

June 3, 1947.

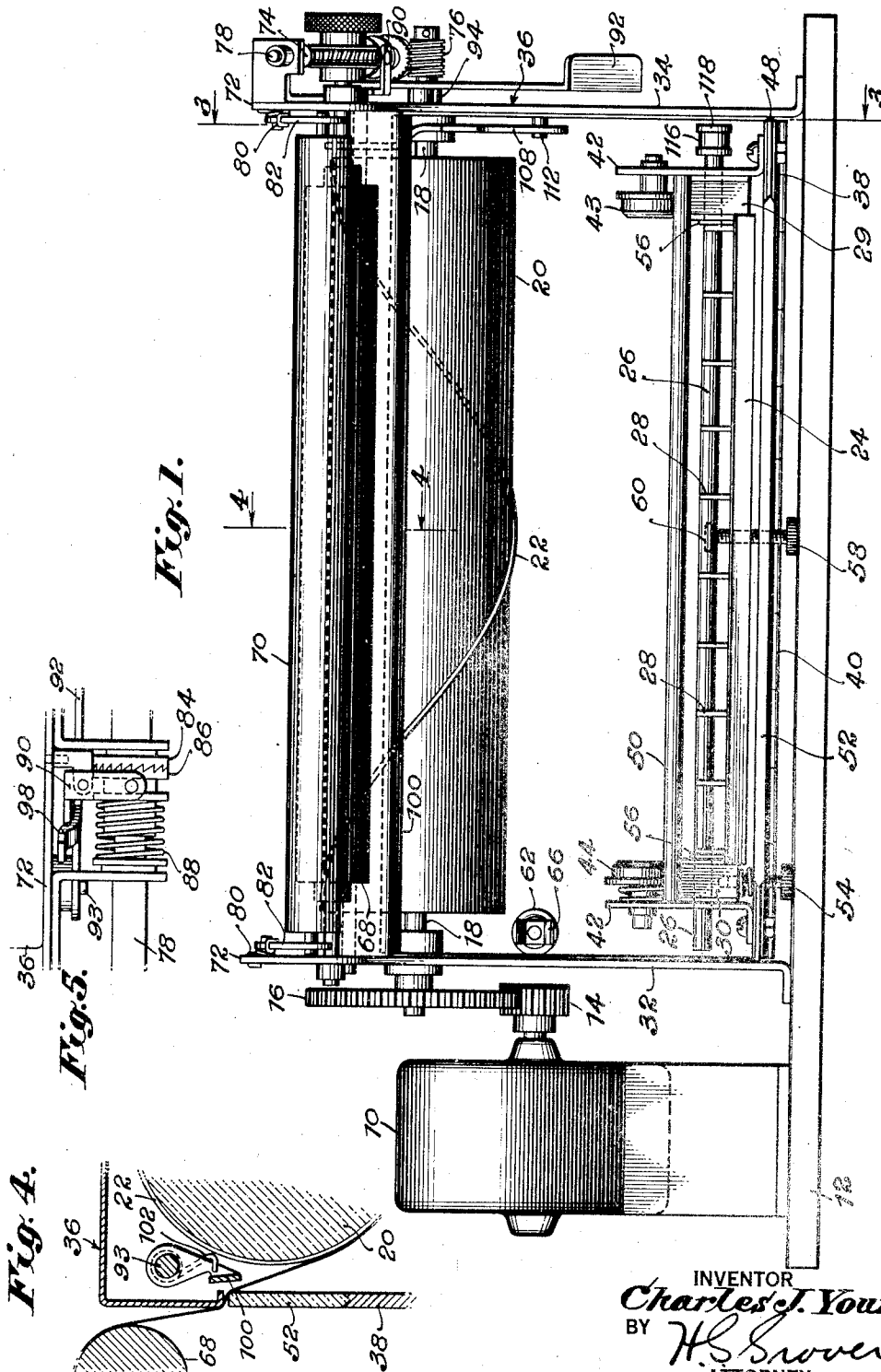
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2,421,673

FACSIMILE RECEIVER

Filed Nov. 29, 1941

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

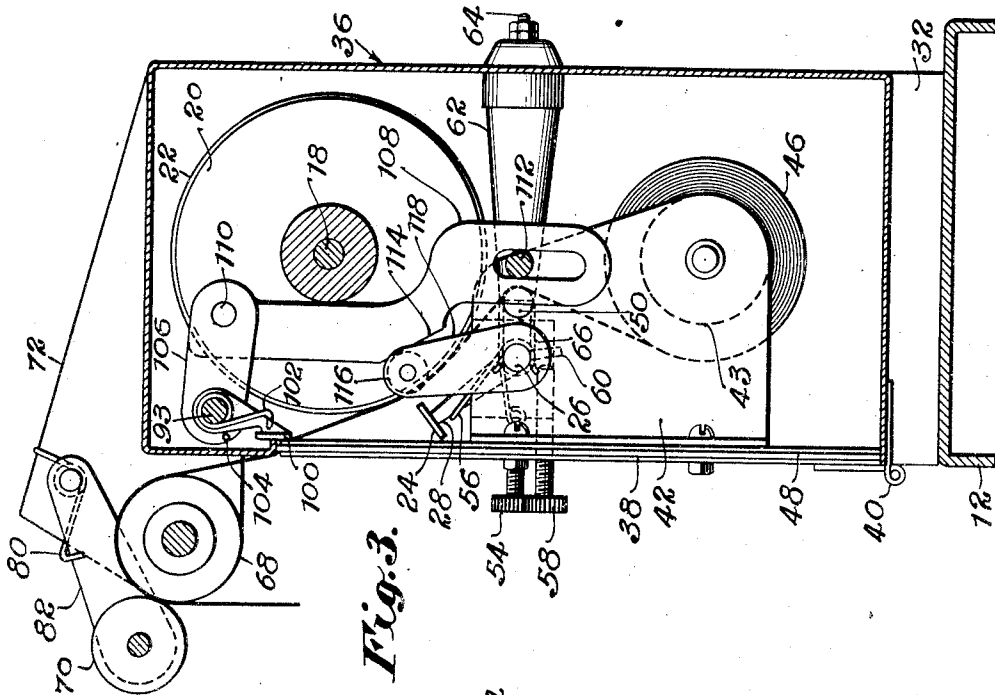


Fig. 3.

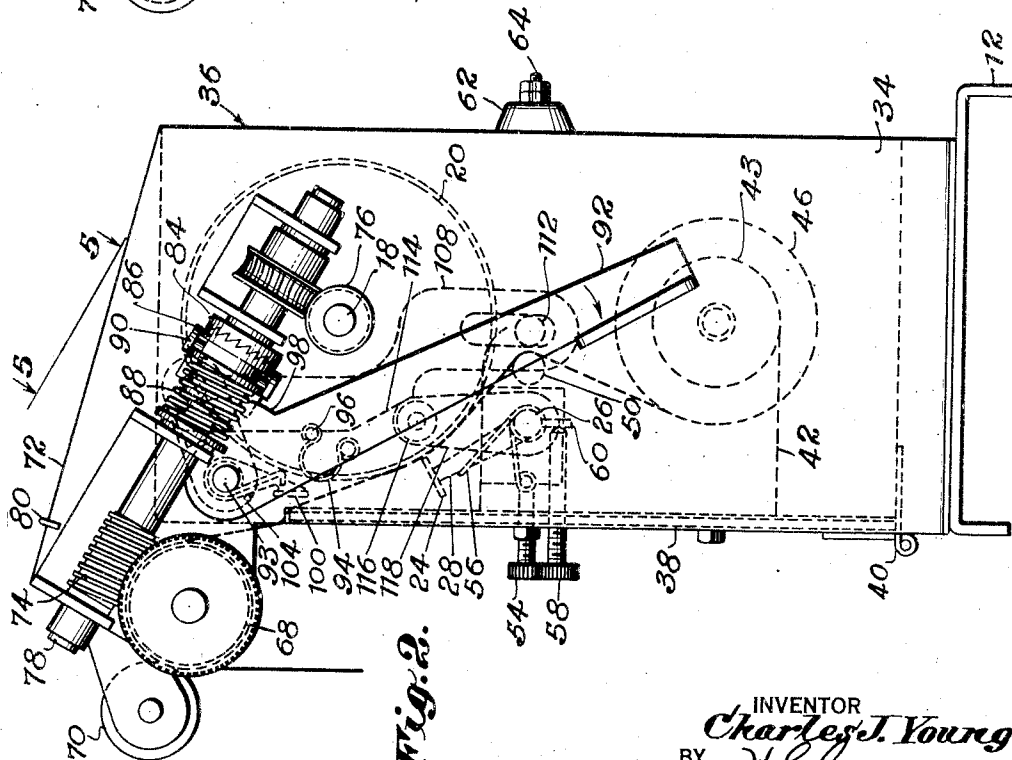


Fig. 2.

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UNITED STATES PATENT OFFICE

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FACSIMILE RECEIVER

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Application November 29, 1941, Serial No. 420,917

5 Claims. (Cl. 234—70)

1

This invention relates to facsimile receivers and more particularly to facsimile receivers wherein the recording is electrolytically produced.

In a facsimile system a facsimile transmitting apparatus is used in which the subject matter to be transmitted is scanned in a line by line manner to produce picture signal currents or voltage variations and these voltage variations are then used to modulate a radio frequency carrier wave. The modulated radio frequency carrier wave is then transmitted and is received by a facsimile receiving apparatus. After appropriate amplification and detection, facsimile picture signals are then available at the receiver. In some instances where a radio link is not utilized between the transmitter and the receiver it is possible to supply the picture signals to the receiver directly from the transmitter by means of telephone lines or other communicating systems.

At the receiving apparatus a scanning operation is accomplished which is similar to the operation in the transmitter and, furthermore, a synchronizing means is provided in order that the receiver may be operated in exact phase and synchronism with the transmitting apparatus. In some instances where a mere duplication of a particular subject matter is desired without transmission over any appreciable distance the transmitter scanner and the receiver scanner are mechanically connected together in order that the use of a separate synchronizing circuit is not necessary.

Various types of facsimile receivers may be used and various methods may be used for producing a recording on a sheet of record receiving paper. One of the preferred methods, however is that of electrolytically recording the transmitted subject matter on the record receiving paper. When electrolytic recording is employed the record receiving paper is generally treated or impregnated with a recording solution in order that the treated paper, when passed through the scanning mechanism of the facsimile receiver, will record the transmitted subject matter. Normally, the facsimile picture signals are passed through the paper from one surface to the other during the scanning operation and the reaction of the electric current or potential on the electrolyte with which the paper is impregnated is effective to produce dyes or other markings on the paper in order that an image or facsimile recording may be produced. For best operation it is desirable to maintain the amount of electrolyte which is contained within the paper within fairly prescribed limits since if the paper is too

2

moist, streaking of the reproduced image will frequently occur and, on the other hand, if the paper is too dry the paper will not be sufficiently conductive to produce a desired reproduction.

Facsimile receivers have been constructed in which a roll of untreated dry record receiving paper is placed in the machine and paper from the roll is passed through an impregnating bath in order that the paper may absorb a certain amount of the electrolyte in passing through the bath. A certain amount of space must necessarily be traversed by the paper between the bath and the scanner portion of the facsimile receiver. During the passage of the impregnated paper through this space, the paper is naturally subjected to the surrounding air and will evaporate moisture to the air if the surrounding air is dry or it may, in fact, absorb moisture from the air under extreme high humid conditions. The humidity of the surrounding air, therefore, may alter the moisture content of the paper by the time the paper reaches the actual facsimile receiver scanner. Systems have been devised for compensating for this variation in moisture content and an example of such a system is to be found in the U. S. patent to Shankweiler #2,227,109 issued December 31, 1940.

More convenient methods have been devised for facsimile recording in which no immersion is required in which case the paper is impregnated before use and the moisture content of the impregnated paper is controlled within certain limits. The paper after being so impregnated and wound in rolls is then sealed in air tight storage or shipping containers in order that the desired moisture content may be retained. When it is desired to use the paper in a receiver the paper is removed from the container and placed on a support provided in the receiver. The paper then passes from this impregnated supply roll to the scanner of the facsimile receiver. Here again a certain amount of space must be traversed by the paper and the moisture content of the paper may vary in accordance with the atmospheric conditions at the time the recording is made.

The present invention is therefore concerned with the provision of means to eliminate any possibility of a change in the moisture content of previously impregnated paper as it passes from the supply roll to the scanner of the facsimile receiver. This is accomplished by providing a substantially sealed compartment or housing which is so constructed as to include not only the impregnated record receiving paper but also the scanning head or recorder of the facsimile

receiving apparatus. When both the impregnated supply roll and the facsimile recorder are encased in a sealed compartment or housing the paper cannot be subjected to atmospheric conditions and the possibility of the paper becoming drier or more moist is eliminated.

It is therefore one purpose of the present invention to provide in a facsimile receiver a sealed compartment or housing to include both the recorder scanner of the receiver and the impregnated supply roll of record receiving paper.

Since the paper preferably should emerge from the receiving apparatus after a recording has been placed thereon, an aperture or slit must be provided in the housing or compartment which surrounds both the impregnated record receiving paper and the facsimile receiver scanner and although this slot or aperture may be made very narrow in order to permit the passage of the paper after the recording has been placed thereon, such an opening may be of sufficient size to alter the moisture content of the paper contained within the housing during the intervals of non-use of the facsimile receiving apparatus.

Another purpose of the present invention therefore resides in the provision of means whereby the compartment which houses both the previously impregnated record receiving supply roll and the receiver scanner may be made substantially air-tight and may be sealed more completely during periods of non-use of the machine.

Still another purpose of the present invention resides in the provision of means in a facsimile receiver whereby an opening or slot is provided in a casing together with means for opening or closing the slot in accordance with the use or non-use of the receiving apparatus.

When the apparatus is not in use it is generally desirable to disconnect the paper drive or transporting rollers from the motor which drives the facsimile receiver scanner in order that the scanner may continue in synchronous operation with the receiver. There are other instances when it may be desirable to discontinue the transportation of the paper through the receiver without actually discontinuing the operating of the receiver scanner and, accordingly, a clutching mechanism has been provided for so disengaging the feed rollers for the record receiving paper.

It is therefore another purpose of the present invention to provide in a facsimile receiver a clutching mechanism for disengaging the paper feed rollers from the driving motor without in any way interrupting or discontinuing the operation of the scanner drum at the receiver or the motor driving the scanner drum.

During periods of inoperation of the receiver it is also desirable that the pressure of the printer bar upon the recording helix be removed or released and, accordingly, the present invention has provided an arrangement whereby the printer bar may be lifted from the recording drum which carries or supports the recording helix when it is not desired to produce a facsimile recording.

It is therefore another purpose of the present invention to provide an arrangement whereby the printer bar may be removed from contact with the recording drum and helix when the receiver is not in operation.

Still another purpose of the present invention resides in the provision of means for simultaneously removing the printer bar from engagement with the recording drum at the same time that driving energy is removed from the paper transport rollers.

Still another purpose of the present invention resides in the provision of means whereby the transportation of the paper may be discontinued, the printer bar may be removed from contact with the recording drum and the compartment or housing which surrounds both the supply roller and the scanner may be more completely sealed by operation of a single manually operable member.

In order to replenish the supply roll and in order to place a new supply of impregnated paper in the compartment, a door or hinged opening is provided which when opened will permit ready access to the printer bar, the recording drum and helix as well as to the brackets or elements which support the impregnated paper. If, at the time the door is opened the receiving apparatus is in operation, the recording bar would normally be energized with the picture signal potentials and inasmuch as these potentials are relatively high it is desirable to de-energize the printer bar during such times that the compartment is opened for inspection or for replenishment of the paper.

Still another purpose of the present invention, therefore, resides in the provision of an automatic disconnecting means whereby the printer bar as well as its support is electrically disconnected from the facsimile receiver whenever the door or closure to the housing surrounding the scanning mechanism and supply roll is opened.

A still further purpose of the present invention resides in the provision of means whereby the printer bar of the facsimile receiver may be adjusted in order that substantially uniform pressure may exist between it and the recording helix throughout its entire length.

A still further purpose of the present invention resides in the provision of means for arresting the movement of the printer bar in a direction toward the helix when the recording mechanism is in use.

Still other purposes and advantages of the present invention will become more apparent to those skilled in the art from the following specification particularly when considered in connection with the drawings wherein:

Figure 1 shows a side view of the recording mechanism with the door of the housing or sealed compartment opened.

Figure 2 shows an end view of the facsimile recording mechanism with the clutch engaged for rotating the paper drive rollers, with the printer bar in its position of operation and with the paper slot opened in order to permit paper to pass from the sealed compartment.

Figure 3 shows an end view of the facsimile recording mechanism taken on section lines 3—3 in Figure 1 showing the printer bar in a disengaged position and with the compartment more completely sealed.

Figure 4 shows a section along lines 4—4 of Figure 1 and indicated in better detail the construction of the aperture through which the paper is passed, and,

Figure 5 shows a detailed view taken along lines 5—5 of Figure 2 and shows the mechanical arrangement for engaging and disengaging the clutch for operating the paper traction rollers.

Referring now to the drawings, and particularly to Figure 1, there is shown a driving motor 10 which is mounted on a support base 12. On the shaft of the motor is a small gear 14 with which cooperates a larger gear 16. The larger gear 16 is mounted on a shaft 18 that carries

5

a printing drum 20. The external surface of the printing drum 20 is provided with a spiral groove in which is placed the printing helix or spiral 22. The printing drum may be made of insulating material or of metal, depending upon the circuit arrangement, whereas the helix 22 is generally in the form of a wire of conducting material, the particular material used being determined in accordance with the particular method of recording that is employed. The helix is anchored at each end so that the helix makes substantially one revolution around the drum from one end to the other. When the motor is operated, the drum that carries the helix is naturally rotated in a predetermined direction.

The printing bar 24 is also provided, the bar being preferably in the form of a flat metallic conducting member. The bar is attached to a rotatable rod 26 by means of a plurality of arms 28. The rotatable rod 26 is supported by two insulating block members 29 and 30 in order to electrically insulate the printer bar from the remainder of the apparatus.

The printing drum and the shaft upon which the drum is mounted is supported by the end walls 32 and 34 of a housing 36. The housing is provided with a hinged cover or door 38 and this door is attached to the housing proper by means of a hinge 40. The printer bar, the rotatable shaft for supporting a printer bar, as well as the insulating block members 29 and 30 are supported on the inside surface of the door of the housing by appropriate brackets 42. These brackets also carry members 43 and 44 which are provided for the purpose of supporting a record receiving paper supply roll 46 (shown only in Figures 2 and 3). One of the members 44 is spring pressed in order to provide a certain amount of friction and in order to permit replenishing or renewal of the record receiving paper supply.

The housing 36 is supported upon the base member or support 12 and is also provided with a top and back to completely enclose the recording drum 20, the printer bar 24 and the supply roller 46. When the door 38 or cover of the housing 36 is closed the housing 36 is substantially sealed and in order to provide more complete sealing, the peripheral edges of the door 38 are provided with a small groove or recess in which is placed a strip of rubber or similar material 48.

When the door of the housing is closed and the recording machine is in operation, the record receiving paper passes from the supply roll 46 over an idler roller or guide rod 50 and thence over the surface of the recording drum 20. The paper finally emerges in a small opening along the top of the door 38. In operation, the printer bar 24 is normally in contact with the paper as indicated in Fig. 2 and the path of the paper through the machine is clearly shown in Figures 2 and 3.

The door of the housing is also provided with a window or transparent area 52 which extends throughout substantially the entire length of the door and has a width as shown in Figure 4. The window is provided in order that the subject matter being received and recorded may be observed before the paper has actually emerged from the substantially sealed compartment or housing 36. Naturally, the glass is sealed in the door 38 in an air-tight manner. Under some conditions it is desirable to make the glass window 52 of double thickness to prevent moisture condensation on the inside surface thereof. Such

6

condensation may, in some instances, obstruct the view of the recording, particularly under certain conditions of low ambient temperature.

For adjusting the printer bar 24 with respect to the helix 22 carried by the recording drum 20, an adjusting screw 54 is provided by means of which the insulating block 30 which carries the shaft 26 may be moved closer to or farther from the inside surface of the door 38. This provides an adjustment of the printer bar relative to the axis of the recording drum so that the recording edge of the printer bar may be parallel to the axis of the recording drum. A spring 56 is provided and is for the purpose of urging or biasing the printer bar in the direction of the recording drum. This spring is clearly shown in Figures 2 and 3 and in order that the pressure may be substantially uniform throughout the entire length of the printer bar, two of these springs may be used, one positioned near each end of the printer bar as indicated in Figure 1.

In some instances it is possible that the helix 22 may not occupy the complete 360 degrees of the surface of the printing drum 20 and if such were the case the printer bar would be forced against the surface of a printing drum 20 by reason of the action of the springs 56. In order to prevent or to limit the motion of the printer bar in a direction toward the axis of the recording drum, and adjusting screw 58 is provided which is threaded through the door 38. The end of the screw 58 cooperates with a short arm 60 which is attached to the rotatable rod 26 and in normal operation the screw 58 is adjusted so that a small clearance will be present between the inner end of the adjusted screw of the arm 60, this clearance being so limited that an appreciable movement of the printer bar beyond its normal recording position is impossible. This is provided to prevent damage to the printer bar and to prevent it from catching on one end of the recording helix.

In order to produce a recording particularly when electrolytic recording methods are used, a source of varying potential or signal potential must be applied between the printer bar 24 and the helix 26 in order that these varying potentials may produce the desired recording on the record-receiving paper 46. Normally, the recording helix 22 is connected to ground potential, in which case it is possible for the recording drum 20 to be made of metal, and the signal potentials for producing the recordings are applied to the printer bar 24. The printer bar is insulated from the cover of the housing 36 by means of the insulating blocks 29 and 30 and since the printer bar 24 is electrically connected to the rotatable shaft 26 by reason of the metallic support members 28 current or potential variations may then be applied to the printer bar 24 through the rotatable rod 26. For this purpose an insulating bushing 62 is provided inside the housing and is best shown in Figure 3. Passing through this bushing is a conductor 64 and a terminal is provided at the outer end of the conductor 64. The inner end of the conductor 64 is provided with a spring clip 66 for cooperating with the end of the rotatable rod 26. When the door of the housing is closed, the rod 26 is brought into electrical contact with the spring clip 66 as shown in Figure 3 whereas when the door is opened this electrical connection is broken and the printer bar is de-energized. By means of this connection the possibility of shock is elimi-

nated when the door of the housing is opened for servicing or inspection.

In order to transport the recording receiving paper 45 through the facsimile receiver a traction roller 68 is provided with which cooperates a pressure roller 70. These two rollers are mounted on brackets 72 which may be made integral with the end walls 32 and 34 of the housing, or which may be attached thereto in any suitable manner. For the purpose of simplicity, the end walls 32 and 34 as shown in Figure 1 extend beyond the confines of the housing in order to provide a support means for the driving roller and the pressure roller as well as for other purposes and elements. The driving roller 68 is rotated by means of a pair of worm gear drives 74 and 76. The worm gear 76 is located at the end of the recording drum and operates to rotate counter shaft 78. The upper end of the counter shaft 78 drives the driving roller 68 by means of the worm drive 74. The driving roller 68 is mechanically connected to the printing drum in this manner so that the forward motion of the paper will be at the proper rate of speed inasmuch as the number of lines per inch that are scanned and reproduced in the facsimile system is normally pre-established and in order to produce recordings having proper proportions this relationship must be maintained. The pressure roller 70 is normally biased against the surface of the driving roller 68 by means of a spring 80 and in order to permit movement of the pressure roller toward or away from the driving roller the pressure roller is supported on brackets 82 which are pivotally attached to the brackets 72 on which the driving roller is positioned.

In some instances it is desirable to discontinue the paper feed without discontinuing the operation of the recording drum 20. In order to accomplish this result a clutch is provided along the counter shaft 78 which includes driving jaws 84 and driven jaws 86 (see Figure 2). In order to stop operation of the worm drive 74 the counter shaft 78 must be made discontinuous and naturally the driving jaws 84 are attached to the lower portion of the counter shaft 78 which cooperates with worm drive 76 whereas the driven jaws 86 are slidably attached (such as by a spline, for example) to the upper portion of the counter shaft 78 which cooperates with the worm drive 74. When the clutch jaws 84-86 are brought into engagement as shown in Figure 2, the paper will be fed through the machine whereas when these jaws are disengaged the worm drive 74 is stopped and, accordingly, the paper feed is arrested. The driven jaws 86 of the clutch mechanism are normally urged into engagement with the driving jaws 84 by means of a spring 88 and the driven jaws 86 are disengaged or are retracted from engagement with the driving jaws 84 by means of a yoke member 90. The yoke member is supported by and pivoted with respect to the end wall 34 of the housing 36. When the yoke member is rotated about its pivot points the clutch may then be engaged or disengaged. This structure is best shown in Figure 5.

For operating the clutch an arm 92 is provided. This arm is pivoted at 93 and is shown in Figure 2 in an engaged or operating position. The operating arm 92 is biased to either its operating or non-operating position by means of a spring 94, one end of which is attached to the end wall 34 of the housing 36 whereas the other end of the spring 94 is attached to a pin 96 in the arm 92. When the control arm 92 is in either the

operating position or the non-operating position the off center relationship of the pin 96 with respect to the shaft 93 and the anchored end of the spring 94 is such as will maintain the control arm in either position.

The upper end of the control arm 92 is provided with an off-set portion 98 (best shown in Figure 5) and since a portion of the yoke 90 lies underneath the control arm 92, a movement of the control arm 92 into the inoperative position causes a rotation of the yoke 90 about its pivot point to disengage the clutch jaw 86 from the rotating clutch jaw 84 against the action of spring 88. This causes the upper end of the counter shaft 78 to stop rotating and as a consequence the paper is no longer pulled through the recording mechanism.

This same operation of the control lever 92 from the operative to the inoperative position controls two other operations in addition to disengaging the clutch jaws 84-86. When the paper feed is stopped it is then no longer necessary that the paper slot remain open and, furthermore, it is no longer necessary that the printer bar 24 remain in contact with the paper or with the recording helix. Accordingly, there is rotatably pivoted on the shaft 93 a sealing pad 100. This pad is normally urged against the paper slot along the top edge of the door 38 by means of a spring 102 in order that the paper slot may be completely closed when the recording mechanism is not in use. Figure 2 of the drawing shows the sealing pad spaced from the paper slot since in Figure 2 the mechanism is in an operative condition whereas in Figure 3 the sealing pad 100 is shown in engagement with the paper slot to more completely seal the housing 36. This sealing pad is naturally positioned inside the housing 36 and the arm carrying the sealing pad 100 is rotated in a counter-clockwise direction to permit passage of the paper through the paper slot by means of a pin 104. This pin is attached to a link 106 and the link 106 is rigidly attached to the shaft 93 to which the control arm 92 is also rigidly attached. Rotation of the control arm from an operative to a non-operative position, therefore, rotates the link 106 and permits the spring 102 to force the sealing pad 100 into contact with the paper slot. A certain amount of lost motion must be provided between the pin 104 and the arm which carries the sealing pad 100 in order that the sealing pad may be brought into intimate contact with the paper slot.

The link 106 is also provided for the purpose of moving the printer bar from in-contact with the paper 46. When the control arm 92 is rotated clockwise to render the apparatus inoperative, the link 106 is also moved clockwise and the bar 108 is then moved in a downward direction since the bar 108 is pivotally attached to the end of the link 106 at point 110. The bar 108 is guided by means of a pin 112 and the bar 108 is provided with a cam face or surface 114. This cam surface cooperates with roller 116 and the roller is carried at the end of an arm 118. The arm 118 is rigidly attached to the rotatable rod 25 to which the printer bar is attached. Movement of the arm 118, therefore, in a counter-clockwise direction moves the printer bar from in-contact with the paper 46 against the action of springs 56.

When the control arm 92 is in an operating position as shown in Figure 2, therefore, the clutch faces 84-86 are in engagement and the paper is pulled through the recording mechanism. Furthermore, the sealing pad 100 is removed from

the paper slot in order to permit the paper to pass out from the substantially sealed housing 36. Also, the cam surface 114 permits the printer bar to be brought in contact with the paper which passes between the recording bar and the helix 22. When the control arm 92 is rotated in a clockwise direction the clutch faces 84—86 are disengaged through an operation of the yoke 90, the sealing pad is permitted to seal the paper slot thereby more completely sealing the housing 36 and the action of the cam face 114 on the roller 116 and the arm 118 removes the printer bar from in-contact with the recording drum or the paper. This is all accomplished without actually discontinuing the operation of the driving motor 10 since it is frequently desirable to permit the motor 10 to operate in synchronism with the transmitter while the recording mechanism is rendered inoperative.

In order that the operation and position of the sealing pad 100 may be more clearly seen, a detailed figure is shown along section lines 4—4 in Figure 1. These details appear in Figure 4.

From the foregoing it may be seen that a decided improvement has been made in electrolytic facsimile recording apparatus in that the paper supply roll, which has previously been impregnated with a recording material and which contains a certain amount of moisture, is positioned in a substantially sealed housing which also contains the recording mechanism. By this arrangement it is impossible for the moisture content of the paper to change during the operation of the recording mechanism and, accordingly, the desired appropriate moisture content of the paper at the instant of recording may be assured.

Furthermore, by means of the device above described it is possible to discontinue the operation of the paper drive mechanism without discontinuing the operation of the driving motor and, furthermore, it is simultaneously possible to more completely seal the housing and to remove the printing bar from in-contact with the paper. All of these operations are accomplished by operating a single control lever which is conveniently located on the outside of the sealed housing.

Furthermore, when the door of the housing is opened for replenishing the supply roll or for other servicing operations, the energizing potentials are removed from the printer bar so as to eliminate any possibility of shock due to physical contact with the printer bar. This is desirable since in some instances it is necessary to gain access to the interior of the housing 36, while the receiving mechanism is still in operation and unless some automatic disconnect means were provided a shock hazard would necessarily exist.

When the recording apparatus is not in use the control arm is moved to the inoperative position with the result that the housing 36 is more completely sealed so that no change in the moisture content of the paper is possible and when operation is again assumed it is possible to immediately commence recording without the necessity of removing a certain amount of dry un-recorded paper as has heretofore been the practice.

Although the supply roll and the printing mechanism of the receiver are completely encased in a substantially sealed housing, it is possible to observe the recording as it is produced in view of the fact that a window is provided in the cover or door through which the actual recording operation may be observed. By means of this window it is therefore possible to make the necessary adjustments of the printer bar or other adjustments of the facsimile receiver and to observe

the results of such adjustments without waiting for an appreciable length of the paper to emerge from the receiver.

The means for disengaging the traction roller, for retracting the printer bar and for sealing the paper slot is shown and described herein as a manually operable member 92 located outside the housing. As an alternative, the manually operable member may be replaced by an electromagnetically operated member, in which case the electromagnet (or a corresponding motor mechanism) may be located either inside or outside the housing. When an electromagnet or motor mechanism is used, such a device may be energized for operation by means of a local circuit under the control of the receiver attendant or the motor mechanism may be energized through the use of a signal or impulse sent out from the transmitter. Such a controlling signal or impulse may be similar to the usual framing or synchronizing impulses and may differ from the synchronizing impulses in intensity, duration or wave form. The electromagnet or motor mechanism may be used to operate the traction roller disengaging means, the printer bar retracting means, or the paper slot sealing means, individually or in any desired combination.

From the foregoing it is to be understood that the term record receiving paper or material includes any paper or medium on which a recording is produced in response to the application of signal potentials thereto.

Although the receiver is described herein in some detail it is to be understood that various alterations and modifications may be made in the receiver or in the substantially sealed housing without departing from the spirit and scope of the invention and it is desired that any and all such alterations or modifications be considered within the purview of the present invention except as limited by the hereinafter appended claims.

What I claim is:

1. A facsimile receiving apparatus wherein potential variations are used to produce a recording on a strip of chemically treated record receiving paper having a predetermined moisture content comprising means adapted to support a supply roll of the treated paper, a pair of cooperating contacts between which the paper is passed whereby the potential variations may be applied to the paper to produce a facsimile recording thereon, a housing for enclosing the supply roll support means and the pair of cooperating recording contacts, said housing being substantially completely sealed to prevent any change in the moisture content of the treated paper by reason of the ambient humidity conditions, said housing having an elongated slot therein through which the paper may emerge from the housing after a recording has been produced thereon, a sealing pad for sealing the paper slot, and means positioned outside said housing for rendering said pad effective or non-effective to seal the paper slot in accordance with the non-operation or operation of the recorder.

2. A facsimile receiving apparatus wherein potential variations are used to produce a facsimile recording on a sheet of record-receiving material comprising means for supporting a supply roll of record-receiving material, a rotatable recording drum, a cooperating printer bar, means for passing the record-receiving material between the printer bar and the drum comprising a traction roller mechanically coupled to the rotatable re-

11 cording drum, means for retracting the printer bar from its normal operative position, and means for disengaging the mechanical coupling between the traction roller and the recording drum, said printer bar retracting means and said mechanical 5 coupling disengaging means being operated by a single remotely operable member.

3. A facsimile receiving apparatus wherein potential variations representative of the transmitted subject matter are used to produce a recording on a sheet of chemically impregnated record-receiving paper and wherein the paper has a predetermined moisture content, comprising means for supporting a supply roll of the impregnated record-receiving paper, a pair of cooperating recording electrodes, a housing for enclosing the supply roll supporting means and the cooperating recording electrodes, said housing being substantially completely sealed to prevent any change in the moisture content of the impregnated paper due to ambient humidity conditions, an elongated slot in said housing through which the facsimile recording is permitted to pass, means for passing the paper between the cooperating recording electrodes and through the paper slot, a sealing pad positioned inside said housing for effectively closing the elongated paper slot, and a manually operable means positioned outside said housing for separating the cooperating recording electrodes and for simultaneously completely sealing the housing by applying the sealing pad to the paper slot.

4. A facsimile receiving apparatus wherein potential variations are used to produce a recording on a sheet of chemically treated record-receiving material, said material having a predetermined moisture content, comprising means for supporting a supply roll of the treated material, a rotatable recording drum, a printer bar for cooperating with the drum, a housing for enclosing the supply roll support means, the rotatable recording drum and the printer bar, said housing being substantially completely sealed, said housing having an elongated paper slot, a traction roller mechanically coupled to said rotatable recording drum for transporting the treated material between the drum and the printer bar and through

the paper slot in the housing, means for retracting the printer bar from its normal operating position, means including a sealing pad for closing the paper slot to more completely seal the housing, and means for disengaging the mechanical coupling between the traction roller and the rotatable recording drum, said printer bar retracting means, said paper slot sealing means and said mechanical coupling disengaging means being operated by a single manually operable member positioned outside of the housing.

5. A facsimile receiving apparatus wherein potential variations are used to produce a recording on a sheet of chemically treated record receiving material, said material having a predetermined moisture content, comprising means for supporting a supply roll of the treated material, a rotatable recording drum, a housing for enclosing the supply roll support means and the rotatable recording drum, said housing being substantially completely sealed and having an elongated slot, a traction roller mechanically coupled to said rotatable recording drum for transporting the treated material over the recording drum and through the paper slot to the exterior of the housing, means including a sealing pad for closing the paper slot more completely to seal the housing, means for disengaging the mechanical coupling between the traction roller and the rotatable recording drum and a single remotely operable member positioned outside of the housing for operating the paper slot sealing means and the mechanical coupling disengaging means.

CHARLES J. YOUNG.

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The following references are of record in the file of this patent:

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