

Oct. 22, 1935.

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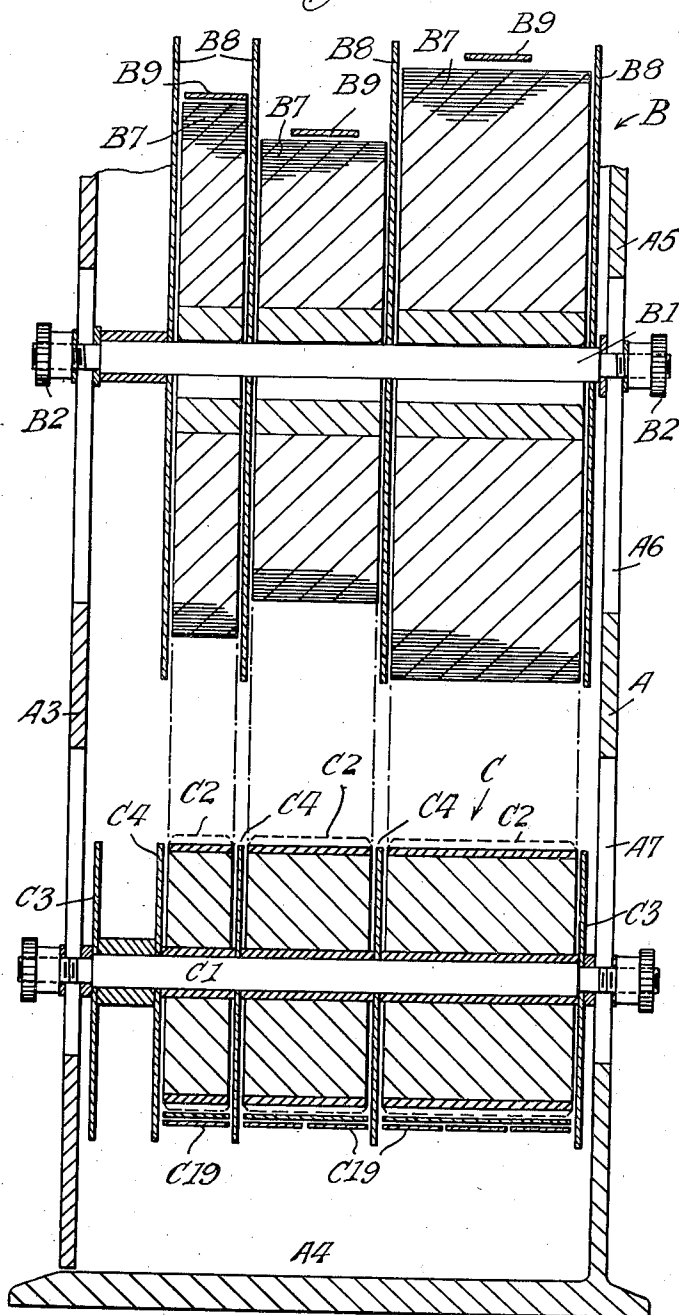
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APPARATUS FOR ISSUING GUMMED STRIP PAPER

Filed Feb. 20, 1933

3 Sheets-Sheet 2

Fig. 3



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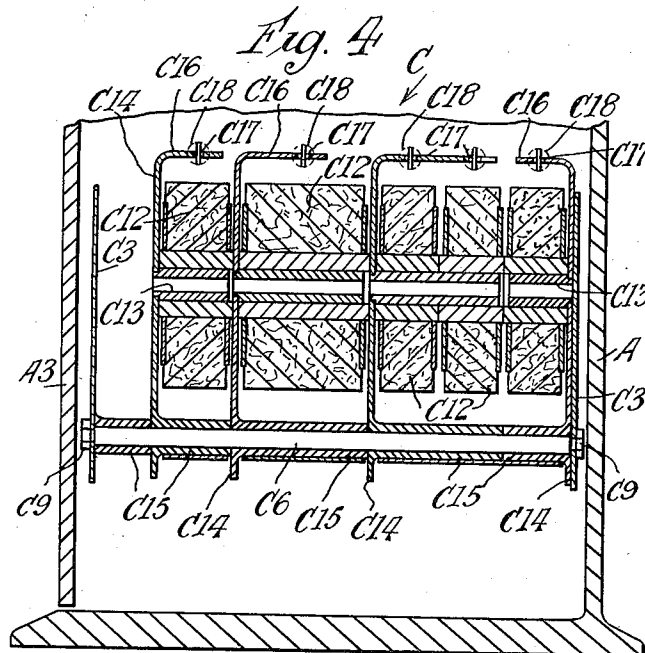
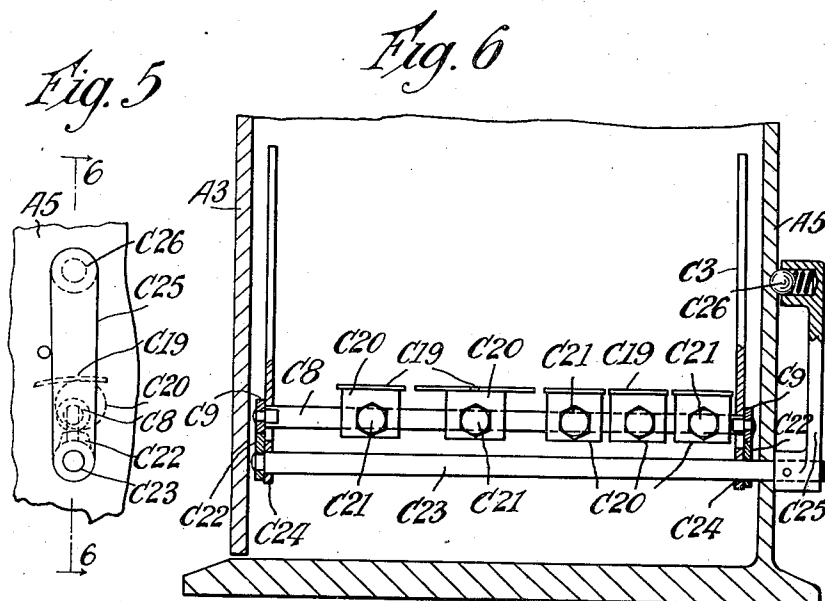
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UNITED STATES PATENT OFFICE

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APPARATUS FOR ISSUING GUMMED
STRIP PAPER

Robert Levane, Hampton, England

Application February 20, 1933, Serial No. 657,722
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5 Claims. (Cl. 101—212)

This invention relates to apparatus for issuing gummed strip paper, suitable for use for packing and like purposes.

More particularly the invention relates to an apparatus of the kind comprising (preferably carried by a single casing) one or more rolls of paper, one or more devices for printing or embossing predetermined advertising or other matter upon said strip paper, means for applying gum to strip paper, or, alternatively (where the paper is supplied already gummed) means for damping the gummed side of said paper, and means for facilitating the breaking or cutting off of issued gummed and printed or embossed paper, the whole arrangement being such that paper from the roll or rolls is passed through the printing or embossing means actuating the same by its passage therethrough and then past the gumming or damping means to the means for facilitating the cutting or breaking off of the paper.

According to this invention the strip paper in apparatus of the kind referred to passes, after leaving the roll or rolls, through a printing mechanism comprising at least one rotary type-bearing means.

Since means are provided for moving the spring blade or blades together away from or towards the type wheel or wheels, it is rendered possible to draw off unprinted paper whenever required (an important advantage); and, further, by moving the spring blades away from the type wheels when the apparatus is out of use, the difficulty that the gummed paper might stick in the printing mechanism (after a period in which no paper is drawn off) is obviated. Preferably the means for cutting off the paper and the gumming or damping means project from the casing and are so positioned relative thereto that when issued paper has been torn or cut off there will still remain projecting from the casing a length of ungummed or undamped gummed paper convenient to be seized by the fingers.

The invention is illustrated in the accompanying drawings which show one form of apparatus in accordance with the invention and also a detail modification thereof.

In the drawings Figure 1 is a sectional elevation on the line 1—1 of Figure 2. Figure 2 is a sectional plan generally on the line 2—2 of Figure 1. Figure 3 is a section on the line 3—3 of Figure 1. Figure 4 is a section on the line 4—4 of Figure 1. Figure 5 is a modification showing release for leaf springs and Figure 6 is a section on the line 6—6 of Figure 5.

The machine shown in the drawings comprises a casing A within which are mounted three units generally designated B, C and D. The unit B consists of a strip paper roll mechanism, the second C is a printing mechanism, and the third D is a gumming or gum damping mechanism. The means for severing or cutting off issued paper are preferably unitarily incorporated with the third mechanism D.

As will be seen the case A is formed approximately in the shape of a commercial cash register having a circular top A1 and a side projection A2 one flat wall A3 of the casing being hinged to the bottom A4 thereof so that it may be lowered to render the mechanism within the casing accessible.

The strip paper roll mechanism consists simply of a spindle B1 which is held in and projects at right angles to the fixed flat wall A5 of the casing. Preferably this spindle which is a fixed spindle, is screwed at both ends and the wall of the casing from which it is carried is provided with a vertical slot A6. The screwed ends of the spindle are of smaller diameter than the main length thereof so that one screwed end may be pushed through the vertical slot A6 and clamped in any position therein by means of a nut B2 on the outside of the casing and screwed on the spindle B1 and a suitable washer on the inside of the casing. Thus the spindle may be mounted in any of a variety of different positions within the casing to project at right angles to the fixed wall A5 thereof, the height of the spindle being adjustable merely by slacking back the clamping nut B2 and moving it up or down the slot A6. Over the spindle are pushed one or more (as may be desired) rolls B7 of gummed paper strip, said rolls being of paper of the same width or different widths, according to requirements. A plurality of washers B8 adapted to fit over the spindle are provided, these washers serving to space the rolls of paper from one another. It will be seen, therefore, that when paper strip is pulled from a roll, the roll will rotate upon the spindle. The speed of rotation of the paper rolls upon the spindle is limited (to prevent the unrolling of too much paper when the strip is pulled) by means of a plurality of spring blades B9 which are carried upon a rod B10 projecting from and carried by the casing, there being one blade B9 for each roll of strip and said blades being so positioned as to press upon the appropriate rolls. If desired screwed adjusting bolts (not shown) may be screwed into and pass through the casing, these bolts being so positioned as to press against

the backs of the spring blades. Thus by screwing up the bolts the pressure of the spring blades upon their respective rolls may be adjusted and the braking effect thereof thus controlled.

- 5 The second unit C in the casing consists of a printing and inking mechanism, which is constructed on its own sub-frame.

This mechanism consists of a plurality of type wheels C2 each made of wood or other suitable material and having a periphery of rubber type, the said type wheels being mounted all upon the same spindle C1. The said spindle, which will be referred to later as the type spindle, passes through side plates C3 at right angles thereto, said side plates constituting the side plates of the frame for the mechanism now being described. The type wheels, which correspond in width to the widths of the tapes on the various rolls, are suitably spaced from one another, for example, by separating plates C4 through which the spindle C1 passes, and are so mounted upon the spindle as to be independently freely rotatable thereon. Between the side plates C3 pass a plurality of distance rods C5, C6, C7, C8 said distance rods passing through holes in the said plates and being formed with screwed ends for taking clamping nuts C9. One C5 of these distance rods passes from one side plate to the other at or near corresponding opposite corners thereof. Fitted over this distance rod C5 is a plurality of distance tubes or collars C10. If desired these collars in addition to serving a function later herein to be described may be of such length and size as to assist in holding the separating plates C4 between the type wheels in the required positions though they are not of such length in the arrangement illustrated. Some or all of the distance tubes or collars C10 are provided with threaded holes in which bolts C11 provided for a purpose to be described later, may be screwed, said bolts being arranged when screwed right down to lock upon the distance rod C5 so that the tubes or collars C10 in which the said bolts are screwed may be clamped in any position of rotation upon the distance rod.

The second distance rod C6 is utilized for the carrying of a plurality of inking rollers C12, these rollers being made of felt or other suitable material which has been thoroughly impregnated with ink of a desired colour. Each roller is freely rotatably mounted upon a stub shaft C13 which is held at one end in a carrier plate C14. For example, the stub shafts C13 may be hollow and may be held each in its carrier plate by eyeletting or burring over the hollow end thereof, after passing said end through an aperture in the carrier plate C14. Each carrier plate consists simply of a strip of metal having an aperture at one end, the distance rod C6 passing through the apertures in the carrier plates for the inking rollers, so that said rollers are carried from this distance rod. The rollers are suitably spaced from one another and positioned in line with their respective type wheels by suitable distance tubes or collars C15 upon the distance rod C6. Each carrier plate is bent over at the end remote from the distance rod so that the bent-over end C16 lies approximately parallel to and over the periphery of the appropriate inking roller, the bent-over ends being formed each with one or more apertures C17.

It will be seen from the description so far given that each inking roller may be separately swung about a circle having as its centre the distance rod C6 and the arrangement is such that when

the carrier plates C14 for the various inking rollers are approximately vertical said rollers bear against their appropriate type wheels. Of course more than one roller may be provided for any one type wheel e. g. for a type wheel having three lines of type thereon there may be provided three rollers each impregnated with a different coloured ink and each positioned to bear against one line of the type, the three rollers together making up approximately the same width as the one type wheel. The inking rollers are held up against their appropriate lines of type by means of coil springs C18 one end of each spring being hooked round a bolt C11 in a tube or collar C10 upon the distance rod C5 and the other end being hooked into an aperture C17 formed in the bent-over end C16 of the appropriate inking roller carrier plate. These coil springs thus pass over the tops of the type rollers and it will be seen that by slacking back the clamping bolts C11 and rotating the tubes or collars C10 in which they are mounted, relative to the distance rod C5 and then again screwing up the clamping bolts, the tension of the springs C18 may be separately and independently adjusted. Since, when the inking rollers are pressing against the type rollers they are all substantially in the same straight line, it is possible by loosening the tension spring and swinging round the carrier of any particular inking roller, to pull that roller sideways off its spindle and replace it by a roller of another colour. Beneath the type rollers are mounted a plurality of leaf springs C19 which tend to press up against the lines of type on the various type rollers these springs being carried at one end upon the third distance rod C7 between the side plates and at the other end pressing down upon eccentric tubes or collars C20 mounted upon the last distance rod C8. The eccentric tubes or collars C20 are formed with screwed holes through which pass clamping bolts C21 so that by slacking back a clamping bolt and rotating the appropriate eccentric tube or collar and then again screwing up the clamping bolt, the pressure between the spring or springs C19 (whose ends press down against that collar) and the type rollers may be adjusted. The ability to make this adjustment is of considerable advantage in practice. Preferably means (see Figures 5 and 6) are provided for releasing together the pressure between all the springs C19 and the type rollers and preferably also the release means are such as not to alter the individual adjustments just described. For example the rod C8 may pass through slots instead of apertures in the side plates and separating plates so that the said rod may have a limited up and down movement (i. e. towards or away from the type wheels). The nuts C9 shown on the ends of the rod C8 are left fairly slack so as freely to permit this up and down movement and are made of circular instead of hexagonal form, the ends of the rod C8 being burred over so as to prevent the nuts coming right off and the ends of the rod C8 being provided with flats engaging the slots to prevent rotation of the said rod. Beneath the circular nuts upon C8 (see Figures 5 and 6) are cams C22 fixed on a shaft C23 which passes through bearings C24 formed in the side plates the said shaft being long enough to pass through the fixed wall A5 of the casing. A handle C25 having two extreme positions is fixed on the end of the shaft C23 and a spring ball C26 is provided therein to co-operate with suitable depressions in the outer face of the wall A5 so as to locate the handle in its extreme positions. Thus,

by moving the handle into one extreme position (stops, not shown, may be provided to limit the handle movement) the pressure of the springs C19 will be taken off the type rollers while when the handle is moved to its other position the rod C8 is lifted by the cams C22 and causes the springs to apply pressure in accordance with their individual adjustments. When the machine is out of use the pressure of the springs should be taken off by the handle C25 so as to remove any liability of the paper sticking (as a result of prolonged pressure) against the springs C19. Further by taking off the pressure of the springs unprinted paper can be drawn off when required.

15 The whole inking and printing mechanism C is carried from the end wall of the casing just below the strip rolls in the manner similar to that in which the strip rolls are carried, the type spindle C1 passing through a second slot A7 in the end wall of the casing and being adjustably carried therein in manner similar to that in which the spindle B1 for the strip rolls is carried.

The third piece of the mechanism D within the casing A is a device for wetting the gummed side of the gummed paper and consists of a bath D1 (for water) of approximately triangular section said bath being formed at or near the top with an approximately horizontally extending lip D2 the lip being integral with one sloping side wall of the triangular bath. Hinged at or near the top of the opposite side wall is a cover D3 so positioned that it may be swung down to clamp upon the horizontal lip leaving a slight space between said lip and itself. The cover may be fully opened when the mechanism D is withdrawn from the apparatus. This cover is preferably formed with downwardly extending side pieces D4 adapted to clip over the sides of the lip. The end of the lip is formed as or carries a piece of hack saw blade D5 and the whole device is adapted to be clamped as shown or otherwise fixed to the bottom of the casing A so that when the cover D3 is closed the cover and the lip with the saw blade projects a distance of about an inch and a half through a slot A8 suitably formed in the casing A. In use the bath is filled about half full with water and a flat piece of felt D6 previously soaked in water is placed with one end in the bath and the other along the top of the lip from the bath. The lid is then closed down upon the felt and lip so as to leave the end of the felt (which will of course be kept wet so long as there is water in the bath) projecting somewhat as shown i. e. not projecting so far as the saw blade.

The hinged wall A3 of the casing is formed with slots as shown to receive the other ends of the strip roll spindle and the type spindle.

In use, paper from the rolls is passed behind a guide rod R suitably carried from the casing, then under the inking rollers and between the leaf springs and the type wheel the paper then passing over the top of the lid of the bath and through the slot from which said lid projects. Thus when the end of the paper is pulled the paper will be unrolled from the appropriate roll, will pass under the appropriate type wheel, rotating the same, and will thus receive on its upper face the type impression. The paper then passes out over the projecting end of the felt and the under-surface of said paper, i. e. the gummed surface will be moistened and when sufficient paper has been withdrawn it may be

cut off by sharply jerking it downwards against the saw blade.

It will be appreciated that there will now remain about an inch of un-wetted paper projecting from the machine so that no difficulties will occur when a further supply of paper is required to be drawn off. Of course the rotation of the type wheel effected by pulling out the paper causes rotation of the inking rollers so as to maintain the type properly inked.

If desired an additional guide generally designated G and constituted by a number of distance plates G1 suitably positioned upon a rod G2 projecting from the fixed wall of the casing may be provided for the strip between the inking and printing mechanism and the damping mechanism.

In a modification the inking rollers are replaced by rollers impregnated with carbon e. g. by a roller made of material such as that which is commonly employed for typewriter ribbons.

In a further modification, the damping bath is replaced by an arrangement for gumming tape the tape rolls being in this case of ungummed paper. In such an arrangement the damping fixed felt is preferably replaced by a small felt roller in communication with a gum reservoir the roller being positioned about an inch or so outside of the casing. In either case, i. e., whether applying water to already gummed tape or whether applying gum to ungummed tape, the device D or a modification thereof serves to apply liquid to the strip, and it will be understood that in the claims the term "applying a liquid" is intended to cover the wetting of gummed paper and the application of gum to ungummed paper.

In yet another modification the rubber type wheels are replaced by wheels formed with embossing type the leaf springs beneath these wheels being replaced by spring members carrying the necessary co-operating embossing type. It will be understood that in the claims the term "printing" may mean printing either with ink or with uninked embossing type.

If desired the type wheels may be mounted in manner similar to that already described with reference to the inking rollers. In this case the stub shafts for carrying the type wheels are preferably hollow and adapted to receive a withdrawable spindle which may be inserted through them when they are all in the same straight line and which serves to prevent any rocking of the type wheels. In this manner the construction may be made such that the inking rollers and type wheels are easily and in similar manner replaceable by others.

If desired a machine, in accordance with this invention may include any means, known per se, for drawing out a predetermined length of prepared paper tape or tapes upon operation of a suitable handle or handles. For example, such means may include a pair of friction rollers held together by spring pressure, and between which the tape passes on its way to the mechanism D. There may be as many pairs of rollers as there are tapes and a plurality of handles may be provided, each handle having a limited motion and a spring return action and being adapted, when moved against its spring return, to drive through suitable gearing including a free wheel or ratchet drive one roller of a pair of rollers so that for motion of a handle against its spring a predetermined length of tape is forced out while, for the spring return no drive to the

tape occurs owing to the free wheel or ratchet action.

What I claim is:

1. In apparatus for printing and issuing strip paper from a plurality of rolls of paper, printing mechanism comprising at least one rotary type-bearing means freely rotatably mounted on a spindle, at least one rotary inking means in contact with said type-bearing means, a plurality of guide means at least one for each roll of paper and each constituted by a spring blade arranged substantially tangential to and closely adjacent the type-bearing means whereby when the paper is pulled through between the guide means and the type-bearing means rotation is imparted to the type bearing means which roll upon the paper and thus print thereon, means for moving each individual guiding means towards or away from the type bearing means, and means for moving the entire guiding means away from or back into positions determined by the means for moving each individual guiding means.
2. In apparatus for printing and issuing strip paper, printing mechanism comprising a rotary type-bearing means freely rotatably mounted on a spindle, a stub axle, a rotary inking wheel freely rotatably mounted on said stub axle and adapted to contact said type-bearing means, a hinged carrier plate upon which said stub shaft is carried, said stub axle being supported at one end only on said carrier plate, biasing means connected to said carrier plate for urging the inking wheel into contact with the type-bearing means, said carrier plate being adapted to be swung against the urge of said biasing means to free the inking wheel from the type-bearing means whereby the inking wheel may be drawn sideways

off the unsupported end of said stub axle and another inking wheel put in its place.

3. In apparatus capable of printing and issuing strip paper, a printing mechanism comprising at least one rotary type-bearing means freely rotatably mounted on a spindle, at least one rotary inking means in contact with said type-bearing means, at least one guide means constituted by a spring blade, and cam means for effecting movement of said spring blade at will into either of two positions in one of which said blade is substantially tangential to and closely adjacent the type-bearing means whereby when the paper is pulled through between the guide means and the type-bearing means rotation is imparted to the type-bearing means which roll upon the paper and thus print thereon and in the other of which said blade is spaced a short distance from the type-bearing means whereby when the paper is pulled through between the guide means and the type-bearing means it will not be printed upon nor will it tend to stick in the mechanism even if left between said guide means and said type-bearing means for a substantial length of time.

4. Apparatus as claimed in claim 3 and wherein the rotary inking means comprises a plurality of inking wheels mounted upon stub axles carried from spring-biased hinged carrier plates whereby any inking wheel may be readily exchanged by pulling it back against the spring bias and then drawing it sideways off its stub axle.

5. In apparatus as claimed in claim 3, a casing upon which the components of said apparatus are mounted, an aperture in said casing, said aperture being so positioned that the means for facilitating severing of the strip paper projects there-through.

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