No. 838,215. PATENTED DEC. 11, 1906.

G. E. RUSSELL.

COUPON STAMPING MACHINE.

APPLICATION FILED DEC. 8, 1905.

4 SHEETS—SHEET 1.

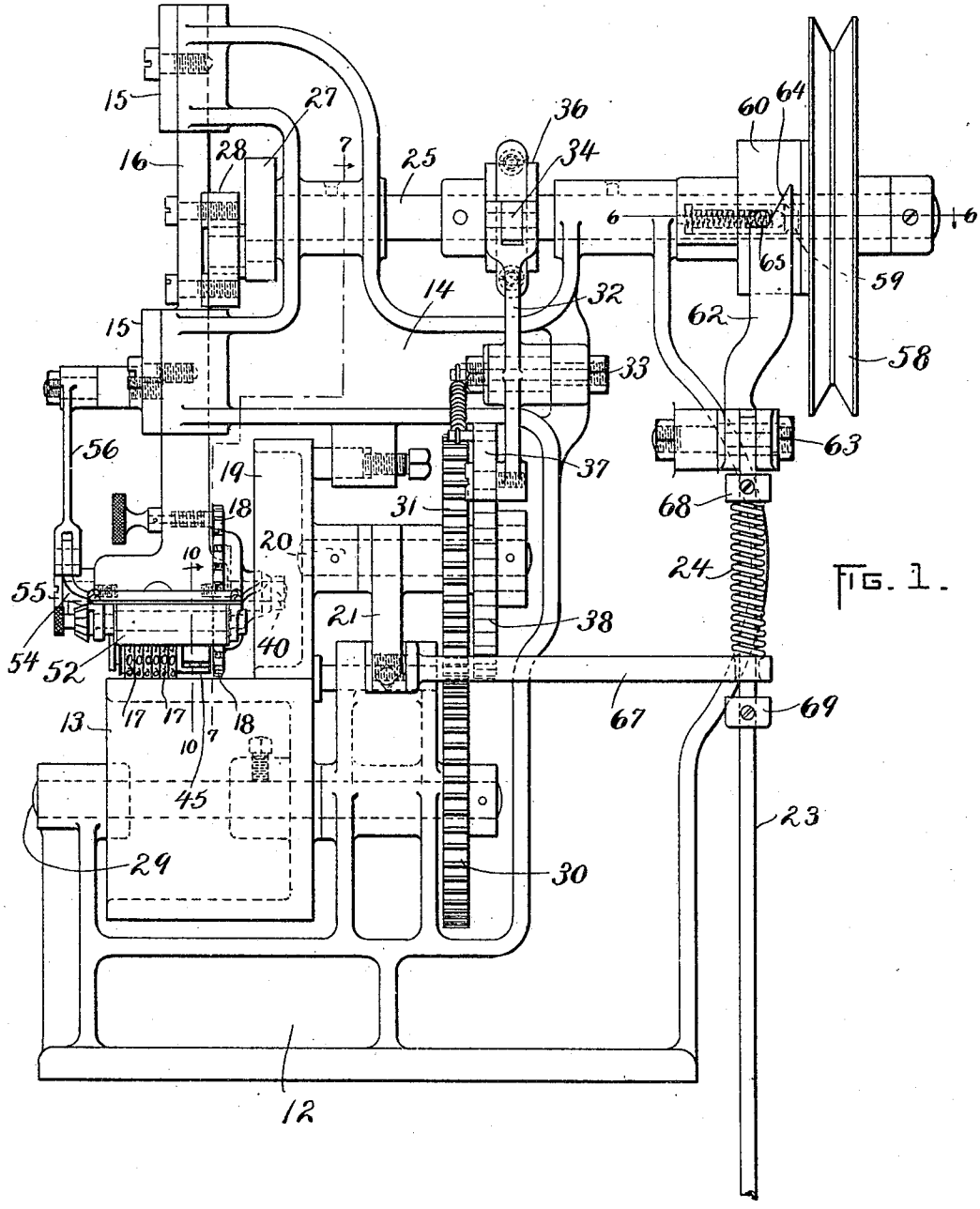

FIG. 1.

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by Wright Brown Quinby & May

Attys.

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4 SHEETS—SHEET 2.

FIG. 2.

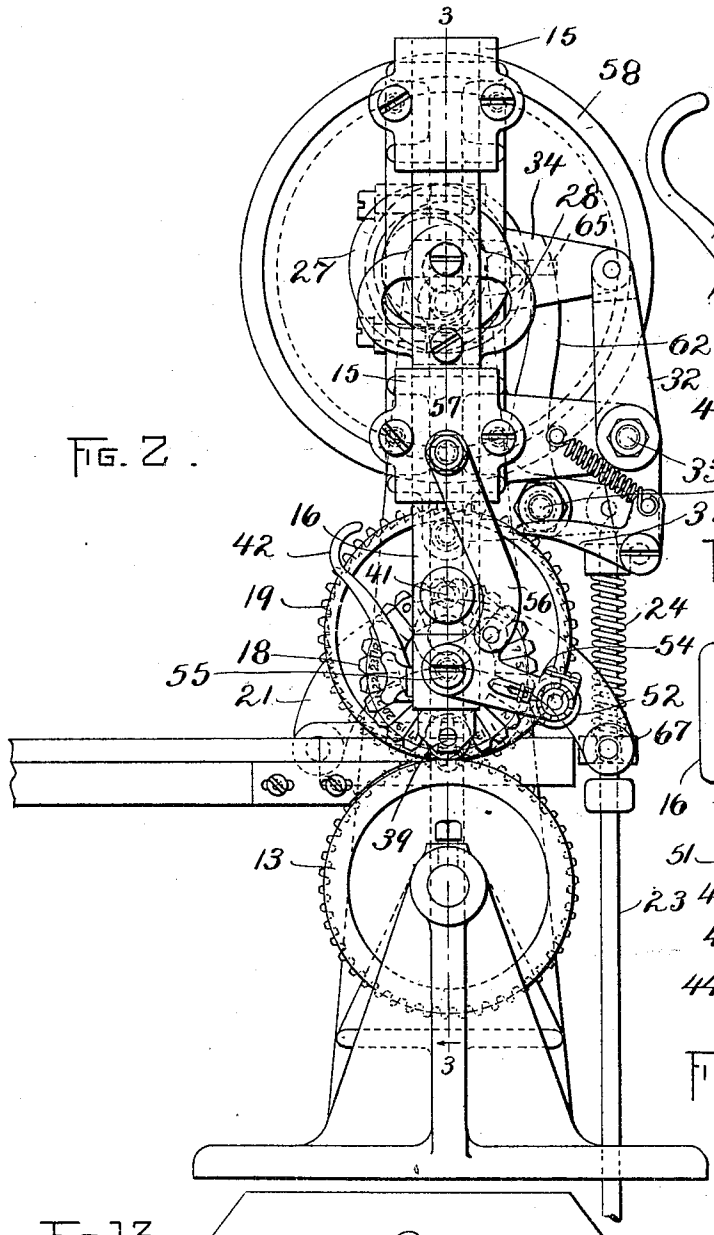


FIG. 10.

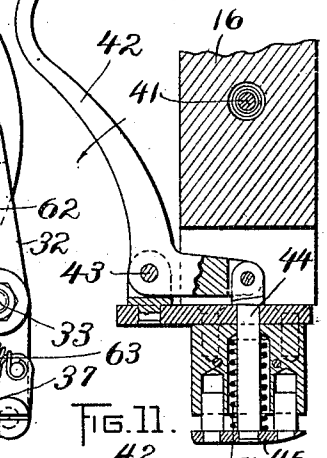


FIG. 11.

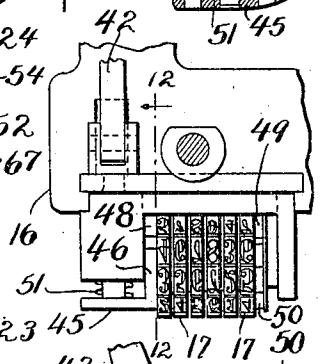


FIG. 12.

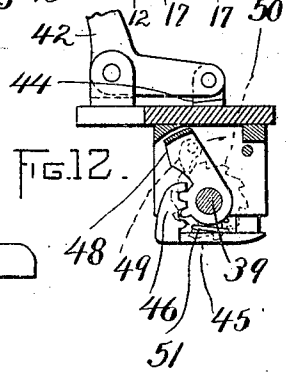
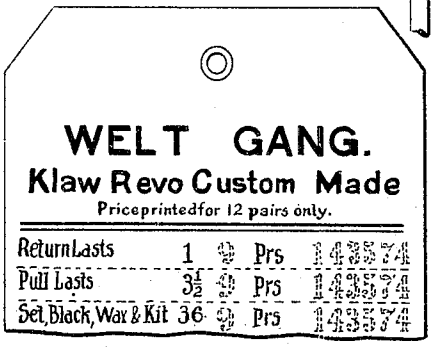


FIG. 13



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4 SHEETS—SHEET 3.

FIG. 4.

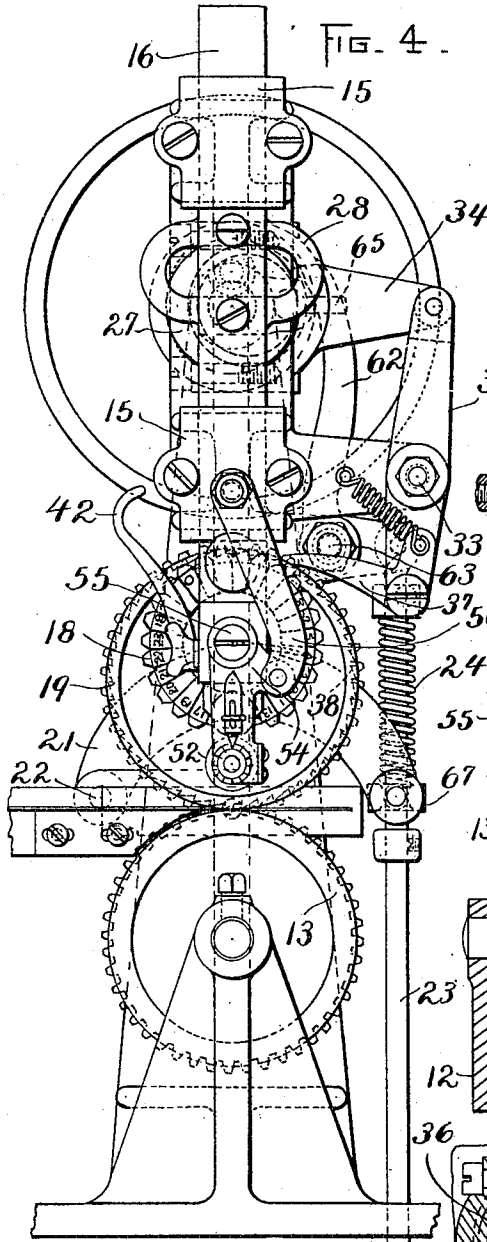


FIG. 3.

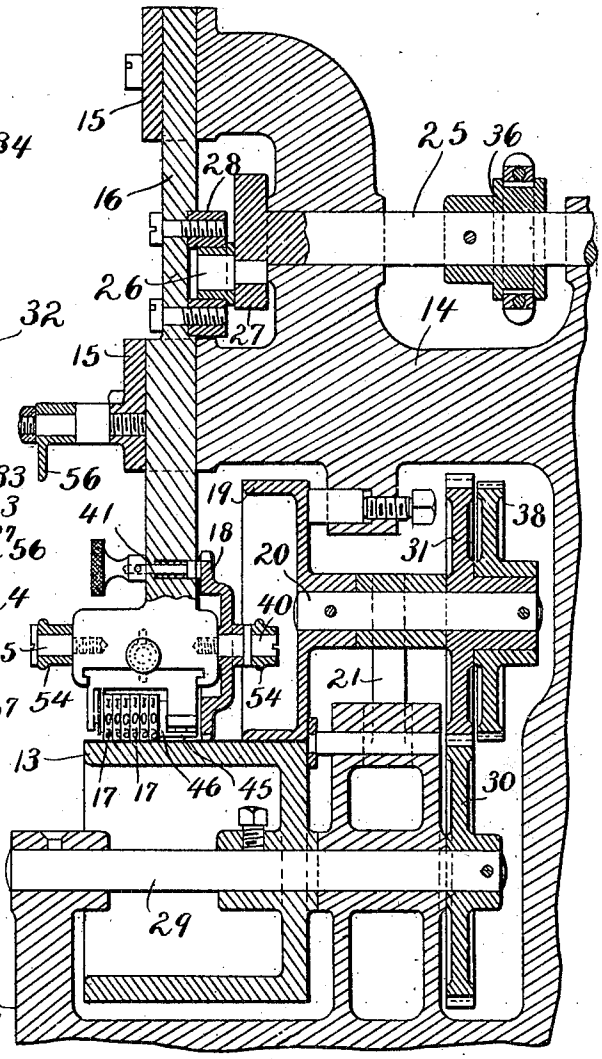


FIG. 5.

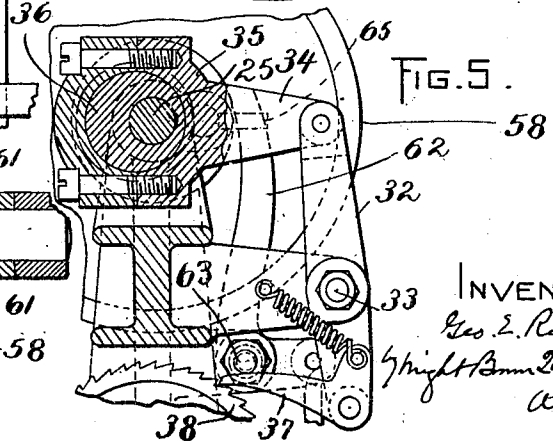
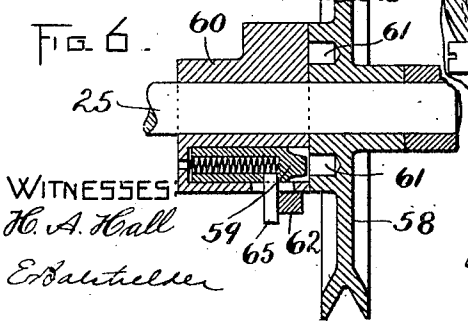


FIG. 6.



WITNESSES

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4 SHEETS—SHEET 4.

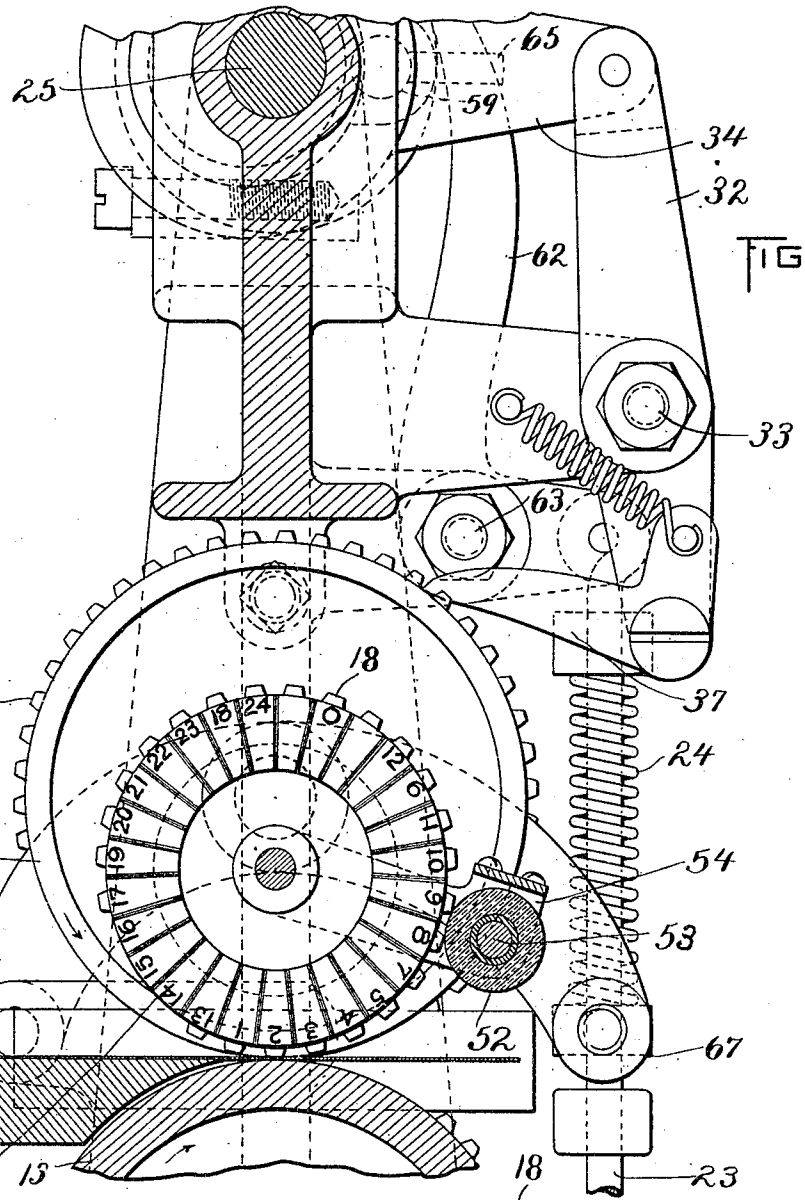


FIG. 7.

FIG. 8.

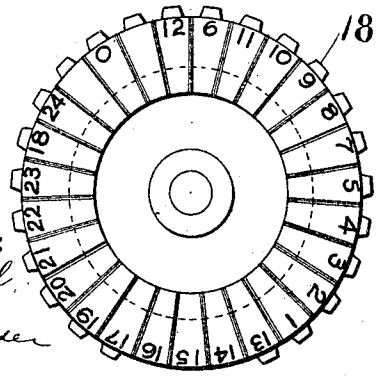
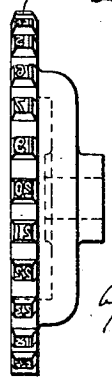


FIG. 9.



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UNITED STATES PATENT OFFICE.

GEORGE EDGAR RUSSELL, OF BROCKTON, MASSACHUSETTS.

COUPON-STAMPING MACHINE.

No. 838,215. Specification of Letters Patent. Patented Dec. 11, 1906.

Application filed December 8, 1905. Serial No. 290,896.

To all whom it may concern:

Be it known that I, GEORGE EDGAR RUSSELL, of Brockton, in the county of Plymouth and State of Massachusetts, have invented certain new and useful Improvements in Coupon-Stamping Machines, of which the following is a specification.

This invention has for its object to provide a machine adapted to repeatedly print the same number on a tag or strip of paper, the impressions being made at uniform distances apart, so that the tag or strip may be subdivided into a plurality of coupons each bearing one of the numbers impressed by the machine.

The invention is intended particularly for printing tags for use in shoe-factories, each tag comprising a series of partially-printed coupons. The coupons are provided with blanks, and each coupon is to be completed by printing in its blank or blanks certain numbers, which when read with the matter originally printed on the coupons constitute a record of the work by certain operatives in the factory.

The invention consists in the improvements hereinafter described and claimed, including means for feeding a tag or strip step by step and a reciprocating type-carrier which moves toward and from the path of the tag and adapted to print a plurality of repetitions of the same number or character on the different subdivisions of the tag, so that when the tag is severed into coupons each coupon will bear the same numbers or characters printed by a machine of my invention.

Of the accompanying drawings, Figure 1 represents a side elevation of a tag-printing machine embodying my invention. Fig. 2 represents a front elevation of the same. Fig. 3 represents a section on line 3 3 of Fig. 2. Fig. 4 represents a front elevation showing the type-carrier raised or retracted from the path of the tag. Fig. 5 represents a fragmentary view, partly in section and partly in elevation. Fig. 6 represents a section on line 6 6 of Fig. 1. Fig. 7 represents a section on line 7 7 of Fig. 1. Fig. 8 represents a side view, and Fig. 9 an edge view, of one of the type-wheels detached from the type-carrier. Fig. 10 represents a section on line 10 10 of Fig. 1. Fig. 11 represents a side elevation of the series of type-wheels forming a part of the printing mechanism and the holder for said type-wheels. Fig. 12 represents a section on line 12 12 of Fig. 11 looking toward the left. Fig. 13 represents a view of a portion of a tag, showing in dotted lines characters printed on the tag by the machine embodying my invention.

The same reference characters indicate the same parts in all the figures.

The supporting-frame of the machine has a base portion 12, having bearings for the bed-roll 13, which supports the tag, and an arm 14, which overhangs the bed-roll and is provided with guides 15 for the vertical slide or type-carrier 16, which supports the printing devices or type-wheels 17 17 and 18, hereinafter described.

19 represents a top roll which engages the upper surface of the tag and coöperates with the bed-roll in feeding the tag step by step the said rolls being rotated intermittently for this purpose. The top roll is narrower than the bed-roll and bears on the tag at or near one edge thereof, space being thus provided beside the top roll and over the bed-roll for the printing devices, which act on the portion of the tag projecting from one side of the top roll and supported by the bed-roll. The top roll is affixed to a shaft 20, which is journaled in a bearing on an arm 21, pivoted at 22 to a fixed ear on the supporting-frame, the arm 21 being adapted to swing vertically and thus move the top roll toward and from the bed-roll sufficiently to cause the rolls to either grasp or release the tag, the said arm being connected by a rod 23 with a treadle (not shown) whereby the operator is enabled to depress the top roll against the tag. When the treadle is released, a spring 24 raises the arm 21 and the top roll. The said treadle and spring constitute parts of a mechanism for stopping and starting the machine, as hereinafter described.

The type-carrier 16 is vertically reciprocated by connection with a driving-shaft 25, journaled in bearings in the upper portion of the frame, the motion of the type-carrier causing the printing devices or type-wheels to alternately impress and recede from a tag on the bed-roll. The said connections, as here shown, comprise a stud 26, eccentrically mounted on a disk or collar 27, affixed to the driving-shaft, and an abutment-piece 28, affixed to the type-carrier and provided with a horizontal slot, the opposite sides of which engage the eccentric stud, so that the revolu-

tion of said stud caused by the rotation of the driving-shaft reciprocates the type-carrier.

To the shaft 29 of the bed-roll is affixed a gear 30, meshing with a gear 31, affixed to the shaft of the top roll, said gears causing the rolls to rotate in unison when power is imparted to the shaft of one of said rolls. Connections are provided between one of the rolls and the driving-shaft, whereby the rolls are rotated step by step when the driving-shaft is rotated. Said connections, as here shown, comprise a lever 32, pivoted at 33 to a fixed ear on the frame, an arm 34, connecting one end of said lever with a strap 35, surrounding an eccentric 36, Fig. 5, affixed to the driving-shaft, and a pawl 37, pivoted to the opposite end of the lever 32 and engaging a ratchet 38, affixed to the shaft of the top roll. The lever 32 is oscillated and the pawl 37 reciprocated by the rotation of the driving-shaft, the pawl imparting a step-by-step rotation to the bed-roll and top roll.

The printing devices here shown comprise a series of type-wheels 17, which are mounted side by side on a stud 39, suitably affixed to the type-carrier 16, and a larger type-wheel 18, mounted to rotate upon a stud 40, affixed to the type-carrier. The smaller type-wheels 17 are adapted to coöperate in printing a number of several figures, there being six type-wheels 17 in the embodiment of my invention here shown. These type-wheels are independently rotatable or adjustable to form any desired combination of figures in the number printed in a manner so well known in numbering-machines as to require no specific description. The wheels 17 are not, however, adjusted automatically, and they remain in one adjustment during the operation of making a plurality of impressions on one tag, the said wheels printing the numbers shown in dotted lines near the right-hand edge of the tag shown in Fig. 13. A single larger type-wheel 18 is adapted to print the characters shown in dotted lines near the center of the said tag. The single wheel 18 is normally locked by a spring-pressed locking-pin 41 engaging grooves or notches in one side of the type-wheel. When this pin is retracted, the type-wheel 18 may be rotated to bring any part of its periphery into operative position. The type-wheels 17 may be adjusted by means of a manually-operated lever 42, pivoted at 43 to an ear on the type-carrier, the shorter arm of said lever being connected by a rod 44, Fig. 10, with a plate 45, to which is affixed an arm 46, having rack-teeth meshing with a rack-segment on a lever 48 and which is mounted to oscillate on the stud 39, supporting the type-wheels 17. To the arm 48 is pivoted a pawl 49, engaging a ratchet 50, which is affixed to the units-wheel 17 of the series. A spring 51, Fig. 10, normally holds the parts above described in the positions shown in Figs. 10 and 12, the pawl 49 being at one end of its stroke. When the lever 42 is moved by the operator in the direction of the arrow marked thereon in Fig. 10, the plate 45 is raised, thus causing the arm 48 and pawl 49 to move in the direction indicated by the arrow on Fig. 12. The pawl is thus moved a suitable distance to engage a tooth of the ratchet 50, and when the lever is released the spring 51 forces the pawl back to the position shown in Fig. 12, thus causing it to impart a partial rotation to the units-wheel. The lever 42 is moved to effect the described operation once after the printing of each tag, so that the wheels 17 are adjusted to print a different number on the next tag, there being a suitable connection between the wheels, as is usual in numbering-wheels, whereby each complete rotation of the units-wheel imparts a single step rotation to the tens-wheel, and so on. This connection being common and well known need not be here shown and described, the only novel feature here shown, so far as the adjustment of the series of wheels 17 is concerned, being the manually-operated lever 42, arranged to be operated by the operator to adjust the series of wheels 17 after the printing of each tag.

The type-wheels 17 and 18 are located at one side of the top roll 19 and over the portion of the bed-roll which projects at one side of the top roll. Hence the type-wheels are adapted to print impressions upon the portion of the tag which is supported by the bed-roll.

52 represents an inking-roll supported by a stud 53, Fig. 7, mounted in a swinging frame 54, having two hub portions which are adapted to swing the one on the stud 40, supporting the type-wheel 18, and the other on a stud 55, Fig. 3, affixed to the type-carrier in alinement with the stud 40. The inking-roll is thus adapted to swing from a position at one side of the type-wheels, as shown in Figs. 2 and 7, to a position under the type-wheels, as shown in Fig. 4, the inking-roll being moved to the last-mentioned position when the type-carrier is raised or retracted. This movement is caused by a link 56, pivoted at 57 to one of the fixed guides of the type-carrier and jointed to one of the arms of the swinging frame 54, carrying the ink-roller, the arrangement being such that when the type-carrier is depressed in position to print the tag the ink-roller is swung outwardly and upwardly, as shown in Figs. 2 and 7, and when the type-carrier is retracted the ink-roller is swung downwardly into contact with the lower portions of all the type-wheels, as shown in Fig. 4.

58 represents a normally loose driving-pulley on the driving-shaft 25, the said shaft and pulley being provided with clutch members whereby the pulley may be locked to the shaft. One of said clutch members has a

spring-pressed bolt 59, Fig. 6, mounted to slide in a socket in a collar 60, affixed to the driving-shaft 25, said bolt being normally projected and adapted to engage either one of a series of sockets 61, formed in the hub portion of the driving-pulley.

62 represents an elbow-lever pivoted at 63 to a fixed support, one arm of said lever being normally pressed against the collar 60 and provided with an incline 64, adapted to engage a pin 65, projecting from the bolt 59. The engagement of the arm 62 with the pin 65 causes the retraction of the bolt, as shown in Fig. 6, thus making the driving-pulley loose upon the driving-shaft. The elbow-lever 62 has a shorter arm, which is connected with the rod 23, extending to the treadle, the arrangement being such that the depression of the treadle causes the arm 62 to swing away from the collar 60, thus releasing the bolt 59 and allowing it to spring into engagement with one of the sockets of the driving-pulley. So long, therefore, as the operator holds the treadle depressed by his foot the driving-pulley is in engagement with the driving-shaft and the operation of the machine is continuous, the feed-rolls being rotated step by step and the type-carrier reciprocated toward and from the path of the tag. The mechanism is so timed that the type-carrier and the tag-feeding devices operate alternately—that is, the type-carrier descends and prints an impression on the tag when the latter is at rest, the tag being fed while the type-carrier is retracted. When the treadle is released, the spring 24 presses the arm 62 against the collar 60, and thus causes the disengagement of the driving-pulley from the driving-shaft and the stoppage of the machine.

As previously stated, the spring 24 acts to depress the top roll 19 and hold it upon the tag resting upon the bed-roll, this function of the spring being performed through an arm 67, which is affixed to the swinging end of the lever 21, supporting the top roll 19. The treadle-rod 23 passes loosely through an orifice in said arm, and the spring 24 is interposed between the arm and a collar 68, affixed to the upper portion of the rod 23. Hence the spring exerts a downward pressure on the arm 67 and on the top roll 19.

69 represents a collar affixed to the treadle-rod 23 below the arm 67, said collar engaging the arm 67 and through said arm raising the swinging end of the lever 21, thus separating the top roll from the bed-roll when the treadle is released. Hence the top roll is normally raised, leaving sufficient opening between the two rolls for the unobstructed insertion and adjustment of the tag between the rolls prior to the printing operation.

After a tag has been passed through the machine and printed and has received from the type-wheels the characters indicated by dotted lines in Fig. 13 it is ready to be cut up into sections along the transverse dotted lines shown in Fig. 13, each section being a voucher for an operation performed in the manufacture of a boot or shoe by one of the workmen.

If it is desired to print only the numbers shown at the right-hand portion of the tag, the type-wheel 18 may be made inoperative. For this purpose the type-wheel 18 has a part of its periphery unprovided with printing characters, as shown at 70, Fig. 7. When the wheel is adjusted to bring the inoperative portion 70 at the bottom, no printing will be performed by the type-wheel 18.

I claim—

1. A tag-printing machine comprising feeding mechanism adapted to move a tag step by step, a reciprocating carrier moving toward and from the patn of the tag, a series of type-wheels rotatively mounted side by side on the carrier, a larger type-wheel rotatively mounted on the carrier with its operative portion in alinement with the operative portions of the type-wheels of the series, and means for locking the larger wheel in different positions.

2. A tag-printing machine comprising feeding mechanism adapted to move a tag step by step, a reciprocating carrier moving toward and from the path of the tag, a series of type-wheels mounted side by side on the carrier, and a larger type-wheel mounted on the carrier beside the said series of wheels, the printing characters of said larger wheel being omitted from a portion of the wheel.

3. A machine for successively printing the same characters on different portions of a tag or strip, comprising a bed-roll, a top roll coöperating with the bed-roll in feeding the tag, a type-carrier movable toward and from said bed-roll to print a tag supported by said bed-roll, and mechanism for alternately operating the type-carrier and rolls to cause a series of duplicate impressions on the tag.

4. A machine for successively printing the same characters on different portions of a tag or strip, comprising a bed-roll and a top roll, adapted to engage a tag, a type-carrier movable toward and from the bed-roll, and mechanism for automatically and alternately rotating the rolls step by step and reciprocating the type-carrier to cause a series of duplicate impressions on the tag, different portions of the surface of the bed-roll coacting with the top roll and the type-carrier for the purpose described.

5. A machine for successively printing the same characters on different portions of a tag or strip, comprising a bed-roll and a top roll, a type-carrier movable toward and from the bed-roll, mechanism for operating the top roll and the type-carrier, different portions of the surface of the bed-roll coacting with the top roll and the type-carrier for the purpose described, and an inking device ac-

tuated by movements of the type-carrier to ink the printing characters thereon when the carrier is retracted.

6. A machine for successively printing the same characters on different portions of a tag or strip, comprising a bed-roll and a top roll, a type-carrier movable toward and from the path of the tag, mechanism for alternately operating the top roll and the type-carrier, different portions of the surface of the bed-roll coacting with the top roll and the type-carrier for the purpose described, an ink-roll journaled in an oscillatory frame pivoted to the carrier, and a link connecting the said frame with a fixed support.

7. A machine for successively printing the same characters on different portions of a tag or strip, comprising a bed-roll and a top roll, a type-carrier, a driving-shaft, connections between the driving-shaft and rolls for rotating the latter step by step, and connections between the driving-shaft and the type-carrier for reciprocating said carrier alternately with the feeding movements of the said rolls, different portions of the surface of the bed-roll coacting with the top roll and the type-carrier for the purpose described.

8. A machine for successively printing the same characters on different portions of a tag or strip, comprising a bed-roll and a top roll, means for actuating the top roll, a type-carrier movable toward and from the bed-roll, means for reciprocating the type-carrier in alternation with the operation of the feeding mechanism, a series of type-wheels rotatively mounted side by side on the carrier, and means for adjusting said type-wheels, said means including a manually-operated lever mounted on the type-carrier, different portions of the surface of the bed-roll coacting with the top roll and the type-carrier for the purpose described.

In testimony whereof I have affixed my signature in presence of two witnesses.

GEORGE EDGAR RUSSELL.

Witnesses:

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E. BATCHELDER