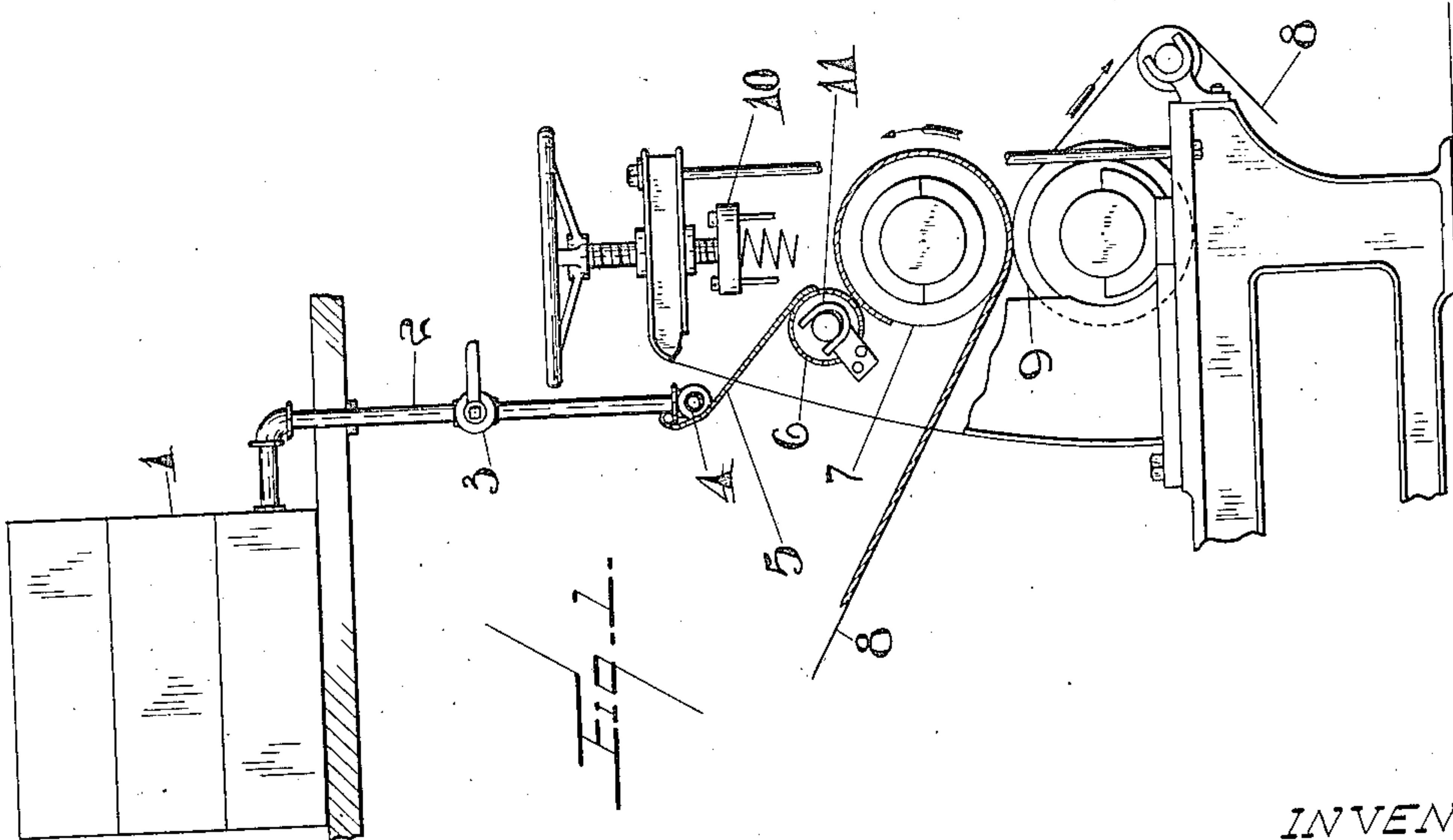
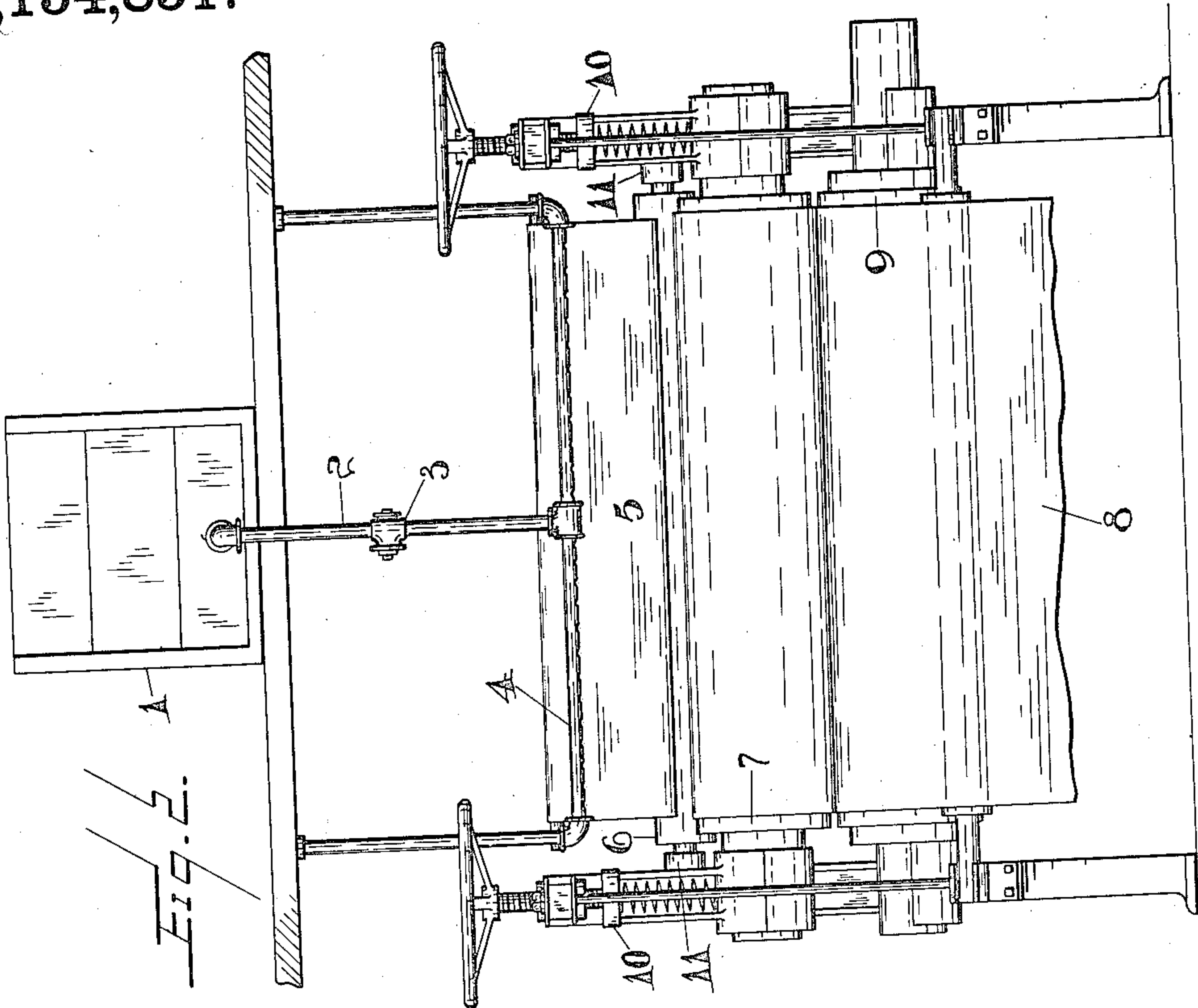


E. P. FOLEY.  
 PROCESS OF BLEACHING GROUND WOOD PULP.  
 APPLICATION FILED APR. 19, 1915.

Patented Sept. 28, 1915.

1,154,851.



WITNESSES.

N. R. Tyndall  
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# UNITED STATES PATENT OFFICE.

EDWARD P. FOLEY, OF THOROLD, ONTARIO, CANADA.

## PROCESS OF BLEACHING GROUND WOOD-PULP.

1,154,851.

Specification of Letters Patent.

Patented Sept. 28, 1915.

Application filed April 19, 1915. Serial No. 22,528.

*To all whom it may concern:*

Be it known that I, EDWARD P. FOLEY, a subject of the King of Great Britain, of the town of Thorold, in the county of Welland, Province of Ontario, Canada, have invented a certain new and useful Improvement in Processes of Bleaching Ground Wood-Pulp, of which the following is a specification.

Ordinary ground wood pulp is of a pronounced yellow color, which is one reason why it cannot be employed in the manufacture of the better class of papers. Bleaching as ordinarily practised is slow and expensive, and my object is to devise a process of permanently bleaching ground wood pulp which will materially reduce the cost of the pulp and will thus make it possible for the paper-maker to use a larger percentage of ground pulp in the better class of papers, displacing to some extent the more expensive pulps.

I attain my object by applying a concentrated bleach in thin films to the surface of the sheet of pulp passing from the cylinder to the press roll on which it is wound in a plurality of plies. The bleach is thus intimately incorporated with the pulp without any loss and in a sufficiently concentrated form to act quickly and permanently thereon.

The process may be carried on by means of any suitable apparatus. A preferable arrangement is shown in the accompanying drawings in which—

Figure 1 is a side elevation, partly broken away, of part of a pulp machine with means for carrying out my process attached thereto; and Fig. 2 a front elevation of the same.

In the drawings like numerals of reference indicate corresponding parts in the different figures.

8 is an apron of felt or other suitable material on which a sheet of pulp is laid at the couch roll of the machine. This is, of course, old in the art and is not illustrated. This apron passes between the press roll 7 and the bed roll 9, which are supported on the machine in the usual manner and are yieldingly pressed toward one another by the spring pressure apparatus 10, which is of ordinary construction.

It is on the press roll 7 that the sheet of pulp lying on the apron is wound spirally after being subjected to pressure between the press roll and the bed roll to remove surplus water therefrom.

The parts added for the purpose of carrying out my invention comprise the following: The tank 1 is supported above the machine, preferably on an upper floor, which tank contains the bleaching liquid employed, and to which liquid is applied the necessary steam. From this tank leads a lead lined pipe 2, provided with the controlling valve 3. This pipe 2 leads to a horizontal pipe 4, also preferably lead lined, and provided with a row of fine perforations. The bleach flowing from the pipe 4 is directed on to a suitably journaled felt covered roll 6, preferably through the medium of the felt apron 5. The roll 6 contacts with the surface of the sheet of pulp being wound on the press roll and applies a thin film of bleach directly thereon.

It will be noted that the journals of the roll 6 are mounted in open bearings 11, so that the felt roller may move away from the press roll as the pulp wound thereon increases in thickness.

From this arrangement it follows that between each of the layers of pulp wound on the press roll, there is applied a thin film of bleach, which may be in concentrated form, so that when the sheet of pulp is finally cut away from the press roll, it comprises a number of plies with bleach disposed between each ply. As the pulp is, of course, in a moist condition, the bleach quickly diffuses itself through the mass rapidly and permanently bleaching the same. With this arrangement there is absolutely no waste of the bleaching solution, and owing to the method of its application its action is very rapid, no diminution in the rate of production being caused by the bleaching process.

It will be understood, of course, that I do not limit myself to the exact means or place of application of the bleaching. It may be applied anywhere to the surface of the sheet of pulp coming from the couch roll, but preferably to avoid waste, after the sheet has undergone pressure between the press roll and bed roll to squeeze out surplus moisture.

What I claim as my invention is:

1. A process of bleaching wood pulp and the like which consists in forming a thin sheet of pulp, applying a thin film of bleach thereto, and forming a sheet consisting of a plurality of plies of said treated pulp.
2. A process of bleaching wood pulp and the like which consists in forming a thin



sheet of pulp, applying pressure thereto to squeeze out surplus water, applying a thin film of bleach thereto, and forming a sheet consisting of a plurality of plies of said  
5 treated pulp.

3. A process of bleaching wood pulp and the like which consists in forming a thin sheet of pulp, applying a thin film of bleach thereto and forming a sheet consisting of a  
10 plurality of plies of said treated pulp by winding said treated pulp spirally on a roll.

4. A process of bleaching wood pulp and the like which consists in forming a thin sheet of pulp, applying pressure thereto to squeeze  
15 out surplus water, applying a thin film of bleach thereto, and forming a sheet consisting of a plurality of plies of said treated

pulp by winding said treated pulp spirally on a roll.

5. A process of bleaching wood pulp and  
the like which consists in forming a layer of  
20 pulp on a felt apron, leading the apron and pulp between a bed roller and a press roll on which latter the pulp is wound, and applying a thin film of bleach to the pulp as it  
25 is wound on the press roll.

Signed at Niagara Falls, Ont., this 12th day of April, A. D. 1915, in the presence of the two undersigned witnesses.

EDWARD P. FOLEY.

Witnesses:

JEAN WILLS,  
W. E. GOODIER.