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[21] Appl. No. **799,836**

[22] Filed **Feb. 17, 1969**

[45] Patented **Nov. 16, 1971**

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[32] Priority **Dec. 5, 1968**

[33] **Germany**

[31] **P 18 12 839.7**

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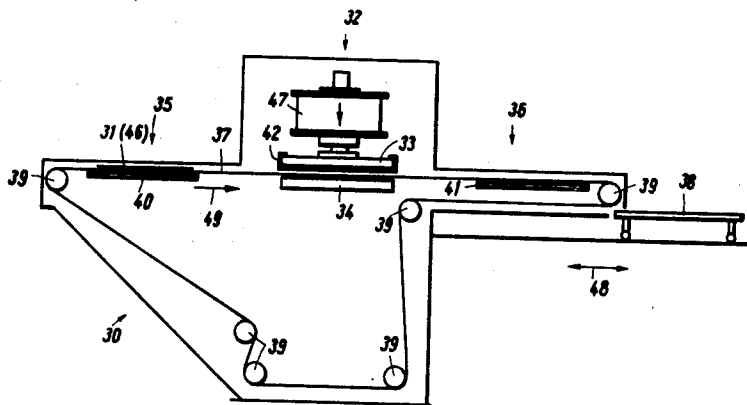
[54] **APPARATUS FOR PRINTING BOTH SIDES OF SINGLE OR MULTIPLE LAYER TEXTILE ARTICLES**  
**1 Claim, 3 Drawing Figs.**

[52] U.S. Cl..... **156/388,**  
**156/230, 156/240, 156/277, 156/540**

[51] Int. Cl..... **B41m 5/02**

[50] Field of Search..... **156/277,**  
**388, 230, 240, 358, 540; 8/62; 101/163, 170**

**ABSTRACT:** The invention provides a method of and an apparatus for printing both sides of single or multiple layer textile articles, which method comprises the steps of covering both sides of a single or multiple layer textile article with a transfer printing sheet, conveying said article and said sheets between two relatively spaced heated pressing platens, and closing the platens and thereby simultaneously transferring impressions from said transfer printing sheets to each side of said article.



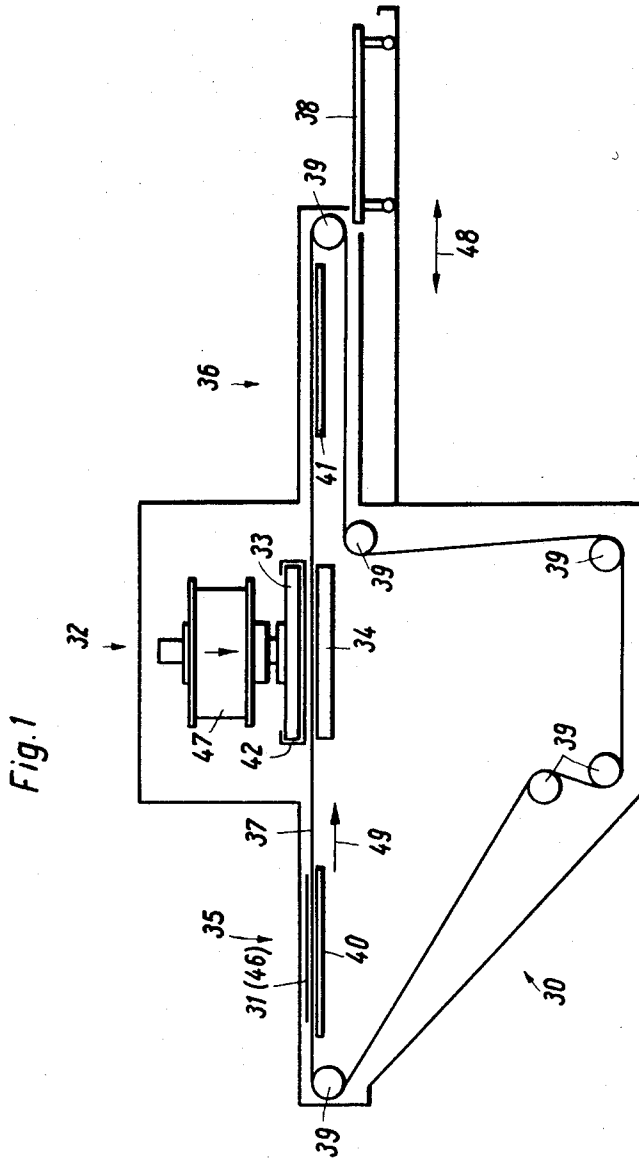


Fig.2

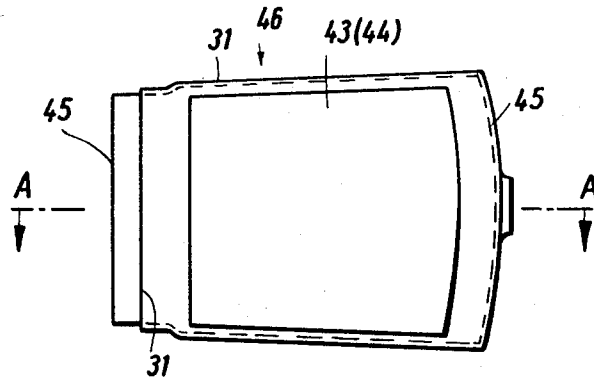
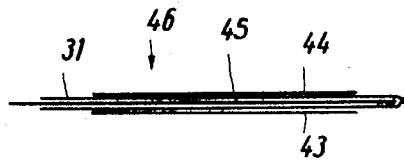


Fig.3



## APPARATUS FOR PRINTING BOTH SIDES OF SINGLE OR MULTIPLE LAYER TEXTILE ARTICLES

### BACKGROUND OF THE INVENTION

This invention relates to a method of an apparatus for printing both sides of single or multiple layer textile articles, principally of articles wholly or partly consisting of man-made fibers, by transfer printing sheets with the application of pressure and heat.

The style of transfer printing one side of synthetic textile fabrics and articles from prepared transfer sheets is a process already known in the art. The process is carried out by placing a sheet which has been provided with an impression of specially prepared colored inks on the textile fabric that is to be printed, and by then conducting the fabric and the transfer sheet in combination between special calender rollers. One of the two-cooperating rollers is heated. Between the rollers the inks on the transfer sheet are transferred to the textile fabric by sublimation.

### SUMMARY OF THE INVENTION

It is the object of the present invention to provide a method as well as apparatus which will permit both sides of a single or multiple layer textile article to be simultaneously printed efficiently in one operation.

The method according to the present invention for achieving this object comprises the steps of covering both sides of a single or multiple layer textile article with a transfer printing sheet, conveying said article and said sheets between two relatively spaced heated pressing platens, and closing the platens and thereby simultaneously transferring impressions from said transfer printing sheets to each side of said article.

This method permits both sides of a single or multilayered textile article, primarily an article consisting wholly or partly of synthetic fibers to be simultaneously printed in one operation. The proposed method is therefore a substantial improvement on the conventional method in which the two sides of a fabric were printed in succession. Time is thus saved and the process is cheaper.

The present invention also concerns apparatus for performing the above-described method. The proposed apparatus comprises two separately heatable pressing platens forming a printing station and adapted to be separately or jointly moved to close on each of a continuous succession of textile articles which have been previously provided on each side with a transfer printing sheet, and means for intermittently feeding said textile articles between said platens.

The proposed apparatus permits the method proposed by the invention to be performed in an extremely efficient way. One advantage consists in that a single machine comprising relatively simple means can be used for simultaneously printing both sides of single or multiple layer textile articles.

According to another feature of the invention a multilayer textile article covered on each side with a transfer printing sheet may first be drawn on a form. This will ensure that the textile article retains its shape during the printing process.

According to yet another feature of the apparatus proposed by the invention a feeding station may precede the printing station and a conveyor belt made of high-temperature-resistant fabric may be arranged to run in intermittent steps through both stations. Moreover, a delivery station may follow the printing station and an intermittently feeding conveyor belt made of high-temperature-resistant fabric may be arranged to run through the printing station and the delivery station. Both these arrangements may be combined and the apparatus provided with a feeding station preceding the printing station and a delivery station following the same, the conveyor belt running through all three stations. However, the printing station may be associated either with only a preceding feeding station or conversely with only a following delivery station, the conveyor belt travelling through whichever two stations are employed.

The above features of the invention make a highly efficient machine. This can be even further improved if, according to yet another proposal, a reciprocating receiving table is also provided, preferably of a kind that can be raised and lowered for consecutively receiving the printed single or multiple layer textile articles in a pile. Such a self-stacking receiving table improves the efficiency of the machine inasmuch as it permits the operating rate to be increased and an attendant at the delivery end of the machine to be dispensed with.

### BRIEF DESCRIPTION OF THE DRAWINGS

An embodiment of the invention will now be described by way of example and with reference to the accompanying schematic drawings, in which:

FIG. 1 is a section through the apparatus for printing both sides of a succession of textile articles conveyed through the apparatus by an intermittently feeding conveyor belt;

FIG. 2 is a top plan view of a two-layer textile article (a pullover) which has been drawn on a form and covered on each side with a transfer printing sheet, and

FIG. 3 is a section taken on the line A—A in FIG. 2.

### DESCRIPTION OF THE PREFERRED EMBODIMENT

FIG. 1 shows an apparatus 30 (a platen press) for printing both sides of textile articles 31, such as pullovers, which functions in consecutive working steps. Substantially the machine comprises a printing station 32 provided with printing tools, i.e., pressing platens 33 and 34, a feeding station 35, a delivery station 36, a conveyor belt 37 which runs in succession through all three stations 35, 32 and 36 in the direction of the arrow 49 and a self-stacking receiving table 38.

The conveyor belt 37 which consists of a high-temperature-resistant woven fabric is endless and deflected over rollers 39. The drive means of the conveyor belt are not shown since these are of conventional kind. At the feeding station 35 and the delivery station 36 tables 40 and 41 are located below the conveyor belt 37 for the purpose of supporting the belt. At least one of the two pressing platens 33 and 34 which function as printing tools, preferably the bottom platen 34, is padded, whereas the other which in the drawing is the upper platen 33 is covered with a high-temperature-resistant cloth 42.

At the feeding station 35 the textile articles 31 (pullovers) are covered on each side with a transfer printing sheet 43 or 44. However, with advantage the textile article 31 is first drawn over a so-called form 45 (FIG. 3). The entire assembly 46, consisting of the two transfer printing sheets 43 and 44 enclosing the textile article 31 between them and possibly the form 45, is then placed on the conveyor belt 37 which conveys it stepwise to the printing station 32. When the assembly 46 has been thus fed between the open pressing platens 33 and 34 at the printing station 32, the conveyor belt 37 stops and the upper platen 33 is lowered into cooperation with the bottom platen 34 by a hydraulic cylinder 47.

When the printing operation has been completed, the upper platen 33 is raised. The conveyor belt 37 advances and conveys the assembly 46 to the delivery station 36, where the assembly may either be removed by attendant personnel or where it may remain on the conveyor belt 37 to be delivered during the next step of the conveyor belt 37 to the self-stacking receiving table 38. The provision of a self-stacking table 38 which is adapted to be reciprocated as indicated by the arrow 48 and which is fitted with means for raising and lowering the table has the advantage that the assembly 46 is automatically stacked in a pile and that fewer operatives are thus required for working the machine.

The platen 33 may be forced down on the assembly 46 at modest or high pressure — as the circumstances may require.

What is claimed is:

1. Apparatus for printing both sides of single textile articles or both outer sides of multiple layer textile articles, each of said articles being covered on each of said sides by a transfer printing sheet having indicia thereon, said apparatus comprising:

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a conveyor belt of high-temperature resistant material,  
 a feed station at which said articles covered by said transfer  
 printing sheets are placed on said conveyor,  
 a printing station,  
 means for intermittently driving said conveyor belt so as to 5  
 consecutively advance articles covered by said transfer  
 printing sheets from said feeding station to said printing  
 station,  
 said printing station comprising a pair of independently 10  
 heatable pressing platens, one on each side of said con-  
 veyor belt,  
 means for heating said platens,  
 means for moving one of said platens towards the other  
 platen when a textile article covered by said transfer 15  
 printing sheets is moved on said conveyor to said printing  
 station, whereby said article and transfer sheets are com-

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pressed between said heated platens to transfer the in-  
 dicia from said transfer printing sheets to said sides of said  
 article,  
 a delivery station following said printing station,  
 said conveyor belt being adapted to travel in intermittent  
 feeding steps consecutively through said printing and  
 delivery stations, and  
 said delivery station comprising a self-stacking receiving  
 table adapted to reciprocate in a plane parallel to the  
 plane of the portion of said conveyor belt on which said  
 articles are supported in synchronism with the intermit-  
 tent movement of said conveyor belt, said receiving table  
 having means for raising and lowering it for the purpose  
 of receiving and mechanically stacking printed single or  
 multiple layered textile articles.

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