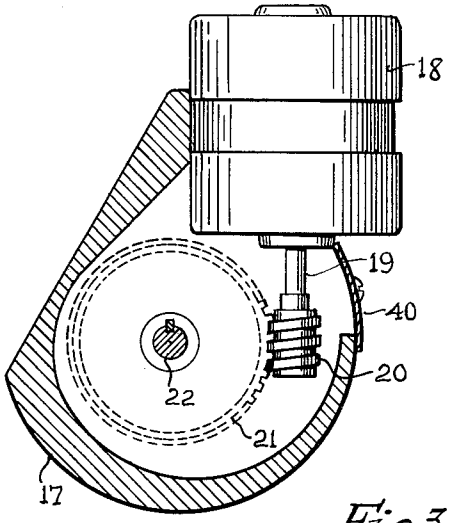

Fig. 3.

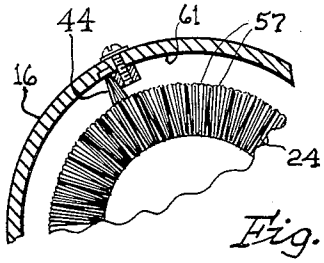

Fig. 4.

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United States Patent Office 3,049,997
Patented Aug. 21, 1962

3,049,997

BLANKET ROLLER CLEANING DEVICE

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Filed Mar. 4, 1960, Ser. No. 12,831
3 Claims. (Cl. 101—425)

Our invention relates to new and useful improvements in a blanket roller cleaning device especially adaptable for use in removing ink, lint and foreign matter from the cylindrical surface of a printing press blanket roller.

An object of the invention is to provide a device of this character which accomplishes the foregoing result in a more efficient, economical and rapid manner than prior art devices which were heretofore used for such purpose.

Another object of the invention is the provision of a device of the character herein described in which the cleaning brush is brought into and out of contact with the cylindrical surface of the blanket roller and in which excess fluid is removed from the cleaning brush during its operative contact with the blanket roller.

Another and equally important object of the invention is to provide in a device of the character herein described, an arrangement for moistening the cylindrical surface of the blanket roller prior to engagement thereof with the cleaning brush.

Other objects will appear hereinafter.

The invention consists in the novel combination and arrangement of parts to be hereinafter described and claimed.

The invention will be best understood by reference to the accompanying drawings showing the preferred form of construction, and in which:

FIG. 1 is an elevational view partly in section of the invention;

FIG. 2 is an end elevational view of the invention with parts thereof in section;

FIG. 3 is a sectional detail view taken substantially on line 3—3 of FIG. 1;

FIG. 4 is a sectional detail view taken substantially on line 4—4 of FIG. 1.

The several objects of our invention are accomplished by the preferred form of construction shown in the drawings. Such construction includes a pair of mounting brackets 10 each having an upstanding leg 11 and a horizontal leg 12. The mounting brackets are attached to a frame element 13 of the printing press by means of suitable bolts 14. Such brackets, as shown in FIG. 1, are arranged in spaced relation with respect to each other and have arranged therebetween a structure 15 comprising a drum or cylinder 16 and a gear housing 17. The gear housing 17 supports a motor 18 having a shaft 19 carrying a worm gear 20. The worm gear 20 meshes with a gear 21 keyed to a shaft 22. The shaft 22 extends from one end portion of the hub 23 of a cleaning brush 24 in the form of an elongated roller arranged lengthwise in the cylinder 16. The shaft 22 is journalled in a suitable bearing 25 of any approved construction. The bearing 25 is mounted in a raceway 26 formed in the end wall 27 of the cylinder 16. Between the hub 23 and the bearing 25 and arranged upon the shaft 26 is an oil seal 28. An O ring 29 encircles the end wall 27 to provide an effective

seal between the end wall and the cylindrical wall of the cylinder 16.

Extending from the hub 30 of the brush 24 is a stud shaft 31 journalled in a bearing 32 arranged in a raceway 33 and of similar construction to the bearing 26. Embracing the stud shaft 31 is an oil seal 34 similar to the oil seal 26.

The end wall 37 of the cylinder 16 is, like the end wall 27, provided with an O ring seal 38 to provide an effective seal between the end wall 27 and the cylinder 16. The end walls may be attached to the cylinder 16 in any suitable manner such as by bolts 39.

In order to have access to the gear housing 20, a suitable cover 40 is provided.

The cylinder 16 and its motor 17 are pivotally supported between the legs 11 by stud shafts 41, and the stud shafts 41 being arranged offset with respect to the long axis of the cylinder whereby the cylinder by means now to be explained will be pivoted in a direction toward and away from the blanket roller 42 (FIG. 2). Such means includes a pair of pneumatic cylinders 43 pivoted to the end walls 27 and 37 of the cylinder as at 44. Each cylinder includes a piston rod 45 pivoted by means of a stud shaft and slot 46 to the leg 12 of the mounting bracket 10.

The pneumatic cylinders 43 are of a conventional construction and are equipped with means 47 including flexible conduits for supplying compressed air to the cylinder in a manner well known in the art. Each shaft 46 is carried by a plate 48 pivoted as at 49 to its respective leg 12. The plate 48 engages the leg 49' of a bell crank, the other leg 50 of which is arranged beneath the cylinder 16. The bell crank is pivoted to the leg 12 as at 51 and has coiled thereabout a spring 52, one end of which is looped as at 53 to the leg 50 and the other end looped to a pin 54 carried by the leg 12.

The pivotal movement of the cylinder in the direction of the blanket roller 42 may be limited by set screws 55 carried by each of the end walls 27 and 37 of the cylinder. In the cylindrical wall of the cylinder 16 adjacent the cylindrical surface of the blanket roller 42, there is provided an opening 56 which extends the full length of the blanket roller 42. As shown, the bristles 57 of the brush 24 project outwardly through the opening 56.

Carried by the press element 13 is a pan or trough 58 likewise extending the full length of the blanket roller 42. An arm 59 extending from each of the end walls 27 and 37 projects downwardly into the pan or trough 58. Extending between these arms 59 and the full length of the cylindrical surface of the blanket roller 42 is a brush 60. The pan 58 is adapted to contain a quantity of water.

Extending laterally from the inner wall 61 of the cylinder 16 and the entire length of the brush 24, is a stripper brush 62 which contacts the bristles 57 of the brush 24 and functions to strip surplus cleaning fluid from the brush 24 as well as any foreign particles as may be caught by the brush 24.

The operation of the device is as follows:

The blanket roller 42 is rotated about its long axis. The cylinders 43 are charged to rotate the cylinder 16 in an anticlockwise direction about the stud shafts 41 whereby to bring the moistening brush into engagement with the cylindrical surface of the blanket roller 42, thereby to moisten such surface.

After this operation has taken place, the cylinders 43

are charged to rotate the cylinder **16** in a direction to engage the brush **24** with the cylindrical surface of the blanket roller **42**. The motor **18** is energized to impart rotation to the brush **24** to rotate such brush at a speed of rotation less than the speed of rotation of the blanket roller **42**. During this rotation, the bristles **57** of the brush **24** will be in brushing engagement with the cylindrical surface of the blanket roller **42**, thereby to remove ink, lint and other foreign matter from the surface of the blanket roller. This operation continues until the surface of the blanket roller is completely and thoroughly cleaned of all ink, lint and other foreign matter. While we have not shown in the drawing nor described herein an arrangement may be provided for delivering under the control of the operator the cleaning fluid to the cylinder **16** and for draining the same after each brushing operation.

The plate **48** and bell crank including arms **49** and **50** cooperate with each other and with the spring **52** to lessen the shock which would be otherwise transmitted to the supporting structure of the cylinder **16** when the latter is pivoted by the pneumatic cylinders **43** in a direction to disengage the brushing engagement between the bristles **57** of the brush **24** and the blanket cylinder.

A device constructed in accordance with the foregoing description results in an effective and efficient arrangement for maintaining the surface of the blanket roller clean and for removing all ink, lint and foreign matter therefrom.

While we have illustrated and described the preferred form of construction for carrying our invention into effect, this is capable of variation and modification without departing from the spirit of the invention. We therefore do not wish to be limited to the precise details of construction set forth, but desire to avail ourselves of such variations and modifications as come within the scope of the appended claims.

Having thus described our invention, what we claim as new and desire to protect by Letters Patent is:

1. A device for cleaning the cylindrical surface of a printing press blanket roller comprising:

(*a*) a pair of fixed mounting brackets arranged in spaced relation with respect to each other,

(*b*) an elongated hollow cylinder containing cleaning fluid pivotally arranged between said brackets in parallel relation with respect to the roller to be cleaned,

(*c*) means eccentrically connecting the ends of said cylinder to said brackets for pivotal movement relative thereto,

(*d*) an elongated cleaning brush mounted for rotation within said cylinder and having a longitudinal portion thereof exposed through an opening formed in said cylinder, with said cleaning brush normally spaced from the cylindrical surface of said roller,

(*e*) a moistening brush carried exteriorly of said fluid containing cylinder in parallel relation with respect to said cleaning brush and said roller to be cleaned and normally spaced therefrom,

(*f*) pneumatically operated cylinders pivotally connected to opposite ends of said fluid containing cylinder eccentrically with respect to the long axis thereof and the eccentric pivotal connection between said fluid containing cylinder and said fixed mounting brackets,

(*g*) said pneumatically operated cylinders having piston rods movable longitudinally therein with their free ends pivotally connected to said fixed brackets at a point offset with respect to the eccentric pivotal connection between said fluid containing cylinder and said fixed brackets for alternately pivoting said cleaning brush and said moistening brush into engagement with the cylindrical surface of the roller to be cleaned.

2. A device for cleaning the cylindrical surface of a printing press blanket roller comprising:

(*a*) a pair of fixed mounting brackets arranged in spaced relation with respect to each other,

(*b*) an elongated hollow cylinder containing cleaning fluid pivotally arranged between said brackets in parallel relation with respect to the roller to be cleaned,

(*c*) means eccentrically connecting the ends of said cylinder to said brackets for pivotal movement relative thereto,

(*d*) an elongated cleaning brush mounted for rotation within said cylinder and having a longitudinal portion thereof exposed through an opening formed in said cylinder, with said cleaning brush normally spaced from the cylindrical surface of said roller,

(*e*) a moistening brush carried exteriorly of said fluid containing cylinder in parallel relation with respect to said cleaning brush and said roller to be cleaned and normally spaced therefrom,

(*f*) pneumatically operated cylinders pivotally connected to opposite ends of said fluid containing cylinder eccentrically with respect to the long axis thereof and the eccentric pivotal connection between said fluid containing cylinder and said fixed mounting brackets,

(*g*) said pneumatically operated cylinders having piston rods movable longitudinally therein with their free ends pivotally connected to said fixed brackets at a point offset with respect to the eccentric pivotal connection between said fluid containing cylinder and said fixed brackets for alternately pivoting said cleaning brush and said moistening brush into engagement with the cylindrical surface of the roller to be cleaned, and

(*h*) means carried by and pivoted with the fluid containing cylinder for rotating said cleaning brush independently of the rotation of the roller to be cleaned.

3. A device for cleaning the cylindrical surface of a printing press blanket roller comprising:

(*a*) a pair of fixed mounting brackets arranged in spaced relation with respect to each other,

(*b*) an elongated hollow cylinder containing cleaning fluid pivotally arranged between said brackets in parallel relation with respect to the roller to be cleaned,

(*c*) means eccentrically connecting the ends of said cylinder to said brackets for pivotal movement relative thereto,

(*d*) an elongated cleaning brush mounted for rotation within said cylinder and having a longitudinal portion thereof exposed through an opening formed in said cylinder, with said cleaning brush normally spaced from the cylindrical surface of said roller,

(*e*) a moistening brush carried exteriorly of said fluid containing cylinder in parallel relation with respect to said cleaning brush and said roller to be cleaned and normally spaced therefrom,

(*f*) pneumatically operated cylinders pivotally connected to opposite ends of said fluid containing cylinder eccentrically with respect to the long axis thereof and the eccentric pivotal connection between said fluid containing cylinder and said fixed mounting brackets,

(*g*) said pneumatically operated cylinders having piston rods movable longitudinally therein with their free ends pivotally connected to said fixed brackets at a point offset with respect to the eccentric pivotal connection between said fluid containing cylinder and said fixed brackets for alternately pivoting said cleaning brush and said moistening brush into engagement with the cylindrical surface of the roller to be cleaned, and

(*h*) an electric motor and gear drive mechanism fixedly mounted on and pivotal with the fluid containing cylinder for providing rotational drive to said clean-

ing brush independently of the position of said fluid containing cylinder with respect to the cylindrical surface of the roller to be cleaned.

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