

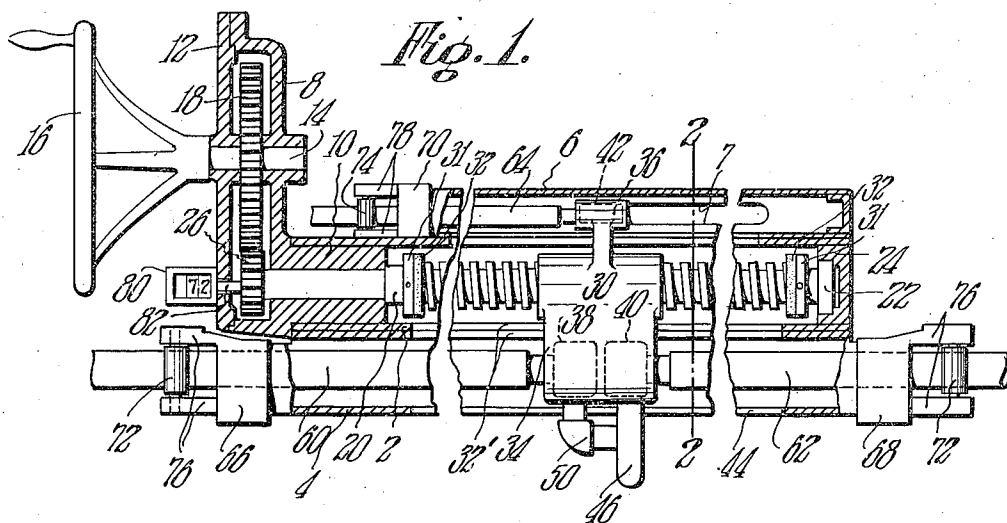
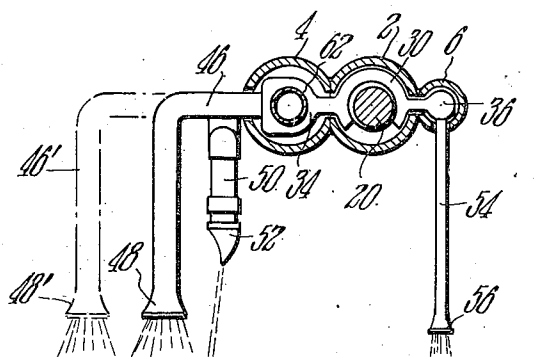
April 19, 1949.

G. J. SCOFIELD

2,467,502

CLEANING APPARATUS

Filed May 23, 1945



INVENTOR.
Gilbert J. Scofield.
 BY *Walter C. Ross.*
Attorney.

UNITED STATES PATENT OFFICE

2,467,502

CLEANING APPARATUS

Gilbert J. Scofield, Loudonville, N. Y.

Application May 23, 1945, Serial No. 595,390

1 Claim. (Cl. 92—50)

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This invention relates to paper making apparatus and is directed more particularly to improvements in apparatus for cleaning the movable web forming and carrying element of a paper machine.

The principal objects of the invention are directed to the provision of apparatus for cleaning the foraminous element of a paper machine on which a web is formed and carried and while the apparatus is adapted for general use in connection with elements of various forms of paper making machinery, the invention will be described for purposes of disclosure in connection with a traveling Fourdrinier wire.

The Fourdrinier wire of a paper machine frequently becomes contaminated with foreign substances in spots and zones even to the extent that the mesh becomes clogged or filled up so that the paper web being formed is marked to an objectionable extent or the formation thereof is impaired.

According to this invention, an apparatus is provided which is adapted for disposition over or adjacent the wire and is constructed and arranged for directing a cleaning agent or agents such as water, water and steam, steam, or a chemical solution, onto the wire as it passes thereunder thereby, while the wire is in motion, bringing about the desired cleaning thereof.

The cleaning agent or agents may be supplied the apparatus at any desired temperature and/or pressure by any suitable apparatus and a mechanism is provided for directing the agent or agents in such a way that it impinges that spot or zone of the wire requiring cleaning.

The fact that the wire has a spot or zone which requires cleaning is evidenced by an imperfect spot or streak which is observable on the paper web after it has left the wire but the spot or zone of the wire which marks the paper is not readily observable on the traveling wire. To direct the cleaning agent or agents to a point transversely of the traveling wire so that the spot or streak will be cleaned, the agent directing means is transversely adjustable and a means is provided for locating the agent directing means at a distance from an edge of the wire corresponding to the distance from an edge of the paper web to the undesired marked portion thereof.

The invention will be described in connection with the present preferred form thereof, it being understood that various changes and modifications may be made within the scope of the invention to adapt it to various machines and uses.

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In the drawings:

Fig. 1 is a sectional plan view through the cleaning apparatus of the invention; and

Fig. 2 is a sectional elevational view on the line 2—2 of Fig. 1.

Referring now to the drawings more in detail, the invention will be fully described.

A central longitudinal hollow member 2 is provided, at opposite sides of which are secured similar main and auxiliary hollow members 4 and 6. These members may be made from tubing with adjacent sides flattened and in abutment and secured together in any suitable manner as by welding, brazing, soldering or the like.

A housing 8 has a hub part 10 secured in an end of the central tube 2 and is provided with a cover 12 secured thereto. A shaft 14 is journaled in the housing and cover and it has a hand wheel 16 and a driving gear 18 fixed thereto.

An operating shaft 20 has its opposite ends journaled in the hub 10 and in an anti-friction bearing 22 associated with a closure 24 fixed in the end of the tube 2. Said shaft 20 is provided with an intermediate screw thread, as shown, and it has a pinion 26 fixed thereto which is in mesh with the gear 18 whereby rotation of the hand wheel 16 in one direction or the other brings about rotation of the shaft 20 and its screw.

A carriage or nut 30 partially surrounds and has an internal screw thread in engagement with the screw thread of shaft 20 so that it is moved back and forth accordingly as the shaft is rotated in one direction or the other. Collars 31 are fixed to the shaft 20 and yieldable washer-like members 32 on the inner sides thereof are provided to yieldingly limit back and forth movements of the carriage.

Adjacent sides of the members 2 and 4 are longitudinally slotted at 32' to receive a side extension 34 of the carriage 30 and permit back and forth longitudinal movements of the carriage. Likewise adjacent sides of the tubes 2 and 6 are slotted for a side extension 36 of the carriage. The extension 34 of the carriage is provided with separate chambers 38 and 40 and the extension 36 thereof may have a chamber 42 therein.

The outermost side of the member 4 is provided with a longitudinal slot 44 and a connection 46 extends from the chamber 40 there-through and outwardly and downwardly to a nozzle 48. Other connections 50 extend through said slot 44 from the chamber 38 outwardly and longitudinally and then downwardly and carry a nozzle 52. A connection 54 extending down-

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wardly from the chamber 42 through a slot 7 in the bottom of member 6 and carries a nozzle 56. Another connection or connections such as 46 may extend from the connection 46 and carry a nozzle 48 all as may be desired.

A cleaning agent or agents such as steam or water or steam and water may be conducted to the chamber 38 and an agent such as steam may be conducted to the chamber 40 while a chemical agent may be conducted to the chamber 42. This may be accomplished by flexible conduits 60, 62 and 64 suitably connected to their respective chambers. Guiding means for the conduits may include bracket members 66, 68 and 70 secured to the members 4 and 6 which have spaced rolls 72 and 74 rotatable between extensions 76 and 78.

The agents may be supplied by any suitable means to which the conduits are connected and will be arranged to provide the desired and necessary temperatures and pressures. Such means are not herein shown as the same may be varied within wide limits and forms no part of the present invention.

The nozzle 52 is preferably formed to provide a relatively thin fan-like stream so that when the cleaning agent is discharged at considerable pressure there will be an impinging action of the foraminous element while the nozzle 48 and 56 will deliver more or less of a spray with an impinging function depending on the pressure of the cleaning agent.

The apparatus makes it possible to direct various cleaning agents or various combinations of agents into the foraminous element to remove various materials and sources of contamination as the element is passing therebelow.

The apparatus may, of course, be made in various lengths to accommodate foraminous elements of various widths and may be supported transversely thereabove by any desired means.

An indicator 80 is associated with the cover 12 and it is operatively connected with the pinion 26 by a shaft 82. The indicator will be after the nature of a counter having rotatable members operated by the shaft 82 and carrying indicia. When the paper web has a marking indicating the necessity of cleaning the traveling foraminous element the distance from the edge of the web to the marking is measured and if, say, the distance is seventy-two inches, the screw is operated by the hand wheel 16 until seventy-two appears in the indicator. In this position, the carriage is located so that the nozzles are in the proximity of the spot on the foraminous element as it passes beneath the nozzles. In this way, the nozzles are disposed for directing cleaning agents onto that part of the foraminous element which requires cleaning.

The invention may be embodied in other specific forms without departing from the essential characteristics thereof. Hence, the present embodiments are therefore to be considered in all respects merely as being illustrative and not as being restrictive, the scope of the invention being indicated by the appended claim rather than by the foregoing description, and all

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modifications and variations as fall within the meaning and purview and range of equivalency of the appended claim are therefore intended to be embraced therein.

What it is desired to claim and secure by Letters Patent of the United States is:

Cleaning apparatus for a paper making machine comprising in combination, a central longitudinal hollow tubular member having oppositely disposed and flattened sides provided with longitudinal slots, a main longitudinal hollow tubular member parallel to and secured to one of the flattened sides of said central member and having a longitudinal slot therein in register with the longitudinal slot in said central member affording communication with said central member, an auxiliary longitudinal hollow tubular member parallel to and secured to the opposite flattened side of said central member and having a longitudinal slot therein in register with the longitudinal slot in said central member affording communication with said central member, a housing disposed at one end of said central member and having a hub portion fixed in the end of said central member, a bearing disposed at an end of said central member opposite from the end of said central member associated with said housing, a driving shaft journaled in said housing and carrying a hand wheel and a driving gear driven by the hand wheel, a screw threaded operating shaft rotatable in said central member and having one of its ends journaled in the hub portion of said housing and having the other of its ends journaled in said bearing, a pinion fixed to said operating shaft and meshing with the driving gear carried by said driving shaft, a carriage threadedly engageable with said operating shaft and slidable forwardly and rearwardly upon rotation of said operating shaft and having oppositely disposed slide extensions receivable through the longitudinal slots of said central and main and auxiliary members, collars at opposite extremities of the threaded portion of said operating shaft for limiting movement of said carriage, chambers in the slide extensions of said carriage in said main and auxiliary members, separate outlet connections extending outwardly from said chambers, nozzles at the ends of said connections for directing materials from said chambers, and means for conducting materials to said chambers including flexible conduits extending through said main and auxiliary members.

GILBERT J. SCOFIELD.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
232,277	Lane	Sept. 14, 1880
1,582,186	Morns	Apr. 27, 1926
1,771,355	Scofield	July 22, 1930
1,888,575	Scofield	Nov. 22, 1932
2,209,756	Berry	July 30, 1940