M. SIELAFF.

VENDING MACHINE.

APPLICATION FILED OCT. 2, 1911.

1,032,629.

Patented July 16, 1912.

2 SHEETS—SHEET 1.

Fig. 1

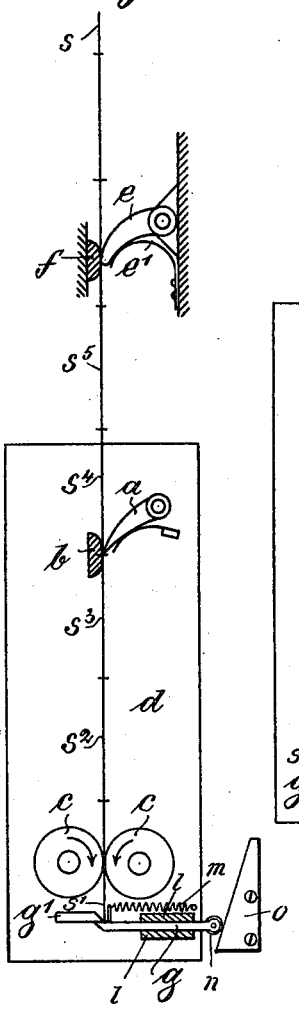


Fig. 2.

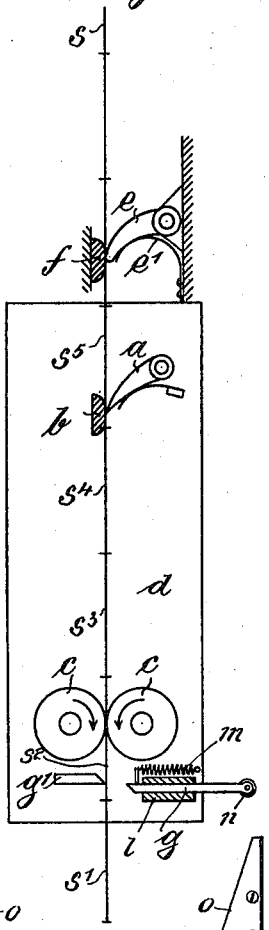


Fig. 3.

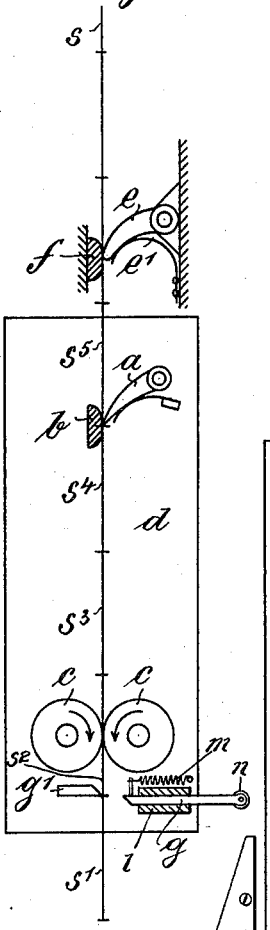


Fig. 4.

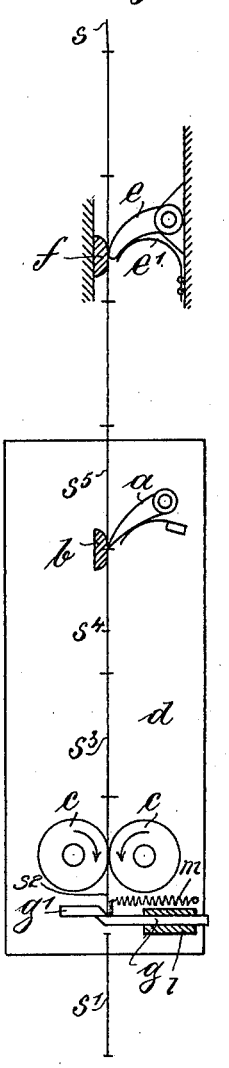
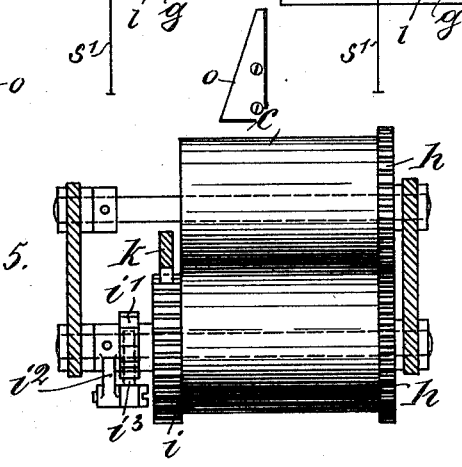


Fig. 5.



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2 SHEETS—SHEET 2.

Fig. 8.

Fig. 6.

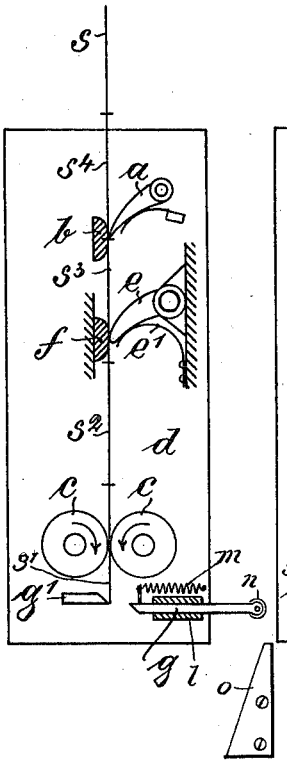
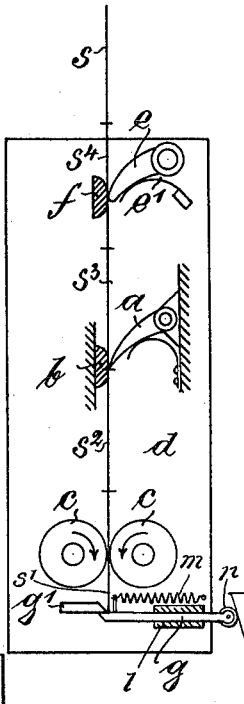
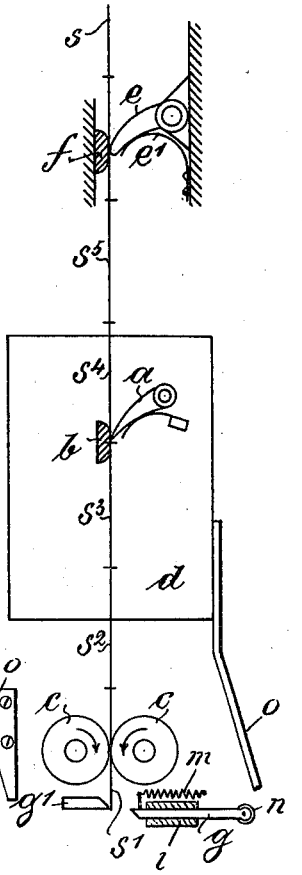


Fig. 7.





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VENDING-MACHINE.

1,032,629. Specification of Letters Patent. Patented July 16, 1912.

Application filed October 2, 1911. Serial No. 652,344.

To all whom it may concern:

Be it known that I, MAX SIELAFF, a subject of the King of Prussia, and resident of 23 Spenerstrasse, Berlin, Kingdom of Prussia, German Empire, have invented certain new and useful Improvements in Vending-Machines, of which the following is a specification.

This invention relates to vending machines and is particularly adapted for machines for vending postage stamps and the like.

The invention has for its object to provide an improved device for delivering the strip of stamps.

In machines of this class it has heretofore been proposed to feed the paper strip by means of a pair of rollers adapted to effect the rough adjustment of the strip, and to effect the fine adjustment of the strip into severing and delivering position by means of prongs or like feeding devices. Such mechanism is however frequently inefficient in operation, as the rollers must be brought to bear with considerable pressure on the paper strip, so that the gummed side of the latter easily sticks to the rollers, and owing to the difficulty in obtaining a uniform pressure on the paper strip and to the non-uniformity of the paper, the paper strip is often fed in inclined direction.

According to the present invention the means for delivering the stamps comprises in combination a feed device, such as prongs, clips or the like and a pair of rotatable rollers so arranged as to operate simultaneously instead of alternately as heretofore usual. A series of prongs or the like are arranged some distance from the end of the strip and are adapted to feed the latter forwardly while the rollers are arranged in proximity to the end of the strip and are adapted to hold the strip in proper position for severing and delivering.

In order that the invention may be more clearly understood, reference is made to the accompanying drawings, which diagrammatically illustrate various methods of carrying out the invention, such parts of the feeding device being shown as are necessary for the invention to be clearly understood.

Figures 1, 2, 3 and 4 illustrate one form of my invention and show the different positions assumed during the feeding operation. Fig. 5 is a plan view showing the mechanism for rotating the rollers. Fig. 6 is a view corresponding to Fig. 3 showing a slightly modified form of my invention. Figs. 7 and 8 are views corresponding to Fig. 6 showing further modifications of my invention.

Throughout the drawings s designates the strip of stamps and s' s^2 s^3 s^4 s^5 the individual stamps.

a designates prongs or the like engaging perforations in the stamps and adapted to feed the strip of stamps forwardly, the strip of stamps being supported on the side opposite the prongs a by means of a suitable support b.

c c designate the rollers arranged in proximity to the end of the strip and adapted to hold the strip of stamps firmly in position.

d is a reciprocatory frame which may be provided with suitable guides (not shown) for guiding the strip of stamps to the knives g and g'.

e is a clip or like retarding device adapted to press the strip of paper s against a support f under the action of a spring e'.

Referring to Figs. 1 to 4 of the drawings: in this case the prongs a and rollers c are each carried by the reciprocatory frame d while the retarding device e is arranged above the latter. Fig. 1 shows the position the parts assume immediately after the severing of a stamp. On the next operation of the machine the frame d is raised into the position shown in Fig. 2 a distance somewhat more than the normal length of a stamp in order to allow for irregularities in the length of the stamps. During this upward movement the prongs a and counter-support b ride over the strip of stamps and crumpling of the strip of stamps during this movement is prevented by means of the rollers c which roll upon the stamps during the upward movement of the frame d and thus maintain the strip of stamps rigidly in position. The rollers c are so arranged as to press only very slightly on the strip of stamps and are adapted to rotate only in the direction indicated by the arrows by any suitable mechanical means. As shown in Fig. 5 the rollers may be driven in opposite directions by means of gear wheels h meshing with one another, the shaft of one roller c being provided with a loose gear-wheel i adapted to engage a fixed toothed rack k. The loose gear wheel i is connected with a ratchet wheel i' concentric therewith and adapted

to be engaged by means of a pawl i^3 carried by an arm i^2 fixed on the shaft of the roller c, so that on the rack k moving downwardly relatively to the rollers c the gear wheel i and ratchet wheel i' will be rotated and through the pawl i^3 and arm i^2 one of the rollers c will be rotated in the direction indicated by the arrows, while on the rack k moving upwardly relatively to the rollers c the ratchet wheel i' will ride over the pawl i^3 and the roller c will thus remain stationary. It will thus be seen that on raising the frame d from the position indicated in Fig. 1 to that shown in Fig. 2 the rollers c will roll on the strip of stamps and maintain it rigid in position without moving it from its initial position and at the same time prevent it being taken upwardly by the prongs a. As only slight power is required to drive the rollers c owing to the fact that the latter do not bear with any considerable pressure on the strip of stamps, the frame d may be readily actuated by means of springs while at the same time the possibility of the stamps sticking to the rollers c is minimized.

On the parts assuming the position indicated in Fig. 2 the frame d commences its return movement until, when in the position indicated in Fig. 3, the prongs a engage the perforations between the stamps s^4 and s^5. During the movement of the parts from the position illustrated in Fig. 2 to that of Fig. 3, the prongs a ride over the stamp s^5, the possibility of the prongs taking the stamps s^5 with them being prevented on the one hand by the retarding device i and on the other hand by the resistance of the paper strip supply roll, this resistance being however overcome when the prongs a engage the perforations in the strip. During this downward movement the rollers c glide over the paper strip in consequence of the light pressure of the rollers thereon. Should the pressure of the rollers c on the paper strip be sufficient to cause the rollers c to take the paper strip with them when moving from the position shown in Fig. 2 to that shown in Fig. 3, provision is made for enabling the rollers c to move backwardly in a direction opposite to that indicated by the arrows and if desired this movement may be braked in any desired manner. The backward movement of the rollers c is enabled in the construction illustrated in Fig. 5 by the pawl i^3 riding on the ratchet wheel i' while the necessary braking effect is obtained by the friction of the parts.

On the further downward movement of the frame d into the position illustrated in Fig. 4 the strip s is fed downwardly by the prongs a', the rollers c remaining stationary during this movement. The rollers c are arranged in such a position on the frame d as to engage the second stamp s^2 during the feeding movement, as shown in Figs. 2, 3 and 4, and may be arranged close up to the knives g and g', so that the perforations between the stamps s' s^2 may be properly positioned relatively to the knives. During the downward movement of the frame d the movable knife g is actuated by any suitable means so as to gradually move toward the strip and to cut off the stamp s' at the end of the downward movement. On the drawings I have shown the movable knife g by way of example, as slidable between guides l and under the action of a spring m, said knife g carrying a roller n at one end adapted to roll upon the inclined face of a fixed member o. This arrangement thus enables a very gradual movement of the knife g to be effected and thus necessitates less driving power than is required for a rapid movement of the knife.

It will of course be readily understood that if desired the retarding device e instead of being arranged above the reciprocatory frame d, as illustrated in Figs. 1 to 4, may be arranged between the prongs a and rollers c, as illustrated in Fig. 6, the retarding device e and counter-support f being supported in any suitable manner from the casing of the machine or other fixed part. It will of course be understood that in this case the resistance of the supply roll must be sufficient to prevent the strip being taken by the prongs a during the movement corresponding to that shown at Figs. 2 and 3.

In the modification shown in Fig. 7 the prongs a and counter-support b are shown as supported by any fixed part in the machine while the retarding device e and counter-support f is mounted on the reciprocatory frame d, the prongs a in this case being arranged between the retarding device e and the rollers c, as in Figs. 1 to 4. In this modification the clips e act as the feeding device and during the downward movement the strip must be moved to such an extent that the corresponding perforations are engaged by the prongs a on the next upward movement of the frame d with the strip, so as to allow for irregularities in the length of the stamps. The rollers c in this case operate in a similar manner to that described with reference to Figs. 1 to 4, but glide on the paper strip during the first part of the upward movement until the prongs a engage the perforations between the stamps s^2 s^3 whereupon the rollers c roll over the paper strip as in Figs. 1 and 2. The rollers c in this case must be so located that the perforations between the stamps s' s^2 are positioned clear below the rollers c when the frame d assumes its highest position. It will of course be understood that the clip e in this case must grip the paper strip sufficiently to take the strip therewith during the commencement of the upward movement of the frame d and prevent the paper strip being drawn

through by the rollers *c*. The knife *g* is in this case caused to come into operation to cut off the stamp, as soon as the strip is arrested in its upward movement by the prongs *a*.

Fig. 8 illustrates a modification in which the rollers may be fixed in the casing of the machine instead of on the frame *d* in which case the rack *k* actuating the rollers *c* must be connected with the frame *d*, so that the rollers roll on the strip during the downward movement of the frame *b* and strip *s* and remain stationary during the upward movement of the frame *d*, the knife *g* being in this case mounted in stationary guides *l* and the inclined member *o* being carried by the frame *d*.

If desired the whole of the parts may be arranged to swing so that the movable parts acting on the strip are caused to move in the curve. In this case the frame *d* may be of curved form in side view and oscillate about the center point of the curve. In cases where the paper strip *s* is not perforated but is impressed or provided with notched edges or the like dividing it into suitable portions, the prongs *e* may be replaced by any other suitable device.

I claim:—

1. In a machine for vending postage stamps and the like from a strip, means for delivering the strip comprising, in combination, a pair of rotatable cylindrical rollers between which the end of the strip passes, said rollers pressing only lightly on the strip, a holding device farther from the end of the strip and adapted to hold the strip in position, a reciprocatory feed device, farther from the end of the strip than said rollers, for feeding the strip forwardly, and means for intermittently rotating said rollers in one direction only, so that said rollers roll on the strip during the movement of said feed device in one direction and remain stationary during the movement of said feed device in the opposite direction.

2. In a machine for vending postage stamps and the like from a strip, means for delivering the strip comprising, in combination, a pair of rotatable cylindrical rollers between which the end of the strip passes, said rollers pressing only lightly on the strip, a holding device farther from the end of the strip and adapted to hold the strip in position, a reciprocatory feed device intermediate said holding device and rollers for feeding the strip forwardly, and means for intermittently rotating said rollers in one direction only so that said rollers roll on the strip during the movement of said feed device in one direction and remain stationary during the movement of said feed device in the opposite direction.

3. In a machine for vending postage stamps and the like from a strip, means for delivering the strip comprising, in combination, a pair of rotatable cylindrical rollers between which the end of the strip passes, said rollers pressing only lightly on the strip, a holding device farther from the end of the strip and adapted to hold the strip in position, prongs adapted to engage perforations in the strip farther from the end of the strip than said rollers and to feed the strip forwardly, and means for intermittently rotating said rollers in one direction only, so that said rollers roll on the strip during the movement of said prongs in one direction and remain stationary during the movement of said prongs in the opposite direction.

4. In a machine for vending postage stamps and the like, means for delivering the stamps comprising in combination, a reciprocatory member, a feed device mounted on said member and adapted to feed the strip forward on the forward movement of said member, and a pair of rotatable rollers also mounted on said member and between which the end of the strip passes, said rollers pressing only lightly on the strip and being driven in one direction only so as to roll on the strip during the backward movement of said member and hold the strip in proper delivery position.

5. In a machine for vending postage stamps and the like, means for delivering the stamps comprising in combination, a reciprocatory member, a feed device mounted on said member and adapted to feed the strip forward on the forward movement of said member, a pair of rotatable rollers also mounted on said member and between which the end of the strip passes, said rollers pressing only lightly on the strip and being driven in one direction only so as to roll on the strip during the backward movement of said member and hold the strip in proper delivery position, and a retarding device for retarding the feed of the strip.

6. In a machine for vending postage stamps and the like, means for delivering the stamps, comprising in combination, a reciprocatory member, prongs adapted to engage the perforations in the strip of paper and mounted on said member so as to feed the strip forward on the forward movement of said member, and a pair of rotatable rollers also mounted on said member and between which the end of the strip passes, said rollers pressing only lightly on the strip and being driven in one direction only so as to roll on the strip during the backward movement of said member, and hold the strip in proper delivery position.

7. In a machine for vending postage stamps and the like, means for delivering the stamps comprising in combination, a reciprocatory member, a feed device mounted on said member and adapted to feed the

strip forward on the forward movement of said member, a pair of rotatable rollers also mounted on said member and between which the end of the strip passes, said rollers pressing only lightly on the strip and being driven in one direction only so as to roll on the strip during the backward movement of said member and hold the strip in proper delivery position, a fixed knife and a movable knife, said knives being carried by said member in front of said rollers, and said movable knife being gradually moved toward the paper strip so as to sever the latter during the forward movement of said member.

8. In a machine for vending postage stamps and the like, means for delivering the stamps, comprising in combination, a feed device adapted to feed the strip forwardly, a pair of rotatable rollers between which the end of the strip passes, said rollers pressing only lightly on the strip and being driven in one direction only, so as to roll on the strip and hold the latter in proper delivery position, and means for rotating said rollers in one direction only and in opposite directions relatively to one another, said means comprising shafts on which said rollers are mounted, gear wheels fixed on said shafts and meshing with each other, a gear wheel loose on the shaft of one roller, a rack meshing therewith and movable relatively thereto, a ratchet wheel connected with said loose gear wheel and concentric therewith, and a pawl engaging said ratchet wheel and carried by the shaft on which said loose gear wheel is mounted.

9. In a machine for vending postage stamps and the like, means for delivering the stamps comprising in combination, a reciprocatory member, a feed device mounted on said member and adapted to feed the strip forward on the forward movement of said member, and a pair of rotatable rollers also mounted on said member and between which the end of the strip passes, said rollers pressing only lightly on the strip and being driven in one direction only so as to roll on the strip during the backward movement of said member and hold the strip in proper delivery position, and means for rotating said rollers in one direction only and in opposite directions relatively to one another, said means comprising shafts on which said rollers are mounted, gear wheels fixed on said shafts and meshing with each other, a gear wheel loose on the shaft of one roller, a fixed rack meshing therewith and adapted to rotate the same on the backward movement of said member, a ratchet wheel connected with said loose gear wheel and concentric therewith, and a pawl engaging said ratchet wheel and carried by the shaft on which said loose gear wheel is mounted.

10. In a machine for vending postage stamps and the like, means for delivering the stamps comprising in combination, a reciprocatory member, a feed device mounted on said member, and a pair of rotatable rollers also mounted on said member and between which the end of the strip passes, said rollers pressing only lightly on the strip and being driven in one direction only, whereby said rollers are rotated to roll on the paper strip during the backward movement of said member, while said feed device rides over said strip, and whereby, on the forward movement of said member, said device engages said strip and feeds the same forwardly, while the rollers do not rotate but hold the strip in position for delivery.

In witness whereof I have hereunto set my hand in the presence of two witnesses.

MAX SIELAFF.

Witnesses:
WOLDEMAR HAUPT,
HARRY L. WILSON.