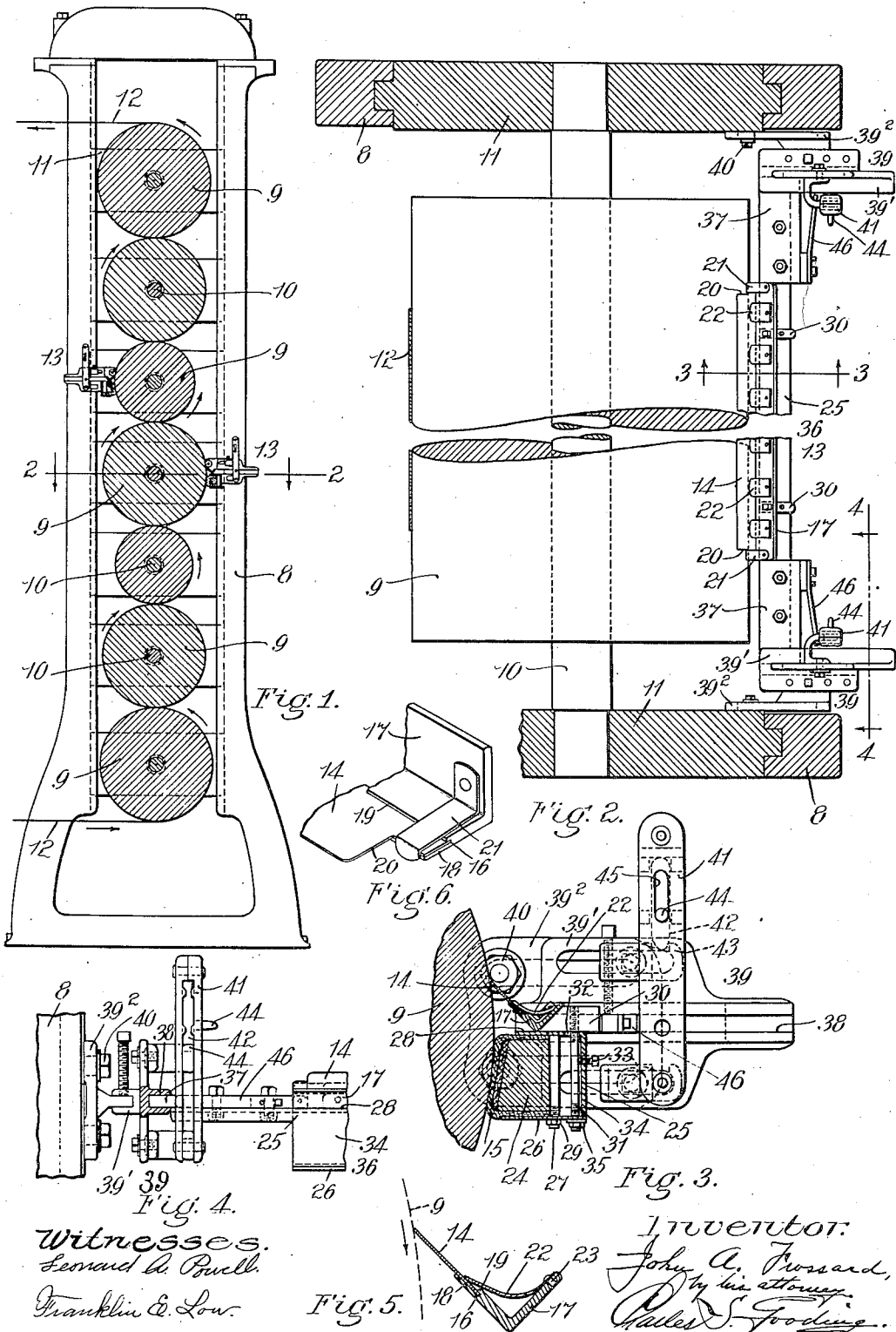


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 DEVICE FOR CLEANSING THE SURFACES OF ROLLS.
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1,034,780.

Patented Aug. 6, 1912.



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UNITED STATES PATENT OFFICE.

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DEVICE FOR CLEANSING THE SURFACES OF ROLLS.

1,034,780.

Specification of Letters Patent.

Patented Aug. 6, 1912.

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To all whom it may concern:

Be it known that I, JOHN A. FROSSARD, a citizen of the United States, residing at East Pepperell, in the county of Middlesex and State of Massachusetts, have invented new and useful Improvements in Devices for Cleansing the Surfaces of Rolls, of which the following is a specification.

The object of this invention is to provide a device for cleansing the surface of rolls and particularly adapted to cleanse the surface of calender rolls such as are used in the manufacture of paper. The device, however, may be used for cleansing rolls used in different classes of machinery.

It is very essential that rolls used in calendering paper should have a smooth and clean surface, and it is the object of this invention to keep the surface of calender rolls clean and smooth, and also still further to act as a means for separating from the surface of the roll the free end of a sheet of paper being calendered in case the sheet of paper should break and commence to be wound about the periphery of the roll.

In a device of the character set forth, it is desirable that the same should be yielding so as to fit closely to the periphery of the roll throughout the entire length thereof and thus remove any particles which may have adhered to the surface of said roll, and also it is desirable that the same should be yielding in order that it may not injure or wear the roll to which it is applied.

The invention consists in the combination and arrangement of parts set forth in the following specification and particularly pointed out in the claims thereof.

Referring to the drawings: Figure 1 is a sectional elevation of a plurality of calender rolls together with one of the standards upon which said calender rolls are mounted showing my improved device for cleansing the rolls mounted thereon as applied to two of said rolls. Fig. 2 is a sectional plan taken on line 2—2 of Fig. 1 shown on an enlarged scale and broken away to save space in the drawings. Fig. 3 is a sectional elevation taken on line 3—3 of Fig. 2 viewed in the direction of the arrows on said line. Fig. 4 is a sectional elevation taken on line 4—4 of Fig. 2 as viewed in the direction of

the arrows on said line. Fig. 5 is a detail transverse section of the scraper and its holder. Fig. 6 is a perspective view of one end of the scraper and its holder, the same being broken away to save space.

Like numerals refer to like parts throughout the several views of the drawings.

In the drawings, 8 is one of the side standards of a calender roll machine.

9, 9 are calender rolls fast to shafts 10, 10 mounted in boxes 11, 11 adapted to slide in ways on the frame 8. The paper 12 passes around and between the calender rolls, said rolls rotating alternately in opposite directions as indicated by the arrows.

My improved device 13 for cleaning calender rolls is illustrated as supported upon the frame standard 8, it being understood that another frame standard is provided to support the opposite ends of the rolls and the opposite ends of the supporting bars of my improved cleansing device as illustrated in Fig. 2. The cleansing device consists, primarily, in two elements, one being a scraper 14 formed of a flexible strip of sheet metal and the other being a pad 15 of cleansing material, such, for instance, as felt, both the scraper and the pad being adapted to bear against the periphery of the roll 9, the scraper acting to remove from the periphery of the roll any impurities that may be located thereon, the pad 15 acting still further to cleanse the surface of the roll after the work of the scraper has been completed. The scraper also acts to prevent any sheet of paper which may have become broken and is being carried around by the roll from continuing on the surface of the roll and thus preventing the same from being folded several times around the roll, which is very undesirable in a machine of this class and sometimes leads to damage.

One edge of the scraper 14 bears against the periphery of the calender roll 9; the opposite edge of said scraper projects into a slot 16 which extends longitudinally along one edge of the angle iron 17 which acts as a holder for said scraper. The lip 18 of said angle iron which bears against the lower face of the scraper 14 projects beyond the lip 19 which bears against the upper face of said scraper. The scraper 14 is notched

at its opposite ends at 20, 20 and is preferably held in the slot 16 by hooks 21, 21 located at the opposite ends, respectively, of said scraper, the free ends of said hooks projecting into the notches 20, as seen in Fig. 6 and engaging the edge of the scraper to prevent the same from becoming accidentally dislodged from the holder 17.

It will be understood that the scraper 14 is made of a flexible strip of sheet metal and yields readily to accommodate itself to any slight variation from a perfect surface of the periphery of the roll 9, and in order to hold the edge of the scraper 14 which bears against the periphery of the roll 9 firmly in contact with the periphery of said roll, a plurality of springs 22, 22 are provided which are fastened by rivets 23 to the angle iron holder 17, the free ends of said flat springs are slightly rounded to bear against the upper face of the scraper 14, said rounded ends permitting the end of said scraper to pass beneath said springs during the inserting of said scraper within said slot 16. These springs 22, 22 perform a two-fold function, one function being to press the scraper firmly against the periphery of the roll, the other being to act as guides for any sheet of paper which may, having become broken, continue around with the roll until the edge of the paper engages the scraper 14. Then, having been stripped from the surface of the roll by the scraper 14, the free end of the paper follows down the inclined upper surface of said scraper and is guided by the curved flat springs 22, 22 upwardly and over the cleansing device. It is evident that the springs 22 perform still another function viz. that of pressing the scraper laterally thereof against the lip 18 and thus by frictional contact therewith tend to hold said scraper in the slot 16 independent of the hooks 21, 21.

The pad 15 which is preferably formed of a sheet of felt extends around three sides of the bar 24 and is clamped to an angle iron 25 by a plate 26 extending longitudinally of said angle iron and by bolts 27, 27 which extend through the plate 26 and are riveted to the upper side 28 of the angle iron 25. (See Fig. 3). Thus by tightening the nut 29 on the bolt 27 the plate 26 clamps the felt pad 15 against the bar 24 at the lower side of said bar, and said pad is clamped between the bar 24 and the upper side 28 of the angle iron 25.

The scraper holder 17 is provided with ears 30, 30 which have screw-threaded engagement with bolts 31, 31 extending downwardly from said ears through slots 32, 32 provided in the upper side 28 of the angle iron 25, and each of these bolts 31 is engaged by an adjusting screw 33 which has

screw-threaded engagement with the vertical side 34 of the angle iron 25 and bears at its end against the bolt 31, so that by loosening the nuts 35 upon the bolts 31 and turning the adjusting screws 33, 33 the scraper holder may be moved toward or away from the roll 9 independently of the pad 15 and its angle iron holder 25. Thus the angle iron holder 17 and the angle iron holder 25 form together a supporting bar 36 for the flexible strip of sheet metal constituting the scraper 14 and also for the pad of cleansing material 15.

At opposite ends of the supporting bar 36 are provided plates 37, 37 which project into slots 38, 38 formed in brackets 39, 39. The brackets 39 are each formed in two parts 39' and 39". The part 39' is adjustably fastened to the part 39" and is adjustable horizontally thereon. The parts 39" are adjustably fastened to the side standards 8, 8 by means of screw-bolts 40, 40.

Levers 41, 41 are pivotally mounted upon the brackets 39 and are locked by a latch or pawl 42 to the bracket 39, as seen in Fig. 3, where the pawl 42 is shown engaging a tooth 43 upon said bracket 39. The pawl 42 may be raised by means of a horizontal pin 44 which projects through a slot 45 in the lever 41 to disengage the pawl 42 from the tooth 43 upon the bracket 39. Each of the levers 41 is a duplicate and is operated in the same manner. The front edges of said levers 41, 41 bear against springs 46, 46 fast to opposite ends, respectively, of the supporting bar 36, so that by pushing the levers 41, 41 toward the left (Figs. 2 and 3) the supporting bar is forced toward the roll 9 with a yielding pressure, the opposite ends of said bar sliding in the slots 38, 38 during the movement of said bar toward the roll.

If it is desired to remove the supporting bar and the scraper and pad from the machine, all that it is necessary to do is to raise the pins 44 out of engagement with the teeth 43, 43, tip the levers 41, 41 down to a horizontal position and then slide the supporting bar along the slots 38, 38 in the brackets 39, thus removing said supporting bar and all that is connected therewith from the machine.

The general operation of my improved cleansing device and the manner in which the same may be adjusted and operated is as follows: To set up the device the brackets 39 are fastened to the side frames 8, 8 and adjusted horizontally to the desired distance from the roll 9; the opposite plates 37, 37 of the supporting bar 36 are then inserted in the slots 38, 38 in the brackets 39 and said supporting bar is then moved toward the roll 9 until the pad 15 and the scraper 14 contact with the periphery of

the roll 9. Said pad and scraper are then forced against said roll 9 with a yielding pressure by means of the levers 41, 41, and said levers 41, 41 are locked in position by means of the pawls 42, 42 which are dropped downwardly into the locking teeth 43, 43 upon said brackets 39, as illustrated in Fig. 3. If it is desired to adjust the scraper blade 14 toward or away from the periphery of the roll 9, it is accomplished by means of the adjusting screws 33, 33, and when said scraper blade is brought to bear with the proper amount of pressure against the periphery of the roll 9, said scraper blade is set in position by tightening the nuts 35 upon the bolts 31. If it is desired to remove the scraper blade from the holder 17, it may be done by lifting up one of the hooks 21 (Fig. 6) and drawing the blade out of the slot 16 in the angle iron holder 17 longitudinally of said blade. The same may be slipped back into position in the same manner and the hook 21, finally released, will drop at its free end into the notch 20 and hold said blade 14 in position upon the holder 17. If it is desired to remove the pad 15 from the pad holder 25, it may be done by loosening the nuts 29, thus unclamping the pad and the bar 24, so that they may be easily removed from the angle iron holder 25.

While I have described the scraper 14 as a flexible strip of sheet metal, it is evident that the scraper may be formed of any other suitable material formed into a flexible strip, such as hard rubber or a suitable kind of wood, without departing from the spirit of my invention.

Having thus described my invention, what I claim and desire by Letters Patent to secure is:

1. In combination, a roll, a supporting bar provided with a slot extending longitudinally thereof and a flexible strip of sheet material on said supporting bar, one edge thereof located in said slot and slidable therein, the opposite edge adapted to bear against the periphery of said roll, and yielding means adapted to bear against said flexible strip and retain the same in said slot.

2. In combination, a roll, a supporting bar provided with a slot extending longitudinally thereof between two lips one of said lips projecting beyond the other, a flexible strip of sheet material, one edge thereof located in said slot, the opposite edge adapted to engage said roll, and yielding means adapted to engage said strip of sheet material intermediate the edges of said lips and press said sheet material against said projecting lip.

3. In combination, a roll, a supporting bar provided with a slot extending longi-

tudinally thereof between two lips one of said lips projecting beyond the other, a flexible strip of sheet material, one edge thereof located in said slot, the opposite edge adapted to engage said roll, a plurality of curved springs adapted to engage said sheet material intermediate the edges of said lips and press said material against said projecting lip, the ends of said springs which engage said material being rounded to permit the end of said sheet material to pass therebeneath.

4. In combination, a roll, a supporting bar provided with a slot extending longitudinally thereof, a flexible strip of sheet material on said supporting bar, one edge thereof located in said slot, the opposite edge adapted to bear against the periphery of said roll, and a hook fast to said supporting bar, the free end of said hook adapted to engage said strip of sheet material, whereby said strip of sheet material is locked to said supporting bar.

5. In combination, a roll, a supporting bar embodying a pad holder and a scraper holder, a flexible strip of sheet material fast to said scraper holder, one edge of which is adapted to bear against the periphery of said roll and a strip of cleansing material fast to said pad holder and adapted to bear against the periphery of said roll, a frame upon which said roll is mounted, brackets fast to said frame at opposite ends, respectively, of said supporting bar, said brackets provided with slots into which the opposite ends of said supporting bar project, and in which slots the said ends of said bar are slidably mounted, and means to force said supporting bar toward the periphery of said roll with a yielding pressure.

6. In combination, a roll, a supporting bar embodying a pad holder and a scraper holder, a flexible strip of sheet material fast to said scraper holder, one edge of which is adapted to bear against the periphery of said roll and a strip of cleansing material fast to said pad holder and adapted to bear against the periphery of said roll, a frame upon which said roll is mounted, brackets fast to said frame at opposite ends, respectively, of said supporting bar, said brackets provided with slots into which the opposite ends of said supporting bar project, a lever pivotally mounted on each of said brackets, respectively, and springs interposed between said levers and supporting bar, whereby said supporting bar may be forced toward said roll with a yielding pressure.

7. In combination, a roll, a supporting bar in two parts, viz, a pad holder and a scraper holder, said scraper holder consisting of an angle iron provided with a slot extending longitudinally thereof in one edge

thereof, a flexible strip of sheet material,
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5 strip of cleansing material extending longi-
tudinally of said angle iron, and means to
clamp said strip of cleansing material to
said angle iron.

In testimony whereof I have hereunto set
my hand in presence of two subscribing wit- 10
nesses.

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Witnesses:

CHARLES S. GOODING,
DANIEL A. ROLLINS.