(No Model.)

C. & F. SYMONS.

PAPER MAKING MACHINE.

No. 411,207. Patented Sept. 17, 1889.

Fig. 1.

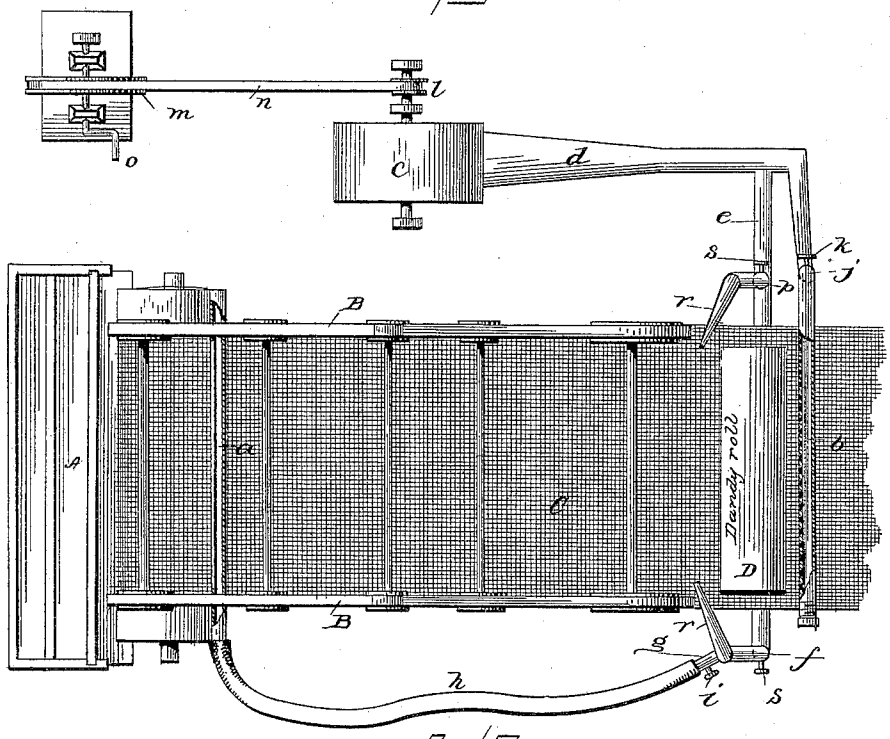
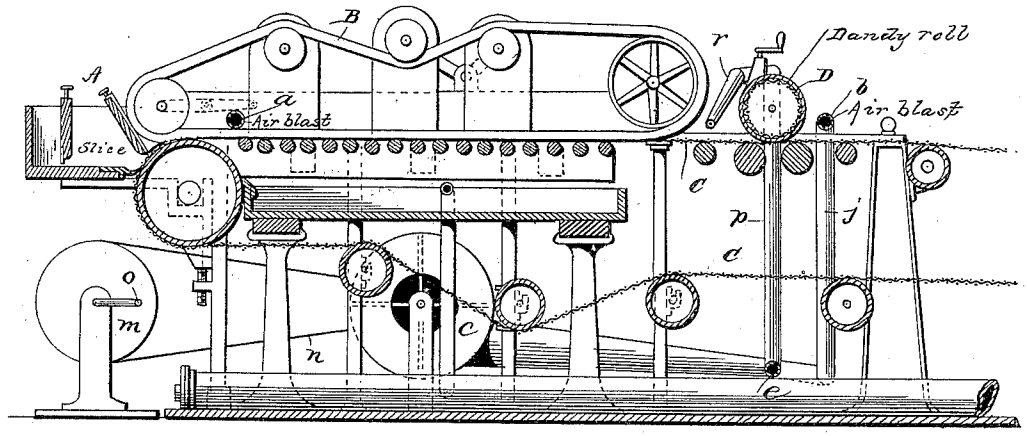


Fig. 2.



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UNITED STATES PATENT OFFICE.

CHARLES SYMONS AND FREDERICK SYMONS, OF LAFAYETTE, PENNSYLVANIA.

PAPER-MAKING MACHINE.

SPECIFICATION forming part of Letters Patent No. 411,207, dated September 17, 1889.

Application filed July 27, 1888. Serial No. 281,185. (No model.)

To all whom it may concern:

Be it known that we, CHARLES SYMONS and FREDERICK SYMONS, citizens of the United States, residing at Lafayette, in the county of Montgomery and State of Pennsylvania, have invented a certain new and useful Improvement in Paper-Making Machines, of which the following is a full, clear, and exact description.

In paper-making machines the froth raised by the agitator or otherwise on the stuff is carried over with the pulp onto the wire in the form of bubbles, which eventually burst and leave in the paper those defects commonly seen and looking like grease spots. Such spots not only greatly mar the appearance of the paper, but they also diminish its commercial value, as well as impair its strength.

The object of this invention is to provide means for removing the froth, and thus avoiding the presence of such blemishes in the paper; and the invention consists, therefore, in mechanism, substantially such as hereinafter more particularly set forth and claimed, for blowing away these froth-bubbles before the paper reaches the pressure-rollers, and hence before the bubbles are burst.

In the accompanying drawings, illustrating our invention, in the two figures of which like parts are similarly designated, Figure 1 is a plan view, omitting the frame, and Fig. 2 is a longitudinal section.

The invention is shown as applied to an ordinary Fourdrinier machine, although it is equally applicable to other paper-making machines of that general class, and also to the Harper machine, one illustration of which may be seen in the United States Patent No. 34,633, dated March 11, 1862; and inasmuch as our invention does not contemplate a reorganization of such machines, but rather is more of the nature of an attachment to them, we have deemed it unnecessary to illustrate farther than in the merest outline the construction of such paper-making machine. Therefore, in the description herein of our invention, and for the purposes of this case, it will be assumed that the paper-making machine is of usual construction, supplied with usual slices A, dekles B, wire C, dandy-roll D, and the like. At the last slice, and opening toward it, is arranged upon or over the frame of the machine a longitudinally-slitted pipe *a*, from which is emitted a blast of air, which will have the effect of dissipating the froth from the incoming pulp. Another perforated pipe *b* is arranged crosswise of the machine and on the frame thereof in the rear of the dandy-roll, with its openings directed toward the dandy-roll, so as to prevent the dandy-roll from warming and streaking the paper, and to dissipate any froth that collects after leaving the dandy-roll or that may have risen upon the pulp in its passage toward the dandy-roll. The pipe *b* is made, by preference, with a series of small openings rather than a continuous slit, but it is within our invention to make the opening or openings in the pipes *a* and *b* in any form. An air-blast is supplied to these pipes from any suitable blower or air-forcing apparatus. We have illustrated one form of such apparatus, and it consists of an ordinary rotary fan-blower *c*, having the trunk *d*, from which extends crosswise of the machine a pipe *e*, having a rising pipe *f*, which latter is provided with a nipple *g*. A flexible tube *h* may be used to connect the nipple *g* with the pipe *a*, so as to conduct the air into said pipe *a*. A valve *i* is provided in the nipple *g* for regulating the quantity of air to the pipe and for cutting it off altogether. The trunk *d* is provided with the rising pipe *j*, which is connected with the pipe *b*. In the pipe *j* a valve *k* is arranged to regulate the supply of air to the pipe *b*, and to cut it off therefrom altogether.

The blower *c* may be driven in any suitable manner. We have shown a pulley *l* on the blower-shaft connected to a driving-pulley *m* by the belt *n*, the said driving-pulley having a shaft *o* with power connections.

From the pipe *e* two rising pipes *f* and *p* extend, and these rising pipes are provided with nozzles *r r*, directed toward each other, and whose purpose is to blow the edges of the paper, so as to make them true and good, and thus save the paper from breaking all through the machine. These pipes *f p* are provided with valves *s s* for regulating the supply of

air to the nozzles *r r* and for cutting off the supply thereto. The nozzles *r r* are arranged between the dekles and the dandy-roll.

We do not herein claim the nozzles *r r*, and have shown and described them only as being preferably used in the machine of our invention.

In the accompanying drawings we have not observed strict proportions of parts, it being within the mechanic's sphere to use air-pipes and nozzles of a size required by the machine in use.

Obviously, our invention of blowing apparatus may be applied to machines already in use without any rearrangement or alteration of the machine itself.

We use herein the term "wind-chest" to describe the pipes *a* and *b* interchangeably with the terms "pipe" and "air-pipe."

What we claim is—

1. In a paper-making machine, the wire, a slice, and a wind chest or pipe arranged next the slice and opening toward the slice, combined with a suitable blower, substantially as described.

2. In a paper-making machine, a wire, a dandy-roll, and a wind chest or pipe arranged in the rear of the dandy-roll and opening toward such dandy-roll, combined with a suitable blower, substantially as described.

In testimony whereof we have hereunto set our hands this 25th day of July, A. D. 1888.

CHARLES SYMONS.
FREDERICK SYMONS.

Witnesses:
EDWARD E. LONG,
WILLIAM RIDING.