

(No Model.)

W. N. CORNELL.

SCRAPER FOR CLEANING THE PERIPHERIES OF ROLLS.

No. 438,143.

Patented Oct. 14, 1890.

Fig. 1.

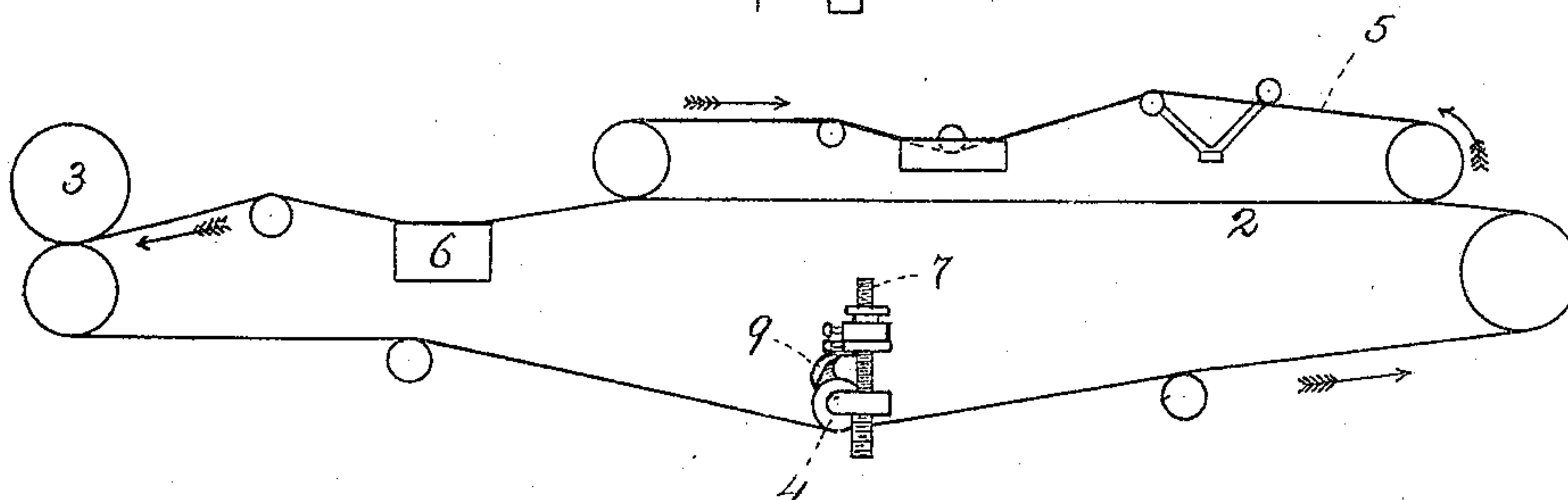
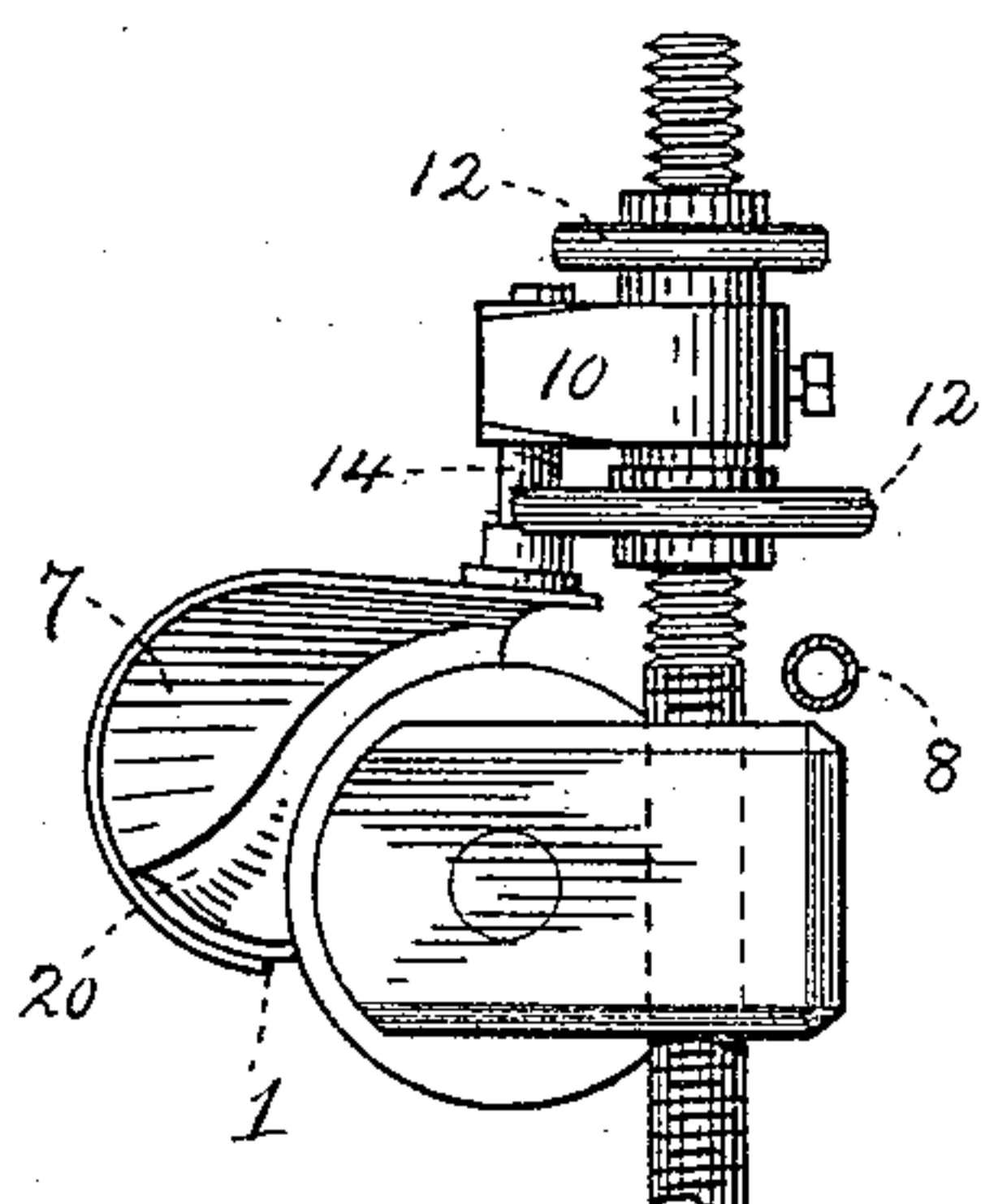
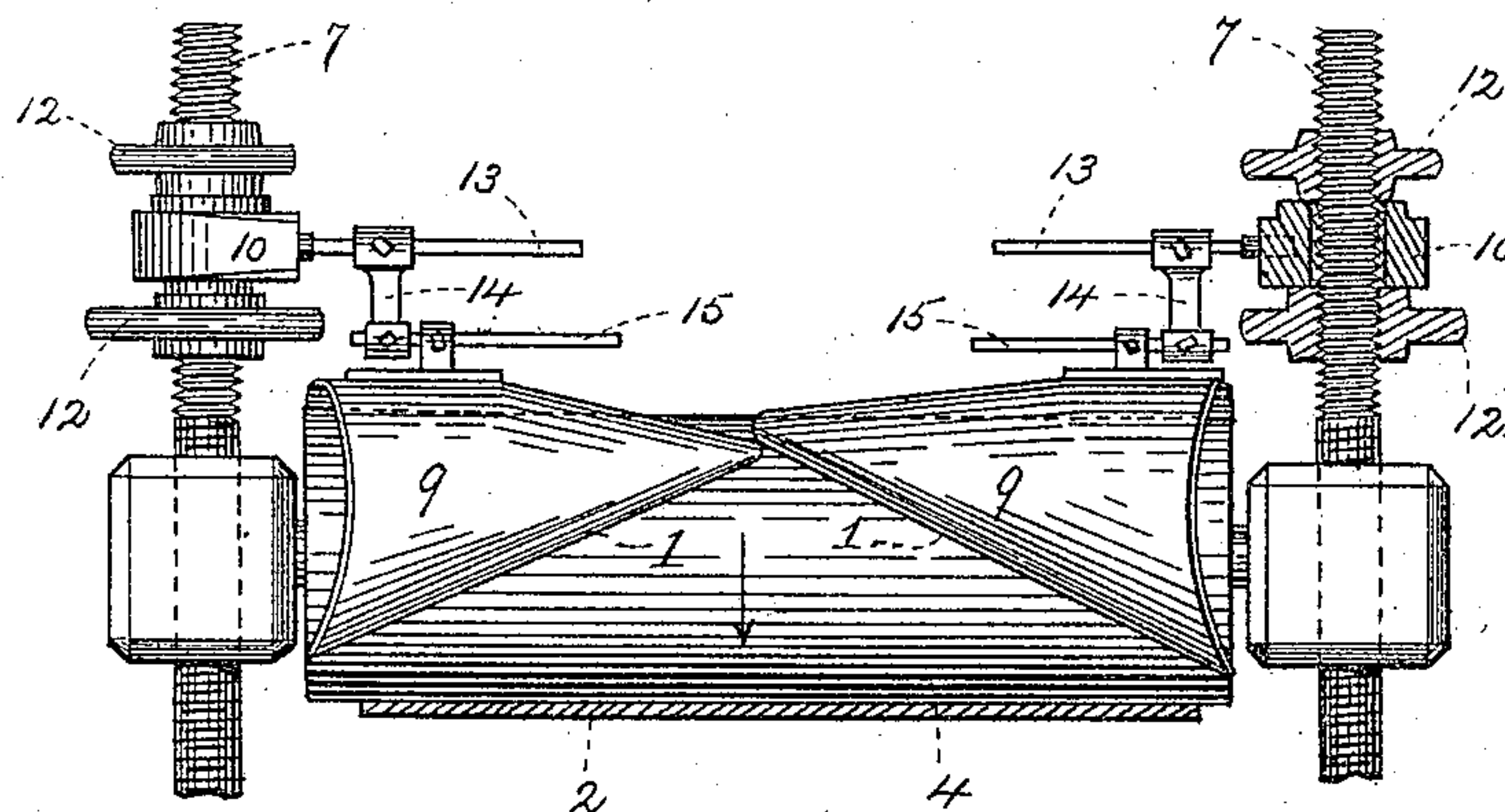


Fig. 2.



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WITNESSES.

Henry March.
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INVENTOR.

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by H. E. Lodge Atty.

UNITED STATES PATENT OFFICE.

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SCRAPER FOR CLEANING THE PERIPHERIES OF ROLLS.

SPECIFICATION forming part of Letters Patent No. 438,143, dated October 14, 1890.

Application filed October 12, 1889. Serial No. 326,890. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM N. CORNELL, a citizen of the United States, residing at Brownville, in the county of Jefferson and State of New York, have invented certain new and useful Improvements in Scrapers for Cleaning the Peripheries of Rolls; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to figures of reference marked thereon, which form a part of this specification.

This invention relates to scrapers for cleaning the periphery of rolls, particularly the "stretch-roll," so called, employed in the wet part of a Fourdrinier paper-machine.

The object is to prevent the pulp which runs over the ends of the top couch-roll from dropping off and catching on the inside of the wire-cloth, whence it collects on the stretch-roll, increasing the diameter of the latter, and as a consequence stretching the edges of the wire-cloth and rendering the latter worthless. This deposit of pulp occurs on the inside face of the wire-cloth as follows: In starting the machine it is well known to those skilled in the art that if the flow of pulp is not heavy enough to follow the wire down around the lower couch-roll it will stick to the jacket of the top couch and follow up to the guard-board. The pulp at this point is wet, and as it rolls up in front of the guard-board works off over the ends of the roll or is washed off by hose-pipe. This action will occur not only in starting up the machine, but likewise when the suction-boxes fail to work or whenever the sheet breaks at the couch and is carried up on the top couch-roll. At such times a certain portion of the pulp works over the ends of the roll and is carried to the stretch-roll of the wire.

The drawings represent, in Figure 1, a diagram of the wet part of a Fourdrinier machine in elevation, showing the position of a pair of scrapers for cleaning the stretch-roll and embodying my invention. Fig. 2 is an end elevation of the stretch-roll and scraper. Fig. 3 is a front view of the same in position upon a roll, the latter having a scraper at each end.

In said drawings, 2 represents the wire-cloth in a Fourdrinier paper-machine traveling, as indicated, with the top couch-roll at 3 and the stretch-roll at 4. The dekle is indicated at 5 and the suction-box at 6. In commencing the formation of a sheet of paper upon the wire-cloth in the operation of a Fourdrinier machine a certain portion of the pulp which is used is washed by a shower-pipe from the top couch-roll, runs over the end of the latter, and thence drops upon the inside of the wire, as more particularly hereinbefore described. Such pulp, being now deposited upon the inside of the wire, is conveyed along until it reaches the stretch-roll. Here it accumulates, and ridges are formed upon the periphery of the roll, by which the diameter of the roll at such points is increased. This occurs particularly near the ends of the roll, and thereby unduly stretches the edge of the wire-cloth and soon renders the latter worthless.

The object of my invention is to produce a device which shall automatically collect such deposit of pulp and then remove it by passing the same transversely of the path of travel of the wire-cloth to each side of the machine, whence it may be taken away.

In Figs. 2 and 3 the stretch-roll is shown mounted upon twin screw-threaded posts. By means of these posts and mechanism for rotating the same (not shown, since it has no bearing upon the present invention) the position of said roll is regulated and the stretch or tension upon the wire-cloth is determined. Longitudinally thereof and preferably parallel with said roll is disposed a shower-pipe. To cleanse and remove all particles from the periphery of said stretch-roll, I have adjustably hung in suitable supports two buckets or scrapers. The latter, in the present instance, are of sheet metal in blank, triangular in shape; hence when bent to a proper form approximating in shape to a cone cut longitudinally, and hence semi-conoidal or funnel shape with the apex pointing toward the center of the roll. No portion of the periphery of these scrapers is concentric with the surface of the roll. Further, the edge, which is in contact with the surface of the roll, is positioned obliquely with the longitudinal axis of said roll, consequently has a "wind"

or is coincident with a helical curve described upon said periphery by said edge. Thus the particles collected from the roll are directed obliquely and transversely of the path of travel of the wire-cloth to either side of the machine by each scraper. The base of each of such scrapers terminating at the ends of the roll give sufficient flare to permit the accumulated pulp to rest upon this part of the scraper, from whence it flows by gravity into a proper receptacle. Similarly at each end of the roll is mounted a scraper, with the two inner extremities lapping by each other to insure removal of all foreign particles resting upon the surface. When placed in position, the stretch-roll should revolve, as indicated—that is, toward the concave portion of the scraper. By this arrangement it is evident that the scrapers are perfectly automatic, and never become inoperative through excessive collections of pulp, while all foreign particles from the roll are forced outwardly and discharged by gravity at each end of the roll.

Since the stretch-roll is adjustable in vertical planes as generally practiced to regulate the tension of the wire-cloth, some device is requisite to enable the scrapers to be maintained in proper position and in contact with the roll as the latter is shifted. This is effected similarly for each scraper by a loose collar 10 upon the post 7, to be held at any desired height by nuts 12, such parts being provided to enable vertical movement of the scrapers to be made to conform with similar movement of the stretch-roll, either up or down. Furthermore, said collar is fitted with a horizontal arm 13, upon which slides a bracket or hanger 14. By means of such arm and hanger the scraper can be moved endwise of the roll, as may be desired. The lower or free end of this hanger is transversely pierced to receive a rod 15, parallel with the arm 13. Upon said rod is hung the scraper, which can be swung axially thereabout to adjust the edge of the scraper, whereby it can

be applied upon the periphery of the roll at the desired point.

To prevent the metal portions of the scraper from contacting with a roll of softer material to prevent wear of the latter, the edge of the scraper bearing upon the roll may be armed or tipped with leather or equivalent substance, as shown at 20.

I find that my invention is applicable to the top couch of a Fourdrinier machine in place of the guard-board now in use, which is very hard on the jackets. By this means a top jacket can be dispensed with.

What I claim is—

1. A device for cleaning the periphery of rolls, composed of a curved metal plate tapered toward one end, that nearest the middle of the roll, and adapted to contact with said roll; the edge of the plate formed with a wind to coincide with the contiguous periphery of the roll, substantially as specified.

2. In combination with a revolving roll, two stationary scrapers, the united length of which equals the length of the roll, and semi-funnel-shaped, having their edges contiguous to the roll obliquely disposed with respect to the longitudinal axis of said roll, and with their ends lapping by each other, substantially as stated.

3. In combination with a revoluble roll, two fixed scrapers, the active edges of which are coincident with a helical curve drawn in part about its periphery, and the adjusting mechanism composed of a fixed post, a loose collar 10, with its arm 13 thereupon, the bracket 14, movable on said arm, and a supporting-rod 15 for said scrapers, by which the position and edge of each scraper is regulated in place on the surface of the roll, substantially as herein described.

In testimony whereof I affix my signature in presence of two witnesses.

WM. N. CORNELL.

Witnesses:

J. T. RAPLEE,
L. H. PRENTICE.