Nov. 23, 1926. 1,608,202

G. C. COMPTON

SUCTION BOX

Filed Oct. 9, 1924

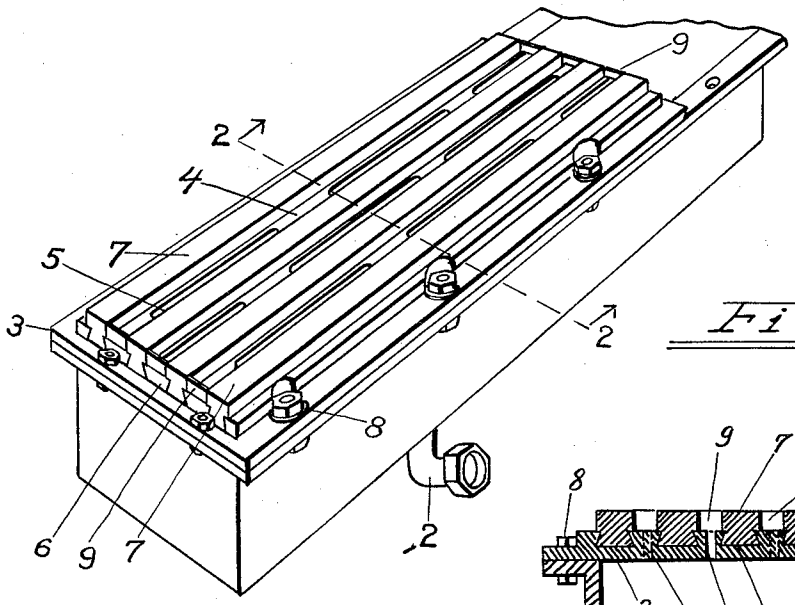



Fig. 1.

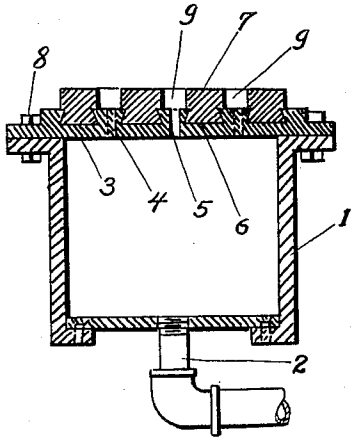



Fig 2

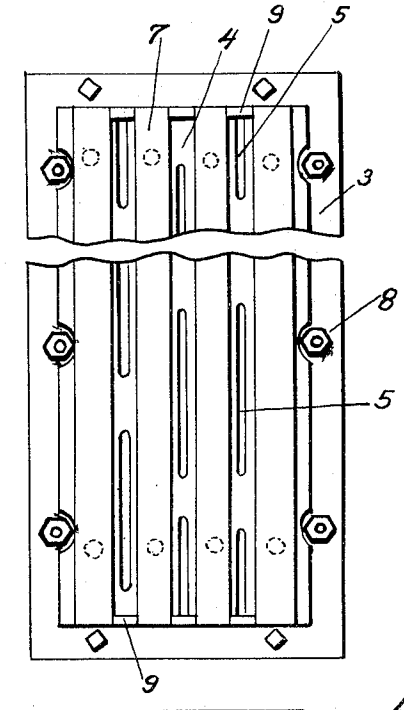



Fig 3

INVENTOR
Guy C. Compton
BY Allen & Allen
ATTORNEYS

Patented Nov. 23, 1926. 1,608,202

# UNITED STATES PATENT OFFICE.

GUY C. COMPTON, OF HAMILTON, OHIO.

## SUCTION BOX.

Application filed October 9, 1924. Serial No. 742,700.

My invention relates to suction boxes particularly for use with paper making machines.

In the application of suction to the traveling and oscillating wire screen of a Fourdrinier paper machine, the usual custom is to apply boxes surfaced with wood, such as maple, through which holes are bored, and through which the excess water is drawn away from the wire screen and the stock thereon by suction.

It is necessary that the wooden surface give way to the wire and wear down, because of this, as otherwise the wire might be broken and the machine be laid up for repairs.

The very best wood must be used, and it is necessary to remove the boxes or the wooden tops thereof frequently, for planing. The wood box covers when the wood gets spongy and is planed down, do not maintain true alignment, and the centers tend to be sucked down. There is a limited area in the holes through the wood, due to the necessary strength factor with the result that the holes become clogged and the slime imparts a streak to the paper. The wooden box cover gets too flimsy and vibrates excessively, and thus planing down to thinness is not possible. The wood is very expensive in good grades and even then a perfect piece without knots, that would wear through the wires, is hard to get. Also the area of the boxes is limited because of the necessary limitations in length and width of perfect maple pieces.

It is the object of my invention to provide a suction box cover which does away largely with all of the defects above enumerated of plain wooden suction box tops, and are inexpensive and easy to install and keep in proper condition.

It is my specific object to provide a cover with metal body, and pieces of maple of limited size used as contact pieces for the wire, with the suction spaces between these pieces and below the contact surfaces thereof.

I accomplish my object by that certain construction and arrangement of parts to be hereinafter more specifically pointed out and claimed.

In the drawing:

Figure 1 is a perspective of the device, showing a cover of one section, although more than one can be used end to end on a single box body.

Figure 2 is a section on the line 2—2 of Figure 1.

Figure 3 is a top plan view of box cover section as shown in Figure 1.

The body of the box excluding the top is generally indicated at 1, with a suction line connection at 2. The top 3 of the box is formed of a corrugated metal plate or a solid plate with ridges and grooves, the form of the top or cover being of essential importance. The ridges 4 of the box top are provided with suction openings 5, which may be elongated and of large area compared to the area of the ridges. The spaces 6 between the ridges are preferably slightly dovetailed. The maple strips 7 are formed to fit into the grooves or spaces between the ridges, being forced into place and held tightly by the dovetails.

The maple pieces extend crosswise of the path of the wire of the machine which engages the top faces of the maple strips, but is too stiff to sag between the said strips.

The top plate is bolted to the box as at 8, and may readily be removed, and the whole top plate set into a planer and planed, to bring the maple strips to a uniform height. As each strip may be planed by itself, it is possible with ordinary tools to do a much evener job of planing than is done over a wide board, and less wood needs to be removed, because of the necessity of evening up the planing job.

The wooden strips may be planed down almost to the metal and replacement of strips is easy, since the wood gets spongy and old and the thin strips can readily be pulled out of the dovetails by hand.

When in use the tops are always rigid, and nothing but wood contacts with the screen. The suction openings are of large area, and the wood comes high enough above the ridges to insure against any materials caught on the walls of the suction openings, from streaking the paper. The holes are so large, however, that very little material will accumulate, and never sufficient material to clog the holes.

The swelling of the wooden pieces would hold them in place even if the dovetails were not used, but the sponginess and swelling does not distort the surface of the suction box cover as it tends to do when wooden pieces form the entire top of the suction box. As the wooden pieces are small, it will be easier to get perfect pieces, without holes or knots, and vibration will not set up movement in the top of the suction box.

The sections may be placed end to end, and preferably will be made up so that two or three tops such as described, will be used across the machine, to cover a single suction box body with the wooden strips in common to the several tops. Also boxes can be placed side by side without any mechanical limitations as to total suction area, or the boxes may be made as wide as desired, and the tops the same width, since the width of the wood strips is not a limitation.

If it is desired to remove the maple pieces without dismounting the top from the box, this will be an easy matter, since as described the wooden pieces will strip out, and new pieces then dropped into place, and tapped down.

It will be necessary at the ends of the grooves formed between the maple pieces to insert small blocks 9 to close off the ends of this space, and due to the arrangement there is a suction chamber clear across the box between each strip, instead of a distributed suction formed of separated openings as in present forms of suction boxes.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is:—

1. A suction box for paper machines comprising a box, and a cover for the box formed of a metal plate, having permanently united means thereon for engaging interspaced lengthwise wooden contact strips, and suction openings arranged between the strip engaging means, for the purpose described.

2. A suction box for paper machines comprising a box and a cover for the box formed of a permanently ribbed surface, wooden strips set removably between the ribs, the cover having suction openings located in the ribs.

3. A suction box for paper machines comprising a box and a cover, narrow wooden strips interspaced across said cover, the cover having suction openings located between the strips.

4. A suction box for paper machines comprising a box, a cover for the box, said cover having interspaced ridges therein and extending across it, wooden strips set between the ridges, said ridges having suction holes therein, and the wooden strips thick enough to come above the ridges, for the purpose described.

GUY C. COMPTON.