Oct. 11, 1938. W. T. GOLLWITZER 2,132,415

PRINTING MACHINE

Original Filed Feb. 24, 1936 3 Sheets-Sheet 1

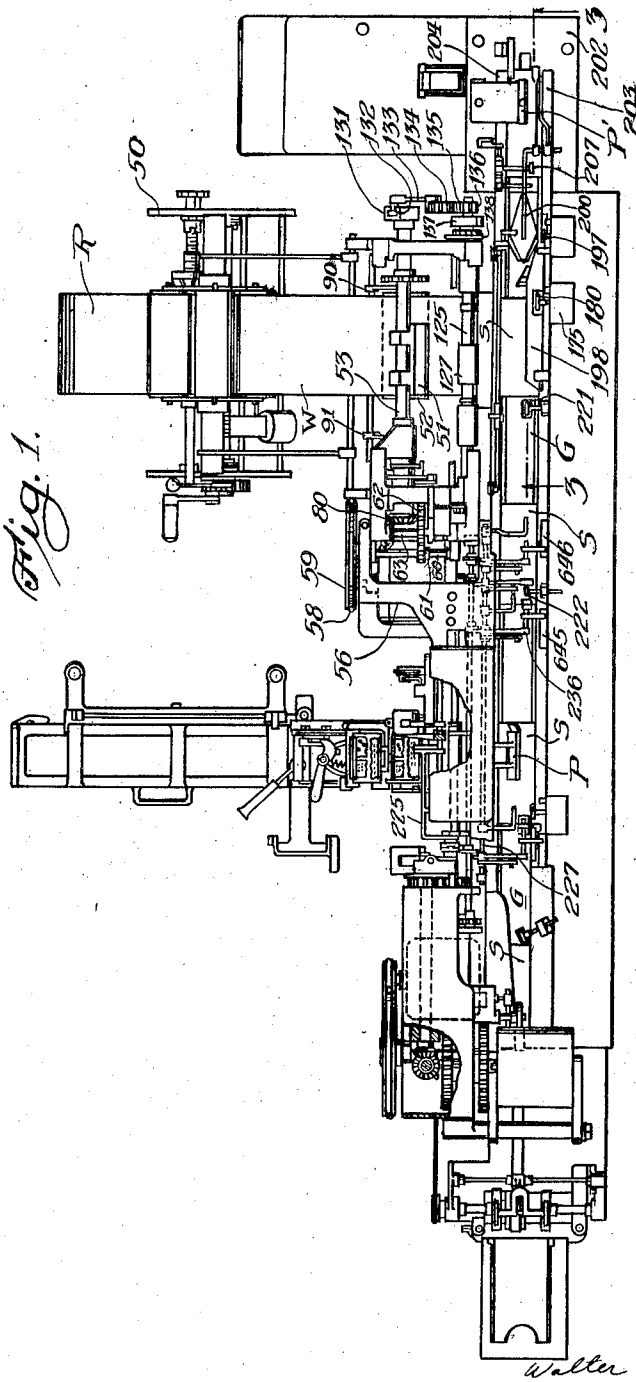


Fig. 1.

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PRINTING MACHINE

Original Filed Feb. 24, 1936 3 Sheets-Sheet 2

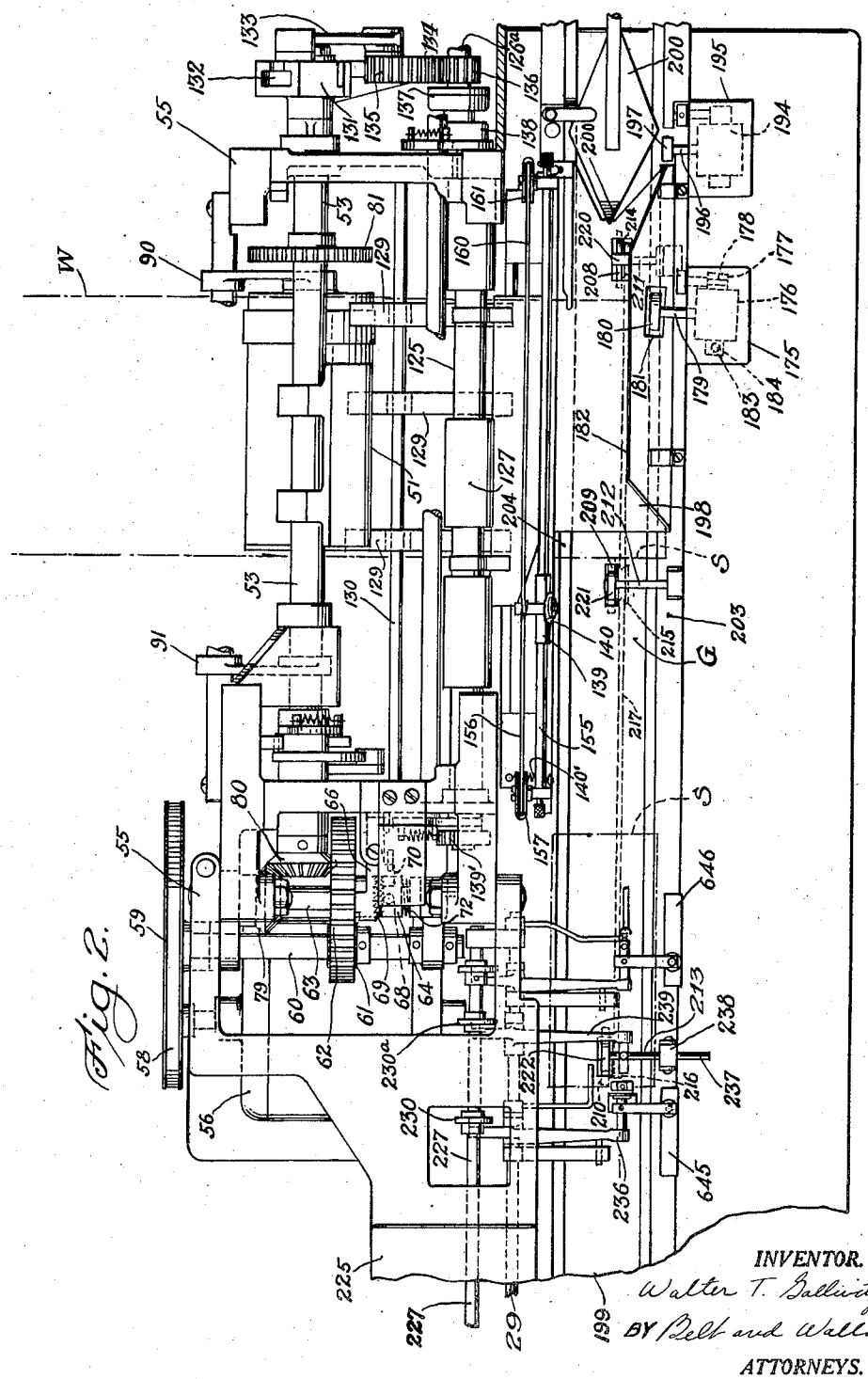


Fig. 2.

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PRINTING MACHINE

Original Filed Feb. 24, 1936 3 Sheets-Sheet 3

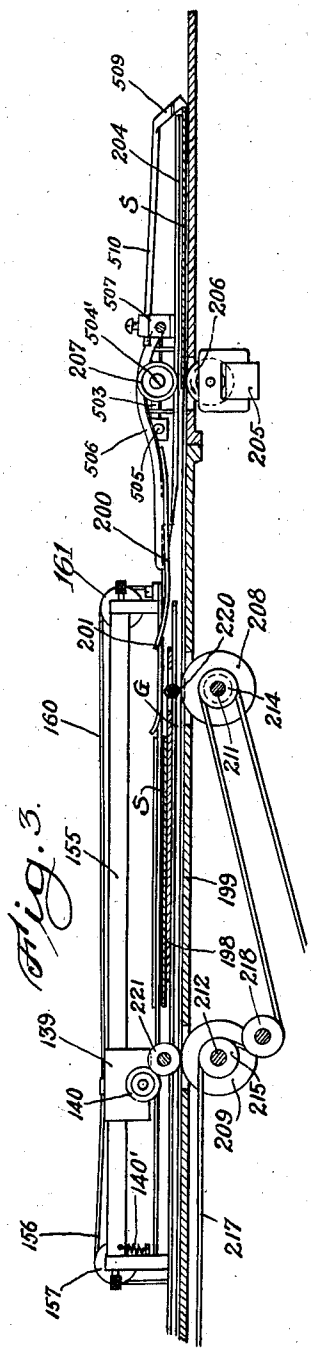


Fig. 3.

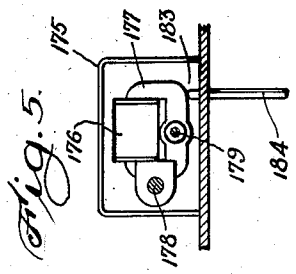


Fig. 5.

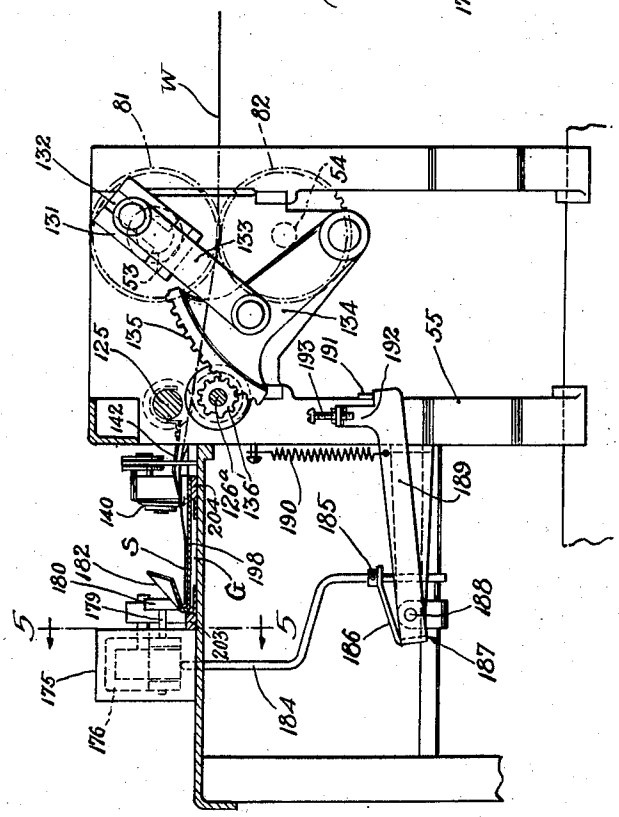


Fig. 4.

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Patented Oct. 11, 1938

2,132,415

UNITED STATES PATENT OFFICE

2,132,415

PRINTING MACHINE

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Original application February 24, 1936, Serial No. 65,376. Divided and this application February 19, 1938, Serial No. 191,501

14 Claims. (Cl. 271—7)

This application is a division of my co-pending application Serial No. 65,376, filed February 24, 1936.

This invention relates to printing machines especially of the kind in which impressions are made on sheets fed through the machine from printing devices sequentially fed through the machine and the primary object is to feed the sheets rapidly and accurately into and through printing position in the machine.

Another object is to provide a plurality of independent means along the path of travel of the sheets through the machine to move the sheets rapidly from one position to another.

A further object is to arrange the sheet feeding means at selected positions along the path of travel of the sheets through the machine whereby proper, efficient and speedy movement of the sheets is effected.

A still further object is to provide sheet moving means that will normally be out of engagement with the sheets and which will be brought into engagement with the sheets to effect movement thereof through the machine at predetermined times in the operation of the machine.

Other objects are to feed a sheet from the sheet severing mechanism or initial position in the machine first in one direction into one part of the machine and then in a different direction into other parts of the machine in which parts various printing impressions may be made upon the sheet and to feed a sheet from the sheet severing mechanism or initial position in the machine into a part of the machine in which a printing impression is made on the sheet and then pass the sheet back past the next succeeding sheet severed in the severing mechanism or otherwise introduced into other parts of the machine to receive further printing impressions thereon.

A selected embodiment of my invention is illustrated in the accompanying drawings wherein

Fig. 1 is a top plan view of an entire machine embodying my invention;

Fig. 2 is a top plan view, drawn to an enlarged scale, of a portion of the right-hand end of the printing machine as viewed in Fig. 1;

Fig. 3 is a vertical sectional view taken substantially on the line 3—3 on Fig. 1;

Fig. 4 is a sectional view through a portion of the right-hand end of the printing machine as viewed in Fig. 1; and

Fig. 5 is a sectional detail view taken substantially on the line 5—5 on Fig. 4.

The selected embodiment of the invention shown in the accompanying drawings is adapted for the preparation of checks and more particularly dividend payment checks of a corporation, but it is to be understood that this is merely an illustrative use of the invention for many other kinds of business instruments for many other purposes may be prepared as will be apparent from the following description.

The distribution of a dividend declared by a corporation among its shareholders is usually done by checks and because of the large number of shareholders the preparation of the dividend checks has been an arduous and time-consuming task. The preparation of such checks has been simplified and speeded up by printing the names or other identification of the shareholders from printing devices, such as are shown for example in my Patent 1,979,261, patented November 6, 1934, bearing suitable means from which such impression could be made. Furthermore, in my co-pending application Serial No. 65,376, filed February 24, 1936, of which this application is a division, I illustrated and described in detail other mechanisms for facilitating the distribution of dividends by checks to the shareholders of a corporation and for the preparation of other like business instruments.

For the purpose of illustrating this invention I have shown a machine which will completely print the check or other business instrument and to this end I have provided a printing couple wherein the date, the number, and signature may be conveniently printed, a variable printer under control of a printing and control device for printing the amount, printing means for making an impression directly from the printing and control device to print the address and another printing couple wherein the form of the check may be conveniently printed, and a calculating machine, specifically in this instance, an adding machine, wherein a total of the amounts printed on the various checks may be accumulated and wherein a record of the amounts so printed may be prepared. I have also shown a machine wherein a web is withdrawn from a roll of blank paper and severed to provide the instrument blanks.

Thus, referring to the drawings, a roll R of blank paper, which may be so-called safety paper when checks are to be printed, is mounted in a suitable supporting stand 50 as, for example, like that shown in my co-pending application Serial No. 78,681, filed May 8, 1936. A web W is withdrawn from the roll and, if desired, suitable unwinding means such as that disclosed in my just referred to co-pending application may be associated with the roll so that tension on the web will

be kept uniform. The web W is passed between the cylinders 51 and 52 of a printing couple, which cylinders are respectively mounted on shafts 53 and 54, Fig. 4, that are suitably journaled in a frame 55, Figs. 1 and 2, mounted at the right-hand end of the printing machine, as illustrated in Fig. 1. During impression operations of the cylinders 51 and 52 the web W is fed therethrough, additional feeding means for the web being mounted in the frame 55, as will be explained presently.

Power is supplied to the shafts 53 and 54 from a suitable motor 56 preferably mounted on the frame of the printing machine. A pulley is mounted on the shaft of the motor and an endless belt 58 is passed thereabout. The belt is also passed about the pulley 59 fast on the shaft 60 that is journaled in the frame 55 and which shaft 60 is continuously rotated so long as the motor 56 is in operation. A pinion 61, Figs. 1 and 2, fast on the shaft 60 meshes with the gear 62 rotatably mounted on the shaft 63 rotatably journaled in the frame 55.

Preferably the shafts 53 and 54 are intermittently rotated and to this end a clutch is provided so that power may be intermittently picked up from the gear 62 and imparted to the shaft 63. To this end a hub 64 is provided on the gear 62 which has clutch teeth thereon. A collar 66, slidably but non-rotatably mounted on the shaft 63, has clutch teeth thereon adapted to cooperate with the clutch teeth on the hub 64. A stud 68 is provided on the collar 66 and is adapted to cooperate with a cam face 69, Fig. 2, on the plate 70 pivotally mounted on the frame 55. Springs 72 normally urge the clutch teeth on the collar 66 toward the clutch teeth on the hub and when these teeth are engaged the shaft 63 rotates the gear 62. However, when the cam face 69 on the plate 70 is in engagement with the stud 68, as shown in Fig. 2, the clutch teeth on the collar 66 are held separated from the clutch teeth on the hub 64, and the gear 62 rotates freely without imparting movement to the shaft 63. The engagement of the clutch teeth is under control of an electromagnet which is energized when initially setting the machine in operation, as more fully described in my co-pending application Serial No. 65,376, heretofore referred to.

A bevel gear 79 fast on the shaft 63 meshes with a bevel gear 80 fast on the shaft 53 whereby this shaft is rotated with shaft 63 whenever it is rotated. Equally sized intermeshing gears 81 and 82, Fig. 4, are respectively fast on the shafts 53 and 54 whereby these two shafts rotate in synchronism. The cylinder 51 may be segmental in shape to afford an interrupted platen adapted to cooperate with the printing cylinder 52.

In the present instance when checks are being printed the printing cylinder 52 is equipped with means for printing the signature, the number, and the date on the check, as described in my co-pending application Serial No. 65,376, a pair of brackets 90 and 91 supporting the devices which supply ink to such printing means.

The platen 51 is adapted to cooperate with the printing means on the printing cylinder 52 and in each rotation of the platen 51 and printing cylinder 52 impressions are made on the web W from the signature printing means, the date printing means, and the number means. The impressions are preferably made on the web at spaced intervals and the web is fed forwardly during an impression operation thereon. However, other feeding means are provided for the web which so feed the web that the various impressions made thereon in the printing couple are properly spaced relative to the longitudinal margins of the checks. The web is severed intermediate each set of impressions made by the printing means on the printing cylinder 52 so that one set of impressions appears on each of the checks. If business instruments other than checks were being printed in the machine, other types of printing means might be provided as dictated by the requirements of the particular instrument.

In the form of the invention illustrated I employ a web of a width equal to the desired length of the checks for checks are usually of greater length than width and by servering the checks from the web in this manner I am enabled to sever a great many more checks from a web of a given length than I would be able to do if the web were the same width as that desired of the checks and the web was severed transversely of the checks rather than longitudinally thereof. However, it is important that the checks be of a uniform width and I therefore feed the leading edge of the web past a severing device in an equal amount in each operation of the feeding means and by so doing I insure that the checks will be of uniform width.

In the accompanying drawings I have illustrated a web feeding means such as is fully shown and described in my copending application Serial No. 65,376 and which includes a pair of shafts 125, 126*a*, Fig. 4, rotatably mounted in the frame 55. Suitable resilient clamping rollers as 127, Fig. 2, or the like are provided on the shafts and the web is clamped in the bite of these rollers. Suitable guide strips 129 extend between the shafts 125, 126*a* in staggered relation with the rollers as 127, the inner free ends of these guide strips being supported near the discharge of the bite between the cylinders 51 and 52 by a rod 130. As the web passes from the bite between the cylinders 51 and 52 it moves up over the guides 129 into the bite between the rollers as 127. By resting the web on the strips 129 as it passes from the cylinders 51 and 52 it may buckle upwardly and the loop thus formed is diminished as the feed rollers as 127 operate. This arrangement insures accurate registration of the impression made on the web.

Inasmuch as there may be conditions requiring variations in the width of the checks, I provide an adjustable crank arrangement in the means which imparts rotative movement to the shafts 125, 126*a* and to the feed rollers as 127 carried thereby. Such an adjustable crank includes the arm 131 fast on the shaft 53 and has a bifurcated guideway 132 therein. One end of a link 133 is adjustably secured in the guideway 132. The arm 131 rotates with the shaft 53 and the adjustable mounting of one end of the link 133 in this arm enables variation of the throw imparted to said link which varies the amount of rotation of the rollers 127 and hence the amount of web feed.

A rock arm 134 is pivotally mounted in the frame 55 and the free end of the link 133 is pivotally connected thereto. A gear segment 135 on the rock arm 134 meshes with a pinion 136 fast on the shaft 126*a* that is in axial alignment with the rear shaft 125 arranged in the same longitudinal plane as the front shaft 125, Figs. 1 and 2. An overrunning clutch 137, Fig. 2, and a brake 138 of a design similar to the

overrunning clutch 137, are interposed between the rear shaft 125 and shaft 126a. When the rock arm 134 is moved upwardly, the gear segment 135 rotates the pinion 136 and engages the clutch 137 and disengages the brake 138 and rotates the rear shaft 125. A pinion 136' is provided at the end of the shaft 126a opposite the end at which the brake 138 is positioned, and a pinion 139' fast on the shaft 125 meshes with pinion 136' so that when the shaft 126a is rotated the shaft 125 is also rotated. This effects rotation of the rollers as 127 and feeding of the web. When however the rock arm 134 moves downwardly, the gear segment 135 drives the pinion 136 but this disengages the clutch 137 and engages the brake 138 whereupon the shafts 125, 126a and therefore the rollers as 127 are held against movement and the web is clamped therebetween. The rock arm 134 is normally in the position shown in Fig. 4 and moves downwardly during the first half of a cycle of operation and upwardly during the last half of the cycle.

The feed rollers as 127 are operated by the just described devices during the last half of the cycle of operation of the machine and during impression operations of the platen cylinder 51 and printing cylinder 52 and feed the web past the severing device, now to be described, in an amount equal to the desired width of the check.

The severing device operates during the first half of a cycle of operation of the machine and severs the check from the web that was fed thereby in the preceding cycle of operation. This severing device includes a carriage 139 on which a rotary cutter 140 is mounted. This rotary cutter 140 is urged into engagement with the leading edge of the ledge by a spring 140' onto which ledge the web is directed by the guiding fingers 129 and against which it is held by suitably mounted clamping fingers 142. In one severing operation the carriage 139 and the cutter 140 move to the right, as viewed in Fig. 3, across the web, and in the next severing operation move to the left across the web, and this alternate movement of the cutter continues throughout operation of the machine intermediate operations of the rollers as 127.

Such reciprocatory movement is imparted to the carriage 139 from a suitable rocker pivotally mounted on the frame 55 and operated by a cam disc rotatably mounted on the shaft 53. The carriage 139 is mounted for reciprocation on a track 155, Figs. 2 and 3. A cable 156 is connected to the carriage and is led about a pulley 157 at one end of the frame supporting the track 155, and this cable 156 is also led about and connected to another pulley mounted on another shaft journaled in the frame 55. Another cable 160 is connected to the carriage 139 and is directed about a pulley 161 at the end of the frame supporting the track 155 opposite the end at which the pulley 157 is mounted. These cables 156 and 160 are operated in a manner to reciprocate the carriage 139 along the track 155 as more fully described in my co-pending application Serial No. 65,376.

It will thus be seen that during the first half of each cycle of operation a sheet such as a check fed past the severing device in the preceding cycle of operation is severed from the web and is deposited in position to be fed through the machine in the manner now to be described.

The checks or sheets S severed from the web are deposited on a pan 198, Fig. 4, above the sheet guideway G for a purpose to be explained. The sheets are fed from this pan and through the guideway to receive impressions under control of the printing and control devices and directly from the devices and then into a printing couple wherein the form is printed on the checks. In the present machine impressions are made on the sheets under control of the printing and control devices to the right, as viewed in Fig. 1, of the position whereat these sheets are severed from the web, and impressions are made on the sheets directly from the printing devices and the form is printed on the sheets to the left of such position, as viewed in Fig. 1. It is to be understood, however, that the sheets could be severed from the web to the left or to the right of all devices for making impressions thereon or individual sheets could be deposited in the guideway in any desired way for passage through the various printing mechanisms.

In the present machine where sheets are severed from the web I first make an impression thereon under control of the printing and control devices and to this end the sheets are first fed into a variable printer, operable under control of control means on the printing and control devices. The variable printer is located to the right, as viewed in Fig. 1, of the position where the sheets are severed from the web, and suitable means are provided for feeding the sheets into this variable printer.

Thus, as best shown in Fig. 2, a housing 175 is mounted on the frame of the machine adjacent the position in which the severed sheets S are deposited on the pan 198. A motor 176 (Figs. 2, 4 and 5) is provided in this housing which is mounted in a frame 177 that is pivotally mounted in the housing 175 as indicated at 178. The motor includes a shaft 179 carrying a roller 180 that is extended through an opening 181 in the sheet guide 182 on the pan 198, which receives the sheet when it is severed from the web.

The motor 176 is so mounted that the shaft 179 thereof extends slightly at an angle relative to the longitudinal extent of a sheet fed thereto and this insures proper feeding of the sheet.

The motor is of relatively small size and in order that feeding of a sheet by the roller 180 will be assured I elevate and lower the motor, this also having the effect of preventing the roller from crumpling or tearing a sheet moving into position therebelow when the sheet is severed from a web in the manner above described.

The roller 180 is lowered into engagement with the sheet after it has been severed from the web and this is effected under control of a rod 184 that engages the frame 177 carrying the motor 176. The rod 184, as best shown in Fig. 4, is adjustably secured in a bushing 185 on the arm 186 of a rocker 187 pivotally mounted on the frame 55 at 188.

The rocker 187 includes an arm 189 to which one end of a spring 190 is connected, the other end of said spring being suitably anchored on the frame 55. The spring 190 normally urges the shoulder on the arm 189 upwardly against the stop 191 and when the shoulder is engaged with this stop the arm 186 and therefore the rod 184 are held in upper position whereby the roller 180 is held in an upper position and the lower part of this roller is then out of sheet engaging position.

It will be remembered that the sheet severing operation is completed about the time the rocker 134 attains its lowermost position. Thus a boss 192 is provided on the arm 189 in which an adjustable stop 193 is mounted and this adjustable stop is engaged by the rock arm 134 about the time it attains its lowermost position and at the time the rock arm attains its lowermost position the rocker 189 is pivoted downwardly whereupon the roller 180 engages the sheet on the pan 198 and feeds this sheet off of the pan 198. The roller 180 will be rotating rapidly and as a result of this I may use a motor of relatively small power to drive this roller and yet effect proper feeding of the sheet. The roller 180 feeds the sheet toward the right, as viewed in Fig. 2.

Another motor 194 is mounted in a housing 195 positioned to the right of the pan 198, as viewed in Fig. 2, and this motor has a shaft 196 carrying a roller 197 under which a sheet fed to the right by the roller 180 passes, and the roller 197 acts to rapidly feed the sheet toward the right and into the variable printer, which printer is described more fully hereinafter.

In the present machine the sheets move in opposite directions in a portion of their line of travel. Thus the pan 198 is mounted above the bottom wall 199, Fig. 3, of the sheet guideway G. As the sheets are severed from the web they pass onto the plate 198 and the roller 180 engages the sheets as they pass onto this plate to eject them therefrom.

When the roller 180 moves a sheet toward the right, as viewed in Figs. 2 and 3, the shutter 200 is in the elevated position shown in Fig. 3 and the sheet engages the upturned end 201 of this shutter and is deflected thereby down onto the bottom wall 199 of the sheet guideway and the sheets are then fed onto the table 202 of the variable printer. The guideway G is provided by two strips 203 and 204 undercut on their adjacent sides and the sheets S pass through these undercut portions. By referring to Fig. 2 it will be noted that the roller 197 is positioned to engage the sheets after they have passed below the shutter 200.

After an impression has been made on a sheet by the variable printer it is fed to the left, as viewed in Fig. 1, and in this instance the sheet travels on the bottom wall 199 of the sheet guideway G and it will therefore pass below the pan 198. To insure such passage of the sheet, the shutter 200 is lowered into engagement with the right hand edge of the pan 198, the manner in which said shutter is so moved being explained hereinafter.

In order to move the sheet rapidly toward the *left*, a motor 205, Fig. 3, is mounted below the guideway G and includes a roller 206 that projects up through an opening in the lower wall on the sheet guideway. A clamping roller 207 is mounted above the guideway and, in a manner to be described hereinafter, after an impression has been made on a sheet by the variable printer this roller 207 lowers and clamps the sheet in engagement with the roller 206 whereupon the sheet is rapidly fed toward the left as viewed in Fig. 1.

As best shown in Fig. 3, three rollers 208, 209 and 210 project through suitable openings in the bottom wall 199 of the sheet guideway and, as best shown in Fig. 3, clamping rollers mounted immediately thereabove cooperate therewith. The rollers 208, 209 and 210 are respectively fast on shafts 211, 212 and 213 on which shafts pulleys 214, 215 and 216 are respectively fast. An endless belt 217 is passed about the pulleys 216, 215 and 214 and about a suitably mounted idler pulley 218 and also about a pulley mounted on the end of the shaft of the motor 56. Thus so long as the motor 56 is in operation the rollers 208, 209 and 210 are rotated and after a sheet has been fed by the rollers 206 and 207 it first moves into the bite between the roller 208 and its permanently mounted clamping roller 220 and then into the bite between the roller 209 and its permanently mounted clamping roller 221 and thence into position above the roller 210 and below the movably mounted clamping roller 222 that cooperates with the roller 210. The just described rollers feed the sheet into the addressing machine.

It will thus be seen that after a sheet is severed from the web it is first fed to the right into the variable printer, then printed, and then fed to the left into the printing machine and that in a part of its movement to the left the sheet moves below a part of its line of travel to the right.

The timing of the sheet movement in conjunction with operation of the variable printer and the timing of operation of the variable printer relative to the web feeding and severing means are explained in connection with the description of the variable printer in my co-pending application Serial No. 65,376, but this timing is such that the sheets are fed one at a time into and from the variable printer. In the present instance upon moving from the variable printer the sheets are fed into an addressing machine wherein the name and address on the check or other identification is printed on the sheets.

The address printing means includes a frame 225 on which the parts thereof are mounted and a detail description of the structure and operation thereof is more particularly described in my co-pending application Serial No. 65,376.

The means which control the movement of sheets through the sheet guideway G are mounted on the rod 229 and are operated by cams carried by the cam shaft 227 and stop fingers are provided in the present instance which are movable to and from engagement with the leading edge of sheets moving through the guideway, these fingers being moved into stopping position and holding the sheets against further movement until a predetermined time in the operation when they are retracted from engagement with the sheets to permit the sheets to continue their movement through the guideway.

The stop fingers are mounted for pivotal movement to and from stopping position and are operated by peripheral cams. If it is desired to change the time at which the stop fingers move to and from stopping position, it is merely necessary to change the cams. One such cam is indicated by 230 in Fig. 2 and it has a configuration which will operate one of the stop fingers in the manner required. It is the stop finger indicated by 236 that is pivoted to and from stopping position by the cam 230.

The roller 222 is carried on a rod 237 pivotally mounted at 238 on the bed of the printing machine. A finger 239 is connected to the rod 237 and is pivotally mounted and controlled in its movement by the cam 230*a* mounted on the cam shaft 227. At a predetermined time after a sheet has been stopped by the stop finger 236, the cam acts to raise the stop finger 236 and the cam 230*a* acts to lower the finger 239 whereupon the rod 237 is lowered, and the roller 222 clamps the sheet against the roller 210 so that the sheet is

moved forwardly in the sheet guideway into the printing position of the address printing means, that is to say, below the platen P. Other stop fingers are arranged along the path of movement of the sheets S and these may be moved into lowered position to engage the leading edge of the sheets to position them to receive other impressions. Such other stop fingers operate in the same manner as the stop fingers 236.

It has been explained heretofore that the shutter 200 is moved from and into engagement with the pan 198 to insure passage of a sheet S from the pan down into the sheet guideway G and to then insure that the sheet will move below the pan 198 and also that the roller 207 is moved into cooperating relation with the roller 206 when the sheet S is to be fed from the variable printer. After an impression has been made by the platen P' of the variable printer the shaft 503 is operated to lower the arm 504' on which the roller 207 is mounted and thereupon the roller 207 cooperates with the roller 206 and feeds the sheet S out of the variable printer. A pin 506 on the shaft 503 is positioned below the rod 506 carrying the shutter 200, said rod 506 clearing the arm 504'. The rod 506 is pivotally mounted in a bracket mounted on the table top of the variable printer. The rod 506 is urged by gravity into engagement with the pin 505 and follows the movement of this pin with the shaft 503. It will thus be seen that when the roller 207 is retracted from clamping cooperation with the roller 206 the pin 505 elevates the rod 506 and therefore the shutter 200 so that a sheet passing from the pan 198 moves below the shutter down into the guideway G to be fed into printing position below the variable printer platen P' by the roller 197, and that after an impression has been made by the platen P' the roller 207 is moved into clamping cooperation with the roller 206 to feed the sheet out of printing position below the platen P' and at this time the shutter 200 is engaged with the pin 198 to insure movement of the sheet therebelow.

The roller 197 feeds the sheet into printing position below the platen P' quite rapidly and the sheet moves into engagement with a stop 509 carried by rod 510 adjustably mounted in a block 507. The rod 510 may be shifted through the block 507 to enable proper orientation of the sheet S below the platen P. The just described mechanism is more particularly disclosed in my co-pending application Serial No. 65,376 as is the variable printer device.

After a sheet leaves the variable printer it moves into engagement with the stop finger 236 which has been described.

Each of switches 645 and 646 is associated with a stop finger and is adapted to control operation of the machine especially if no sheet is fed past the switches and which mechanism is more fully disclosed and described in my co-pending application Serial No. 65,376.

In operation of the machine a roll of paper is mounted in the stand 50 and a web is drawn therefrom and passed between the cylinders 51 and 52 and through the bite of the feed rollers as 127 and beyond the cutter 140. The main switch is closed setting the motor 56 as well as the motors for the feed rollers and other mechanisms in operation.

When initially setting the machine in operation the cylinders 51 and 52 are operated to print a signature, number and date on the web and the cutter 140 is operated to sever a sheet from the web. The sheet severed from the web in this first operation is manually removed from the machine as well as additional sheets. Three sheets in all are manually removed as such sheets will not bear the complete printed data from cylinders 51 and 52 thereon. When the fourth sheet S extends beyond the cutter 140 it is severed from the web and fed into the variable printer, this sheet being the first bearing a signature, number and date. The sheet is fed into the variable printer because upon being severed from the web it was deposited in the pan 198. The motor 176 operates to rotate roller 180 that extends through the opening in the sheet guide on the pan 198. The roller 180 is lowered into engagement with the sheet, after it has been severed from the web, to urge the sheet to the right, Fig. 2, into engagement with the rotating roller 197 under which the sheet is fed and which roller 197 acts to rapidly feed the sheet toward the right and into the variable printer.

As soon as the platen of the variable printer has made an impression on the sheet the roller 207 engages the sheet to feed it out of the variable printer, to the left in Fig. 1, and then the sheet which was severed by the cutter 140 in this cycle of operation moves into the variable printer. The printed sheet which passes out of the variable printer moves under the pan 198 and on into engagement with the stop finger 236 where it is held while an impression is being made upon the sheet just fed into the variable printer and near the end of which cycle the stop finger 236 releases the first sheet which passes on under propulsion of rollers 210 and 222 into engagement with a further stop finger to hold the sheet beneath the platen P, whereupon the first sheet receives an impression directly from a suitable printing and control device in printing position beneath the platen. After the platen P has made an impression the associated stop finger is retracted and the sheet advances through the sheet guideway into engagement with a further stop finger which in the next cycle of operation is retracted and the first sheet receives an impression between the form printing cylinders arranged at the left of Fig. 1 which finishes the printing operations on the first sheet and it moves out of the machine. A more detailed description of the operation of parts of the machine is contained in my co-pending application Serial No. 65,376.

I have provided a machine through which sheets constituting business instruments may be passed to be completely printed with all the data necessary and I have shown a novel method of feeding the sheets through the machine with facility and accuracy to insure proper and rapid positioning of the sheets in the various positions to receive impressions. I have explained the printing of a business instrument but it is to be understood that instruments for any purpose may be prepared in the machine without departing from the scope of my invention.

I have illustrated and described the preferred form of my invention but it is to be understood that I do not wish to be limited to the precise details set forth but desire to avail myself of such changes and alterations as may be desired to enable the invention to be used for the purpose for which it is or may be adapted.

I claim:

1. A sheet feeding means for a printing machine or the like and comprising a roller, a shaft for supporting said roller in sheet engaging and feeding position, means operable on said shaft to set said roller in rapid rotation, a support for

said shaft and roller, and power driven means operable independently of the means operating on said shaft and operable on said support to effect movement of said roller from and to sheet engaging position whereby upon engagement of said roller with a sheet during rapid rotation of the roller will insure feeding of the sheet.

2. A sheet feeding means for a printing machine or the like and comprising a rapidly rotating roller driven independently of the drive of the printing machine and cooperating with a sheet guideway to advance a sheet longitudinally through the guideway, supporting means for the roller, and means operable by the drive of the printing machine or the like for elevating and lowering the supporting means and roller whereby the action of said roller will effect feeding of the sheet when the roller is engaged therewith.

3. A sheet feeding means including a sheet guideway through which sheets are fed longitudinally, a pan above said guideway onto which the sheets initially pass, means for first feeding the sheets longitudinally off said pan and into the guideway in one direction, and means for subsequently feeding the sheets below said pan and through said guideway in the other direction.

4. A sheet feeding means including a sheet guideway through which sheets are fed longitudinally, a pan above said guideway onto which the sheets initially pass, means for first feeding the sheets longitudinally off said pan and into the guideway in one direction, means for subsequently feeding the sheets below said pan and through said guideway in the other direction, and movable means for guiding said sheets from and under said pan.

5. A sheet feeding means for a printing machine or the like, a housing, driving means operable independently of the drive of the printing machine and pivotally mounted in said housing, means driven directly by said driving means and arranged in juxtaposition to a path of travel of sheets fed therethrough, and means for moving said driving means about its pivot to engage said driven means with said sheets to effect longitudinal feeding of the sheets along the path of travel thereof.

6. A sheet feeding means for a printing machine or the like, a housing, driving means operable independently of the drive of the printing machine and pivotally mounted in said housing, a roller driven directly by said driving means and arranged in juxtaposition to a path of travel of sheets fed therethrough, and means for moving said driving means about its pivot to engage said roller with said sheets to effect longitudinal feeding of the sheets along the path of travel thereof.

7. A sheet feeding means for a printing machine or the like embodying driving means, a housing, a motor operable independently of the said driving means and pivotally mounted in said housing, a roller driven directly by said motor and arranged in juxtaposition to a path of travel of sheets fed therethrough, and means for moving said motor about its pivot to engage said roller with said sheets to effect longitudinal feeding of the sheets along the path of travel thereof.

8. A sheet feeding means for a printing machine or the like embodying driving means, a housing, a frame pivotally mounted in said housing, a motor operable independently of the said driving means and rigidly mounted in said frame, a roller driven directly by said motor and arranged over a path of travel of sheets fed therethrough, and means for moving said frame about its pivot to engage said roller with said sheets to effect longitudinal feeding of the sheets along the path of travel thereof.

9. A sheet feeding means for a printing machine or the like embodying driving means, a housing, a frame pivotally mounted in said housing, a motor operable independently of the said driving means and rigidly mounted in said frame, a shaft operatively driven by said motor and extending outside of said housing, a roller rigidly mounted on said shaft outwardly of said housing, and means for moving said motor about its pivot to engage said roller with said sheets to effect longitudinal feeding of the sheets along the path of travel thereof.

10. A sheet feeding means for a printing machine or the like embodying driving means, a housing, a frame pivotally mounted in said housing, a motor operable independently of the said driving means and rigidly mounted in said frame, a guideway through which sheets are fed longitudinally, and means pivotally moving said frame about said pivot to engage said driven means with sheets in said guideway to effect feeding of said sheets longitudinally through said guideway.

11. A sheet feeding means for a printing machine or the like embodying driving means, a housing, a frame pivotally mounted in said housing, a motor operable independently of the said driving means and rigidly mounted in said frame, a shaft operatively driven directly by said motor and extending outside of said housing, a roller rigidly secured to the outer end of said shaft, a guideway beneath said roller and through which sheets are fed longitudinally, a pan above said guideway onto which the sheets are initially passed, means for moving said frame about its pivot at predetermined intervals to lower the roller into engagement with a sheet on said pan to feed the sheet in one direction off said pan and into the guideway, a shutter operatively arranged to assist said sheet into the guideway, and means for subsequently feeding the sheets longitudinally below said pan and through said guideway in the other direction.

12. A sheet feeding means for a printing machine or the like, driving means operable independently of the drive of the printing machine, and means driven directly by said driving means and arranged in the path of travel of sheets fed through the machine and adapted to engage said sheets whereby the action of the driven means effects longitudinal feeding of the sheets.

13. A sheet feeding means for a printing machine or the like embodying driving means, a motor operable independently of the drive of the printing machine, and a roller driven directly by said motor and arranged in the path of travel of sheets fed through the machine and adapted to engage said sheets whereby the action of the roller effects longitudinal feeding of the sheets.

14. A sheet feeding means for a printing machine or the like embodying driving means, a motor operable independently of the drive of the printing machine, a roller driven directly by said motor, and a sheet guideway through which sheets are fed longitudinally by said roller, said roller being arranged to engage sheets in said guideway whereby the action of the roller effects longitudinal movement of the sheets through said guideway.

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