D. C. WRIGHT AND E. W. CORNELL.

TICKET AND LABEL PRINTING MACHINE.

APPLICATION FILED SEPT. 15, 1920.

1,419,345.

Patented June 13, 1922.

4 SHEETS—SHEET 1.

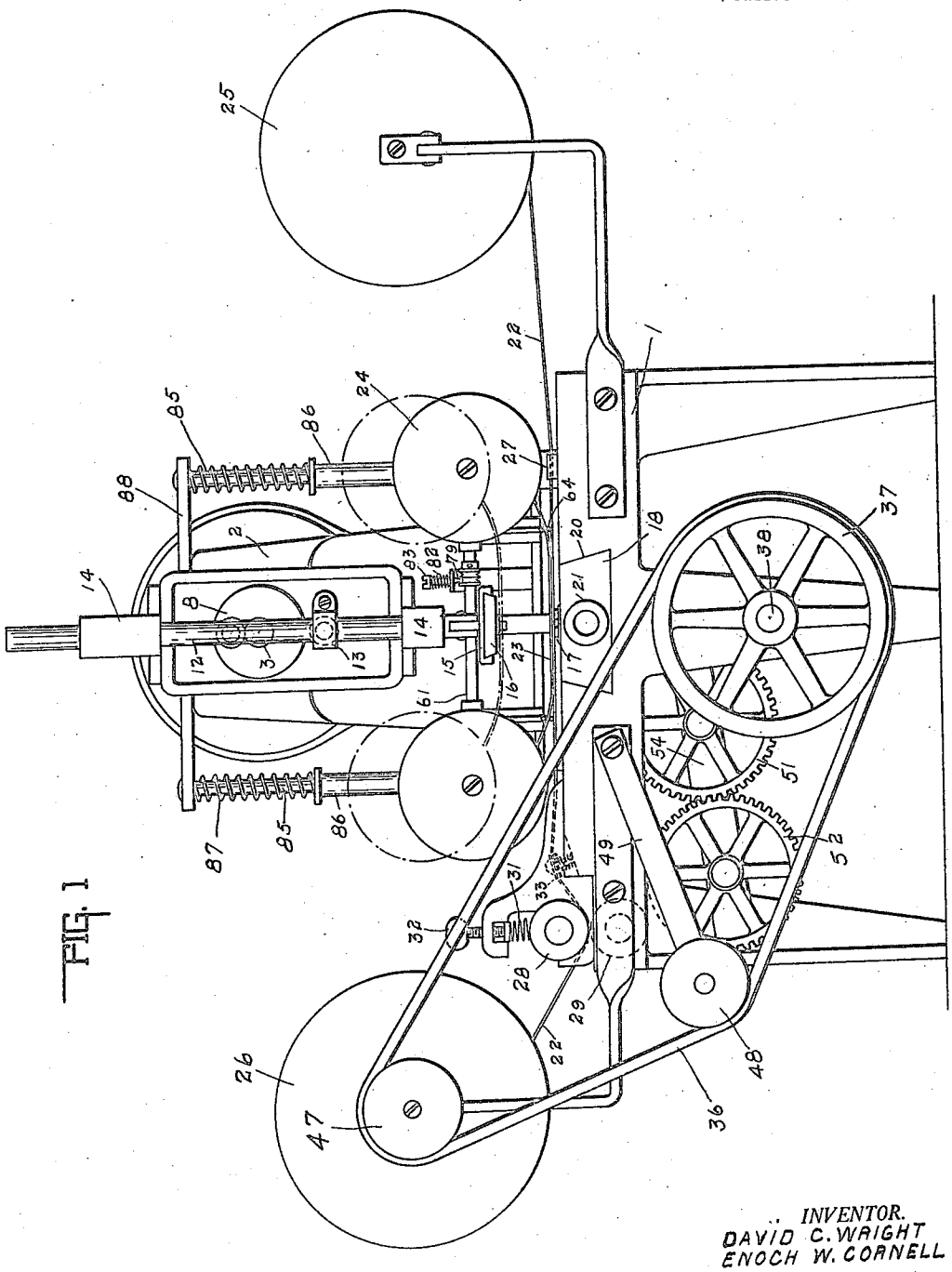


FIG. 1

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4 SHEETS—SHEET 2.

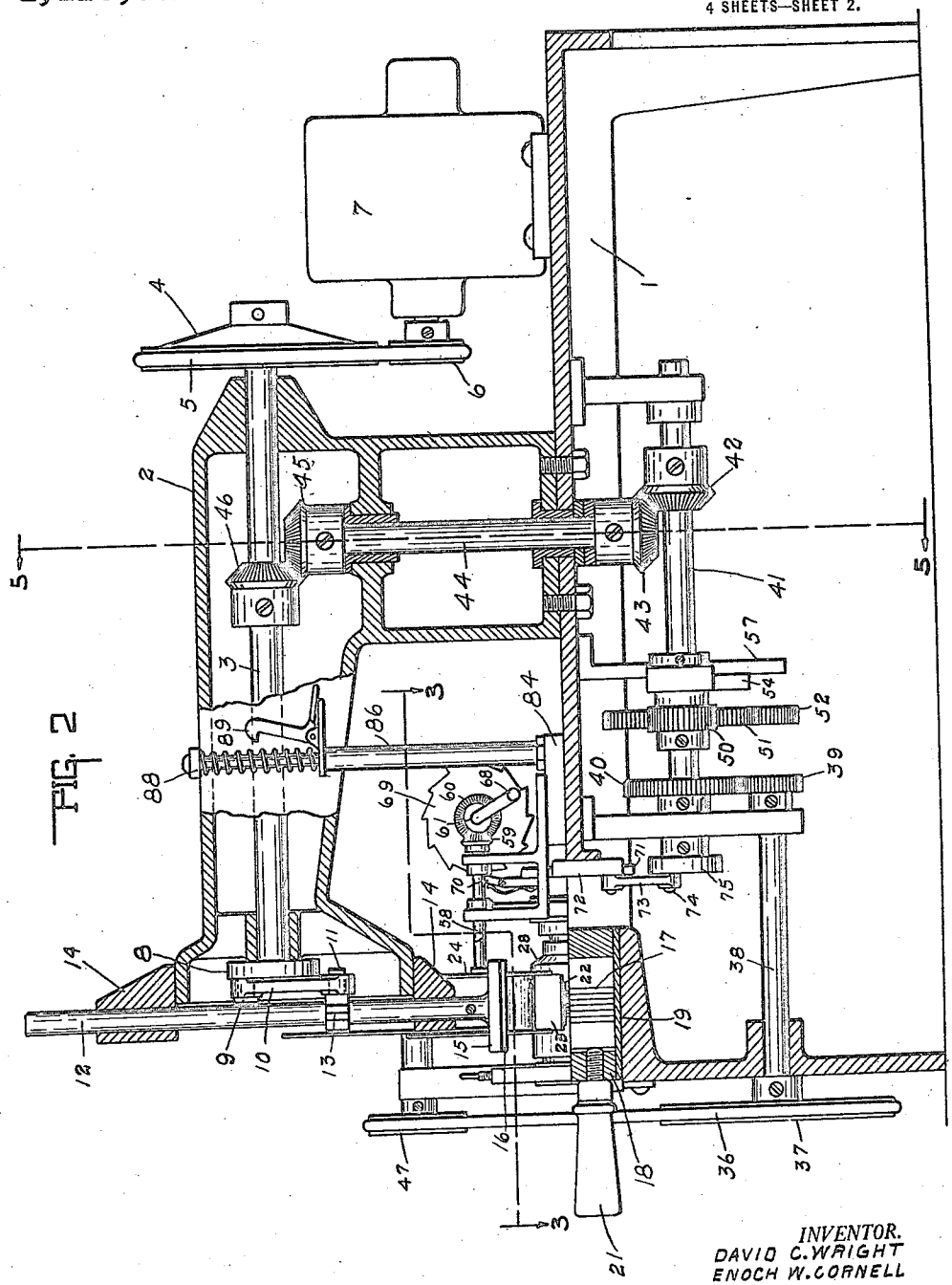


FIG. 2

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4 SHEETS—SHEET 3.

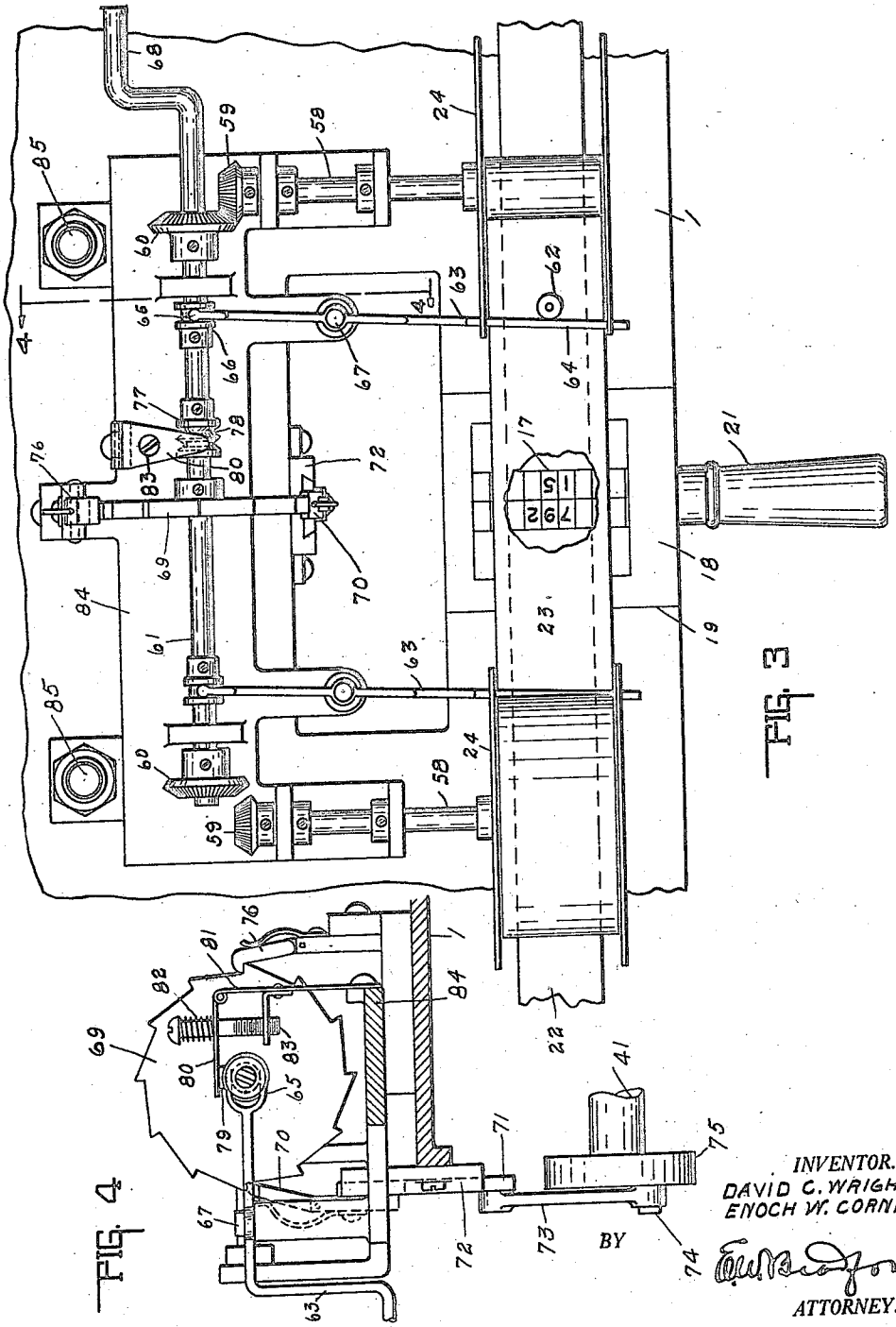


FIG. 3

FIG. 4

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4 SHEETS—SHEET 4.

FIG. 8

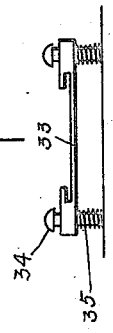


FIG. 7

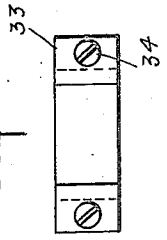
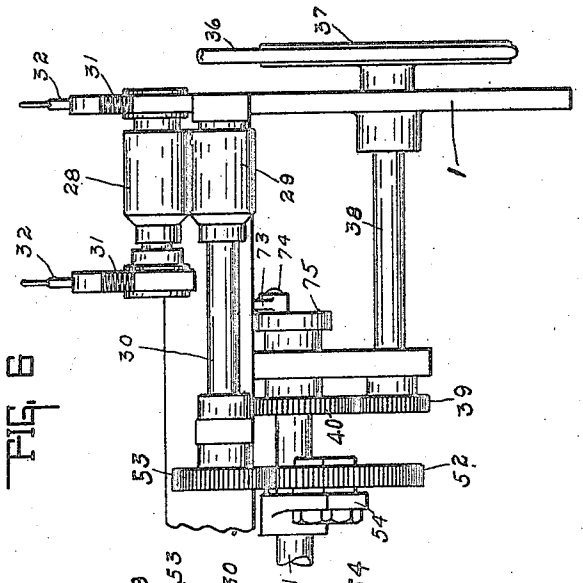


FIG. 6



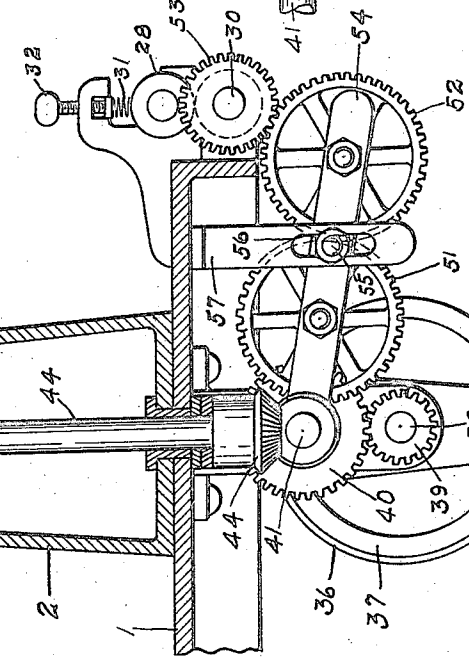
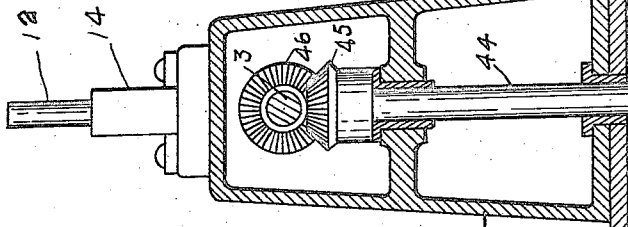


FIG. 5



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UNITED STATES PATENT OFFICE.

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TICKET AND LABEL PRINTING MACHINE.

1,419,345. Specification of Letters Patent. Patented June 13, 1922.

Application filed September 15, 1920. Serial No. 410,403.

To all whom it may concern:

Be it known that we, DAVID C. WRIGHT and ENOCH W. CORNELL, citizens of the United States, residing at Indianapolis, in the county of Marion and State of Indiana, have invented certain new and useful Improvements in Ticket and Label Printing Machines, of which the following is a specification.

This invention relates to ticket and label printing machines and is designed primarily for printing labels or tickets to be attached to garments for identification as to size, stock, etc., and the main feature of the invention is the provision of means for passing a tape through a printing arrangement for rapidly forming number and character impressions on the tape as it is passing through the machine.

A further feature of the invention is the provision of means for increasing or decreasing the speed of travel of the tape through the printing mechanism.

A further feature of the invention is the provision of means for elevating parts of the printing mechanism so that the tape may be quickly positioned for printing the same.

A further feature of the invention is the provision of means for forming a slack in the tape as it is passing from one spool to another so that that portion of the tape receiving the imprint from the type will be stationary momentarily without stopping the rotation of the spools or any part of the machine.

A further feature of the invention is the provision of an impression forming head adapted to co-operate with type for printing the desired markings on the tape, the tape passing below an inked ribbon, and the ribbon and tape passing between the type and impression forming head.

A further feature of the invention is the provision of means for driving both the impression forming head and the mechanism for moving the tape lengthwise, means being provided for moving the inked ribbon endwise in either direction and automatically changing the direction of movement of the ribbon.

Other objects and advantages will be hereinafter more fully set forth and pointed out in the accompanying specification.

In the accompanying drawings which are made a part of this application,

Figure 1 is a front elevation of the printing machine,

Figure 2 is a side elevation of the machine showing parts thereof in section,

Figure 3 is a detail horizontal sectional view as seen on line 3—3, Figure 2,

Figure 4 is a detail sectional view as seen on line 4—4, Figure 3,

Figure 5 is a vertical sectional view as seen on line 5—5, Figure 2,

Figure 6 is a detail front elevation of the tape feeding rolls and the mechanism for operating the same,

Figure 7 is a top plan view of a tensioning plate employed in connection with the tape, and

Figure 8 is an edge elevation thereof.

Referring to the drawings in which similar reference numerals designate corresponding parts throughout the several views, 1 indicates a frame which may be constructed in any suitable manner upon which is mounted a housing 2, said housing having horizontally disposed driving shaft 3 extending through the upper portion thereof, one end of the shaft projecting beyond the housing and having a belt pulley 4 around which extends a belt 5, said belt also extending around a pulley 6 of an electric motor 7 and through the medium of which the shaft 3 is driven.

The forward end of the driving shaft 3 has a disk 8 fixed thereto, and arranged eccentrically of said disk is a wrist pin 9 to which is attached a piston 10, the opposite end of said piston engaging a wrist pin 11 which is secured to a vertically extending plunger 12 by means of a clamp 13.

The plunger 12 is mounted in guides 14 on the housing 2 and reciprocates therethrough, the lower end of the plunger having a head 15 thereon in which is mounted a pad or cushion 16 for engagement with character forming type 17. The type 17 are set up in a case 18 which is entered in a recess 19 formed in parts of the frame 1, said case preferably having inwardly beveled side edges 20 which engage similarly beveled walls on the frame at the side edges of the recess 19, said inclined walls forming a dovetail connection between said parts. If desired a handle 21 may be attached to the case 18 for transporting the case or for entering or removing the same from the recess.

Passing over the type 17 and below the head 15 is a tape 22 and in order to form an imprint of the characters on the type on parts of the tape as it passes over the type, an inked ribbon 23 is positioned immediately above the tape 22 and having its ends attached to spools 24, and when the pad 16 is lowered and the interposed ribbon and tape are forced against the type an imprint of the characters upon the face of the type will be transferred onto the face of the tape.

The tape 22 is unwound from a spool 25 at one side of the frame 1 and is wound upon a similar spool 26 at the opposite side of the frame, the tape passing below guides 27 on the face of the frame 1, the tape 22 being moved lengthwise by means of feed rollers 28 and 29, the roller 29 being in fixed position upon a shaft 30 while the roller 28 is vertically movable and is held in frictional engagement with the tape 22 by means of springs 31, adjusting screws 32 being provided for controlling the tension of the springs 31. As the rollers 28 and 29 are constantly moving the tape lengthwise and as it is necessary to have that portion of the tape receiving the impression from the type stationary while the imprint is being made, the tape is passed over a tensioning bar 33 which is movably mounted upon studs 34 carried by the frame 1. The bar 33 is positioned adjacent the feed rollers 28 and 29 and between the feed rollers and the type 17, the bar being normally supported at the upper ends of the studs 34 by means of springs 35, thus carrying the tape in a plane above the meeting edges of the rollers 28 and 29, consequently when the head 15 is lowered into engagement with the tape the longitudinal movement of that portion of the tape immediately below the head is stopped and during this interim the tension bar 33 yields and moves downwardly so that the slack in the tape occasioned by the elevation of the tape by the bar will be taken up by the feed rollers, thus obviating the necessity of stopping the feed rollers during the time the impression of the type is being transferred to the tape. As soon as the pressure of the head is raised from the tape the springs 35 immediately force the bar 33 upwardly and again form a slack in the tape.

The spool 26 is driven by a belt 36, said belt passing around a driving wheel 37 on the end of a shaft 38, the opposite end of said shaft 38 having a gear 39 thereon which meshes with a gear 40 on a shaft 41. The shaft 41 has a bevel gear 42 with which meshes a bevel gear 43 attached to the lower end of a vertically extending shaft 44, said shaft projecting through parts of the housing 2 and having a bevel gear 45 at its upper end which meshes with a similar gear 46 on the shaft 3, the shafts 38, 41 and 44 thus deriving their power from the motor 7. The belt 36 is held taut around the wheels 37 and 47, the latter being connected with the spool 26, by means of an idler 48 which is carried by an arm 49, which arm is in turn attached to the frame 1, and by moving said arm upwardly or downwardly the tension of the belt 36 may be regulated. The feed rollers 28 and 29 for the tape 22 are driven from the shaft 41, said shaft having a pinion 50 mounted thereon with which meshes a gear 51, a corresponding gear 52 being positioned between the gear 51 and a pinion 53 on the shaft 30. The speed of the rollers 28 and 29 may be varied by changing the size of the gear 53, the gears 51 and 52 being supported by a swinging arm 54, one end of which is pivoted to the shaft 41, the arm 54 being held in fixed position by entering a bolt 55 through the swinging arm between its ends and through an elongated slot 56 in a bracket 57, said bracket being connected to and depending from the frame 1. By mounting the gears 51 and 52 in this manner they may be raised or lowered for engagement with the different sized gears that may be attached to the shaft 30.

The ribbon 23 is moved lengthwise over the type by attaching the ends of the ribbon to the spools 24 and mounting said spools on shafts 58, one end of the shafts having bevel pinions 59 attached thereto which are adapted for co-operation with bevel gears 60 mounted upon an operating shaft 61, said shaft being rotatable and longitudinally movable whereby when one of the gears 60 is in mesh with one of the pinions 59 the other gear will be disconnected from the opposite pinion, consequently the ribbon 23 will be wound upon the spool associated with the shaft being rotated by one pinion and gear, the rotation being continued in the same direction until the ribbon has been unwound from the other spool. The shaft 61 is preferably moved lengthwise automatically, and to accomplish this result the ribbon 23 adjacent its ends is provided with buttons 62 which engage the ends of the levers 63, which levers preferably have bifurcated portions 64 at one end which straddle the ribbon. The opposite ends of the levers 63 are provided with yokes 65 which co-operate with collars 66 attached to the shaft 61, consequently when the ribbon 23 is moved lengthwise until one of the buttons 62 thereon strikes the finger portions 64 of one of the levers 63, said lever will be swung laterally on its pivot 67, and the shaft 61 moved lengthwise thereby disengaging one of the bevel gears 60 from its pinion 59 and engaging the other bevel gear 60 with its respective pinion 59, and consequently reversing the movement of the tape 23, but the shaft 61 rotates in the same direction at all times, when automatically rotated. As best

shown in Figure 3 the shaft 61 may be manually operated through the medium of a crank 68.

The shaft 61 is automatically operated by attaching a ratchet 69 thereto with which cooperates a spring-pressed pawl 70, said pawl being pivotally connected to a slide block 71, the frame 1 having a guide 72 in which the slide block is mounted. The slide block 71 is moved lengthwise by pivotally connecting one end of a pitman 73 to the lower end of said block, the opposite end of the pitman engaging a wrist pin 74 eccentrically connected with a head 75 on the inner end of the shaft 41. The ratchet 69 is held against reverse rotation by means of a spring pressed detent 76 which successively engages the teeth of the ratchet as the ratchet is rotated by the pawl 70. The shaft 61 is held against casual longitudinal movement by attaching a drum 77 to the shaft 61, said drum having a pair of peripheral channels 78 in which travels a block 79 depending from a latch 80, the opposite end of the latch being pivoted to a standard 81 and resting substantially horizontally, so that the block will ride in one or the other of the channels 78, a spring 82 being held in position to direct pressure onto the latch by means of an adjusting screw 83. When the shaft 61 is moved endwise the block 79 will ride up the tapered walls of the channel in which it is seated and will enter the opposite channel when the shaft 61 is moved its full distance lengthwise, consequently holding the shaft in this position until power is again applied for reversing the movement of the shaft 61. The ribbon winding and operating mechanism is mounted upon a platform 84, and this platform is vertically slidable on posts 85, said posts being mounted upon the frame 1 in any suitable manner, the platform 84 having sleeves 86 which surround the posts 85. In mounting the ribbon supporting and operating means in this manner these parts may be elevated, as shown by dotted lines in Figure 1, so that the tape 22 can be readily introduced through the guides 27. The platform 84 and parts carried thereby are normally held in their lowered positions by means of springs 87 which surround the upper ends of the posts 85 and direct downward pressure against the upper ends of the sleeves 86, a cross bar 88 at the upper ends of the posts 85 receiving the upper ends of the springs 87. The platform 84 is held in its elevated position by a latch 89 which is attached to one of the sleeves 86 and when the platform is elevated hooks over the cross bar 88 and retains the platform 84 in its elevated position until the latch 89 is disengaged from the cross bar.

In operation, the platform 84 is elevated and a portion of the tape 22 unwound from spool 25, this unwound portion being entered below the guides 27, thence over the tensioning bar 33 and between the rollers 28 and 29, the free end thereof being engaged with the spool 26. The tape 22 is then moved lengthwise until it is in proper position to receive an imprint of the type in the case 18, when the platform 84 is lowered, which action positions that portion of the inked ribbon 23 between the fingers 64 directly on the upper face of the tape 22. Power is then applied to the machine from the motor 7, the rotation of the shaft 3 lowering the head 15 until the pad or cushion 16 carried thereby strikes the upper face of the ribbon 23 and forms an imprint of the type on the upper face of the tape 22, the ink from the ribbon 23 being transferred onto the tape.

As the rollers 28 and 29 are continually rotating, as is also the spool 26, and as that portion of the ribbon immediately below the head 15 is stationary while the impression is being made, the pressure of the tape 22 between the type and feed rollers 28 and 29 will compress the springs 35 and release the slack in the tape, so that by the time the feed rollers take up this slack the impression will have been completed and the tape released. The tensioning bar 33 will again be forced upwardly as soon as the tape is released by the head 15, so as to provide additional slack in the tape for the next printing operation.

Having thus fully described our said invention, what we claim as new and desire to secure by Letters Patent, is:

1. In a printing machine including type and an inking ribbon, means for moving a tape between the type and inking ribbon, a constantly driven means for moving the tape lengthwise, an impression forming head, means for moving said head into engagement with said inking ribbon for forming impressions on the tape, and a yieldingly mounted bar over which the tape passes adapted to be depressed for forming a slack in the tape whereby that portion of the tape receiving pressure from the head will remain stationary while the moving means for the tape continues to rotate.

2. Means for printing tape and the like. comprising character forming type, a tape adapted to be moved lengthwise over said type, an inking ribbon above said tape, a head adapted to be lowered into engagement with the ribbon and tape for imprinting the characters of the type onto the tape, constantly driven feed rollers for moving the tape legthwise, a bar over which said tape passes adapted to be depressed for forming a slack in the tape between the feed rollers and type whereby that portion of the tape receiving the impression from the type will remain stationary momentarily while the feed rollers continue to operate, studs upon which said bar is slidably mounted and springs surrounding said studs for elevating

said bar when pressure is released therefrom.

3. Means for imprinting characters on a tape, comprising type, a tape movable lengthwise over the type, an impression forming head, an inking ribbon between the tape and impression forming head, means for operating said head for intermittently moving the same into engagement with the ribbon and tape, means for moving said ribbon lengthwise, guides for the tape, and means for raising and suspending the ribbon operating mechanism whereby free access may be had for entering the tape in the guides.

4. Means for printing characters on a tape, comprising a longitudinally movable tape, an ink containing ribbon longitudially movable above said tape, means for reversing the movement of said ribbon, a platform supporting said ribbon operating mechanism, yielding means for normally holding the platform in lowered position, guides for said tape, and means for locking said platform in elevated position whereby free access may be had to said guides for inserting the tape therein.

5. Means for printing a tape or the like, comprising means for imprinting characters on a tape, constantly driven rollers for moving the tape lengthwise, a spring pressed tensioning bar for forming a slack in the tape whereby that portion of the tape being printed will remain stationary momentarily while the feed rollers continue their movement, studs passing vertically through said bar, springs for normally retaining the bar adjacent the upper ends of said studs and means for varying the speed of the feed rollers.

6. In a type printing machine, means for printing characters on a tape, means for constantly moving said tape endwise, a horizontally disposed bar over which said tape travels, studs upon which said bar is slidably mounted and springs surrounding said studs for normally retaining said bar adjacent the upper ends of said studs.

In witness whereof, we have hereunto set our hands and seals at Indianapolis, Indiana, this 13th day of September, A. D. nineteen hundred and twenty.

DAVID C. WRIGHT. [L. S.]
ENOCH W. CORNELL. [L. S.]

Witnesses:
CAREY S. FRYE,
M. L. SHULER.