United States Patent [19]

Zimmer

[11] **3,890,896**

[45] **June 24, 1975**

[54] **TEXTILE-PRINTING MACHINE**

[76] Inventor: **Peter Zimmer,** Untere Sparchen 54, A 6330 Kufstein, Austria

[22] Filed: **Jan. 3, 1973**

[21] Appl. No.: **320,739**

[30] **Foreign Application Priority Data**

Jan. 4, 1972 Austria 3172/72
Feb. 24, 1972 Austria 001531/72

[52] **U.S. Cl.** **101/119;** 101/120; 101/123; 101/124; 101/364; 101/366; 118/406

[51] **Int. Cl.** **B41f 15/40;** B41f 15/44

[58] **Field of Search** 101/116, 119, 120, 123, 101/124, 364, 157, 169, 122, 366, 121; 222/64; 118/213, 406

[56] **References Cited**

UNITED STATES PATENTS

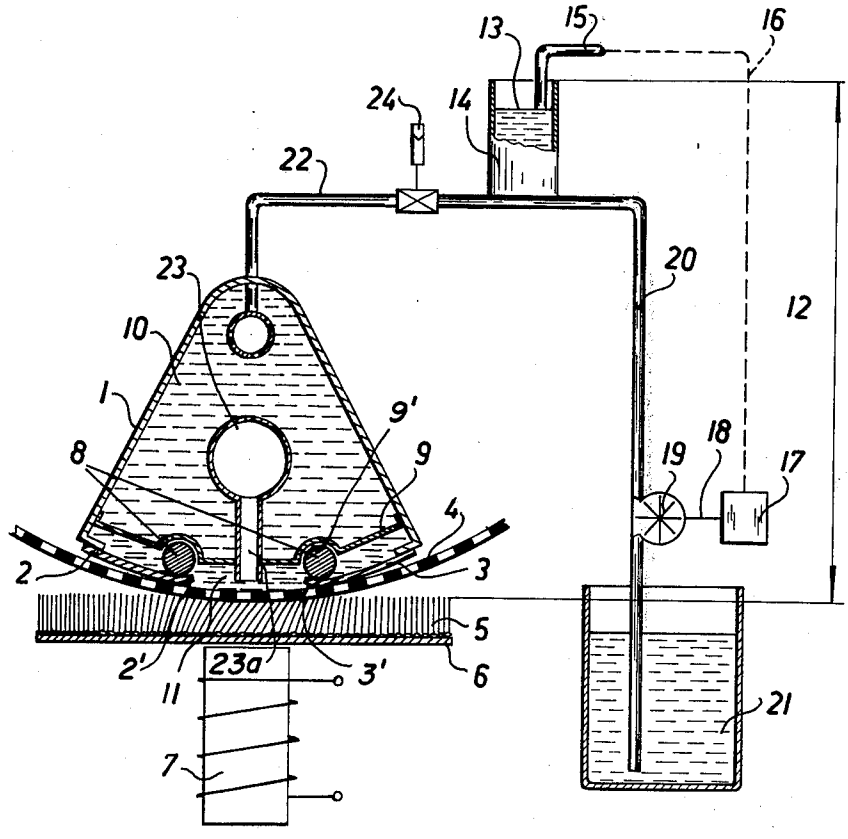
1,541,787	6/1925	Cadgene	101/120
2,276,181	3/1942	Foster	101/116
2,966,844	1/1961	Laupman	101/123
3,145,653	8/1964	Lake	101/364
3,198,109	8/1965	Dwyer et al.	101/119 X
3,566,784	3/1971	Mitter	101/120
3,583,437	6/1971	Mastroianni	222/64 X
3,592,132	7/1971	Weber	101/119
3,613,635	10/1971	Brehm	101/119 X
3,632,019	1/1972	Harm	222/56
3,673,958	7/1972	Billiet	101/122
3,688,692	9/1972	Vasilantone	101/119 X

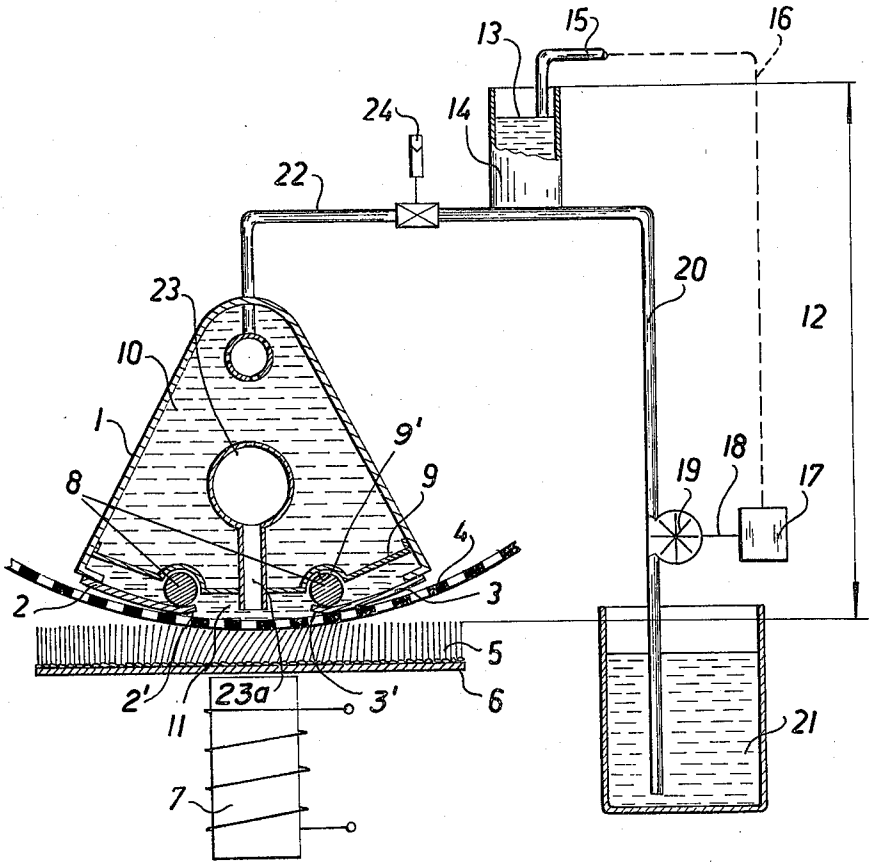
Primary Examiner—Edgar S. Burr
Assistant Examiner—R. E. Suter
Attorney, Agent, or Firm—Ernest G. Montague; Karl F. Ross; Herbert Dubno

[57] **ABSTRACT**

A downwardly open receptacle for coloring fluid, overlying an apertured masking screen, is provided at its bottom with a pair of elastic sealing strips sloping downwardly and terminating in confronting upturned edges bounding a discharge slot. The sealing strips are weighted down by two parallel rods of magnetizable material which are cradled in troughs formed by the upturned strip edges and are resiliently engaged from above by a pair of retaining blades, thereby holding the lowest parts of the strips in firm contact with the masking screen against a carpet or other underlying substrate to be colored.

6 Claims, 1 Drawing Figure




13
15
16
24
14
22
20
12
23
10
1
9'
9
8
4
2
3
5
2'
23a
3'
6
11
7
19
18
17
21

TEXTILE-PRINTING MACHINE

FIELD OF THE INVENTION

My present invention relates to a device for printing textile materials, especially textile sheets of considerable width such as carpets, with the aid of an apertured masking screen or stencil inserted between the substrate to be colored and a receptacle for a coloring fluid formed with a discharge slot.

BACKGROUND OF THE INVENTION

Such textile materials, particularly those with a high nap, require large quantities of coloring fluid which must pass through the discharge slot of the receptacle but must not be allowed to reach the masking screen at any other point. Thus, it is essential to prevent leakage of fluid between the slot edges and the screen over the entire length of the slot.

OBJECT OF THE INVENTION

The object of my present invention, therefore, is to provide improved sealing means for preventing such leakage in a simple and effective manner, despite possible variations in the thickness of the substrate.

SUMMARY OF THE INVENTION

I realize this object, in accordance with the present invention, by the provision of elastic sealing strips extending across part of the bottom of a downwardly open receptacle and forming a discharge slot therebetween, the strips sloping down toward the slot and being provided with upturned confronting edges bounding that slot. The lowest parts of the strips are held in firm contact with a masking screen, against an underlying substrate to be colored, by loading means within the receptacle bearing upon the strips adjacent their upturned edges, thereby preventing the coloring fluid in the receptacle from penetrating between the masking screen and the strips.

In an advantageous embodiment of my invention the loading means comprises a pair of parallel rods resting on the strips, the weight of these being supplemented by the force of resilient retaining blades loosely engaging the rods from above and also by magnetic attraction from below.

BRIEF DESCRIPTION OF THE DRAWING

The above and other features of my invention will now be described in detail with reference to the accompanying drawing the sole FIGURE of which schematically shows a representative embodiment.

SPECIFIC DESCRIPTION

As shown in the drawing, a downwardly open receptacle **1** is filled with coloring fluid **10** adapted to issue therefrom through a discharge slot **11** formed between a pair of elastic sealing strips **2** and **3** at the bottom of the receptacle. The profile of this receptacle generally corresponds to a sector of a circle tangent to a surface of an underlying substrate **5** to be colored. The strips **2** and **3**, sloping downwardly toward slot **11**, terminate in a pair of upturned edges **2'**, **3'** so that their lowest portions lie on opposite sides of the slot. Two parallel rods **8** of circular cross-section, made of magnetizable material, rest on these strips just above their lowest points and are cradled in troughs formed by the upturned edges **2'**, **3'** thereby acting as loading means for the strips. The rods **8** are loosely held by resilient retaining blades **9** formed with a pair of downwardly open recesses **9'** partly receiving the rods which are thereby placed under downward pressure. With the aid of electromagnets **7** (only one shown), disposed underneath the slot **11**, the rods **8** are additionally biased downwardly against an apertured masking screen **4** which is inserted between the strips **2**, **3** and the substrate **5**, such as a carpet, passing continuously beneath the receptacle **1** on a supporting surface **6**.

Coloring fluid **10** is supplied to receptacle **1** from a reservoir **21** through a conduit **20** connected with an extension **22** thereof through an electromagnetically operated valve **24**, conduit **20** containing a pump **19** which raises the liquid from reservoir **21** to a level **13** in an upwardly open vessel **14** communicating with conduit **20**. A level sensor **15** in vessel **14** works via a line **16** into a control circuit **17** which is connected to pump **19** by a line **18** for holding the liquid level **13** in vessel **14** at a substantially constant elevation **12** with reference to the discharge slot **11**. The hydrostatic head of vessel **14** maintains a substantially constant fluid pressure in receptacle **1**. The latter can be emptied by suction through a return line **23** communicating with the discharge slot **11** through a channel **23***a* which passes between blades **9**.

Sensor **15** may be of any conventional design including, for example, a jet nozzle which feeds signal pulse to the controller **17** to indicate whether or not the liquid has reached the desired level **13**.

The loading of the strips **2** and **3** by the mechanically and magnetically biased rods **8** prevents the coloring fluid **10** from leaking out of the slot **11** between the lowest points of the strips and the screen **4**. Thus, a clean pattern is printed on the substrate **5**.

The conduit **22** may be duplicated at several locations across the width of the substrate **5** to enable the processing of wide sheets of textile material, e.g. carpets measuring several meters in width.

Masking screen **4** may be of the rotary type, though this is not essential for the purpose of my invention.

I claim:

1. In a textile-printing machine, in combination:

a downwardly open receptacle for coloring fluid;

a pair of elastic sealing strips extending across part of the open bottom of said receptacle and forming a discharge slot therebetween, said strips sloping downwardly toward said slot and being provided with upturned confronting edge bounding said slot;

an apertured masking screen underneath said receptacle bridging said slot; and

loading means within said receptacle bearing on said strips adjacent said upturned edges for holding the lowest parts of said strips in firm contact with said screen against an underlying substrate to be colored, thereby preventing said coloring fluid from penetrating between said mask and said strips.

2. The combination defined in claim **1** wherein said loading means comprises a pair of parallel rods resting on said strips.

3. The combination defined in claim **2** wherein said rods are round and cradled in a pair of troughs formed by said upturned edges.

4. The combination defined in claim **3** wherein said loading means further comprises resilient blade means loosely engaging said rods from above and urging same downwardly against said strips.

5. The combination defined in claim 4 wherein said blade means is formed with a pair of downwardly open recesses partly receiving said rods for holding same in position.

6. The combination defined in claim 2 wherein said rods are made of magnetizable material, said loading means further comprising magnet means below said slot exerting a downward force upon said rods.

* * * * *

UNITED STATES PATENT AND TRADEMARK OFFICE

CERTIFICATE OF CORRECTION

PATENT NO. : 3,890,896 -
DATED : 24 June 1975
INVENTOR(S) : Peter ZIMMER

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

Line 30, for "3172/72" read -- A 31/72 -- ;

for "001531/72" read -- A 1531/72 -- .

Signed and Sealed this

twenty-eight Day of *October 1975*

[SEAL]

Attest:

RUTH C. MASON
Attesting Officer

C. MARSHALL DANN
Commissioner of Patents and Trademarks