(No Model.) 2 Sheets—Sheet 1.

W. T. BLAINE.

TRIPLICATING REGISTER.

No. 564,046. Patented July 14, 1896.

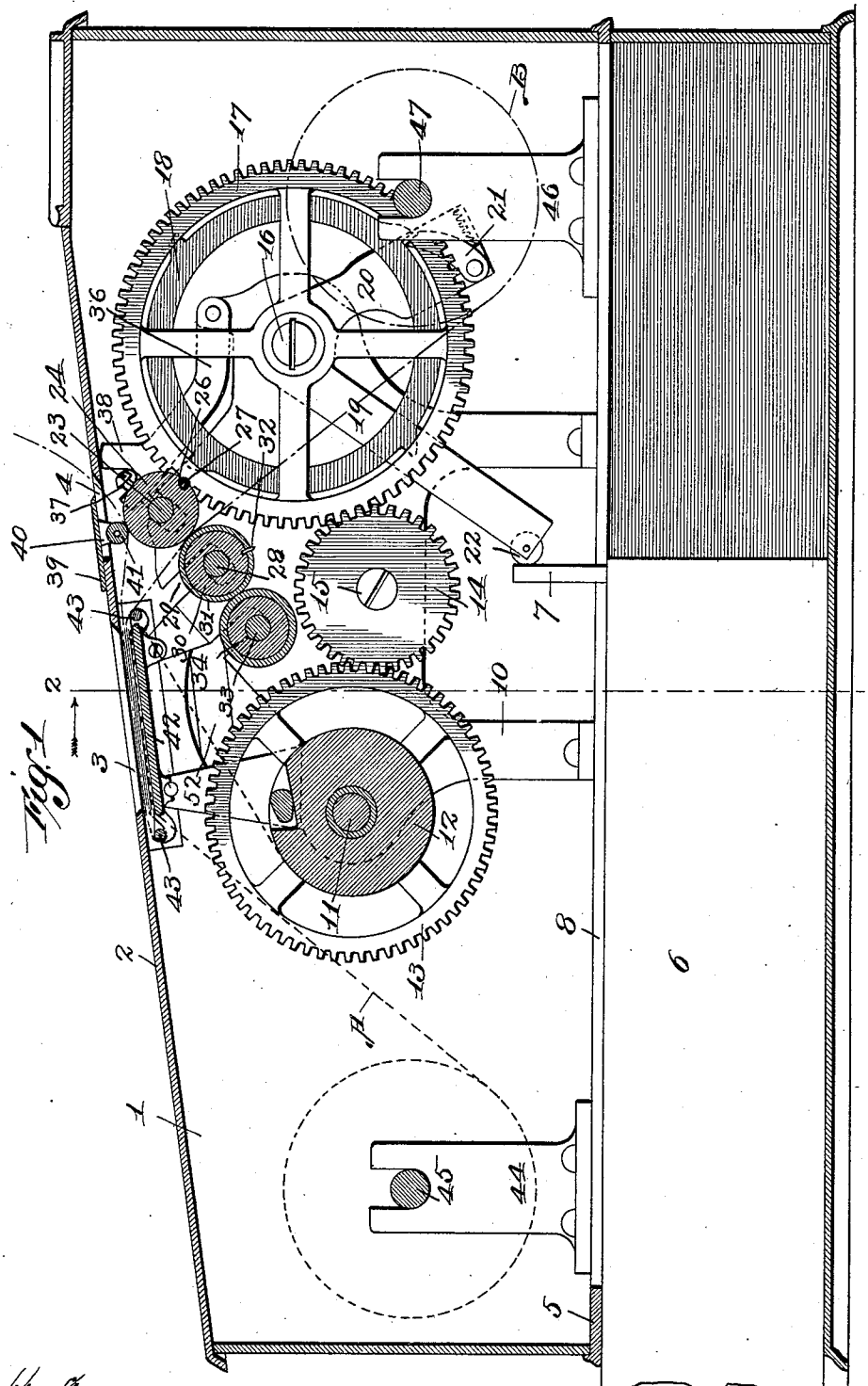

Fig. 1.

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(No Model.) 2 Sheets—Sheet 2.

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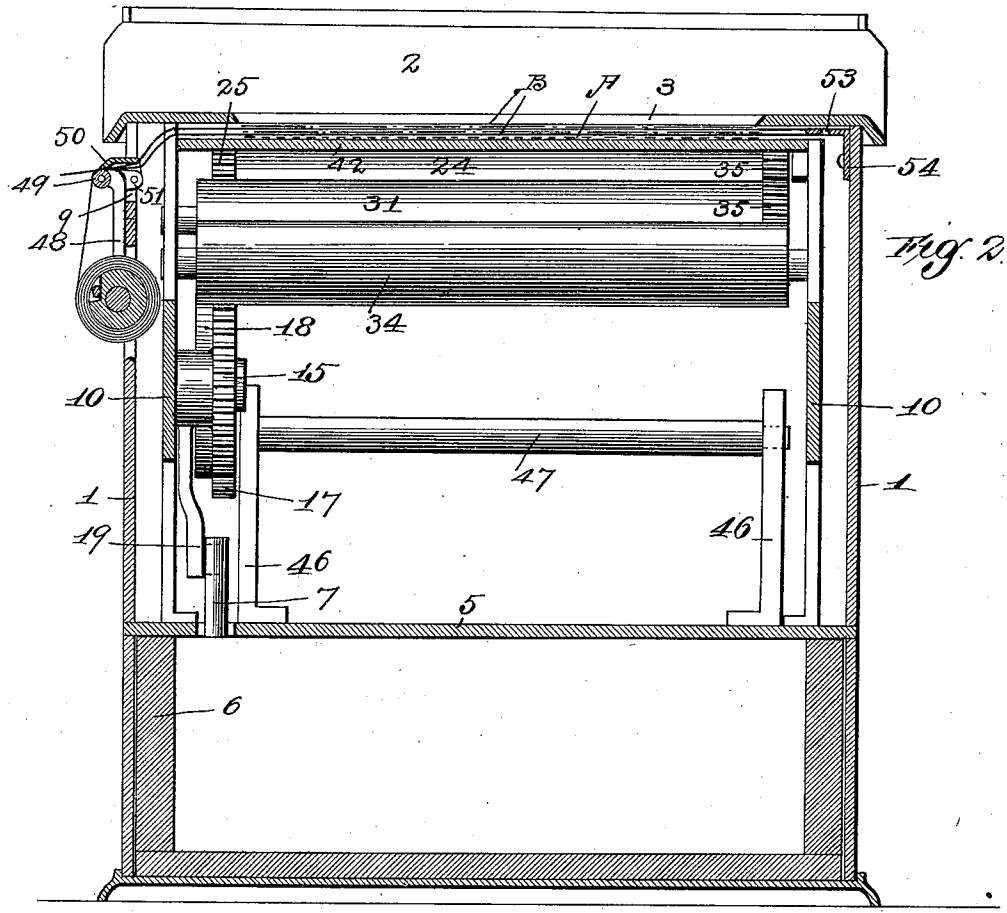

Fig. 2.

Fig. 3.

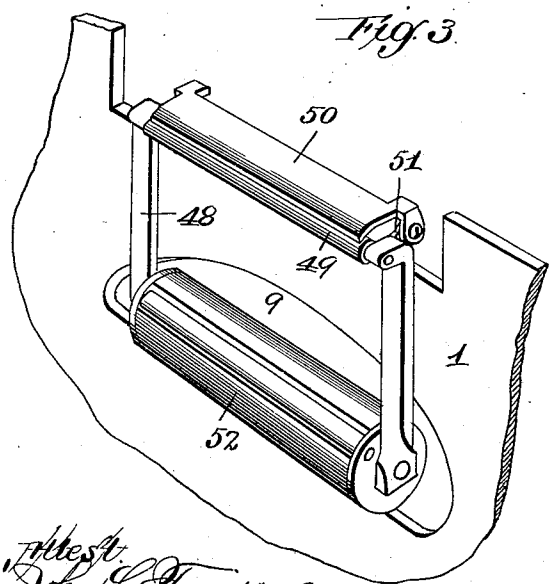

Fig. 4.

—Dxurbg & Bro.—
—Fine Dry Goods.— 55

Paid out			Sold by Clerks	Cash Sales		Credit Sales	
59	00	c.		27		894	22

Paid out			Sold by Clerks	Cash Sales		Credit Sales	
59	00	c.		27		894	22

56

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UNITED STATES PATENT OFFICE.

WILLIAM THOMAS BLAINE, OF ST. LOUIS, MISSOURI.

TRIPLICATING-REGISTER.

SPECIFICATION forming part of Letters Patent No. 564,046, dated July 14, 1896.

Application filed January 10, 1896. Serial No. 574,978. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM THOMAS BLAINE, of the city of St. Louis, State of Missouri, have invented certain new and useful Improvements in Triplicating-Registers, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention relates to an improved triplicating-register; and it consists in the novel construction, combination, and arrangement of parts hereinafter described and claimed.

In the drawings, Figure 1 is a longitudinal sectional view approximately through the center of my improved triplicating-register. Fig. 2 is a vertical sectional view taken approximately on the indicated line 2 2 of Fig. 1. Fig. 3 is a detail perspective view of the roller on which the carbon or transfer paper winds in my improved register. Fig. 4 is a view showing the cashier's check and the voucher or customer's check after said checks have been discharged from the machine and removed by the clerk or salesman.

Referring by numerals to the accompanying drawings, 1 indicates a rectangular casing of suitable size, the top 2 of said casing being slightly inclined and provided with a pair of transverse apertures 3 and 4. A horizontally-arranged partition 5 divides the casing into two compartments, the lower one of which is occupied by a cash-till 6, upon the rear end of which is fixed a vertical pin 7, that operates in a longitudinally-extending slot 8 in the partition 5.

Formed in the top of one of the sides of the casing 1 at a point immediately beneath the aperture 3 is an aperture 9. Located upon the partition 5 at points adjacent the side walls of the casing 1 are suitable frames 10, which are identical in size and form, said frames being of such form as that they will readily receive and sustain the various shafts, rollers, and other operating mechanism of my improved register.

Journaled transversely in suitable bearings formed at the forward ends of these frames 10 is a shaft 11, the same carrying a drum 12, and fixed upon one end of said shaft just inside one of the frames 10 is a gear-wheel 13. A smaller gear-wheel 14 is arranged for rotation upon a stud 15, that is fixed to one of the frames 10, said gear-wheel 14 being in mesh with the gear-wheel 13. Journaled upon a stud 16, that projects from the same frame 10 from which the stud 15 projects, is a gear-wheel 17, that is in mesh with the gear-wheel 14, and formed integral with said gear-wheel 17 is a ratchet-wheel 18, the same having four teeth. Loosely mounted upon the stud 16, between the gear-wheel 17 and the frame 10 from which said stud projects, is a bell-crank 19, the shorter arm 20 of which is weighted and carries at its lower end a spring-actuated pawl 21, the point of which engages with the teeth of the ratchet-wheel 18. The longer arm of this bell-crank 19 is provided at its lower end with an antifriction-roller 22, against which the pin 7 of the cash-till engages.

Journaled between the tops of the frames in a plane below those occupied by the shaft 11 and stud 16 is a shaft 23, which carries a drum 24, there being a pinion 25 fixed upon one end of said shaft 23, and said pinion being in mesh with the gear-wheel 17. The bearings in which this shaft 23 rotates are so formed as to allow said shaft to move vertically a slight distance.

Extending longitudinally in the periphery of the drum 24 is a groove 26, in which is arranged a body 27, of rubber or analogous material. This rubber extends a very slight distance beyond the periphery of the drum 24.

A shaft 28 is journaled for rotation in bearings 29, formed in the frames 10 a slight distance below the bearings in which the shaft 23 rotates, said bearings 29 being so formed as to allow a slight vertical movement of said shaft 28, and upon said shaft is fixed a drum 30, the periphery of which carries a rubber printing-stamp 31. Extending longitudinally in this drum 30 is a perforating-knife 32, the same having a serrated edge. Journaled transversely between the frames 10, at a point slightly below and in front of the shaft 28, is a shaft 33, on which is fixed a roller 34, the periphery of which is covered with felt or analogous absorbent material, this absorbent covering being intended to act an an inking-pad for the printing-roller 30, hereinbefore described. Meshing pinions 35, located upon the ends of the shafts 28 and 33 adjacent one of the frames 10, cause said shafts 28, carry-

ing their respective drums 30 and 34, to operate in unison.

36 indicates arms that are hinged to the rear ends of each of the frames 10, said arms being so constructed as that their forward ends will, when in normal position, lie immediately above the bearings in which the shaft 23 is mounted, and passing through said free ends of the arms 36 are set-screws 37, the lower ends of which engage upon the ends of said shaft 23. Lugs 38 are formed integral with the free ends of the arms 36, said lugs extending upwardly and being engaged by the under side of the top 2 of the casing when said top is in proper position.

Located upon the top 2, and partially covering the aperture 4, is a plate 39, the under side of which carries a pair of lugs 40, between which is journaled a roller 41, the same bearing directly upon the periphery of the drum 24.

42 indicates a plate which occupies a position within the casing 1 immediately below the aperture 3, said plate being hinged to upwardly-extending portions of the frames 10.

Extending transversely between the sides of the casing 1, immediately in front and behind this plate 42, are rods 43. Arranged for rotation in suitable bearings 44, located on the partition 5 at the forward end of the casing, is a shaft 45, upon which is wound the roll of paper which will be known as the "record-strip," and which is indicated by the dotted lines A. Located in bearings 46, identical with the bearings 44, but at the rear of the casing 1, is a shaft 47, upon which is wound a roll of paper from which the voucher and cashier's check are torn or removed, said last-mentioned roll being indicated by the dotted lines B. Located upon the exterior of the side of the casing 1 in which the aperture 9 is formed are vertically-extending bars 48, between the upper ends of which is journaled a roller 49. A plate 50 is hinged to lugs 51, that extend rearwardly from the upper ends of the bars 48, in such a manner as that its forward end normally rests directly upon top of the roller 49. Between the lower ends of the bars 48 is journaled a drum 52, upon which the carbon or transfer paper is wound. The web of said carbon or transfer paper extends from said roller upwardly over the roller 49, from thence beneath the point of the plate 50, thence through the upper portion of the aperture 9, over the plate 42, through the slot 53, formed in a plate 54, that is fixed to the side of the casing 1 opposite from the side in which the aperture 9 is formed, and from thence the web of said carbon or transfer paper is doubled back over the plate 42, beneath the plate 50, and out between the point of said plate and the roller 49.

The web of the record-strip, or that strip which remains in the apparatus, extends upwardly over the roll located upon the shaft 45, over the plate 42, beneath the lower portion of the carbon-paper on said plate, from thence downwardly over the rear end of the plate 42 to the drum 12, upon which drum said record-strip winds after the impression of the entry of the clerk is made upon said strip.

The web of the roll of paper wound upon the shaft 47 passes upwardly between the printing-roller 30 and the pressure-roller 24, from thence over the rod 43 at the rear end of the plate 42, from thence between the two layers of carbon upon the plate 42, from thence around the rod 43 at the forward end of the plate 42. From thence said web is doubled back over the top of the carbon or transfer paper upon the plate 42, from thence between the rollers 41 and 24, and from thence out of the apparatus through the aperture 4 in front of the plate 39.

The operation of my improved triplicating-register is as follows: The clerk or salesman first makes the entry of whatever transaction has just been made upon that portion of the web of the roll B that is exposed through the aperture 3 in the top 2 of the casing. This original entry is made upon the customer's check, which is indicated by the numeral 55, Fig. 4. As the web of the roll B is doubled back beneath the first layer of transfer-paper upon the plate 42 the record made upon the customer's check will be transferred onto the voucher-check, which is indicated by the numeral 56, Fig. 4. The record thus made and duplicated will be triplicated or transferred onto the record-strip of the roll A, as said record-strip passes beneath the lowermost section of the transfer-paper upon the plate 42. After the salesman has properly recorded the transaction the cash-till is withdrawn and the money received or paid out in said transaction is placed in or removed from said till, after which said till is closed or moved into its proper position within the casing 1, and, in so doing, the pin 7, carried by the rear end of the till, will engage against the antifriction-roller 22 on the lower end of the long arm of the bell-crank 19, and as said till is completely closed said bell-crank will move approximately one-quarter of a complete turn. The spring-actuated pawl 21, carried by the weighted arm of the bell-crank, will engage with one of the teeth of the ratchet-wheel 18 during the movement just described, and said ratchet-wheel, which is firmly fixed upon the gear-wheel 17, will be moved approximately one-quarter of a revolution, which will necessarily move the gear-wheel a like distance. Said gear-wheel 17 being in mesh with the pinion 25, carried by the end of the shaft 23, will necessarily rotate said shaft and the drum 24 carried thereby, and said drum pressing upon the roller 30 will cause a portion of the web of the roll B to pass between said printing-roller and said pressure-roller, and at the same time a portion of the web of the roll B which has just had the record made upon it will be drawn between the rollers 41

and drum 24, after which said portion will pass out of the machine and through the aperture 4 in front of the plate 39. This portion that passes out is the customer's check and voucher, the same being separated by a row of perforations, made in a manner yet to be described. After said customer's check and voucher have passed from the machine they can be removed by the salesman. After said checks are removed the voucher is torn from the customer's check at the line of perforations, the customer's check being delivered to the customer and the voucher is delivered to the cashier. As the gear-wheel 17 is partially rotated said rotary motion will be imparted to the gear-wheel 13, and consequently to the shaft 11 carrying said gear-wheel 13, by means of the gear-wheel or pinion 15, which meshes with said gear-wheels 17 and 13. As the shaft 11 is rotated the drum 12 carried thereby will necessarily be rotated, and a portion of the web of the record-strip A will be wound upon said drum, the portion that rolls upon said drum 12 being that portion upon which is made an impression of the record made by the clerk or salesman. As the drum 24 presses the web of the roll B onto the periphery of the printing-roller 30 said printing-roller will be rotated whenever a portion of said web is drawn between said printing-roller 30 and the drum 24, and the inking-roller 34 being geared to the printing-roller said inking-roller will be rotated whenever said printing-roller rotates. The rubber printing-stamp 31 carried by the printing-roller 30 being inked from the inking-roller 34 will leave an impression upon one side of the web of the roll B, which impression may be an advertisement, a bill-head, or any matter desired. The perforator 32 will, at every single revolution of the printing-roller, engage and pass through the web of the roll B and perforate the same at the desired point. The portion of rubber 27 is so located in the pressure-drum 24 as that it will coincide with this perforator 32. Consequently the serrated edge of said perforator will not be dulled by coming in contact with the periphery of the pressure-drum.

When the carbon or transfer paper that is located upon the plate 42 becomes unfit for use, it can be removed and replaced by a fresh or unused section by drawing outwardly upon the free end of said paper that projects between the plate 50 and roller 49, said used portion being then removed by being torn off against the edge of the plate 50.

Thus will be seen how I have constructed a triplicating apparatus that prints, perforates, and delivers to the salesman a voucher and customer's check, and also retains within the casing an impression or duplicate copy of all the records made upon the apparatus. If desired, the various checks can be consecutively numbered by suitable mechanism or by the salesman when making the record, said numbering being for the purpose of facilitating the subsequent finding of some particular record.

In the foregoing description the triplicating mechanism has been described as being operated by the longitudinal movement of the cash-till. While it is the intention to operate said triplicating mechanism in this manner, it will be readily seen by persons familiar with the art to which my invention pertains that said mechanism can be located in a special casing and actuated by a manually-operated crank, lever, or the like.

I claim—

1. A triplicating apparatus, constructed with a suitable casing, a horizontally-arranged partition dividing said casing into two compartments in which partition is formed a longitudinally-extending slot, a cash-till operating in the lower compartment, a pin carried by the rear end of said cash-till that extends upwardly through the hereinbefore-mentioned slot, a pair of frames carried by the partition, suitable paper printing and feeding rollers journaled between said frames, a stud projecting from one of said frames, a gear-wheel journaled upon said stud, a ratchet-wheel formed integral with said gear-wheel, a bell-crank journaled upon said stud, a spring-actuated pawl carried by one end of said bell-crank for engaging the teeth of the ratchet-wheel, and an antifriction-roller carried by the long arm of said bell-crank with which the hereinbefore-mentioned pin engages to actuate the gear and ratchet wheels.

2. A triplicating apparatus, constructed with a suitable casing, a horizontally-arranged partition dividing said casing into two compartments in which partition is formed a longitudinally-extending slot, a cash-till operating in the lower compartment, a pin carried by the rear end of said cash-till that extends upwardly through the hereinbefore-mentioned slot, suitable frames located upon the partition, a series of shafts journaled between said frames in bearings which allow said shafts slight vertical movement, a pressure-drum located upon one of said shafts, a printing-roller carried by the second shaft, a perforating device carried by said printing-roller, an inking-roller carried by the remaining shaft, meshing pinions carried by the shafts of the printing and inking rollers, a pinion carried by the shaft of the pressure-drum, a stud fixed to one of the frames, a gear-wheel journaled upon said stud, the same meshing with the last-mentioned pinion, a ratchet-wheel formed integral with the gear-wheel, a bell-crank carried by said stud, a spring-actuated pawl carried by the short arm of said bell-crank, the point of which engages the teeth of the ratchet-wheel, and an antifriction-roller carried by the long arm of the bell-crank that is engaged by the pin carried by the cash-till.

3. In a triplicating apparatus, a casing provided with a pair of apertures in its top, a

plate located immediately below one of said apertures, suitable mechanism within the casing for passing continuous strips of paper over said plate, a pair of vertically-arranged bars carried by the outside of the casing immediately below the larger one of the apertures, a roller journaled between the upper ends of said bars, a plate hinged to the upper ends of said bars, the point of which engages upon said roller, a roller journaled between the lower ends of said vertical bars, and a continuous strip of carbon or impression paper winding from said last-mentioned roller, the same being extended over the plate, doubled back and passed between the first-mentioned roller and the plate.

4. In a triplicating apparatus, a suitable casing, a horizontally-arranged partition within said casing, a pair of frames carried upon said partition, a series of shafts journaled transversely in bearings formed in said frames, which bearings allow said shafts slight vertical movement, a pressure-drum carried by the upper one of said shafts, a section of rubber carried by the periphery of said pressure-drum, a printing-roller carried upon the next lower shaft, a serrated perforated blade carried by said printing-roller, an inking-roller carried by the lower one of the shafts, suitable meshing gear-wheels carried by the shaft of the printing and inking rollers, arms hinged to the frames for applying pressure to the shaft of the pressure-drum, and suitable means for rotating the shaft of the pressure-drum.

5. A triplicating apparatus, constructed with a suitable casing, a pair of frames located within said casing, suitable paper printing and feeding rollers journaled between said frames, a stud projecting from one of said frames, a gear-wheel journaled upon said stud, a ratchet-wheel formed integral with said gear-wheel, a bell-crank journaled upon said stud, a spring-actuated pawl carried by one end of said bell-crank for engaging the teeth of the ratchet-wheel, an antifriction-roller carried by the long arm of said bell-crank, and means for actuating said bell-crank to operate the various mechanisms hereinbefore stated, substantially as specified.

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

WILLIAM THOMAS BLAINE.

Witnesses:
JOHN C. HIGDON,
MAUD GRIFFIN.