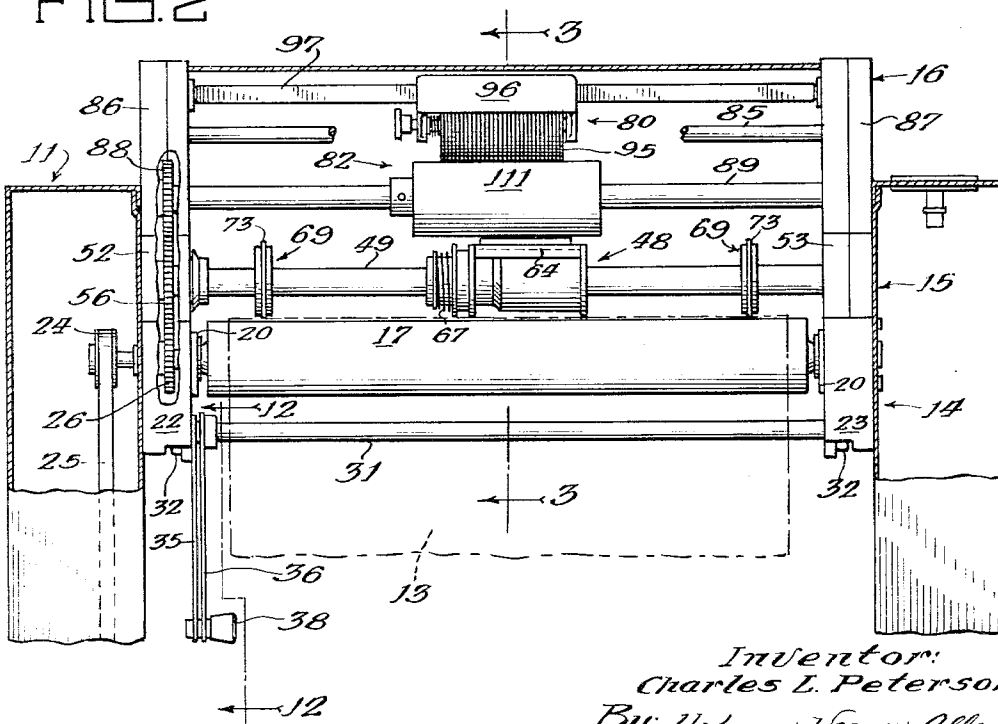
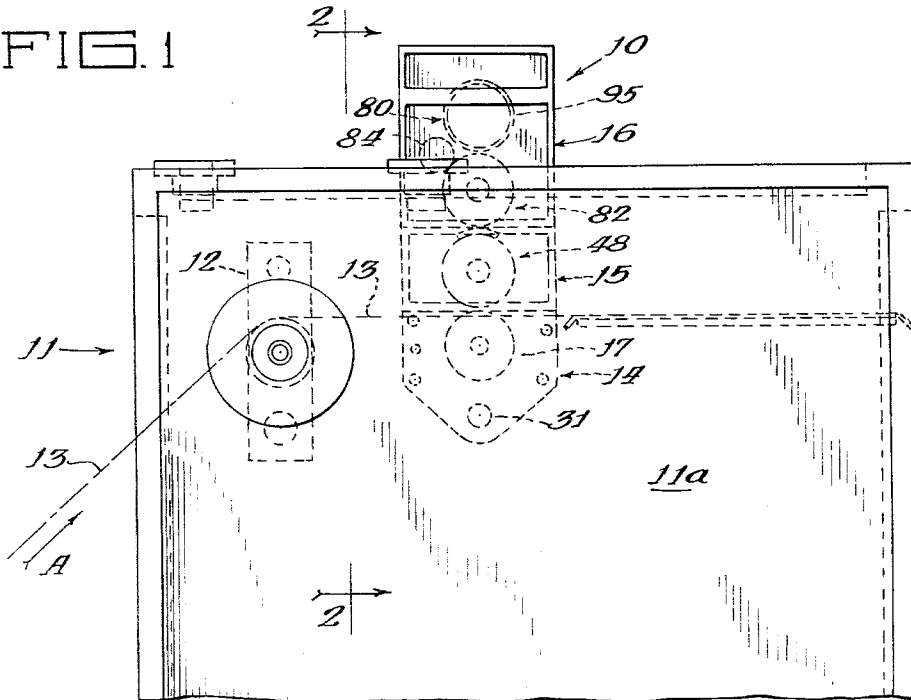


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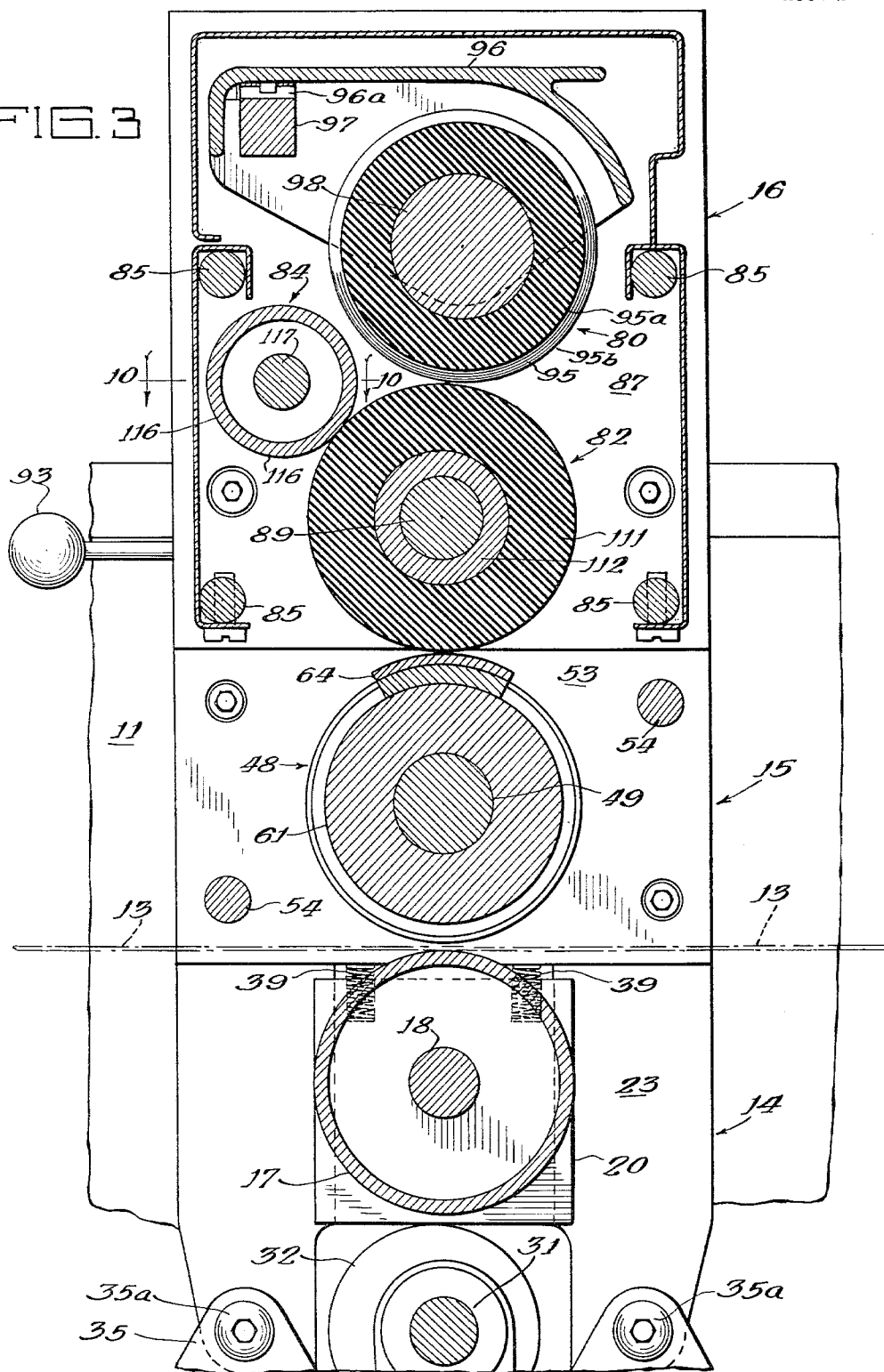
7 Sheets-Sheet 1



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By: Hofgren, Wegner, Allen,
Stellman & McCord,
Attorneys

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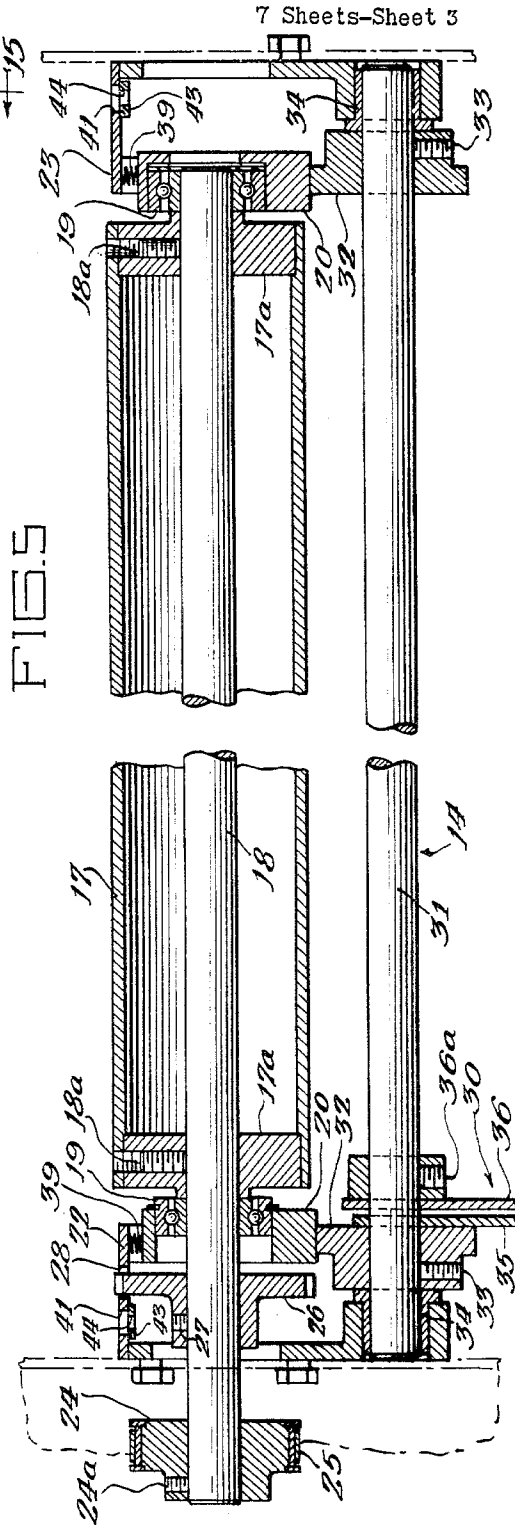
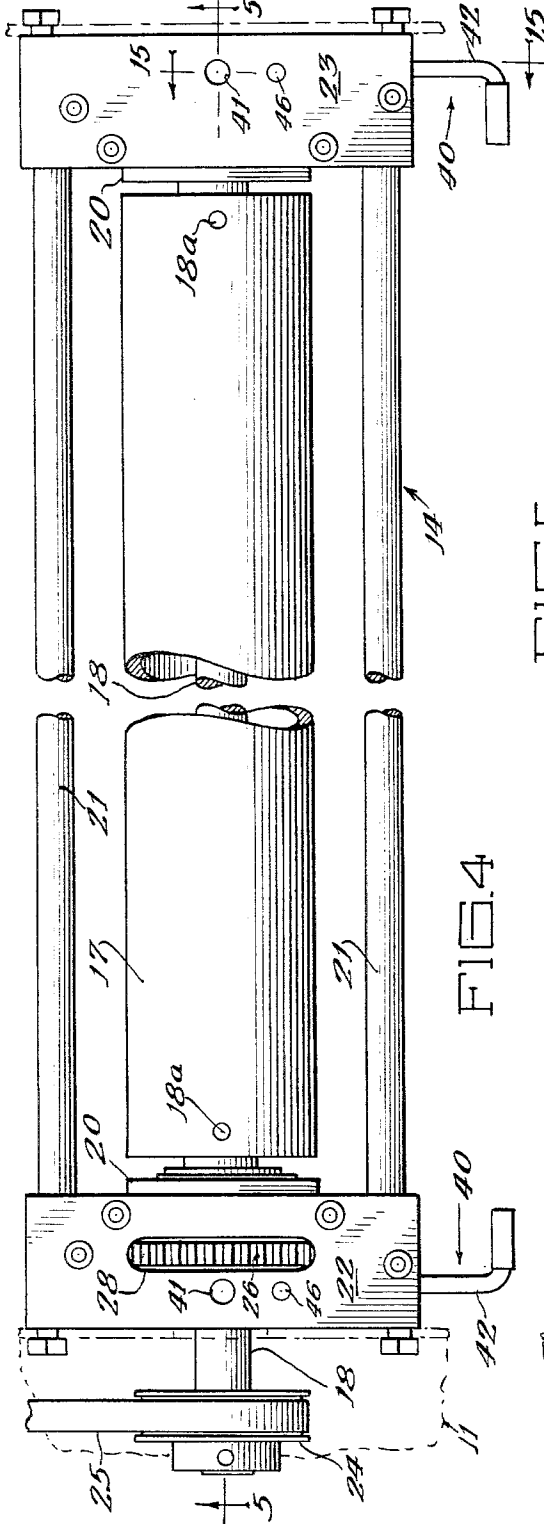
C. L. PETERSON

3,229,631

ROTARY WEB IMPRINTER

Filed April 10, 1964

7 Sheets-Sheet 3



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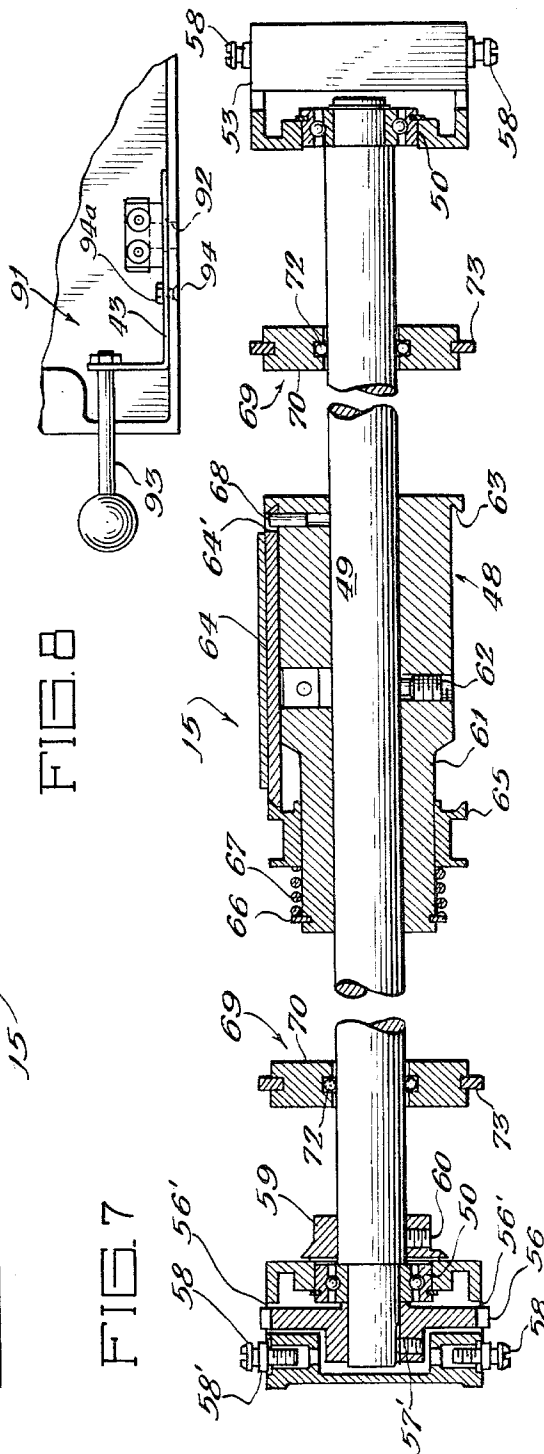
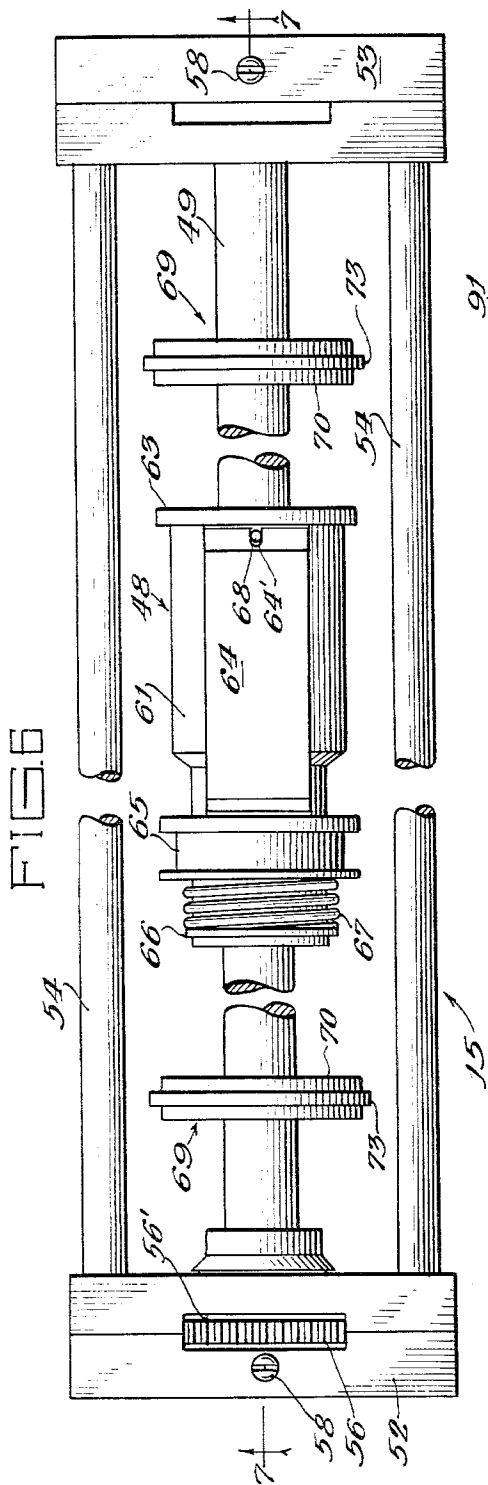
C. L. PETERSON

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ROTARY WEB IMPRINTER

Filed April 10, 1964

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C. L. PETERSON

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ROTARY WEB IMPRINTER

Filed April 10, 1964

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FIG. 9

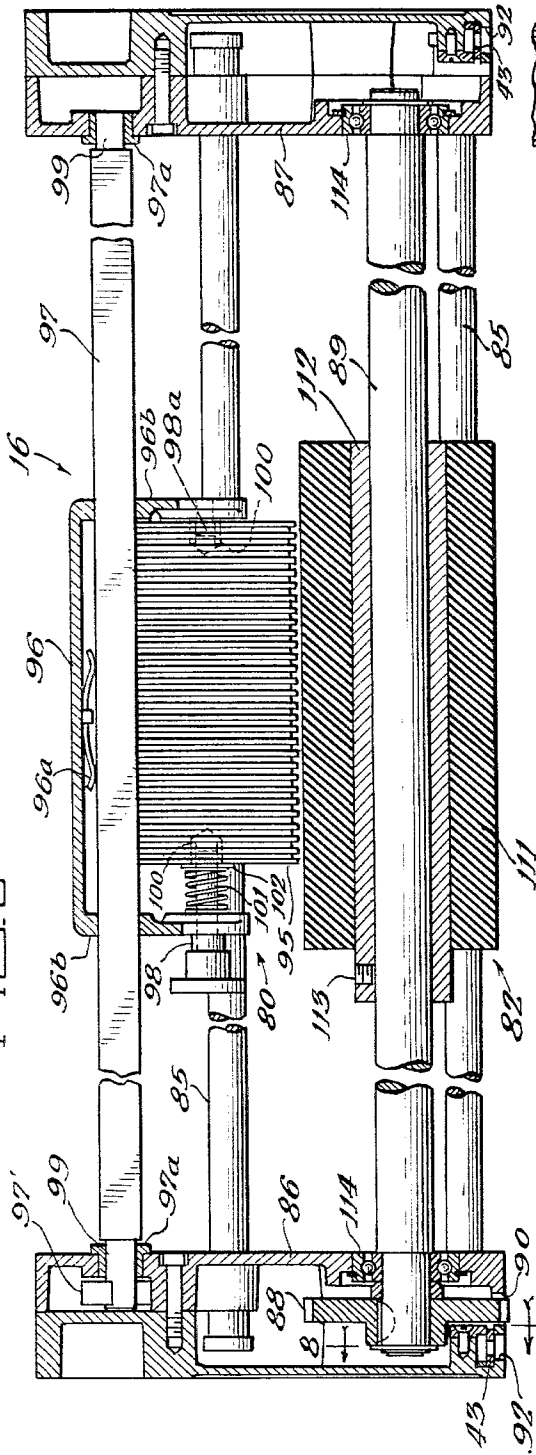


FIG. 10

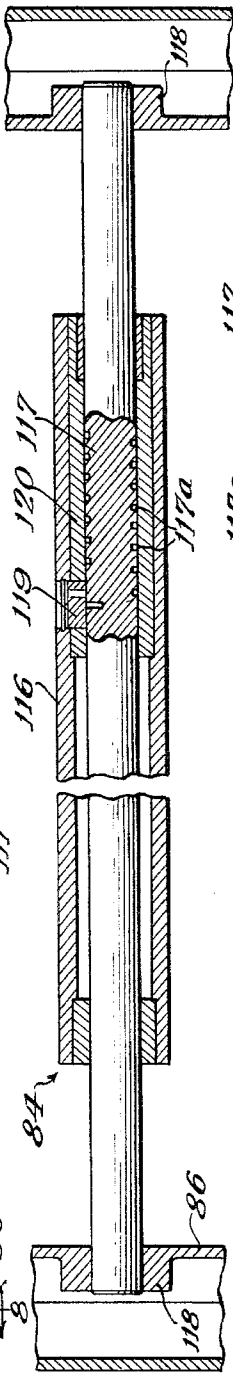
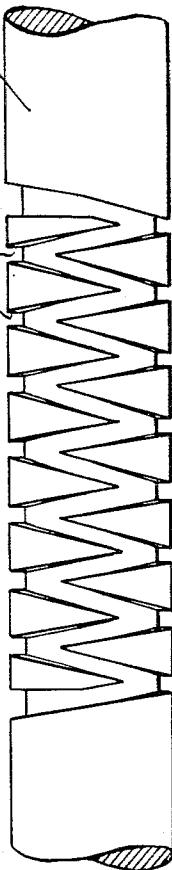


FIG. 11



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FIG. 13

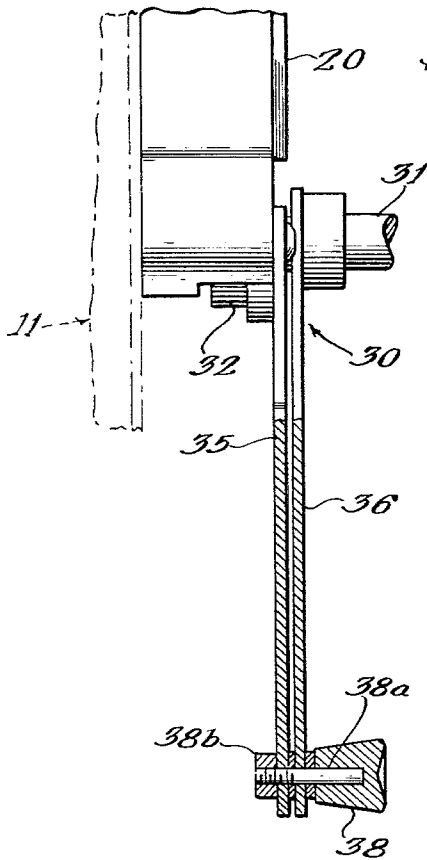


FIG. 12

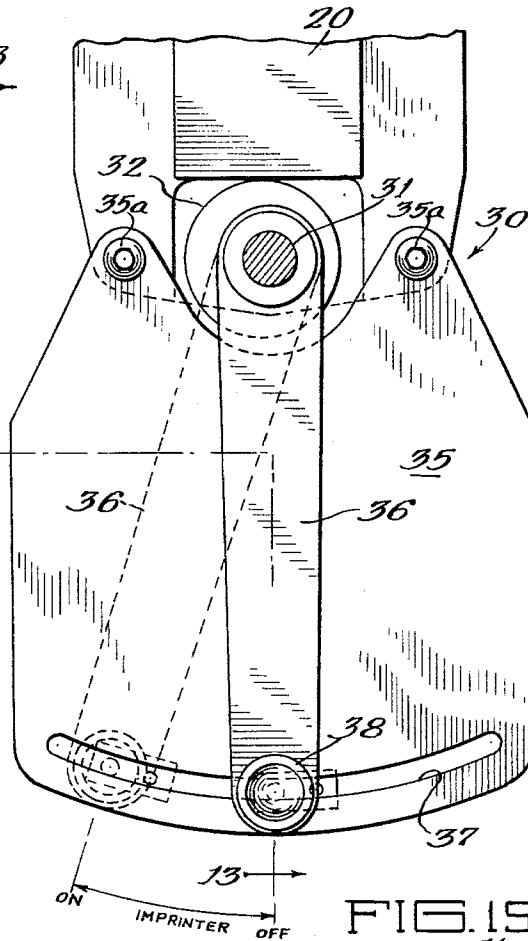


FIG. 14

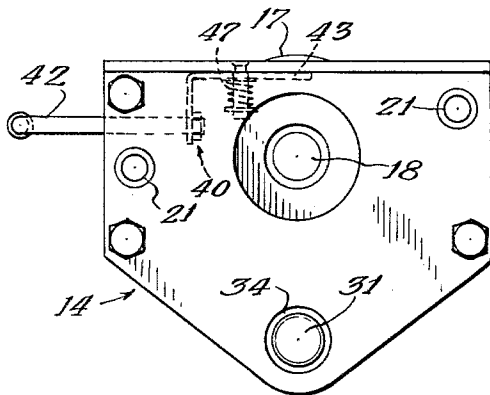


FIG. 15

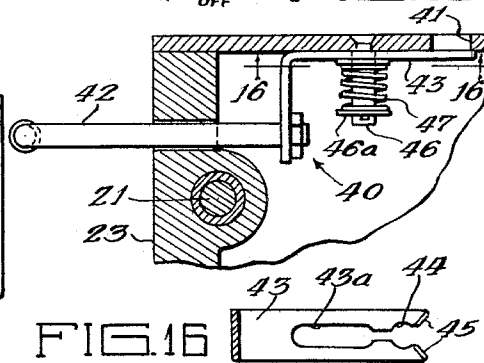
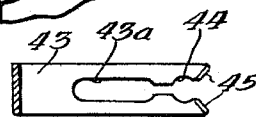


FIG. 16



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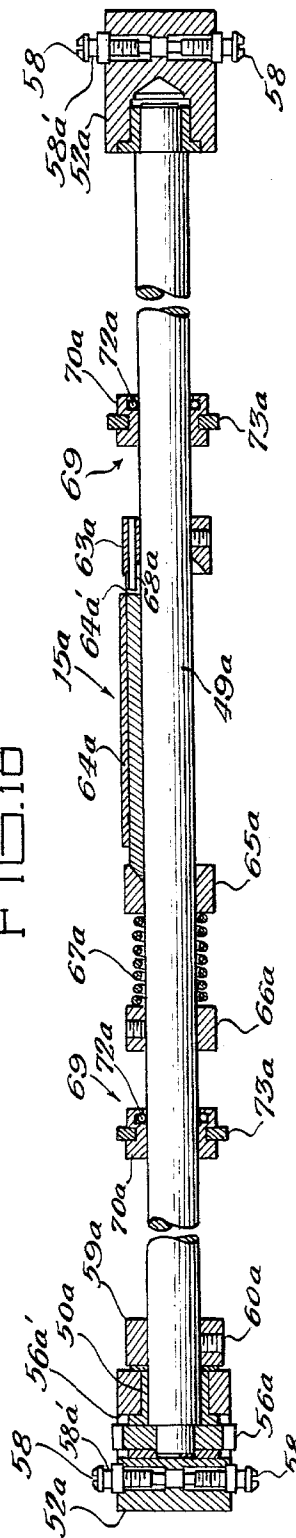
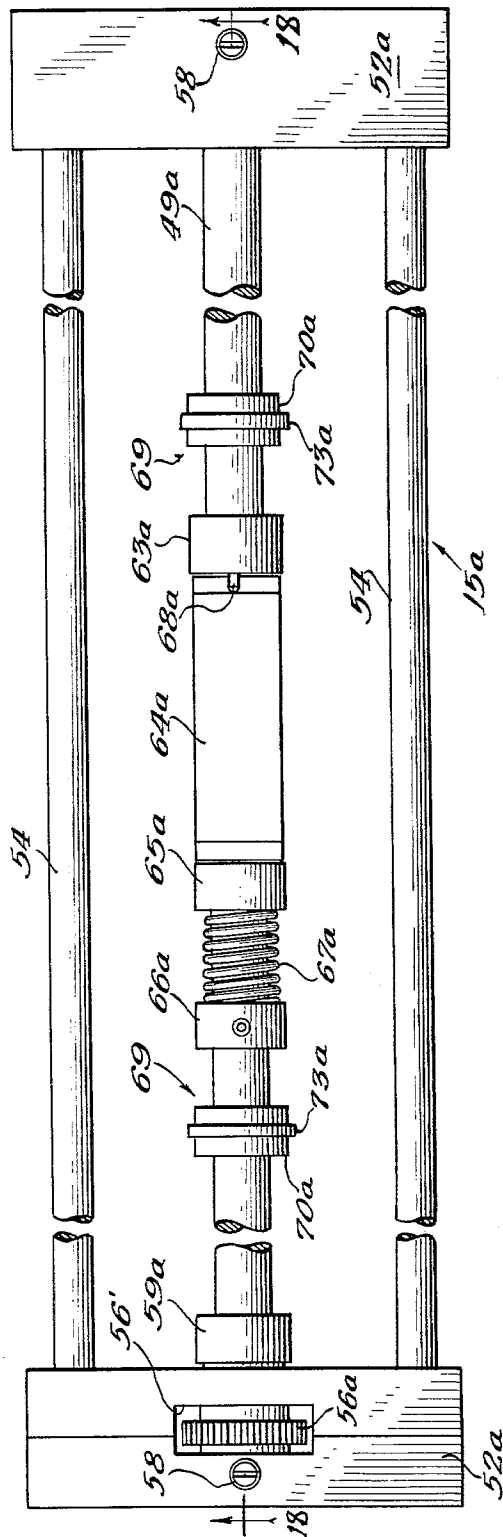
C. L. PETERSON

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ROTARY WEB IMPRINTER

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Filed Apr. 10, 1964, Ser. No. 358,776
16 Claims. (Cl. 101—228)

This invention relates to business machines and more particularly to an imprinter attachment for business machines for printing continuous form stationery.

Imprinters are frequently attached to business machines, such as bursters or trimmers, for printing indicia on the continuous form stationery to be fed through the machine. One common use for such imprinters is the printing of a signature on a series of checks. The continuous form stationery printed by the imprinter is of the type generally having control punched holes in the margins thereof so that the stationery can be driven by suitable engagement with pinfeeding mechanisms.

Some imprinters hitherto known were limited to performing their printing function at the point of pinfeeding of the stationery. This meant, in the case of trimmers, that the imprinting had to be done at a point in advance of the trimming or removal of the marginal portions of the stationery which contain the control punched holes.

Other imprinting units were relatively cumbersome and installation of the units took a great deal of time. These units generally required the use of some common and some special tools to place them in operable condition. Moreover, most imprinters are permanently mounted in another unit, such as a trimmer, and cannot be removed and stored out of the way when not being used. Another problem with hitherto known imprinters was their lack of versatility in the "repeat pattern." The term "repeat pattern" is used to define the distance between each successive printed signature or other data. This distance or "repeat pattern" differs depending upon the length of the individual forms of continuous form stationery being fed through the business machine. Some former imprinters were capable of printing a limited number of repeat patterns. For more versatility, more imprinter units were required. Thus, though the business machine itself might be capable of substantially unlimited versatility in processing the continuous form stationery for its imprinting function it was limited to the extent of the capabilities of the imprinter unit being used with it.

Another limitation of former imprinter units was that it was necessary to stop the business machine to resupply the ink reservoir with ink. Once the machine was started, the initial applications were often made with too much ink resulting in a blotchy impression. This could necessitate repeated stoppage of the machine until the ink supply was suitably adjusted.

It is therefore a general object of this invention to provide a new and improved imprinter attachment for business machines.

It is a primary object of this invention to provide a new and improved imprinter attachment for business machines capable of printing stationery which has had the control punched margins removed therefrom, having components which may be easily assembled without the need for any tools, having an ink reservoir which may be resupplied without halting the imprinting process and which has increased versatility in the repeat pattern capabilities with the aid of one easily interchangeable component.

It is another object of this invention to provide a new and improved imprinter attachment for a business machine which propels paper through the attachment.

It is still another object of this invention to provide a new and improved imprinter attachment for a trimmer which is capable of imprinting continuous form stationery

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after the control punched marginal material has been removed therefrom.

It is yet another object of this invention to provide a new and improved imprinter attachment for a business machine which may imprint continuous form stationery at a point in the path of stationery travel beyond the pin-feed control thereof.

It is a further object of this invention to provide a new and improved imprinter attachment for a business machine having means for controlling the intensity of the impression being printed on stationery fed therethrough.

It is still a further object of this invention to provide a new and improved imprinter attachment for a business machine having components which may be easily inserted and removed without the need for any tools.

It is another object of this invention to provide a new and improved imprinter attachment for a business machine capable of printing a wide range of "repeat patterns" with the use of but a single easily interchangeable component.

It is still another object of this invention to provide a new and improved imprinter attachment for a business machine having an easily removable ink reservoir which may be quickly and easily replaced without the need for any tools.

It is a further object of this invention to provide a new and improved imprinter attachment for a business machine having an ink reservoir which is selectively engageable with an ink applying roller for intermittent feeding of ink from the reservoir to the applying roller.

It is still a further object of this invention to provide a new and improved imprinter attachment for a business machine which permits the ink reservoir to be resupplied without interrupting the imprinting operation.

It is yet a further object of this invention to provide a new and improved imprinter attachment for a business machine having means providing more even distribution of the ink to the applying roller.

Other objects, features and advantages of the present invention will be apparent from the following description of the preferred embodiment illustrated in the accompanying drawings, in which:

FIGURE 1 is a fragmentary side view in partial phantom outline of the upper portion of a business machine showing the position of the imprinting unit of this invention relative to the remainder of the machine and the stationery being fed therethrough;

FIGURE 2 is a fragmentary section view in partial phantom outline taken along the line 2—2 of FIGURE 1;

FIGURE 3 is an enlarged section view of the imprinter unit taken along the line 3—3 of FIGURE 2;

FIGURE 4 is a broken enlarged view of the impression cylinder assembly of the imprinter attachment of this invention;

FIGURE 5 is a section view taken along the line 5—5 of FIGURE 4;

FIGURE 6 is a broken enlarged view of the plate cylinder assembly used in the imprinter attachment of this invention;

FIGURE 7 is a section view taken along the line 7—7 of FIGURE 6;

FIGURE 8 is an enlarged fragmentary view of the latch means on the ink roller assembly for securing the plate cylinder assembly thereto and taken along the line 8—8 of FIGURE 9;

FIGURE 9 is an enlarged broken section view of the ink roller assembly of this invention;

FIGURE 10 is a section view of the vibrator assembly used in the ink roller assembly taken along the line 10—10 of FIGURE 3;

FIGURE 11 is an enlarged fragmentary view of the vibrator shaft element used in the vibrator assembly;

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FIGURE 12 is an enlarged fragmentary view of the adjusting means for the impression cylinder assembly;

FIGURE 13 is a section view of the adjusting means for the impression cylinder assembly taken along the line 13—13 of FIGURE 12;

FIGURE 14 is an enlarged end view in partial phantom outline of the impression roller assembly used in the imprinter attachment of this invention;

FIGURE 15 is an enlarged fragmentary section view of the latch means of the impression roller assembly used for securing the plate cylinder assembly thereto;

FIGURE 16 is a section view of the latch member of the latch means taken along the line 16—16 of FIGURE 15;

FIGURE 17 is an enlarged broken view of a modified plate cylinder assembly for use with the imprinter attachment of this invention; and

FIGURE 18 is a section view of the modified plate cylinder assembly taken along the line 18—18 of FIGURE 17.

Referring now to the drawings, in FIGURE 1 the imprinter attachment 10 of this invention is shown mounted in a business machine, such as a trimmer 11. The trimmer has a frame 11a for supporting the various components thereof, such as trim units 12, which remove the control punched marginal material from continuous form stationery 13 fed into the trimmer in a direction indicated by the arrow A.

The imprinter attachment 10 includes an impression roller assembly or unit 14 which is positioned slightly below the path of stationery travel. Vertically adjacent the impression roller assembly 14 is a plate cylinder assembly or unit 15 which is spaced slightly above the line of stationery travel. The plate cylinder assembly has means thereon permitting it to be attached to and removed from the impression roller assembly without the need for any tools. Vertically adjacent the plate cylinder assembly 15 is an inking assembly or unit 16 which supplies ink to the printing plate for printing stationery fed between the plate cylinder assembly 15 and the impression roller assembly 14. The inking assembly 16 is similarly provided with means permitting it to be secured to or removed from the plate cylinder assembly without the need for any tools. Thus both the plate cylinder assembly 15 and inking assembly 16 may be quickly and easily installed and removed from the trimmer 11.

Referring now to FIGURE 1, the trimmer attachment 10 of this invention is positioned in the path of stationery travel at a point beyond the trim units 12 which remove the control punched margins from the stationery. As will be explained in detail later, the imprinter unit of this invention propels the continuous form stationery through the unit so as to print indicia, such as signatures, on the stationery at a point beyond the pinfeed control of the stationery.

The impression roller assembly includes a generally circular cylindrical impression roller or cylinder 17 which is coaxially mounted on an impression roller shaft 18 by suitable means, such as set screws 18a threaded in disc-like inserts 17a which are press fitted at either end of the roller 17. Adjacent the ends of the roller 17, the shaft 18 is journaled in bearings 19 which are mounted in bearing blocks 20 for mounting the shaft in a freely rotatable manner. Tie rods 21 are secured at either end in the housing members 22 and 23 to hold the impression roller assembly 14 together as a unit. A pulley 24 is mounted on one end of the shaft 18 at a point spaced outside the housing member 22 by suitable means, such as a set screw 24a. A belt 25 passes around the pulley and is suitably connected to a source of power (not shown) for rotating the impression roller shaft in a suitable manner.

Also positioned on the impression roller shaft 18 intermediate the pulley 24 and the bearing 19 in the housing member 22 is an impression roller gear 26 which is fastened to the shaft 18 by suitable means, such as a

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set screw 27. A portion of the periphery of the gear 26 projects through an opening 28 in the housing member 22. The gear 26 is preferably a circular gear having radially upstanding teeth on the periphery so that it can mate in meshing engagement with another circular gear of similar or dissimilar circumference.

Positioned below the impression roller is a means 30 for moving the impression roller for adjusting the intensity of the printed impression. This means includes an adjustment cam shaft 31 having cam 32 secured to either end of the shaft by a set screw 33. The ends of the shaft 31 are mounted for rotation in bushings 34 secured in the housing members 22 and 23. Also included in the means 30 is a quadrant 35 which is secured to the housing by means such as bolts 35a. A throw-off lever 36 is mounted on the cam shaft 31 by a set screw 36a for turning the cam shaft 31 relative to the housing. An arcuate slot 37 is provided in the quadrant 35 and serves as a guide for the lever 36. The lever 36 is provided with an outwardly projecting knob 38 mounted on the knob shaft 38a which passes through the slot 37 and is secured at the rear of the slot by a nut 38b. The cams 32 are appropriately mounted on the shaft 31 so that when the throw-off lever 36 is in the center position, as shown in FIGURE 12, the cams abut the bottom side of the bearing blocks 20 at a point intermediate the cam eccentric portion and normal peripheral portion.

As the lever is moved to the left to a position shown in phantom outline in the drawings, the eccentric portion of the cams will abut the bearing blocks 20 and urge the bearing blocks against springs 39 which are interposed between the top of the bearing block and the inside of the top of the housing members. This will urge the bearing blocks upward relative to the housings and, as a result, will move the impression roller 17 vertically as well. Movement of the lever to the opposite direction brings the normal peripheral portion of the cam in abutment with the bearing blocks 20 permitting the springs 39 to urge the blocks downward relative to the housings and lower the roller 17. Therefore by movement of the lever 36 the relative height of the roller 17 may be adjusted which will affect the intensity of the printed impression on paper passing over the roller. Movement of the lever far enough to the right may lower the roller 17 to such an extent that paper passing over the roller will not be printed.

Each housing 22 and 23 is provided with a locking means 40. The locking means 40 includes an opening 41 which is centrally disposed in the top of either housing near the outside edge of the housings. A lock actuating rod or handle 42 extends from the interior of the housing and projects outwardly providing a means for actuating the locking member. As seen in detail in FIGURES 14 and 15, the handle 42 is secured to a generally L-shaped lock member 43 which is positioned to the interior of the top of the housing members 22 and 23. The lock member 43, as seen in FIGURE 16, includes an elongate slot 43a, a locking neck 44 and inclined leading edges 45. The member 43 is secured to the underside of the interior of the housing 22 and 23 by a threaded post member 46. A washer 46a is fastened to the free end of the post 46 for retaining a spring 47 biased against the underside of the member 43. The threaded post 46 passes through the elongated slot portion 43a to permit lateral movement of the member 43 in response to lateral movement of the handle 42. Thus the locking member 43 can be moved laterally to bring the locking neck portion 44 in registry with the opening 41 in the top of the housing for clamping about members passed axially through the opening.

The plate cylinder assembly 15 is stacked above the impression roller assembly 14 and above the path of travel of the stationery 13 so as to be in imprinting relation with the impression roller assembly. The plate cylinder assembly 15 includes plate cylinder means 48 which is

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mounted on a plate cylinder shaft 49. The shaft 49 is mounted in bearings 50 at either end, which rotatably mount the shaft 49 relative to the housing members 52 and 53. An alignment collar 59 is secured to the shaft 49 by means of a set screw 60. The collar may be provided with a mark (not shown) to align the plate cylinder means with the stationery to insure that the printed matter will appear in the correct position on the stationery. The members 54 are secured at either end to each of the housing members 52 and 53 to secure the same together and form the unit 15.

A plate cylinder gear 56 is attached to one end of the plate cylinder shaft 49 by a set screw 57'. The plate cylinder gear projects outwardly from openings 56' which are formed in the top and bottom of the housing member 52 and is preferably a circular gear having radially outwardly projecting teeth. This permits the plate cylinder gears of different diameters to mate in meshing engagement with the impression roller gear 26 when the plate cylinder assembly 15 is stacked on the impression roller assembly 14. By means of this meshing engagement, the driving power may be transmitted to rotate the plate cylinder shaft 49.

The plate cylinder means 48 is similar to that disclosed in the patent to J. J. Kessler, entitled "Imprinting Plate Cylinder," No. 2,978,980, issued April 11, 1961, and assigned to the assignee of this invention. In accordance with the invention disclosed in that patent, the means 48 includes a signature plate cylinder 61 secured to the shaft 49 by a set screw 62. The signature plate cylinder has a radially outstanding flange 63 which holds a signature plate 64 against a signature plate retainer collar 65. The retainer collar 65 is spaced from a retainer ring 66 and a spring 67 is positioned between the collar 65 and ring 66 to bias against the collar 65 which is slidably mounted about the cylinder 61. The cylinder is also provided with an upstanding pin 68 adjacent the flange 63 which is adapted to mate with a slot 64' in the signature plate 64 to properly position the signature plate. Different signature plates may be readily inserted and removed from the signature plate cylinder by moving the slidable collar 65 in opposition to the spring 67 and lifting the signature plate 64 from the cylinder. A new plate is installed by initially registering the slot 64' with the pin 68 and then releasing the collar 65 so that the spring 67 may urge the collar against the plate 64 which in turn abuts against the flange 63. As disclosed in the aforementioned patent, more than one signature plate may be placed on such a cylinder depending upon the desired repeat pattern.

The plate cylinder assembly is also provided with means 69 for propelling stationery through the imprinter attachment. Means 69 includes guide rollers 70 which are concentrically loosely mounted on the shaft 49 for slippage relative to the plate cylinder shaft 49 by means, such as O-rings 72, which are interposed between the periphery of the shaft 49 and the internal diameter of the rollers 70. The guide rollers are of such a diameter so that the outer periphery of the rollers is in tangential contact with the paper fed through the unit and about the periphery are provided with a tread 73 having a high coefficient of friction with stationery, such as felt, rubber or the like.

As paper is fed into the imprinter attachment from the trim units, it passes over the driven impression roller 17 and under the guide rollers 70. While the impression roller shaft and plate cylinder shaft are driven by the same source which drives the trim units, the rollers 70, being loosely mounted on the plate cylinder shaft 49, may rotate relative to the shaft. As a result these rollers 70 tend to seek the paper speed rather than necessarily maintain the speed of the plate cylinder shaft. The impression roller 17 is to be driven at the same speed as the paper, but due to the interchangeability feature of the plate cylinder assembly 15, the plate cylinder gear 56 may not be of such a size as to transmit the same speed

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to the plate cylinder shaft 49. However, the slip fit of the rollers 70 will insure that the rollers travel at paper speed which will permit the impression roller 17 to propel the paper evenly through the imprinter attachment at this point. Since stationery is propelled through the imprinter of this invention, it is not necessary that the control punched margins remain on the stationery at the point of imprinting. This means that paper may be imprinted at a point remote from any pinfeed control and/or after the marginal material has been removed from the stationery.

The plate cylinder assembly 15 may be stacked on the impression roller assembly 14 by merely placing the plate cylinder assembly over the impression roller assembly and pulling out the handles 42 of the locking means 40 to permit the lock screws 58 to pass through the openings 41 in the housing members of the impression roller assembly and to be grasped in the locking neck portion 44 of the locking member 43. The screw 58 may be appropriately threaded into the housings 52 and 53 to regulate the distance of the neck portion 58' to suitably adjust the vertical position of the plate cylinder assembly 15 relative to the impression roller assembly 14 to clamp housing members 52 and 22 together. A proper meshing engagement of the gears 56 and 26 is insured by correct machining of housing members 52 and 22 which establishes a gear center for gears 56 and 26. Any number of different sized plate cylinder assemblies may be easily mounted on the impression roller assembly and the circular gears will always mesh. This interchangeability permits a wide range of different "repeat patterns" so that the imprinter unit no longer is a limiting factor with reference to stationery which may be processed by the business machine 11.

The inking assembly 16 is stacked on top of the plate cylinder assembly 15 and includes ink roller means 80, transfer roller means 82 and vibrator roller means 84. The function of the inking assembly 16 is to supply ink to the signature plate of the plate cylinder assembly 15, so that the signature plate may appropriately print an impression on the stationery propelled between the signature plate and the impression roller.

Generally transversely extending tie rods 85 join the two housing members 86 and 87 together to form the unit 16. A transfer roller gear 88 is secured by suitable means to one end of a transfer roller shaft 89 which extends across the unit 16 at a point within the housing 86. This gear also is preferably a circular gear having radially upstanding teeth adapted to mate in meshing engagement with the gear 56 of the plate cylinder assembly 15. The periphery of the gear 88 projects outwardly through the opening 90 in the housing member 86 so that this meshing engagement can take place. By means of the meshing engagement of the gear teeth, the driving force may be transmitted from the impression roller shaft through the plate cylinder assembly 15. This locking means includes the transfer roller shaft 89.

The ink roller assembly 16 is also provided with locking means 91 for locking the ink roller assembly on the plate cylinder assembly 15. This locking means includes an opening 92 in each of the housing members 86 and 87 generally centrally disposed near the respective outside edges of each housing member. Inside the housing adjacent to each opening 92 is a lock member 43 which is secured to one end of a lock actuating rod 93 which extends out of the housing members 86 and 87 to provide a means for actuating the lock 43. The locking means 91 is similar to the previously described locking means with the exception that the set screw 94 passes through the central opening 43a and is secured to a nut 94a at the other side. This structure also permits lateral movement of the lock member 43 upon lateral movement of the handle 93 to bring the locking neck 45 in registry with the hole 92 so that the lock screws 58 may be impaled in the locking neck 45 and grasped about the screw

throat portion 58' upon release of the actuating rod 93 to secure the inking assembly 16 to the plate cylinder assembly 15 with the gears 88 and 56 in meshing engagement for driving the transfer roller shaft 89.

The ink roller means includes an ink roller 95 positioned at the top of the roller assembly and in tangential contact with the transfer roller 11. The ink roller 95 is preferably made of rubber or a similar suitable material and has several concentrically spaced annular grooves 95a providing intermediately positioned annular ribs or discs 95b. The grooves are so sized that the surface tension of a properly formulated paste-type ink will hold the ink in the grooves when the ink is applied to the rollers. Such a roller can hold a sufficient amount of paste-like ink for 250,000 to 500,000 signatures without refilling. The ink roller is secured within a housing 96 which is mounted on an ink roller shaft 97. In its normal or "down" position, as shown in the drawings, the ink roller shaft holds the ink roller out of contact with the periphery of the transfer roller 111. A spring 96a is interposed between the interior of the housing 96 and the ink roller shaft 97 and provides sufficient friction so that the housing 96 will not slide relatively to the shaft 97. The ink roller may be moved downward in response to manual urging to place the peripheries of the ink roller and transfer roller in contact by pressing against the housing 96 which causes shaft 97 to rotate against the spring 97' in the housing 86. Only a slight finger-like urging is required to cause this contact which will transfer ink from the ink roller to the transfer roller. One such application can last for 1,000 to 3,000 signatures. Furthermore, this transfer of ink from the ink roller to the transfer roller can be accomplished without interrupting the machine. In previous imprinters, it was necessary to stop the machine in order to apply more ink to the transfer roller and then the first few prined signatures after the stoppage were often messy or blotchy.

The ink roller shaft 97 is substantially square in cross section but is provided with rounded ends 99 which are positioned in bushings 97a in each of the housings that the shaft may be rotated upward relative to the housings. This permits the ink roller to be swung up free of the transfer roller assembly 82 so that a new supply of ink may be applied to the ink roller without interrupting the imprinting operation. In previous imprinting systems there was continuous take-off of ink from the ink roller or reservoir, to the transfer roller. To resupply the ink reservoir, it was necessary to stop the imprinting machine and feed more ink to the reservoir. Often the first few signatures printed after the ink was resupplied were not clear so that some portion of the stationery might be spoiled or unsatisfactory. With the ink roller assembly of this invention, the operator of the business machine can visually monitor signatures and apply more ink to the transfer roller by merely touching the ink roller assembly or, if necessary, swing the ink roller up about its shaft 97 and apply more ink to the ink roller, all without interrupting the machine.

Either end of the housing 96 has downwardly extending ears, such as 96b. A plunger shaft 98 extending inwardly from one ear and a stationary pin 98a extending inwardly from the other ear are each adapted to engage in bores 100 in the ink roller 95 for mounting the ink roller for rotation. The plunger has a spring 101 interposed between the ear 96b and a washer 102 which normally urges the plunger into the bores 100 but permits the plunger to be withdrawn so that the ink roller 95 may be easily dismounted and replaced. The ease with which the ink roller may be removed and replaced in the imprinter affords a great deal of versatility with regard to ink colors which may be used. Since the roller may be so easily removed and replaced, separate rollers may be used for different colors of ink which are to be applied. When not in use, the rollers may be stored on a shelf and stand ready for immediate use. There is no need to spend relatively long periods of time cleaning the different rollers so that

the rollers may be used to supply different colors of ink.

Positioned below the ink roller 95 is the transfer roller 111 of the transfer roller means 82. As previously mentioned, the transfer roller is normally not in contact with the ink roller 95. Transfer roller 111 is mounted above the signature plate cylinder 61 and is positioned for intermittent peripheral contact with the signature plate 64 for transferring ink to the signature plate so that the signature plate may print indicia on stationery passing between the impression roller and the signature plate. The transfer roller 111 is mounted about a sleeve 112 which is secured to the driven transfer roller shaft 89 by means such as a set screw 113. The shaft 89 is substantially parallel to the afordescribed shafts in the imprinter, generally transverse to the path of paper travel, and is journaled in bearings 114 at either end of the shaft which are mounted in the housing members 86 and 87 of the assembly 16.

Positioned slightly above and to the rear of the transfer roller 111 is a vibrator roller 116 of the vibrator roller means 84. The purpose of the vibrator roller is to insure the uniform application of the ink on the transfer roller 111 which in turn will improve the transfer of the ink onto the signature plate 64. The vibrator roller 116 is mounted about a vibrator roller cam shaft 117 which similarly is parallel to the afordescribed shafts and generally transverse to the path of paper travel. The shaft 117 is mounted in bosses 118 in the cast housing members 86 and 87. The shaft is restrained against rotating in these bosses in order to hold the cam fixed. The shaft is provided with a well known left and right hand threaded surface 117a and a follower member 119 which tracks in the threads. The follower member in turn is mounted in a sleeve 120 which is positioned between the roller 116 and the cam 117. The roller 116 is in peripheral engagement with the driven transfer roller 111 so that as the roller 111 rotates, the roller 116 will rotate and, due to the follower which tracks in the reverse threaded surface 117a of the fixed shaft 117, the roller 116 will move laterally relative to the shaft 117 which rotates therewith. This lateral movement gives an improved uniformity of application of ink to the surface of the transfer roller 111 which improves the transfer of ink to the signature plate 64.

This invention provides an imprinter attachment for business machines which is capable of printing stationery at a point remote from the pinfeed control of the stationery, has components which may be easily assembled and disassembled blending increased versatility in the "repeat pattern" capabilities of the imprinter and having an ink supply means which may be resupplied without harming the imprinting process and which may be selectively manually actuated for intermittent feeding of ink as required from visual inspection of printed stationery. The guide rollers which are loosely mounted on the plate cylinder shaft urge stationery against the impression roller to permit the impression roller to propel the stationery through the imprinter since the rollers are free to seek the paper speed rather than rotate with the plate cylinder shaft. The circular pitch gears and easily manipulated lock means on each of the units permit easy assembly and disassembly of the imprinter attachment promoting versatility of the device. Different sized plate cylinder assemblies may be easily incorporated into the imprinter unit thus providing the imprinter unit with a wide range of "repeat patterns." The plunger and pin mounting of the ink reservoir in the housing permits the reservoir to be easily removed and replaced affording greater versatility of ink colors since different reservoirs may be used for different colors. The ink reservoir is normally held spaced from the transfer roller, instead of being mounted for continuous take-off, so that it may be resupplied with ink without interrupting the formation of the imprinter. In addition, ink may be selectively fed from the reservoir to the transfer roller to insure uniformity of printing. Also, the laterally movable vibrator roller provides fur-

ther distribution of ink about the periphery of the trans-
fer roller to further enhance the uniformity of the print-
ing. In addition, this extremely versatile, easily assembled
imprinter unit is provided with only three gears and only
three directly driven shafts adding to the versatility of
the structure.

The foregoing detailed description has been given for
clearness of understanding only, and no unnecessary limi-
tations should be understood therefrom, for some modifi-
cations will be obvious to those skilled in the art.

I claim:

1. An imprinting unit for use in a business machine for
printing continuous form stationery, comprising: means
defining a frame for supporting the imprinting compo-
nents; a driven impression roller positioned across said
frame below the path of stationery travel; a driven print-
ing roller shaft positioned across said frame above said
impression roller and above the path of stationery travel;
a printing roller on said printing roller shaft in imprint-
ing relation with said impression roller; means on said
printing roller shaft responsive to the speed of stationery
fed through the imprinting unit, said means in a position
to urge stationery into engagement with said impression
roller for propelling said stationery through said im-
printer; and means for supplying ink to said printing roller
for printing indicia on said stationery.

2. An imprinting unit for use in a business machine
for printing continuous form stationery, comprising:
means defining a frame for supporting the imprinting
components; a driven impression roller positioned across
said frame below the path of stationery travel; a driven
printing roller shaft positioned across said frame above
said impression roller and above the path of stationery
travel; a printing roller on said printing roller shaft in
imprinting relation with said impression roller; and
a plurality of wheels loosely mounted on said printing
roller shaft for rotation relative thereto, said wheels in
a position to engage stationery fed over said impression
roller and urge the stationery into engagement with said
impression roller to propel said stationery through said
imprinter so that the stationery may be imprinted at a
point remote from pinfeed control thereof; and means
for supplying ink to said printing roller for printing in-
dicia on said stationery.

3. The imprinting apparatus of claim 2 including means
for controlling the intensity of the impression printed on
said stationery.

4. The imprinting apparatus of claim 2 wherein said
impression roller is movable toward and away from the
plane of the path of stationery travel so that the intensity
of the impression on said stationery may be controlled
by movement of said impression roller.

5. An imprinting unit for use with a business machine
for printing continuous form stationery wherein said busi-
ness machine is provided with a source of power for driv-
ing business machine components, comprising: an im-
pression roller unit held in the imprinter and having an
impression roller shaft in operable association with the
business machine source of power for driving said im-
pression roller shaft; a pair of stackable ink supply and
printing units stacked above said platen unit in upright
tandem each stacking unit having a stacking surface coact-
ing with a stacking surface of an adjacent unit, each of
said coating stacking surfaces having manually operable,
nestable, and interlocking portions for securing the units
together in stacked relation, said printing and ink supply
units each having a driven shaft, and gearing means on
each of said shafts mutually engageable with each other
to drive the shafts of each of the units from the operable
association of the business machine power source with the
platen drive shaft.

6. The imprinting device of claim 5 wherein said lock-
ing means is adjustable to provide suitable engagement of
the drive shaft gearing means.

7. An imprinting device for use with a business ma-

chine for printing continuous form stationery wherein
said business machine is provided with a source of power
to drive the business machine components, comprising: an
impression roller unit held in said imprinter on one side
of the path of stationery travel and having an impression
roller mounted on an impression roller shaft operably
associated with the business machine source of power,
said impression roller shaft having gearing means there-
on; a printing unit removably stacked above said platen
unit and above the path of stationery travel, said print-
ing unit having a surface which is free to rotate rela-
tive to the printing unit, said surface positioned on the
other side of the path of stationery travel, closely adjacent
said impression roller to urge stationery against said im-
pression roller and thereby provide a means for propelling
stationery through said imprinter, said printing unit being
further provided with gearing means in mutual engage-
ment with said impression roller unit gearing means to
transmit the driving power from said business machine
source of power to said printing unit; and an inking unit
removably stacked above said printing unit and having
means for supplying ink to said printing unit, said inking
unit also provided with gearing means in meshing engage-
ment with said printing unit gearing means for transmit-
ting the driving power from said business machine source
of power to drive components of said ink supply unit.

8. The imprinting device of claim 7 wherein said units
are provided with manually operable nestable locking
means for securing the units in stacked relation and oper-
able engagement for receiving stationery fed into the busi-
ness machine and propelling the stationery through the
imprinter.

9. The imprinting device of claim 8 wherein said lock-
ing means includes an upright threaded post having a re-
duced neck portion projecting above and below said print-
ing unit and openings in said impression roller and inking
units with a slidable latch adjacent the opening for im-
paling the reduced neck portion of the threaded post to
lock the units in a stacked relation in the business
machine.

10. An imprinting device for use with a business ma-
chine for printing continuous form stationery wherein said
business machine is provided with a source of power to
drive the business machine components, comprising: an
impression roller unit held in said imprinter below the
path of stationery travel and having an impression roller
shaft operably associated with the business machine source
of power, said impression roller shaft having gearing
means thereon; a printing unit removably stacked above
said impression roller unit and above the path of station-
ery travel, said printing unit including a printing roller
shaft having a plurality of wheels loosely mounted there-
on for rotation relative to the printing roller shaft, said
wheels closely spaced from said impression roller to urge
stationery toward said impression roller for propelling sta-
tionery through said imprinter, said printing unit being
further provided with a gearing means in mutual engage-
ment with said impression roller gearing means to trans-
mit the driving power from said business machine power
source to said printing unit; and an ink supply unit re-
movably stacked above said printing unit for supplying
ink to said printing unit, said ink supply unit also being
provided with gearing means in meshing engagement with
said printing unit gearing means for transmitting the driv-
ing power from said business machine power source to
drive components of said ink supply unit, said ink supply
unit being further provided with a transfer roller nor-
mally in engagement with said printing unit for applying
ink to said printing unit, and an inking roller for supply-
ing ink to said transfer roller, said inking roller being nor-
mally held out of contact with said transfer roller and
having means manually actuatable to supply ink to said
transfer roller as required for suitable printing of sta-
tionery propelled through said imprinting unit.

11. The imprinting device of claim 10 wherein said

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inking roller is normally held out of contact with said transfer roller by means permitting said inking roller to be resupplied with ink without interrupting the imprinting process.

12. The imprinting device of claim 10 wherein said vibrator means being adapted to spread the ink laterally as well as circumferentially about the surface of said transfer roller to improve the application of ink to said printing unit.

13. The imprinting device of claim 12 wherein said vibrator means includes a roller in peripheral engagement with said transfer roller, said vibrator roller being adapted to laterally traverse the periphery of the transfer roller while rotating to uniformly spread the ink about the periphery of the transfer roller.

14. An imprinting unit for use with a business machine for printing continuous form stationery, comprising: means defining a frame for supporting the imprinting components; a driven impression roller shaft positioned across said frame below the path of stationery travel and having an impression roller mounted thereon, said shaft having a wheel at one end thereof; a printing roller shaft positioned across said frame above the path of stationery travel and having a printing roller thereon in imprinting relation with said impression roller, said printing roller shaft having a wheel at one end thereof in frictional engagement with said impression roller wheel for driving said printing roller shaft; paper urging means on said printing roller shaft rotatable relative thereto, said means in a position to urge stationery into engagement with said impression roller for propelling said stationery through said imprinter; means for supplying ink to said printing roller for printing indicia on said stationery, said means for supplying ink including a transfer roller shaft posi-

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tioned across said frame above said printing roller and having a transfer roller secured thereto, said transfer roller shaft having a wheel at one end in peripheral engagement with said printing roller shaft wheel for driving said transfer roller shaft, said transfer roller shaft being positioned in said frame for intermittent peripheral contact with said printing roller to transfer ink there-to; and an ink reservoir positioned above said transfer roller for supplying ink to said transfer roller.

15. The imprinting unit of claim 14 wherein said ink reservoir is cylindrical and is mounted on an ink reservoir shaft positioned across the frame and spaced from said transfer roller shaft so that the peripheries of said ink reservoir and said transfer roller are normally out of contact with each other and wherein said shaft is mounted for movement relative to said transfer roller to permit the intermittent peripheral engagement of said ink and transfer roller in response to manual urging of the ink reservoir to supply ink from said ink reservoir to said transfer roller.

16. The imprinting unit of claim 14 wherein said ink reservoir is cylindrical and said ink reservoir shaft is rotatable to swing said ink reservoir away from said transfer roller to permit the resupply of ink to said reservoir without interrupting the operation of said imprinting unit.

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EUGENE R. CAPOZIO, *Primary Examiner*.

UNITED STATES PATENT OFFICE
CERTIFICATE OF CORRECTION

Patent No. 3,229,631

January 18, 1966

Charles L. Peterson

It is hereby certified that error appears in the above numbered patent requiring correction and that the said Letters Patent should read as corrected below.

In the grant, lines 2 and 11, and in the heading to the printed specification, lines 3 and 4, name of assignee, for "Varco Incorporated", each occurrence, read -- Uarco Incorporated --.

Signed and sealed this 13th day of December 1966.

(SEAL)

Attest:

ERNEST W. SWIDER

Attesting Officer

EDWARD J. BRENNER

Commissioner of Patents