

March 31, 1959

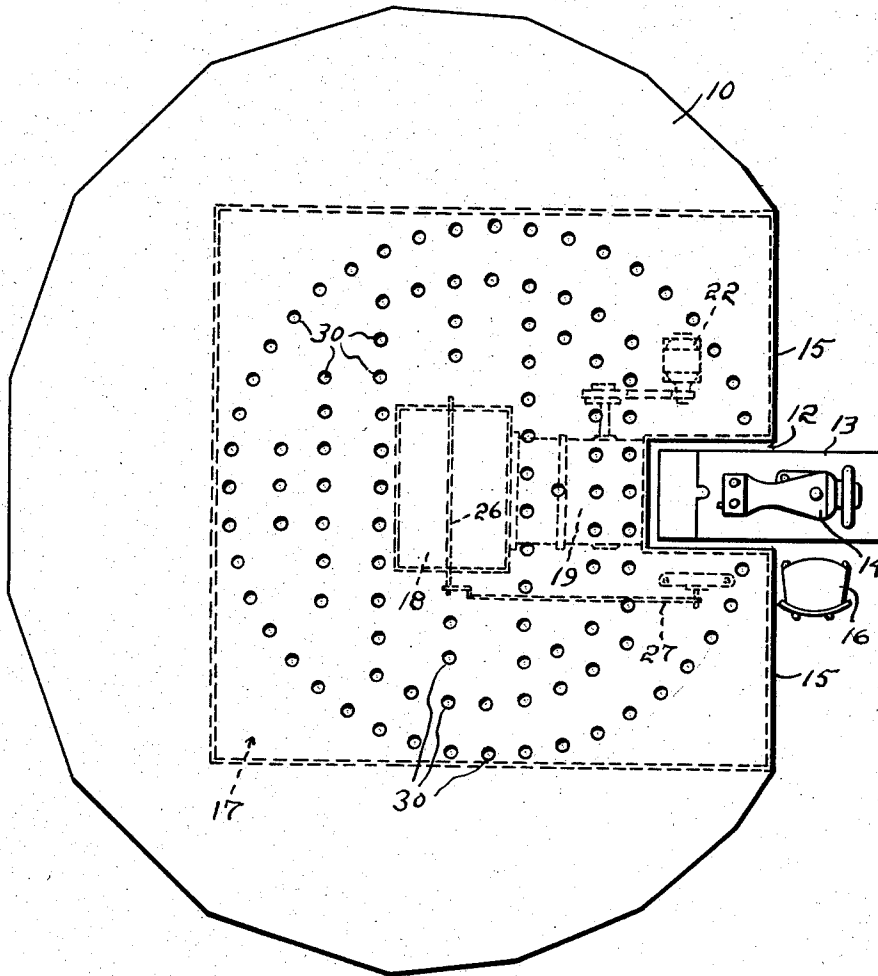
R. H. SWACKHAMER
METHOD OF AND A TABLE FOR USE IN SUPPORTING
A BRAIDED RUG DURING ITS PRODUCTION

2,879,875

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2 Sheets-Sheet 1

Fig. 1



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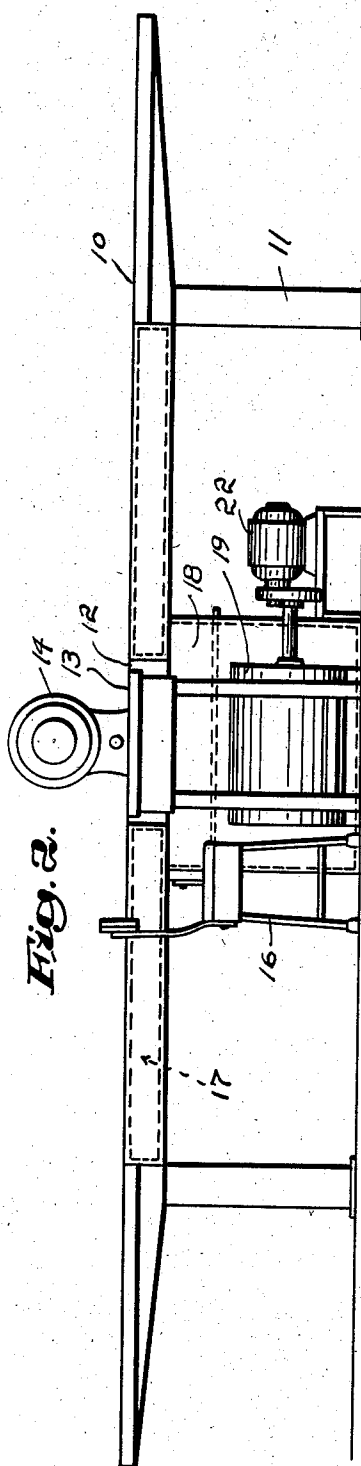
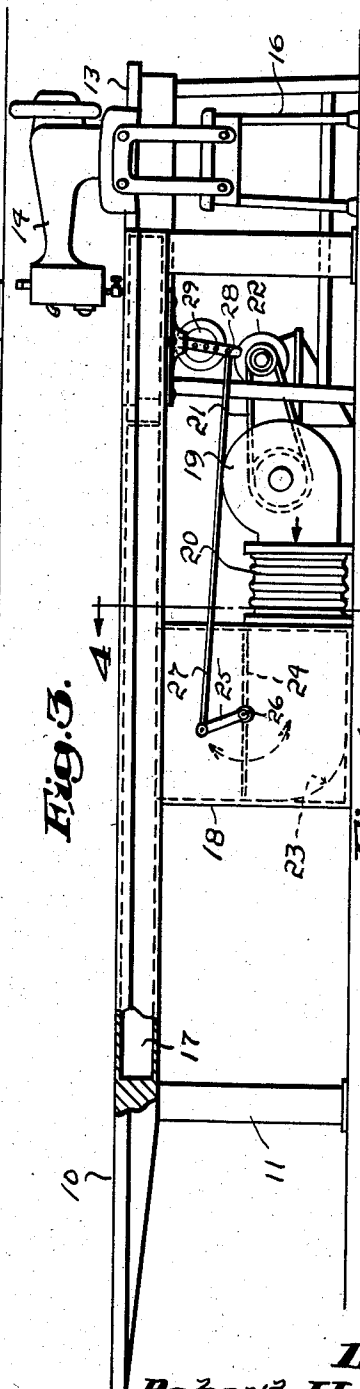
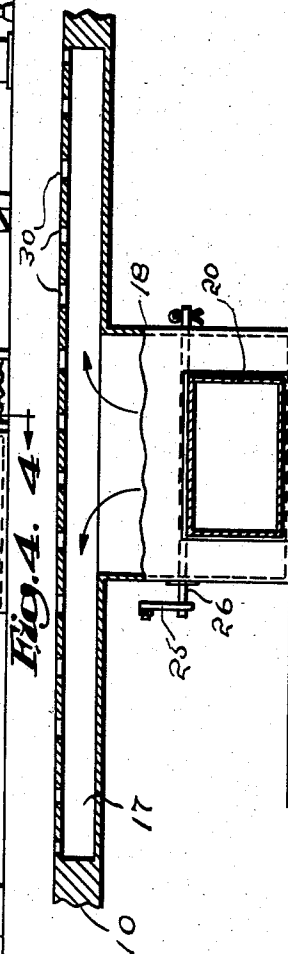
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2 Sheets-Sheet 2



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METHOD OF AND A TABLE FOR USE IN SUPPORTING A BRAIDED RUG DURING ITS PRODUCTION

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6 Claims. (Cl. 193—1)

The present invention relates to method of and a table for use in supporting a braided rug as it is being made.

In the manufacture of braided rugs under commercial conditions, braid is continuously stitched to the outer edge of a partly formed rug until its desired dimensions are reached. The usual practise is to support the rug, until it is completed, on a table and to turn and advance the rug relative to the sewing machine station. As the rug grows so does the difficulty of continuously pulling it into sewing position due to its drag even on a smooth surfaced table. For that reason, it is customary to provide a helper for each sewing machine operator whose job it is to pull the rug to advance and turn it as required at least whenever its size offers appreciable resistance to its movement.

The principal objective of the present invention is to so support a rug, as it is being made, that the sewing machine operator can turn and advance the rug by herself without noticeable effort even with rugs of maximum size thus to eliminate the expense of a helper. In brief, this objective is attained by delivering air to the under surface of the rug so that except for a relatively narrow marginal part of the rug and the part in the stitching station, the rug rides on an air capsule that moves with the rug relative to the table. It is, of course, well known that movement of metal or paper stock can be greatly facilitated by jets of air delivered against the bottom face thereof. In accordance with the present invention, however, by way of contrast, relatively large volumes of air at relatively low pressure are employed to provide an air support for the rugs. For each supporting area of from 60 to 90 square feet, a blower is used having a volumetric capacity in the order of from 2400 to 5000 c.f.m. Ports in the table are so dimensioned and so spaced and numbered that the air pressure at the ports is substantially in the range of from .04 to .09 inches as measured by an inches of water draft or pressure gauge.

In accordance with the invention, each rug supporting table has a recess in one side to permit a sewing machine to be properly positioned with respect to the rug. The table has an air chamber underlying the major part of the area occupied by the largest size of rug to be made and including the jog created by the sewing machine accommodating recess, a conduit, connected to the outlet of a blower, and preferably including an adjustable damper, open upwardly into the air chamber and the table has a plurality of ports in communication with the chamber and arranged and disposed so that the pressure of the upwardly flowing air streams is substantially equal.

In the accompanying drawings, there is shown an illustrative embodiment of the invention from which these and other of its objectives, novel features, and advantages will be readily apparent. In the drawings,

Fig. 1 is a top plan view of a rug sewing table in accordance with the invention,

Fig. 2 is a side elevation of the table, as viewed from the side at which the sewing machine is located,

Fig. 3 is an end view of the table, and

Fig. 4 is a section taken approximately along the indicated lines 4—4 of Fig. 3.

At 10 there is indicated a table top supported by legs 11 and having a rectangular recess 12 in one side to accommodate the support 13 for the sewing machine 14 which protrudes beyond the straight and aligned side edges 15 to permit the operator's chair 16 to be located conveniently close to the work. As the braid comes to the table, the operator continuously stitches it to the periphery of braid that has already been coiled and stitched together to form part of a rug.

As making a braided rug in this manner requires that the partly formed rug be continuously advanced and turned relative to the sewing machine, its support on a smooth surface such as that of the table top 10 is a necessity. The table top 10 is dimensioned so that the largest size of rug that is to be made is fully supported thereby at all times until it is completed. As the usual largest size of braided rug is nine feet by twelve feet, the table top 10 may be twelve feet wide and fifteen feet long, by way of example.

The top 10 is provided with an air chamber 17 which is shown as being approximately square except for the jog created by the recess 12. An air inlet 18 is in vertical communication with the central part of the air chamber 17 and is connected to the outlet of the blower 19 as at 20. A belted drive 21 connects the blower 19 to its motor 22. The air inlet 18 is of relatively large cross sectioned area and has a curved baffle 23 to deflect the air stream upwardly with minimum turbulence. The air inlet 19 is also provided with a volume regulating damper 24 having a crank 25 attached to one of the exposed ends of its pivot 26 and connected by a rod 27 to the pivoted lever 28 adjustably locked to the holder 29.

The table top 10 has a substantial number of holes 30 extending through it and defining outlet ports for the air chamber 17. These are distributed throughout the area of the air chamber except that there are none above the air inlet 18 thus to cause the air to be deflected in all directions. It is preferred that the holes remote from the air inlet be arranged in a circular manner and extend from a point adjacent the sewing machine 14 at one side thereof and continue to a point adjacent the other side thereof.

In accordance with the invention, a relatively large volume of air at a low pressure is delivered through the ports 30 with the objective of so lifting rug that it may be moved and turned with relatively little drag. For accomplishing this objective with the apparatus above described, the blower must have a capacity of from 2400 to 5000 cubic feet per minute, with 3000 c.f.m. being satisfactory. The pressure must be in the range of from .04 to .09 inches as measured on an inches of water draft or pressure gauge.

It is preferred that the ports 30 be relatively large, about $\frac{3}{4}$ inch diameter being satisfactory and the ports 30 must be distributed through an area of from 60 to 90 square feet to ensure lifting the rug. Between 90 and 115 ports 30 are usually provided and the ratio of the air inlet to the total area of the aperture is approximately 3 to 1.

With a large volume of low pressure air flowing through the ports 30, the rug is so lifted and rides on a movable air capsule, except at its margin, of say 12 to 18 inches under which some air escapes, and except at the sewing station, that it may be readily turned and advanced. For example, a nearly complete 9' x 12' rug without the use of large volume, low pressure air offered a nine pound drag that was reduced to less than one pound when the large volume, low pressure air support was brought into service.

What I therefore claim and desire to secure by Letters Patent is:

1. A table for use in supporting a rug as it is being turned and advanced and braid stitched to its periphery by a sewing machine, said table having a recess in one side to accommodate said machine and including an air chamber underlying the major part of the area occupied by the largest size of rug to be made on said table and including the jog created by said recess, a blower, and a conduit with which the outlet of said blower is in communication and which opens upwardly into the central part of said chamber, said table having a plurality of ports in communication with said chamber with the exception of the zone above said inlet, the said zone above the inlet causing the incoming air to be diffused to the ports and thereby maintaining the air in a stable condition.

2. A table for use in supporting a rug as it is being turned and advanced and braid stitched to its periphery by a sewing machine, said table having a recess in one side to accommodate said machine and including an air chamber underlying the major part of the area occupied by the largest size of rug to be made on said table and including the jog created by said recess, a blower, and a conduit with which the outlet of said blower is in communication and which opens upwardly into the central part of said chamber, said table having a plurality of ports in communication with said chamber with the exception of the zone above said inlet, and an adjustable damper in said conduit, the said zone above the inlet causing the incoming air to be diffused to the ports and thereby maintaining the air in a stable condition.

3. A table for use in supporting a rug as it is being turned and advanced and braid stitched to its periphery by a sewing machine, said table having a recess in one side to accommodate said machine and including an air chamber underlying the major part of the area occupied by the largest size of rug to be made on said table and including a jog created by said recess, a blower having a capacity of from 2400 to 5000 c.f.m. and a conduit with which the outlet of said blower is in communication and which opens upwardly into the central part of said chamber, said table having a plurality of ports in communication with said chamber with the exception of the zone above said inlet and being numbered and dimensioned to have a total area approximately one third the cross sectioned area of said conduit, the said zone above

the inlet causing the incoming air to be diffused to the ports and thereby maintaining the air in a stable condition.

4. A table for use in supporting a rug as it is being turned and advanced and braid stitched to its periphery by a sewing machine, said table having a recess in one side to accommodate said machine and including an air chamber underlying the major part of the area occupied by the largest size of rug to be made on said table and including the jog created by said recess, a blower having a capacity of from 2400 to 5000 c.f.m. and a conduit with which the outlet of said blower is in communication and which opens upwardly into the central part of said chamber, said table having a plurality of ports in communication with said chamber with the exception of the zone above said inlet and being numbered and dimensioned to provide an outlet pressure in the order of from .04 to .09 inches as measured on an inches of water draft or pressure gauge, the said zone above the inlet causing the incoming air to be diffused to the ports and thereby maintaining the air in a stable condition.

5. The table of claim 3 in which each port is approximately $\frac{3}{4}$ of inch in diameter.

6. A table for use in supporting a rug as it is being turned and advanced and braid stitched to its periphery by a sewing machine, said table having a recess in one side to accommodate said machine and including an air chamber underlying the major part of the area occupied by the largest size of rug to be made on said table and including the jog created by said recess, a blower having a capacity of from 2400 to 5000 c.f.m., and a conduit with which the outlet of said blower is in communication and which opens upwardly into said chamber, said table above the outlet of the blower conduit having no ports whereby the incoming air is diffused and maintained in a stable condition, said table having a plurality of ports in communication with said chamber and being numbered, arranged, and dimensioned so that the outlet pressures of the ports are approximately equal and in the order of from .04 to .09 inches as measured on an inches of water draft or pressure gauge.

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