May 16, 1939. G. E. PELTON 2,158,944

INK FOUNTAIN TYPING MACHINE

Filed Dec. 30, 1938 4 Sheets-Sheet 1

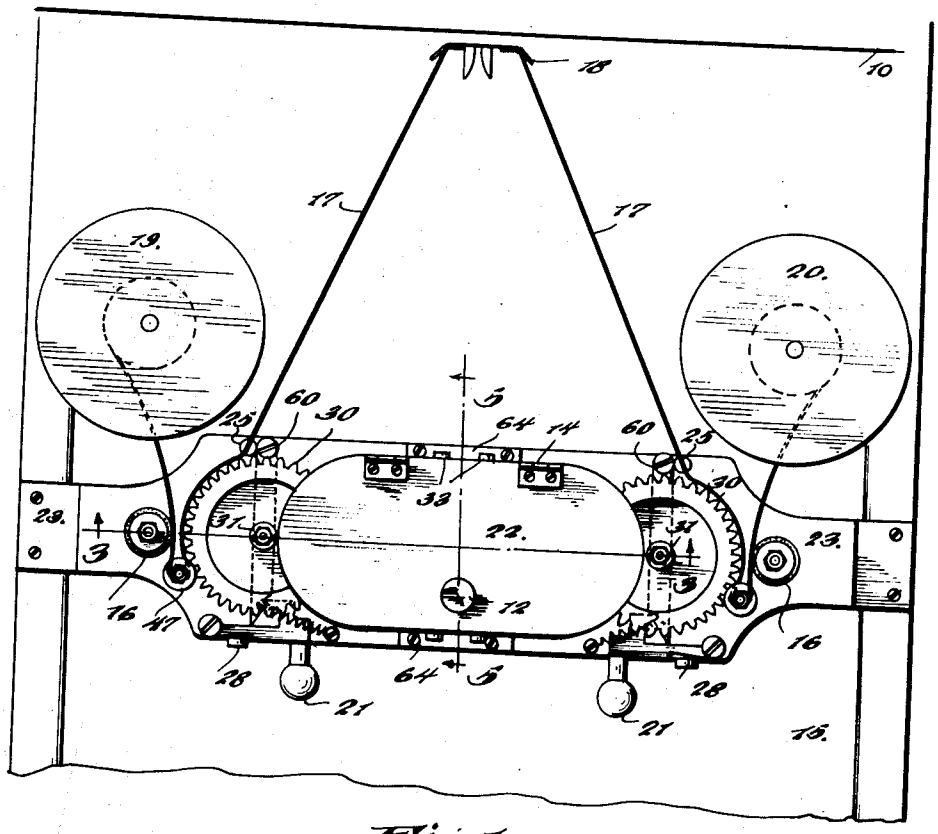


Fig. 1.

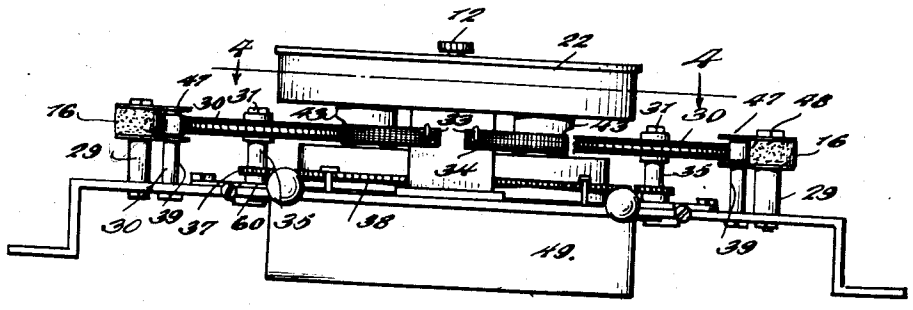


Fig. 2.

Inventor

George E. Pelton

May 16, 1939. G. E. PELTON 2,158,944

INK FOUNTAIN TYPING MACHINE

Filed Dec. 30, 1938 4 Sheets-Sheet 2

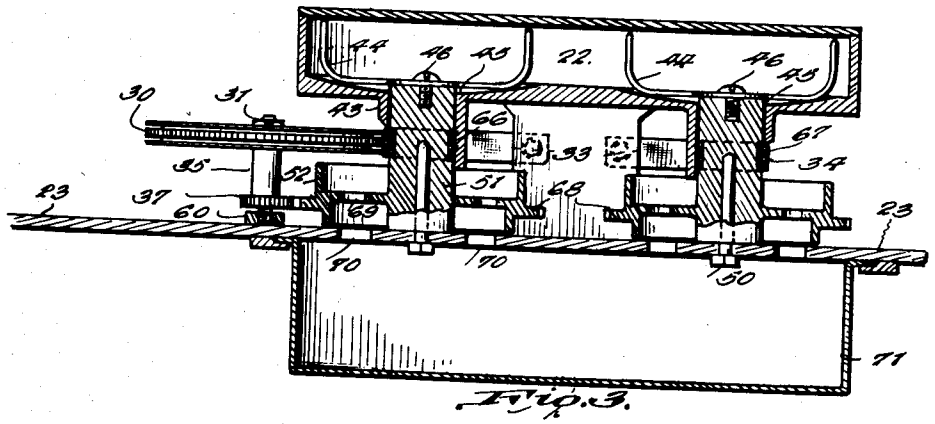


Fig. 3.

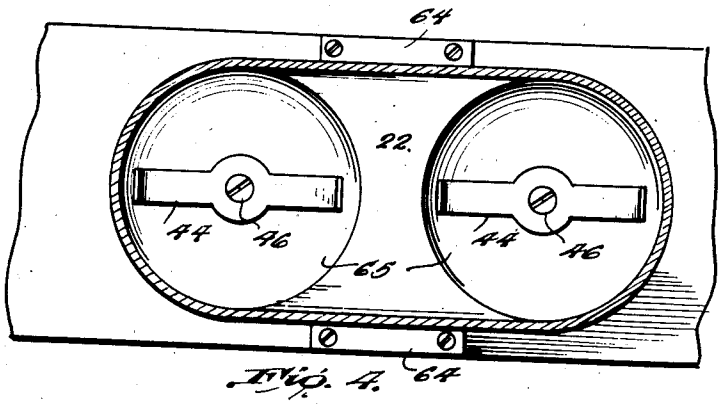


Fig. 4.

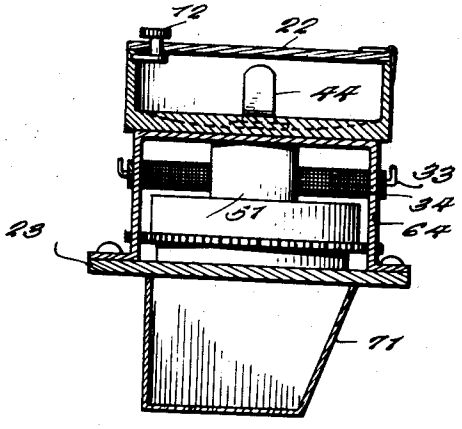


Fig. 5.

Inventor

George E. Pelton

May 16, 1939. G. E. PELTON 2,158,944

INK FOUNTAIN TYPING MACHINE

Filed Dec. 30, 1938 4 Sheets-Sheet 3

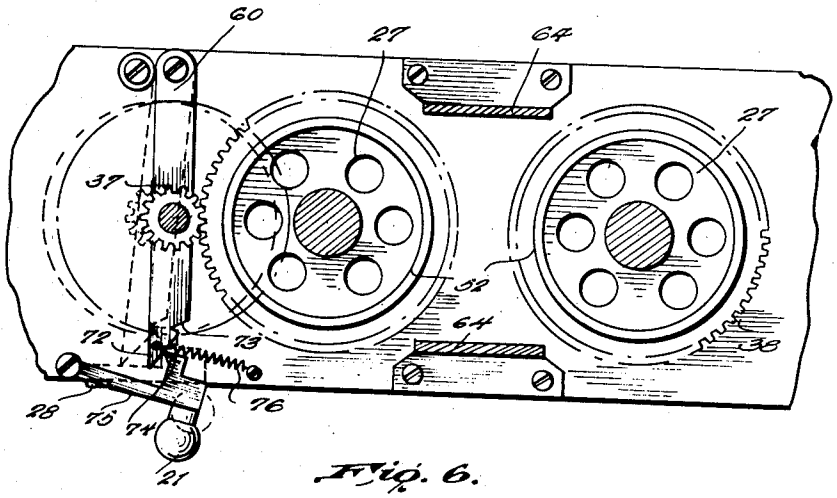


Fig. 6.

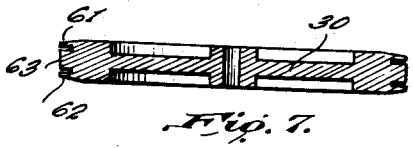


Fig. 7.

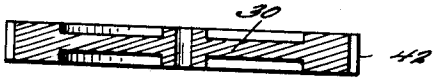


Fig. 8.

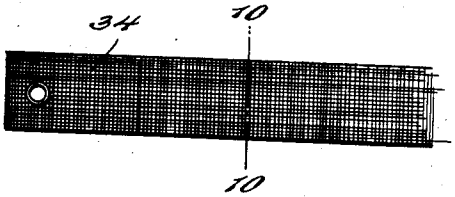


Fig. 9.

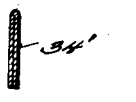


Fig. 10.

Inventor

George E. Pelton

May 16, 1939. G. E. PELTON 2,158,944

INK FOUNTAIN TYPING MACHINE

Filed Dec. 30, 1938 4 Sheets-Sheet 4

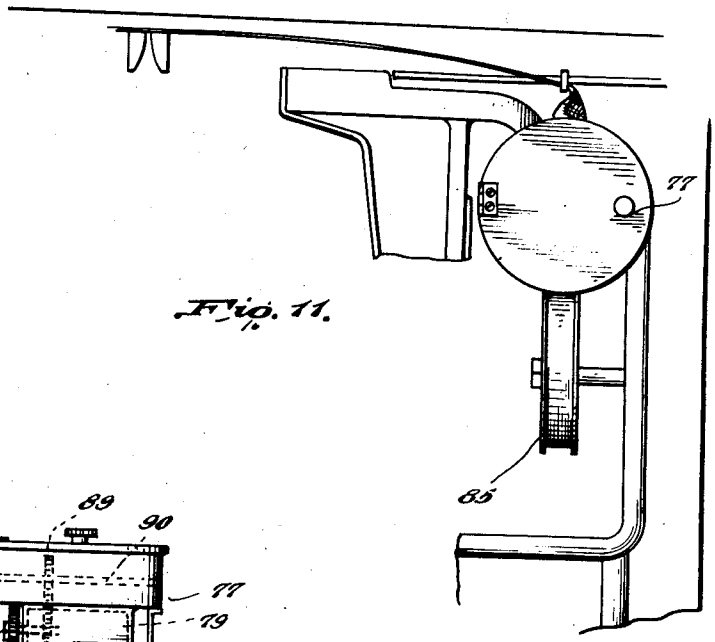


Fig. 11.

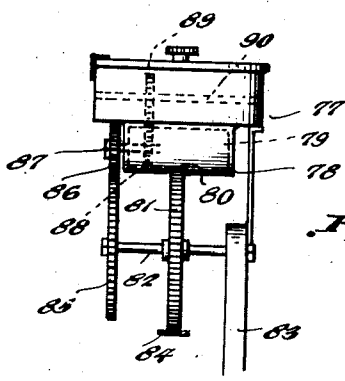


Fig. 12.

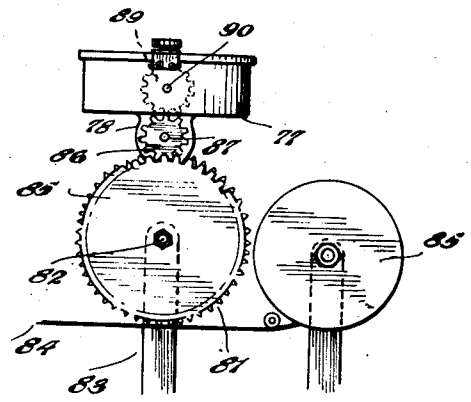


Fig. 13.

Inventor

George E. Pelton

Patented May 16, 1939 2,158,944

UNITED STATES PATENT OFFICE

2,158,944

INK FOUNTAIN TYPING MACHINE

George E. Pelton, Middleburg, Va.

Application December 30, 1938, Serial No. 248,551

20 Claims. (Cl. 197—171)

This invention relates to improvements in ink fountain typing machines and particularly to improvements in inking mechanisms of such machines. Typewriters and adding machines are examples of typing machines in general use which may be made more efficient by the use of the improved inking mechanisms.

The principal object of the invention is to provide greatly improved and simpler ways of maintaining pigment ink in a writing ribbon of a typing machine, in suitable quantities at all times.

One of the objects of the invention is to provide an improved means of supplying a heavy pigment ink to the face of an ink transfer member for transfer to one face of a writing ribbon uniformly.

Another object of this invention is to provide an inking mechanism of fewer parts and less expensive to manufacture; also to provide an improved inking mechanism which may feed ink from time to time to a ribbon not more than one-fourth inch wide but a ribbon which is twenty to twenty-four yards in length, in such quantities as may be desirable for the work in hand, and a mechanism which permits the ribbon to remain in contact with the peripheries of both inking wheels during the entire life of the said ribbon; also to provide a mechanism which keeps the ribbon taut and smooth and flat in the machine and on the spools regardless of whether the inking rollers at each end of the ink fountain or ink reservoir are rotating and supplying ink or not; also to provide an inking mechanism near each spool of such construction that it operates with great ease and smoothly and very efficiently for placing an extremely heavy pigment ink upon one face of the ribbon in as small quantities or as large quantities as may be required by the work which the stenographer desires to do; also to provide a novel and unique method of supplying heavy pigment ink to a writing ribbon without lifting said ink from a low-lying reservoir thus utilizing the force of gravity and lessening the load placed upon the mechanism which moves the ribbon back and forth past the typing position, since it is the movement of the ribbon that must after all supply the power to operate the inking mechanisms in ink fountain typing machines; also to provide gears of unique design which move with the greatest ease and the highest efficiency with less force imparted by the writing ribbon than heretofore.

Other objects and advantages of the invention will appear from the following description of an embodiment thereof:

Fig. 1 is a top plan view of a portion of an ink fountain typing machine showing the improved inking mechanism.

Fig. 2 is a front elevation of the improved inking mechanism.

Fig. 3 is a vertical sectional view taken longitudinally through the inking mechanism along the line 3—3 of Fig. 1.

Fig. 4 is a view showing the ink reservoir in longitudinal section, the view being taken horizontally along line 4—4 Fig. 2.

Fig. 5 is a transverse sectional view taken along the line 5—5 of Fig. 1.

Fig. 6 is an enlarged, fragmentary, sectional view of the inking mechanism and illustrating the manner in which the inking wheel is moved into mesh and out of mesh with the gear of the inking roller.

Fig. 7 is a sectional view taken diametrically through the inking wheel.

Fig. 8 is a sectional view through a modified form of inking wheel.

Fig. 9 is a fragmentary view of a substantially non-ink-absorptive raw silk screen.

Fig. 10 is a sectional view taken transversely through the raw silk screen along the line 10—10 of Fig. 9.

Fig. 11 is a top (fragmentary) plan view illustrating a modified form of inking mechanism for inking a ribbon.

Fig. 12 is an end elevation looking at the front of the inking mechanism illustrated in Figure 11.

Figure 13 is a side elevation, looking at the inner side of the modified form of inking mechanism of Fig. 11.

It is no uncommon thing to find a large office in which a few typewriters are used exclusively for writing which must always be intensely black. A ribbon is discarded after two or three days' use.

Double ribbon typewriters have been proposed wherein the ink used would be a black pigment ground in oil but not of the type employed in making the usual commercial black record typewriter ribbon. Since the ink was to be lifted from the bottom of an ink reservoir up a tube in the form of a diaphanous film, and since there was no way of keeping the ink flowing to the very thin opening for withdrawal of ink, the results secured were not of commercial value. The proposed machine employed two interwinding ribbons. There was loss of power in lifting the ink instead of feeding it by gravity and there

was further loss in feeding the ink to one ribbon which had to be interwound with the writing ribbon. All of the space of the spool is utilized by the present invention for the writing ribbon. The mechanisms of the present invention make it possible to easily and conveniently feed an extremely thick, heavy pigment ink in very minute quantities in the form of a thin, narrow film to the face of an ink roller and then to remove from said roller a film of desired size and design for transfer to a portion of one face of a writing ribbon which winds alone into the spool and which may be very long.

By the use of gears of the type illustrated in the drawings and by use of the mixing means shown and described herein, it is possible to efficiently feed thick, heavy, pigment ink to a ribbon for use with extremely small type such as micro or elite, in even amounts during the life of the fabric of the ribbon so that the typist may now use the same writing ribbon for a long period and have her writing an intense black at all times. I have discovered that the ink which is very thick and heavy must be agitated if it is to flow by gravity through a thin aperture, for example an opening .007 of an inch wide. I have discovered also that it is essential to spread said ink over a portion of said ribbon if the ink is fed to the ribbon by means of a delicate thin rim of an inking wheel which feeds a steady and continuous line of thick, pigment ink. The present invention includes an ink spreading means of unique character which is highly efficient.

I have discovered the important and revolutionary method illustrated and described herein of feeding heavy pigment ink down instead of lifting it up, thus utilizing the force of gravity.

In the construction show in the various figures, I have illustrated my invention as applied to an ordinary typing machine.

In Figs. 1 and 2, **15** represents the frame of a typing machine having a platen **10**, and **17** represents the narrow writing ribbon which is guided into operative relation to the platen by means of a vibrator **18**, of usual construction. **19** and **20** represent the ribbon spools which are actuated in the usual manner so that the ribbon is fed from one spool to the other, back and forth in the machine. As shown in Figs. 1 and 2, the typing machine is provided with an inking mechanism near each spool, it being understood, however, that only a single mechanism may be used if desired. The inking mechanisms may be arranged in any desired location and may be secured to the frame of the typing machine itself or to a new top plate which may be securely fastened to the frame with screws.

In the particular construction illustrated in Fig. 1, the writing ribbon **17** is guided in any suitable manner, for example by means of a pair of slotted guides **25**, each of which has a lower portion suitably fastened, for example, by means of a screw threaded part **26** engaging in a threaded aperture in the top plate **23**. Additional guides are shown in the form of pulleys **47** from which the ribbon **17** passes in contact with felt pads **16**, rigidly mounted about the upper end portions of supporting posts **29** carried by and extending upwardly from the base plate **23**. From said ink pad the ribbon passes into the winding spool. When said ribbon **17** unwinds from a spool, it is kept under tension and restraint and held tight and taut by the felt pad **16** assisted by the guide pulley **47**. The numeral **48** is a nut which holds a metal member tight against felt pad **16**. The ribbon is kept smooth and flat and tight so that it winds up under considerable tension and occupies less space in the spool and it never becomes creased and baggy and wavy. The pigment ink may be applied to a face of ribbon **17** by the two inking wheels **30** which are mounted upon shafts **35** and firmly held by the nuts **31**. The lower end portions of shafts **35** are journalled through the arm plate and close to the base plate each shaft carries a small gear **37**.

The portion of the ribbon **17** lying between the guides **25** and pulleys **47** has close contact and engagement with the peripheries of inking wheels **30** and has such frictional engagement therewith that during movement of the ribbon, rotary motion will be imparted to said inking wheels by the ribbon. The periphery of each wheel is formed with upper, lower and intermediate series of teeth being **61**, **62** and **63**. These teeth not only serve to create a good frictional binding between the ribbon and the inking wheels, but in addition they serve as means for applying ink to a face of the ribbon. It should be noted that the intermediate teeth are a great deal wider than the upper and lower teeth. The intermediate teeth may be wide enough to more than cover the portion of the ribbon marked by the type. If so desired the inking wheel may be formed to place lines of ink upon a face of ribbon **17** as shown at **42** in Figure 8.

Immediately after the ink has been placed on a face of the ribbon **17**, that particular face passes from pulley **47** to ink pad **16** and the said pad serves to spread the ink evenly upon and into the interstices of ribbon **17** as the ribbon moves with a sliding motion across the felt pad. The felt pad may be substantially non-ink-absorptive. If a slightly absorptive pad is employed, it will take up little of the thick pigment ink from the face of the ribbon but instead will force the ink into the interstices of the ribbon and will spread the ink out into a thinner film and always on that face which is away from the writing surface when the ribbon passes to the typing or printing position. Of course where large type are used this is not essential but I prefer to place fresh ink on that face of the ribbon which is struck by the type and then the type may force the pigment ink through the interstices of the ribbon to the writing paper or writing surface.

While I have illustrated one reservoir for ink **22**, if desirable one small reservoir may be used near each spool. Ink reservoir **22** is supported in its elevated position by bracket **64**. While a single bracket has been shown, it is obvious that separate brackets for the front and rear portion of reservoir **22** may be provided, if so desired. Tubular housings **43** extend down from the reservoir **22** and are concentric with concaved recesses **65** formed in the inner surface of the bottom of said reservoir. Through the housings **43** extend rotary inking rollers **51** which fit snugly in the housings but sufficient space is provided between the surfaces of the inking rollers and the inner surfaces of said housings to permit a stream of ink to move downwardly by gravity through the space marked **45**, the snug fitting of the housing over the roller causing the ink to spread in a film over said roller. A thick collar of felt **66** may be used about the roller opposite the inking wheel **30** in order to check downward flow of the ink and to eliminate any opportunity

for the ink to flow too freely so that it may have to be drained off. By actual tests I have found that when using a heavy pigment ink of the kind ordinarily used in commercial black record typewriter ribbons and when using an opening in the bottom of the reservoir approximately .007 of an inch wide and when using a thick collar of felt about the roller opposite the inking wheel, there is no surplus ink and no ink drains down from the lower portion of the said roller but all of said ink which is not fed to the inking wheels **30** remains in its proper place ready for use when the inking wheels move to take it up and transfer it by contact to a face of said ribbon **17**. When using a pigment ink that has been thinned with mineral oil or other suitable oil until it is highly fluid, then it is necessary to drain off the surplus ink into a container underneath the plate **23**. The thick felt collar about the ink roller **51** also provides a good backing for the inking wheels **30** and assures a good supply of ink and a proper transfer of ink from the face of the ink roller **51** to the wheel **30**. In order that the inking wheel may contact the ink on the roller **51**, a portion of the housing opposite the inking wheel is missing leaving a small portion of the roller **51** exposed and open providing the opening **67**. The inking wheels **30** may contact the ink on rollers **51** or I may use a screen **34** which is formed of raw silk, preferably still full of the natural gum put there by the silk worm which causes the screen to be substantially non-ink-absorptive, extending across each of the openings **67** and these screens of raw silk have their end portions secured by screws **33** in bracket **64**. Since the screens are securely fastened at both ends, they will be firmly held under slight tension and due to the very open weave of the raw silk, the pigment ink will pass through said screens to the edges of wheels **30**. I prefer to form the screen of two thicknesses of the raw silk, each being approximately .005 of an inch thick so the total thickness of each screen is approximately .01 of an inch. I utilize a screen that is formed by folding a half inch strip having woven edges and ironing same smooth as shown in Fig. 10 at **34'**. I control the amount of ink passing down the rollers **51** by gravity by having said rollers very close to the inner surfaces of said housings **43**. When using very small type it may be desirable to have the space between said roller and said housing approximately .004 of an inch in width. In this manner less ink will pass down the periphery of said roller **51** and as soon as said ribbon **17** has sufficient ink, I may cease feeding ink to it and use said ribbon for considerable time before again feeding any ink to it. If the felt collar is used, and the opening is as small as mentioned above between the roller and the housing, and the roller is left stationary, no ink will drain off said roller and no further ink will pass out of the reservoir to the face of said roller no matter how long a time elapses until the roller **51** is again rotated. The raw silk screen also serves to restrain and hold back the ink from the periphery of the inking wheel **30** and the screen prevents the formation of globules or drops of ink upon the exposed portion of the roller **51** while it is stationary. It will thus be seen that the raw silk screen serves to retard the feed of ink during transferring of the ink to the face of the ribbon and also when the ink is not being transferred and the roller **51** is entirely stationary and rigid and still, said screen acts to prevent a globule or drop of ink from forming on the exposed surface of the roller **51**. When large telegraph type are utilized in a typing machine, the raw silk screen may be used in a single layer or may be dispensed with entirely. When feeding a large amount of ink, I may utilize a space that is as much as .015 of an inch between the roller **51** and the housing **43** and may utilize a roller that is made entirely of metal, in which event I employ a drain cup **52** having an outstanding, circumferentially extending flange **68** constituting a large gear for meshing with the small gear **37** which is below the inking wheel **30**. This cup **52** not only serves as a gear to permit rotary motion to be transmitted to the inking roller **51** but also constitutes means for taking care of any surplus ink drained off the surface of said roller. Openings **69** in the cup permit the ink to drain out of the same and under each of these cups **52**, the plate **23** is formed with a suitable number of openings **70** through which the ink drains into drain member **71**, detachably mounted below the base plate **23**. The conventional pigment ink for a commercial typewriter ribbon is so thick that it quickly jells and coagulates when not kept agitated or mixed. Therefore when the typing machine is not in use, the coagulated ink will quickly become so thick that it will not flow by gravity through the extremely small aperture between the inking roller **51** and the housing **43**. I cause the ink to become sufficiently fluid to flow through the extremely narrow aperture by means of an agitator or mixer **44** formed from a strip of metal secured midway its length to the upper end of the roller by screw **46** and having its end portions bent upwardly to provide blades or arms which move in a circular path during rotation of the roller **51** and at approximately the same peripheral speed as said roller **51**. Since the agitator is securely fastened to the upper end of roller **51**, it is certain to move through the ink whenever said roller rotates. It is only desirable to have the roller rotate when ink is to be fed to the periphery of inking wheel **30** for transfer to a face of ribbon **17**. Therefore much of the time inking wheel **30** is not in contact with ink from said roller and therefore said wheel is mounted upon a pivoted arm **60** instead of in a rigid position and a stationary position. The free end of the pivoted arm is beveled to form a cam surface **72** leading to a notch **73** to receive a tooth **74** of a lever **75** having a knob **21** which is pivoted to base plate **23** and extends transversely of the pivoted arm **60**. This lever **75** has a finger hold or knob **21** projecting outwardly from its free end and, upon inspection of Fig. 6, it will be readily seen that when the lever **75** is swung to the position shown in full lines, the spring **76**, which is anchored at one end to the base plate and at its other end to the free end portion of the pivoted arm **60**,— may draw the arm **60** towards the cup **52** and hold the small gear **37** in mesh with the large gear **68**. In order to move the small gear out of mesh with the large gear, it is merely necessary to apply pressure to the knob **21** to swing it inwardly to the position indicated by dotted lines in Fig. 6 and during this movement, the tooth **74** will act against the cam surface **72** to swing the pivoted arm away from the cup **52** and then enter the notch **73** and hold the pivoted arm in desired position. It will thus be seen that the inking wheel **30** may be held out of engagement with the raw silk screen and with the ink thereon, and ribbon **17** may actuate the inking wheel without ink being taken up by the periphery of the wheel.

When the typist or operator finds that the ribbon needs additional ink, knob 21 is grasped and the lever 75 is moved outwardly to release the arm 60 and allow the spring 76 to draw the arm yieldingly towards the cup 52 and move the small gear 37 into mesh with large gear 68. It is important that the amount of ink taken up by the periphery of inking wheel 30 be under control and thus prevent too much ink being transferred to a face of ribbon 17 by the inking wheel 30. In order to take care of this with accuracy, and very efficiently, there has been provided an abutment screw 28 which is carried by the base plate 23 and projects forwardly therefrom with its head in position to overlap and engage the outer side edge face of lever 75. By adjusting the screw 28, the extent to which the lever may be swung outwardly is controlled and since the tooth of the lever has engagement with the cam surface of the arm at all times except when it is engaged in the notch or seat 73, the lever will constitute means for limiting the extent to which the spring 76 may draw the arm 60 towards the cup 52 or large gear 68. Therefore the relation of the inking wheel 30 to the ink on the face of the raw silk screen 34 will be controlled and the periphery of the inking wheel may be caused to barely contact the outer surface of the ink on said screen's outer surface or to press down through said ink so as to pick up a thicker, heavier film of ink during the inking operation when ink is being transferred to a face of ribbon 17 to renew its ink supply and replace ink used in writing.

Reservoir 22 has a lid or hinged cover which may be locked in place by a screw. It is a simple matter to fill the reservoir. I prefer to use the ordinary conventional black record pigment ink such as goes into the usual, commercial black record inked ribbons and when using this heavy, pigment ink, there is no drainage of ink whatever but if one uses a thinner ink and there is drainage, it is a quick, easy operation to remove the drain pan or member 71 and to empty it into reservoir 22 and then replace said pan 71.

Even when the ribbon 17 is not receiving ink and the wheels 30 do not have even the slightest contact with ink on the screen, or if no screen be employed, with ink on the exposed portion of the periphery of the ink roller, nevertheless the ribbon moves under sufficient tension, by reason of the tensioning and rubbing pad 16 assisted by the guide pulleys and the sharp angle the ribbon takes between the spool and the typing position, so that said ribbon is kept smooth and it winds up in the spool in small space and it is possible to utilize a ribbon as much as twenty-four yards long, and since the ribbon may be only one-fourth inch wide, the weight of the spool of ribbon is not appreciable, especially if a long fibre silk ribbon be used which has been produced in accordance with the directions contained in my U. S. Patent No. 1,830,559.

In Figs. 11, 12 and 13, there has been illustrated a modified form of inking mechanism which I may use in a typing machine having ribbon spools which are large and which lie in a vertical plane. Such machines are in common use and have been for several years. The ribbon lies flat and smooth as it winds into the ribbon spool. Ink reservoir 77 is mounted at each side of the typing machine, near each winding spool and unwinding spool and said reservoir is supported in an elevated position. A housing 78 extends downwardly from the bottom of the reservoir to house inking roller 79. Housing 78 and roller 79 lie in a horizontal position and in the bottom of the housing there is a slot 80 exposing a portion of said roller 79 for engagement by the periphery of inking wheel 81. The shaft 82 of the inking wheel is journaled horizontally through the bracket 83 to mount the wheel in position for engagement with the ribbon 84 as it is wound upon the ribbon spool 85, and the periphery of inking wheel 81 is formed with small teeth which pick up ink from the surface of inking roller 79 and these teeth also serve to create considerable friction between said ribbon 84 and the periphery of said wheel 81 so that said wheel is rotated by the movement of ribbon 84. During rotation of inking wheel 81, rotary motion is transmitted to the roller 79 by means of large gear 85 carried by shaft 82, said large gear meshing with a small gear or pinion 86 carried by the protruding end of the shaft 82 by means of which the roller 79 is rotatably mounted in the housing 78. Intermediate its length, the roller 79 is provided with coarse teeth 88, meshing with the teeth of an agitator or mixing wheel 89 which is rotatably mounted in the reservoir 77 on the shaft 90. Since the teeth of the agitator or ink mixing wheel 89 are coarse, a good stirring action and mixing of the ink will occur when roller 79 rotates and ink in said reservoir will be caused to pass from reservoir 77 into the housing 78 and upon the surface of roller 79 for delivery to the periphery of inking wheel 81, for transfer to a portion of writing ribbon 84 to renew its ink supply. The ink supply of ribbon 84 may be kept substantially even and uniform during the entire life of its fabric for even writing.

Referring now to the inking mechanism of Figs. 1 to 10, inclusive, when this improved inking means is in use, it is mounted across the typing machine in front of the ribbon spools and the feet of the base plate are securely fastened to side portions of the machine's frame. The ribbon 17 is engaged with the guides 25 and 47 so that portions of said ribbon between these guides extend circumferentially of the inking wheels and in contacting engagement with the peripheries thereof and during use of the typing machine, when it is desirable to transfer ink uniformly to the writing ribbon, the movement of the ribbon will rotate the inking wheels and in turn the inking rollers and the ink mixers at each end of the reservoir. Between the guides or pulleys 47 and the ribbon spools, the ribbon contacts ink pads 46 which are held in rigid position and are preferably stationary. The pad near the winding spool will act to spread the ink just applied to the ribbon by the inking wheel and to press said ink into the interstices of said ribbon on that face which is struck by the type and which is away from the writing paper. The ink pad close to the spool of ribbon which is unwinding will act to apply tension to said ribbon and to restrain it, keeping it flat and smooth and taut as it passes to guide or pulley 47 and then to the typing or printing position. I prefer to apply the ink to the ribbon by the wheel which is close to the spool which is winding the ribbon, although ink may be applied simultaneously by both inking wheels when very large type are used, if desired by typist. If for any reason it is desirable to discontinue feeding ink to the ribbon, the lever 21 of the inking wheel (see operative position shown by full lines in Fig. 6) may be shifted inwardly to act against the cam surface of arm 60 and force the inking wheel away from the ink screen and the inking roller.

The inking wheel may be secured in an inoperative position by engaging in the notch 73. At any time that the typist desires to feed ink to the periphery of said inking wheel, lever 21 is drawn outwardly and spring 76 will draw the arm 60 towards the reservoir and hold the said periphery of the inking wheel in contact with the ink on either the screen's surface or the surface of the exposed portion of the roller. Ink will be applied to a portion of one face of said ribbon by the inking wheel during operation of the typing machine or during movement of the ribbon from spool to spool (whether the machine is used for writing or not) and as the ribbon passes across the ink pad 46 (which preferably is of hard felt only slightly ink absorbent) the ink will be spread and pressed into the interstices of said ribbon.

As illustrated in the drawings, I prefer to use a very small gear below the inking wheel and a large gear for the ink roller. The ink roller may be .007 inch from the housing near one end and .01 from the housing near the middle portion and .03 from housing at another part of the roller. The inner surface of the housing may be of any desired shape and the face of the roller may be corrugated or of any desired shape. It may be entirely covered with hard felt or certain portions of the roller may be uncovered. The roller may make one revolution to six or eight revolutions of the inking wheel. I prefer that the ribbon contact the inking wheel along a portion only of one face and that the opposite face be entirely free from contact with a rotary member at this point but if desired the ribbon may contact a pulley along the face opposite to the inking wheel and the other face contact the inking wheel.

It is apparent that by the use of my inventions, at low cost typing machines may operate for long periods and have only one ribbon, which in some cases, may preferably be only ¼ inch wide,—thereby greatly decreasing the first cost of fabric and also diminishing the weight of a full spool of inked ribbon in the machine.

While in the illustrations of my mechanisms, screens are used in contact with the inking roller, these are not a necessity for all typing machines using my inventions. Also it is to be understood that the constructions shown are for purposes of illustration only and variations may be made in sizes and styles of parts and in details without departing from the scope of the present invention. I do not limit myself as to the kinds of materials used in the ribbon, reservoir, roller, tension means or any other parts. I may use one reservoir to feed ink to both inking mechanisms or I may use more than one reservoir. I may use gears of the same size or I may use gears which cause the wheel and the ink roller to rotate at different speeds. I may use inking rollers which lie in a horizontal position or I may use upright inking rollers. I do not limit myself as to the position of the inking rollers nor do I limit myself as to the kind of ink used. However, I prefer to use thick, pigment ink mixed with dye and oil and oleic acid.

Having thus described my invention, what I claim is:

1. In a typing machine having a ribbon and a mechanism to produce typed impressions on an impression receiving surface by means of said ribbon, means for inking said ribbon comprising a reservoir for ink, a housing in fluid communication with said reservoir, a roller within said housing, the housing closely fitting about said roller to spread a film of ink over said roller, a portion of said roller being exposed, an inking member receiving ink from said roller at said exposed portion and adapted to be contacted by said ribbon for transferring ink from said roller to said ribbon in minute quantities, means effecting driving connection between said roller and member, and means for thinning said ink without varying the constituents thereof during the rotation of said roller.

2. In a typing machine according to claim 1, means for driving said roller and said inking member, the inner face of said housing being situated at varying distances from the periphery of said roller.

3. A typing machine according to claim 1, in which there is provided means for quickly adjusting the amount of ink fed from said roller to said inking member.

4. A typing machine according to claim 1, havmeans for controlling the depth of immersion of the periphery of said inking member in the ink on said roller.

5. A typing machine according to claim 1, in which the ink is transferred to that path along a face of said ribbon which is made by the type in writing.

6. A typing machine according to claim 1, in which said inking member and said roller are connected by suitable gears which drive said inking member at higher speed than said roller.

7. A typing machine according to claim 1, in which the said inking member may be moved out of contact with the ink fed by said roller, so said member may revolve while said roller remains stationary.

8. A typing machine according to claim 1, in which said inking member may be readily adjusted with respect to said roller to control the amount of ink fed to said inking member by said roller.

9. In a typing machine having a ribbon and a mechanism to produce typed impressions on a writing surface, means for inking said ribbon, including a reservoir for pigment ink, an inking roller connected with said reservoir; an inking wheel located near said roller; means for thinning and mixing said ink in said reservoir; the latter having an aperture to permit said ink to move by gravity therefrom; a housing enclosing a portion of said roller; means for controlling the amount of ink fed from said roller to said wheel for transfer to a face of said ribbon; driving means for driving said wheel and said roller to make small deposits of said pigment ink on said face of said ribbon.

10. A device for supplying ink to a writing ribbon of a typing machine, including a reservoir for pigment ink; an inking roller; means for causing said ink to become sufficiently fluid that it may move by gravity along the face of said roller from said reservoir; an ink applying element; a stationary housing snugly enclosing a portion of said roller; adjustable means for controlling the proximity of said element relative to the roller for controlling the amount of ink transferred from said roller to said element and thereby to a face of said ribbon.

11. A device according to claim 10, in which an ink spreading means spreads the ink placed on a face of said ribbon by said ink applying element.

12. A device according to claim 10, in which the means for rendering the ink fluid is located in

said reservoir and means effecting operation thereof upon operation of said roller.

13. A device according to claim 10, in which the roller is upright and the means for causing said ink to become a fluid extends upwardly from the upright roller into the reservoir to agitate and mix the ink therein.

14. In a typing machine, employing an inked ribbon and mechanism for producing inked impressions through said ribbon and also spools for winding said ribbon, an ink reservoir for pigment ink; a rotatable inking member mounted on a vertical axis; an upright roller supported on an axis parallel to the axis which supports said member and positioned to transfer ink to said member, said member being positioned to transfer the ink to the ribbon; driving means for driving said member and said roller; housing means extending longitudinally of said roller and closely fitting about the same to confine a small amount of ink between the inner face of said housing and the periphery of said roller; means within said reservoir for liquefying said ink upon the rotation of said roller; said reservoir being provided with means for the delivery of said ink to said roller.

15. In a typing machine according to claim 14, a guide pulley adapted to be driven by said ribbon and a surface over which the ribbon is adapted to pass after application of ink thereto by said member, said surface being adapted to press and spread said ink over at least a portion of one face of said ribbon before it passes the typing position.

16. A device for supplying ink to a ribbon, including a reservoir for pigment ink; ink-feeding means, including an inking roller, an inking wheel in close proximity to said roller to receive ink therefrom; ink-thinning means for causing said ink to become sufficiently fluid to pass by gravity through an aperture in the bottom portion of said reservoir to a face of said roller for transfer to said inking wheel and thence to a face of said ribbon; and means for driving said wheel and said roller.

17. In a typing machine having a ribbon and a mechanism to produce typed impressions on a writing surface by means of said ribbon; means for inking said ribbon comprising a reservoir for ink; a housing in fluid communication with said reservoir; a roller within said housing; the housing closely fitting about said roller to spread a film of ink over said roller; a portion of said roller being exposed; an ink applying member receiving ink from said roller at said exposed portion and adapted to be contacted by said ribbon for transferring ink from said roller to said ribbon in small quantities; means for driving said roller and member; and said reservoir lying in a plane above said member and above said exposed portion of said roller to the end that said ink may pass from said reservoir by gravity.

18. A typing machine according to claim 17 in which the said ink applying member rotates at a higher rate of speed than said roller.

19. A typing machine according to claim 17 in which the bottom of the reservoir is dished toward the communication between the reservoir and housing to aid in the flow of the ink from said reservoir.

20. In a typing machine having a ribbon and a mechanism to produce typed impressions on a writing surface by means of said ribbon; means for inking said ribbon comprising a reservoir for highly fluid pigment ink; a housing in fluid communication with said reservoir; a roller within said housing; the housing closely fitting about said roller to spread a film of ink over said roller; a portion of said roller being exposed; an ink applying member receiving ink from said roller at said exposed portion and adapted to be contacted by said ribbon for transferring ink from said roller to said ribbon in small quantities; means for driving said roller and member; and said reservoir lying in a plane above said member and above said exposed portion of said roller to the end that said ink may pass from said reservoir by gravity; and a drain pan below said roller to collect surplus ink which may drip from the latter.

GEORGE E. PELTON.