June 29, 1965 W. H. ROSS 3,191,526

HIGH SPEED ROTARY SELECTIVE ENDORSER

Filed May 29, 1962 4 Sheets-Sheet 1

FIG. 1

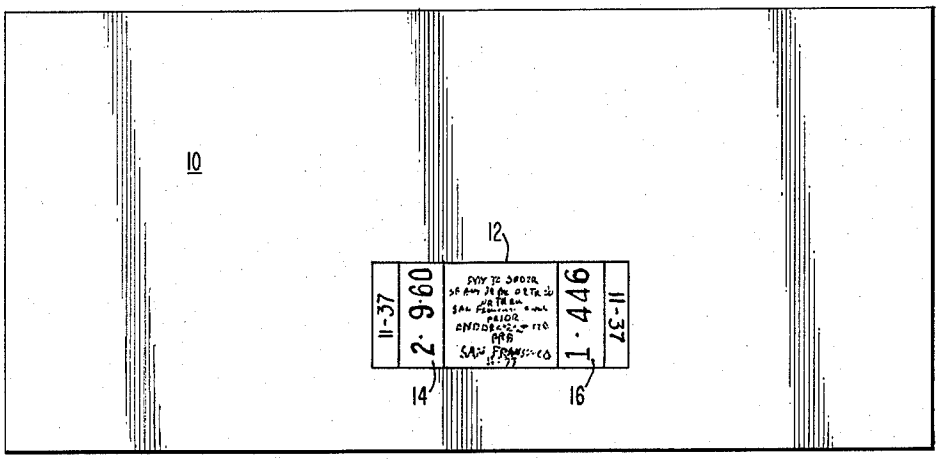
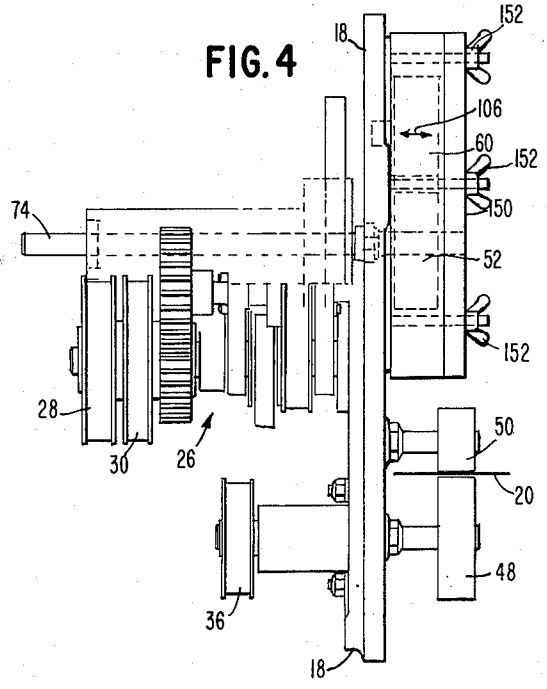


FIG. 4



INVENTOR.
WILLIAM H. ROSS

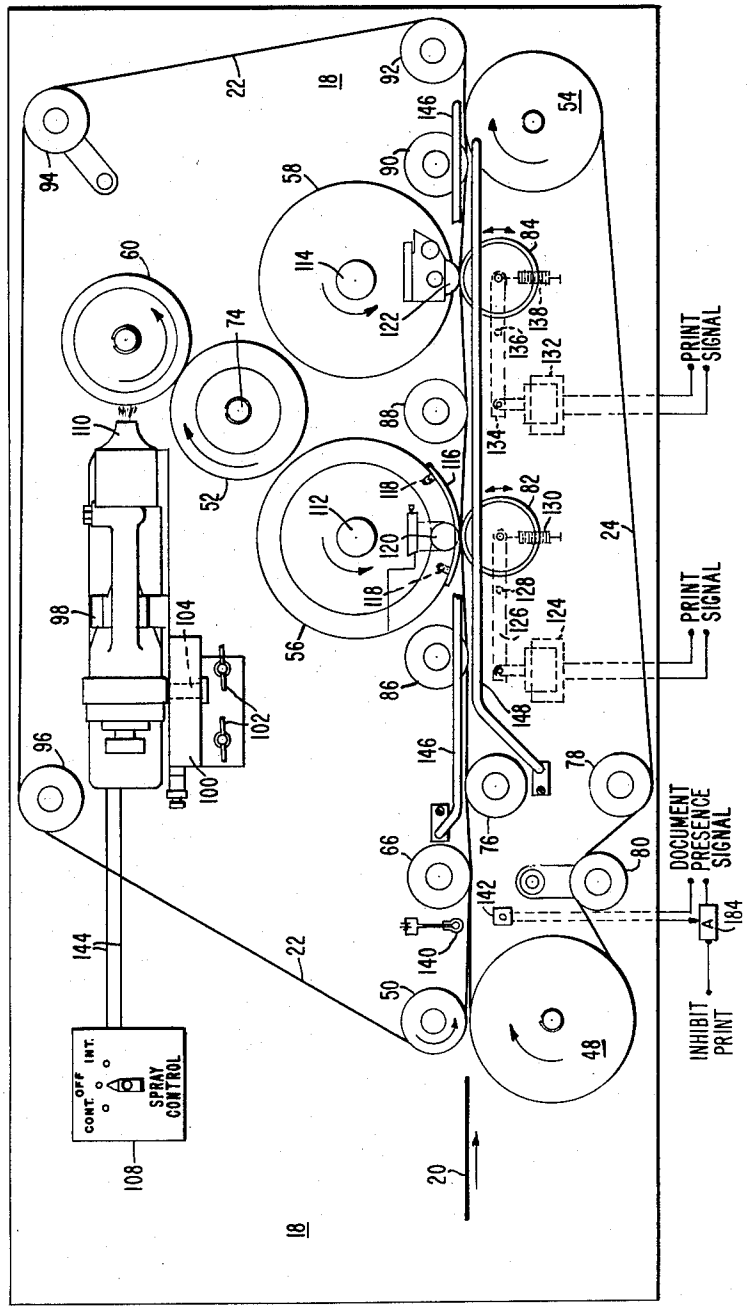
BY John R. Manning
ATTORNEY

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HIGH SPEED ROTARY SELECTIVE ENDORSER

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FIG. 2



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HIGH SPEED ROTARY SELECTIVE ENDORSER

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FIG. 3

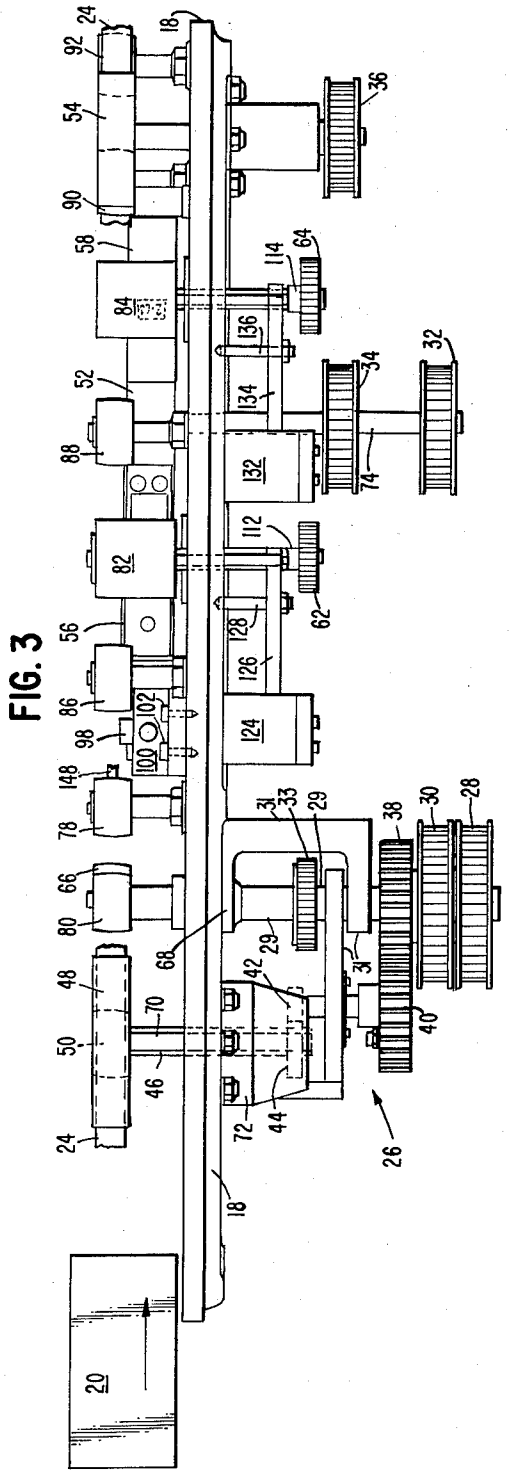


FIG. 6a

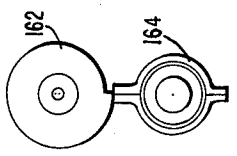


FIG. 6

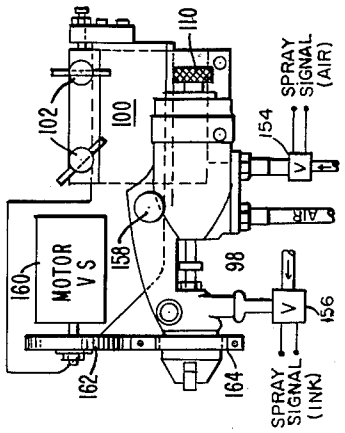
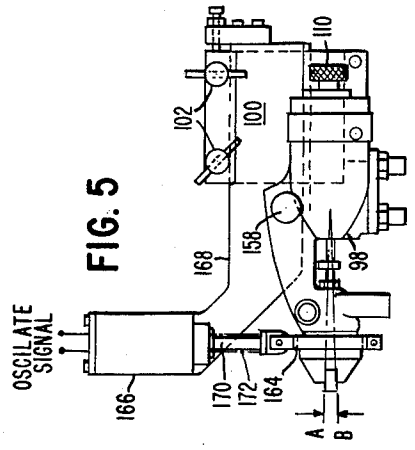


FIG. 5



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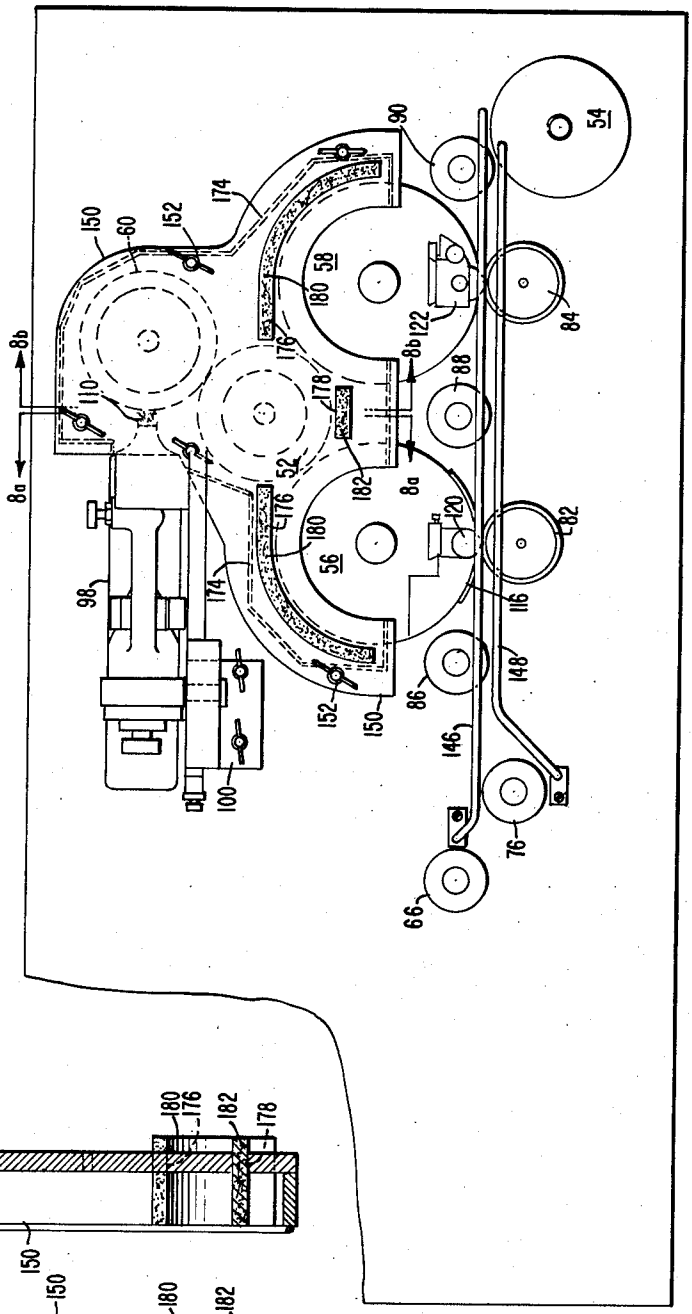


FIG. 7

FIG. 8b

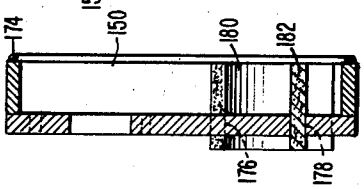


FIG. 8a

United States Patent Office 3,191,526
Patented June 29, 1965

3,191,526

HIGH SPEED ROTARY SELECTIVE ENDORSER

William H. Ross, Dallas, Tex., assignor to Sperry Rand Corporation, New York, N.Y., a corporation of Delaware

Filed May 29, 1962, Ser. No. 198,597
8 Claims. (Cl. 101—91)

This invention relates to a device for printing within a predetermined area on a document and more particularly to the endorsement of business documents such as bank checks and the like.

Present day banking operations require the processing of large volumes of checks. Electro-mechanical check sorters are employed to sort the bank documents or checks according to a prerecorded code imprinted upon the face of the check. Along with the sorting operation, the bank is often required to endorse the document for identification means upon the back of the check or document. Many check sorters presently in use operate with sorting speeds in the range of fifteen hundred or more documents sorted per minute. Accordingly, if these high speeds are to be maintained, the check or document must also be endorsed at this same rate and during the sorting operation. In other words, the printer or endorser of the present invention works in conjunction with a high speed check sorter and performs the endorsing operation immediately after, or perhaps immediately before, the encoded digits are read on the check and the pocket assignment for the check determined.

Printers or endorsers of the prior art were found to be incapable of producing satisfactory printing or endorsing at these high speeds. Conventional endorsers could not print a legible endorsement, could not print at a predetermined position on the check, would often print only portions of the endorsement, where highly wasteful of the inking solution, were not able to selectively endorse certain checks and not endorse others, and, caused an ink mist to be present in undesirable areas of the machine. If the endorser is not capable of positioning the endorsement at a predetermined position on the check, such as the back middle portion of the check, portions of the endorsement may appear on the check and portions may appear on a back-up type of roller, which roller will then place the "smudged" endorsement on the following check. In addition, if a high speed check endorser is to be completely satisfactory in operation, means must be provided to keep the working area immediately adjacent the endorser free of extraneous ink or inking solution.

Accordingly, it is an object of this invention to improve high speed printers.

It is another object of this invention to improve high speed document printers of the endorser type.

It is a further object of this invention to provide a document endorser capable of printing at a predetermined position on the document.

It is a further object of this invention to provide a high speed document endorser capable of selective operation.

It is still further object of this invention to provide a high speed endorser which eliminates the usual ink mist present about high speed inking operations.

In the machine of the present invention, the documents are caused to pass in front of the imprinting station in synchronism with the endorsing wheels. The ink or other printing fluid is sprayed upon a transferor roller from a spray means such as a spray gun. The ink is then transferred from the transferor roller to a transferee roller for application to the endorser and date wheel and to a batch wheel. Means are provided to actuate a back-up roller if the particular check being driven through the document way is to be endorsed. The endorser wheel houses a metal or plastic endorsement stamp and includes means for imprinting the date. The batch wheel houses an adjustable stamp for inserting the batch or sort number of the operation within the endorsement.

A preferred embodiment of the present invention will be better understood by reference to the accompanying drawings forming a part hereof, wherein:

FIGURE 1 is a document showing the endorsement thereon;

FIGURE 2 is a top plan view of the printer;

FIGURE 3 is a side elevation view of the printer with the cover removed;

FIGURE 4 is an end elevation view of the endorser;

FIGURE 5 is an elevation view of the ink dispensing means and showing its actuating means;

FIGURE 6 is an elevation view of the ink dispensing means and showing an alternate arrangement for actuating the spray mechanism;

FIGURE 6*a* is a detail view showing the cam arrangement which forms a portion of the alternate actuating mechanism of the dispensing means of FIGURE 6;

FIGURE 7 is a top plan view of the printer, similar to the FIGURE 2, and showing the cover and spray or mist collectors in place; and,

FIGURES 8*a* and 8*b* are sectional views taken along the lines **8***a* and **8***b*, respectively, of the FIGURE 7.

As shown on the FIGURE 1, the document **10**, which may be a bank check, draft, etc., has the endorsement **12** printed thereon. The endorsement **12** may also include the area **14** for the date and the area **16** for the batch or run number. The machine of the present invention will place the endorsement **12** upon the document, preferably on its back side, in a legible manner and still maintain high-speed operation. The areas **14** and **16** may be utilized to imprint any other desired information in case the date or run number are not to appear.

The documents to be endorsed my be passed through the printer by any suitable means and one such means is that shown in the FIGURES 2, 3, and 4. In the document transport system as disclosed, a pair of juxtaposed belts are caused to frictionally engage the document and pass the document through the machine wherein the check is endorsed and the date imprinted thereon as well as the imprinting of the batch or run number. Any other suitable transport means may be employed and the only requirement is that synchronism be maintained between the passage of the document past the imprinting stations.

As shown in the FIGURE 3, the main supporting member for the various pulleys, shafts, wheels, etc., is the base plate **18**. By a series of belts and rollers, the documents are caused to be passed in front of the endorser and date wheel **56** and the batch wheel **58**, to receive the impressions thereon.

The main power distributing mechanism comprises the drive mechanism **26** of the FIGURE 3. Suitable rotary power, such as an electric motor (not shown) may be utilized to apply rotary motion to the pulley **28** which causes rotation of the shaft **29**. Also affixed to the shaft **29**, which is supported by the support members **31**, are the pulleys **30** and **33** and the gear **38**. The shaft **29** is journaled in the bearing **68** of the support member **31**, which bearing is suitably supported in a fixed position against the base plate **18**. Rotation of the upper belt **22** (of the FIGURE 2) is accomplished by connecting the shaft **46** to the roller **50**. When the gear **38** rotates, it will rotate the gears **40**, **42** and **44** to cause rotation of the shaft **46**. The shaft **70**, which is affixed to the roller **48**, is journaled within the bearing **72**. The shaft **70** and its accompanying roller **48** is not driven directly from this driving mechanism but from engage-

ment with the belt 24 passing over the driven roller 54, which will hereinafter be described.

The lower belt 24 may be driven by an arrangement comprising the pulleys 30, 32, 34 and 36. The pulleys 30 and 32 are connected by a flexible toothed belt as are the pulleys 34 and 36. As noted, rotation of the pulley 32 will cause rotation of its affixed shaft 74, which shaft is connected to drive the transferee ink roll 52 as hereinafter described.

Thus, for the lower belt system 24, which forms a closed loop, the driving roller 54 causes rotation of the driven rollers 48, 76, 78 and 80 by engagement with the belt 24. The print rollers 82 and 84, to be hereinafter described, also engage the belt 24. The roller 80 is adjustable and may be used to vary the tension on the belt 24.

The upper belt 22, which also forms a closed loop, is driven by the roller 50. The belt 22 also engages the rollers 66, 86, 88, 90 and 92, which rollers are in substantially a straight line. Spaced apart from the previously mentioned rollers, and affixed to the base plate 18 are the rollers 94 and 96 which form the loop for returning the belt to the roller 50. The roller 94 is adjustable so that the tension of the belt 22 may be varied.

As noted, the belts 22 and 24 are driven at the same linear speed and frictionally engage a document 20 to transport the document 20 past the endorser and date wheel 56 and the batch wheel 58. As to be hereinafter described, the wheels 56 and 58 are driven at the same peripheral speed as the linear speed of the belts 22 and 24. This, of course, is necessary to insure that a legible endorsement is accomplished by eliminating the possibility of smearing the endorsement.

As shown by the FIGURES 2 and 3, the ink spray means 98 is connected to the block or support 100, which permits oscillation of the ink spray means 98 about the pivot 104. As seen from the FIGURE 2, a top plan view, the oscillation is in an "away" and "toward" cycle. The support 100 is rigidly affixed to the base plate 18 by the securing means 102. Oscillation of the ink spray means 98 permits a distribution of the ink upon the ink transferor roller 60 as shown by the double arrow 106 of the FIGURE 4. Since the roller 60 would be rotating, the ink distribution as applied would be sinusoidal.

Oscillation of the ink spray means 98 is accomplished by the mechanism of FIGURE 5 or alternately, by the mechanism of FIGURE 6, to be hereinafter described. The up and down motion of the spray means permits an equal and efficient distribution of the ink or printing fluid upon the ink transferor roller 60. The ink may be sprayed continuously or intermittently by operating the spray control means 108 of the FIGURE 2 which will regulate the ink and air supply means by energizing or de-energizing the solenoid valves of the FIGURES 5 and 6.

After the ink or printing fluid is dispensed by the tip 110 of the spray means 98, it is distributed laterally (rather somewhat sinusoidal) on the ink transferor roller 60. The roller 60 is driven by engagement with the transferee ink roller 52, which roller 52 is driven by its solid connection to the shaft 74 of the FIGURE 3. In other words, the driving roller 52 has its shaft extending through the base plate 18 whereas the driven roller 60 has its shaft (not shown) extending to a bearing (not shown) which bearing is securely mounted to the base plate 18. The roller 52 serves to smooth the ink for an efficient transfer to the printing dies 116 and 122.

As shown by the FIGURES 2 and 3, the endorser and date wheel 56 and batch wheel 58 are positioned along the check way in such a manner that endorsement of the document or check is accomplished. The rolls or wheels 56 and 58 rotate in a counterclockwise manner, which is consistent with the motion of the belts 22 and 24 whereas the transferee ink roller 52 is driven by the shaft 74 in a clockwise rotation. This results in

counterclockwise rotation of the ink transferor roller 60. The endorser and date wheel 56 is driven in synchronism with the belts 22 and 24 by the shaft 112, FIGURE 3, which shaft is driven by the pulley 62, from the pulley 33. Similarly, the batch wheel 58 is driven by its shaft 114, which extends through the base plate 18, as does the shaft 112, which shaft 114 is rigidly coupled to the pulley 64. Synchronism of operation is maintained by proper selection of pulley and roller size and by driving the pulleys 62 and 64 from the driving pulley 33 of the drive mechanism 26, of the FIGURE 3. Rotation of the endorser and date wheel 56 will cause engagement of the endorsing plate 116, which is affixed by the securing means 118 to the wheel 56, once per revolution. The endorsing plate 116 contains the type for causing the endorsement 12, as shown by the FIGURE 1. Mounted within the wheel 56 is the date stamp 120, which date may be changed accordingly by manual means. The printing portion of the date stamp 120 extends through the endorsing plate 116 and causes positioning of the date within the endorsement 12 as shown in the area 14 of the FIGURE 1. Similarly, the batch stamp 122 is mounted within the batch wheel 58 and engages the transferee ink roll each revolution. When the batch stamp 122 is in the position shown in the FIGURE 2, the stamp 122 will cause printing in the area 16 of the endorsement 12 as shown in the FIGURE 1. In the present embodiment, both the date stamp 120 and the batch stamp 122 may be changed manually; however, solenoid means may be employed (not shown) to electrically advance the date and batch stamps 120 and 122.

A print roller 82 is utilized to selectively endorse the documents 20. A signal applied to the print signal terminals will cause actuation of a solenoid 124 which will pivot the arm 126 about the pivot point 128. This operation will cause an upward movement, FIGURE 2, of the print roller 82 and cause engagement of the print roller 82 with the endorsing plate 116. The timing and synchronization is such, that actuation of the solenoid 124 and the motion of the print roller upwardly will occur only when a document 20 is in the endorsing position. After passage of the endorsement position on the document 20, the print signal disappears thus causing de-energization of the solenoid 24 and causing the print roller 82 to assume its downward position under bias action of the spring 130.

In a similar manner, a print signal applied to the terminals coupled to actuate the solenoid 132, will cause an upward movement of the print roller 84 to cause an impression of the batch number being placed in the area 16, FIGURE 1, of the endorsement 12 by engagement with the batch stamp 122 of the batch wheel 58. Operation of the solenoid 132 causes rotation of the arm 134 about the pivot point 136 to engage the roller 84 with the document and thus force the document against the batch stamp 122. After the area of the document 20 in which the batch number is to be placed passes the imprinting station, the print signal disappears, thus resulting in a deenergization of the solenoid 132 and a positioning of the print roller 84 downwardly under urging by the spring means 138.

An inhibit gate 184 is located in series with one of the conductors of the document presence signal. If an item is not to be endorsed, a signal is applied to the inhibit gate 184 by any suitable means and thus inhibits any output to the solenoids 124 and 132. Upon this condition, printing does not take place.

The spray control 108 is an electrical device for controlling the emission of the ink or other printing fluid from the tip of the spray means 110 from the ink spray means 98. Electrical control of the solenoids controlling the ink supply and the air supply shown in the FIGURE 5 is established by means of the conductors 144 of the FIGURE 2. The spray control 108 is shown in the off

position. When the spray control 108 is moved to the continuous spray position (cont.), the ink and air are supplied continuously to the ink transferor roller 60 through the tip or nozzle spray means 110. When the spray control 108 is moved to the intermittent spray position (int.) the ink spray will be discharged from the nozzle 110 only when required such as once each cycle. The initiating means for the intermittent spray may be from the document presence signal to be hereinafter described.

Light energy from the light source 140 is directed to the photo-electric cell 142. The light source 140 and the photo-electric cell 142 are located on opposite sides of the card way in such a position that the light beam from the source 140 to the cell 142 is broken each time the leading edge of a document 20 passes through the light beam. Suitable energizing means are coupled to the photo-electric cell 142 to generate a document presence signal on the conductors as shown. The document presence signal may be utilized to control the output of the ink spray means 98 through the spray control 108 and also, after suitable delays, control actuation of the print rollers 82 and 84 by application of the solenoids 124 and 132 through the print signal terminals. The signal may be inhibited by application of a signal to the gate 184 as previously described.

As shown in the FIGURE 2, a pair of rails 146 (shown broken between the endorser and date wheel 56 and the batch wheel 58) and 148 are provided to assist in guiding the document through the printing means at its high rate of speed. The guide rails 146 and 148 are suitably affixed to the base plate 18 at their ends.

The FIGURE 4 is an end elevation view of the endorser in simplified form and showing the cover 150 in place. For simplicity, the endorser and date wheel 56 and batch wheel 58 have been removed from this drawing but would appear below the transferee roller 52 in such a manner to imprint upon the document 20. The roller 50 forms a portion of the document transport means engaging the belt 22, of FIGURE 2, and the roller 48 engages the belt 24 of the document transport means.

The cover 150 is retained in position by the studs and wing nuts 152. The double arrow 106 on the ink transferor roller 60 shows the lateral oscillation of the spray means 98 while distributing the ink or printing solution upon the roller 60. It is to be understood that this lateral oscillation of the spray means 98 is optional. The tip of the spray means 110 of the FIGURE 2, may be adjusted to direct the ink upon the ink transferor roller 60 without the lateral movement as suggested by the double arrow 106. In other words, the actuating mechanisms for the ink spray means 98 shown in the FIGURES 5 and 6, may be deactivated and the ink directed to the roller 60 without any relative movement between the spray means 98 and the base plate 18.

The spray means 98, shown best in the FIGURE 5, may be a conventional type spray gun. Any other such means may be used to transfer the ink to the roller 60. One such type is the Model 21 gun, manufactured by the Binks Manufacturing Co., Chicago 12, Illinois. Air and ink fluid may be applied to the spray gun 98 by the application of spray signals to the solenoid operated valves 154 and 156, as shown by the FIGURE 6. The spray means 98 of the FIGURES 5 and 6 are identical except for the actuating means. In the FIGURE 5, an electrical solenoid is utilized to oscillate the spray means 98 about the pivot point 158. In FIGURE 6, a variable speed motor 160 drives the cam 162 which engages the collar 164 and causes oscillation of the spray gun of FIGURE 6 about the pivot point 158. It is, of course, necessary that the couplings between the solenoid valves 154 and 156 be flexible to permit movement of the spray means 98.

As shown in the FIGURE 5, the solenoid 166 is connected to the support means 168. The support means in turn is rigidly affixed to the supporting member 100, which is affixed to the base plate 18 by the securing means 102. The application of an oscillate signal to the oscillate signal terminals of the solenoid 166 will cause the solenoid plunger 170, which is secured to the collar 164 and the spray means 98, to be driven inwardly and position the spray means 98 in a line as indicated by the letter "A." When the oscillate signals disappear, the spring means 172, which is coaxial with the solenoid plunger 170, will force the plunger outwardly and result in a positioning of the spray means 98 in a line with the letter "B." Thus, by the application of successive oscillate signals to the solenoid 166, the spray means 98 will be driven laterally and permit the application of ink to the ink transferor roller 60, best shown in the FIGURE 4. If the lateral movement of the spray means 98, and of course the tip of the spray means 110, is not desired, either no signal or a steady signal would be applied to the oscillate signal terminals and thus result in a steady positioning of the spray means 98 as desired. Control of air and ink fluid is maintained to the spray means 98 of the FIGURE 5 in a manner similar to that shown in the FIGURE 6.

The operation of the spray means of the FIGURE 6 and FIGURE 6*a* is identical to that of FIGURE 5 except for the substitution of the variable speed motor 160 and the cam 162 for the solenoid 166 and plunger 170. Constant rotation of the variable speed motor 160 may be maintained to apply the ink to the ink transferor roller 60; however, the motor 160 may be driven to any position and stopped and by the engagement of the cam 162 with the collar 164, will result in a positioning of the spray means 98 and the tip of the spray means 110 upon any desired location along the periphery of the ink transferor roller 60. It will be readily understood by those skilled in the art that various shapes of cams may be employed which will result in various patterns of ink spray upon the ink transferor roller 60.

Spray signals are applied to the solenoids 154 and 156 as appropriate and may be actuated by the document presence signal from the FIGURE 2. As indicated earlier, the spray control 108 of the FIGURE 2 will regulate the spray from its three positions: the "off" position wherein the solenoid valves 154 and 156 are deactuated and no spray results; the intermittent (int.) position wherein spray is emitted from the tip of the spray means 110 at certain selected times, such as once per document pass; and, the continuous (cont.) position where ink is continually supplied to the ink transferor roller 60 and subsequently to the endorsing plate 116 and batch stamp 122. It will be further understood that if ink is supplied under pressure, then only a single solenoid operated valve would be required.

The FIGURE 7 is the same as the FIGURE 2 except for showing the cover 150 in place. The cover 150 is designed to fit over the ink transferor roller 60, the ink transferee roller 52 and the tip of the spray means 110. In addition, portions of the endorser and date wheel 56 and the batch wheel 58 are enclosed. The purpose of the cover 150 is to confine any ink spray to the immediate area and not permit an escape of the spray from the printer. Sealing means are provided between the cover 150 and the base plate 18. The sealing means may take the form of an O ring, cut to length and placed between the cover 150 and the base plate 18 as shown in the FIGURES 7, 8*a* and 8*b*. A suitable groove may be cut to contain a portion of the O ring.

As shown by the FIGURE 7, a pair of arcuate slots 176 are cut into the cover 150 adjacent the periphery of the wheels or rollers 56 and 58. The arcuate slots 176 extend for substantially ¼ of the way around the wheels 56 and 58 and up to and adjacent the transferee ink roll 52. In addition, a slot 178 is in the cover 150 between the wheels 56 and 58 and immediately below the transferee ink roll 52. The purpose of the slots 176 and 178 is to receive ink absorber pads 180 and 182, respectively, as shown in the FIGURES 8*a* and 8*b*. The ink absorbers 180 and 182 may be of a felt nature and will absorb any

ink spray due to the ink being thrown off of the rolls and wheels 52, 56, 58 and 60. The ink absorber pads 180 and 182 may be disposable and replaced from time to time accordingly as required.

The FIGURE 8*a* is a sectional taken along the lines 8*a* of the FIGURE 7 and the FIGURE 8*b* is a sectional taken along 8*a* of the FIGURE 7. These views show the absorber pads 180 and 182 in place and extending slightly above the top of the cover 150. The portion of the absorber pads 180 and 182 extending above the cover 150 will permit easy insertion and removal of the pads as desired.

For a description of operation, reference is made to the FIGURES 2 and 3. Motor power is supplied to the pulley 28 to insure rapid advancement of the documents 20 through the printing means of the present invention. Suitable linear speed of the belts 22 and 24 is from 300 to 400 inches per second. The drive means of FIGURE 3 are such, as indicated previously, that synchronism of operation is maintained between the belts 22 and 24 and the endorser and date wheel 56 and the batch wheel 58. That is to say, the peripheral speeds of the wheels 56 and 58 are equal to the linear speeds of the belts 22 and 24 transporting the documents 20, and in the same direction.

After the current date is ready for printing by adjustment of the date stamp 120 and the desired batch number is placed upon the batch stamp 122 by rotation of appropriate wheels within the date and batch stamps 120 and 122, the system is ready for operation.

After the document transport system and the ink and printing rollers are started, the spray contol 108 would be momentarily placed in the continuous (the left position) position, thus actuating the solenoid controlled valves 154 and 156, FIGURE 6, to insure a distribution of ink or printing fluid on the ink transferor roller 60, the transferee ink roller 52, the endorsing plate 160, the date stamp 120 and the batch stamp 122. The spray control 108 would then be turned to the intermittent (right hand position) mode if such is desired. For purposes of discussion of operation, it is assumed that an intermittent lateral pattern of ink is desired upon the transferor ink roller 60. Thus, the spray control 108 would be placed in the intermittent mode and a sequence of signals would be applied to the oscillate signal terminals, FIGURE 5, and cause a "pumping" action of the solenoid 66. Thus, for each document a type of sine wave distribution of ink would be placed upon the ink transferor roller 60. The roller 52 would "smooth" the ink for application to the dies 116 and 122. Only the die portion of the wheels 56 and 58 engage the roller 52. The roller 52 is however in continuous engagement with the roller 60. Of course, it will be understood that the alternate actuating means of FIGURE 6 may be employed.

Documents 20 are transported to the belts 22 and 24 adjacent the rolls 48 and 50 in any suitable manner. As the document 20 enters between the belts 22 and 24 at the rolls 48 and 50, it is immediately frictionally engaged by the belts 22 and 24 and driven past the light source 140. As soon as the circuit from the light source 140 to the photoelectric cell 142 is broken, a document presence signal is generated. The document presence signal may then be utilized to spray ink upon the ink transferor roller 60 by actuation of the solenoid operated valves 154 and 156 of the FIGURE 6. In addition, the document presence signal, after a suitable delay, is utilized to actuate the print roller 82 by application of the delayed signal to the print signal terminals of the solenoid 124. This will cause the print roller 82 to force the document 20 against the endorsing plate 116, which also contains the date stamp 120, and results in a printing of the endorsement of the document 20. It will be understood that the endorsing plate 116 and the date stamp 120 have already engaged the ink transferee roller 52 and had a supply of ink located thereon.

After a further delay of the document presence signal, it is applied to the print signal terminals to actuate the solenoid 132 which results in an upward movement of the batch number print roller 84. It will be further understood that the batch stamp 122 has rotated and engaged the transferee ink roller 52 to insure a supply of ink upon the numbering wheels of the batch stamp 122.

The document is now endorsed, dated and numbered and now exits from the endorsing station between the belts 22 and 24 adjacent to the rollers 54 and 92. The documents may be stacked in any suitable manner.

The previously discussion of operation assumed that each document 20 was endorsed, dated and batch stamped as it passed through the printer. Selective endorsement is also possible. That is, the operator may wish to endorse only certain documents and not endorse others. If the code previously read on the document 20 indicates that the document is not to be endorsed, then an inhibit print signal would be applied to the inhibit AND circuit 184 which would inhibit the document presence signal and result in no print signal to force the print rollers 182 and 184 against their respective imprinting means on the rollers 56 and 58. Other modes of operation are also possible which will be readily apparent to one skilled in the art. For example, the oscillate signal to the solenoid 66 of the FIGURE 5 or the current to the variable speed motor 160 of the FIGURE 6 may be varied in any manner to result in various patterns of ink distribution upon the ink transferee roller 60. Also, the print signal which results in actuation of the print roller 82 may be inhibited when it is desired to only place a batch or run stamp upon the document 20. Alternately, the print roller 84 could be inhibited when it is desired only to endorse and date stamp the document 20. As previously indicated, the spray control may be operated in either the continious or intermittent spray mode.

It will now be apparent that, in accordance with the invention, there has been disclosed a high speed endorsing mechanism for bank documents such as checks, drafts, etc., which is adaptable and completely compatible with high speed document sorting devices presently in use. Ink or printing fluid is sprayed onto a transferor roller for transfer to a transferee roller. A pluality of wheels or rollers containing various printing dies such as an endorsing die, a date stamp, or a batch or run stamp are positioned along a document transport mechanism such that the dies will engage the transferee ink roller prior to causing the impression to be left upon the document as it passes at high speed along the document way. Synchronous operation is maintained which results in a clearly legible endorsement being placed upon the document.

The invention may be embodied in other specific forms without departing from the spirit or essential characteristics thereof. The present embodiment is therefore to be considered in all respects as illustrative and not restrictive, the scope of the invention being indicated by the appended claims rather than the foregoing description, and all changes which come within the meaning and range of equivalency of the claims are therefore intended to be embraced therein.

What is claimed and desired to be secured by United States Letters Patent is:

1. A high-speed check endorser the combination comprising a first rotary printing means and a second rotary printing means, an endorsement and a date die mounted upon said first rotary printing means, a batch numbering device positioned upon said second rotary printing means, an ink transferor roller, an ink transferee roller positioned in rolling contact with said ink transferor roller and the dies of said first and said second rotary printing means, means for spraying printing fluid upon said ink transferor roller, means coupled to said spraying means

for actuating said spraying means to vary the ink pattern transferred to said ink transferor roller, a pair of belts forming a check transport system and in juxtaposition for advancing documents uninterruptively for imprinting by said first and said second rotary printing means, means positioned along the document transport system for detecting the presence of a document, first and second print rollers positioned adjacent said first and said second rotary print means, respectively, for positioning a document to be printed in rolling contact with the dies of said first and said second rotary printing means, and means coupled to said document detecting means for selectively actuating one or both of said print rollers.

2. A high-speed check endorser the combination comprising a first rotary printing means and a second rotary printing means, an endorsement and a date die mounted upon said first rotary printing means, a batch numbering device positioned upon said second rotary printing means, an ink transferor roller, and ink transferee roller positioned in rolling contact with said ink transferor roller and the dies of said first and said second rotary printing means, means for spraying printing fluid upon said ink transferor roller, means coupled to said spraying means for actuating said spraying means to vary the pattern of printing fluid transferred to said ink transferor roller, a pair of belts forming a check transport system and in juxtaposition for advancing documents uninterruptively for imprinting by said first and said second rotary printing means, means positioned along the document transport system for detecting the presence of a document, first and second print rollers positioned adjacent said first and said second rotary print means, respectively, for positioning a document to be printed in rolling contact with the dies of said first and said second rotary printing means, means coupled to said document detecting means for selectively actuating one or both of said print rollers, enclosing means for protecting the work area from ink spray and enclosing said ink transferor roller, said ink transferee roller, the discharge area of said spraying means, and the portions of said first and said second rotary printing means removed from the check transport system, said enclosing means including a pair of spaced apart arcuate slots adjacent said first and said second rotary printing means, and a third rectangular slot in said enclosing means positioned between said rotary printing means.

3. The combination as defined in claim 2 including absorbent rectangular pads positioned within said slots for absorbing extraneous ink spray.

4. In a high-speed document printer, the combination comprising means for advancing documents along and forming a document path, a rotatable member supporting an endorsing die, said rotatable member positioned adjacent the document path and rotatable at a peripheral velocity equal to the linear velocity of said means for advancing, ink spraying means, an ink transferor roller positioned adjacent the discharge area of said spraying means for receiving the output of said spraying means, a transferee roller positioned in rolling contact with said transferor roller and said endorsing die on said rotatable member, reciprocating means coupled to said ink spraying means for permitting an even distribution of ink in a lateral pattern from side to side on said transferor roller, a back-up roller positioned adjacent the rotatable member and on the opposite side of the document path, a solenoid for actuating said back-up roller, document sensing means positioned along the document path for detecting and generating a document presence signal upon the entry of a document therealong, and means for selectively applying said signal to said solenoid for directing documents into engagement with the endorsing die of said rotatable member to result in an endorsement thereon while the documents are being advanced uninterruptively by said means for advancing.

5. The combination as defined in claim 4 including means to inhibit the generation of said document presence signal.

6. The combination as defined in claim 4 including solenoid means for supplying said ink spraying means and circuit means coupling said document presence signal to actuate said solenoid means.

7. In a high-speed document printer, the combination comprising means for advancing documents along and forming a document path, a first rotatable member supporting an endorsing die, a second rotatable member supporting a numbering device, said first and said second rotatable members positioned adjacent the document path and on the same side thereof and rotatable at a peripheral velocity equal to the linear velocity of said means for advancing, ink spraying means, an ink transferor roller positioned adjacent the discharge area of said spraying means for receiving the output of said spraying means, a transferee roller positioned in rolling contact with said transferor roller and said endorsing die and said numbering device, reciprocating means coupled to said ink spraying means for permitting an even distribution of ink in a lateral pattern from side to side on said transferor roller, a first back-up roller positioned adjacent said first rotatable member and on the opposite side of the document path, a first solenoid for actuating said first back-up roller, a second back-up roller positioned adjacent said second rotatable member and on the opposite side of the document path, a second solenoid for actuating said second back-up roller, document sensing means positioned along the document path for detecting and generating a document presence signal upon the entry of a document therealong, and means for applying said signal to one or both of said solenoids to selectively print upon a document by directing the selected document into engagement with the printing means while being advanced uninterruptively by said means for advancing.

8. The combination as defined in claim 7 including enclosing means positioned over said discharge area of said spraying means, said transferor roller, said transferee roller and the portions of said first and said second rotatable members positioned away from the document path, a plurality of arcuate slots formed in said enclosing means, and absorbent pads positioned within said slots for absorbing extraneous ink spray.

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