W. E. FREEMAN & C. C. WORTH.

COUPON STRIP TYPE WRITING MACHINE.

APPLICATION FILED APR. 8, 1911.

1,037,463.

Patented Sept. 3, 1912.

4 SHEETS—SHEET 1.

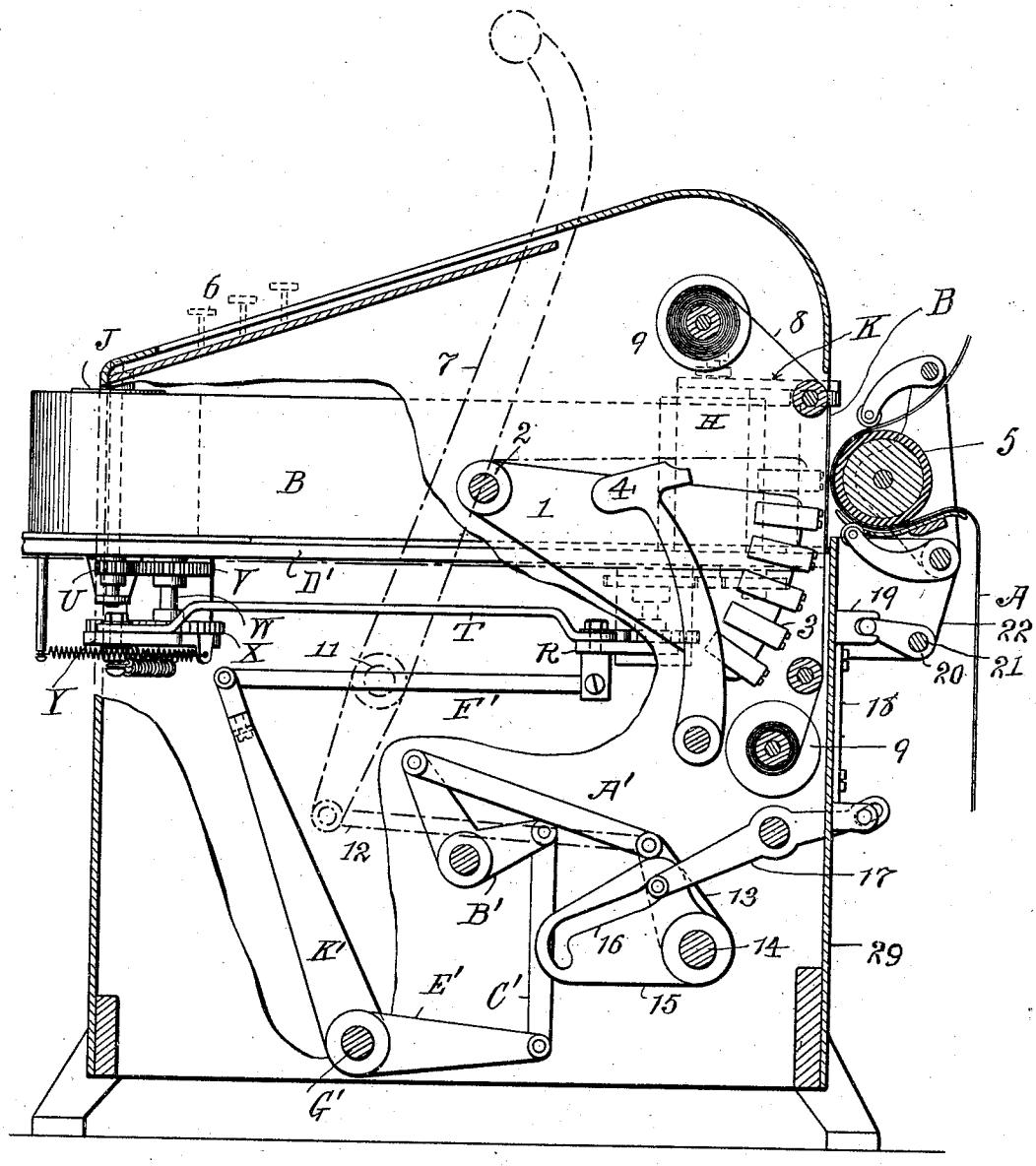


Fig. 1.

Witnesses:
May T. McGarry
Gertrude T. Porter.

William E. Freeman
Charles C Worth Inventors
By their Attorney Jacob Benjamin

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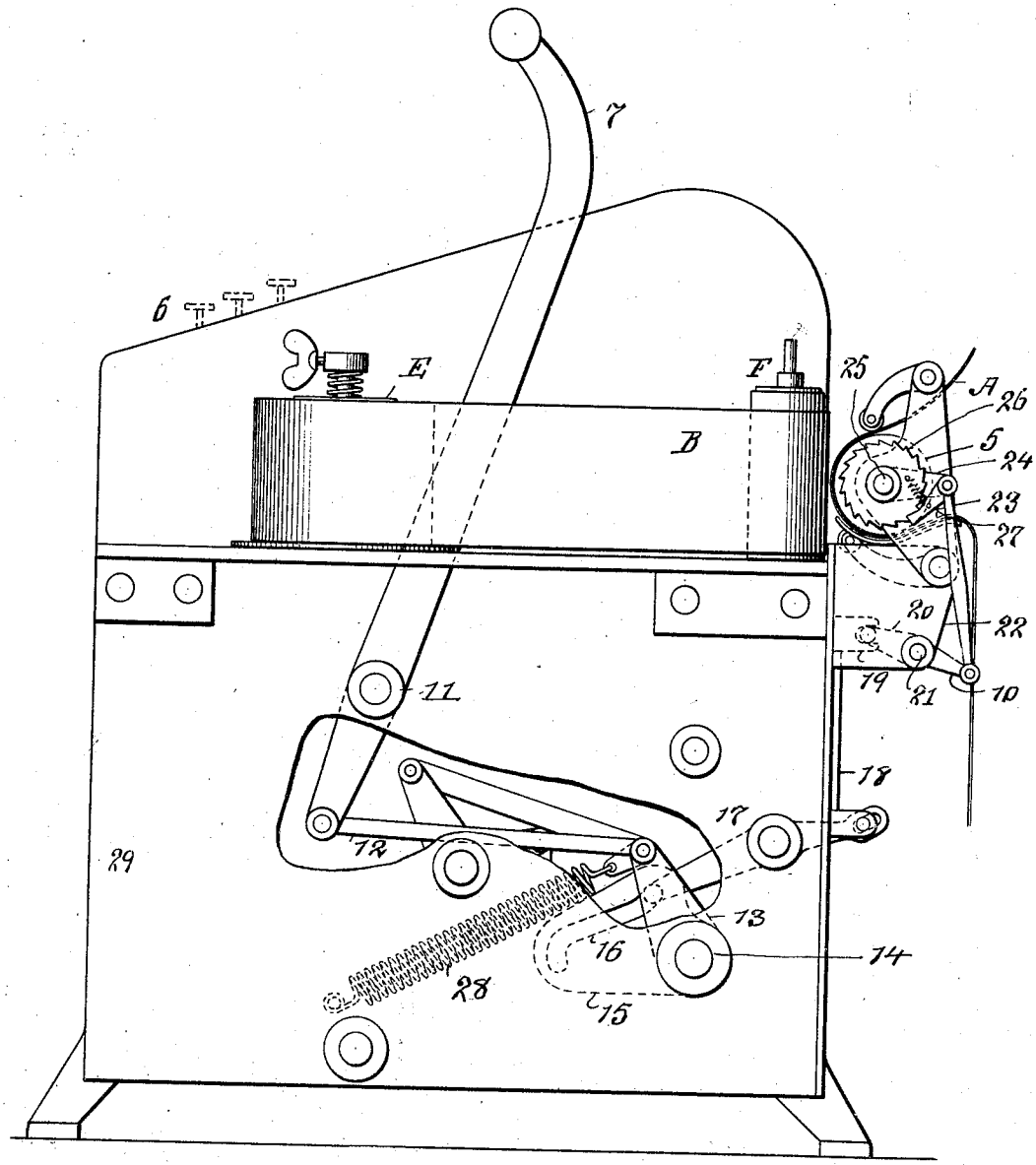


Fig. 2.

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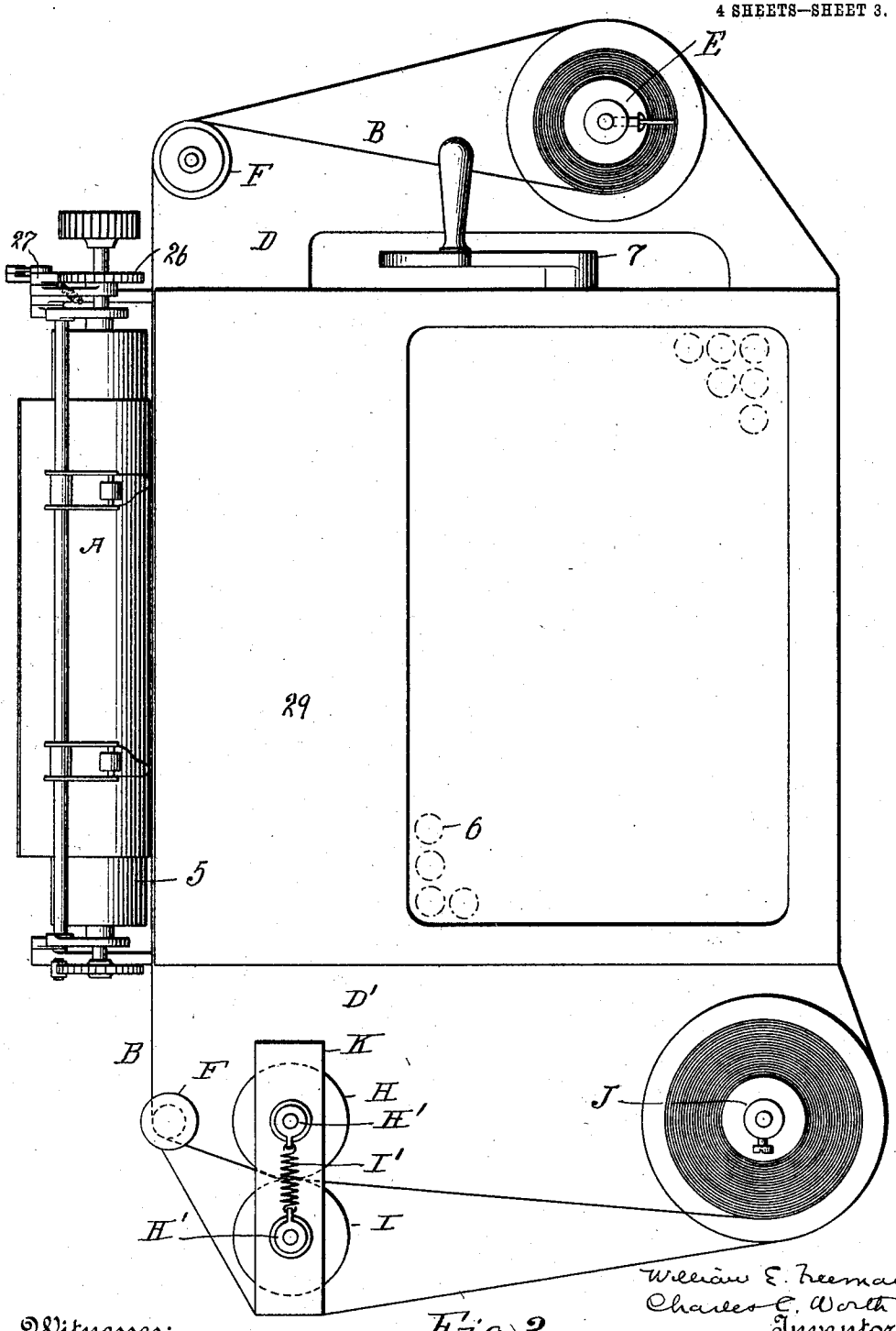


Fig. 3.

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4 SHEETS—SHEET 4.

Fig. 5

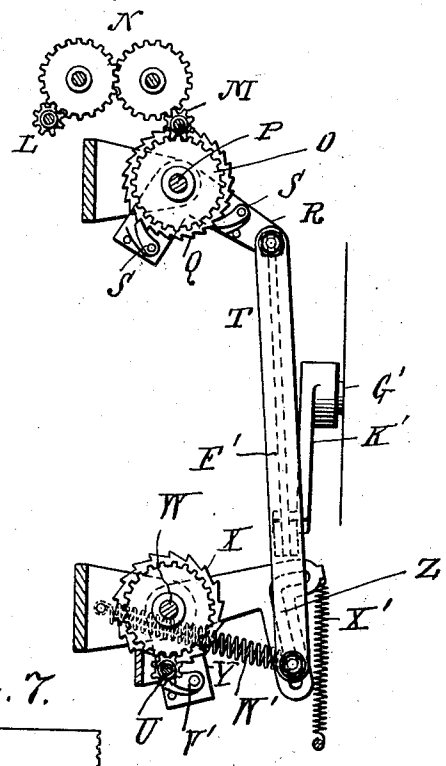


Fig. 4

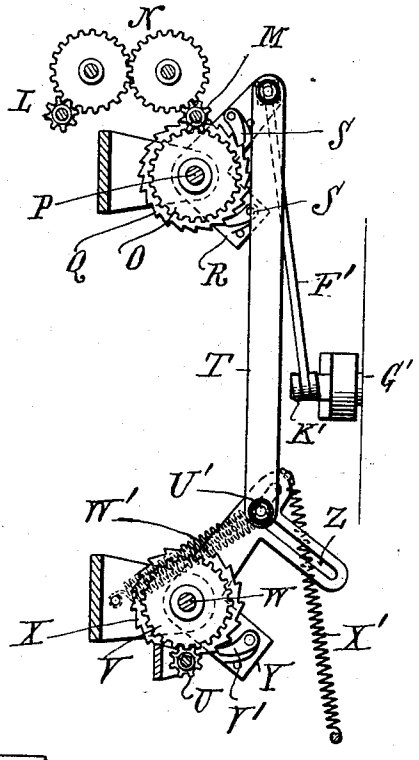


Fig. 7.

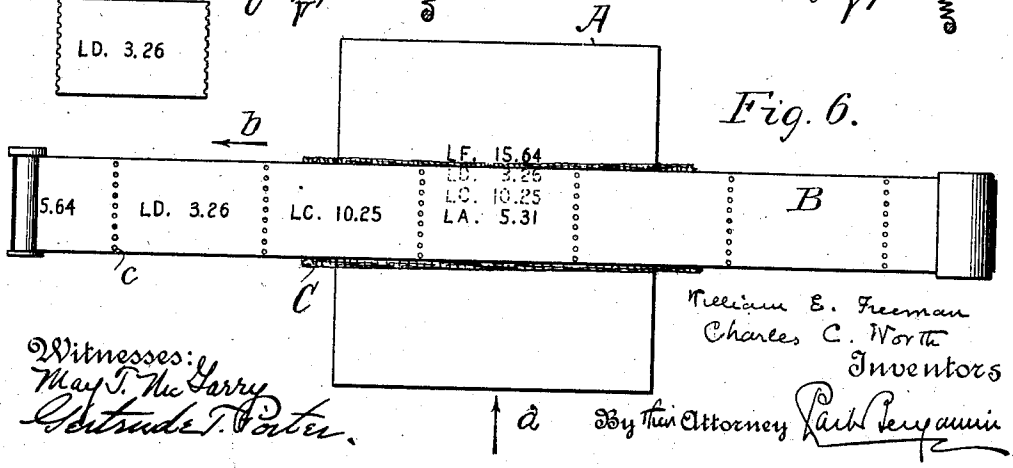


Fig. 6.

Witnesses:
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UNITED STATES PATENT OFFICE.

WILLIAM E. FREEMAN AND CHARLES C. WORTH, OF NEW YORK, N. Y.

COUPON-STRIP TYPE-WRITING MACHINE.

1,037,463. Specification of Letters Patent. Patented Sept. 3, 1912.

Application filed April 8, 1911. Serial No. 619,680.

To all whom it may concern:

Be it known that we, WILLIAM E. FREEMAN and CHARLES C. WORTH, citizens of the United States, residing at New York, in the county of New York and State of New York, have invented a certain new and useful Improvement in Coupon-Strip Type-Writing Machines, of which the following is a specification.

The invention relates to type printing or type writing apparatus, and consists in mechanism, whereby simultaneously with the production of lines of printing disposed in column on an impression sheet, facsimile imprints may be made of said lines in sequence upon another sheet, which second sheet is moved in front of and transversely across said first sheet. The said second sheet may be subsequently divided, if desired, into coupons, each coupon then bearing one of the lines collectively printed in column on the first sheet.

In the accompanying drawings—Figure 1 is a vertical section of a type printing machine with various parts broken away to show our device in elevation. Fig. 2 is an end view of said machine with a part of the wall of the case broken away. Fig. 3 is a plan view of said machine. Figs. 4 and 5 are horizontal sections of the mechanism for operating the feed rolls, and the winding roll for the coupon strip, showing said mechanism in two positions. Fig. 6 shows the coupon strip B and the sheet A diagrammatically, and illustrates the principle of our device. Fig. 7 shows one of the coupons detached from the coupon strip.

Similar numbers and letters of reference indicate like parts.

The principle of the invention is illustrated in Fig. 6.

A is a sheet of paper which is moved in the direction of the arrow *a*, so that a series of lines of printing, indicated by the characters LF. 15. 64: LD. 3. 26: LC. 10. 25. LA. 5. 31, suitably spaced one above the other in column, may be type-written thereon.

B is a long strip of paper, herein-after termed the coupon strip, disposed in front of sheet A, extending transversely across the same and longitudinally moved in the direction of the arrow *b*. Between the sheet A and strip B, any copying means, such as a carbon ribbon or sheet indicated at C, is provided, and an inking ribbon (not shown in Fig. 6) is, as usual, disposed in front of strip B; so that the imprint made by the type is produced simultaneously in facsimile on both strip B and sheet A. The feed mechanism which actuates coupon strip B and sheet A to feed them respectively in the direction of the arrows *b* and *a*, is to be so timed as that during the interval occupied in moving sheet A in a vertical direction over the space between two lines of printing, strip B is caused to move in a horizontal direction over a much longer distance. The result is that there is imprinted on sheet A a series of lines of printing disposed vertically in column one above the other, as

LF. 15. 64
LD. 3. 25
LC. 10. 25
LA. 5. 31

and on strip B a series of lines of printing horizontally disposed in succession and separated by intervals between the end of one line and the beginning of the next line, as LF. 15. 64: LD. 3. 25: LC. 10. 25: LA. 5. 31. After the printing is completed, the coupon strip B may be cut apart between the printed lines, or divided on the previously prepared perforated lines *c*, and thus converted into separate coupons, each bearing a single line of printing, as shown in Fig. 7. Hence the product of our device as a whole is a sheet A bearing a column of printed lines, and also a quantity of coupons equal in number to said printed lines and each bearing one of said lines in facsimile. These coupons may be utilized in various ways. For example. Let A be the impression sheet on which the operator imprints separate amounts received in payment of bills, and also, as may be shown on the face of each bill, the letter indicating the ledger in which the payment is to be credited. Thus LF. 15. 64 would then mean that a payment of fifteen dollars and sixty-four cents is to be credited in ledger F; LD. 3. 26 would mean three dollars and twenty-six cents to be credited in ledger LD, and so on. If nothing were produced but a single impression sheet A bearing these several imprints, it would be necessary for some one separately to collate from that sheet the entries belonging to each individual ledger, and to prepare by hand as many sheets as there were ledgers—one sheet

bearing all the sums to be entered in ledger LA, another sheet all to be entered in ledger LC, and so on. Then these collated sheets would be sent to the bookkeepers in charge of the several ledgers, and the final entries made from them. This involves considerable labor, especially when a great many sums are entered daily, and, beside, offers chance for omissions and mistakes.

When the coupons are simultaneously produced, as above described, the trouble is obviated, because all that is necessary is that they be sorted—those belonging to ledger LF being put into one receptacle, those belonging to ledger LD into another, and so on. Each bookkeeper then from time to time collects his own accumulated coupons, and makes his ledger entries directly from them, with no chance of intermediate errors in copying, since the coupons themselves are printed simultaneously with the amounts printed on the sheet A. Of course, the coupons can be sorted in other ways, and utilized card-index fashion, as may be desired.

Our device is herein combined in a Burroughs type printing machine of well known construction, and we have shown only so much of said machine as is necessary for the clear comprehension of our device and its operation, omitting other mechanism therein for the sake of clearness and brevity. In said Burroughs machine there is a series of parallel sector-shaped carriers (one of said carriers being shown at 1, Fig. 1) on a common shaft 2. On said carriers are mounted the slidable type bars 3, and between the carriers are hammers 4 which strike the rear ends of the bars 3, and so cause the type to make an impression on the sheet A, carried by platen 5, whenever a carrier is swung, as shown in dotted lines, Fig. 1, to bring any one of its type bars 3 into the path of the hammer. The selection of the carriers to be swung, and of the particular type bar on each carrier to be brought into the paths of the hammers, is effected by suitable mechanism, not here shown, but controlled by finger keys, some of which are indicated at 6 in Figs. 1 and 3. The movement of the hammers is controlled by the manually operated lever 7, through intermediate mechanism, also not here shown, the timing of the hammer stroke being such that it is delivered after the sheet A and coupon strip B have been fed into position to receive the imprint. The usual carbon ribbon 8 extends between rollers 9, passes in front of the platen 5 and is operated by suitable mechanism, not here shown.

The specific mechanism here illustrated for rotating the platen 5 is substantially the same as in the aforesaid Burroughs machine, and is constructed as follows: The single operating lever 7, pivoted at 11 to any suitable support, is connected by link 12 to crank 13 on shaft 14. Said shaft carries a plate 15, in which is a cam slot 16, which receives a pin on one arm of a pivoted lever 17. The other arm of said lever is slotted at its end to reecive a pin on the sliding bar 18. On the upper end of said bar are jaws 19, which receive a pin on a crank 20 on a shaft 21 journaled in fixed plates 22. Another crank 10 on said shaft, Fig. 2, is connected by link 23 to a crank 24 loose on the shaft 25 which carries the platen 5 and the ratchet wheel 26. On crank 24 is a spring pawl 27 which engages with ratchet wheel 26. A strong helical retracting spring 28 is attached to the crank 13 on shaft 14. When the lever 7 is swung by hand to the left of Fig. 1, the pawl 27, actuated by the intermediate mechanism above described, moves over the teeth of ratchet wheel 26. When the lever 7 is released, it is retracted by helical spring 28 which, also through the aforesaid mechanism, causes the pawl to engage with the teeth of ratchet wheel 26, and so to rotate the platen 5 over the distance necessary to space apart the lines of printing on the sheet A thereon.

We will now describe our coupon printing device, as herein embodied, and its relation to the platen feeding mechanism above described. On opposite sides of the case 29 of the machine are provided platforms D, D′. On a fixed pin on platform D is a spool E carrying the coupon strip B. Said strip, which passes around guide rollers F, extends in front of the platen 5, and between the platen and the inking ribbon 8. It then is grasped between a pair of feed rolls H, I on platform D′, and is finally received on a winding roll J, also on said platform.

The feeding of the coupon strip B in proper relation to that of sheet A is effected by the following mechanism: The shafts of feed rolls H, I, journaled in a frame K, extend through the platform D′ and at their lower ends carry pinions L, M, between which motion is transmitted by gears N, Figs. 4 and 5. The pinion M is rotated by a gear O on shaft P, on which shaft is also a ratchet wheel Q. Loose on shaft P is a bell crank lever R, carrying two spring pawls S which engage with the teeth of ratchet wheel Q; so that when the lever R is swung in one direction, the pawls S run over the ratchet teeth and, when swung in the other direction, said pawls engage the ratchet teeth, and so rotate the feed rolls H, I to move forward the coupon strip B. In order to prevent possible overrunning of the feed rolls, loose collars H′, H′, Fig. 3, are applied to the upper ends of the roll shafts, above the frame K, and are connected to the ends of a helical spring I′, under tension,

so that said collars serve as brakes. The winding roll J is operated from the lever R by means of a link T. Said roll is journaled in platform D′ and below said platform carries a pinion U which engages with gear V on a shaft W, which also carries ratchet wheel X. Loose on shaft W is a bell crank lever Y, having an L-shaped slot Z, which receives a pin U′ on the end of link T. A spring pawl V′, carried by one arm of lever Y, engages with the teeth of ratchet wheel X. A helical spring W′ connects the pin U′ to a fixed abutment, and a similar spring X′ connects the end of lever Y to a similar abutment. When the lever Y is swung in one direction, the pawl V′ runs over the teeth of ratchet wheel X, and when said lever is swung in the other direction, said pawl engages with said teeth to rotate the winding roll J and so take up the fed strip B.

Motion is communicated to the levers R and Y from the hand lever 7. To this end, the crank 13 on shaft 14, (which, as already described, is operated by lever 7 through link 12) is connected by link A′ to bell crank B′, which in turn connects by link C′ to crank E′ on shaft G′, and this by crank K′ to pivoted rod F′ and so to lever R. See Fig. 1.

The timing is as follows: The parts being in the position shown in Figs. 1 and 2, the lever 7 is swung to the left of the drawing. This, by mechanism not shown, raises the selected carriers 1 so as to bring the type bars 3 in front of the hammers 4 and releases the devices controlling said hammers. The spring pawl 27 on the ratchet 26 of platen 5 and the spring pawls S on the ratchet Q of the feed rolls H, I move over the teeth of said ratchets. The spring pawl V′ on ratchet X of winding roll J remains motionless for a time, because the pin U′ on link T is running in the long straight portion of the L slot in lever Y. See Fig. 5, which shows the parts at the beginning of the movement. When said pin reaches the turned portion of the slot, then it engages with the lever Y to swing the same into the position shown in Fig. 4, the pawl V′ meanwhile running over the ratchet teeth. This brings spring X′ under tension.

The operator now lets go of lever 7, which is retracted by spring 28. The pawl 27 on the platen ratchet 26 rotates the platen 5 to give the predetermined line spacing. The pawls S on the ratchet Q of the feed rolls H, I rotate said rolls to feed the coupon strip B onward. The spring X′ turns the bell crank lever Y of the winding roll J, so that the long part of the slot in said lever comes in line with link T, thus preventing any positive action of the link pin U′ upon said lever Y, and thereafter said spring alone rotates the lever and hence actuates the pawl V′ to turn the winding roll J. In this way, the increase of diameter of the wound up strip B on the roll J is provided for, and the portion of the strip between the feed rolls and the winding roll is kept under proper tension.

While we have herein shown our device in a type printing machine of especial construction, it will be obvious that it is not limited thereto.

We claim:

1. A type printing machine comprising a platen, means for rotating said platen to feed an impression sheet supported thereon, an impression strip extending lengthwise of said platen and means for feeding said impression strip in the direction of its length.

2. A type printing machine comprising a platen, means for rotating said platen to feed an impression sheet supported thereon, an impression strip extending lengthwise of said platen, feed rolls engaging said impression strip and moving the same in the direction of its length, and means for simultaneously actuating said platen and said feed rolls.

3. A type printing machine comprising a platen, means for rotating said platen to feed an impression sheet supported thereon, an impression strip extending lengthwise of said platen, feed rolls engaging said impression strip and moving the same in the direction of its length, a manually operated lever, and mechanism connected to said lever for actuating said platen and said feed rolls.

4. A type printing machine comprising a platen, means for rotating said platen to feed an impression sheet supported thereon, an impression strip extending lengthwise of said platen, feed rolls engaging said impression strip and moving the same in the direction of its length, a winding roll receiving said strip from said feed rolls, a manually operated lever, and mechanism connected to said lever for actuating said platen, said winding roll and said feed roll.

5. A type printing machine comprising a platen, means for rotating said platen to feed an impression sheet supported thereon, an impression strip extending lengthwise of said platen, feed rolls engaging said impression strip and moving the same in the direction of its length, two parallel rock shafts, means for simultaneously oscillating said shafts, transmitting mechanism from one of said shafts to said platen rotating means, and transmitting mechanism from the other of said shafts to said strip feed rolls.

6. A type printing machine comprising a platen, means for rotating said platen to feed an impression sheet supported thereon, an impression strip extending lengthwise of said platen, feed rolls engaging said impression strip and moving the same in the direc-

tion of its length, a take-up device receiving said strip from said feed rolls, two parallel rock shafts, means for simultaneously oscillating said shafts, transmitting mechanism from one of said shafts to said platen rotating means and transmitting mechanism from the other of said shafts to said strip feed rolls and take-up device.

7. A type printing machine comprising a platen, mechanism for rotating the same to feed an impression sheet supported thereon, an impression strip extending lengthwise of said platen, feed rolls engaging said impression strip and moving the same in the direction of its length, mechanism for actuating said feed rolls, a manually operated lever, a retracting spring therefor, and transmitting mechanism connected to said lever and to said feed roll actuating mechanism and said platen actuating mechanism: the aforesaid parts being constructed and timed so that upon the movement of the lever against the action of the spring, said platen rotating mechanism and said feed roll actuating mechanism shall be brought into operating position and upon the release of said lever and retraction thereof by said spring said platen actuating mechanism and said feed roll actuating mechanism shall be operated.

8. A type printing machine comprising a platen, mechanism for rotating the same to feed an impression sheet supported thereon, an impression strip extending lengthwise of said platen, feed rolls engaging said impression strip and moving the same in the direction of its length, mechanism for actuating said feed rolls, a take-up device for said strip, mechanism for actuating said take-up device, a manually operated lever, a retracting spring therefor, and transmitting mechanism connected to said lever and to said feed roll actuating mechanism, said take-up device actuating mechanism and said platen rotating mechanism: the aforesaid parts being constructed and timed so that upon the movement of the lever against the action of the spring, said platen rotating mechanism, said take-up device actuating mechanism and said feed roll actuating mechanism shall be brought into operating position, and upon the release of said lever and retraction thereof by said spring, said platen rotating mechanism, said take-up device actuating mechanism and said feed roll actuating mechanism shall be operated.

In testimony whereof we have affixed our signatures in presence of two witnesses.

WILLIAM E. FREEMAN.
CHARLES C. WORTH.

Witnesses:
JOS. WILLIAMS,
MAY T. MCGARRY.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."