No. 644,832. Patented Mar. 6, 1900.

S. W. SHEARER.

SUCTION BOX FOR PAPER MAKING MACHINES.

(Application filed Mar. 23, 1899.)

(No Model.)

Fig. 1.

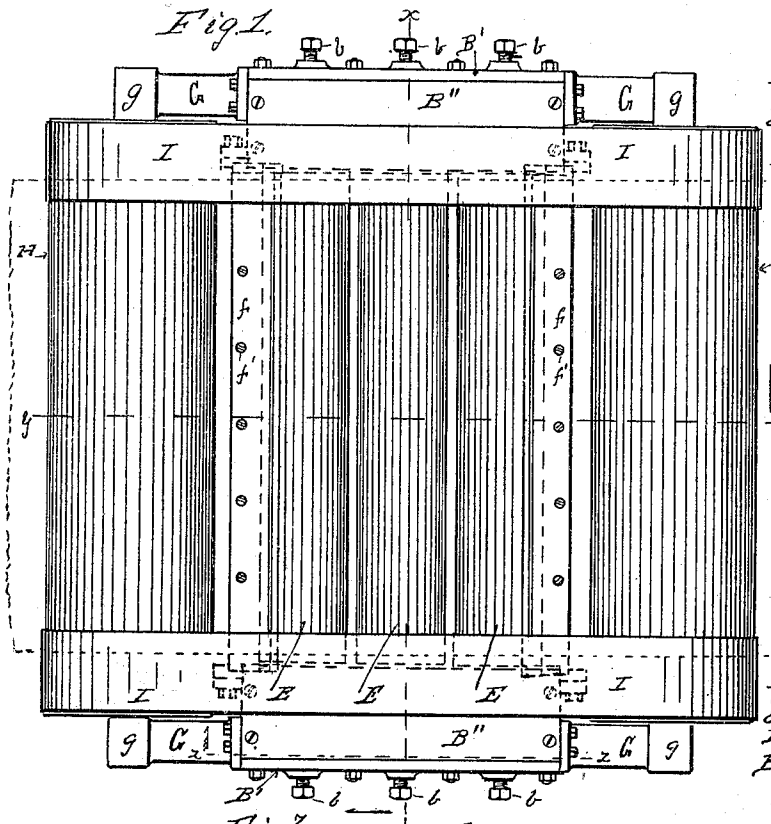


Fig. 2.

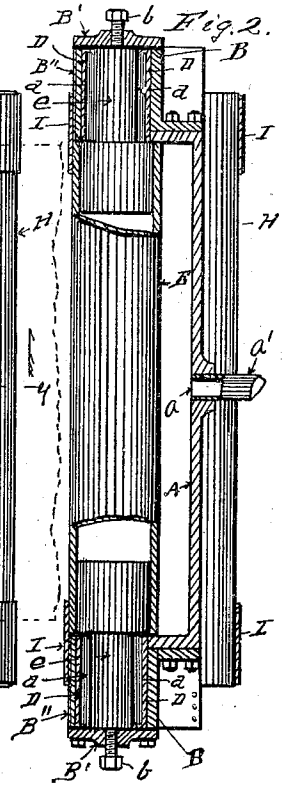


Fig. 3.

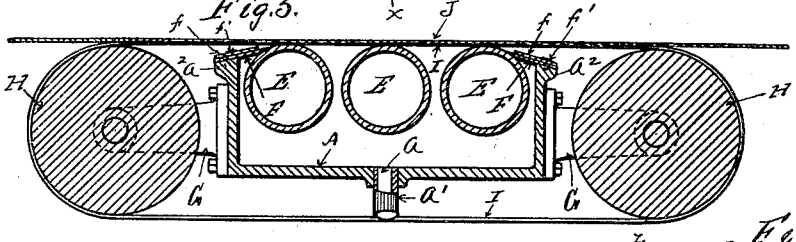


Fig. 4.

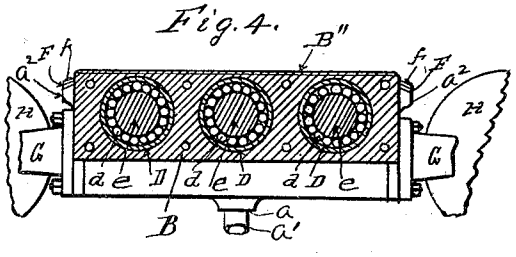
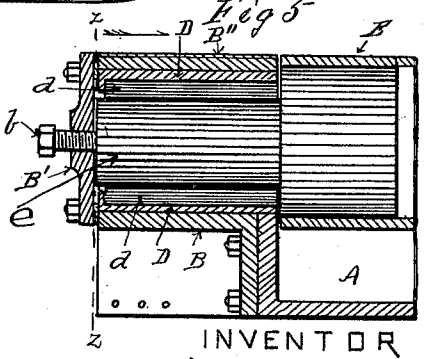


Fig. 5.



WITNESSES

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UNITED STATES PATENT OFFICE.

SAMUEL W. SHEARER, OF ERIE, PENNSYLVANIA, ASSIGNOR OF ONE-HALF TO JOHN J. CASHEN, OF SAME PLACE.

SUCTION-BOX FOR PAPER-MAKING MACHINES.

SPECIFICATION forming part of Letters Patent No. 644,832, dated March 6, 1900.

Application filed March 23, 1899. Serial No. 710,231. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL W. SHEARER, a citizen of the United States, residing at Erie, in the county of Erie and State of Pennsylvania, have invented certain new and useful Improvements in Suction-Boxes for Paper-Making Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, forming part of this specification.

My invention relates to improvements in suction-boxes for paper-making machines; and it consists, substantially, in making the top of the box of a series of longitudinal rollers, with which the making-wire of the paper-making machine contacts in its traverse, and also in providing rubber strips at the sides of the box which contact with the outside rollers, and rubber belts covering the ends of the rollers to prevent air from entering the box at these points. These features, together with the other details of the construction of this invention, are hereinafter fully described and explained, and illustrated in the accompanying drawings, in which—

Figure 1 is a top or plan view of my improved suction-box. Fig. 2 is a vertical longitudinal section of the same on the line $x\ x$ in Fig. 1 looking in the direction of the arrow. Fig. 3 is a vertical transverse section of the same on the line $y\ y$ in Fig. 1 looking in the direction of the arrow. Fig. 4 is a transverse section of the same on the line $z\ z$ in Figs. 1 and 5. Fig. 5 is an enlarged detail sectional view of a portion of the device.

In the drawings thus illustrating my invention, A is a rectangular box the top of which is open, and centrally in the bottom thereof there is an opening a, adapted to receive a pipe a', adapted to connect the box with an air-pump. (Not shown.) To the ends of the box A, I bolt journal-bearing supports B B, in which are placed sleeves D, provided with friction-rollers d, in which the journals e on the ends of longitudinal rollers E operate, as clearly shown in Figs. 2, 3, 4, and 5. The tops of the journal-bearing supports B B are entirely closed up to the ends of the rollers E and are preferably covered by deckle-plates B″ B″, and the outer ends of the journal-bearing supports B B are also provided with cap-plates B′ B′, so that air is precluded from passing through or between the journal-bearings into the box A. Set-screws b also extend through the plates B′ B′, so as to contact with the ends of the roller-journals e for adjustment endwise, as desired. These rollers E extend the entire length of the box, and their tops project above the sides a^2 of the box A, but are on the same plane with the tops of the deckle-plates B″ B″ on the tops of the journal-bearing supports B B at the ends of the box, as shown in Figs. 3 and 5. The tops of the sides a^2 a^2 of the box A are preferably inclined, as shown in Fig. 3, the entire length of the box, and upon their inclined surfaces are placed strips of rubber packing F, which extend to and contact with the tops of the journal-bearings B B and the deckle-plates B″ B″ at each end of the box and contact with the outside of the two outer rollers E, where it is secured in place by means of longitudinal plates f and screws f', these strips F operating to prevent air from passing down between the outer rollers and the edges of the box A, these features being clearly shown in Fig. 3. To each side of the journal-bearing supports B B are secured laterally-extending arms G G, the ends of which form bearings $g\ g$ for the journals of longitudinal rollers H, these rollers extending beyond the edges of the box A to at least the middle of the journal-bearing supports B B, and upon the ends of these rollers H there are endless rubber belts I, which cover and contact with a sufficient portion of the deckle-plates B″ B″ on the tops of the journal-bearing supports B B and of the ends of the rollers E, so that air cannot pass down between the ends of the rollers E and the ends of the box A. The belts I are made of such width that the edges of the making-wire J overlap them, as illustrated by the dotted lines in Fig. 1.

The operation of this device is such that the making-wire J in its traverse over the top of the suction-box A contacts with the tops of the rollers E and at its edges with the rubber belts I, and the suction exerted upon the

making-wire operates to draw it into such close contact with the rollers E and the belts I as to cause it to operate as a belt upon the rollers E and the belts I to rotate them at a speed equal to its travel, while the water passes down between the rollers E into the box A, so that there is substantially no wearing friction between the making-wire J and the suction-box during its travel over the top of the box, as in the suction-boxes now commonly used on paper-making devices.

I have thus shown and described a convenient construction of my invention. I do not, however, desire to confine myself to the exact construction thereof herein shown and described, as the features thereof may be greatly varied without departing from the spirit of my invention. Therefore

What I claim as new, and desire to secure by Letters Patent of the United States, is—

1. In a suction-box for paper-making machines the combination of an open-topped box having an aperture for connecting a suction-pipe thereto, journal-bearings, longitudinal rollers mounted in the bearings at the ends of the box so as to project above the sides thereof, journal-bearing supports secured to and closing the ends of the box, supporting and also inclosing the journal-bearings, the tops of which journal-bearing supports are on the same plane with the tops of said rollers, and strips of rubber or other suitable packing secured to the tops of the sides of the box so as to extend to and contact with the journal-bearing supports at the ends thereof and also contact with the outside rollers mounted in said box, substantially as and for the purpose set forth.

2. In a suction-box for paper-making machines, the combination of an open-topped box having an aperture for connecting the suction-pipe thereto, journal-bearings, longitudinal rollers mounted in the bearings at the ends of the box so as to project above the sides thereof, journal-bearing supports secured to and closing the ends of the box, supporting and also inclosing the journal-bearings of said rollers, deckle-plates on the tops of said journal-bearing supports extending to the ends of the rollers and on the same plane with the tops thereof, and strips of rubber or other suitable packing secured to the tops of the sides of the box so as to extend to and contact with the journal-bearing supports and the deckle-plates thereon and also contact with the outside rollers, substantially as and for the purpose set forth.

3. In a suction-box for paper-making machines, the combination of an open-topped box having an aperture for connecting the suction-pipe therewith, journal-bearings, longitudinal rollers mounted in the bearings at the ends of the box so as to project above the sides thereof, journal-bearing supports secured to and closing the ends of the box, supporting and also inclosing the journal-bearings of said rollers and extending to the ends of said rollers, the tops whereof are on the same plane with the tops of said rollers, strips of rubber or other suitable packing secured to the tops of the sides of the box extending to and contacting with the journal-bearing supports at the ends thereof, and also contacting with the outside rollers mounted therein, longitudinal rollers mounted in bearings at the sides of the box, and endless belts mounted on said rollers so as to cover the ends of the rollers mounted in the top of said box and also portions of the tops of the journal-bearing supports at the ends thereof, substantially as and for the purpose set forth.

4. The combination in a suction-box for paper-making machines, of journal-bearing supports adapted to be secured to the ends of the box, sleeves containing roller-bearings adapted to be inserted into openings in the journal-bearing supports, cap-plates adapted to be secured over the openings in the journal-bearing supports, and set-screws therein adapted to contact with the ends of the journals of rollers operating in said roller-bearings, substantially as and for the purpose set forth.

5. The combination in a suction-box for paper-making machines, of an open-topped rectangular box A having an opening a therein adapted to be connected with a suction-pipe a', longitudinal rollers E E E, the tops of which extend above the tops of the sides of the box and roller-bearing sleeves D for the journals of said rollers, journal-bearing supports B for the sleeves D, the tops of which supports are on the same plane as the top of the rollers E E E, packing-strips F contacting with the outside rollers E E on the tops a^2 a^2 of the sides of the box, laterally-extending arms G secured to the journal-bearing supports B B, rollers H H mounted in said arms, and endless rubber belts I I passing around the ends of the rollers H H and covering and contacting with the tops of the journal-bearing supports B B and the tops of the ends of the rollers E E E, substantially as and for the purpose set forth.

In testimony whereof I affix my signature in presence of two witnesses.

SAMUEL W. SHEARER.

Witnesses:
FRED EINFELDT,
JOHN J. CASHEN.