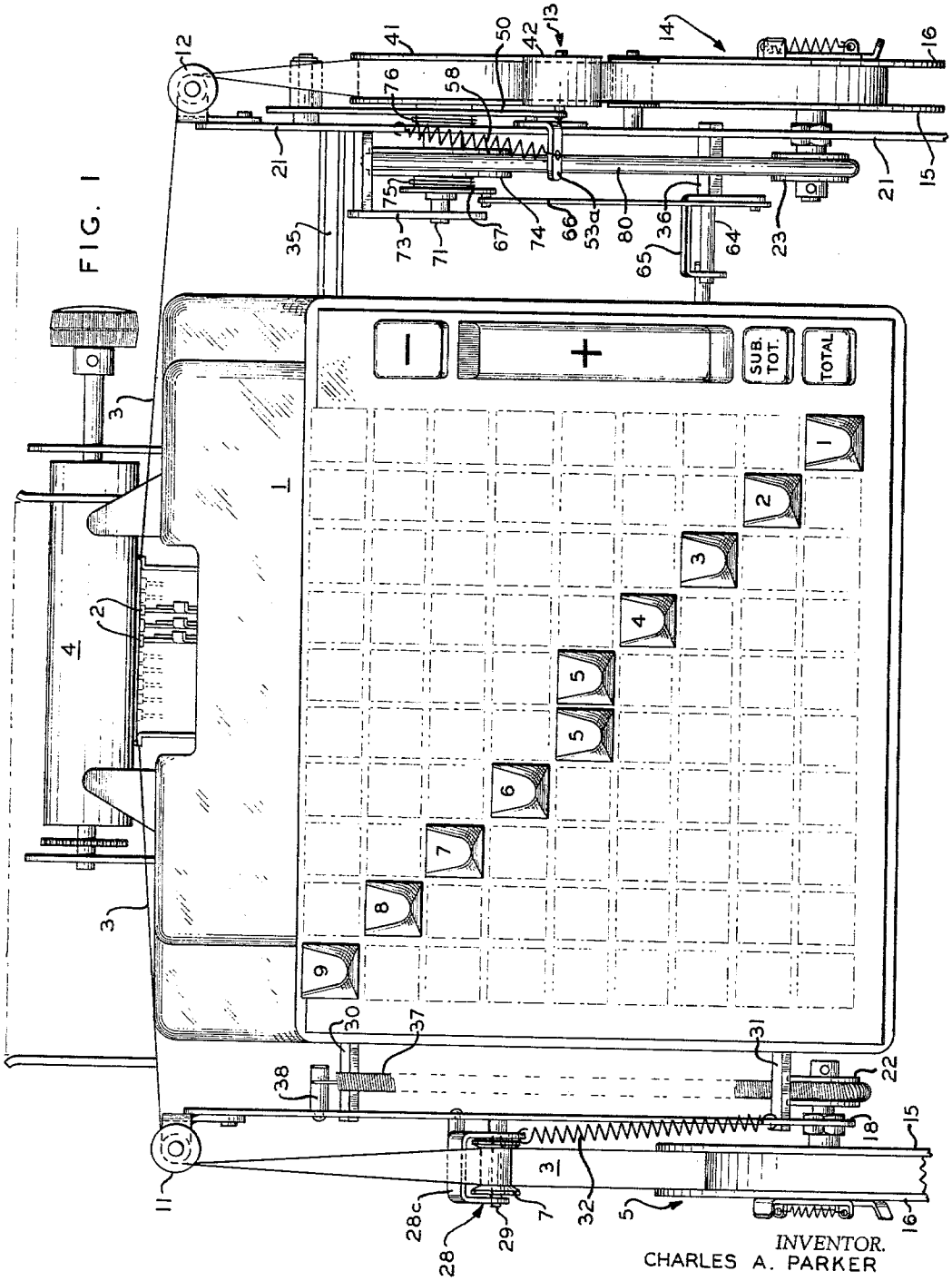
Dec. 14, 1965 C. A. PARKER 3,223,222

RIBBON FEEDING MECHANISM

Filed March 31, 1961 4 Sheets-Sheet 1

FIG. 1



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RIBBON FEEDING MECHANISM

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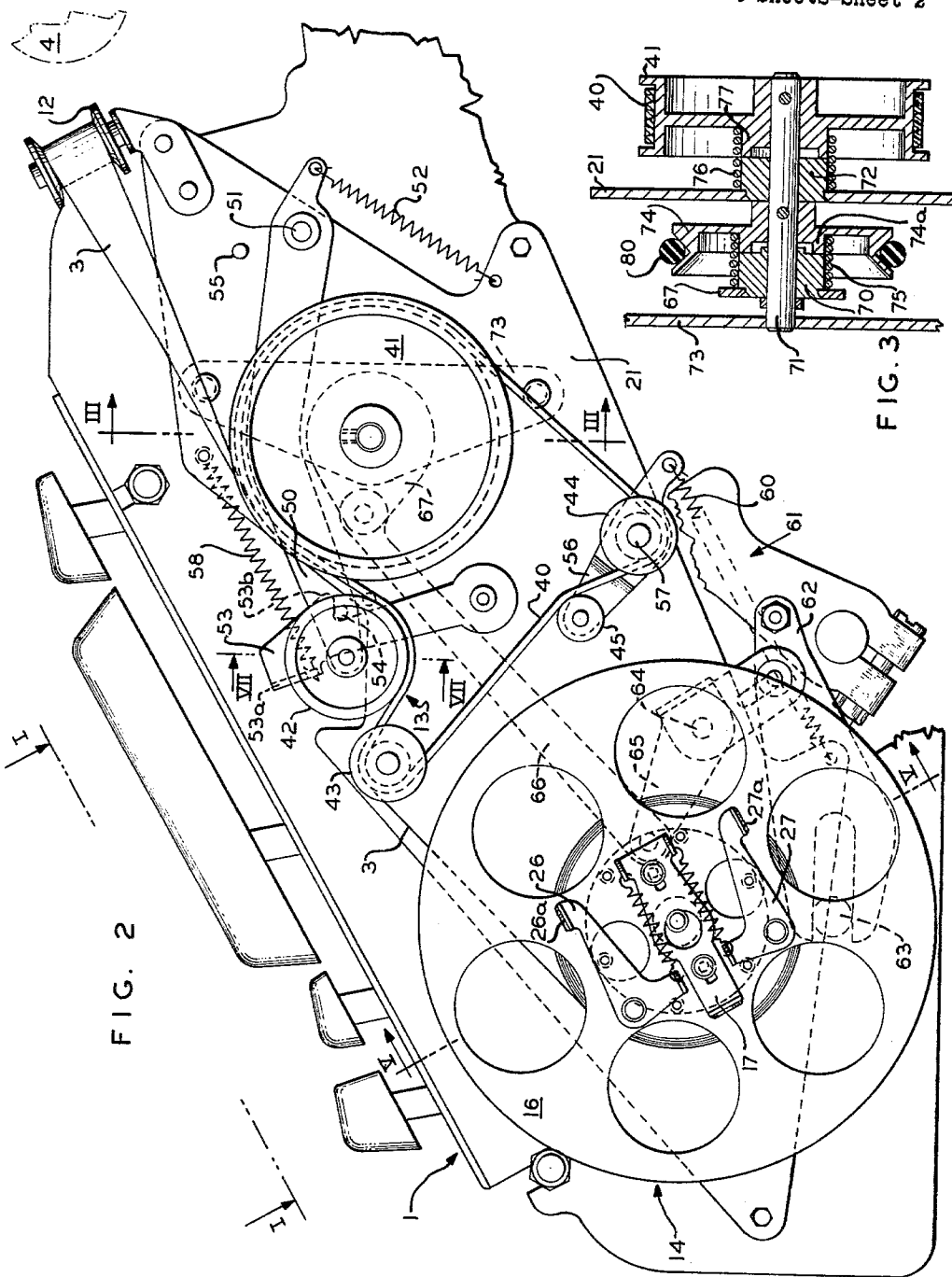


FIG. 2

FIG. 3

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RIBBON FEEDING MECHANISM

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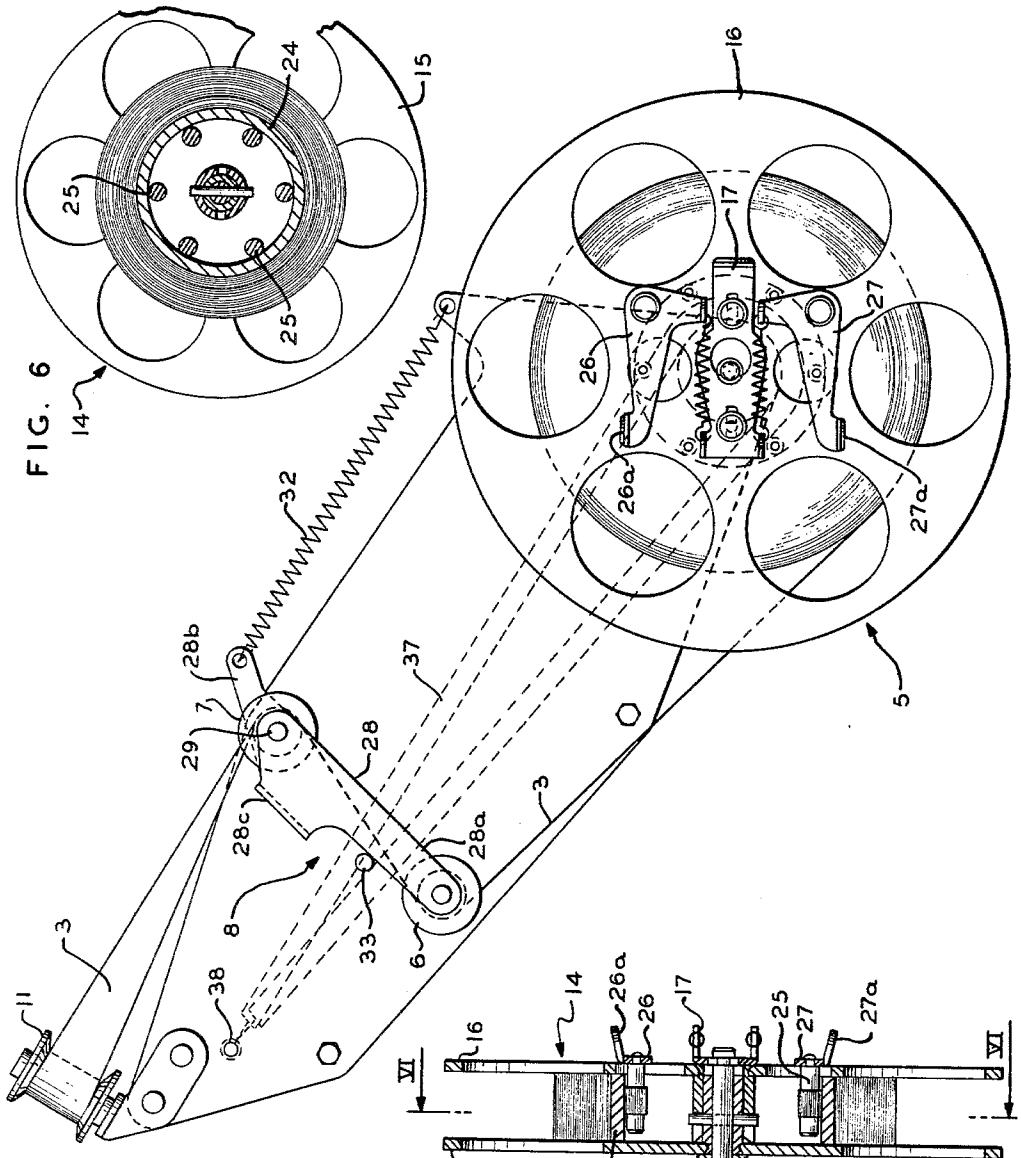


FIG. 6

FIG. 4

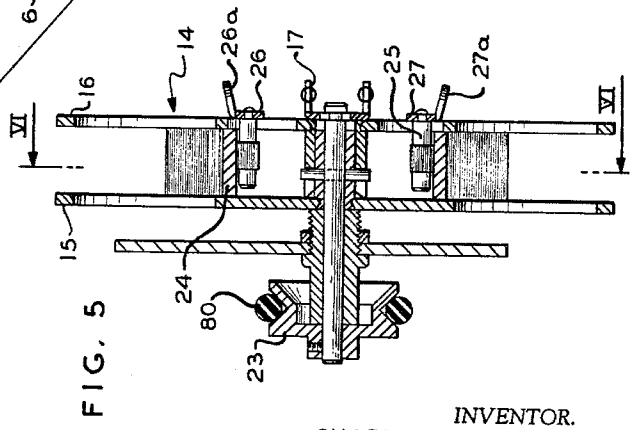


FIG. 5

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RIBBON FEEDING MECHANISM

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FIG. 7

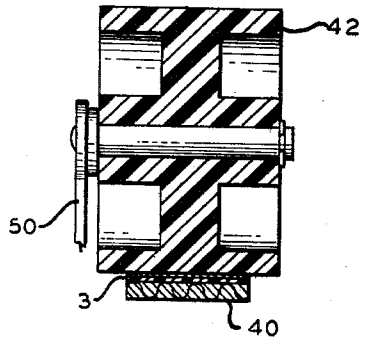
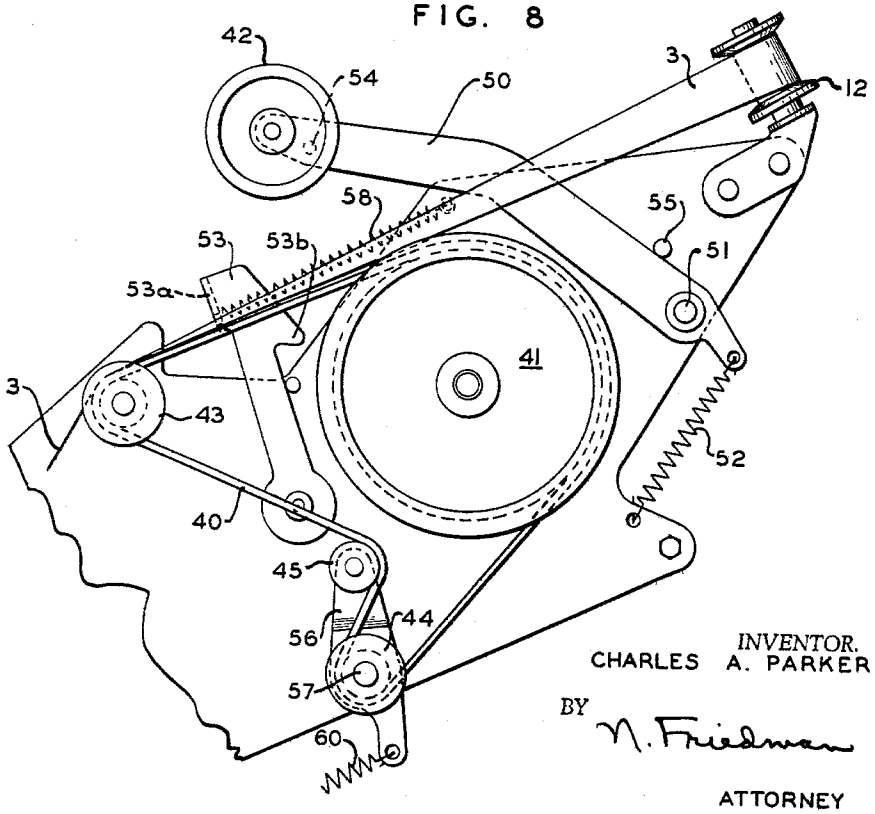


FIG. 8



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United States Patent Office 3,223,222 Patented Dec. 14, 1965

3,223,222

RIBBON FEEDING MECHANISM

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Filed Mar. 31, 1961, Ser. No. 99,869
7 Claims. (Cl. 197—151)

This invention pertains to ribbon feeding mechanism for printing machines. More specifically, it has to do with ribbon feeding mechanism which will not smudge and pick up the ink from the ribbon, and which will not tend to stretch the ribbon.

In the data processing art, one known approach to handling information involves printing the information with magnetic ink whereby the characters so printed may subsequently be read automatically by suitable character recognition apparatus. One known method of printing the characters involves the use of an inked ribbon which in a commercially available form comprises a base layer of "Mylar" (polyethylene teraphthalate) or the like which is provided on one side thereof with a thin layer of paramagnetic ink. A ribbon of this type may be used in an adding machine, typewriter, or the like in place of the conventional cloth inked ribbon or carbon paper ribbon. Upon being impacted by a type member, the paramagnetic ink is transferred from the ribbon to the record sheet upon which printing is being effected. Thereafter the record sheet is sent through an automatic reading mechanism which in known fashion is adapted to sense the magnetically printed characters and translate them into suitable signals which may be readily handled by automatic data processing equipment.

The magnetic inked ribbon described above is of such a character that when it is struck or impacted by a type member in the course of a printing operation, there is transferred by inertia from the ribbon to the record sheet all of the thickness of the paramagnetic inked coating corresponding to the outline of the type face which strikes the ribbon. This technique is used in order to insure that when a character is printed the thickness of the transferred ink layer forming the character will always be substantially uniform. This is necessary because of the high sensitivity of the automatic reading apparatus to variations in the magnetic material being read. If the same character were at different times to be printed with different amounts or thicknesses of the magnetic ink, that character might be read incorrectly at its different occurrences by the reading apparatus. From the foregoing it will be seen that it is most important that the mechanism for feeding or driving the magnetic ink ribbon not smudge, smear, or remove from the ribbon any significant amount of ink.

When printing is being performed by a typewriter, adding machine, or the like, the customary tendency of conventional drive rollers or equivalent mechanism to smudge the ribbon and pick up amounts of ink therefrom is of no moment since all that is needed is a printed copy which presents an acceptable appearance. Where the printed matter is to be read by automatic character recognition apparatus, however, such smudging or ink pick-up cannot be tolerated since this would have the effect of causing the reading apparatus to read the characters incorrectly.

It is also important that the ribbon feeding mechanism not impose such longitudinal pulling stresses on the ribbon as might cause the ribbon to stretch any significant amount. If stretching were to occur, the thickness of the applied ink coating would be reduced, which could also cause a character printed therewith to be incorrectly read. The problem of stretching arises particularly if

the printing mechanism is of the ganged, adding machine type wherein a substantial length, e.g., one and one-half inches, of ribbon is operated on each time the machine prints. In this type of machine, the ribbon transport mechanism must move the ribbon in correspondingly long steps of movement. In conventional types of ribbon transport mechanisms, such large feeding steps, because of the high acceleration forces involved, impose substantial pulling stresses on the ribbon thereby having a tendency to cause stretching.

It is the major object of the present invention to provide a novel ribbon transport mechanism.

It is a further object to provide transport mechanism for inked ribbon in which the amount of ink smudging and ink pick-up caused by the transport mechanism is greatly reduced.

It is a further object to provide a ribbon transport mechanism which will not cause stretching of the ribbon even though relatively high longitudinal feeding stresses are exerted on the ribbon.

It is a further object to provide a ribbon transport mechanism which will be effective to feed the ribbon in uniform steps of movement.

In the mechanism of the present invention, there is provided a ribbon supply reel or spool from which the ribbon is fed past the printing instrumentalities or type members and from there to a take-up reel or spool. Intermediate the printing station and the take-up reel the ribbon passes through a drive station at which there is provided novel mechanism for feeding the ribbon. As will be described in detail subsequently the driving or feeding mechanism is of such construction that it will not smudge the ribbon even though it is effective to impart an adequate driving force to the ribbon; and will not stretch the ribbon even though high longitudinal feeding forces are imposed on the ribbon. Further, the feeding mechanism will always feed the ribbon in uniform steps of movement regardless of the amount of ribbon on the take-up reel. Briefly, in the specific preferred embodiment described hereinafter the novel drive mechanism includes a nonstretchable endless driving belt and a wheel, the ribbon being gripped between said belt and wheel along a substantial portion of the periphery of the latter.

If stretching of the ribbon were not a problem, there might be no need for special feeding mechanism to avoid smudging and ink pick-up if the ribbon were merely sent through the machine once and not used again. This is because the driving or feeding station is located on the downstream side of the printing station reckoned in the direction of ribbon feeding movement. Accordingly, the ribbon would only be handled by the ribbon driving mechanism after the particular portion of the ribbon had been used for printing, and any subsequent smudging or ink pick-up by the driving mechanism would be of no consequence since the ribbon would not be used again. In practice, however, to facilitate handling of the ribbon and to lower costs, the ribbon is sometimes made wide enough that it would be uneconomical to merely send the ribbon through the machine once and then discard it. Consequently, I make provision for first printing on one longitudinal half of the ribbon and then reversing the ribbon to print on the other half. It will be seen therefore that if the ribbon is fed through the machine twice it is of considerable importance that the ribbon driving mechanism not impair the uniformity of the paramagnetic ink layer of the ribbon.

In the drawings:

FIG. 1 is a top plan view, taken on line I—I of FIG. 2, of a printing machine including the novel ribbon feeding mechanism of the invention.

FIG. 2 is a right side elevational view of the machine showing the feeding mechanism and the ribbon take-up reel.

FIG. 3 is a detail sectional view taken on line III—III of FIG. 2 showing the unidirectional coil spring coupling for actuating the drive capstan of the feeding mechanism.

FIG. 4 is a left side elevational view showing the supply reel and the ribbon tensioning device adjacent thereto.

FIG. 5 is a sectional view of the take-up reel taken on line V—V of FIG. 2.

FIG. 6 is a sectional view taken on line VI—VI of FIG. 5.

FIG. 7 is a sectional view taken on line VII—VII of FIG. 2 showing the ribbon gripped between the driving belt and the cooperating feed wheel on which the ribbon rides.

FIG. 8 is a detail right side elevational view showing the feed wheel in unlatched position disengaged from the belt.

Referring now to the drawings, and particularly FIG. 1 thereof, the reference numeral **1** designates a conventional adding-listing machine which, in the preferred form of the invention, is used as the machine for effecting printing. The machine may be of the construction disclosed at length in Patent No. 2,645,418. It will be understood, however, that any suitable adding machine or other type of printing machine may be used, since the details of the particular printing machine form no part of the present invention.

The adding-listing machine **1** includes conventional type members **2** which are adapted to impact the magnetic ink ribbon **3** and thereby effect printing on a record sheet held against the platen **4**.

The path of the ribbon through the machine is as follows. The ribbon comes off the underside of a supply reel **5**, passes around idler rollers **6** and **7** of a tensioning device **8**, whence it turns 90° around roller **11** at the left hand rear corner of the machine and then passes behind the printing members **2**. After leaving the printing station defined by the printing members, the ribbon extends around a roller **12** at the right rear corner of the machine and then enters the ribbon feeding or transporting station **13**, best seen in FIG. 2. The mechanism of the feeding station **13** constitutes a major feature of the invention and will be described at length shortly. It will suffice to say for the time being that the feeding mechanism includes, inter alia, a drive capstan **41**, a wheel **42**, and an endless belt **40** which rides on the drive capstan and wheel **42** as shown in FIG. 2. The ribbon **3** is supported by belt **40** and is carried by the belt around the outer face of wheel **42**, the ribbon being gripped between the belt and wheel. The ribbon leaves the belt at an idler wheel **43** and thence passes to the take-up reel **14**.

Supply and take-up reels

The supply and take-up reels **5** and **14** are substantially identical in construction and operation. Each includes an inner side plate **15** to which is detachably coupled an outer side plate **16**. The outer side plate **16** is adapted to releasably grip and hold on the reel the roll of ribbon, the latter including a customary inner annular core. The outer plate is releasably latched in coupled relation to its inner side plate by means of a latch member **17**. The two reels are respectively journalled for rotation about a horizontal axis in suitable left and right side framing plates **18** and **21** of the machine. Pulleys **22** and **23** are rigidly secured to the respective reels **5** and **14**.

It will be understood that any suitable well-known reel construction may be used. However, in the preferred form of the invention disclosed herein, the reels are of the specific construction disclosed in copending patent application Serial No. 861,509 filed December 23, 1959, now Patent No. 3,022,958, in the name of C. E. Bieber and entitled, Reel, and assigned to the same assignee as the present application. Reference is hereby made to said application Serial No. 861,509 for a complete disclosure of the details of the reel structure.

As the ribbon is moved past the printing station from the supply reel **5** to the take-up reel **14**, that portion of the ribbon which is then the upper longitudinal half of the ribbon will be in position to be struck by the printing members **2**. After the ribbon is completely unwound from the supply reel and onto the take-up reel, the outside side plates **16** of the two respective reels are substituted for each other. That is to say, the outside side plate **16** of the take-up reel **14**, which now carries the complete roll of ribbon material which has just been sent through the machine, is uncoupled from its inside side plate **15** by releasing latch **17** and sliding said outside plate to the right to disassemble it from the inside plate. In like fashion, the outer side plate **16** of the supply reel **5** is uncoupled from its inside plate **15**. The two plates **16** are substituted for each other and coupled to the respective supply and take-up inner plates **15** so that the roll of ribbon is now on the supply reel **5**. The ribbon **3** is then threaded from the supply reel **5** around the various idler and feed wheels and its free end is secured to the take-up reel **14**. It will therefore be seen that the longitudinal portion of the ribbon which was uppermost on the first pass through the machine is now the lowermost portion. Accordingly, the unused longitudinal half of the ribbon will now be in position for printing. As best seen in FIGS. 5 and 6, the roll of ribbon material includes an innermost annular core **24** of cardboard or the like. This core is held detachably on the removable (outer) side plate **16** by means of pins **25**. The pins **25** are mounted on bell cranks **26**, **27** which are spring biased to cause the pins to grip the inside cylindrical face of core **24**. To release the core, laterally extending finger pieces **26***a*, **27***a* of the bell cranks are grasped and urged toward each other thereby moving the pins inwardly away from gripping engagement with the core.

Ribbon tensioning means

Intermediate the supply reel **5** and the idler pulley **11**, there is provided the tensioning device **8** to take up slack in the ribbon **3**. The tensioning device is constructed as follows. As best seen in FIGS. 1 and 4, it includes a lever **28** comprising upper and lower portions **28***a* and **28***b* respectively, which are joined together by an integral bridge portion **28***c*. At the bridge portion **28***c* the lever is journalled for rotation on a pin **29** secured to the fixed framing plate **18** which extends from the front to the rear of the machine and is rigidly secured thereto by rods **30**, **31**. The pulley **6**, which is made of lightweight materials such as nylon, is rotatably mounted at the lower end of lever **28**. The similar pulley **7** is journalled for rotation on pin **29** within the bridge portion **28***c* of the lever as best seen in FIG. 1. The ribbon leaving the underside of supply reel **5** runs around a portion of the lower pulley **6** and thence extends diagonally upward toward the front portion of the upper pulley **7**. Here, the ribbon extends around a portion of pulley **7** and then passes toward the rear of the machine where it is directed around the idler pulley **11** and to the right to the printing station.

A spring **32** biases lever **28** clockwise (FIG. 4) as limited by a fixed stop pin **33**. It will be seen, therefore, that spring **32** will maintain lever **28** under a clockwise resilient bias whereby any slack is taken up and the ribbon kept taut.

As will be described subsequently, the ribbon is transported cyclically in steps of substantial size, for example one and one-half inches. The ribbon tensioning device **8** described above also serves to cushion the shock caused by accelerating the ribbon rapidly, in the following fashion. When a ribbon feeding operation occurs, the ribbon transport mechanism will exert a longitudinal pull on the

ribbon, which will be transmitted to the supply reel 5 to cause it to rotate to release the ribbon. The static inertia of the reel, particularly if it contains a substantial amount of ribbon, would cause the ribbon pulling force to be applied as a shock load of some magnitude to the ribbon itself. However, a major portion of this initial shock load is cushioned and dissipated by lever 28 rocking counterclockwise, in opposition to the resilient bias of spring 32, by virtue of the tension in the portion of the ribbon between pulley 6 and supply reel 5. Then, as the reel commences clockwise rotation to feed ribbon, lever 28 will return clockwise to its normal position as it takes up the slack in the ribbon.

To prevent overthrow of the supply reel when the ribbon feeding movement is terminated, there is provided a friction brake in the form of an elongated coil spring 37 wrapped around pulley 22 which is fast with the reel. The opposite free ends of the coil spring are secured to a fixed pin 38 mounted on the plate 18 at the rear of the machine.

Ribbon feeding means

After leaving the printing station defined by printing members 2, the ribbon 3 is directed around the idler wheel 12 at the rear right corner of the machine. Wheel 12 is mounted on plate 21 which lies outboard and to the right of the machine and is rigidly coupled thereto by means of rods 35 and 36. From wheel 12 the ribbon passes to the feeding station 13, which is constructed and operates as follows.

As best seen in FIG. 2, the driving or feeding mechanism for advancing the ribbon includes an endless, closed-loop flat belt 40 which contacts a total of five rotatable wheels or pulleys. It will be recalled that the ribbon comprises a base layer of "Mylar" or the like carrying on one side thereof a layer of ink. The five wheels or pulleys comprise: a large drive pulley or capstan 41 which serves to drive the belt, a wheel 42 between which and the belt the ribbon 3 is tightly gripped, idler pulleys 43 and 44, and a tensioning pulley 45 for keeping the belt taut and thereby maintaining it and the wheel in griping driving relation with the ribbon. The belt 40 is preferably made of a material which will not stretch longitudinally, e.g., a woven fabric impregnated with rubber. Note FIG. 7.

The ribbon moves into engagement with belt 40 adjacent the top portion of the drive capstan 41. It remains in contact with the belt while passing around the wheel 42, the latter being of light-weight material such as nylon and having a smooth or polished outer periphery. This last-mentioned wheel, serving in cooperation with the belt, is effective to impart feeding movement to the ribbon since the ribbon is tightly clamped or gripped between wheel 42 and the belt, as a result of the tension imposed upon the belt by wheel 45. The extent of arcuate contact between the belt and ribbon, on the one hand, and the wheel on the other is approximately ninety degrees in the present, preferred embodiment of the invention. It will be understood, however, that the size of this arc can vary depending on the parameters of the particular embodiments in which the invention is employed. After leaving wheel 42, the contacting ribbon 3 and belt 40 pass around the idler pulley 43, the ribbon leaving the belt at this point and passing on to the take-up reel 14. The belt continues on around pulley 43 to the tensioning wheel 45 and then to pulley 44.

By means of suitable mechanism, the drive capstan 41 is cyclically stepped counterclockwise in uniform steps of rotation whereby belt 40 will be advanced a given uniform distance determined by the angular advance of the capstan and the radius thereof along which it is contacted by the belt. Since the belt 40 is tensioned by wheel 45 the ribbon will be held gripped or clamped between the outside face of the belt and the cooperable outer cylindrical surface of wheel 42. Hence, the ribbon will be fed whenever belt 40 is driven. Furthermore, the wheel will be caused to rotate by the ribbon. Hence, the portions of the ribbon and belt which are wrapped around the wheel will move as a unit with the latter so that there is no relative movement among the three. As seen in FIG. 2, the belt and ribbon engage, i.e., are wrapped around, a substantial portion of the circumference of wheel 42. Accordingly, there will be transmitted to the ribbon a sufficient amount of longitudinal force to drive the ribbon, but the force per unit area or the pressure on the ribbon will be maintained low enough to avoid smudging of the ribbon. In this regard, it should be noted that the inked side of the ribbon 3 contacts the smooth periphery of wheel 42 while its noninked side contacts the relatively rough face of belt 40. Hence, the frictional driving force transmitted from the belt to the ribbon will be imposed on the noninked side of the ribbon thereby avoiding any possibility of the belt smudging or picking ink up from the ribbon. Further, because of the smooth or polished nature of the contact surface of wheel 42, any tendency of the wheel to smudge or pick ink up from the ribbon is practically nonexistent.

Since the ribbon is in contact with a substantial length of the nonstretchable belt, the belt itself serves to aid in preventing any longitudinal deformation of the ribbon, particularly along the gripping contact area between the belt and ribbon and wheel 42, where the feeding tension is applied to the ribbon. This is because the ribbon is held in intimate face to face gripping contact with the relatively high-friction surface of the non-stretchable belt. Therefore, any tendency of the ribbon to stretch longitudinally will be resisted by the longitudinal frictional force along the belt-ribbon interface.

The whel 42 is mounted as follows. It is rotatably supported at the forward end of a lever 50, the latter being journalled on the outboard framing plate 21 at 51 and biased clockwise by spring 52. A latch 53 cooperable with a pin 54 secured to lever 50 serves to hold wheel 42 in its engaged cooperable relation with the ribbon 3 and belt 40 as seen in FIG. 2. To release the wheel from engagement with the belt, as for example in order to facilitate threading the ribbon between the belt and the wheel, a leftwardly extending lug 53*a* of the latch is grasped and pulled forwardly (leftwardly in FIG. 2) thereby rocking the latch in like direction against the urge of a spring 58. Pin 54 of lever 50 no longer being blocked by the latch, spring 52 will rock the lever clockwise as limited by a stop pin 55 to the position shown in FIG. 8. The ribbon may now be easily passed between wheel 42 and belt 40 and secured to the take-up reel 14. To restore wheel 42 to engaged operable relation with the belt, lever 50 is rocked counterclockwise. The resultant downward movement of pin 54 will cam latch 53 counterclockwise until the pin moves below latching shoulder 53*b* whereupon spring 58 will rock the latch clockwise back to the latching position of FIG. 2.

The belt tensioning wheel 45 is mounted at the forward end of a lever 56 which is journalled for rotation on a short shaft 57. The latter is mounted on and extends to the right of the framing plate 21. The aforementioned idler pulley 44 is also loosely journalled on this same shaft. A spring 60 connected to the opposite end of lever 56 urges the lever clockwise and thereby biases wheel 45 into tensioning rolling engagement with belt 40.

Power drive mechanism

The conventional adding-listing machine to which the ribbon transporting mechanism of the present invention is applied includes a drive crank which in the present drawings is designated by the reference numeral 61 and in the aforementioned Patent No. 2,645,418 by the reference numeral 316. As described at length in the said patent, this drive crank is rocked forwardly and then returned to home position in each operating cycle of the machine. This cyclic oscillatory movement of crank 61 is utilized to step the drive capstan 41 counterclockwise (FIG. 2) as follows. The forward open end

of a bifurcated member 62 is slidably supported on a fixed shaft 63 and its rear end is pivotally connected to the drive crank 61. Fixed to plate 21 a short distance above the bifurcated member 62 is a stud 64 on which is loosely pivoted the intermediate bridging portion of a bell crank 65. The lower leg of the bell crank has pin and slot connection with the rearward end portion of member 62, while its upper end is pivotally connected by means of a drive link 66 to a crank arm 67. It will be seen therefore that crank arm 67 will rock in response to oscillation of crank 69 but in the opposite direction.

Crank arm 67 is secured fast to a short sleeve 70 (FIG. 3) which is loosely mounted for rotation on and relative to a shaft 71. Shaft 71 is journalled for rotation in a bushing 72 rigidly mounted in plate 21. It is also supported for rotation at its leftward free end in a plate 73 secured to plate 21. Rigidly pinned to shaft 71 is a pulley 74 whose hub 74*a* lies just to the right of sleeve 70. Also pinned to the shaft at the right end portion of the latter is the drive capstan 41. Accordingly, pulley 74, drive capstan 41, and shaft 71 are all rigidly secured together for rotation as a unit about the longitudinal axis of said shaft.

In order to cause the drive capstan to rotate counterclockwise during each cycle of operation of the main operating crank 61 there is provided a unidirectional coupling or clutch between sleeve 70 and pulley 74. This coupling will be effective to couple the pulley to the sleeve when the crank arm 67 is rocked counterclockwise (FIG. 2) but which will be ineffective to drive the pulley during the clockwise movement of crank arm 67. This unidirectional clutch or coupling operates on the principle of the well-known coil spring clutch. It comprises a coil spring 75 which as shown in FIG. 3 overlaps sleeve 70 and the adjacent leftwardly extending annular hub portion 74*a* of the pulley. This inside diameter of coil spring 75 is slightly smaller than the outside diameter of sleeve 70 and the pulley hub portion 74*a*. Thus, the spring is in interference fit with these two members whereby the spring diametrically squeezes or grips both elements. The direction of wind of the coil spring is such that when crank arm 67 is driven clockwise, the circumferential frictional force transmitted to the spring by sleeve 70 will tend to unwind and thereby expand the spring. As the spring expands, its radial grip on the sleeve and the pulley hub is decreased allowing the clutch to overrun. However, during the return counterclockwise stroke of the crank arm, the frictional force transmitted to the spring tends to wind its coils more tightly thereby increasing the grip of the spring on the sleeve and the pulley hub whereby the sleeve and the pulley are now coupled together as one rigid unit for conjoint rotation.

Consequently, counterclockwise movement of crank arm 67 will drive capstan 41 in like direction causing belt 40 to be stepped counterclockwise.

Means are also provided to prevent any possible backward, i.e., clockwise, movement of the capstan 41. This means comprises a coil spring 76, similar to the aforedescribed coil spring 75, which embraces the bushing 72 and the inwardly extending hub portion 77 of drive capstan 41 with an interference fit. The direction of wind of coil spring 76 is such that when the capstan is driven in its normal counterclockwise ribbon-advancing direction, the spring will unwind and thereby loosen its grip on the capstan hub. The capstan will therefore be free for counterclockwise rotation. However, should there be any tendency for the capstan to rotate clockwise on the clockwise stroke of crank arm 67, spring 76 will be wound more tightly on bushing 72 and the capstan hub, coupling the two together. Since the bushing is mounted fast in the framing plate 21, it will hold the coil spring 76 and therefore the drive capstan 41 from rotating clockwise.

At the same time that the ribbon is fed in response to counterclockwise rotation of capstan 41, the take-up reel 14 is also rotated counterclockwise to wind the ribbon on the reel. To this end, pulley 74 secured to shaft 71 drives a belt 80 cooperable with the aforementioned pulley 23 rigidly coupled to the take-up reel. Belt 80 may conveniently be a large diameter O-ring. From the foregoing, it will be seen that whenever crank arm 67 drives capstan 41 counterclockwise to feed ribbon, like movement will be imparted to the take-up reel 14. The drive train ratio of pulleys 74 and 23 is such that when the take-up reel 14 is empty, it will be rotatably driven through a sufficient angle to take up the ribbon without slack. As the radius of the roll of ribbon which has been wound on the reel increases, however, the angle through which the reel should be (and is) driven becomes progressively smaller. To allow for this progressive lessening of the rotation of the take-up reel, belt 80 will slip on the driven pulley 23.

While the novel mechanism of the invention is primarily intended for feeding a particular inked ribbon of the type described, the invention can also be used for feeding ribbons of other, more conventional, types. Accordingly, although there has been disclosed herein a preferred embodiment illustrating the principles of the invention, it will be appreciated that in practice numerous modifications, variations, refinements, etc., both in structure and application can be resorted to without departing from the invention. It is therefore intended that the foregoing disclosure be illustrative only and not limitative of the following claims.

I claim:

1. In a business machine having printing mechanism including an inked printing ribbon adapted to be fed to present successive portions thereof for use, and means for feeding said inked ribbon, said feeding means including:
- at least two feeding members presenting to each other opposed, parallel, cooperating gripping surfaces of substantial length in the direction of ribbon feeding movement between which surfaces said ribbon is gripped throughout said length;
- said members being mounted for feeding movement during which movement said cooperating gripping surfaces and said ribbon gripped therebetween do not move relative to one another;
- one of said feeding members comprising a belt;
- the other of said feeding members comprising a wheel;
- said belt being wrapped around at least a portion of the gripping surface of said wheel;
- said ribbon being gripped between said wheel and said belt; and
- drive means for effecting feeding movement of said feeding members.

2. The combination according to claim 1, wherein said belt forms a continuous closed loop.

3. The combination according to claim 2, including means mounting said wheel for movement toward and away from opeartive relation with said belt.

4. The combination according to claim 3, further including:
- spring means for urging said wheel away from engaged operative relation with said belt; and
- means for maintaining said wheel in engaged operative relation with said belt against the urge of said spring means.

5. The combination according to claim 4 wherein said maintaining means comprises a latch.

6. In a business machine having printing mechanism including an inked printing ribbon adapted to be fed to present successive portions thereof for use, and means for feeding said inked ribbon, said feeding means including:
- at least two feeding members presenting to each other opposed, parallel, cooperating gripping surfaces of substantial length in the direction of ribbon feeding

movement between which surfaces said ribbon is gripped throughout said length;

said members being mounted for feeding movement during which movement said cooperating gripping surfaces and said ribbon gripped therebetween do not move relative to one another;

one of said feeding members comprising a wheel;

the other of said feeding members comprising a flexible member wrapped at least partially around said wheel; and

drive means for effecting feeding movement of said feeding members.

7. The combination according to claim 6 wherein said flexible member comprises a belt.

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