

July 17, 1956

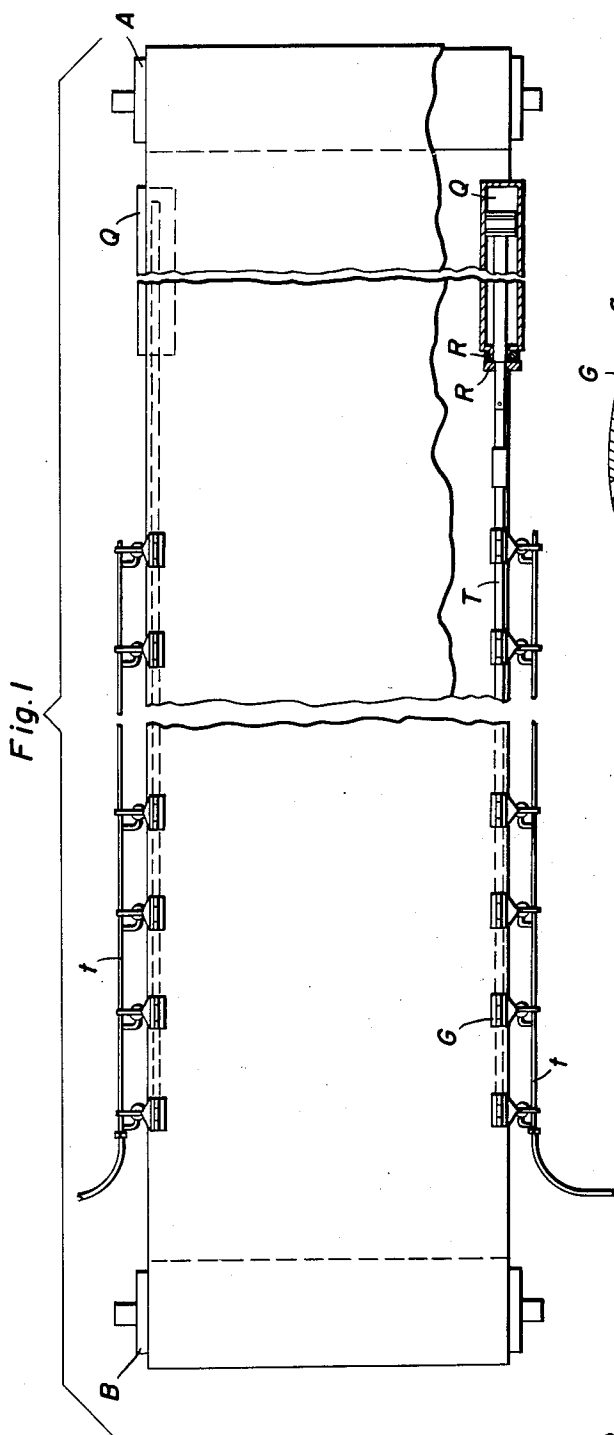
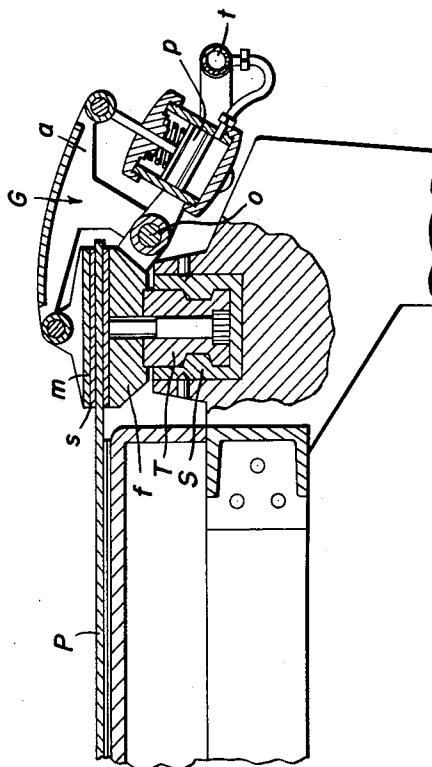
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2,755,085

FEEDING MEANS FOR A TEXTILE PRINTING MACHINE

Filed Feb. 6, 1952

2 Sheets-Sheet 1



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Fig. 4

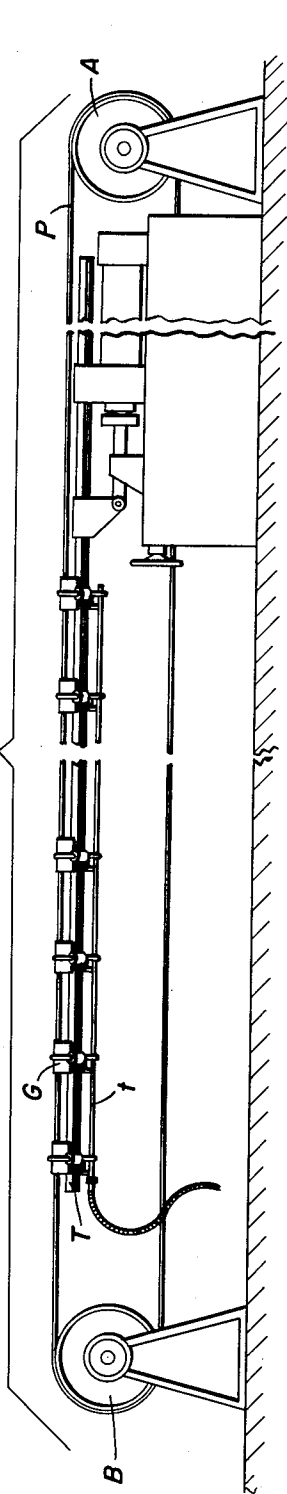
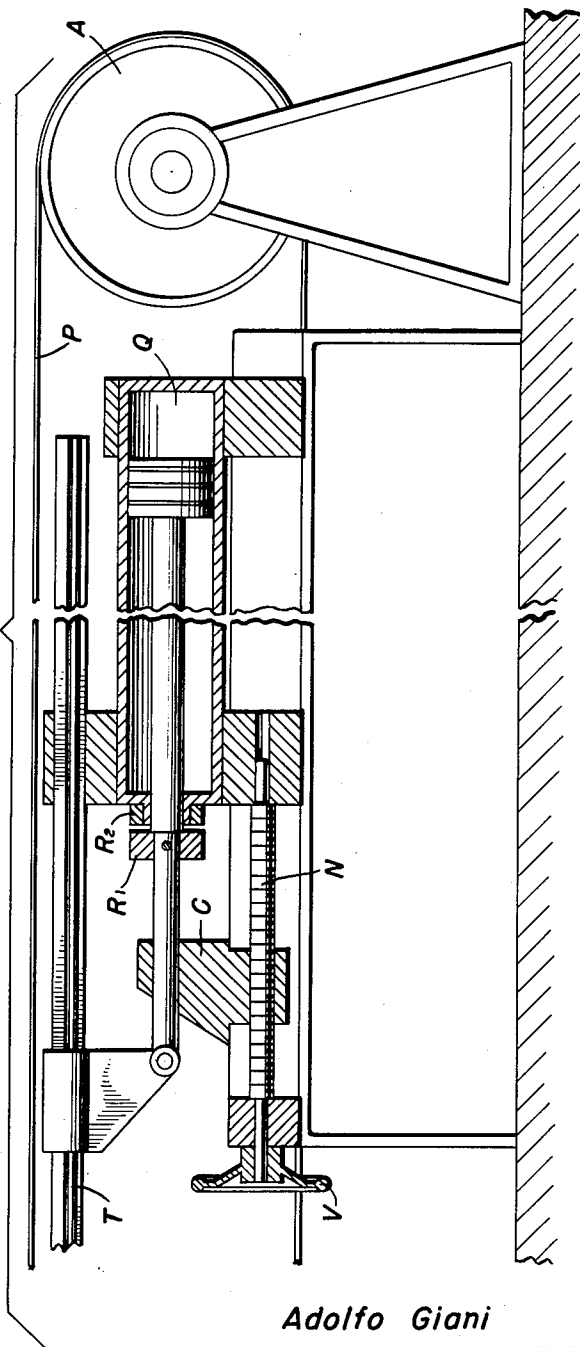


Fig. 3



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FEEDING MEANS FOR A TEXTILE PRINTING MACHINE

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Claims priority, application Italy December 28, 1951

1 Claim. (Cl. 271—2.5)

The present invention relates to a machine for printing with chequers, having an endless transporting cloth wound up on two end rollers rotatable about axes parallel to each other, on which the textile product to be printed is laid out. It is a purpose of the present invention to eliminate those anomalies as are encountered with conventional machines for printing with chequers, which up till now have prevented fabrics from being printed with sufficient accuracy. Said purpose is attained by means of a new principle of the forwarding system for the endless cloth supporting the fabric, and of the control of advancement of said cloth. Indeed, with conventional machines for printing with chequers, the endless cloth tensioned over two turning rollers is dragged in movement either by a pair of chains or by a pair of belts, or even directly by the rollers by adherence.

With all the mentioned solutions of the problem, there is a source of error easy to be detected and confirmed as well by experience:

(a) In employing the chain as a conveying means, it is not possible to obtain a constant value of the pitch of printing inasmuch as owing to the inevitable plays existing between the links of the chain, the chain elongates differently at the various points of the printing table, under the tension to which it is subjected, which is variable from a maximum value at the end of the table, to a minimum at the beginning.

As a consequence, any point of the fabric to the printed, on progressing over the printing table, advances by growing sections beyond its theoretic stopping position. It should be further noted how the inevitable diversity of length between the individual sections of the chain introduces further possibilities of error.

(b) In employing two metal bands as a cloth conveyor, it is possible to obviate the errors caused by the different tensions existing between the ends of each band, thanks to the great stiffness of the same, but heavy inconveniences are met in transmitting the forwarding movement to them. In fact, control can be effected in two ways:

(1) By means of a pulley transmitting the movement to the band by friction, utilizing the adherence between the band and the respective strips; this kinematic connection not being rigid cannot prevent either accidental slipping or elastic slipping due to the different degrees of tensioning existing respectively in the outcoming and incoming band sections in respect to the moving pulley.

(2) By means of a toothed wheel, the teeth of which being of particular construction engage in holes or more generally in openings provided in the bands, and the distance of spacing of which is equal to the pitch of the teeth: in this case, the teeth, eliminating any slipping between the band and the moving wheel, also prevent the slides between the one and the other as are indispensable for the congruence of the deformations relative to the band section wound up the wheel, enhancing the already considerable stresses of pulling existing at the borders of the perforation, in correspondence with each tooth.

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As a matter of fact, experience has proved that the frequent and numerous breakages of metal bands take place at the borders of the perforations.

(c) If eventually the cloth is dragged directly by one or both the rollers supporting it, there is substantially no difference as compared with the preceding cases, as all the defects mentioned are still encountered.

The aforesaid solutions evidently are all inspired by one leading principle: that of entrusting the task of conveying the endless cloth to a flexible member.

It is an object of the present invention to provide a printing table for fabrics wherein a perfectly rigid mechanical means moving with alternate translatable motion along said table drags the endless transporting cloth over a section accurately equal to the printing rate of the pattern to be obtained, to abandon it then at the stopping point and to return to its starting position, from which it will repeat the operation.

It is a further object of the present invention to provide means for transmitting said movement to said rigid means and for determining its accurate stopping at a fixed distance. It is another object of the present invention to provide means adapted to hook in solidly with the endless cloth at its borders and to transport it together with the textile product accurately to the position predetermined by the printing table.

These objects of the invention and their advantages will be made more fully clear by the following detailed description with reference to the accompanying drawings representing one form of embodiment of the machine, given by way of example.

In the drawings:

Fig. 1 is a top view of the printing table;

Fig. 2 is a sectional view of one transporting jaw of the respective control plunger;

Fig. 3 is a side view, in section, of the hydraulic control for cloth transportation;

Fig. 4 is a side view of the machine.

A and B are two rollers which are transversely disposed at the ends of the printing table and which are freely rotatable. The endless cloth P is wound around the rollers and the upper reach of the cloth overlies the upper surface of the table.

Upwardly facing channel shaped guide members S are arranged longitudinally at each side of the table and, as shown in Fig. 2, the guide members are disposed below the upper surface of the table and spaced outwardly from the sides of the table. Slide elements T are slidably mounted in the guide members and have a plurality of upstanding blocks f fixed thereon, such blocks constituting the fixed jaws of the pairs of jaws G. The fixed jaws have flat upper faces s disposed substantially coplanar with the upper surface of the table, as shown in Fig. 2. The fixed jaws carry the upper movable jaws m which have flat faces. The faces s are preferably coated with deformable material having a rough surface so as to attain maximum adherence of the cloth which is gripped at its side edges or borders between the faces s of the jaws. The movable jaws m are pivotally carried by arms a that are fulcrumed as at O on the fixed jaws f and the arms are moved about the fulcrums O by plungers p which are reciprocated in cylinders under air or oil pressure.

A hydraulic jack Q is positioned at each side of the table and the piston rods of the jacks are connected to the slide elements T, as shown in Fig. 3, to reciprocate the slide elements. The stroke of the piston rods or plungers is adjustable, as shown in Fig. 3.

R1 and R2 are two stop rings fixed rigidly one on the cylinder and the other to the stem of the plunger. There is an abutment, the position of which can be varied by means of a handwheel controlling a threaded spindle N. Against said abutment the plunger is stopped at the end of

its stroke. It is thus possible to vary within ample limits the rate of printing of the pattern, by adjusting micrometrically the stroke of the jaws, by means of said mobile abutment. When the jaws have arrived at the end of their working stroke, they open and abandoning the endless cloth they return to their starting position, from which they repeat the operation.

The various devices for distributing the fluids under pressure—to obtain the right cycle of working of the plungers of the two jacks Q which effect the translatory motion for the jaws G, as well as of the plungers P opening and closing said jaws—will not be described or illustrated, since their structure and operation are conventional and are not part of the invention as defined by the appended claim.

What I claim is:

For use with a screen printing mechanism for textiles, a feeding means for moving an endless cloth over an elongated horizontally disposed, fixed table comprising an elongated upwardly facing channel shaped guide member disposed longitudinally at each side of the table below the upper surface of the table and spaced slightly outwardly from the side of the table, a rigid elongated slide element slidably mounted in each of the guide members and movable axially therein, a plurality of fixed blocks upstanding from the slide element and constituting fixed jaws, said fixed jaws having flat upper faces disposed substantially coplanar with the upper surface of the table, a

movable jaw overlying and cooperating with each of the fixed jaws to clampingly engage the side edges of the endless cloth, said movable jaws having flat faces complementary to the faces of the fixed jaws, means carried by the fixed jaws for mounting and actuating the movable jaws, said pairs of jaws being spaced axially of the slide elements in substantially close relationship, and means disposed at each side of the table and connected to the slide elements for axially reciprocating them.

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