

No. 705,684.

Patented July 29, 1902.

J. B. LYNCH.

SUCTION BOX FOR PAPER MAKING MACHINES.

(Application filed Sept. 21, 1901.)

(No Model.)

Fig. 1.

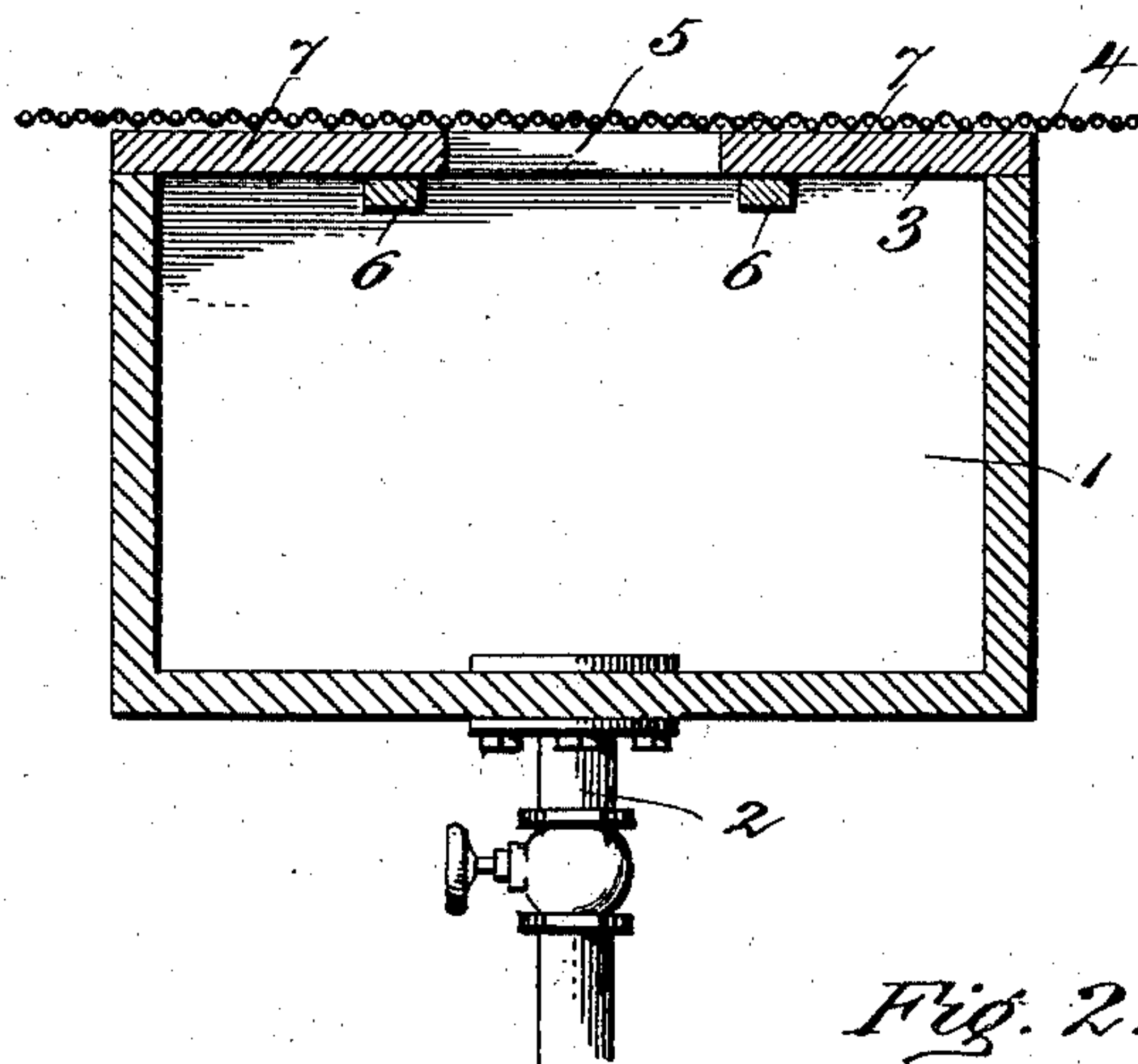


Fig. 2.

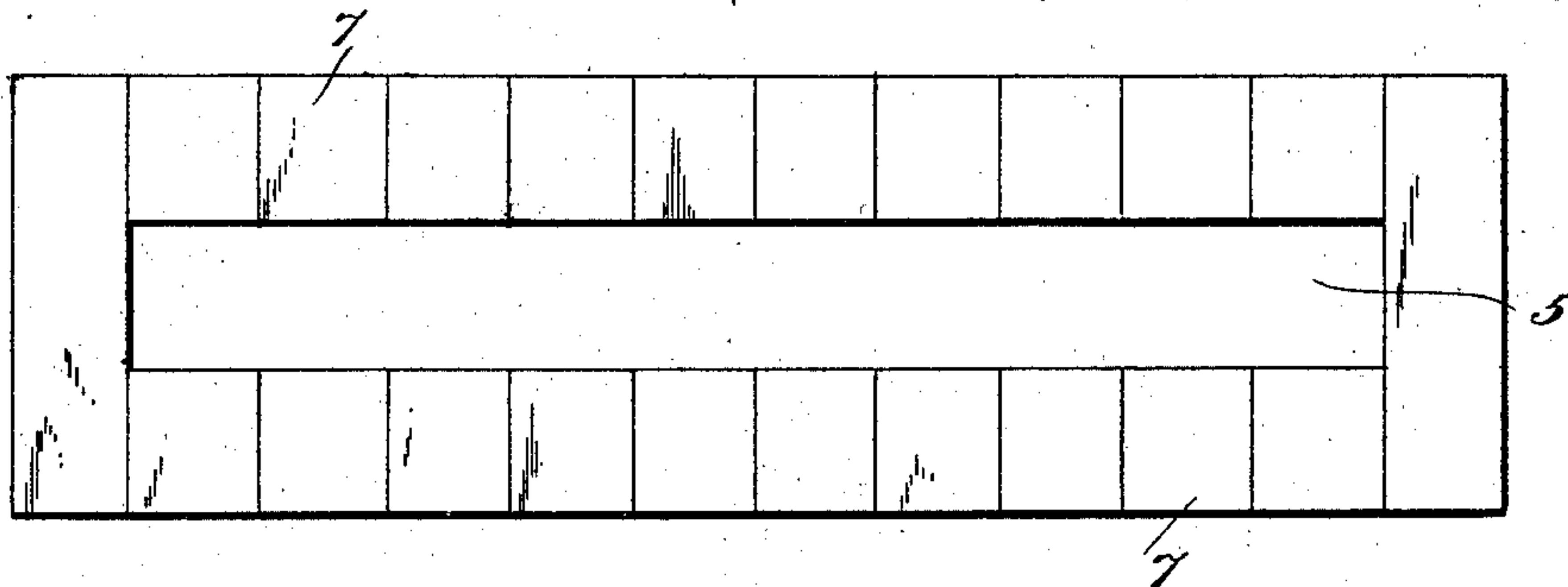
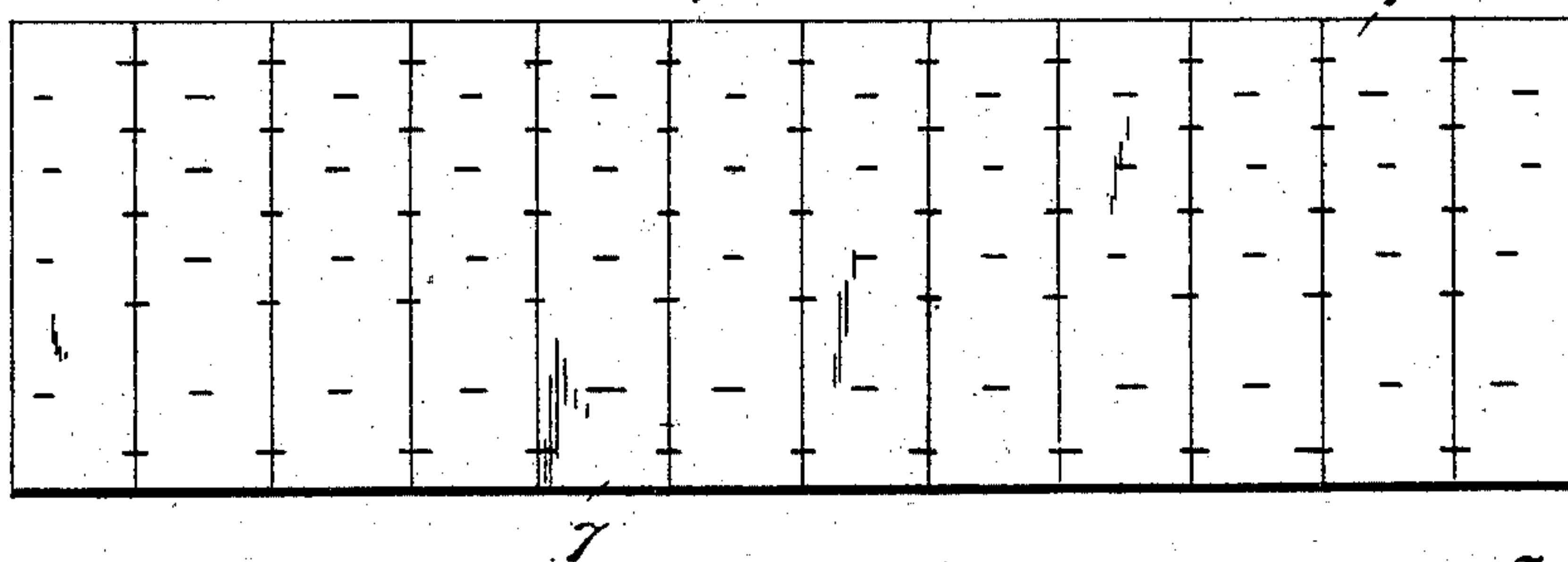


Fig. 3.



Witnesses:

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UNITED STATES PATENT OFFICE.

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SUCTION-BOX FOR PAPER-MAKING MACHINES.

SPECIFICATION forming part of Letters Patent No. 705,684, dated July 29, 1902.

Application filed September 21, 1901. Serial No. 76,092. (No model.)

To all whom it may concern:

Be it known that I, JOHN B. LYNCH, a citizen of the United States, residing at South Glens Falls, in the county of Saratoga and State of New York, have invented new and useful Improvements in Suction-Boxes for Paper-Making Machines, of which the following is a specification.

My invention relates to improvements in suction-boxes employed in that class of paper-making machines known as "Fourdrinier" machines.

The suction-boxes of these machines have generally been made with tops formed from one piece of wood, necessarily selected so as to be free from knots or other imperfection, the sizes of the boxes and their tops varying in length in different machines, some being as long as thirteen feet. It is obvious, therefore, that difficulty is experienced in finding the proper kind and length of wood necessary for the purpose and which is absolutely free from imperfections. Furthermore, the tops of the boxes having the grain of the wood lengthwise the same, and therefore transverse the travel of the wire-cloth or felts, are comparatively soon worn out and the utility of the suction-boxes as such destroyed by reason of such disposition of the grain of the wood with reference to the direction of travel of the wire-cloth or felts. Nor is it necessary that said tops be more than actually half worn through before the utility of the boxes is destroyed, in that the vacuum within said boxes will soon cause the worn tops to split.

The objects of my invention are to improve these suction-boxes thus constructed by reducing the wear upon and consequently the life of the tops, and, finally, to obviate the necessity of constructing the same of long lengths of selected wood, but render possible the utilization of short pieces of wood, which at the present time could not be in the make-up of said tops.

With these objects in view the invention consists in (a) disposing the wood forming the tops with the grain thereof transverse to the boxes, and therefore in line with the travel of the wire-cloth or felts, thus reducing the friction and wear of said tops, and (b) in constructing said tops of short lengths or sections, the lengths merely agreeing with the

widths instead of the lengths of the boxes, whereby natural imperfections existing in the wood can be readily avoided.

Referring to the drawings, Figure 1 is a transverse sectional view through a suction-box to be employed in the character of paper-making machine described, the same being shown in connection with the superimposed wire-cloth or felts. Fig. 2 is a plan view of the suction-box illustrated in Fig. 1. Fig. 3 is a similar view of a suction-box the top of which is slotted or perforated.

Similar numerals of reference indicate similar parts throughout the figures of the drawings.

1 designates the usual form of suction-box in the Fourdrinier machine, in which box a vacuum may be formed in any of the ordinary ways—as, for instance, by the pipe 2.

The box is provided with a cover 3, and arranged over the same and adapted to run in contact therewith is the usual wire-cloth or felts 4. Lengthwise and between the ends of the cover is formed the elongated opening or slot 5. Supporting-bars 6 may be located at opposite sides of the opening 5 and secured to the end walls of the box, or any other means may be provided for supporting a series of short wood sections 7, arranged at each side of the opening 5 and terminating at their inner ends slightly beyond the said supporting-bars. The sections 7 are, as before stated, intended to be formed of wood of the same nature or kind as is usually employed in the construction of suction-box tops, but, being short, knots and other natural imperfections that may exist can readily be avoided, as will at once be obvious. Moreover, it will be obvious that lengths of wood not heretofore adapted for this use can by my invention be utilized; so, also, as regards the width, narrow strips being utilized instead of wide planking or slabs. It will thus be seen that at the outset the construction of the box is greatly reduced in cost of manufacture.

In Fig. 3 I have illustrated another well-known style of box constructed in accordance with my invention. In this instance the slot is omitted and the top formed of short sections merely slotted or perforated. The same advantages accrue in this latter construction, though much shorter pieces of wood can be

utilized in the construction first referred to. The life of the top is also greatly increased, in that, it will be observed, by forming the top of sections and disposing them across or
 5 transverse to the box the grain of the wood is at a right angle to the length of the box and to the disposition heretofore given it and is in direct line with the travel of the wire-cloth or felts. The wire-cloth or felts being in close
 10 frictional contact with the top, it will be obvious that while said contact is not in the least impaired, yet the wear is materially decreased and a great saving results.

Of course a certain degree of improvement
 15 on the present style could be obtained and to a certain extent the objects of my invention secured by giving the grain of the wood of which the top of the box is constructed any disposition other than transverse or at a right
 20 angle to the travel of the wire-cloth or felts. For instance, the grain might be disposed, say, at an angle of forty-five degrees to the direction or line of travel of the felts. Thus the friction would perhaps be reduced about one-half
 25 that it is by my invention, and so, also, short pieces of wood could be utilized—that is, as compared to the length at present required. It is obvious, therefore, that the more nearly the disposition of the grain of the wood ap-
 30 proaches the direction of travel of the wire-cloth or felts the more perfect can the objects of my invention be secured. I would therefore have it understood that my invention comprehends disposing the grain of the wood
 35 from which the tops of the boxes are constructed in any direction other than substantially transverse or at a right angle to the direction of travel of the wire-cloth or felts, and I mean to include any such disposition
 40 by the clause in my claims “transverse the box.”

While I have described my invention in connection with that class of paper-making

machines known as “Fourdrinier” machines, yet of course it will be understood that the
 45 invention is equally applicable to all classes of paper-machines wherein suction-boxes with wooden tops are employed.

Having described my invention, what I claim is—

1. A suction-box for paper-making machines comprising a body portion having an open top, and a series of short sections of wood arranged transversely across said top, said sections being separated to form the
 55 opening in the box and having the grain of the wood running transverse to said box.

2. A suction-box for paper-making machines comprising a body portion having an open top, a series of short sections of wood
 60 arranged transversely across said top with the grain of the wood also running transversely, and means for supporting the inner ends of said sections, the latter being separated to form a central elongated opening. 65

3. A suction-box for paper-making machines comprising a body portion having an open top, longitudinal supporting-bars mounted in the ends of said box, and a series of short sections of wood having their inner
 70 ends supported by said bars and arranged with the grain running transversely of said top, the inner ends of said sections being separated to form an elongated opening.

4. A suction-box for paper-making machines, comprising, a body portion having a
 75 top consisting of a series of short sections of wood arranged transversely across said body portion and having their grain disposed transverse thereto. 80

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

JOHN B. LYNCH.

Witnesses:

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 E. L. BAILEY.