

Dec. 6, 1966

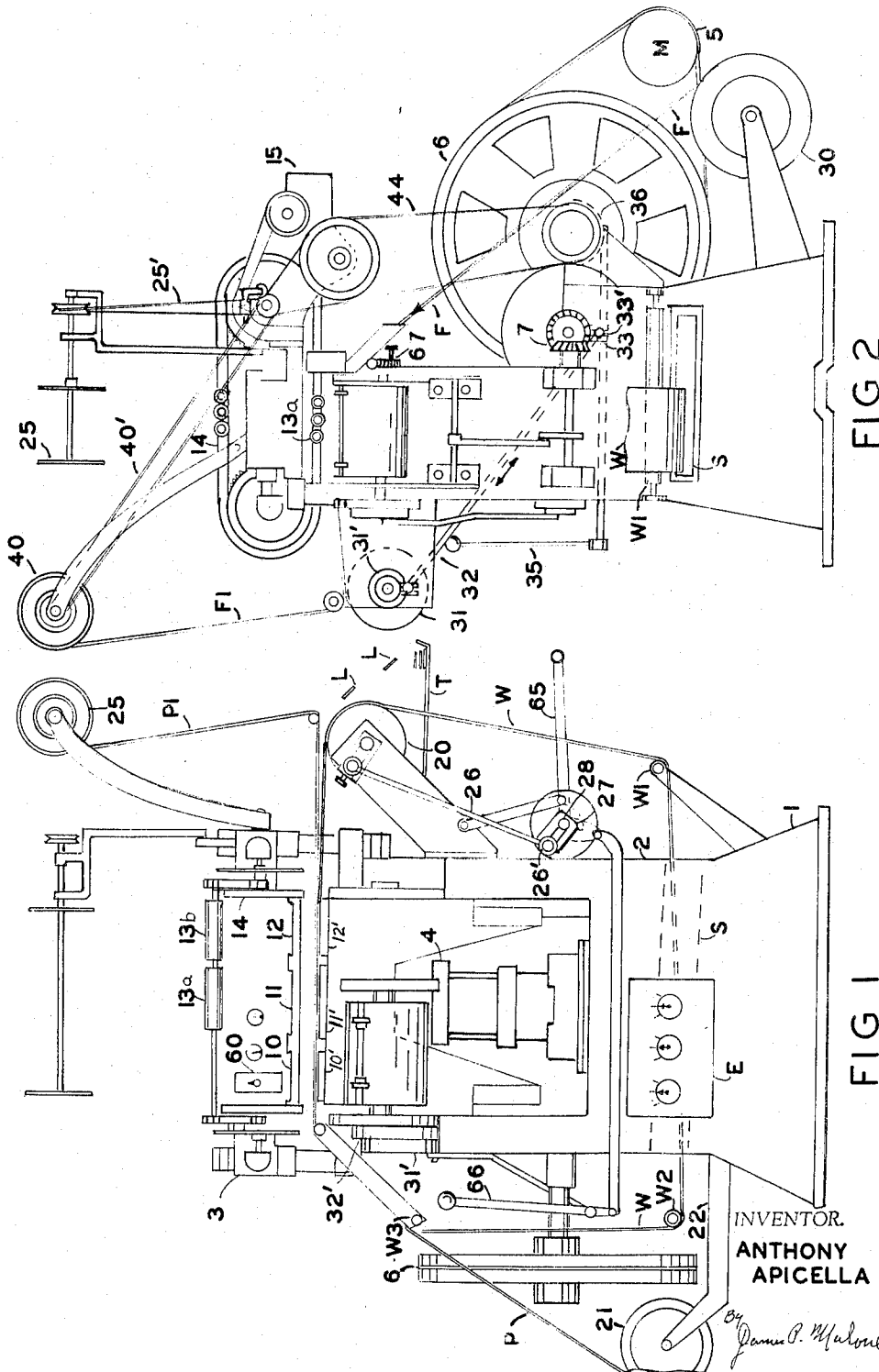
A. APICELLA

3,289,573

PRINTING AND STAMPING PRESS

Filed March 9, 1965

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

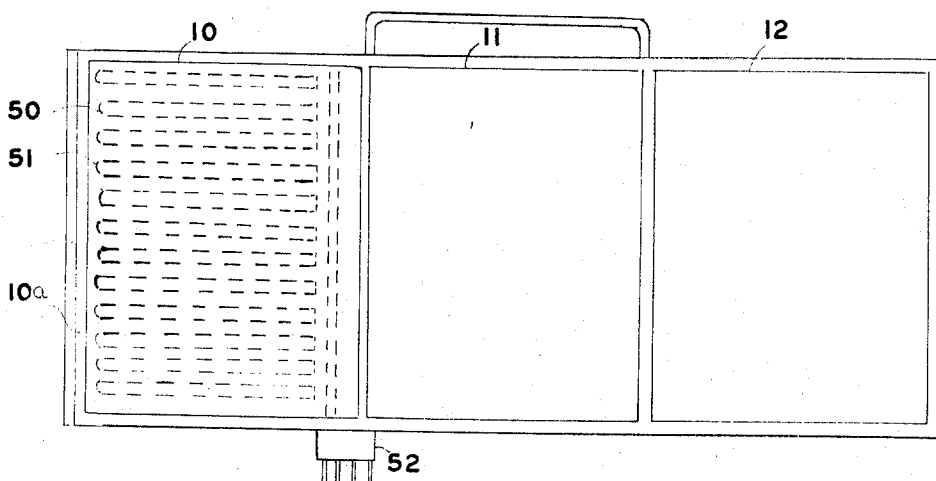


FIG 3

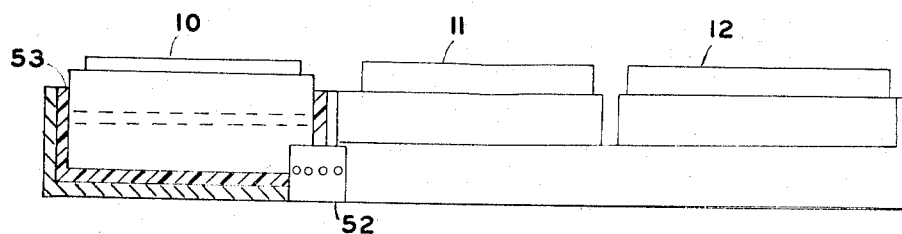


FIG 3A

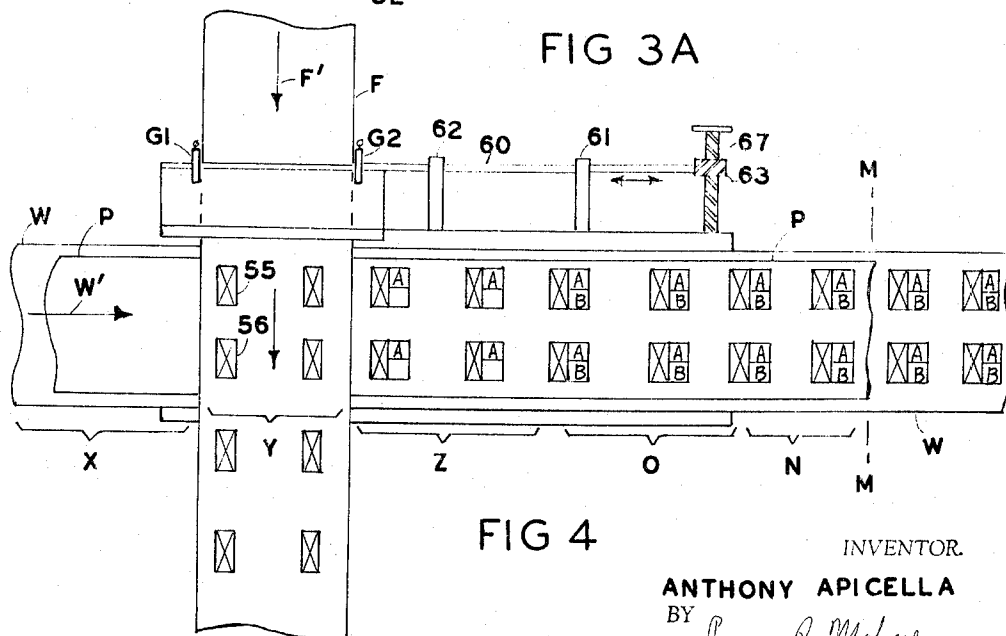


FIG 4

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## PRINTING AND STAMPING PRESS

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This invention relates to printing press means and more particularly to means for simultaneously printing on and applying metal foil to a web.

The present invention generally comprises a reciprocating press having a plurality of dies. The dies may be inked with different colors. One or more of the dies may be a stamping die for simultaneously applying transfer stamping materials such as gold foil, gold leaf or pigment coated plastic. The paper or other web which is to be printed is handled in a conventional manner. The novel features are the passing of the metal foil web in a direction 90° to the direction of the main web and simultaneously printing and stamping the two webs so that the printed product may be produced simultaneously in multi colors and also has metal foil applied thereto.

Accordingly, a principal object of the invention is to provide new and improved printing and stamping means.

Another object of the invention is to provide new and improved means for simultaneously printing and applying heat transfer materials to a web.

Another object of the invention is to provide new and improved means for simultaneously printing, applying metal foil and cutting the web.

Another object of the invention is to provide new and improved printing press means comprising a reciprocating press, a plurality of dies mounted in said press, means to ink said dies with different colors, means to feed a first web in a first direction into operative contact with said dies and means to simultaneously feed a second web in a second direction at 90° to said first direction into operative contact with said dies.

These and other objects of the invention will be apparent from the following specification and drawings of which:

FIGURE 1 is a front view of an embodiment of the invention.

FIGURE 2 is a side view of an embodiment of FIGURE 1.

FIGURES 3 and 3A are plan and side detail means of the dies.

FIGURE 4 is a diagram illustrating a typical process.

Referring to the figures, there is shown a reciprocating press 1, having a main frame 2 and an upper frame 3. The main frame 2 contains a reciprocating piston member 4 which is adapted to be operated up and down in conventional manner, by means of the motor 5, the flywheel 6 and gearing 7, connected to a conventional crank shaft drive, not shown. The motor is controlled by electrical control E.

The upper frame 3 contains a plurality of stationary dies 10, 11, 12 and piston member 4 contains corresponding dies 10', 11', 12'. The upper dies are inked by rollers 13a, and 13b which go on a track 14 and which feed ink from the ink ducts 15 by means of an oscillating roller, not shown, a series of ink rollers or other conventional means. Each roller preferably inks a different color.

The inking rollers are spaced and synchronized with motion of the reciprocating head so that they do not interfere with the operation of the press.

A continuous rubber web W is fed over the feed roller 20, and around guide rollers W1, W2, and W3 and through slot S. The paper supply roller 21 is mounted on the bracket 22 and the paper web P is fed on the rubber feed web W. In the embodiment shown, the die 12 cuts out labels which are fed off the rubber web

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W into the output tray T. The waste or remainder P1 of the paper web is wound up on the waste paper roller 25. The feed roller 20 is operated with intermittent motion by means of the linkage including the oscillating connecting member 26 which is connected to adjustable arm 27 by means of pin 26'. Arm 27 is connected to the shaft 28 by a conventional unidirectional clutch drive. Shaft 28 is connected via the gear 7 back to the flywheel 6 and the motor 5. The motion may be controlled by manual brake arms 65 and 66. All the apparatus thus far described is conventional.

One novel aspect of the invention comprises means to similarly feed a web F of foil or other material which is to be selectively applied to the first web, preferably by heat sealing, in a direction perpendicular to the direction of the primary web. The foil is mounted on a roller 30 as shown in FIGURE 2 and is fed by means of feed roller 31 which is operated by unidirectional clutch 31' and the oscillating connecting member 32 which is connected at its other end to an adjustable arm member 33 by pin 33', to another unidirectional clutch. The on-off lever 35 connects the feeding mechanism to the flywheel by means of the clutch brake 36. Registration control means 67 is preferably provided.

The waste F1 from the foil web F is fed up to the roller 40 which takes it up. The waste take up webs 25 and 40 are driven for instance, by belts 25' and 40' which are connected by suitable pulleys to the ink roller drive. The ink roller drive is driven by the means of belt 44 which connects it to a pulley on the shaft of gear 7.

Therefore, when the press is operating, the two webs advance intermittently at 90° simultaneously as the press reciprocates. One of the dies 10 is preferably heated by heater 10a, FIGURE 3, and applies the foil to the primary web. The web motion is intermittent so that the webs are stationary at the time of the printing or stamping takes place.

The intermittent motion is provided by conventional unidirectional clutches or could be provided by a pawl arrangement or by cams, a Geneva movement or other conventional mechanical linkage for providing intermittent motion. Conventional speed and registration adjustments are preferably provided.

The dies are chosen to perform the desired mode of operation, for instance the die 10 may be a stamping die for applying the metal foil which may be gold foil. This die is preferably heated and either the web or the gold foil is a pressure sensitive type having a heat sensitive adhesive thereon. This die is formed to cut out the desired foil shape and stamp it on the primary web. The next die 11 may be a printing die in one color and the third die may be a printing die in another color and plus a cutting die to cut out labels. Alternatively, the first die may also cut and stamp simultaneously if desired.

When the stamping or the applying of the metal foil is done on the first die, then it is possible to print on the metal foil with the remaining dies. The applying is not limited to foil but may be paper, plastic or other material which may be formed in web form.

FIGURES 3 and 3A are plan and side detail views of the upper dies 10, 11, and 12.

The die 10 has heating means 10a comprising a group of calrod heating units 50, 51, etc. which are connected to the electrical plug 52. The die is insulated from the base by means of layer of insulation 53 which may be of Teflon or equivalent.

The die 10 is used for applying heat to the heat transfer material for instance, the gold foil.

The second die 11 is inked with a first ink color for printing and the third die 12 is inked with a second color

ink and the die 12 also has cutting edges for blanking out the labels or other work pieces from the web.

The heated die temperature is controlled by temperature control 60 as high as 650° F. depending on the material being applied.

FIGURE 4 illustrates a typical process. The primary web W is fed in a direction of arrow W' and the second web F of heat transfer material is fed in the direction of the arrow F'. The area X has unprinted material. In the area Y, each heat stamping material is applied to the primary web by means of heated die 10 which applies the cross-hatched areas 55, 56, etc. on the primary web.

The lateral registration of the foil F is accomplished by means of the guides G1 and G2 which are mounted on the shaft 60.

The shaft 60 is mounted in holding brackets 61 and 62 and is moved axially by means of worm gear 63 which is turned by the threaded registration shaft 67.

In the area Z the second die 11 prints a first color A on the labels.

In the area O, the third die 12 prints a second color B. The third die also has cutting edges for cutting out the labels.

In the area N the completed labels are shown which may be of gold leaf heat stamped and multi-color printing. Within area N the labels are still within the primary web. At the line MM, the primary web is lifted upwardly to the waste rewind spool 40 and individual labels are left on the rubber web W which delivers them to the output hopper or basket.

Many modifications may be made by those who desire to practice the invention without departing from the scope thereof which is defined by the following claims.

I claim:

1. In a label manufacturing apparatus, means for simultaneously printing and applying heat sealable material to a web comprising, a reciprocating press having an upper frame and a lower frame, an upward actuating reciprocating member on said lower frame, a plurality of corresponding dies mounted in said upper and lower frames in the same horizontal plane, means to ink said dies with different colors, means to feed a first web in a first direction into operative contact with at least one of said

dies, means to heat at least one of said dies, and means to simultaneously feed a second web of heat sealable material in a second direction at 90° to said first direction into operative contact with said heated dies, said webs being juxtaposed and stationary between said upper and lower frames at the time of printing and stamping whereby said heat sealable material of said second web is applied to said first web and said first web with said heat sealable material applied thereto is adapted to be simultaneously printed in multi colors.

2. In a label manufacturing apparatus, means for simultaneously printing, applying foil to, and cutting a web comprising, a reciprocating press having an upper frame and a lower frame, a plurality of stationary dies mounted in said upper frame, corresponding dies mounted in said lower frame, said upper and lower dies in the same horizontal plane, means to ink said dies with different colors, means to feed a first web in a first direction into operative contact with said dies, means to simultaneously feed a second web in a second direction at 90° to said first direction into operative contact with said dies, said second web being of foil, said webs being juxtaposed and stationary between said upper and lower frames at the time of printing and stamping whereby the foil material of said second web is applied to said first web and said first web with said foil material applied thereto is adapted to be simultaneously printed in multi colors and means whereby the waste of said first and second webs is removed from said webs.

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