

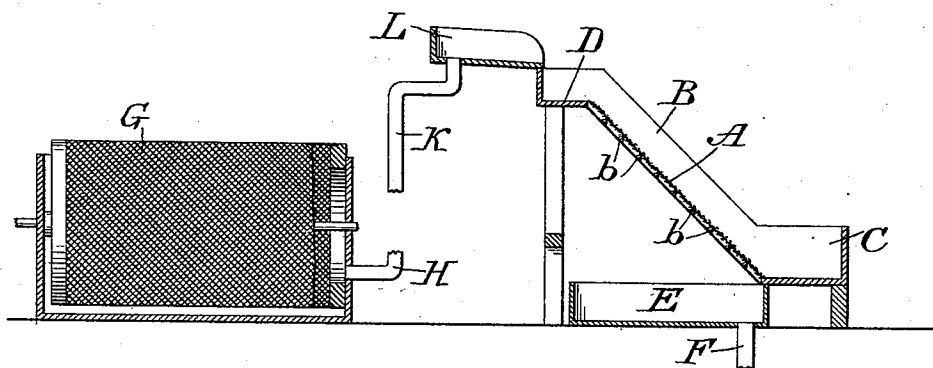
(No Model.)

R. B., J. L. & R. W. McEWAN.  
PULP SAVING DEVICE FOR PAPER MACHINES.

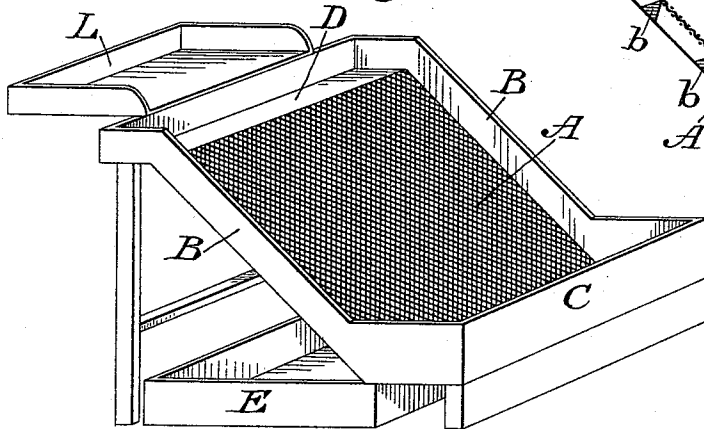
No. 495,260.

Patented Apr. 11, 1893.

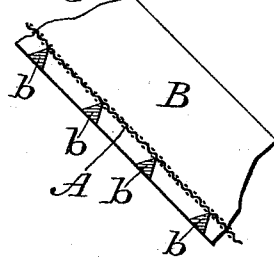
*Fig. 1.*



*Fig. 2.*



*Fig. 3.*



*Attest:*

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# UNITED STATES PATENT OFFICE.

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## PULP-SAVING DEVICE FOR PAPER-MACHINES.

SPECIFICATION forming part of Letters Patent No. 495,260, dated April 11, 1893.

Application filed August 2, 1892. Serial No. 441,924. (No model.)

*To all whom it may concern:*

Be it known that we, ROBERT B. McEWAN, JESSIE L. McEWAN, and RICHARD W. McEWAN, all of Whippany, in the county of Morris and State of New Jersey, have invented a new and useful Improvement in Pulp-Saving Devices for Paper-Machines; and we do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, making a part of this specification.

It is well known that in the manufacture of paper much fiber escapes, particularly through the interstices of the wire gauze on which the pulp is first formed into a continuous sheet. The fiber which is thus lost is the finest and best fiber of the pulp and therefore in addition to the loss entailed by the actual shrinkage of the pulp the character of the final product suffers correspondingly. Various efforts have been made to prevent this waste of fiber, as by running the waste water from the paper machine into vats in which it is allowed to stand until the fiber is deposited, the deposition of the fiber being hastened sometimes by the addition of other substances. This process of saving the fiber is impractical by reason of the space which is necessary to accommodate the settling vats and by reason of the time consumed in the process. Other means having for an end the accomplishment of this object have been proposed, but by reason of their complicated nature are objectionable. After many experiments we have discovered that if the waste water which carries the fibers can be made to strike upon a series of stationary inclined obstacles between which are spaces for the escape of the water, the fibers themselves will lodge against the obstacles, and yet, being carried onward, will not accumulate sufficiently to close the interstices between the obstacles to such an extent as to prevent the escape of the water. The result is that the fiber accumulates at the end of the series of obstacles while the water escapes between them nearly freed of the suspended fibers. In practice we find that a sheet of ordinary wire gauze furnishes a thoroughly efficient apparatus for our purpose, the sheet of gauze being placed at an angle from the

perpendicular and the water led to fall on to the gauze from the top.

In the accompanying drawings: Figure 1 is a vertical, longitudinal section of the preferred arrangement of our device, a portion of the paper making machine from which the waste water is derived, being shown at the left. Fig. 2 is a perspective view of the fiber carrying device shown in Fig. 1 and Fig. 3 is a detail sectional view on a larger scale than that of Fig. 1.

As shown, a wire screen A is inclosed in a suitable frame-work with sides B, B, sufficiently wide to prevent the escape of water. The screen is supported at an angle which varies somewhat with the conditions of the work to be performed but is usually about forty-five degrees from the perpendicular. At the bottom of the incline may be formed the trough C for the accumulation of the fiber, and at the top may be formed a distributing shelf D to effect a uniform distribution of the waste water over the upper end of the screen. The device thus described may be placed at any convenient part of the mill to which the waste water from one or more paper machines may be brought and from which the water, after the suspended fibers have been separated therefrom, may be carried away, a tank E with a delivery pipe F being shown in Figs. 1 and 2 beneath the screen to receive the water as it escapes through the machine.

The water from the paper machine may be fed to the fiber-saving device in any convenient manner. In Fig. 1 we have shown a pipe H as connected to a paper-making cylinder G, it being assumed that the waste water is drawn therefrom by a pump, not shown, and fed thereby through a pipe K to a delivery spout L. The waste water may be fed, however, by gravity if convenience renders it desirable. The form of the device may be varied considerably from that shown so as it is kept stationary and arranged at an inclination. Thus we may give the screen the form of a cone, the waste water being fed at the top of the cone.

We have shown the device as related to and combined with a particular part of a paper-making machine but it will be understood that it may receive the fiber-bearing waste water from any paper-making machinery. If the

screen A requires support it is preferable that it should be supported by stays or ribs *b, b*, which, as shown in Fig. 1, are beveled to a sharp edge so that it may offer as little obstruction as possible to the escape of the water through the meshes of the screen.

We are aware that it has been sought heretofore to pass the waste water through a horizontal sieve or strainer in order to separate the suspended fibers. The difficulty with such an arrangement is that the interstices of the screen or sieve quickly become filled and clogged with fiber. In the use of our device the fibers, as they are brought by the water, stick and lodge for a moment against the upper sides of the wires of the screen while the water passes through the interstices. As the fibers accumulate, even to a very slight extent, they are dislodged by their own weight and by the falling water and roll down into the trough or other receptacle at the bottom of

the incline from which the accumulated pulp may be removed as convenient.

We claim as our invention—

The combination with a paper making machine and means for delivering the waste water therefrom, of a stationary inclined screen arranged to receive the waste water, means for receiving the separated fibers, and means for conducting away the water which passes through the interstices of the screen; substantially as described.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

ROBERT B. McEWAN.  
JESSIE L. McEWAN.  
RICHARD W. McEWAN.

Witnesses:

AUGUSTUS W. CUTLER,  
W. W. CUTLE.