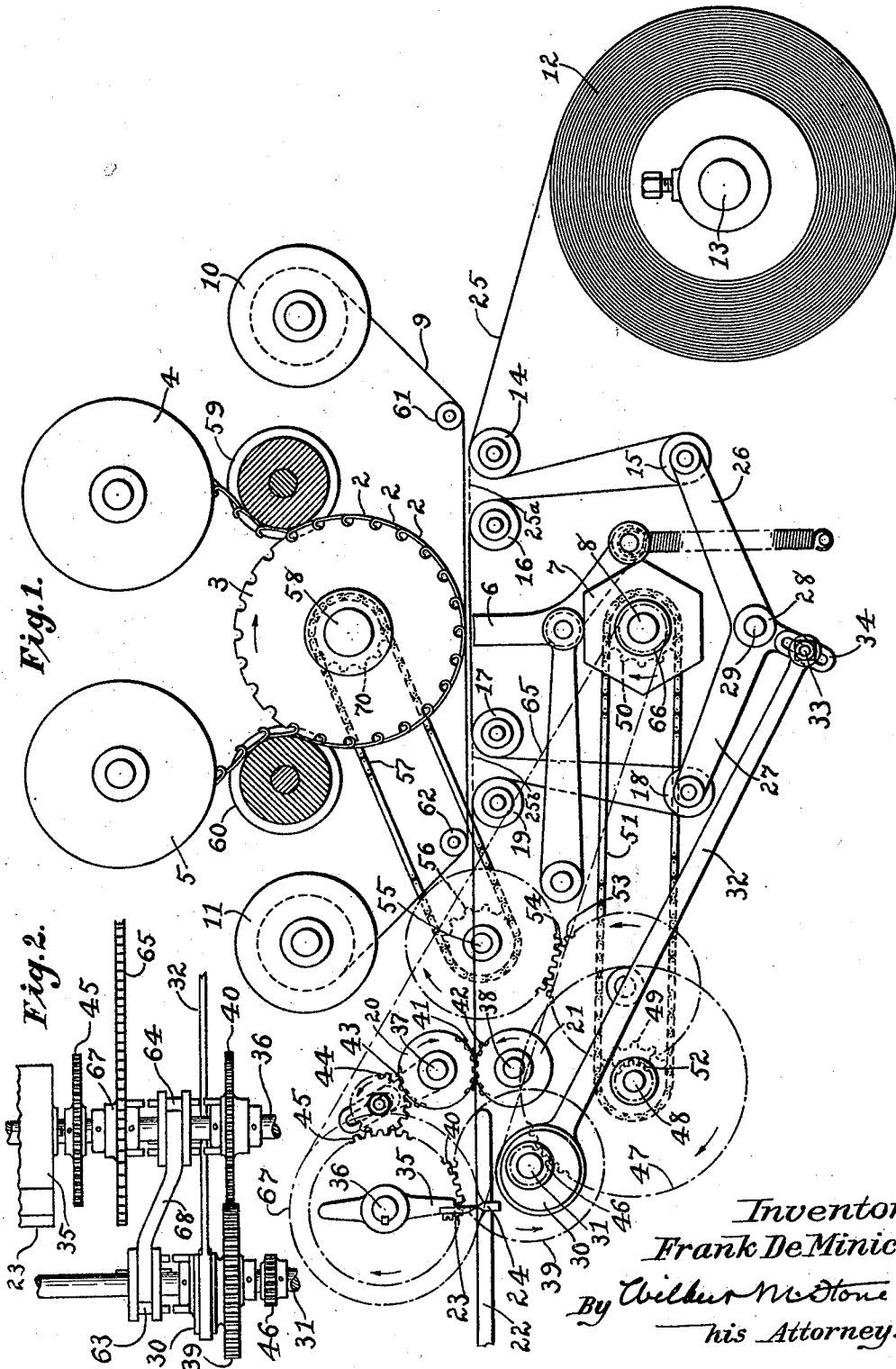


F. DE MINICO.
PRINTING MACHINE.
APPLICATION FILED JAN. 8, 1921.

1,410,385.

Patented Mar. 21, 1922.



UNITED STATES PATENT OFFICE.

FRANK DE MINICO, OF NEW YORK, N. Y., ASSIGNOR TO POLLARD-ALLING MANUFACTURING COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

PRINTING MACHINE.

1,410,385.

Specification of Letters Patent. Patented Mar. 21, 1922.

Application filed January 8, 1921. Serial No. 435,797.

To all whom it may concern:

Be it known that I, FRANK DE MINICO, a citizen of the United States, and a resident of New York, borough of Bronx, in the county of Bronx and State of New York, have invented certain new and useful Improvements in Printing Machines, of which the following is a specification.

This invention relates to printing machines and to that class thereof which is particularly provided for printing addresses on mailing wrappers, or on strips which are afterward cut up into individual mailing labels. The object of my improvements is to provide a machine of the class specified which may readily be adjusted to print at one time, a succession of addresses on a succession of wrapper sections of a continuous web and which web is then severed into separate wrappers; and at another time to print a closely contiguous succession of addresses on a continuous strip and to then sever that strip into convenient takes or lengths which may afterward be divided into individual mailing labels.

With these ends in view my improvements comprise features which are illustrated in their preferred embodiment in the drawing accompanying this specification, wherein:—

Figure 1 is a diagrammatic side elevation of so much of a printing machine as will serve to adequately show my improvements, and Fig. 2 is a fragmentary plan view of a portion of what is shown in Fig. 1, the two views being to the same scale.

My improved machine includes a constantly traveling type-form which preferably comprises a series of articulated plates 2, 2 each bearing a name and address in embossed characters, such for instance as shown in Fig. 1 of the drawing of U. S. Patent No. 1,116,032, granted on my invention November 3, 1914. Said series of plates is carried by drum 3, being fed from reel 4 and thence back onto reel 5. Printing platen 6 is operated from cam 7, fixed to shaft 8, for coaction with the successive plates 2, 2 as set forth in U. S. Patent 1,145,233, granted on my invention July 6, 1915.

For inking the successive printing forms, inking ribbon 9, fed from reel 10 to reel 11, may be passed between the lower portion of said series of plates and platen 6. Reel 11 may be rotated slowly in clockwise di-

rection, to feed said ribbon, by means not shown. The paper on which the impressions are to be made may be supplied in a roll 12 which may be conveniently supported on stud 13. The web of paper 25 from said roll is led successively about rolls 14, 15 and 16, thence between platen 6 and the lower portion of the series of plates 2, 2 on drum 3, below ink ribbon 9, thence about rolls 17, 18 and 19, thence between feed rolls 20 and 21 and finally over table 22 between cutters 23 and 24. Rolls 14, 16, 17 and 19 are mounted on fixed axes, and rolls 15 and 18 are carried by opposite arms 26 and 27, respectively, of member 28 mounted for oscillation on fixed shaft 29. Said member 28 is oscillated by eccentric 30 fixed to shaft 31, through eccentric link 32 pivotally connected at 33 to rock arm 34 of said member 28. The connection at 33 between link 32 and rock arm 34 is adjustable to provide for varying degrees of oscillation of member 28. The general character of this mechanism is disclosed in U. S. Patent No. 590,002 to W. E. Crane, dated September 14, 1897.

Feed rolls 20 and 21 are fixed to shafts 37 and 38, respectively, and which shafts turn in fixed bearings, not shown. Cutter 23 is carried by arm 35, mounted for rotation with shaft 36 to which it is fixed and said shaft is mounted in fixed bearings, not shown. Said cutter 23 coacts with cutter 24 fixed transversely in table 22 and having its cutting edge substantially in the plane of the upper face of that table. Assuming shaft 31 to be the driving shaft, gear 39 and eccentric 30 fixed together turn freely on said shaft, but may be driven with that shaft when clutch 63 slidably keyed to said shaft, Fig. 2, engages the clutch of said eccentric. Said gear 39 drives equal gear 40 turning freely on shaft 36 and which gear may drive said shaft when clutch 64, slidably keyed to said shaft, engages the clutch of said gear. Feed roll shafts 37 and 38 have equal intermeshing gears 41, 42, respectively, fixed thereto. Said shaft 37 also has fixed thereto gear 43 connecting through intermediate gear 44 with gear 45 fixed to cutter shaft 36. By changing the size of either or both of gears 43 and 45 and shifting intermediate gear 44 to continue to transmit power from gear 45 to gear 43, varying speeds of paper feed may be had whereby varying lengths of wrappers may be cut off by cutters 23 and

24. Main shaft 31 also has pinion 46 fixed thereto meshing with gear 47 fixed to shaft 48. Also fixed to shaft 48 is sprocket 49, driving equal sprocket 50 fixed to shaft 8, through chain 51. Shaft 48 also has fixed thereto gear 52 driving, through intermediate gear 53, gear 54 fixed on shaft 55. Also fixed to shaft 55 is sprocket 56 driving sprocket 70 through chain 57. Said sprocket 70 is fixed to shaft 58 to which is also fixed printing plate drum 3. The timing of the drive to shaft 58 carrying drum 3 is such that at each complete rotation of main shaft 31, shaft 58 is rotated an incremental amount equal to one printing plate length, circumferentially of said drum. In the present illustrated embodiment that incremental movement is one twenty-fourth of a complete revolution as there are twenty-four plate seats in the periphery of said drum. Also the timing of the drive to shaft 8, carrying the six-lobed cam 7 which actuates platen 6, is such as to cause said cam to turn one-sixth of a revolution for each passing printing plate on drum 3, thereby effecting the coaction of said platen with each successive printing plate. This requires that shaft 8 be turned one-sixth of a complete rotation for each full rotation of shaft 31 and which movement said gearing is proportioned to accomplish. Also the paper feed compensating device must act at each incremental movement of drum 3, and eccentric 30 on shaft 31 is efficient to this end. Feed rolls 20, 21 driven from gear 45 on shaft 36 are shown as geared to make two revolutions for each revolution of shafts 36 and 31. For printing closely contiguous impressions on a proof or mailing strip, chain 65 conveying power from sprocket 66 fixed to shaft 8 to sprocket 67 turning loosely on shaft 36, is employed. Said sprocket 67 may be caused to actuate shaft 36 by means of clutch 64 when that clutch is engaged with the clutch on said sprocket 67. When so engaged said clutch and clutch 63 are disengaged from gear 40 and eccentric 30, respectively, said clutches being operated in unison by their common actuator 68. When clutch 64 engages sprocket 67 shaft 36 is rotated at a much slower speed than when that shaft is driven directly from shaft 31 and therefore the feed rolls and cutter 23 are also driven much slower.

55 The operation of my improved machine is first, when operated to print and sever wrapper lengths each having an address printed thereon, as follows: Paper 25 from roll 12 is threaded through the machine successively about rolls 14, 15, 16, thence over platen 6 and under plates 2, 2 on drum 3, thence about rolls 17, 18, 19 and between feed rolls 20, 21. The chain of articulated printing plates, as 2, 2, is led from supply reel 4 about idler 59, thence about drum 3,

about idler 60 and onto take-up reel 5. The inking ribbon 9 is led from reel 10 about idler 61, between platen 6 and under plates 2, 2 on drum 3, above the paper 25, thence about idler 62 and onto take-up reel 11. Shaft 31 is now started rotating in the direction of its arrow, Fig. 1, clutches 63 and 64 being in engagement with eccentric 30 and gear 40, respectively, and at each full rotation of said shaft 31, drum 3 makes one twenty-fourth of a revolution and shaft 8 makes one-sixth of a rotation, thereby causing six-lobed cam 7 to lift platen 6 into coaction with that printing plate 2 opposite thereto, whereby the paper 25 and ink-ribbon 9 thereabove are pressed against the printing plate and the characters on that plate are impressed on the paper. At the same time by means of eccentric 30, arm 27 is raised and arm 26 lowered, whereby the speed of travel of the paper, by means of feed rolls 20, 21, is reduced, between rolls 16 and 17, to the peripheral speed of drum 3. Then as platen 6 withdraws downwardly and as eccentric 30 passes through the second half of its revolution, arms 26 and 27 are reversed in their direction of movement and the paper, between rolls 16 and 17, is speeded up in its travel to compensate for its previous slowing down. The paper is therefore fed forwardly a length equal to twice the circumference of feed roll 20 for each impression from a printing plate, and as the paper is advanced over knife 24 in table 22, knife 23 revolves into engagement with said knife 24 and cuts off a length of paper equal to that advanced by said feed rolls and which length is suitable for a wrapper for a periodical. By changing the gearing between shafts 36 and 37 different lengths of wrappers may be had.

Second, when it is desired to produce proof or label strips, clutch 63 is disengaged from eccentric 30 and clutch 64 is disengaged from gear 40, which eccentric and gear, and gear 39, thereupon remain idle, and clutch 64 is thrown into engagement with sprocket 67 thereby causing feed rolls 20 and 21 to revolve at a surface speed equal to the surface speed of drum 3. Also the web of paper 25 is preferably led directly over rolls 14, 16, 17, 19 as indicated by dotted portions 25a, 25b whereby said web travels uniformly relatively to the periphery of drum 3, and is not impeded by being led around rolls 15 and 18, which however are then at rest as eccentric 30 is out of action. The slow speed of cutter 23 will sever web 25 into relatively long sections similar to galley proofs.

I claim:

1. In a machine of the character described the combination of a series of printing plates, means for advancing said plates consecutively to and away from printing posi-

tion, means coacting with said printing plates, one at a time, for impressing said plates upon a traveling web, means for advancing said web in incremental movements each of which includes at one time an advancement at the speed of the printing plates and at another time at a greater speed, and alternate means for advancing said web constantly at the speed of said plates.

2. In a machine of the character described the combination of a series of printing plates, means for advancing said plates to and away from printing position at uniform speed, means coacting with said printing plates, one at a time, for impressing said plates upon a traveling web, means for advancing said web with a variable movement including at one time at the speed of the printing plates and at another time at a speed faster than that of said plates, and alternate means for advancing said web constantly at the speed of the printing plates.

3. In a machine of the character described the combination of a series of printing plates, means for advancing said plates consecutively to and away from printing position, means coacting with said printing plates, one at a time, for impressing said plates upon a traveling web, means for advancing said web, means for severing the web into predetermined lengths, and means for changing the timing of the severing mechanism and the web advancing means.

4. In a machine of the character described the combination of a series of printing plates, means for advancing said plates consecutively to and away from printing position, means coacting with said printing plates, one at a time, for impressing said plates upon a traveling web, means for ad-

vancing said web in incremental movements each of which includes at one time an advancement at the speed of the printing plates and at another time at a greater speed, alternate means for advancing said web constantly at the speed of said plates, and means for severing the web into lengths, at one time corresponding with said incremental movements, respectively, and at another time into lengths each corresponding with a plurality of printing plate impressions.

5. In a machine of the character described the combination of a series of printing plates, means for advancing said plates consecutively to and away from printing position, means coacting with said printing plates, one at a time, for impressing said plates upon a traveling web, and means for severing the web into lengths at one time corresponding with single impressions of said printing plates respectively and at another time corresponding with a plurality of said impressions.

6. In a machine of the character described the combination of a series of printing plates, means for advancing said plates consecutively to and away from printing position, means coacting with said printing plates, one at a time, for impressing said plates upon a traveling web, means for advancing said web, at one time with a variable movement and at another time with a uniform movement, means for severing the web into predetermined lengths, and means for changing the timing of the severing mechanism and the web advancing means.

In witness whereof, I hereby affix my signature this 27th day of December, 1920.

FRANK DE MINICO.