Oct. 11, 1927. 1,644,867

E. E. BERRY

SUCTION BOX

Filed Oct. 28, 1926

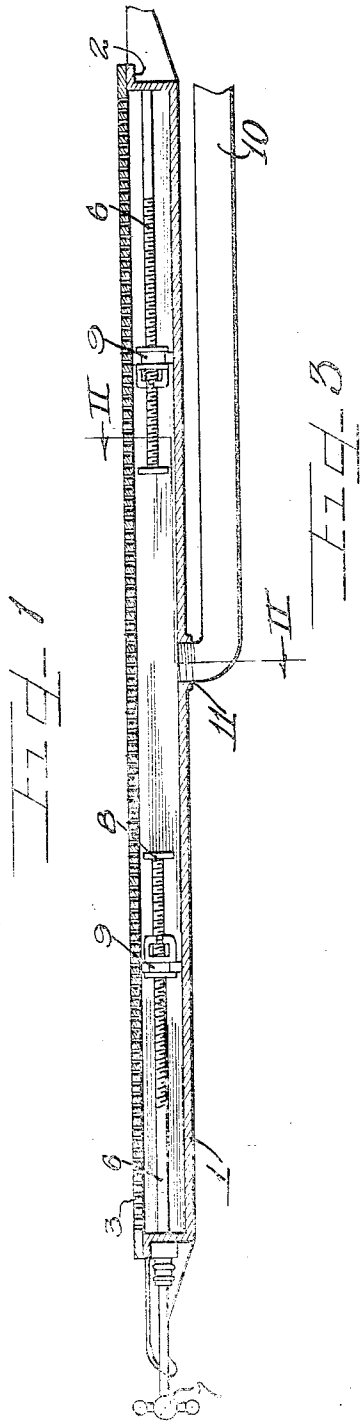


Fig. 1

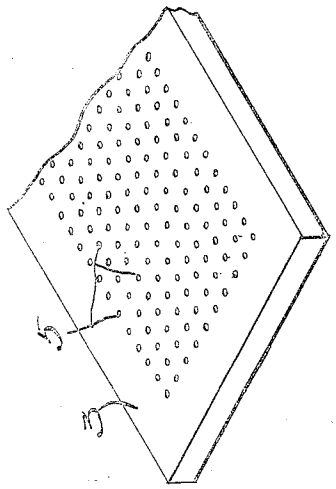


Fig. 3

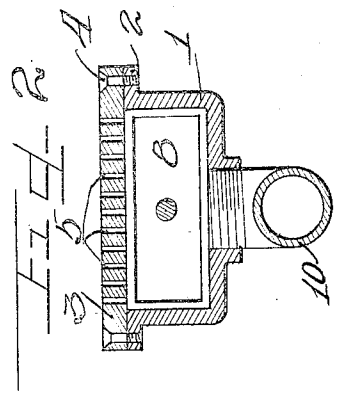


Fig. 2

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UNITED STATES PATENT OFFICE.

EARL E. BERRY, OF BELOIT, WISCONSIN, ASSIGNOR TO BELOIT IRON WORKS, A CORPORATION OF WISCONSIN.

SUCTION BOX.

Application filed October 28, 1926. Serial No. 144,681.

This invention relates to suction boxes for paper machines and the like, and more particularly to a suction box having a top surface of compressed graphitic carbon.

The suction boxes now used in paper machines for extracting water from the web of paper on paper machine wire or from felts is generally formed with a top made of maple wood. One of the chief objections to a maple top for suction boxes, or any other top made of wood, is that the wire tends to score the top surface as it passes over the suction box. In order to prevent the scoring occurring in any one place, it has become customary to oscillate the suction boxes, thus distributing the scoring action over the entire surface. Even with this provision it is necessary at regular frequent intervals to remove the suction boxes from the paper machines and plane down the top to obtain a fresh smooth surface. Obviously this entails a temporary shut down of the paper machine and necessitates frequent replacement of the maple tops.

It is therefore an object of this invention to provide a top surface for suction boxes adapted to resist scoring action of a wire or other belt material passing over the suction box.

A further object of this invention is to provide a suction box having a top formed of compressed graphitic carbon whereby a certain amount of lubricating effect is obtained to prevent wear and drag on the wire.

Other and further important objects of this invention will be apparent from the disclosures in the specification and the accompanying drawings.

This invention (in a preferred form) is illustrated in the drawings and hereinafter more fully described.

On the drawings:

Figure 1 is a longitudinal sectional view of a suction box embodying the principles of my invention.

Figure 2 is an enlarged sectional view taken on line II—II of Figure 1.

Figure 3 is an enlarged perspective view of the top removed.

As shown on the drawings:

The reference numeral 1 indicates a type of suction box in common use on paper machines for removing water from a travelling band, such as a paper machine wire carrying the wet web of paper or a wet felt on a paper machine. The said suction box 1 comprises a relatively narrow and shallow trough, preferably formed of metal, and provided with flanges 2 extending outwardly around the upper edge of the side walls. A top plate 3 is adapted to be secured to said flanges 2 by means of bolts 4. Formerly such a top plate was made of maple wood, but in accordance with my invention said top is preferably formed of carbonaceous material such as compressed graphitic carbon. Apertures 5 are provided in the top plate 3 to permit suction to be applied through the top plate through a wire or other travelling band passing over said top plate. The usual means are provided for confining the suction area, comprising a threaded rod 6 extending through each end of the suction box 1 provided at its outer end with a handle 7 and rotatably secured at its inner end in a plate 8. A movable head 9 is threaded upon each of the rods 6 and is adapted to partition off the suction box to correspond with the band material or of the paper web passing over the box. A pipe 10 enters the bottom of the box, as at 11, and is suitably connected to a source of vacuum for creating a partial vacuum within the suction box.

Whenever a suction box of this type is used in connection with Fourdrinier paper machines, it has been found that the wire does not tend to score the carbonaceous top nearly as readily as was formerly the case with maple tops. Furthermore there is less drag of the box on the wire due to a lubricating effect of the carbon top. In the case of oscillating suction boxes, as commonly used on paper making machines, the drag of the suction box tended to cause excessive wear both of the suction box top and of the wire. With the tops formed of compressed graphitic carbon, the drag is greatly reduced and the wear correspondingly less. At the same time the compressed graphitic carbon presents a denser, more homogeneous and relatively harder surface than the old wooden tops, thereby resisting scoring action and prolonging the length of service on the machine.

I am aware that many changes may be

made, and numerous details of construction may be varied through a wide range without departing from the principles of this invention, and I therefore do not purpose limiting the patent granted hereon, otherwise than necessitated by the prior art.

I claim as my invention:

1. A suction box for paper machines and the like having a perforated top formed of compressed graphitic carbon.

2. A surface for suction boxes and the like comprised of graphitic carbon.

In testimony whereof I have hereunto subscribed my name.

EARL E. BERRY.