Sept. 18, 1962 J. R. WHITE 3,054,715

METHOD AND APPARATUS FOR BOOK OR CARD-EDGE GILDING

Filed Sept. 10, 1957

5 Sheets-Sheet 1

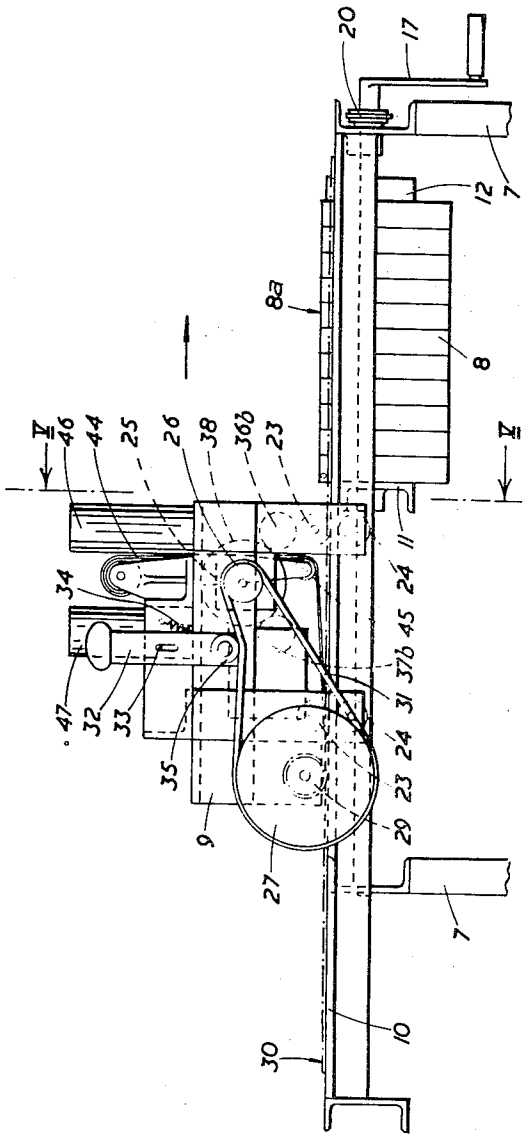


FIG. 1.

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5 Sheets-Sheet 2

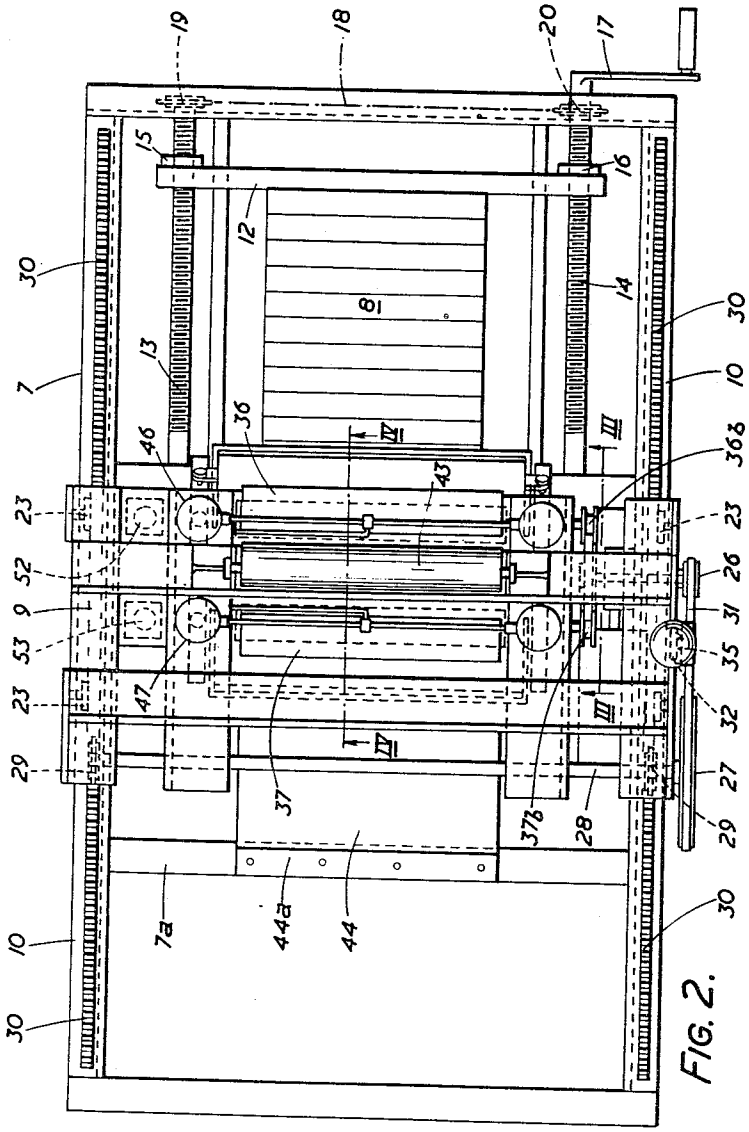


FIG. 2.

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METHOD AND APPARATUS FOR BOOK OR CARD-EDGE GILDING

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FIG. 3.

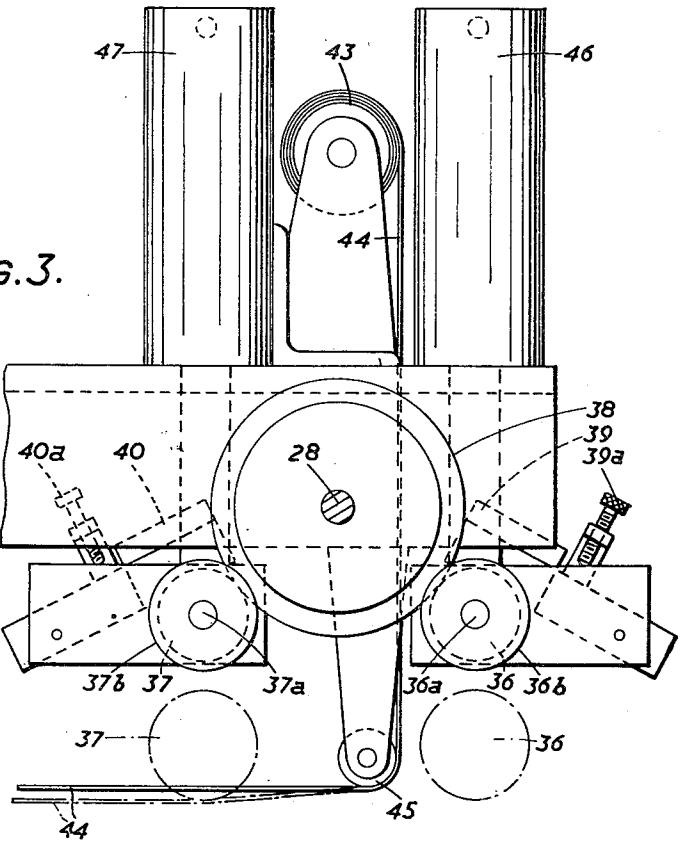
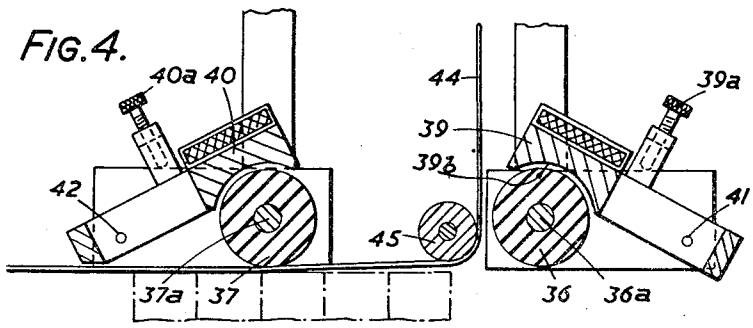


FIG. 4.



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METHOD AND APPARATUS FOR BOOK OR CARD-EDGE GILDING

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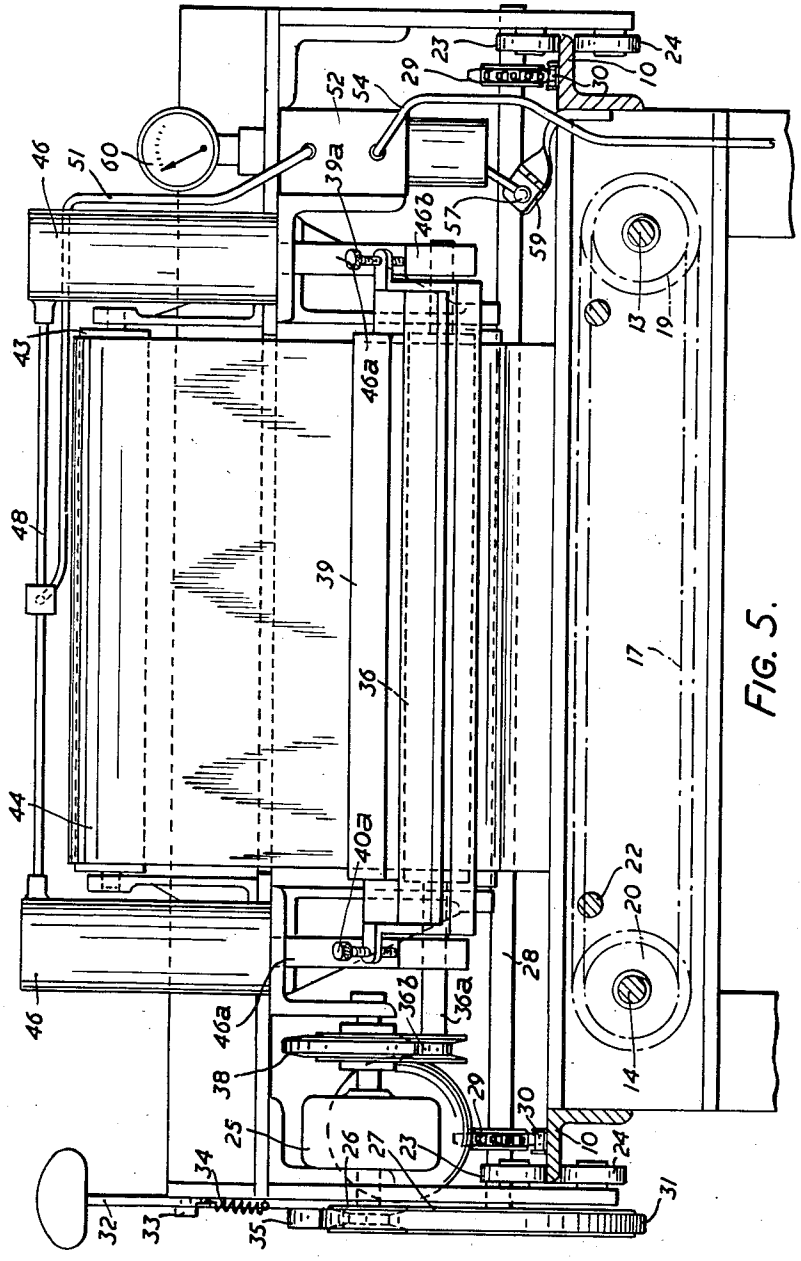


FIG. 5.

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METHOD AND APPARATUS FOR BOOK OR CARD-EDGE GILDING

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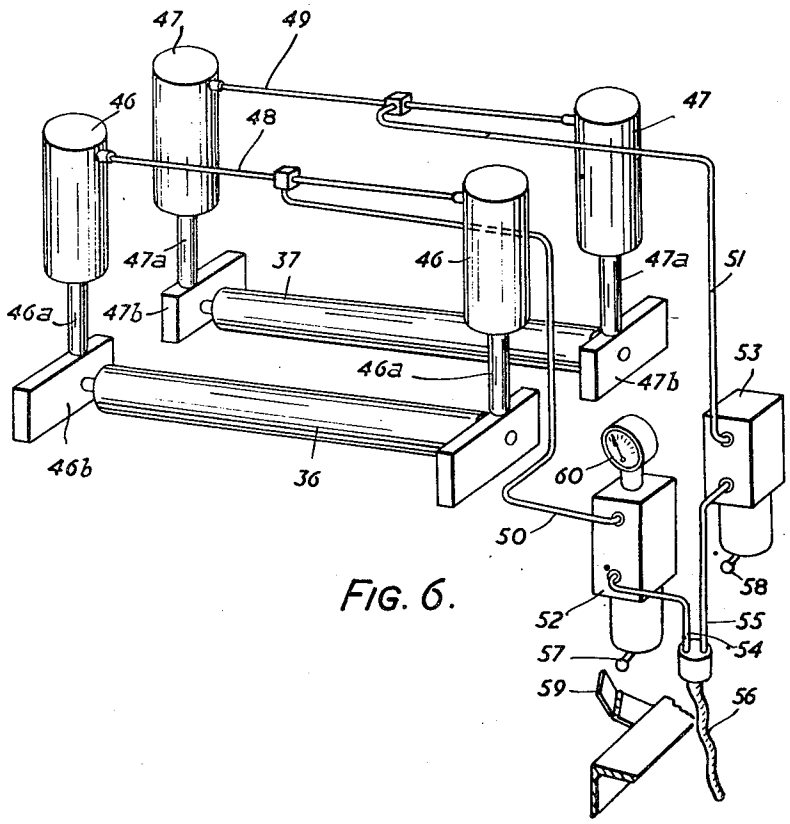


FIG. 6.

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United States Patent Office

3,054,715

Patented Sept. 18, 1962

3,054,715

METHOD AND APPARATUS FOR BOOK OR CARD-EDGE GILDING

John Roland White, Potter's Bar, England, assignor to Gildmore Press Limited, London, England

Filed Sept. 10, 1957, Ser. No. 683,140
Claims priority, application Great Britain Sept. 11, 1956
16 Claims. (Cl. 156—233)

This invention relates to the gilding of the edges of the leaves of books or the edges of playing cards and the like, hereinafter referred to as book or card edge gilding.

The conventional method of gilding the edges of the leaves of books or cards consists in first placing the book or pack of cards in a press, then smoothing the edges to be gilded for example by means of glass paper, then applying by means of gelatine or other size hand beaten gold leaf to the surface formed by the edges of the leaves of the book or pack of cards and finally, after a period of drying, burnishing said surface with a stone burnisher.

This conventional method of book or card edge gilding not only has the disadvantage of involving high labour costs but the present restriction in the use of hand beaten gold leaf presents further problems.

Book or card edge gilding can however be carried out much more cheaply with the use of gold transfer foil, or so-called embossing foil, instead of hand beaten gold leaf. Gold transfer foil or embossing foil consists of sheet of suitable paper or film material, usually a sheet material having a cellulose acetate base, on the surface of which a layer of gold is deposited with an intermediate layer of wax or the like, which permit the layer of gold to be detached from said surface when the foil is heated, and an adhesive layer such as size on the face surface of the layer of gold which adhesive layer is adapted to cause the layer of gold to adhere to a surface to be embossed when heat is applied. This transfer or embossing foil is used extensively for gold blocking or lettering, the foil being placed on the surface of an object to be embossed, such as for example, the cover of a book, and then pressed against said surface by a heated die. It has, however, been found that this method of applying gilt to a surface cannot be employed in book or card edge gilding, because after the book or card pack has been placed in a press and the surface formed by the edges of the leaves or cards smoothed and polished, said surface is so hard that it does not permit the type of die normally used to make an even, firm overall contact with said surface to be gilded. In order to overcome this difficulty it has been proposed to carry out book or card edge gilding by applying to the surface formed by the edges of the leaves of a book, or a pack of cards, a sheet of gold transfer or embossing foil and then pressing said foil against the said surface by means of a heated roller having a relatively soft surface. A roller formed of silicone-containing rubber has proved satisfactory for this purpose.

It has been found that this known method of book or card edge gilding has not proved entirely satisfactory in practice because no effective method has been provided for holding the gold transfer or embossing foil sufficiently tautly or sufficiently flush with the surface to be gilded, especially when the surface is of relatively large area. This lack of tautness and evenness of the foil sheet results in uneven application of heat which in turn results in what is known as "marbling," loss of gloss and other defects in the gilded surface.

The object of the present invention is to overcome this disadvantage and in accordance with the invention this is achieved by applying the gold transfer or embossing foil to the surface to be gilded under heat and pressure in at least two stages the process being carried out at a higher

temperature in the last stage than in the first stage or previous stages.

In a preferred form of the invention the gilding process is carried out in two stages by two heating rollers, the temperature differential between the first and second stage being controlled by placing a sheeting made of woven glass fibers impregnated with rubber or other suitable material between the heating roller and the foil in the first stage and applying the heating roller direct on the foil in the last stage.

The placing of the sheeting between the heated roller and the transfer or embossing foil has a two-fold effect. Firstly it has the effect of smoothing the foil evenly over the surface to be gilded and secondly it delays the transference of heat from the roller to the foil until the desired degree of pressure has been applied. The heat of the roller and the thickness, or heat insulating qualities, of the sheeting, however, must be such that sufficient heat is transferred to the transfer or embossing foil to cause the layer of gold to adhere to the surface to be gilded.

Thus, during at least the first stage the gold transfer or embossing foil is smoothed evenly over the surface to be gilded and is pressed firmly onto the said surface under a limited amount of heat by the heated roller through the intermediary of the sheeting, and in at least the last stage is pressed firmly onto the surface to be gilded directly by the heated roller under increased heat.

In carrying out the invention a single heated roller or two or more heated rollers may be used. With a single heated roller the glass based rubber sheeting is placed between the roller and the gold transfer or embossing foil during the first stage and is removed during the last stage. Preferably however, two heated rollers are employed and the glass based rubber sheeting used in conjunction with the first roller only.

In order that the invention may be more clearly understood one particular embodiment of apparatus for carrying the invention into effect will now be described, by way of example, with reference to the accompanying drawings wherein:

FIGURE 1 is a side elevation of the apparatus according to the invention.

FIGURE 2 is a plan view thereof.

FIGURE 3 is a sectional view of a detail on the line III—III of FIGURE 2.

FIGURE 4 is a cross-section of a detail of the heating rollers and heating elements therefor on the line IV—IV of FIGURE 2.

FIGURE 5 is a section on the line V—V of FIGURE 1, and

FIGURE 6 is a diagrammatic view in perspective of the pneumatic operating means for the heating rollers.

Referring now to these drawings the apparatus comprises a supporting frame structure 7, means mounted within said structure for clamping a plurality of books 8 at one end thereof with the surfaces 8*a* of the books which are to be gilded in a substantially horizontal plane and facing upwards and a carriage 9 adapted to travel on rails 10 over said books 8 and carrying the means for applying gold transfer or embossing foil to the said surfaces of the books as hereinafter more fully described.

The means for clamping a plurality of books in the apparatus with the surfaces to be gilded in a horizontal plane and facing upwards comprises two clamping jaws 11 and 12, the jaw 11 being fixed in the frame structure and the jaw 12 being movable towards and away from the fixed jaw 11. The jaw 12 is threaded onto a pair of screw threaded parallel shafts 13, 14 and guide rods 21, 22, said shafts 13, 14 passing through tapped nuts 15 and 16 fitted in holes passing through the ends of said jaw 12. The shafts 13, 14 are rotatably mounted in suitable bearings in the frame structure 7 and adapted to be

rotated, to cause the jaw **12** to be moved towards or away from the jaw **11**, by a crank handle **17**. In order to ensure that even pressure is applied over the width of the books **8** when they are being clamped in position the two shafts **13** and **14** are coupled by a chain **18** and pinions **19** and **20** so that rotation of the crank handle **17** causes equal rotation of the two shafts **13** and **14**, and consequently equal pressure over the whole width of the books by the jaw **12**.

The carriage **9** is provided with upper supporting rollers **23** and lower guide rollers **24** by means of which said carriage is movable freely upon the longitudinally disposed rails **10** rigidly mounted on each side of the frame structure **7**. The carriage **9** is driven along said rails **10** by an electric motor **25** through friction coupling means comprising a grooved pulley **26** keyed to the shaft of the motor **25**, and a larger grooved pulley **27** rigidly mounted on a shaft **28** mounted in suitable bearings in the frame of the carriage **9**. At each end of this shaft **28** is keyed a pinion **29** which engages a rack **30** mounted on the rail **10**. Over the two pulleys **26** and **27** is a power transmission belt **31** and between the two pulleys **26** and **27** is a belt tensioning device which comprises a vertically movable spring loaded operating arm **32**. This operating arm is vertically slidable over a guide pin **33** and a spring **34** tends to raise the arm into its upper or inoperative position. At the lower end of arm **32** is mounted a roller **35** adapted to press down on the upper run of the transmission belt **31** when said arm is in its lower or operative position. Thus when the motor **25** is running it drives pulley **26** and when the operating lever is pressed down into its operative position the transmission belt is tensioned and therefore frictionally engages pulley **27** so that the pinions **29** are driven and thus the carriage **9** caused to travel along the rails **10**. Similarly when the operating arm is moved to its upper or inoperative position tension is removed from the transmission belt **31** which therefore runs freely around the pulley **27** without driving it so that the carriage **9** then remains stationary. The operating arm **32** is of course provided with a catch (not shown) or other suitable means for holding it in its operative position against the action of the spring **34**.

Rotatably mounted transversely of the carriage **9** and in tandem are two heat rollers **36** and **37** mounted on shafts **36***a* and **37***a* respectively which are rotatably mounted in suitable bearings as hereinafter described. The shafts **36***a* and **37***a* are coupled to the electric motor **25** by a friction coupling means comprising pulleys **36***b* and **37***b* keyed to the shafts **36***a* and **37***a* respectively and adapted to be engaged frictionally by a driving pulley **38** mounted on the shaft of the motor **25**. The heated rollers are movable vertically into a lower operative or an upper inoperative position by pneumatically operating means hereinafter more fully described. The heated rollers are each situated closely adjacent an electric heating element **39**, **40** and whilst in the said inoperative positions are continuously rotated, by the electric motor **25** through the aforesaid friction coupling means **36***b*, **37***b*, **38**, in order to ensure that said rollers are evenly heated by said heating elements over the whole of their peripheral surfaces. Said rollers are made from relatively soft heat resisting material, such as silicone-containing rubber, and in order to prevent them from becoming damaged by overheating when the motor **25** is stopped, and said rollers consequently stop rotating, the heating elements **39** and **40** are mounted on pivots **41**, **42** so that upon stopping the motor **25** they can be pivoted away from said heated rollers. Said heating elements **39** and **40** are each provided with an adjusting screw **39***a*, **40***a* whereby the proximity of the said heating elements **39**, **40** to the rollers **36**, **37** in their inoperative position can be regulated. The heating elements, as more clearly seen in FIGURE 4 comprise electric resistance elements **39** mounted in a block **39***a* of good heat conducting material and having an arcuate recess **39***b* into which the heating roller projects thus ensuring high heat concentration.

Mounted above the heated rollers **36** and **37** is a reel or spool **43** on which is wound a sheet **44** of suitable heat resisting material for example a sheeting. This sheet of material **44** passes vertically downwards between the two heated rollers **36** and **37** under a guide roller **45** and then horizontally below the heated roller **37**, the outer free end **44***a* of said sheeting **44** being secured in any suitable manner to a cross member **7***a* of the frame structure **7**. The reel or spool **43** is spring loaded in any known manner and the arrangement is such that as the carriage **9** travels in the direction of the arrow in FIGURE 1 the sheet **44** is unrolled from the spool **43** whilst the roller **37** passes over it, and is re-wound onto the spool under the action of the spring when the carriage is returned to its initial inoperative position.

Mounted on the carriage **9** are two pairs of pneumatic cylinders **46** and **47** for effecting the vertical movements of the heated rollers **36** and **37** respectively. These cylinders are supplied with compressed air, from any suitable source, through pipe lines **48**, **49**; pipe lines **50**, **51**; control valves **52**, **53**; pipe lines **54**, **55** and a main supply pipe **56**. The control valves **52** and **53** are opened or closed by switches **57** and **58** respectively. On the frame structure of the apparatus is a trip member **59** which is arranged so as to operate the switches **57**, **58** in the correct sequence respectively to open and close the pneumatic circuits as the carriage **9** moves into its operative and inoperative positions. In each of the pneumatic cylinders is a piston connected with one end of a piston rod **46***a*, **47***a* which is connected at its opposite outer end with a block **46***b*, **47***b* in which the bearing of the shaft of the heated rollers is mounted. The heated rollers are moved downwards into operative position by pneumatic pressure and are moved back into inoperative position by spring means mounted in the cylinders **46**, **47** and acting on the pistons slidable therein. A pressure gauge **60** is preferably provided in the pneumatic circuit.

In operation the carriage **9** is moved by hand to the left-hand end of the apparatus (as seen in FIGURES 1 and 2). A plurality of books whose edges are to be gilded is then clamped into position as shown at **8** in FIGURES 1 and 2 with the surface **8***a* to be gilded in a horizontal plane and facing upwards. The surface to be gilded is then prepared, for example by glass-papering or other suitable means, until said surface is smooth and even. Whilst the surface to be gilded is being thus prepared the electric motor **25** is switched on and the operating arm **32** moves into its upper inoperative position so that the carriage **9** remains stationary. The heated rollers **36** and **37** are however continuously rotated through the friction coupling **36***b*, **37***b*, **38** and whilst being rotated are heated by the heating elements **39**, **40**. When the surface **8***a* to be gilded is suitably prepared and the rollers **36** and **37** have been heated to the required temperature a sheet of gold transfer foil is laid on the surface **8***a* of the books and the carriage moved by hand to the extreme right-hand end of the machine so that it is situated over the books **8**. During this movement of the carriage the glass based sheeting **44** is unrolled from the reel or spool **43** and laid over the transfer foil on the surface **8***a*. The operating arm **32** is then pressed down into its operative position, that is into the position shown in FIGURE 1 in which the transmission belt **31** is put under tension. The driving pinions **23** are thus driven and the carriage thereby moved in the opposite direction to the arrow (FIGURE 1). When the carriage reaches a position in which the heated roller **37** is positioned above the right-hand end of the books **8** the trip **59** operates the switch **58** of the control valve **53** whereupon said valve is opened and air under pressure is fed to the pneumatic cylinders **47** which then operate to press the heated roller **37** down onto the sheeting **44** and thereby presses the sheet of transfer

foil firmly onto the surface 8*a* to be gilded. As the heated roller 37 is thus moved into its operative position it is of course moved out of engagement with the roller driving means 38, 36*b* and is caused to roll over the sheeting 44 due to its contact therewith. The gold transfer foil is thus pressed onto the surface 8*a* under heat and pressure whereby the gold transfer foil is caused to adhere to the surface 8*a*. By reason of the sheet 44 being situated between the roller 37 and the transfer foil in this first stage of the process, the foil is not only pressed smoothly and evenly onto the surface 8*a* to be gilded but the foil is protected from radiated heat from the roller and its temperature is not raised until it is under pressure, in other words the transfer of heat from the roller to the foil is delayed until the foil is under pressure. The result of this is that heat is transferred through to the undersurface of the foil causing it to adhere to the surface 8*a* without overheating the foil and causing "marbling" or loss of gloss as hereinbefore described.

As the carriage 9 continues to travel over the books 8 the glass based rubber sheeting 44 is gradually wound back onto the reel or spool 43 under the action of the spring of the reel or spool 43 and the heated roller 36 moved above the right-hand end of the books 8. At this point the switch 57 of control valve 42 engages with and is operated by the trip 59 whereupon the pneumatic cylinders 46 are supplied with air under pressure and thereby press the heated roller down directly onto the gold transfer foil on the surface 8*a* of the books 8. The transfer foil, in this second stage of the process, is thus pressed under direct heat and pressure onto the surface 8*a* at a higher temperature than during the first stage because in this second stage the heated roller operates directly on the transfer foil without the sheeting between the roller and the foil. Thus the adhesive layer of the foil is melted into the surface 8*a* of the books and consolidates the gilding process. As the rollers 37 and 36 move out of engagement with the books during the travel of the carriage the switches 58 and 57 engage a second trip (not shown) to operate the valves 53 and 52 to disconnect the cylinders 47 and 46 from the source of air under pressure whereby the heating rollers are moved back into their inoperative position where they are again rotated as above described in close proximity to the heating elements 39 and 40. When the operation has been completed the operating arm 32 is raised to stop the carriage until a further pile of books 8 are clamped in position when the above described operation is repeated.

It must be understood that the invention is not limited to the particular embodiment herein described, for example it may be carried out in more than two stages provided the last stage is carried out at a temperature higher than in the first stage. It must also be understood that the application of heat and pressure may be applied other than by means of rollers. It will also be understood that the precise temperatures under which the process is carried out may vary according to circumstances, such as the type of foil used, but it has been found that satisfactory results are achieved if the blocks 39, 40 of the heating elements are thermostatically controlled with a thermostat setting of 200° C. on block 40 of the first stage and 250° C. on block 39 of the second stage. With these temperatures the carriage and therefore the heated rollers should be moved across the surface to be gilded at 12 to 24 inches per minute.

I claim:

1. A process for gilding the edges of sheet material comprising the steps of: placing the edges to be gilded in a common plane, covering the edges with a sheet of gold transfer foil, rolling a roller having a uniform external surface temperature across said transfer foil to adhere the foil preliminarily to the edges and then rolling a roller having a higher external uniform surface temperature across said foil in direct contact therewith

to adhere the foil permanently to the edges by the application of increased heat.

2. An apparatus for gilding the edges of sheet material comprising a supporting frame, a clamp carried by said frame for clamping a plurality of sheets to be gilded thereto, a carriage supported upon said frame for movement across the edges of said sheets to be gilded, several pressure rollers for pressing a sheet of gold transfer foil onto the surface of the sheets to be gilded, said rollers being rotatably carried by said carriage, and an external heating means disposed adjacent to the periphery of each of said rollers for externally heating the same, said external heating means being arranged to transmit different temperatures to the surfaces of said rollers, the heating means adjacent to the last applied one of said rollers transmitting the highest temperature.

3. Apparatus for gilding the edges of sheet material comprising, in combination, a supporting frame, a clamp carried by said frame for clamping a plurality of sets of sheets to be gilded thereto, a carriage supported upon said frame for movement across the edges of said sheets to be gilded, at least two rollers for successively pressing a sheet of gold transfer foil on to the edges of the sheets to be gilded, said rollers being rotatably supported upon said carriage spaced in the direction of movement of said carriage, and heating means externally spaced from each said roller and maintaining said rollers at different temperatures, the roller first in the direction of movement of the carriage being maintained at the lower temperature with reference to the transfer foil.

4. An apparatus according to claim 3, further comprising a heat insulating sheet, a spring loaded reel supporting said insulating sheeting for movement under one of the heated rollers, said sheeting being positioned between said heated roller and the foil on which said roller is pressed.

5. Apparatus for gilding the edges of sheet material comprising, in combination, a supporting frame, a sheet holder on said frame for receiving a plurality of sheets to be gilded, a rotatable pressure roller made of soft rubber and supported by said frame for pressing a sheet of transfer foil on the edges of the sheets to be gilded, means for effecting relative displacement between said roller and said holder, external heating means spaced from said roller and being immediately adjacent to exterior surfaces thereof, for supplying a predetermined amount of heat to said exterior surfaces of said roller uniformly heating the surface of the same, and said roller upon being subjected to said predetermined amount of external heat being so constructed and arranged to impart pressure to the edges of the sheets to be gilded and an interposed sheet of transfer foil so that the foil is secured on the edges of the sheets to be gilded.

6. An apparatus for gilding the edges of sheet material comprising, in combination, a supporting frame, a sheet holder on said frame for receiving a plurality of sheets to be gilded, a rotatable pressure roller made of soft rubber and supported by said frame for pressing a sheet of transfer foil on the edges of the sheets to be gilded, means for effecting relative displacement between said roller and said holder, external heating means spaced from said roller and being immediately adjacent exterior surfaces thereof for supplying a predetermined amount of heat to the external peripheral surface of said roller, said roller being continuously driven and rotatable relative to said heating means to effect uniform heating of the surface of the roller, and said roller upon being subjected to said predetermined amount of external heat being so constructed and arranged to impart pressure to the edges of the sheets to be gilded and an interposed sheet of transfer foil so that the foil is secured on the edges of the sheets to be gilded.

7. Apparatus for gilding the edges of sheet material comprising, in combination, a supporting frame, a sheet holder on said frame for receiving a plurality of sheets

to be gilded, a rotatable pressure roller made of soft rubber and supported by said frame for pressing a sheet of transfer foil on the edges of the sheets to be gilded, means for effecting relative displacement between said roller and said holder, first external heating means spaced from said roller and being immediately adjacent exterior surfaces thereof for supplying a predetermined amount of heat to the external peripheral surface of said roller, said roller upon being subjected to said predetermined amount of external heat being so constructed and arranged to impart pressure to the edges of the sheets to be gilded and an interposed sheet of transfer foil so that the foil is secured on the edges of the sheets to be gilded, and second external heating means for cooperating in temporarily affixing the sheet of transfer foil to the edges of the sheets so that said transfer foil adheres evenly over the edges of the sheets prior to its securement thereto by said roller, said second external heating means supplying to the peripheral surface of the roller a lower predetermined amount of heat than said first external heating means.

8. A device for gilding the edges of sheet material comprising a supporting frame, a rotatable pressure roller made of silicone-containing rubber and supported by said frame for pressing a sheet of transfer foil on the edges of the sheets to be gilded, means on said frame for driving said roller, external heating means spaced from said roller and being immediately adjacent exterior surfaces thereof for supplying a predetermined amount of heat to the external peripheral surface of said roller, said roller being continuously driven and rotatable relative to said heating means to heat the surface of the roller to a uniform temperature, and said roller—upon being subjected to said predetermined amount of external heat—being constructed and arranged to be adapted to impart pressure to the edges of the sheets to be gilded and an interposed sheet of transfer foil so that the foil is secured on the edges to be gilded.

9. An apparatus for gilding the edges of sheet material, said apparatus comprising, in combination, a supporting frame, clamping means for clamping a plurality of sheets to said frame with the edges to be gilded in a common plane, a carriage supported on said frame movable across said edges in a plane parallel thereto between a starting position and an end position, a roller supported on said frame movable between an operative position and an inoperative position, said roller in its operative position pressing a sheet of gold transfer foil onto the edges of the sheets when and while the carriage is moved across said edges, external heating means supported on said frame for uniformly heating the surface of the roller in its inoperative position, and heat shielding means supported on the frame, said heat shielding means being movable between a first position interposed between said edges and the roller in the operative position to apply the heat of the roller to the foil through said heat shielding means and a second position withdrawn from said interposed position to apply the heat of the roller directly to the foil whereby a differential degree of heat is applied to the foil when the carriage is passed twice across the edges of the sheet material, the first pass effecting a preliminary adherence of the foil and the second pass a permanent adherence.

10. An apparatus according to claim 9 wherein said shielding means comprise a sheet of pliable heat resistant material which is extended between the edges of the sheet material and the roller in its first position and rolled up in its second position to uncover the edges of the sheet material.

11. An apparatus for gilding the edges of sheet material, said apparatus comprising, in combination, a supporting frame, clamping means for clamping a plurality of sheets to said frame with the edges to be gilded in a common plane, a carriage supported on said frame movable across said edges in a plane parallel thereto between a starting position and an end position, a pair of rollers supported on said frame spaced apart in the direction of movement of said carriage from its starting position toward its end position, said rollers being movable between a raised position and a lowered position in reference to the plane of the edges to press in the lowered position a sheet of gold transfer foil onto the edges of the sheets when and while the carriage is moved across said edges, external heating means for externally heating the surface of the rollers in the raised position thereof, heat shielding means movably supported on the frame, and means for interposing said heat shielding means between foil placed upon the edges and the roller first passing over the edges in the direction of movement of the carriage toward its end position and withdrawing the heat shielding means after passage of the first roller whereby the heat of said first roller is applied to the foil through said heat shielding means and the heat of the other roller is applied to the foil directly.

12. Apparatus according to claim 11 and comprising drive means for rotating the rollers in the raised position thereof to effect uniform heating of the surfaces thereof, said rollers being freely rotatable in the lowered position thereof to be rotated by engagement with the shielding material and the transfer foil, respectively.

13. Apparatus according to claim 11 wherein said heat shielding means comprise a web of pliable heat resistant sheet material and a spring loaded arbor rotatably supported on said frame, one end of said web being secured to said arbor and the other to said frame, said web extending between the plane of said edges and said first roller, said arbor being positioned in reference to the two rollers so that the web is unwound from the arbor and extended across the edges to be gilded when the carrier is in its starting position winds itself upon said arbor after passage of the first roller and as the carrier is moved toward its end position thus uncovering the edges of the sheet material for direct contact with the second roller.

14. An apparatus according to claim 3, wherein said two differentially heated rollers are mounted in tandem and each vertically movable, pneumatic means coacting with said rollers for moving the same between an upper inoperative position and a lower operative position, and control means controlling the movements of said rollers by said pneumatic means into the operative position and inoperative position, respectively, separately and in successive sequence.

15. An apparatus according to claim 14, wherein said control means comprise trip means controlled by the travel of the carriage and switches controlled by said trip means to operate the pneumatic means.

16. An apparatus according to claim 15 and further comprising drive means for rotating said rollers, and releasable coupling means for drivingly coupling said drive means to said rollers, said coupling means being controlled by the positions of the rollers to couple either roller to the drive means in response to movement of the respective roller into its operative position and to uncouple the respective roller from the drive means in response to movement of said roller into its inoperative position.

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