



# UNITED STATES PATENT OFFICE.

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## PAPER-MAKING MACHINE.

Specification of Letters Patent No. 21,008, dated July 27, 1858.

*To all whom it may concern:*

Be it known that we, THOMAS LINDSAY, of Westville, and WILLIAM GEDDES, of Seymour, in the county of New Haven and State of Connecticut, have invented certain new and useful Improvements in what is known as the "Fourdrinier Paper-Making Machine;" and we do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making part of this specification, in which—

Figure 1 is a vertical longitudinal section of a portion of a Fourdrinier paper-making machine, with our improvements applied to it;  $x, x$ , Fig. 2 indicates the plane of section. Fig. 2 is a plan or top view of the same. Fig. 3 is a transverse section of the same, taken in the line  $y, y$ , Fig. 1.

Similar letters of reference indicate corresponding parts in the several figures.

The object of this invention is to vary the width of the paper while the machine is in operation and during the process of manufacture.

The invention consists in having the "lip" or basin which conducts the pulp from the vat to the endless wire apron constructed of two parts, so arranged that one part may slide over the other, and having said parts connected with the "deckles," which, as well as the "deckle straps," are, by a novel mechanism, rendered susceptible of lateral adjustment. The "deckles" determine the width of the pulp on the endless wire apron and consequently also determine the width of the paper; and as the two parts of the "lip" or basin which conducts the pulp to the apron are connected to the "deckles," one to each, the said two parts of the "lip" or basin will be moved simultaneously with the "deckles," and the "lip" or basin consequently expanded or contracted in width so as to correspond with the width or space between the "deckles."

To enable those skilled in the art to fully understand and construct our invention, we will proceed to describe it.

A represents a framing in which an endless wire apron B is placed; said apron working over rollers  $a$ , and being constructed and arranged precisely as all pulp aprons of Fourdrinier machines.

C, C, represent the "deckles," and D, D, are the "deckle straps." These "deckles," in connection with their straps, determine

(as usual) the width of the apron B, that is to say, the space between the "deckles" is the portion of the apron which is used, or is the portion on which the pulp passes. The "deckles" are constructed in the usual way with metal bars having a pulley  $b$  at each end, to serve as guides for the straps D, which also pass around a drum E, and pulleys  $c$ . The straps D work between the under surfaces of the "deckles" C, C, and the apron B, as shown clearly in Figs. 1 and 2. A "deckle" C, is placed at each side of the apron B, and both "deckles" are fitted on guide rods F, the ends of which are secured in ledges or plates G, which plates are permanently attached to the side rails  $d$ , of the framing. The "deckles" are allowed to slide freely on these rods, which have a transverse position relatively with the framing, as shown clearly in Fig. 2. Through each "deckle" C, two screws  $e, e$ , pass. The outer ends of these screws have their bearings in the ledges or plates G, and are allowed to turn freely therein. On the outer end of each screw  $e$ , a pinion  $f$ , is secured.

H, H, are two shafts which are placed directly above the ledges or plates G, and parallel with them; said shafts having their bearings at the ends of the ledges or plates G. On each shaft H, two screws I, I, are formed or placed; said screws gearing into the pinions  $f$ , on the screws  $e$ . On one end of the shaft H, handles  $g$ , are placed, by which the said shaft may be turned when desired.

J, is the "lip" or basin, which may be constructed of copper or other metal. This lip or basin is provided with sides  $k$ , and a back  $i$ , the front edge of the bottom of the lip or basin projecting over the apron B. The lip or basin is formed of two parts  $j, k$ , one part projecting over the other. A guide  $l$ , is attached to the back  $i$ , of the part  $j$ , of the lip or basin and the back  $i$ , of the other part  $k$ , works therein. Both parts  $j, k$ , are placed on a proper strip or support  $m$ , and the part  $j$ , is allowed to slide over the part  $k$ , so that the lip or basin may be expanded or contracted as desired. The parts  $j, k$ , of the lip or basin are attached by clamps  $n, n$ , to the deckles C, C, one to each.

From the above description it will be seen that by turning the shafts H, H, the deckles C, and deckle straps D may be moved laterally toward or from each other,

and the lip or basin J will at the same time be expanded or contracted to correspond in width with the space between the deckles C, C; and as these deckles, with their straps D, determine the width of the paper, and as the shafts H may be turned at any time, the paper may thus be varied in width whenever it is required; it not being necessary to stop the machine in order to make the necessary adjustments.

K, is a gage formed of two parts *p*, *q*. This gage may be constructed of metal plates; copper or other suitable metal may be used. The ends of the gage are fitted in vertical grooves in the inner sides of the deckles C, and a set screw *r*, passes vertically through an ear at each end of the gage; said set screws bearing on the deckles C, so that by turning said screws, the gage may be adjusted bodily in a vertical direction. Each part *p*, *q*, of the gage is slotted longitudinally as shown at *s*, and a bolt *t* passes through the slots, connecting the two parts *p*, *q*, but still allowing them to slide.

To the inner end of the part *p*, a guide loop *t'* is formed or attached, the part *q* working in the guide loop. A set screw L passes through the loop *t'*, and bears on the upper edge of part *q*. By adjusting the screw L, the central part of the gage may be elevated or depressed; and the pulp, as it passes from the lip or basin, will be evenly distributed on the apron B.

We do not claim the gage K; nor do we claim, separately, the adjustable deckles C, C, for they have been previously used, but

Having thus described our invention, what we claim as new, and desire to secure by Letters-Patent, is:

The expanding lip or basin J, in combination with the adjustable deckles C, C, and straps D; the above parts being arranged to operate as and for the purpose set forth.

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WILLIAM GEDDES.

Witnesses:

ASHBEL STORRS,  
WM. W. WEBSTER.