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C. SEYBOLD ET AL

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PAPER MAKING MACHINE

Filed Jan. 10, 1925

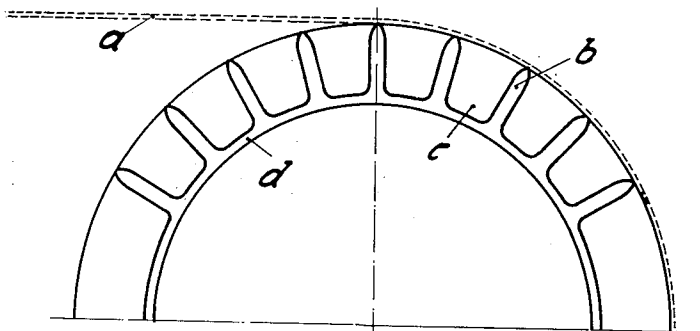


Fig. 1

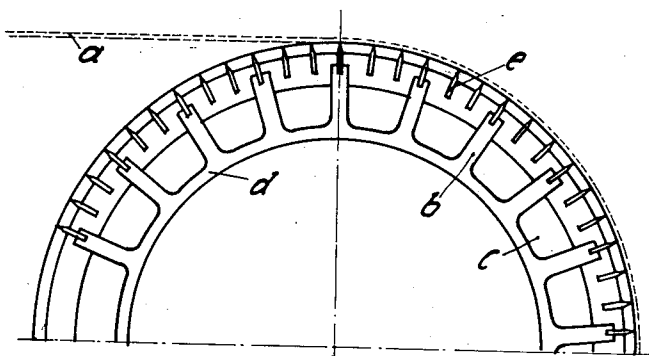


Fig. 2

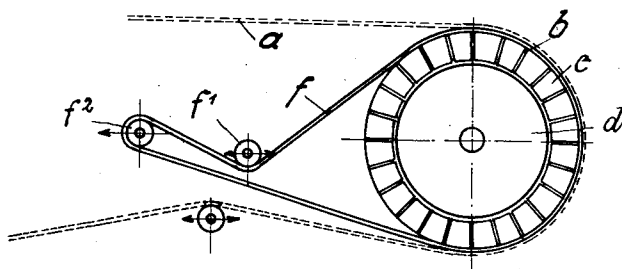


Fig. 3

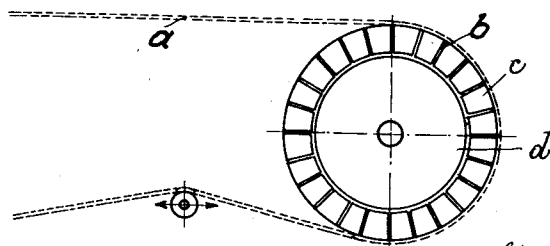



Fig. 4

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## UNITED STATES PATENT OFFICE.

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## PAPER-MAKING MACHINE.

Application filed January 10, 1925, Serial No. 1,607, and in Germany January 30, 1924.

Our invention relates to paper making machines and more particularly to the suction cylinders of such machines. It is an object of our invention to provide a machine with a suction cylinder of very simple construction and high efficiency.

Heretofore it was customary to provide the suction cylinders with a permeable envelope of perforated metal. This envelope which closes the suction cells at the perimeter of the suction cylinder and rotates with this cylinder, involves the drawback that it soon becomes clogged with fibres and the like during operation and that the air in the perforations reduces the vacuum in the cells.

It is an object of our invention to overcome this drawback by leaving open the suction cells at the outside, adapting them to be closed by the travelling sieve of the paper making machine. In this manner the operation of rotating suction cylinders becomes as reliable as that of the well known stationary suction boxes beneath the travelling sieve, however with this difference that no friction occurs between the sieve and the cells so that all wear is eliminated. Another analogy to stationary suction boxes consists in the fact that the suction cells are only closed where suction is exerted, as the travelling sieve adheres to the roller only on the arc along which suction is exerted. In the rolls heretofore in use, the suction cells are permanently closed by said envelop, which involves the drawback set forth above.

In the drawings affixed to this specification and forming part thereof, devices embodying our invention are illustrated diagrammatically by way of example.

In the drawings:  
Fig. 1 is a diagrammatic cross section of a suction cylinder in which the travelling sieve is supported on the longitudinal ribs of the suction cylinder,

Fig. 2 is a similar view showing a cylinder with longitudinal bars inserted in and between said ribs for supporting the travelling sieve,

Figs. 3 and 4 are diagrams showing the arrangement of the suction cylinder in connection with the travelling sieve. In the arrangement shown in Fig. 3 a cloth band is inserted between the sieve and the suction cylinder. In the arrangement shown in Fig. 4 the sieve is supported directly on the suction cylinder.

Referring first to Fig. 1, the suction cylinder *b* is provided with suction cells *c* partitioned by longitudinal ribs *d* and the travelling sieve *a* is supported by the outer edges of said ribs. The suction cells are open at the outside and are closed by the travelling sieve only on that part of the suction cylinder which is surrounded by the sieve.

In the modification illustrated in Fig. 2 the parts shown in Fig. 1 are indicated by the same reference letters. In this modification bars *e* are inserted in the ribs and between the ribs and the travelling sieve is supported on the outer edges of these bars.

The cylinder illustrated in Fig. 1 is suitable for machines having coarse travelling sieves. The cylinder shown in Fig. 2 is suitable for machines having fine travelling sieves because the sieve follows more closely the perimeter of the suction roller on account of the considerable number of supporting points.

In the machine illustrated in Fig. 3 an endless band *f* of felt or the like is inserted between the ribs *b* of the cylinder *d* and the sieve *a* and is guided by suitable rollers *f'* and *f''*. It will be understood that the band *f* is surrounded by the sieve and does not come in contact with the paper web on the outside of the sieve, its object being merely to prevent the entrance of air into the suction cells and to reduce the power input of the vacuum pumps. Such a band, however, is not indispensable. Fig. 4 shows a machine in which the band is dispensed with, the travelling sieve closing directly the suction cells *c* of the cylinder *d*.

We wish it to be understood that we do not desire to be limited to the exact details of construction shown and described, for obvious modifications will occur to a person skilled in the art.

We claim:

1. Paper making machine comprising a suction roll defining suction cells which are open at the perimeter of said roll, and a travelling sieve adapted to adhere to said roll and to close said cells only on the arc of said roll along which suction is exerted.

2. Paper making machine comprising a suction roll, ribs on said roll defining suction cells which are open at the perimeter of said roll and a travelling sieve adapted to be carried on said ribs and to close said cells

on the arc of said roll along which suction is exerted.

3. Paper making machine comprising a suction roll, ribs on said roll defining suction cells which are open at the perimeter of said roll, bars secured on said ribs and a travelling sieve adapted to be carried on said bars and to close said cells on the arc of said roll along which suction is exerted.

10 4. Paper making machine comprising a

suction roll, ribs on said roll defining suction cells which are open at the perimeter of said roll, bars secured on and between said ribs and a travelling sieve adapted to be carried on said bars and to close said cells on the arc of said roll along which suction is exerted. 15

In testimony whereof we affix our signatures.

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