May 28, 1935. W. T. GOLLWITZER 2,002,772

PRINTING MACHINE

Filed Nov. 22, 1930 11 Sheets-Sheet 1

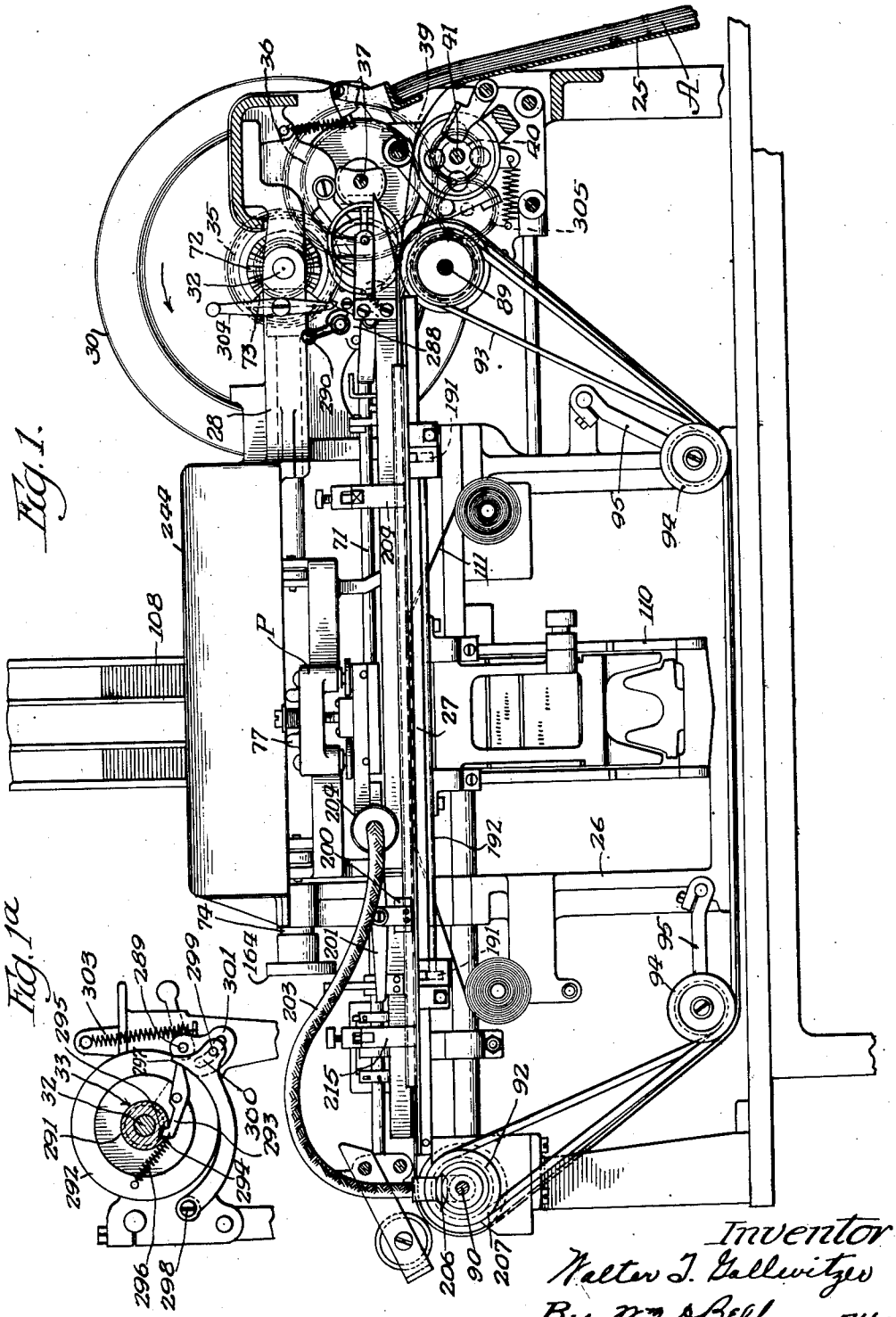


Fig. 1.

Fig. 1a

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PRINTING MACHINE

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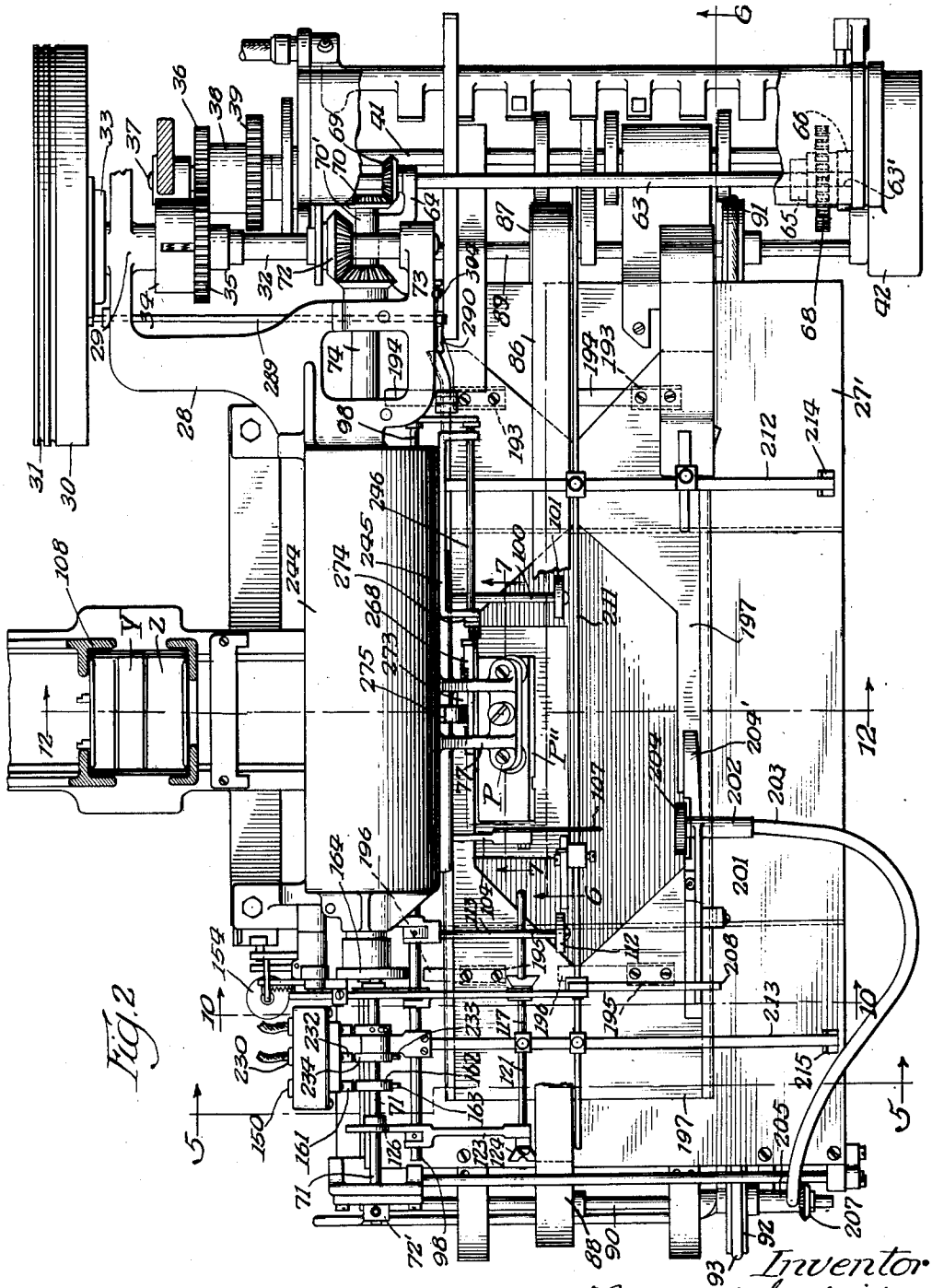


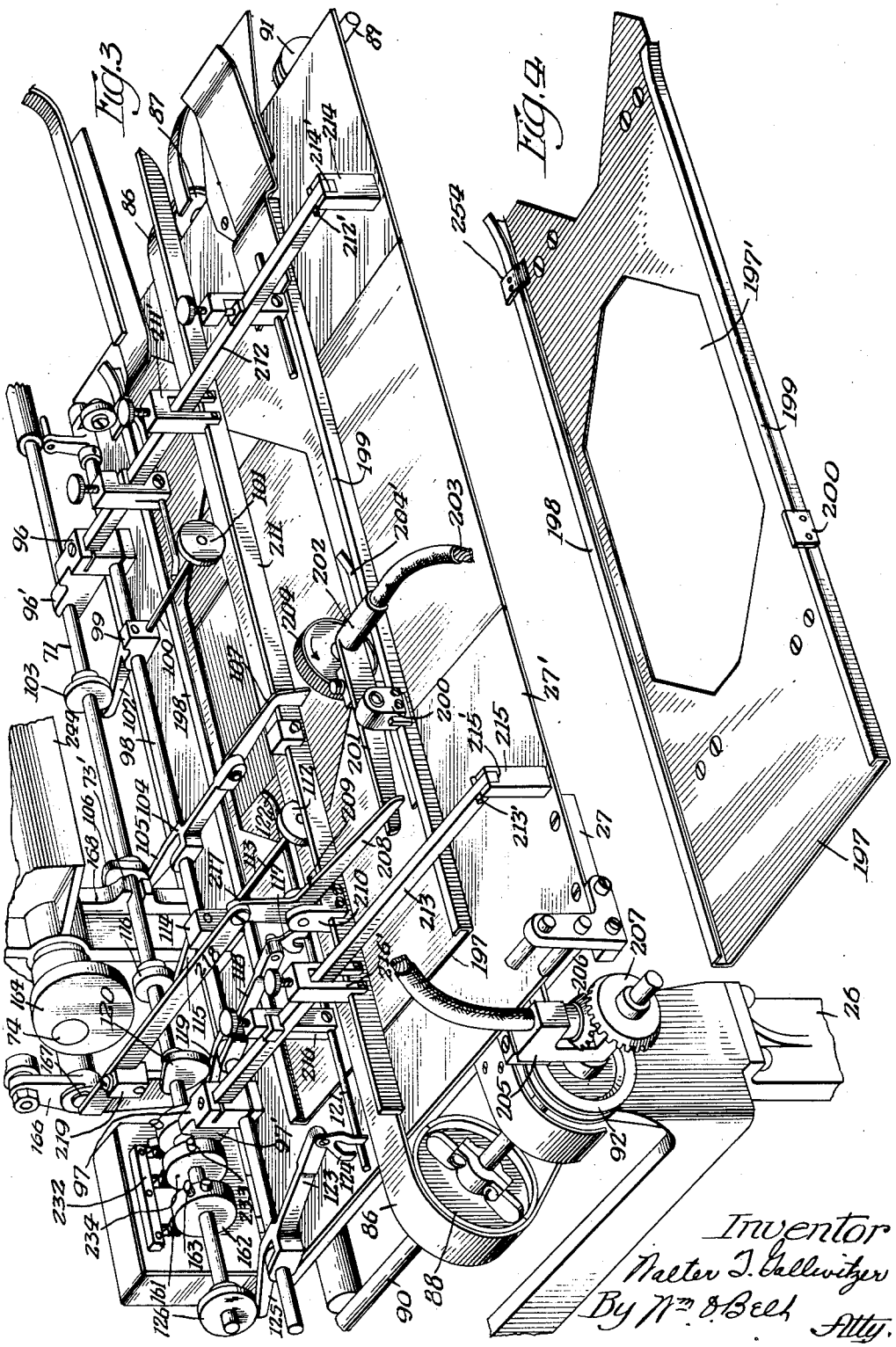
Fig. 2

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PRINTING MACHINE

Filed Nov. 22, 1930 11 Sheets-Sheet 3

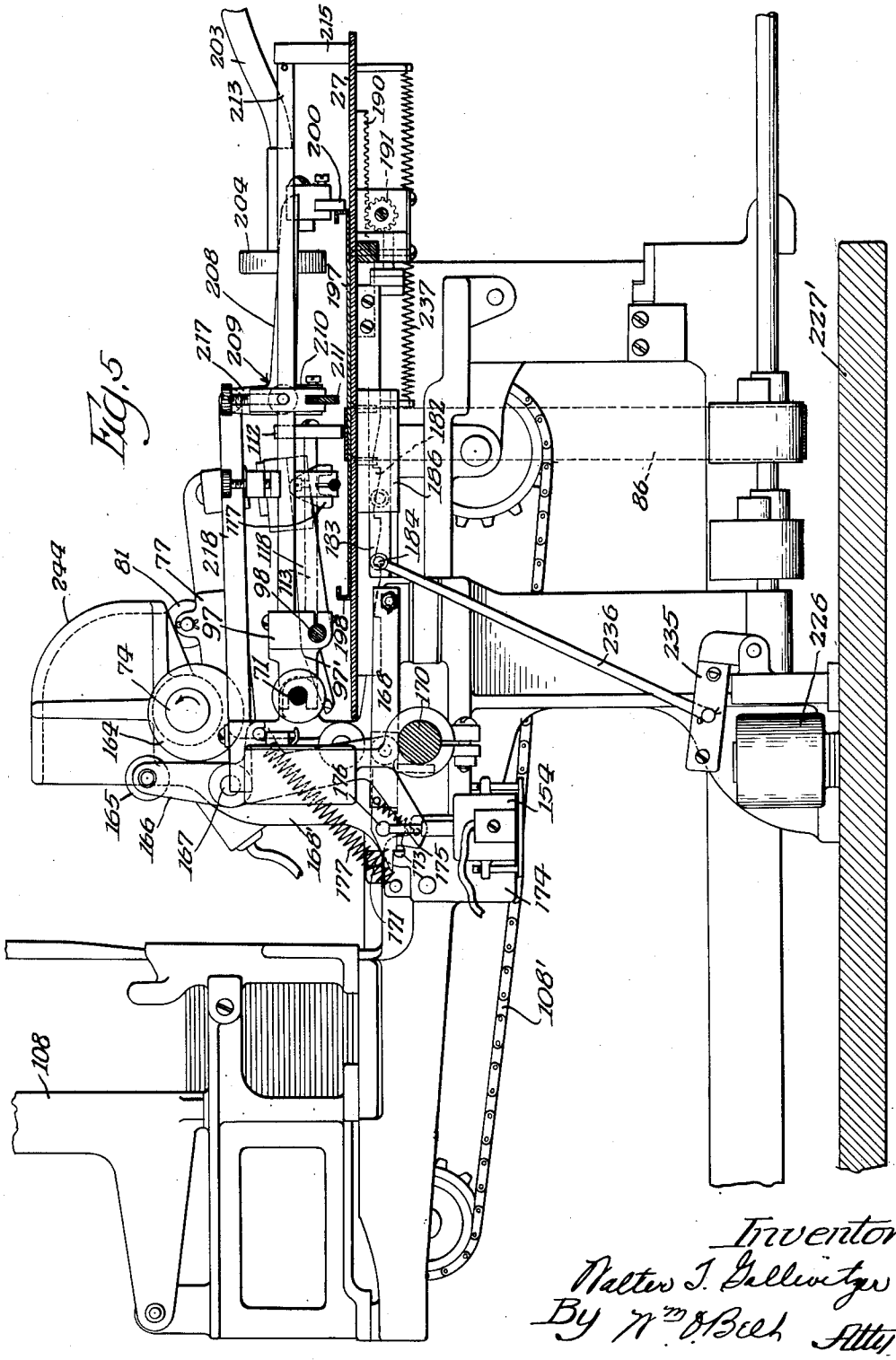


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May 28, 1935. W. T. GOLLWITZER 2,002,772

PRINTING MACHINE

Filed Nov. 22, 1930 11 Sheets-Sheet 4



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PRINTING MACHINE

Filed Nov. 22, 1930 11 Sheets-Sheet 5

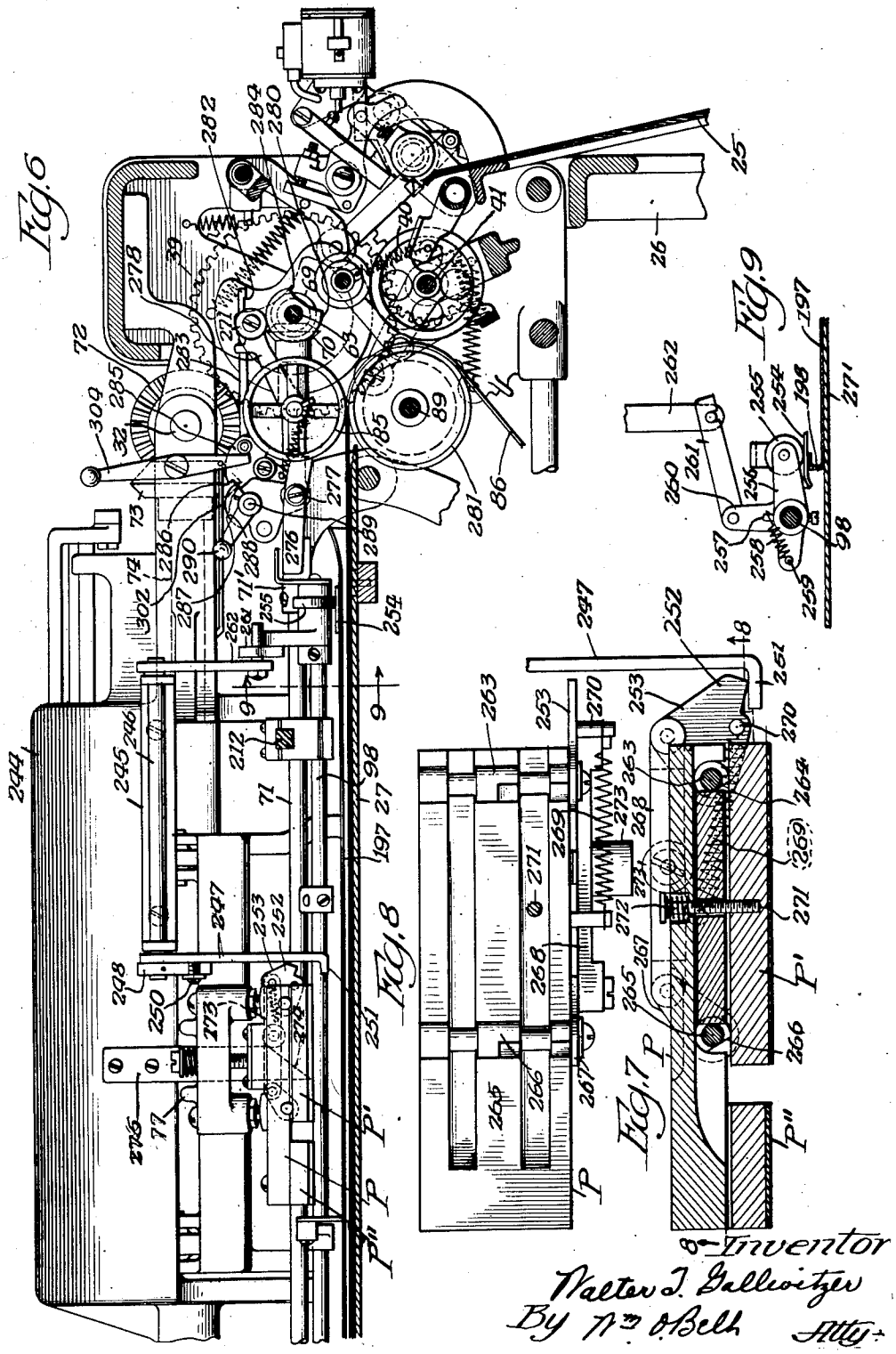


Fig. 6

Fig. 9

Fig. 8

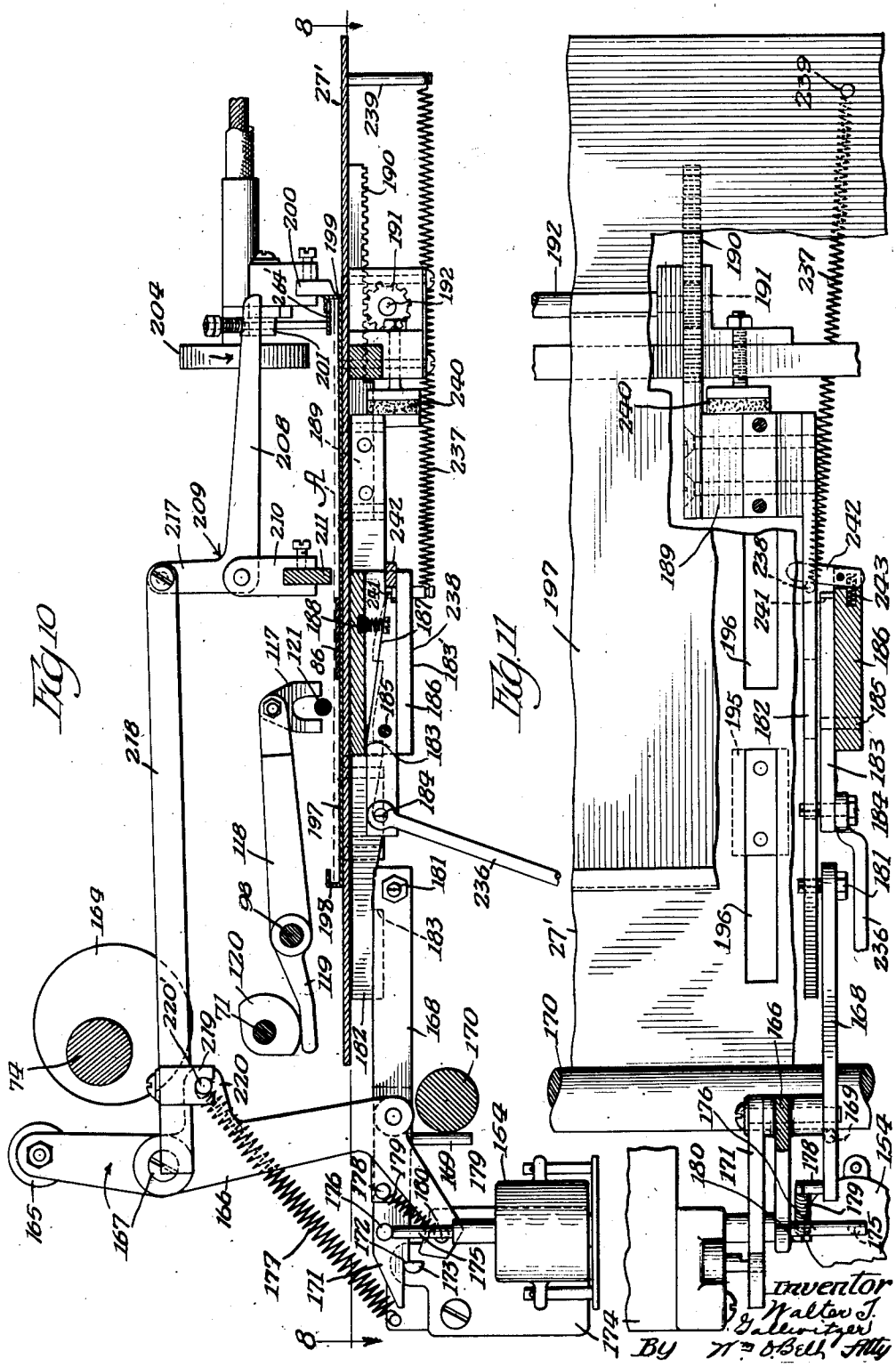
Fig. 7

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PRINTING MACHINE

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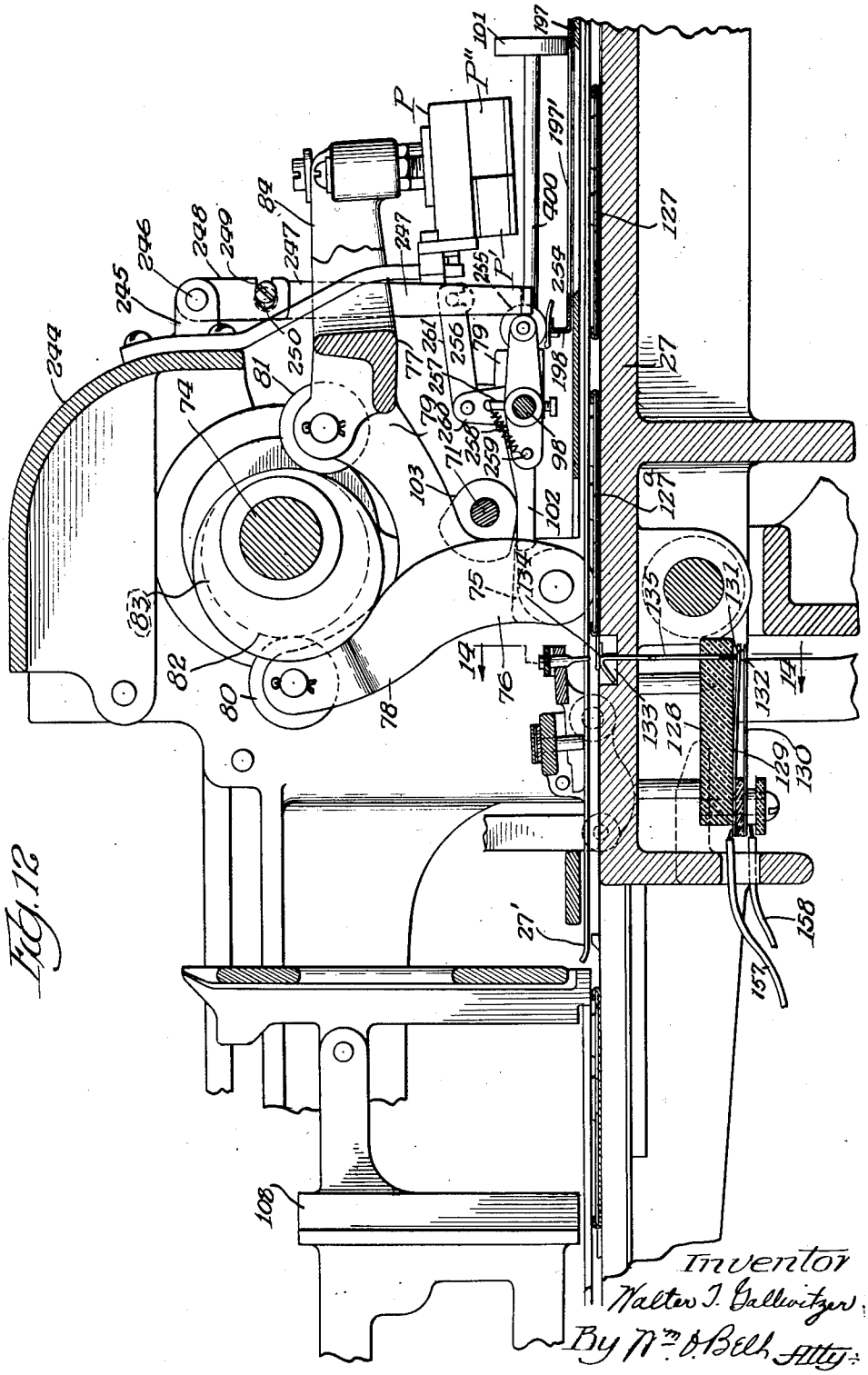


FIG. 12

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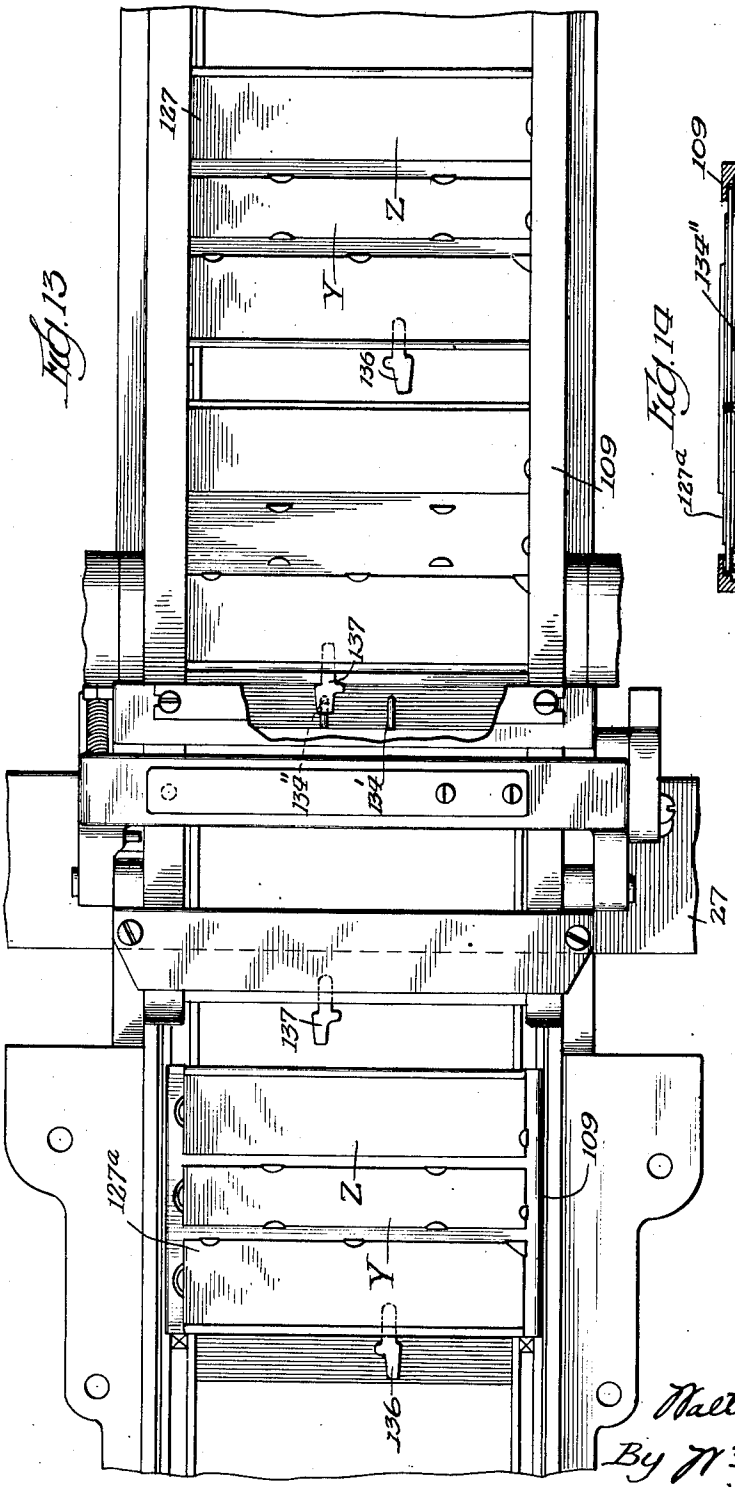


Fig. 13

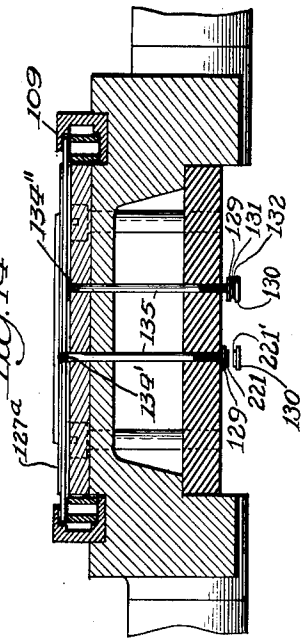


Fig. 14

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PRINTING MACHINE

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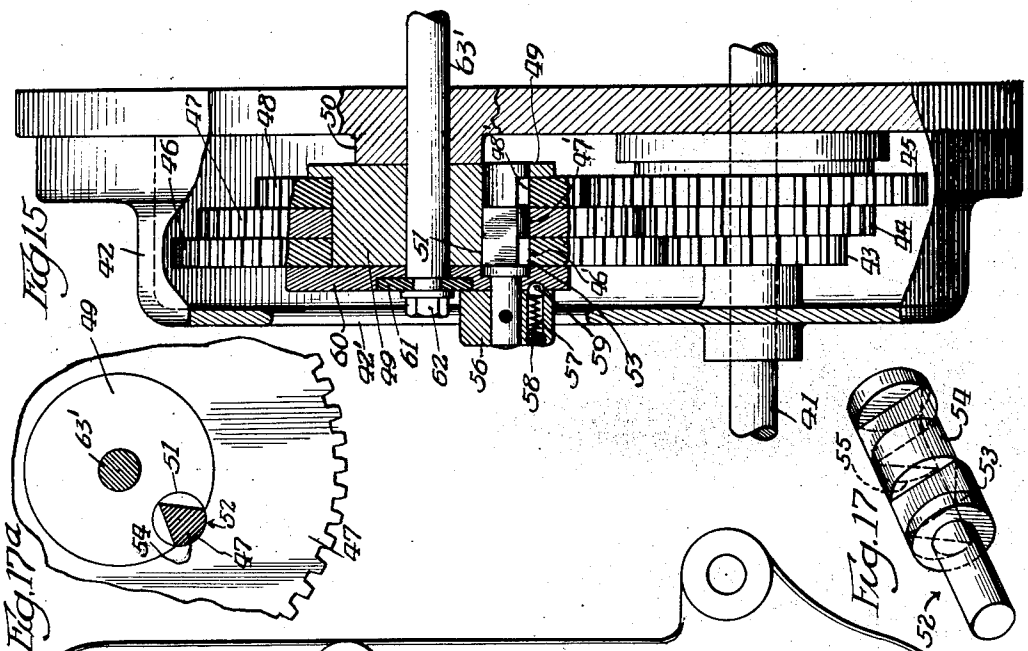


Fig. 15

Fig. 17a

Fig. 17

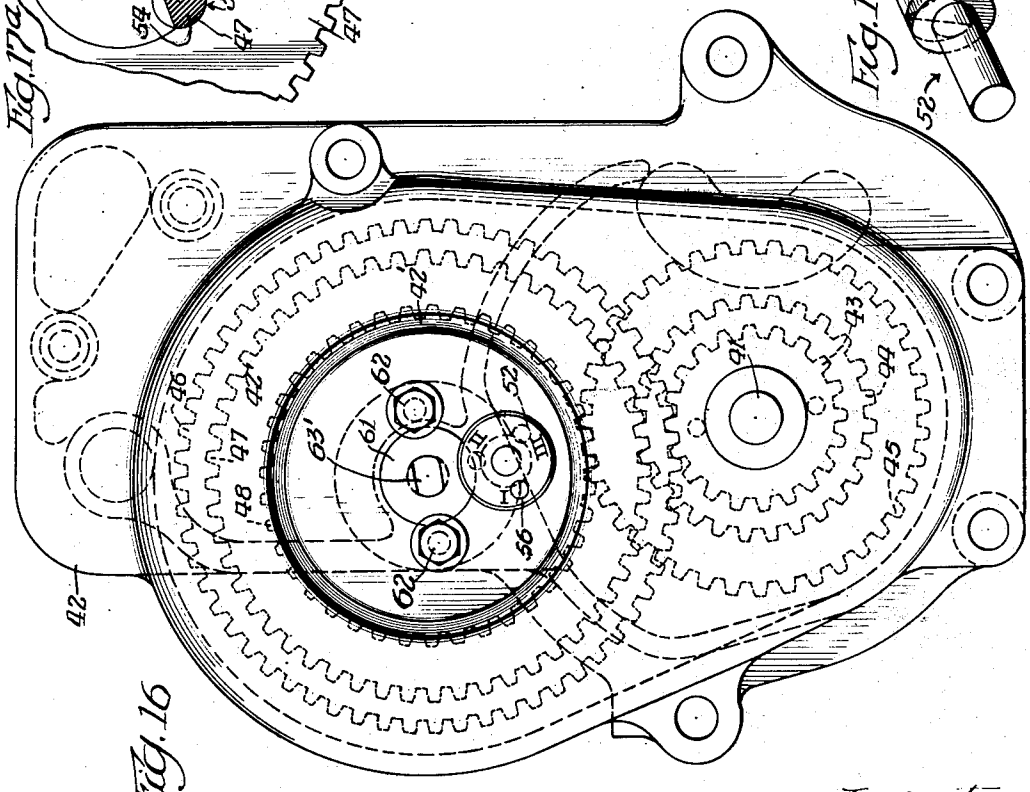


Fig. 16

Inventor

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PRINTING MACHINE

Filed Nov. 22, 1930 11 Sheets-Sheet 10

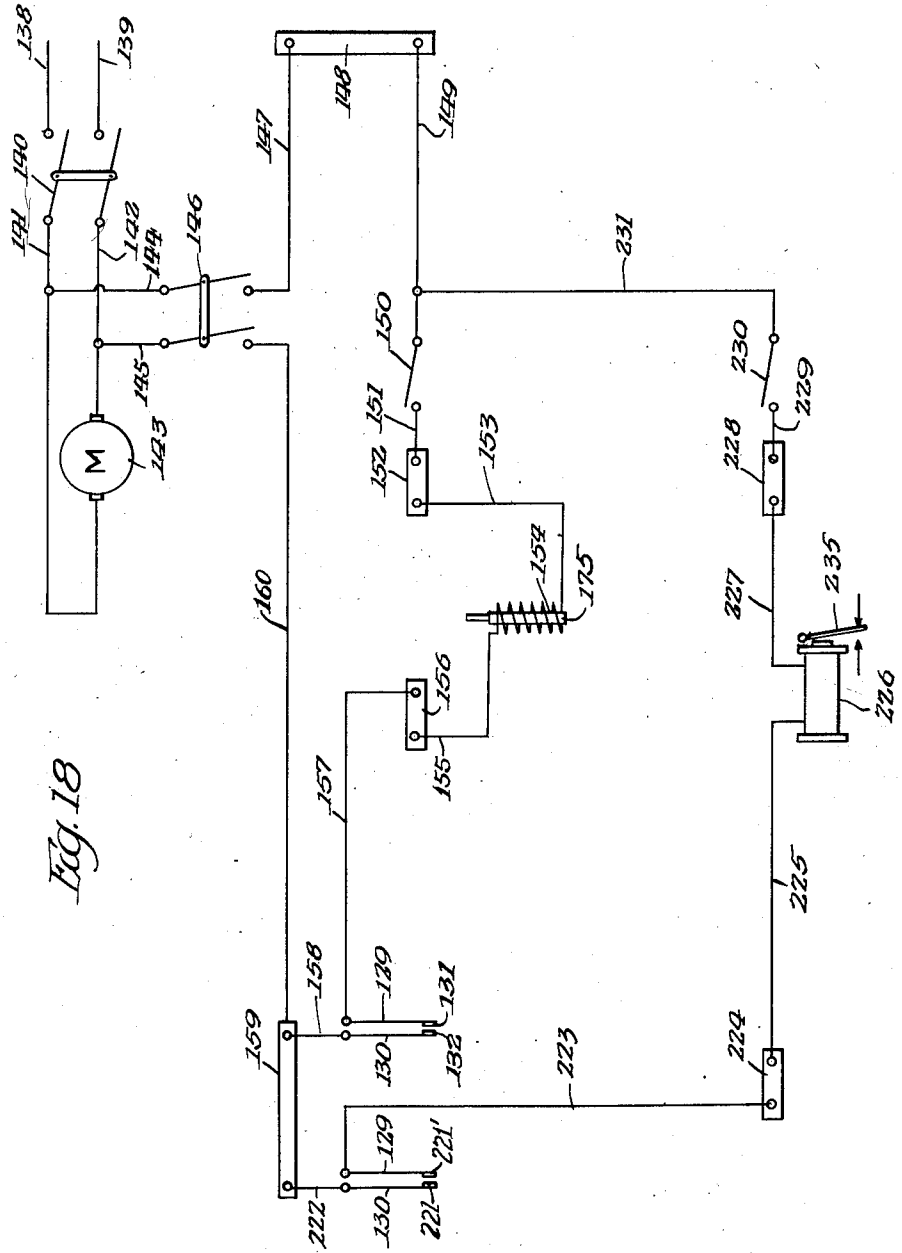


Fig. 18

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PRINTING MACHINE

Filed Nov. 22, 1930 11 Sheets-Sheet 11

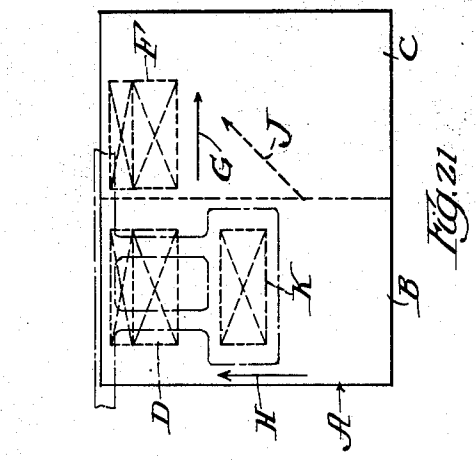


Fig. 21

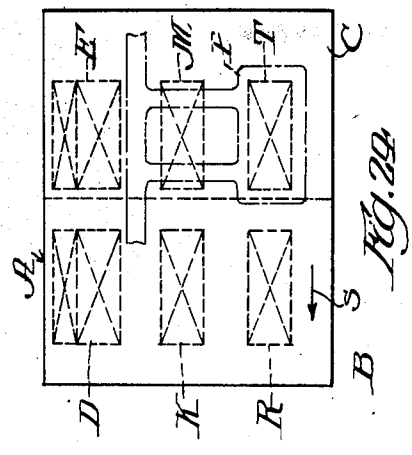


Fig. 22

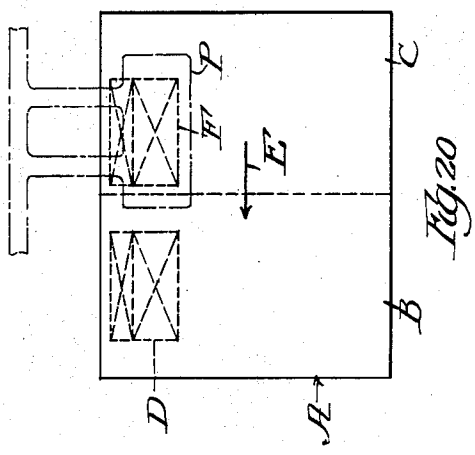


Fig. 20

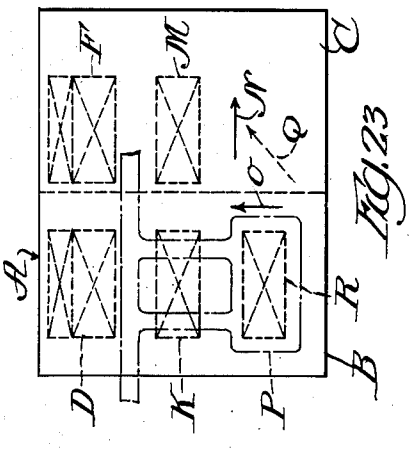


Fig. 23

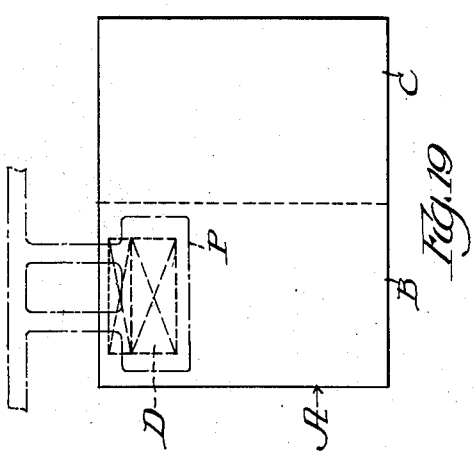


Fig. 19

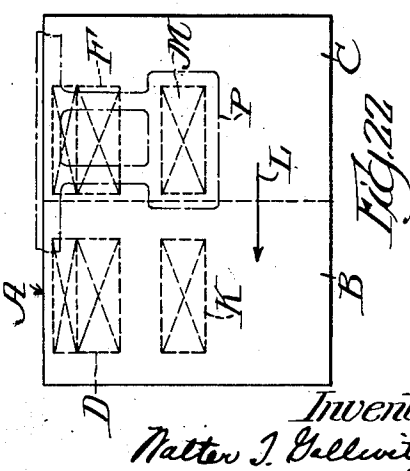


Fig. 22

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Patented May 28, 1935 2,002,772

UNITED STATES PATENT OFFICE

2,002,772

PRINTING MACHINE

Walter T. Gollwitzer, Chicago, Ill., assignor to Addressograph Company, Chicago, Ill., a corporation of Delaware

Application November 22, 1930, Serial No. 497,439

64 Claims. (Cl. 101—47)

This invention relates to printing machines and more particularly to machines wherein a plurality of sheets are successively fed thereinto and on which impressions are made from variable printing devices sequentially passed through the machine.

The machine is particularly useful in printing tax bills for both real and personal property, but it is to be understood that this is merely an illustrative adaptation as it is capable of many other uses. When used in the printing of tax bills, the machine not only prints the name and address of the party to be taxed but also prints the legal description of the property being taxed. Sometimes the legal description of a parcel of real property is of such length that it cannot be arranged on a single printing device and in such circumstances the description is arranged on as many printing devices as required, and these printing devices are arranged in groups. The first of such a group of printing devices will have thereon the name of the owner of the parcel of property and his address as well as other pertinent information and either all, when only one device is required, or as much of the legal description as can be neatly arranged thereon. These printing devices are filed in a predetermined manner and are sequentially passed through printing position in the machine and when in this position impressions are taken therefrom. Tax bills usually embody two or more sections, one of which is mailed to the party to be taxed and the other is kept by the collector of the taxes and, if provided, the additional sections are for the use of the tax assessor or other officials. It is necessary that an impression be made on all sections of the tax bill from each of the printing devices and that each of the impressions on each of the sections of the tax bill be made in definite relationship to the previously made impressions. It is therefore apparent that a relative movement must take place between the tax bill and the printing devices in order that impressions from each of the printing devices may be made on each of the sections of the tax bill.

In view of the foregoing, the salient objects of my invention are to provide a novel printing machine wherein a tax bill, or other sheet to be printed, may be shifted relative to the printing device in printing position so that successive sections of the sheet may be arranged to receive impressions from such printing device; wherein the sheet may be shifted relative to the printing device in printing position in order that impressions from different printing devices may be made on the sheet in definite relationship to impressions already made thereon on the different sections thereof; wherein the sheet will be properly aligned with the printing device in order that the impressions will be made at predetermined places on the sheet and so that a definite relationship between the various impressions may be maintained; wherein the machine will be rendered inoperative until a sheet is in proper position thereon; wherein a new sheet will not be fed into the machine until impressions from each of the printing devices of the group of such devices have been made on the previously fed sheet; and wherein a portion of the printing means may be rendered inoperative under certain conditions of operation.

In the selected embodiment of the invention illustrated in the accompanying drawings

Fig. 1 is a front elevation of a machine constructed in accordance with my invention, certain parts being shown in section;

Fig. 1*a* is a detail view of a clutch used in the machine;

Fig. 2 is a top plan view of the machine shown in Fig. 1;

Fig. 3 is a perspective view illustrating the sheet moving means and allied mechanisms;

Fig. 4 is a perspective view of the sheet jogging pan;

Fig. 5 is a view taken substantially on the line 5—5 on Fig. 2;

Fig. 6 is a view taken substantially on the line 6—6 on Fig. 2;

Fig. 7 is a view taken substantially on the line 7—7 on Fig. 2;

Fig. 8 is a view taken substantially on the line 8—8 on Fig. 7;

Fig. 9 is a view taken substantially on the line 9—9 on Fig. 6;

Fig. 10 is a view taken substantially on the line 10—10 on Fig. 2;

Fig. 11 is a plan view of the device as illustrated in Fig. 10;

Fig. 12 is a view taken substantially on the line 12—12 on Fig. 2;

Fig. 13 is a plan view illustrating the manner in which the printing devices are passed through the machine;

Fig. 14 is a view taken substantially on the line 14—14 on Fig. 12;

Fig. 15 is a detail view of the speed changing arrangement employed in the device;

Fig. 16 is a front elevation of the arrangement shown in Fig. 15;

Fig. 17 is a perspective detail view of a connecting member associated with the parts illustrated in Figs. 15 and 16;

Fig. 17*a* is a fragmentary sectional detail view of parts of the speed changing arrangement shown in Fig. 15;

Fig. 18 is a diagrammatic view illustrating the electrical connections employed in the device; and

Figs. 19 to 24, inclusive, are diagrammatic views illustrating the order in which the various impressions are successively made on the sheet.

The invention as disclosed in the accompanying drawings is particularly adapted for use in the printing of tax bills, and in the illustrated embodiment of the invention a tax bill, generally indicated by A (Figs. 19 to 24), is to be printed in the machine, and this tax bill comprises two sections, B and C, and while I have illustrated and will describe the invention as arranged to print on such a two-section tax bill it is to be understood that the invention is not limited to such an arrangement, as a tax bill employing any number of sections may be printed therein as will be made apparent hereinafter. It has been pointed out that variable printing devices are employed in the printing of tax bills and, especially in tax bills for real property, that the legal description of the property frequently cannot be arranged on but a single printing device, and it is therefore customary to arrange the legal description on additional printing devices, such printing devices being arranged in groups. The first of these printing devices will have thereon the name and address of the party to be taxed, and this printing device will first move into printing position. The printing means of the machine are, of course, located at the printing position and these means comprise the printing device, which is moved into such position, the ink ribbon or its equivalent, and the platen or other impression making member.

In the diagrammatic views (Figs. 19 to 24, inclusive) I have shown only the platen, indicated by P, and the platen is shown for, and indicates, the various printing means at printing position. An impression D will first be made, from said first printing device, on the section B, preferably adjacent the upper end of said section, and this impression will print the name and address of the party to be taxed and as much of the legal description of the property being taxed as is arranged on the first printing device. The sheet A will then be shifted, in the direction indicated by the arrow E in Fig. 20, in order that the upper portion of the section C will be arranged in alignment with the platen P. The impression F will then be made on the section C of the sheet A. As indicated, the impressions D and F are two part impressions. The upper parts of the impressions are the name and address of the party to be taxed, while the lower parts of said impressions are the portion of the legal description arranged on the first printing device. The name and address section of the printing devices is indicated by Y (Fig. 13) while the legal description part is indicated by Z. After the impression F has been made the sheet is shifted in the direction of the arrows G and H (Fig. 21), and as the sheet is shifted both in the direction indicated by the arrow G and in direction indicated by the arrow H, simultaneously, the sheet will move in the direction indicated by the arrow J, and therefore the section B will be aligned with the platen P and the portion of this section B which will be aligned with the platen P will be that portion below the portion on which the impression D was previously made in order that the impression K may be made on the sheet in alignment with the impression D. After the impression K has been made on the sheet said sheet is shifted in the direction indicated by the arrow L (Fig. 22) to align a portion of the section C of the sheet A with the platen P, and the portion so aligned with the platen P will be that portion of the section C immediately below the portion on which the impression F was made, and the impression M will be made thereon. After the impression M has been made the sheet is moved in the direction indicated by the arrow N and in the direction indicated by the arrow O, and as the sheet is simultaneously moved in both these directions the sheet will move in the direction indicated by the arrow Q (Fig. 23) and therefore a portion of the section B will be aligned with the platen P and the portion of the section B so aligned will be that portion immediately below the portion of said section on which the impression K has been made and the impression R will be made on the section B. Immediately after the impression R has been made the sheet will be moved in the direction indicated by the arrow S (Fig. 24), and therefore a portion of the section C immediately below the portion of said section C on which the impression M has been made will be aligned with the platen P and the impression T will be made.

The impressions D and F, as has been stated, are made from the first of the printing devices moved into printing position. At the time the sheet is shifted to align the portion on which the impression K is to be made with the platen, the printing devices are changed in a manner to be described and a new printing device supplants the printing device from which the impressions D and F were made. On this new printing device there will be arranged only a portion of the legal description of the property being taxed, for it will not be necessary to repeat the name and address of the party to be taxed and the one part impressions K and M will be made from this printing device. When the sheet is shifted in the direction indicated by the arrow Q, the printing devices are again changed and a new printing device moves into printing position and the one part impressions R and T are made from this new printing device.

The printing devices of the character intended to be used in this device are of the type embodying two or more printing plate receiving portions and the printing plate having the name and address of the party to be taxed thereon is preferably arranged in the uppermost of the above named portions while the printing plate carrying the legal description is arranged in the lowermost of the portions. Inasmuch as the printing devices used in making the impressions K, M, R and T are not to imprint the name and address it is customary not to provide any printing plate in the uppermost of the portions, and since no printing plate is provided in the uppermost of the portions it is desirable that a portion of the printing means be rendered inoperative when impressions are being made from such printing devices, and this is brought about in a manner to be described.

The invention as described herein is, as has been pointed out, one which will print a tax bill having two sections and also one which will

print a tax bill wherein the legal description of the property to be taxed may be arranged on three printing devices. However, the legal description of some pieces of property can be arranged on one printing device and when this is true impressions will be made only in the positions indicated by the impressions D and F. When this is true the sheet is merely moved to position the portions receiving the impressions D and F in printing position and after the sheet has been so positioned it is passed from the machine without moving into the other positions above described.

When the legal description of a parcel of property can be arranged on two printing devices, the sheet is moved to successively position the portions to receive impressions D, F, K, and M in printing position, and after the sheet has been successively positioned in such locations it is moved from the machine without moving into the other positions. The manner in which a tax bill is printed for a parcel of property having legal description which may be arranged on three printing devices has been described previously. However, the legal description of some pieces of property cannot be arranged on but three printing devices but must be arranged on additional printing devices. If desired, the machine may be arranged so that additional impressions may be made on the tax bill, but in the embodiment of the invention illustrated and described, as has above been stated, the machine is arranged to print on each bill, when necessary, from three printing devices, for it has been found that the vast majority of legal descriptions can be arranged on not more than three printing devices.

In the embodiment of the invention illustrated in the accompanying drawings the unprinted tax bills A are arranged in a suitable rack **25** supported at one end of the machine, and any approved means may be provided for successively withdrawing the bills A from the rack **25** and for passing said bills into the machine. One such means is disclosed in my co-pending application, Serial No. 497,440, filed November 22, 1930, but it is to be understood that other approved means might be used as my invention is not limited to the particular means shown in that application.

The machine in which the tax bill is printed includes a main frame **26** having at the upper end thereof a bed **27** (Fig. 12), on which bed the printing operations are performed. A bracket **28**, which is a part of the main frame **26**, provides a bearing **29** in which a shaft **32** is journaled, and rotatably mounted on this shaft is a flywheel **30**. Power is transmitted to the flywheel **30** in any approved manner, from a suitable source of power, as for example by a belt which may be arranged in the groove **31** of the flywheel. The flywheel **30** is connected to the shaft **32** by the clutch structure **33**. Mounted on the shaft **32** inwardly of the bearing **29** is another clutch structure **34** which serves to connect the spur gear **35** to the shaft **32**. The spur gear **35** meshes with and drives a gear **36** rotatably mounted on the shaft **37**, said gear **36** being joined by the collar **38** to the spur gear **39**. The spur gear **39** meshes with a pinion **40** fixed to the shaft **41** (Figs 1, 2, and 6).

The shaft **41** extends to the front side of the machine into the gear housing **42**. Fixed on shaft **41** in the gear housing **42** are three gears **43**, **44** and **45** (Fig. 15), which gears are of progressively greater diameter. Another shaft **63'** extends into the gear housing **42** and mounted thereon are three gears **46**, **47** and **48** which mesh with the gears **43**, **44** and **45**, respectively. The gears **46**, **47** and **48** are not directly mounted on the shaft **63'** but are mounted on a bushing **49** which rests against the boss **50**, in the gear housing **42**, through which the shaft **63'** is extended. In the bearing portions of the gears **46**, **47** and **48**, resting on the bushing **49**, pockets **46'**, **47'** and **48'** are formed and in the bushing **49** an opening **51** is provided, and the pockets **46'**, **47'** and **48'** are arranged in position to communicate with this opening **51**. In the opening **51** a tumbler **52** is positioned, which tumbler is in the nature of a pin having relieved portions thereon. The relieved portions on the tumbler **52** provide rounded portions **53**, **54** and **55** thereon, and these rounded portions are spaced apart so that when the tumbler **52** is arranged in the opening **51** these rounded portions will be respectively aligned with the gears **46**, **47** and **48**. On the outer end of the tumbler **52** a knob **56** is provided which has an opening **57** therein, and arranged in this opening is a spring **58**, the outer end of said opening being closed in any desired manner, and thus the spring **58** is confined in the opening and acts on a ball **59** to force said ball toward the disc **60**. The disc **60** cooperates with a flange **49'** on the bushing **49** to retain the gears **46**, **47** and **48** between the disc and the flange. The disc **60** is connected to the shaft **63'** by a plate **61** which has an elongated opening therein that engages a similarly shaped portion on the shaft, and the plate **61** is connected to the disc **60** by bolts **62**. On the face of the knob **56** suitable indicia is provided, and this indicia is aligned with the rounded portions **53**, **54** and **55**. In the face of the disc **60** three sockets are formed in which the ball **59** may be selectively seated. By grasping the knob **56** and turning the same so as to move a portion of the indicia thereon into a vertical position, a certain one of the rounded portions on the tumbler **52** will be arranged to project beyond the opening **51**, and this rounded portion will seat in one of the pockets **46'**, **47'** or **48'** dependent upon which of the rounded portions is arranged in the described projecting position. In the present instance the portion **53** is disposed in the pocket **47'**. (See Figs. 15 and 17*a*.) Thus, by properly positioning the tumbler **52**, one of the gears **46**, **47** or **48** may be selectively connected to the shaft **63'**. The ratio between the gears **45** and **48** is 1 to 1 and thus when the gear **48** is connected in the above described manner the shafts **63'** and **41** will rotate at the same speed. Similarly, when the gear **47** is connected in the above described manner, the shaft **41** will rotate twice as rapidly as the shaft **63'**, as the ratio between the gears **44** and **47** is 2 to 1, and when the gear **46** is joined, as above described, the shaft **41** will rotate three times as rapidly as the shaft **63'**, as the ratio between the gears **43** and **46** is 3 to 1. An opening **42'** is provided in the front wall of the housing **42** to afford access to the knob **56** in order that the above described connecting of the gears may be easily brought about.

A shaft **63** (Fig. 2) is journaled in a bearing **64** and in a bearing **65** adjacent the compound gear train **68**. The end of the shaft **63'**, extending from the housing **42**, is journaled in a bearing **66** adjacent the compound gear train **68**, and this compound gear train serves to reduce the speed, and therefore the shaft **63** will rotate at a speed in a predetermined relation to the speed of ro-

tation of the shaft 32 for a purpose to be brought forth presently. On the end of the shaft 63 extending beyond the bearing 64 is a bevel gear 69 which meshes with the bevel gear 70 on the cam shaft 71 which extends longitudinally of the machine, as clearly illustrated in Figs. 1, 2 and 6 and which is supported in a manner to be described presently. On the inner end of the shaft 32 is a bevel gear 72 which meshes with a bevel gear 73 on the platen operating shaft 74.

On the bed 27 is a lug 75 (Fig. 12) and the arm 76 on the platen arm, generally indicated by 77, is pivotally mounted thereon. The platen arm 77 includes branch arms 78 and 79 which extend on opposite sides of the shaft 74 and respectively mounted on these arms are roller 80 and 81 which respectively engage the conjugated cams 82 and 83 fixed on the platen operating shaft 74. Extending forwardly from the arm 79 is the platen or stamper arm 84 on which the platen P is mounted and as the shaft 74 is rotated the rises on the cams 82 and 83 cause a rocking of the platen arm about the pivotal mounting thereof on the lug 75, and thus the platen P is moved to and from printing position to perform the printing operation.

It has been pointed out that the sheets or tax bills A are stored in the rack 25 and are successively moved into the machine. These tax bills are moved into the machine past the wheel 85, (Fig. 6) to be described more fully hereinafter, and are positioned on the belt 86. The belt 86 extends longitudinally of the machine and about the pulleys 87 and 88 respectively mounted on the shafts 89 and 90, suitably supported at opposite ends of the bed 27. The belt 86 serves to feed the sheet to be printed longitudinally of the machine and to insure proper driving of this belt, pulleys 91 and 92 are respectively mounted on the shafts 89 and 90 and an endless belt 93 is directed around these pulleys, said belt 93 being guided around the operating mechanisms of the machine by the idler pulleys 94 mounted on the brackets 95 carried by the frame 26 (Fig. 1), and when one of the shafts 89 or 90 is driven, this belt serves to drive the other shaft.

In printing machines of the character to which this invention appertains wherein the printed sheets are successively fed to printing position and stopped therein, certain problems are encountered in the feeding of the paper. First of all, it is desirable that the paper be moved as rapidly as possible and this is accomplished by operating the driving means, such as the belt 86, at an appreciable speed consistent however with the stopping of the paper in printing position. Inasmuch as the paper is stopped by causing the leading edge thereof to abut a stop finger, it is necessary that the speed at which the paper is moved be kept below a point which will be likely to cause injury to the edge of the sheet engaging the finger. Thus, it has been customary to provide a number of driving belts, such as the belt 86, and to rest the sheet thereon so as to be carried thereby until the leading edge of the sheet engages the stop finger. Frequently wheels have been arranged above the sheet which exert a light pressure thereon so as to hold the same in engagement with the driving belts. However, I have found that if the weight of the sheet alone is depended upon and only a single driving belt is provided proper sheet movement will not always result, and I have therefore provided an arrangement whereby I am enabled to force the sheet into engagement with the driving belt, but I have arranged the means, which brings this about, in such a manner that this means may be withdrawn from forcing position at the time the sheet engages the stop finger, and therefore the frictional contact between the sheet and the belt will be materially reduced and injury to the leading edge of the sheet is substantially obviated.

To accomplish the foregoing, I operate a means for holding the sheet in engagement with the belt by a cam, and the means for stopping the sheet are also operated by a cam, and in the present instance such cams are mounted on the cam shaft 71. The cam shaft as employed herein, and which is generally indicated by 71, is formed in two sections joined by a coupling 71' (Fig. 6), and therefore the portion carrying the operating cams may be readily removed from the machine, while the portion of the cam shaft 71, to which the gear 70 is connected, is permanently journaled in a bearing, such as 70', (Fig. 2). The coupling 71' rigidly interconnects the shaft sections and therefore the other end of the cam shaft may be journaled in a bearing at the end of the machine opposite the bearing 70', and such a bearing is indicated by 72' (Fig. 2). As best illustrated in Fig. 3, a bracket 168 extends upwardly from the bed 27 and has on the front face thereof a bifurcated lug 73' in which the cam shaft 71 is arranged, this bifurcated lug adding rigidity to the cam shaft and preventing sagging thereof and, if desired, additional supports such as the bifurcated lug 73', may be provided along the extent of the cam shaft 71.

As best illustrated in Fig. 3, a table top 27' is arranged over the bed 27 and this table top may be made of sheet metal or the like. Along the forward edge of this table top 27' are two supporting blocks 214 and 215 having upwardly opening bifurcations 214' and 215' in the upper ends thereof. The forward end of a supporting bar 212 is journaled in the bifurcation 214' and a pin 212' in the bar 212 engages the inner face of the block 214 to prevent forward movement of the bar 212. At the opposite end of the bar 212 is a block 96 having a bifurcated finger 96' extending therefrom and the bifurcation in this finger embraces the cam shaft 71. The forward end of the bar 213 is arranged in the bifurcation 215' and has a pin 213' therein and a block 97 on the opposite end of the bar 213 includes a bifurcated finger 97', similar to the bifurcated finger 96', and the bifurcation in this finger also embraces the cam shaft 71. By reason of the fact that the blocks 96 and 97 are both supported from the cam shaft 71 it is apparent that these blocks may be supported above the table top 27 as clearly illustrated in Fig. 5. A shaft 98 is fixed in the bearing blocks 96 and 97 and serves to interconnect these blocks. Mounted on the bars 212 and 213 are adjustable bearing blocks 211' and 216' which carry a bar 211. The shaft 98 and the bars 212, 213 and 211 form a substantially rectangular superstructure and by lifting the forward ends of the bars 212 and 213 from the bifurcations 214' and 215' to disengage the pins 212' and 213' from the blocks 214 and 215 this super-structure may be lifted from the machine by reason of the arrangement including the bifurcated fingers 96' and 97'.

The shaft 98 provides a support for the members operated by the cams on the cam shaft 71. A block 99 (Fig. 3) is pivotally mounted on the shaft 98 and extending forwardly therefrom is a

rod 100, at the free end of which a roller 101 is rotatably mounted, which roller is disposed above the belt 86, as best illustrated in Fig. 2. Extending from the block 99 in a direction opposite to the rod 100, is a finger 102 (Fig. 3), which has a cam surface thereon engaged by the cam 103 on the cam shaft 71. A rocker 104 is pivotally mounted on the shaft 98 and includes a finger 105 having a cam surface thereon engaged by the cam 106 on the cam shaft 71. The rocker 104 also carries the stop finger 107. After a sheet has been fed from the rack 25 and passed below the wheel 85 onto the belt 86 so that the forward end thereof will be disposed below the roller 101, the rise on the cam 103 will be moved from engagement with the cam surface on the finger 102 and therefore the block 99 will pivot by its own weight and the roller 101 will engage the sheet and force the same into contact with the belt 86 and the sheet will be moved until the forward edge thereof is adjacent the stop finger 107, at which time the cam 106 will operate and permit the stop finger 107 to move into position relative to the forward edge of the sheet and immediately prior to the engagement of the forward edge of the sheet with the stop finger 107, the cam 103, will operate to elevate the roller 101. Thus, the frictional contact between the sheet A and the belt 86 will be materially reduced and consequently the force with which the sheet A strikes the finger 107 will be materially reduced and the likelihood of damage to the edge of the sheet will be substantially obviated.

When the sheet A is stopped by the finger 107 after having been first fed into the machine, the sheet will be positioned to receive the impression D which will be made thereon from the printing device 127 (Figs. 12 and 13) which will have been fed from the magazine 108 by the chain printing device feeding arrangement 108' (Fig. 5), which may be of the character disclosed in the Duncan Patent No. 1,481,860, patented January 29. 1924. After having passed through printing position the printing devices are fed into the galley 110 (Fig. 1) arranged below the bed 27 wherein the printing devices are collected and stored in the same sequence as that in which the devices were arranged when introduced into the magazine 108. The printing device which will be in printing position will be the first of a group, that is, one having the name and address of the person to be taxed thereon and also a portion of the legal description of the parcel of property being taxed, or all of the legal description may be contained on this one device, as previously pointed out, and such a printing device is known as the lead printing device. In the embodiment of the invention illustrated, the platen operating shaft 74 makes two revolutions to one of the cam shaft 71 as a two-section tax bill is being printed. Therefore, after the platen P has been moved downwardly and has made an impression D on the sheet A, a suitable ink ribbon 111 (Fig. 1) being interposed between the printing device in printing position and the sheet, the cam shaft will operate to withdraw the finger 107 from stopping position and therefore the belt 86 will again move the sheet longitudinally of the machine and a portion of the sheet will pass between the roller 112 and the belt 86, said roller 112 being similar to the roller 101 and being mounted on a rod 113 carried by the block 114 pivotally mounted on the shaft 98, an arm 115 extending from the block 114 below the cam 116 on the cam shaft 71, said cam 116 controlling operation of the roller 112. The sheet will be moved by the above described mechanisms until it engages the stop finger 117 carried by the rocker 118 that is pivotally mounted on the shaft 98 and which includes a finger 119 that is disposed below the cam 120 on the cam shaft 71, and at a predetermined time during the operation the cam 120 lowers the stop finger 117 into position to engage the sheet A and stop the same so that the portion thereof that is to receive the impression F will be aligned with the platen P, the roller 112 being withdrawn just prior to engagement of the sheet with the finger 117. Therefore the platen, upon the next operation thereof, will act to make the impression F on the section C of the sheet A. Extending longitudinally of the machine is a rod 121 that is supported from the bar 213 by the bracket 216. The finger 117 is bifurcated to straddle the rod 121, the forward end of said rod including an upturned portion 122 which facilitates the passage of the sheet therebelow, and when the finger 117 is moved upwardly by the cam 120 out of the path of the sheet A this rod 121 will act as a stripper to withdraw the edge of the sheet from engagement with the stop finger 117 and therefore the sheet may be moved out of the machine by the belt 86 if but two impressions are to be made thereon.

As the machine may be used to make three impressions from each printing device, as when a three-section tax bill is to be printed, a rocker, such as that indicated by 123, is provided which carries a bifurcated stop finger 124 which also straddles the rod 121, and the rocker 123 includes a finger 125 operable by a cam on the cam shaft 71 and if, as stated, a three-section tax bill is to be printed, this finger will operate to stop the sheet in a position such that an impression may be made thereon in horizontal alignment with the impressions D and F. However, in the present embodiment of the invention the finger 125 engages a round cam 126 on the cam shaft 71 which does not cause operation of the stop finger 124 and thus the sheet A will not be stopped thereby.

In Fig. 13, the printing device 127 is shown in printing position, it being disposed above the usual anvil. The printing device 127*a* is arranged in what might be termed selector position. The printing device 127, in the present instance, is a printing device of the character used in making the impressions D and F, or a lead printing device, while the printing device 127*a* is of the character used in making subsequent impressions on the sheet such as the impressions K, M, R, and T, or a follower printing device. Disposed below the guideway 109 is a supporting member 128 (Fig. 12) which is made of insulating material. Carried by the supporting member 128 are spring contact arms 129 and 130 having contacts 131 and 132 at the outer free ends thereof. It has been pointed out that the printing device 127*a* is disposed in what is termed selector position and therefore the rear edge of this printing device is disposed adjacent the groove 133. Disposed in the groove 133 are the head portions 134 of the switch pins 135, the lower insulated ends of said switch pins resting on the upwardly disposed spring contacts 129. On each of the lead printing devices 127 is a tab 136 and this tab is arranged in alignment with the head portion 134' (Fig. 13) of one of the pins 135. On each of the follower printing devices a tab, such as 137, is provided in alignment with the head portion 134'' of one of the pins 135.

Assuming that the printing device 127 has been in printing position and that the printing device 127a has been in selector position and that the impressions D and F have been made on the sheet A. It will therefore be necessary that the sheet be moved in the direction indicated by the arrow J in order that the impression K may be made at the proper place on the sheet. It should be noted that as the impressions are being made from the printing device 127 the tab 137 is resting on the head portion 134'' and is therefore acting through the pin 135 to hold the contacts 131 and 132 in engagement, and an electric circuit which includes these contacts is therefore arranged to be rendered operative, and when this circuit is rendered operative the paper will be shifted in the direction indicated by the arrow J.

By referring to Fig. 18 it may be seen that the line wires 138 and 139 are directed to a switch 140 and that wires 141 and 142 extend from this switch to the electric motor 143, which is the source of power to which reference has heretofore been made. Connected to the wires 141 and 142 are conductors 144 and 145 which are connected to the switch 146. A conductor 147, which is a continuation of the conductor 144, is connected to a bus bar 148. A conductor 149 is connected to the bus bar 148 and to a switch 150, the switch 150 being connected by a conductor 151 to a bus bar 152. A conductor 153 interconnects the bus bar 152 with one terminal of the solenoid 154, while a conductor 155 connects the other terminal of the solenoid 154 with a bus bar 156. A conductor 157 interconnects the bus bar 156 and the spring contact arm 129 which carries the contact 131. A conductor 158 is connected to the spring contact arm 130, which carries contact 132, and to the bus bar 159, while a conduetor 160 interconnects the bus bar 159 and the switch 146, said conductor 160 being a continuation of the conductor 145. Therefore, when the contacts 131 and 132 are engaged it is manifest that an electric circuit will be closed as soon as the switch 150 is closed and that when such an electric circuit is closed the solenoid 154 will be energized. Thus, the time at which the circuit will be closed is regulated by the switch 150 (Fig. 2). This switch includes an operating arm 161 and mounted on the cam shaft 71 is a disc 162 (Fig. 3) having a pin 163 thereon which engages the operating arm 161 at a predetermined time to close the switch 150.

However, just prior to the time the switch 150 closes the circuit the rise on the cam 164 on the platen operating shaft 74 (Figs. 3, 5 and 10) will engage the roller 165 at the upper end of the operating lever 166 that is pivotally mounted at 167 on the bracket 168' (Fig. 5) extending upwardly from the bed 27. Pivotally connected to the lower end of the lever 166 is a pawl 168 (Figs. 10 and 11) having a pin 169 depending therefrom, which pin normally rests against the shaft 170. Joined to the operating lever 166 is a latch 171 having a shoulder 172 thereon, which normally rests against the flat portion of the half-round pin 173 mounted on the member 174 which supports the solenoid 154. As soon as the rise on the cam 164 engages the roller 165, the lever 166 is moved so that the end thereof connected to the pawl 168 moves in a counter-clockwise direction, and therefore the shoulder 172 is moved a short distance to disengage the shoulder 172 from the flat portion on the pin 173. Simultaneous with this, the switch 150 will be operated to close the circuit and therefore the solenoid 154 will be rendered operative to move the armature 175 thereof upwardly. Disposed in alignment with the upper end of the armature 175 is a pin 176 carried by the latch 171, and since the shoulder 172 on the latch will have previously been disengaged from the flat portion on the pin 173 the latch 171 may be moved upwardly in an amount sufficient to disengage the shoulder 172 from the flat portion. A spring 177 extends between spring anchors on the lever 166 and the member 174, and as the cam 164 continues to move and as the rise on said cam is withdrawn from engagement with the roller 165, the spring 177 will act on the lever 166 to hold said lever in engagement with the periphery of the cam 164 and therefore said lever will be motivated to move the pawl 168 toward the left, as viewed in Fig. 10. The pawl 168 has a spring anchor 178 at one end thereof to which one end of a spring 179 is attached, the other end of said spring being connected to the spring anchor 180 on lever 166. The disengaging of the shoulder 172 from the flat portion 173 and the movement imparted to the lever 166 by the spring 167 causes the latch 171 and the pawl 168 to be moved toward the left, as viewed in Fig. 10, and when the pawl 168 is so moved the pin 169 is disengaged from the shaft 170 and therefore the spring 179 may pivot said pawl 168. On the end of the pawl 168, opposite the spring anchor 178 is a pin 181 having a half-round portion thereon. Slidably supported below the bed 27 is a rack 182 having a plurality of ratchet teeth 183 therein, there being one more of these teeth than the number of follower printing devices intended to be operated on in the machine. When the pawl 168 starts to move in the above described manner and when said pawl is pivoted by the spring 179, the flat portion on the pin 181 engages the first of the ratchet teeth 183 on the rack 182, and this rack is moved along with the lever 166. A retaining pawl 183' (Fig. 10) is provided which includes a pin 184 having a half-round or flattened portion thereon, and this retaining pawl 183' is pivotally mounted at 185 below a shoulder on the block 186, and includes a relieved upper surface 187, and disposed between the relieved upper surface 187 and the upper portion of the block is a spring 188 which normally urges the half-round portion of the pin 184 into engagement with the ratchet teeth 183, and the movement imparted to the rack 182 by the pawl 168 is sufficient to move the rack the length of one tooth in order that the flat portion of the half-round portion of the pin 184 will be forced into engagement with the tooth subsequent to the tooth it has been engaging.

Connected to the rack 182 at the rear end thereof is a block 189 and secured to this block is a rack 190. The gear teeth in the rack 190 mesh with the teeth of the pinion 191 mounted on the shaft 192, and this shaft 192 extends longitudinally of the machine, and at the other end of the shaft 192 is a similar pinion and rack and the rack at this end of the shaft 192 has blocks 193 thereon movable through slots 194 in the table top 27' (Fig. 2). Similar blocks 195 are joined to the rack 182, and these blocks are movable through slots 196 in the table top 27'. The jogger pan 197 is connected to the blocks 193 and 195 by screws, or other suitable securing devices, and therefore when the pawl 168 moves the rack, the jogger pan 197 is moved rearwardly toward the platen P, and this direction of

movement is indicated by the arrow H in Fig. 21. The jogger pan 197 is illustrated in detail in Fig. 4 and by referring thereto it may be seen that the side edges of this pan include channel portions 198 and 199 that are flared at the end thereof disposed toward the rack 26. An opening 197' is provided in the pan 197 which registers with an opening in the table top 27' and the printing operations are performed through these openings. As best shown in Figs. 3 and 5, the belt 86 passes over the jogger pan 197 and therefore the sheet which is being moved by said belt will be carried onto the pan 197 and be disposed between the channel portions 198 and 199. Thus, when the pan is moved in the above described manner, it is manifest that the sheet A will also be moved.

It has been pointed out that at the time the sheet is moved in the direction indicated by the arrow H (Fig. 21) it is also moved in the direction indicated by the arrow G in that figure, and this latter movement is brought about in the following manner: Mounted on the channel portion 199 of the pan 197 is a bracket 200 on which the medial portion of a rocker 201 is pivotally mounted. At one end of the rocker 201 is a bearing 202 through which a flexible shaft 203 is extended and on the end of the shaft 203 is a roller 204. The opposite end of the shaft 203 is journaled in a bearing in the bracket 205 mounted at one end of the bed 27, and on the end of the shaft 203 is a bevel gear 206 which meshes with a bevel gear 207 on the shaft 90. Inasmuch as the shaft 90 is continually rotated, it is manifest that the roller 204 will be continually rotated, and the roller 204 operates in a direction such that the underside thereof rotates opposite to the direction of movement of the belt 86. The roller 204 is held from engagement with the sheet A by the arm 208 of the bell crank, generally indicated by 209, which is pivotally mounted in the bracket 210 that is carried by the bar 211. The bar 211 is supported in juxtaposition to the sheet A in the pan 197 and serves to hold said sheet flatly on the pan to prevent crumpling thereof. Connected to the arm 217 of the bell crank 209 is a link 218, which link is adjustably attached to the connecting block 219 (Fig. 10) having a bifurcated end portion embracing the pin 220' on the boss 220 of the lever 166. When the lever 166 is moved by the spring 177 the link 218 is moved toward the left, as viewed in Fig. 10, and the bell crank 209 is moved so that the arm 208 thereof moves in a counter-clockwise direction and is therefore withdrawn from engagement with the rocker 201 which permits the roller 204 to move into engagement with the sheet A in the pan 197. The forward edge of the sheet A will have been engaging the stop finger 117 since the sheet has been positioned to receive the impression F. However, as soon as the roller 204 engages the sheet A said sheet will be moved away from the stop finger 117 since the roller 204 rotates in a direction opposite to the movement of the belt 86, and the sheet will be moved until it passes from engagement with the roller 204. The sheet will be disposed in the pan 197 between the flanges 198 and 199. The roller 204 will engage the sheet adjacent one edge and the tendency might be to twist the sheet but to obviate this a finger 204' carried by the bearing 202, is engaged with and retains the sheet at the same time the roller 204 engages the sheet. Thus, the sheet is properly moved by the roller 204 in the direction of the arrow G (Fig. 21). At the time the sheet disengages the roller 204 said roller will again be raised and parts associated with the lever 166 will again be repositioned in the positions shown in Fig. 10 and the movement of the pan 197 in the direction of the platen P will have been completed and therefore the belt 86 will move the sheet to engage the forward end thereof with the stop finger 107, and at this time the platen will be rendered operative to make the impression K, for during the time the sheet was moved in the above described manner the printing device 127 will have been moved from printing position and the printing device 127a will have moved into printing position.

It has been pointed out that the forward edge of the sheet A is engaged with the stop finger 107. This results from the structure which is so arranged that the timing of the shaft 71 is synchronized with the operation of the just described mechanisms. Therefore, after the impression K has been made the cam shaft 71 will retract the finger 107 and the roller 112 will force the sheet A into engagement with the belt 86 and said sheet will be moved until the forward edge thereof engages the stop finger 117 which will be moved into stopping position at this time, and thus the sheet will be positioned to receive the impression M.

If a tax bill being printed is to receive impressions from a lead printing device and one follower printing device, the bill will move from the machine as soon as the stop finger 117 is retracted. However, if another follower printing device is used, this additional follower printing device will also have a tab 137 thereon and therefore immediately after the impression M has been made the switch 150 will again close the above described electric circuit and the cam 164 will again operate the lever 166 to shift the pan 197 and lower the roller 204 to move the sheet in the direction opposite to that in which it is moved by the belt 86, it being understood that the shoulder 172 will have been reengaged with the flat portion of the pin 173 after the pan 197 has been previously shifted. Thus, since the electric circuit is closed and as the cam 164 will be operating, the pan 197 will again be shifted in the manner previously described and thus the sheet A will be moved in the directions indicated by the arrows O and N (Fig. 23). These movements, as well as the movements indicated by the arrows H and G in Fig. 21, occur simultaneously and thus the sheet moves diagonally, as indicated by the arrows Q and J. Therefore, when the pan is moved for the second time, the portion of the section B of the sheet A to receive the impression R will be arranged below the platen P, and this impression will be made from the second of the follower printing devices, the stop finger 107 again engaging the forward edge of the sheet to position the same, and after the impression R has been made the stop finger 107 will be retracted and the sheet will be moved until it engages the stop finger 117 at which time the impression T will be made.

In the embodiment of the invention, as illustrated, the machine is arranged to print but from two follower printing devices. However, it is manifest that, if desired, the machine might be arranged to print from additional follower printing devices by merely providing additional teeth 183 in the rack 182 and enlarging the various portions of the machine in order that

additional movement of the pan 197 will be possible. However, it has been pointed out that the majority of legal descriptions may be arranged on but one lead printing device and two follower printing devices, and I have therefore arranged the machine to operate under such conditions. Thus, after the impression T has been made the sheet A will pass from the machine and a new sheet will be introduced thereinto.

However, prior to the time that the new sheet is introduced into the machine it will be necessary to reposition the pan 197 so that impressions may be made similar to the impressions D and F, and this is brought about in the following manner: The tab 136 on the lead printing device 127 is provided to bring about this last described operation. Thus, when the last of the follower printing devices is in printing position the next lead printing device will be in selector position. This will be true even though the legal description is arranged on only a lead printing device or where but one follower printing device is provided. This tab 136, however, closes the circuit between the contacts 221' and 221 carried on a pair of the spring contact arms 129 and 130. The contact arm 130, carrying the contact 221, is connected by a conductor 222 to the bus bar 159 and thence through the conductor 160 to the switch 146. The spring contact arm 129, carrying the contact 221', is connected by a conductor 223 to the bus bar 224 which, in turn, is connected by the conductor 225 to one end of the winding of the electro-magnetic relay 226, the other end of said winding being connected by the conductor 227 to the bus bar 228 which, in turn, is connected by the conductor 229 to the switch 230 that, in turn, is connected by the conductor 231 to the conductor 149 which, through the bus bar 148 and the conductor 147, is connected to the switch 146. The switch 230 (Fig. 2) is arranged in juxtaposition to the switch 150 and includes an operating arm 232 engageable by the pin 233 on the disc 234, which is mounted on the cam shaft 71. Therefore, when the contacts 221' and 221 are engaged and when the switch 230 is closed, a circuit will be closed to the relay 226. The relay 226 is mounted on the supporting platform 227' (Fig. 5) and when the circuit is closed thereto the pivotally mounted armature 235 thereof is attracted and movement imparted to the armature 235 is transmitted through the link 236 to withdraw the pin 184 from engagement with the teeth 183 of the rack 182. A spring 237 (Figs. 10 and 11) extends between a spring anchor 238 on the rack 182 and a spring anchor 239 on the table top 27' and when the pin 184 is retracted in the above described manner this spring 237 acts to reposition the pan 197, and the block 189 engages the bumper 240 to cushion the return movement of the pan as brought about by the spring 237. The retaining pawl 183' has a reduced end portion 241 and pivotally mounted at the end of the block 186 is a latch dog 242. When the retaining pawl is retracted from engagement with the teeth 183, the reduced end portion 241 is engaged by the retaining dog 242, which dog is urged into an engageable position by the spring 243, and therefore the retaining pawl is held from engagement with the ratchet teeth until the spring 237 moves the parts back into initial position at which time the spring anchor 238 will engage the dog 242 and move the same into the position shown in Fig. 11, and then the spring 188 may again position the pin 184 in engagement with the ratchet teeth 183.

It has been pointed out that a lead printing device carries at Y the name and address of the party to be taxed, as well as a portion of the legal description of the property being taxed positioned thereon at Z. It has also been pointed out that the follower printing devices do not have any printing characters at Z, and it is therefore advantageous that a portion of the printing means be rendered inoperative when a follower printing device is in printing position, and this is done by causing a portion of the platen to recede from operating position. As best shown in Fig. 12, a housing 244 is provided about the conjugated cams 82 and 83 which bring about operation of the platen P. Provided on this housing 244 is a bearing bracket 245 in which a shaft 246 is journaled (Fig. 6). Pivotally mounted on the shaft 246 and depending therefrom is an arm 247 (Fig. 12). Fixedly mounted on the shaft 246 is a block 248. In the block 248 is a slot 249, and a clamp screw 250 is extended through this slot and is threaded into the arm 247, and therefore by varying the position of the screw 250 in the slot 249, and tightening the same, the arm 247 may be adjusted relative to the block 248 and therefore the shaft 246. At the lower end of the arm 247 is a foot portion 251 which is intended to be positioned below the nose 252 of the dog 253, carried by the platen P, during downward movement of the platen under conditions to be described. As best shown in Fig. 9, a cam plate 254 is provided on the channel portion 198 of the pan 197. When the pan 197 is moved in the direction indicated by the arrow H in Fig. 21, this cam plate 254 disengages the roller 255 on the arm 256 pivotally mounted on the shaft 98. A pin 257 in the shaft 98 has one end of a spring 258 connected thereto, the other end of the spring 258 being secured to a spring anchor 259 on the arm 256, and this spring tends to urge the roller 255 downwardly. Thus, when the roller 255 is disengaged the arm 256 moves downwardly and therefore the arm 260, connected to the arm 256, is moved in a clockwise direction, and this movement is transmitted through the link 261 to the arm 262 which is fixed on the shaft 246, and this movement of the arm 262 is transmitted through the shaft 246 to the arm 247 to position the foot portion 251 below the nose 252 of the dog 253. The dog 253 is fixedly mounted on the pin 263, which pin includes a flattened portion 264, and this pin is carried by the housing of the platen P. A similar pin 265 is mounted in the platen housing and includes a flattened portion 266, and an arm 267 is connected to the pin 265, and this arm is connected by the link 268 to the dog 253. A spring 269 is connected to a spring anchor 270 on the dog 253, and in normal conditions this spring extends below the center of the pin 263 and holds the dog 253 in a downward position. However, when the platen P moves downwardly and the foot portion 251 is aligned with the nose 252, the dog 253 will be pivoted and the spring 269 will be disposed above the center of the pin 263. A screw 271 is fixed in the platen section P' and a spring 272 acts on the head of this spring 271 to urge the same upwardly, and when the dog 253 is pivoted, as above described, the pins 263 and 265 are turned so as to move the flat portions thereof into a position disposed toward the platen section P', and therefore the spring 272 will cause the platen section P' to recede. The section P''

is that which is aligned with the portion Y of the printing devices carrying the legal description, and thus impressions will be made only by the platen section P'' from the portion Z. The platen section P' will be receded during downward movement of the platen and during upward movement of the platen a roller 273 on the link 268 will engage the cam surface 274 (Fig. 6) at the lower end of the arm 275 depending from the housing 244, and the engagement of this roller 273 with said cam surface will cause the parts to be repositioned in the position shown in Fig. 7, and thus the platen section P' will be caused to recede only during the time the platen P is in, or near, printing position.

In order that the machine will only operate when a sheet is positioned in the pan 197, the wheel 85 is provided, and this wheel is mounted on the arm 276 (Fig. 6), which arm 276 is pivotally mounted at 277. The arm 276 includes a portion 278 which extends upwardly at an angle to the main extent of said arm and which carries a roller 279 that may rest on the cam 280 on the shaft 63. The wheel 85 is aligned with a grooved wheel 281 on the shaft 89, and when a sheet is in proper position the wheel 85 rests on the sheet, but when no sheet is in proper position the wheel 85 passes into the groove in the wheel 281, and the roller 279 is lowered and permits the shoulder 282 on the rod 283 to engage the shoulder 284 on the cam 280, and the rod 283 is therefore moved toward the right, as viewed in Fig. 6. The rod 283 is connected to the latch member 285 of the structure which engages and disengages the clutch 33. The latch member 285 includes a shoulder 286 engageable by the shoulder 287 on the dog 288, which dog 288 is mounted on the shaft 289 operable by the handle 290. When the dog 288 is positioned, as shown in Fig. 6, with the shoulder 287 resting on the shoulder 286, the clutch structure 33 is engaged. The clutch 33 includes a collar 291 (Fig. 1a) which is suitably secured to the flywheel 30 but which is rotatable on the shaft 32. A disc 292 is fixed to the shaft 32, and pivotally mounted on this disc is a latching pawl 293 having a nose 294 which is urged toward a pocket 295 in the collar 291 by the spring 296, said nose 294 being held out of said pocket by the engagement of the pawl with the latching member 297, which is pivotally mounted at 298 on the frame of the machine, and which has a pin 299 therein. A member 301, fixed on shaft 289, has a slot 300 therein which is eccentric to the shaft 289. When the handle 290 is disposed as shown in Fig. 6 the member 301 is so positioned that the pin 299 is in the less eccentric portion of the slot 300 and the nose of the latching member 297 is withdrawn from engagement with the pawl 293, and the nose 294 thereof is seated in the pocket 295, and thus the flywheel 30 and the shaft 32 are connected. When, however, the handle 290 is moved so as to move the rounded portion 302 of the dog 288 into engagement with the latching member 285, the latching member 297 engages the pawl 293 and disengages the nose 294 from the pocket 295, and thus the flywheel 30 is disconnected from the shaft 32. The latching member 285 is urged toward the dog 288 by the spring 303 but the rounded portion 302 prevents engagement until the handle 290 has been moved to properly position the shoulder 287. The movement imparted to the rod 283 is in opposition to the action of the spring 303, and it is therefore manifest that the rod will disconnect the shoulders 286 and 287, and the spring 303 acts through the shaft 289 to normally urge the handle 290 into a position in which the rounded portion 302 will be engaging the latch 285. The disengagement of the shoulders 286 and 287 may also be brought about by the safety handle 304, the striking of this handle obviously disengaging the shoulders. In Fig. 1 the means for engaging the clutch are shown in disengaged position. It has been pointed out that relatively rapid movement is imparted to the shaft 41, and this movement is transmitted through the gear train 305 (Fig. 1) to drive the shaft 89, this movement in turn, being transmitted through the belt 93 to the shaft 90, and therefore movement imparted to the belt 86 will be relatively rapid. The compound gear train 68 serves, however, to reduce the speed of the shaft 63 to properly synchronize the movement of the cam shaft 71 with the shaft 32, and thus the high speed of the shaft 41 is not at all detrimental.

It has been pointed out that sufficient teeth 83 are provided in the rack 182 to print from two follower printing devices and one lead printing device, and it has also been shown that additional teeth might be provided so that the device might print from additional follower printing devices. The machine, as described, however, has been arranged to print only on a two-section tax bill, and the cams arranged on the cam shaft 71 are arranged to bring about such operation. However, it has been pointed out that a three-section tax bill may readily be printed in the machine, and a stop finger is shown which may be used when such a bill is being printed. When a two-section tax bill is printed, the speed changing mechanism in the housing 42 is arranged to provide a 2 to 1 ratio and a cam shaft, such as the cam shaft 71, is provided. However, when a three-section bill is to be printed, the speed changing mechanisms in the housing 42 will be arranged to provide a 3 to 1 ratio and the cam shaft 71 will be replaced by a cam shaft having cams thereon timed to bring about the positioning of the tax bill in three different length positions, and in this instance the cam 126 will be supplanted by a cam which will bring about operation of the stop finger 124. Thus, if a tax bill having additional positions were to be printed an additional stop finger would be arranged in the machine, and provision would be made in the housing 244 for bringing about a 4 to 1 ratio, and a cam shaft having cams thereon timed for such operation would be arranged in the machine. If desired, a device may be arranged to print on but one section of a tax bill, and this would be consecutive printing, and in this instance the cam shaft would replace the cam shaft 71 which would operate but one stop finger, and the speed changing mechanisms in the housing 42 would be arranged to give a 1 to 1 ratio.

In the foregoing description I have set forth the manner in which the machine is used in the printing of tax bills on real property and wherein the legal description is arranged on the printing devices, sometimes on more than one printing device, and wherein when this is done these printing devices are arranged in groups. However, the machine is also adaptable for use in the printing of other matter and one example of this is in the printing of tax bills for personal property wherein all the necessary information is usually arranged on single printing devices. It is therefore not necessary to move the tax bill other than rectilinearly through the machine and therefore

the selector mechanisms hereinbefore described will not need to be shifted transversely under such conditions. Therefore, when the machine is being used to print from printing devices sequentially passed through the machine and wherein either one impression or a plurality of transversely aligned impressions are taken from each printing device, the switch **146** is open which manifestly opens the circuit to both the solenoid **154** and the relay **226** and therefore the mechanisms which jog the pan **197** are rendered inoperative for these parts will remain in a fixed position unless either this solenoid or relay is operated. The provision of the switch **146** merely insures against undesired jogging of the pan **197**, for manifestly the same result could be accomplished by using printing devices not having tabs **136** or **137** thereon.

In the foregoing description I have set forth the manner in which the machine is operated to print a two-section tax bill from a lead printing device and two follower printing devices, and it has been shown that the machine will automatically print from consecutive lead printing devices or from lead printing devices and one follower printing device, for a tab is provided on the lead printing device which will insure the repositioning of the pan **197** in initial position each time a lead printing device moves into printing position. Moreover, the machine is arranged so that operation thereof will not take place until a sheet has been introduced into the machine. Further, means are provided in the machine whereby the sheet to be printed may be moved in opposite rectilinear directions and also so that the sheet may be moved transversely to these opposite rectilinear directions, and thus impressions may be made on the sheet at proper positions in definite relation to each other from different printing devices.

In the foregoing description I have set forth a selected embodiment of my invention, but it is manifest from the description that changes and alterations may be made therein and I therefore do not wish to be limited to the precise details set forth but desire to avail myself of such changes and alterations as fall within the purview of the following claims:

I claim:

1. In a printing machine, printing means, means for moving a sheet across the machine and past said printing means in one direction and for discharging the sheet, means for moving the sheet past the printing means in the opposite direction prior to movement thereof from the machine, and means for moving the sheet transversely to said first-named movements whereby printing operations may be performed on different portions of said sheet.

2. In a printing machine, printing means, means for longitudinally moving a sheet across the machine and into position to receive impressions from said printing means and for discharging the sheet, and means for moving the sheet transversely of the longitudinal movement thereof and having means thereon for moving the sheet opposite to the longitudinal movement thereof whereby the portions adjacent to and aligned with the first-named portions may be successively positioned to receive impressions from the printing means prior to movement of the sheet from the machine by the first-named moving means.

3. In a printing machine, printing means, sheet moving means, means for controlling movement of a sheet moved by said sheet moving means and including stopping means and means disengaged from said sheet prior to engagement thereof with the stopping means, and means for moving the sheet transversely of said sheet moving means.

4. In a printing machine, printing means, sheet moving means for moving a sheet in one direction, sheet movement interrupting means, means for holding a sheet in engagement with the sheet moving means and retractable prior to engagement of the sheet movement interrupting means, means for moving the sheet transversely of said sheet moving means, and means for moving the sheet in a direction opposite to that in which it is moved by said sheet moving means.

5. In a printing machine, printing means, sheet moving means for moving a sheet in one direction, sheet movement interrupting means, means for holding a sheet in engagement with the sheet moving means, means for retracting said holding means prior to engagement of the sheet with the movement interrupting means, and means for moving the sheet in a direction opposite to that in which it is moved by said sheet moving means.

6. In a printing machine, printing means, sheet moving means for moving a sheet in one direction, sheet movement interrupting means, means for holding a sheet in engagement with the sheet moving means, means for retracting said holding means prior to engagement of the sheet with the movement interrupting means, means for operating the movement interrupting means and the retracting means, and means for moving the sheet transversely of said sheet moving means.

7. In a printing machine, printing means, sheet moving means for moving a sheet in one direction, sheet movement interrupting means, means for holding the sheet in engagement with the sheet moving means, means for retracting the holding means prior to engagement of the sheet with the sheet movement interrupting means, means for operating the movement interrupting means and the retracting means, and means for moving the sheet in a direction opposite to said one direction whereby the sheet may again move with said sheet moving means into engagement with the holding means and the movement interrupting means.

8. In a printing machine, printing means including a platen for making impressions on a sheet, means for moving the sheet relative to the platen, means for stopping movement of the sheet during operation of the platen, means for holding the sheet in engagement with the moving means, means for retracting the holding means prior to engagement of the sheet with the stopping means, and means for moving the sheet transversely of the sheet moving means subsequent to an operation of the platen.

9. In a printing machine, printing means including a platen for making impressions on a sheet, means for moving the sheet relative to the platen, means for stopping movement of the sheet during operation of the platen, means for holding the sheet in engagement with the moving means, means for retracting the holding means prior to engagement of the sheet with the stopping means, and means for moving the sheet in a direction opposite to that in which it is moved by the means moving the sheet relative to the platen and operable to move the sheet into a position whereby it may again move with the means for moving the sheet relative to the platen and again into engagement with the stopping and holding means.

10. In a printing machine, printing means including a platen for making impressions on a sheet, means for moving the sheet relative to the platen, means for stopping movement of the sheet during operation of the platen, and means for holding the sheet in engagement with the moving means, means for retracting the holding means, means for moving the sheet transversely of the sheet moving means, and means for operating the platen, stopping means, retracting means, and the means for moving the sheet transversely in timed relation with each other.

11. In a printing machine, printing means including a platen for making impressions on a sheet, means for moving the sheet relative to the platen, means for stopping movement of the sheet during operation of the platen, means for holding the sheet in engagement with the moving means, means for retracting the holding means, means for moving the sheet transversely of the sheet moving means, means for moving the sheet in a direction opposite to that in which it is moved by the sheet moving means, and means for operating the platen, stopping means, retracting means, means for moving the sheet transversely and means for moving the sheet in the opposite direction in timed relation with each other.

12. In a printing machine, printing means including a platen for making impressions on a sheet, means for moving the sheet relative to the platen, means for stopping movement of the sheet during operation of the platen, means for holding the sheet in engagement with the moving means, means for retracting the holding means, means for moving the sheet in the direction opposite to that in which it is moved by the sheet moving means, and means for operating the platen, stopping means, retracting means and the means for moving the sheet in the opposite direction in timed relation with each other.

13. In a printing machine, printing means including a platen for making impressions on a sheet, means for moving the sheet relative to the platen, means for stopping movement of the sheet during operation of the platen, means for holding the sheet in engagement with the moving means, means for retracting the holding means, means for operating the platen, stopping means, and retracting means in timed relation with each other, and means, including constantly operating and selectively connectable members for varying the timed relation between the platen and the stopping and retracting means.

14. In a printing machine, printing means, means for positioning a sheet relative to the printing means, means for operating the printing means and the positioning means in timed relation to each other including a driving means embodying a plurality of constantly meshed gears having different ratios, and means for selectively rendering operative selected of said meshed gears.

15. In a printing machine, printing means, means for positioning a sheet relative to the printing means, means for operating the printing means and the positioning means in timed relation to each other including a driving means embodying driving shafts and a plurality of sets of constantly meshed gears having different ratios, one gear of each set being fixed to one driving shaft, and means for selectively connecting the other of the gears of the sets to the other driving shaft whereby but one set of said constantly meshed gears will transmit movement from one of said shafts to the other of said shafts.

16. In a printing machine, printing means, means for positioning a sheet relative to the printing means, means for operating the printing means and the positioning means in timed relation to each other including a driving means embodying driving shafts and a plurality of sets of constantly meshed gears having different ratios, one gear of each set being fixed to one driving shaft, each of the other gears of said set being rotatably mounted on the other driving shaft, and a rotatable key having staggered key portions thereon whereby when said key is rotated one of said staggered key portions will connect one of said gears to said other driving shaft whereby movement will be transmitted from one driving shaft to the other driving shaft through the set of gears having the rotatable gear of the set fixed to the other driving shaft by the key portion on said key.

17. In a printing machine, printing means including a platen for making impressions on a sheet, means for moving the sheet relative to the platen, means for stopping movement of the sheet during operation of the platen, means for operating the platen and stopping means in timed relation with each other, and means in the machine for varying the timed relation between the platen and the stopping means.

18. In a printing machine, printing means including a platen for making impressions on a sheet, means for moving the sheet relative to the platen, means for stopping movement of the sheet during operation of the platen, means for holding the sheet in engagement with the moving means, means for retracting the holding means, means for operating the platen, stopping means, and retracting means in timed relation with each other, means for varying the timed relation between the platen and the stopping and retracting means, and means for interrupting operation of said machine when a sheet is not directed to said moving means.

19. In a printing machine, printing means, means for moving a sheet across the machine and past said printing means in one direction and for discharging the sheet, means for moving the sheet past the printing means in the opposite direction whereby the sheet is again moved past said printing means, means for moving the sheet transversely before the repeated movement thereof past the printing means, and means for controlling the operation of the means causing said opposite and said transverse movements and operable prior to the discharge of the sheet, said printing means operating on said sheet during interruptions in the movement thereof.

20. In a printing machine, printing means, means for moving a sheet in a step-by-step manner past said printing means whereby said printing means may operate thereon during interruptions in the movement thereof and for discharging the sheet from the machine, means for moving a sheet in a direction opposite to the first-named movement whereby said sheet may again be moved past said printing means in said step-by-step manner to permit said printing means to again operate thereon during interruptions in the movement thereof, means for transversely moving the sheet prior to movement thereof past the printing means after movement thereof opposite to the first movement, and means for operating the means for moving said

sheet in the opposite and transverse directions prior to the discharge of the sheet by the first-named moving means.

21. In a printing machine, printing means, means for moving a sheet in a step-by-step manner past said printing means whereby said printing means may operate thereon during interruptions in the movement thereof and for discharging the sheet from the machine, means for moving a sheet in a direction opposite to the first-named movement whereby said sheet may again be moved past said printing means in said step-by-step manner to permit said printing means to again operate thereon during interruptions in the movement thereof, means for moving the sheet transversely of said first-named movement whereby the impressions made thereon after movement thereof in the direction opposite to the first-named direction may be made on portions thereof transversely offset from the portions receiving the impressions during the first step-by-step movement thereof, and means for operating the means causing the opposite and transverse movements prior to the discharge of the sheet from the machine.

22. In a printing machine, printing means, continuously operating means for moving a sheet longitudinally past said printing means, means for successively interrupting movement of the sheet to permit the printing means to make impressions thereon during the successive interruptions in the movement thereof at longitudinally spaced intervals therealong, means for repositioning the sheet to receive other impressions thereon from said printing means, and means for operating the means for repositioning the sheet after the last of the longitudinal spaced impressions have been made thereon.

23. In a printing machine, printing means including printing devices sequentially movable into printing position, continuously operating means for moving sheets through printing position, means for interrupting movement of the sheets with the continuously operating means whereby impressions may be made thereon at predetermined places from the printing device in printing position, means for moving a printing device into printing position after movement of the printing device in such position therefrom, and other means for moving the sheets whereby other impressions may be made thereon in predetermined relation to the impressions previously made thereon at said predetermined places from the other printing devices, said other means being controlled from the printing devices to determine movement of the sheets relative to said printing devices.

24. In a printing machine, printing means including printing devices sequentially movable into printing position, means for moving a sheet through printing position whereby spaced impressions may be made in longitudinal alignment thereon from a printing device in printing position and for moving the sheet from the machine, means for moving another printing device into printing position after movement of the printing device in such position therefrom, means for moving the sheet whereby other impressions may be made thereon from the other printing device, and means for operating said last-named means prior to movement of the sheet from the machine by said first-named sheet moving means.

25. In a printing machine, printing means including printing devices sequentially movable into printing position, means for moving a sheet through printing position whereby spaced impressions may be made in longitudinal alignment thereon from a printing device in printing position and for moving the sheet from the machine, means for moving another printing device into printing position after movement of the printing device in such position therefrom, means for moving the sheet whereby other impressions may be made thereon from the other printing device, and means controlled from the printing devices to determine the operation of the means for moving the sheet whereby the other impressions may be made on the sheet and operable in timed relation to the printing means whereby the other impressions may be made on the sheet relative to the first impressions made thereon.

26. In a printing machine, printing means including printing devices sequentially movable into printing position, means for moving a sheet through printing position whereby spaced impressions may be made in longitudinal alignment thereon from a printing device in printing position and for moving the sheet from the machine, means for moving another printing device into printing position after movement of the printing device in such position therefrom, and means for moving the sheet transversely of the first movement whereby other impressions may be made thereon from said other printing device out of longitudinal alignment with said first impressions prior to movement of the sheet from the machine by the first-named sheet moving means.

27. In a printing machine, printing means including printing devices sequentially movable into printing position, means for moving a sheet through printing position whereby spaced impressions may be made in longitudinal alignment thereon from a printing device in printing position and for moving the sheet from the machine, means for moving another printing device into printing position after movement of the printing device in such position therefrom, and means for moving the sheet in a direction opposite to and transversely of said first-named movement whereby impressions may be made on said sheet from said other printing device when said sheet is again moved in the first-named direction prior to movement of the sheet from the machine by said first-named sheet moving means.

28. In a printing machine, printing means including printing devices sequentially movable into printing position, means for moving a sheet through printing position whereby spaced impressions may be made in longitudinal alignment thereon from a printing device in printing position, means for moving another printing device into printing position after movement of the printing device in such position therefrom, means for moving the sheet in a direction opposite to the first-named direction, means for moving the sheet transversely of the first movement whereby impressions may be made on said sheet from said other printing device out of longitudinal alignment with the first impressions made thereon but in transverse alignment with said first impressions, and means controlled from the printing devices for determining the operation of the means for moving the sheet in the direction opposite to and transversely of the first-named movement.

29. In a printing machine, printing means including printing devices sequentially movable into printing position, means for moving a sheet through printing position whereby spaced impressions may be made in longitudinal alignment

thereon from a printing device in printing position, means for moving another printing device into printing position after movement of the printing device in such position therefrom, means for simultaneously moving the sheet in a direction opposite to and transversely of said first movement whereby impressions may be made thereon out of longitudinal alignment but in transverse alignment with the impressions made from the printing device first positioned in printing position, and means controlled from the printing devices for determining the operation of the means for moving the sheet in the direction opposite to and transversely of the first-named movement.

30. In a printing machine, printing means including printing devices sequentially movable into printing position, means for moving a sheet through printing position whereby spaced impressions may be made in longitudinal alignment thereon from a printing device in printing position, means for moving another printing device into printing position after movement of the printing device in such position therefrom, means for simultaneously moving the sheet in a direction opposite to and transversely of said first movement whereby impressions may be made thereon out of longitudinal alignment but in transverse alignment with the impressions made from the printing device first positioned in printing position, and means for positioning said last-named means in the original position thereof after said last-named impressions have been made and prior to the movement of a new sheet into the machine.

31. In a printing machine, printing means including printing devices sequentially movable into printing position, means for moving a sheet through printing position whereby spaced impressions may be made in longitudinal alignment thereon from a printing device in printing position, means for moving another printing device into printing position after movement of the printing device in such position therefrom, means for moving the sheet transversely of said last-named movement, and means carried by said last-named means for moving the sheet in a direction opposite to the first-named movement, said means for moving said sheet transversely of and opposite to said first-named movement positioning the sheet to receive impressions from the other printing device out of longitudinal alignment with the impressions first made thereon.

32. In a printing machine, printing means including a platen and means for operating the same and printing devices sequentially movable through printing position located relative to the platen, continuously operating means for longitudinally moving a sheet through said printing position, means for interrupting movement of said sheet with said continuously operating means whereby said platen may make impressions thereon from a printing device in printing position, means for substituting another printing device for the first-named printing device, means for moving the sheet transversely of said continuously operating means, and means for operating said last-named means from the platen operating means during the time the means for substituting another printing device for the printing device in printing position is operating.

33. In a printing machine, printing means including a platen and means for operating the same and printing devices sequentially movable through a printing position located relative to said platen, means for longitudinally moving a sheet through said printing position whereby said platen may make impressions thereon from a printing device in printing position, means for substituting another printing device for the first-named printing device, means for moving the sheet transversely of said longitudinal movement, means for operating said last-named means from the platen operating means, and means carried by the last means for moving said sheet in a direction opposite to said longitudinal movement.

34. In a printing machine, printing means including a platen and means for operating the same and printing devices sequentially movable through a printing position located relative to said platen, continuously operating means for longitudinally moving a sheet through said printing position, means for interrupting movement of said sheet with said continuously operating means whereby said platen may make impressions thereon from a printing device in printing position, means for substituting another printing device for the first-named printing device, means for moving the sheet transversely of said continuously operating means, means for operating the means moving the sheet transversely during the time the means for substituting another printing device for the printing device in printing position is operating, and means for operating the means for moving the sheet transversely from the platen operating means.

35. In a printing machine, printing means including a platen and means for operating the same and printing devices sequentially movable through a printing position located relative to said platen, continuously operating means for longitudinally moving a sheet through said printing position, means for interrupting movement of said sheet with the continuously operating means whereby said platen may make impressions thereon from a printing device in printing position, means for substituting another printing device for the first-named printing device, means for moving the sheet transversely of said longitudinal movement, means for operating said last-named means from the platen operating means, and means regulated by means on the printing devices for controlling the operation of said last-named means.

36. In a printing machine, printing means including a platen and means for operating the same and printing devices sequentially movable through printing position located relative to the platen, continuously operating means for longitudinally moving a sheet through said printing position, means for interrupting movement of said sheet with said continuously operating means whereby said platen may make impressions thereon from a printing device in printing position, means for substituting another printing device for the first-named printing device, means for moving the sheet transversely of said continuously operating means, means for operating said last-named means from the platen operating means during the time the means for substituting another printing device for the printing device in printing position is operating, and means regulated by means on the printing devices for controlling the operation of the means operating the means moving the sheet transversely.

37. In a printing machine, printing means including a platen and means for operating the same and printing devices sequentially movable through a printing position located relative to said platen, means for longitudinally moving a

sheet through said printing position whereby said platen may make impressions thereon from a printing device in printing position, means for substituting another printing device for the first-named printing device, means for moving the sheet transversely of said longitudinal movement, means for operating said last-named means from the platen operating means, and electrically operable means for controlling the operation of said last-named means.

38. In a printing machine, printing means including a platen and means for operating the same and printing devices sequentially movable through a printing position located relative to said platen, means for longitudinally moving a sheet through said printing position whereby said platen may make impressions thereon from a printing device in printing position, means for substituting another printing device for the first-named printing device, means for moving the sheet transversely of said longitudinal movement, means for operating said last-named means from the platen operating means, means controlled by means on the platen operating means for moving said sheet in a direction opposite to said longitudinal movement, and means for controlling the operation of the means operable from said platen operating means, said last-named means being regulated by means on the printing devices.

39. In a printing machine, printing means including a platen and means for operating the same and printing devices sequentially movable through a printing position located relative to said platen, means for longitudinally moving a sheet through said printing position whereby said platen may make impressions thereon from a printing device in printing position, means for substituting another printing device for the first-named printing device, means for moving the sheet transversely of said longitudinal movement, means for operating said last-named means from the platen operating means, means for repositioning said means for moving said sheet transversely of the longitudinal movement after all the impressions have been made on said sheet, and means for controlling operation of said repositioning means, said last named means being regulated by means on said printing devices.

42. In a printing machine, printing means including a platen and means for operating the same and printing devices sequentially movable through a printing position located relative to said platen, means for longitudinally moving a sheet through said printing position whereby said platen may make impressions thereon from a printing device in printing position, means for substituting another printing device for the first-named printing device, means for moving the sheet transversely of said longitudinal movement, means for operating said last-named means from the platen operating means, means for repositioning said means for moving said sheet transversely of the longitudinal movement after all the impressions have been made on said sheet, and means for controlling operation of said repositioning means, said last-named means including electrically operable portions.

43. In a printing machine, printing means including a platen and printing devices sequentially movable through printing position in the machine, continuously operating means for long-

ing the downward stroke thereof, and means for repositioning said receded portion during the upward stroke of said platen.

46. In a printing machine, printing means including a platen, continuously operating means for longitudinally moving a sheet through the machine, means for interrupting the longitudinal movement of the sheet to position the sheet to receive impressions from a printing device in printing position in the machine at longitudinally spaced intervals along the sheet and without interrupting operation of the continuously operating means, means for moving the sheet transversely of said longitudinal movement, means for receding a portion of the platen, and means controlling operation of the platen receding means from the means for moving the sheet transversely whereby a portion of the platen will be receded subsequent to an operation of the means for moving the sheet transversely of the longitudinal movement thereof.

47. In a printing machine, printing means, a constantly operating feed tape for moving a sheet longitudinally past the printing means, means for interrupting movement of said sheet with said feed tape to align successive portions thereof with the printing means, a member for moving said sheet transversely of said feed tape, and means carried by said member for moving the sheet in a direction opposite to the movement thereof with said feed tape.

48. In a printing machine, printing means, a constantly operating feed tape for moving a sheet longitudinally past the printing means, stop means for interrupting movement of said sheet with said feed tape to align successive portions thereof with the printing means, a member for moving said sheet transversely of said feed tape, means for moving the sheet in a direction opposite to the movement thereof with said feed tape, and means for disengaging said last-named means from the sheet whereby the sheet may again move with the feed tape past said printing means and said stop means may again interrupt movement thereof to align successive portions thereof with the printing means.

49. In a printing machine, printing means, a shiftable member, a feed tape movable over said shiftable member for moving sheets onto said shiftable member, means for interrupting movement of said sheets with said feed tape, means for moving said shiftable member to move said sheets transversely of said feed tape, and means carried by the shiftable member for moving the sheet in a direction opposite to the movement thereof with said feed tape.

50. In a printing machine, printing means, a shiftable member, a feed tape movable over said shiftable member for moving sheets onto said shiftable member, means for interrupting movement of said sheets with said feed tape, means for moving said shiftable member to move said sheets transversely of said feed tape, and means for moving the sheets in a direction opposite to the movement thereof with said feed tape.

51. In a printing machine, printing means, a shiftable member, a feed tape movable over said movable member for moving sheets onto said shiftable member, means for interrupting movement of said sheets with said feed tape, means for moving said shiftable member to move said sheets transversely of the feed tape, and means on said shiftable member for moving the sheets opposite to the movement thereof with said feed tape.

52. In a printing machine, printing means, a shiftable member, a feed tape directed across said shiftable member and adapted to move sheets over said shiftable member and past said printing means, stop means for interrupting movement of said sheets with said feed tape to align successive portions thereof with said printing means, and means for operating said shiftable member whereby said sheets are moved transversely to said feed tape so that impressions are made thereon by said printing means upon operation of said stop means at positions out of longitudinal alignment with the impressions made thereon prior to the operation of said shiftable member.

53. In a printing machine, printing means, a shiftable member, a feed tape directed across said shiftable member and adapted to move sheets over said shiftable member and past said printing means, stop means for interrupting movement of said sheets with said feed tape to align successive portions thereof with said printing means, means for operating said shiftable member whereby said sheets are moved transversely to said feed tape so that impressions are made thereon by said printing means at positions out of transverse alignment with the impressions made thereon prior to the operation of said shiftable member, means for moving the sheet oppositely to the movement thereof with said feed tape, and means for operating said last-named means when said shiftable member moves said sheet transversely of said feed tape whereby the impressions made on said sheets after operation of said shiftable member will be transversely aligned with the impressions made on said sheets prior to the operation of said shiftable member.

54. In a printing machine, printing means including an intermittently operated platen, a shiftable member, a feed tape for moving sheets over said shiftable member and past said printing means, stop fingers successively engageable with the leading edges of said sheets to position successive portions thereof relative to said printing means, means for operating said platen at the time said stop fingers interrupt movement of said sheets, and means for operating said shiftable member after said platen has made a predetermined number of operations whereby additional operations of said platen will make impressions on said sheets out of longitudinal alignment with the impressions made on said sheets prior to the operation of said shiftable member.

55. In a printing machine, printing means including an intermittently operated platen, a shiftable member, a feed tape for moving sheets over said shiftable member and past said printing means, stop fingers successively engageable with the leading edges of said sheets to position successive portions thereof relative to said printing means, means for operating said platen at the time said stop fingers interrupt movement of said sheets, means for operating said shiftable member after said platen has made a predetermined number of operations whereby additional operations of said platen will make impressions on said sheets out of longitudinal alignment with the impressions made on said sheets prior to the operation of said shiftable member, a roller engageable with said sheets for moving said sheets in a direction opposite to the movement thereof with said feed tape, and means for controlling the operation of said roller whereby said sheets will be moved in said opposite direction when said shiftable member is moved so that the sheets

will again move past said platen and into engagement with said stop fingers so that the impressions made thereon by said platen after the operation of said shiftable member and roller will be in transverse alignment with the impressions made thereon prior to the operation of said shiftable member and said roller.

56. In a printing machine, a platen, means sequentially moving groups of printing devices including lead and follower printing devices through the machine and for positioning said devices relative to said platen whereby impressions may be made therefrom by said platen, sheet moving means including continuously operating means for moving a sheet through the machine to receive impressions thereon from lead printing devices at longitudinally spaced intervals therealong and including other means for shifting the sheet to receive impressions thereon in transverse alignment with the longitudinally spaced impressions from the follower printing devices, means for interrupting movement of the sheet with the continuously operating means during operation of the platen, and means controlled from the lead printing devices for determining operation of the means for shifting the sheet to receive the transversely aligned impressions whereby a sheet will be repositioned to receive the transversely aligned impressions when follower printing devices are positioned behind a lead printing device in printing position.

57. In a printing machine, a platen, means sequentially moving lead and follower printing devices through the machine and for positioning said devices relative to said platen whereby impressions may be made therefrom, continuously operating means for moving a sheet longitudinally through the machine, means for interrupting the longitudinal movement of the sheet during operation of said platen, means for moving the sheet oppositely to and transversely of the first-named movement, and means controlled from the lead printing devices for controlling the operation of the means for moving the sheet oppositely to and transversely of the longitudinal movement thereof.

58. In a printing machine, a frame, a bed mounted on said frame, printing means disposed at printing position on said bed, sheet moving means on said bed, a supporting structure, means on said supporting structure for interrupting movement of the sheet with the sheet moving means, a shaft mounted in said frame and having means thereon for moving the sheet movement interrupting means, and means on said bed and engaging said supporting structure and cooperating with means on said supporting structure engaging said shaft to support said supporting structure above said bed.

59. In a printing machine, a frame, a bed mounted on said frame, printing means disposed at printing position on said bed, sheet moving means on said bed, a supporting structure, means on said supporting structure for interrupting movement of the sheet with the sheet moving means, means carried by said supporting structure for preventing displacement of said sheet from said sheet moving means, a shaft mounted in said frame and having means thereon for moving the sheet movement interrupting means, and means on said bed and engaging said supporting structure and cooperating with means on said supporting structure engaging said shaft to support said supporting structure above said bed.

60. In a printing machine, a frame, a bed mounted on said frame, printing means disposed at printing position on said bed, sheet moving means on said bed, a supporting structure, means on said supporting structure for interrupting movement of the sheet with the sheet moving means, means on said supporting structure for holding said sheet in engagement with said sheet moving means, a shaft mounted in said frame and having means thereon for moving the sheet movement interrupting means, and means on said bed and engaging said supporting structure and cooperating with means on said supporting structure engaging said shaft to support said supporting structure above said bed.

61. In a printing machine, a frame, a bed mounted on said frame, printing means disposed at printing position on said bed, sheet moving means on said bed, a supporting structure, means on said supporting structure for interrupting movement of the sheet with the sheet moving means, means carried by said supporting structure for preventing displacement of said sheet from said sheet moving means, means on said supporting structure for holding said sheet in engagement with said sheet moving means, a shaft mounted in said frame and having means thereon for moving the sheet movement interrupting means, and means on said bed and engaging said supporting structure and cooperating with means on said supporting structure engaging said shaft to support said supporting structure above said bed.

62. In a printing machine, printing means including a platen and a shaft for operating the same, means for moving a sheet relative to said printing means, a plurality of stop fingers, means connected at substantially the medial portion of said stop fingers for pivotally mounting the same, cams engageable with corresponding ends of said stop fingers and operable to move the opposite ends of said stop fingers into stopping position, the portions of said stop fingers engageable with said cams extending from the pivotal mountings of the stop fingers in an amount less than the ends thereof movable into stopping position whereby the weight of said last-named ends urges the fingers into engagement with said cams, a shaft carrying said cams, means removably supporting said shaft in said machine whereby said shaft and the cams thereon may be removed from the machine to be replaced with another shaft having other cams thereon, and means for operating the shaft carrying said cams in timed relation with the shaft operating said platen.

63. In a printing machine, printing means, continuously operating means for moving a sheet past the printing means, means for interrupting movement of the sheet with the continuously operating means to align successive portions of the sheet with the printing means whereby impressions may be made at longitudinally spaced intervals on the sheet, a shaft having cams thereon for controlling the operation of the sheet movement interrupting means, and means removably supporting said shaft in the machine whereby said shaft may be removed and be replaced with another shaft having other cams thereon to vary the operation of the sheet movement interrupting means.

64. In a printing machine, printing means, a continuously operating feed tape for moving a sheet longitudinally past the printing means, pivotally mounted fingers adapted to be moved into the line of movement of the sheet to inter-

rupt movement of the sheet with the feed tape to thereby align successive portions of the sheet with the printing means whereby impressions may be made on the sheet at longitudinally spaced intervals, a shaft having cams thereon engageable with said fingers to control the operation thereof, and means removably supporting said shaft in the machine whereby said shaft may be removed and replaced with another shaft having different cams thereon whereby the operation of said fingers may be varied.

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