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PACKAGE SEALING, STAMPING, AND RECORDING MACHINE

Filed May 15, 1924

Fig. 1.

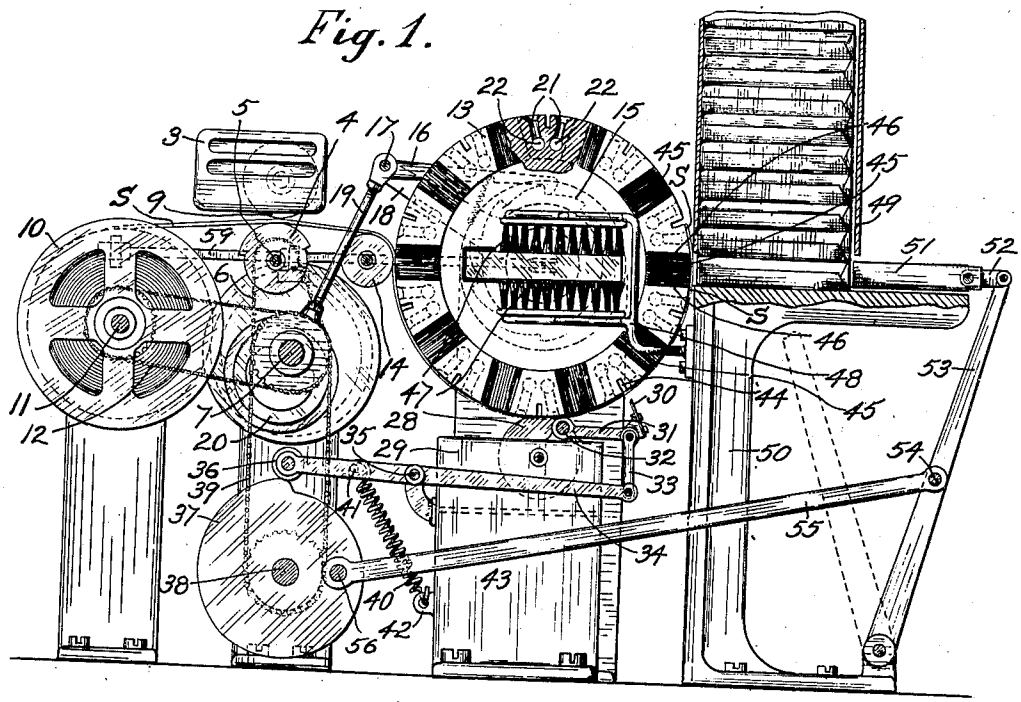
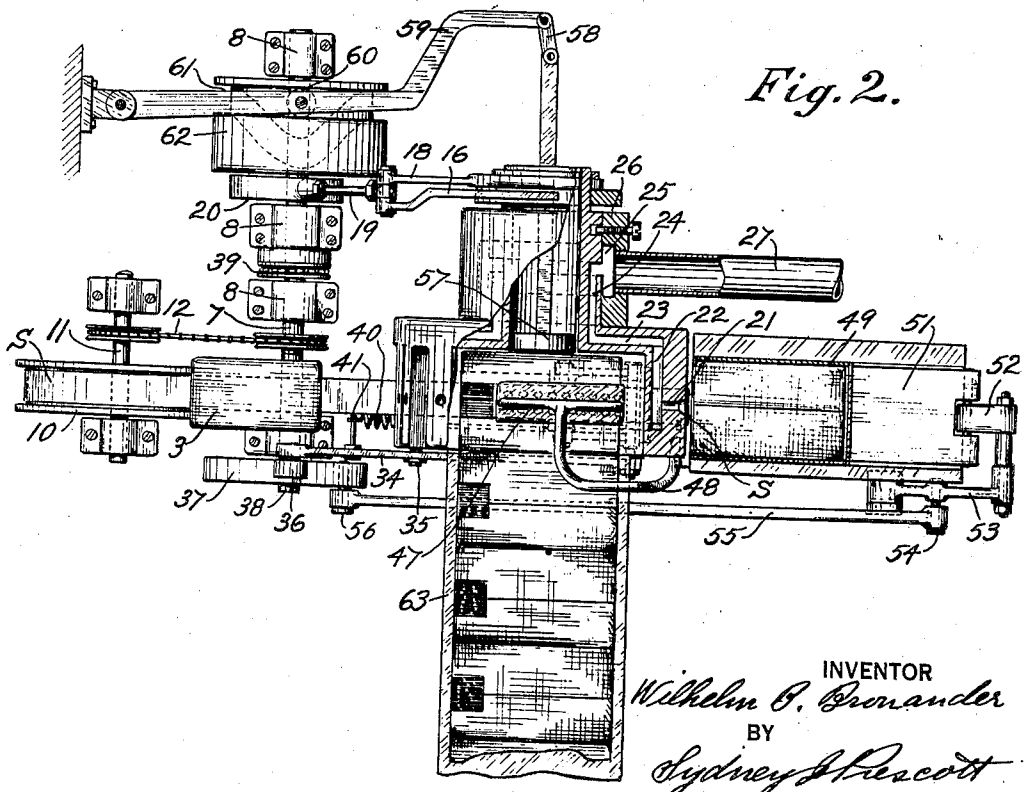


Fig. 2.



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UNITED STATES PATENT OFFICE.

WILHELM B. BRONANDER, OF MONTCLAIR, NEW JERSEY, ASSIGNOR TO AMERICAN MACHINE & FOUNDRY COMPANY, A CORPORATION OF NEW JERSEY.

PACKAGE SEALING, STAMPING, AND RECORDING MACHINE.

Application filed May 15, 1924. Serial No. 713,411.

To all whom it may concern:

Be it known that I, WILHELM B. BRONANDER, a citizen of the United States, residing at Montclair, county of Essex, and State of New Jersey, have invented a new and useful Improvement in Package Sealing, Stamping, and Recording Machines, of which the following is a specification.

This invention relates to a package sealing, stamping, and recording machine which is particularly adaptable for use in connection with the packaging of cigarettes wherein the packages are sealed by means of a revenue stamp, although it is capable of other uses which are contemplated.

Heretofore, in the packaging of cigarettes and other tobacco products, it has been necessary to seal a package by means of revenue stamps purchased from the Government and applied by the manufacturer. These stamps are used in immense quantities and the printing of the same is a considerable expense to the Government, while the handling of the same in applying them to the packages is a still greater expense to the manufacturer. The main object of the present invention is the production of a machine in which the stamps are printed as and where they are used and without rehandling, thus eliminating the Government cost of printing and greatly reducing to the manufacturer the cost of application. A further object of the invention is the production of a machine of this character which also records the imprints made, in the same way and by the same means as large users of mail matter now stamp the same with the approval of the Government and without the use of the ordinary postage stamp. With these and other objects not specifically mentioned in view, the invention consists in certain constructions and combinations which will be hereinafter fully described and then specifically set forth in the claims hereunto appended.

In the accompanying drawings, which form a part of this specification and in which like characters of reference indicate the same or like parts, Fig. 1 is a side elevation, partly broken away, of a machine constructed in accordance with the invention; and Fig. 2 is a plan view of the structure shown in Fig. 1.

In carrying the invention into effect, there is provided a package sealing, stamping and recording machine, comprising means for printing and recording package sealing stamps to take the place of the ordinary revenue stamps, means for gumming said stamps, and means for sealing said packages with the gummy stamps. In the best constructions, there is further provided means for feeding paper to the printing means; means for separating said stamps before application to the packages, the stamps being printed on a long strip of paper drawn from a suitable supporting reel; means for presenting packages to said sealing means in succession; and means for ejecting the sealed and stamped packages from the sealing means. The above mentioned means and devices may be widely varied in construction within the scope of the claims, for the particular structure selected to illustrate the invention is but one of many possible concrete embodiments of the same. The invention therefore is not to be restricted to the precise details of the structure shown and described.

The machine selected to illustrate the invention is provided with means for printing and recording package sealing stamps designed to take the place of the ordinary internal revenue stamp, such as those applied to packages of cigarettes and other tobacco products. As shown, this printing means includes a recording printing device 3, which is well known and therefore merely conventionally shown in the drawings. This recording printing device is of the same kind as that used in the stamping of mail matter instead of applying postage stamps thereto. The machine is further provided with means for intermittently operating said device and, as shown, this means includes a coacting continuously rotating interrupted wheel 4 for intermittently operating said device. The wheel 4 is located under the printing device 3 and is fast on a short drive shaft 5 driven by

a chain 6 from a shaft 7, which is the main shaft of the machine and supported in suitable bearings 8 carried by the machine frame. The shaft 7 is driven from any suitable source of motion by any suitable means which is well known but not shown. The recording printing device 3 is provided with the usual printing wheel 9 and is operated intermittently by the high part of the interrupted wheel 4 when the latter pinches a strip of paper between its own periphery and that of the wheel 9.

The paper used for the stamps or seals comes to the machine in the form of a long strip coiled on a reel 10 supported on a shaft 11, this shaft being driven by means of a sprocket chain 12 connecting it with the main shaft 7 before referred to.

Means are provided for feeding the paper to the printing means, although in some cases this may be done by hand. When it is done automatically, however, the feeding means includes two members having traveling surfaces acting on opposite sides of the paper, and in the structure shown these members consist in a turret 13 and an idler 14 adjacent the periphery of said turret, the paper strip being led from the reel between the printing device wheel 9 and the interrupted wheel 4, and then down between the turret 13 and idler 14, the strip being pinched between the peripheries of these two elements. It will be remembered that the reel is driven continuously. The turret 13, however, is rotated intermittently for purposes to be hereinafter described. The intermittent rotation of the turret 13 is produced by a ratchet 15 attached thereto, said ratchet being engaged by a pawl 16, pivoted at 17 to the outer ends of a radius arm 18 and to one end of an eccentric rod 19 operated by an eccentric 20 from the shaft 7 before referred to. During the intermittent rotation of the turret 13, step by step, the slack in the paper strip S, which is produced by the continuous rotation of the reel 10, is taken up as the strip passes the printing device. For the purpose of holding the strip of paper on the periphery of the turret during its travel from the idler 14 to the position in which it is applied as a seal to a package, suction devices are provided. These devices consist in a series of apertures 21 arranged around the periphery of the turret and each opening into a transverse aperture 22, which in turn is in open communication with a radial aperture 23 at one end of the turret; the radial apertures 23 are in open communication with axial apertures 24, opening into a semi-annular aperture 25 extending part way round the supporting bearing 26 in which the turret is journaled. The aperture 25 is in open communication with a pipe 27, which in turn is in communication with a suitable suction producing apparatus, not shown. During the movement of any one of the apertures 21 from a position just above the idler 14 to a position just beyond 180 degrees therefrom, the suction is on and holds the paper against the periphery of the turret; but from the latter position to the former, over the top of the turret where there is no paper, the suction is off.

Means are provided for gumming the printed stamps while the paper is held in outstretched condition on the periphery of the turret 13 by the suction devices carried therein, and while they are in transit to the position where they are applied to packages. While gummed paper might be used in the machine and the gum thereon softened by the application of water thereto to make the stamp gummy before application to the package; as shown, the paper comes to the machine and is printed before any gum is applied thereto. While the paper is stretched on the periphery of the turret 13, wet gum or paste is applied to the paper by means of a gumming wheel 28 dipping in a fountain 29 and in rolling contact with the paper on the periphery of the turret 13.

Means are provided for separating the stamps from the strip before application to the packages. In the machine shown, this is done just after the gumming operation; and the separating means includes, as a support for the stamps, the peripheral portion of the turret 13 and a co-acting shearing device, the latter consisting of a shearing knife 30 mounted on an arm 31 oscillating on a fulcrum 32 and oscillated by means of a link 33 which connects it with a cam lever 34 fulcrumed at 35 and carrying a cam bowl 36 riding on the periphery of a cam 37. This cam is fast on a shaft 38 driven by means of a sprocket chain 39 from the shaft 7 before referred to. The cam bowl 36 is held in contact with the periphery of the cam 37 by the action of a spring 40, one end of which is connected to a pin 41 carried by the lever 34, the other end being connected to a boss 42 on the bracket 43 supporting the gum fountain 39 and also the fulcrum 35. The knife 30 successively coacts with a series of slots 44 cut radially in the periphery of the turret 13 and across which the paper strip lies prior to the shearing action. At the proper time and while the turret is at rest, the knife 30 is moved up into one of the slot 44, thus shearing the paper strip and separating an individual stamp therefrom. Means are provided for sealing packages with the gummy stamps and as shown, this means includes means for folding the stamps over one end of the packages. With this end in view, channels are provided having oppositely disposed walls for folding a stamp

over one end of a package moved through said channel. As shown, the turret 13 is provided with a plurality of radial pockets 45 having oppositely disposed walls 46 for folding stamps over one end of packages moved through said channels or pockets. As a package is pushed through one of the pockets 45 at the proper position of the turret, it pushes ahead of it the mid-section of an individual sealing stamp, which, up to this time, has been held spanning said pocket by the turret suction device. As the package moves through the pockets 45, the opposite ends of the stamp are folded down upon opposite sides of the package and the gum on the stamp causes the latter to stick to the ends of the package and to the opposite adjacent sides thereof.

The sealing means further includes a pair of oppositely disposed brushes 47 supported by a bracket 48. These brushes are positioned within the turret in line with the pocket through which the packages are pushed; and as the package moves inwardly through the pocket 45, it moves to and between the brushes 47 which press down the ends of the stamp on the opposite sides of the package.

While packages may be pushed by hand through the pockets 45, or other channels in certain other constructions, means for presenting packages to said sealing means is provided, and this means includes a source of package supply and means for successively transferring packages from said source of supply to said sealing means. In the machine shown, the source of package supply is in the form of a vertical magazine 49 supported by a standard 50 and adapted to contain a stack of packages to be sealed. For the purpose of successively transferring packages from the bottom of the stack to the sealing means, there is provided a plunger 51 connected, by means of a link 52, to a lever 53 which is pivoted at 54 to one end of a connecting rod 55, the other end of this connecting rod being connected to a crank 56 on the face of the cam 37 before referred to. It will be understood that this plunger comes into action while the turret is at rest with one of the pockets 45 in alignment with the lowermost package in the stack.

Means are provided for ejecting the sealed and stamped packages from the sealing means; that is to say, from the position they occupy between the brushes 47—47 where the sealing operation is completed. As shown, this ejecting means includes an ejecting plunger 57 connected by means of a link 58 to a cam lever 59 having a bowl 60 tracking in a cam track 61 formed in the periphery of a cam drum 62 fast on the shaft 7 before referred to. The ejecting plunger 57 moves in the same horizontal plane as the package presenting plunger 51, but at right angles thereto, pushing the sealed, stamped and recorded package out through the end of the turret on a tray 63 along which the finished packages are moved intermittently by each operation of the ejecting plunger 57.

In view of the foregoing, a detailed description of the device is deemed to be unnecessary and is therefore omitted in the interest of brevity. It may be stated, however, that the machine herein described produces and records the stamps and records the number of packages made, without cost to the Government, without rehandling cost, and at a materially lessened stamp application cost.

What is claimed is:

1. A package sealing, stamping, and recording machine, comprising means for printing and recording package sealing stamps, means for gumming said stamps, and means for sealing revenue packages with the gummy stamps.

2. A package sealing, stamping, and recording machine, comprising means for printing and recording package sealing stamps, means for gumming said stamps, means for sealing revenue packages with the gummy stamps, and means for feeding paper to said printing means.

3. A package sealing, stamping, and recording machine, comprising means for printing and recording package sealing revenue stamps, means for gumming said stamps, means for sealing packages with the gummy stamps, and means for separating said stamps before application to the packages.

4. A package sealing, stamping, and recording machine, comprising means for printing and recording package sealing revenue stamps, means for gumming said stamps, means for sealing packages with the gummy stamps, and means for presenting packages to said sealing means.

5. A package sealing, stamping, and recording machine, comprising means for printing and recording package sealing revenue stamps, means for gumming said stamps, means for sealing packages with the gummy stamps, and means for ejecting the sealed and stamped packages from said sealing means.

6. A package sealing, stamping, and recording machine, comprising means for printing and recording package sealing revenue stamps, means for gumming said stamps, means for sealing packages with the gummy stamps, means for feeding paper to said printing means, means for separating said stamps before application to the packages, means for presenting packages to said sealing means, and means for ejecting the sealed and stamped packages from said sealing means.

7. A package sealing, stamping, and re-

cording machine, comprising means for printing and recording package sealing revenue stamps, means for gumming said stamps, and means for sealing packages with the gummy stamps, said printing means including a recording printing device, and means for intermittently operating said device.

8. A package sealing, stamping, and recording machine, comprising means for printing and recording package sealing revenue stamps, means for gumming said stamps, and means for sealing packages with the gummy stamps, said printing means including a recording printing device, and a coacting continuously-rotating interrupted wheel for intermittently operating said device.

9. A package sealing, stamping, and recording machine, comprising means for printing and recording package sealing revenue stamps, means for gumming said stamps, and means for sealing packages with the gummy stamps, said gumming means including means for holding the stamps in outstretched condition, and means for gumming the stamps so disposed.

10. A package sealing, stamping, and recording machine, comprising means for printing and recording package sealing revenue stamps, means for gumming said stamps, and means for sealing packages with the gummy stamps, said gumming means including means for forwarding the stamps in outstretched condition, and means for gumming the stamps during transit.

11. A package sealing, stamping, and recording machine, comprising means for printing and recording package sealing revenue stamps, means for gumming said stamps, and means for sealing packages with the gummy stamps, said gumming means including a turret for forwarding the stamps in outstretched condition and a wheel coacting with said turret for gumming the stamps forwarded thereby.

12. A package sealing, stamping, and recording machine, comprising means for printing and recording package sealing revenue stamps, means for gumming said stamps, and means for sealing packages with the gummy stamps, said gumming means including a suction device for holding the stamps in outstretched condition and means for gumming the stamps so disposed.

13. A package sealing, stamping, and recording machine, comprising means for printing and recording package sealing revenue stamps, means for gumming said stamps, and means for sealing packages with the gummy stamps, said sealing means including means for folding the stamps over one end of the packages.

14. A package sealing, stamping, and recording machine, comprising means for printing and recording package sealing revenue stamps, means for gumming said stamps, and means for sealing packages with the gummy stamps, said sealing means including a channel having oppositely disposed walls for folding a stamp over one end of a package moved through said channel.

15. A package sealing, stamping, and recording machine, comprising means for printing and recording package sealing revenue stamps, means for gumming said stamps, and means for sealing packages with the gummy stamps, said sealing means including a channel having oppositely disposed walls for folding a stamp over one end of a package moved through said channel, and means for moving the package through said channel.

16. A package sealing, stamping, and recording machine, comprising means for printing and recording package sealing revenue stamps, means for gumming said stamps, and means for sealing packages with the gummy stamps, said sealing means including a turret provided with a plurality of radial pockets having oppositely disposed walls for folding stamps over one end of packages, and means for successively moving packages through said pockets.

17. A package sealing, stamping, and recording machine, comprising means for printing and recording package sealing revenue stamps, means for gumming said stamps, and means for sealing packages with the gummy stamps, said sealing means including a turret provided with a plurality of radial pockets having oppositely disposed walls for folding stamps over one end of packages, and a crank-actuated plunger for successively moving packages through said pockets.

18. A package sealing, stamping, and recording machine, comprising means for printing and recording package sealing revenue stamps, means for gumming said stamps, and means for sealing packages with the gummy stamps, said sealing means including a channel having oppositely disposed walls for folding a stamp over one end of a package moved through said channel, and a pair of oppositely disposed brushes beyond said channel for pressing the ends of the stamp on the package.

19. A package sealing, stamping, and recording machine, comprising means for printing and recording package sealing revenue stamps, means for gumming said stamps, and means for sealing packages with the gummy stamps, said sealing means including a turret provided with a plurality of radial pockets having oppositely disposed walls for folding stamps over one end of packages, and a pair of oppositely disposed stationary brushes beyond said pockets for pressing the ends of the stamps on

the packages, and means for successively moving packages through said pockets to and between said brushes.

20. A package sealing, stamping, and recording machine, comprising means for printing and recording package sealing revenue stamps, means for gumming said stamps, means for sealing packages with the gummy stamps, and feeding means including two members having traveling surfaces acting on opposite sides of the paper.

21. A package sealing, stamping, and recording machine, comprising means for printing and recording package sealing revenue stamps, means for gumming said stamps, means for sealing packages with the gummy stamps, and feeding means including two members having traveling surfaces acting on opposite sides of the paper, one of said members being provided with suction devices for holding the paper thereto.

22. A package sealing, stamping, and recording machine, comprising means for printing and recording package sealing revenue stamps, means for gumming said stamps, means for sealing packages with the gummy stamps, and feeding means including two members having traveling surfaces acting on opposite sides of the paper, and means for intermittently moving said members.

23. A package sealing, stamping, and recording machine, comprising means for printing and recording package sealing revenue stamps, means for gumming said stamps, means for sealing packages with the gummy stamps, and feeding means including two members having traveling surfaces acting on opposite sides of the paper, and a pawl and ratchet mechanism for intermittently moving said members.

24. A package sealing, stamping, and recording machine, comprising means for printing and recording package sealing revenue stamps, means for gumming said stamps, means for sealing packages with the gummy stamps, and separating means including a support for the stamps and a coacting shearing device.

25. A package sealing, stamping, and recording machine, comprising means for printing and recording package sealing revenue stamps, means for gumming said stamps, means for sealing packages with the gummy stamps, and separating means including a suction support for the stamps and a coacting shearing device.

26. A package sealing, stamping, and recording machine, comprising means for printing and recording package sealing revenue stamps, means for gumming said stamps, means for sealing packages with the gummy stamps, and separating means including a support for the stamps and a coacting cam-actuated oscillatory shearing knife.

27. A package sealing, stamping, and recording machine, comprising means for printing and recording package sealing revenue stamps, means for gumming said stamps, means for sealing packages with the gummy stamps, and presenting means including a source of package supply and means for successively transferring packages from said source of supply to said sealing means.

28. A package sealing, stamping, and recording machine, comprising means for printing and recording package sealing revenue stamps, means for gumming said stamps, means for sealing packages with the gummy stamps, and presenting means including a vertical magazine for holding a stack of packages, and means for successively transferring packages from the bottom of the stack to said sealing means.

29. A package sealing, stamping and recording machine, comprising means for printing and recording package sealing revenue stamps, means for gumming said stamps, means for sealing packages with the gummy stamps, and presenting means including a source of package supply and a crank-actuated plunger for successively transferring packages from said source of supply to said sealing means.

30. A package sealing, stamping and recording machine, comprising means for printing and recording package sealing revenue stamps, means for gumming said stamps, means for sealing packages with the gummy stamps, and ejecting means including a cam-actuated plunger coacting with said sealing means.

31. A package sealing, stamping and recording machine, comprising means for printing and recording package sealing revenue stamps, means for gumming said stamps, means for sealing packages with the gummy stamps, and ejecting means including an intermittently operating plunger coacting with said sealing means.

32. A package sealing, stamping, and recording machine, comprising means for printing and recording package sealing revenue stamps, means for gumming said stamps, means for sealing packages with the gummy stamps, means for presenting packages to said sealing means in one direction, and means for ejecting packages from said sealing means in another direction.

33. A package sealing, stamping, and recording machine, comprising means for printing and recording package sealing revenue stamps, means for gumming said stamps, means for sealing packages with the gummy stamps, means for presenting packages to said sealing means in one direction,

and means for ejecting packages from said sealing means in the same horizontal plane but at right angles to the direction of presentation.

34. A package sealing, stamping, and recording machine, comprising means for printing and recording package sealing revenue stamps, means for gumming said stamps, means for sealing packages with the gummy stamps, a crank-actuated plunger for presenting packages to said sealing means in one direction, and a cam-actuated plunger for ejecting packages from said sealing means in the same horizontal plane but at right angles to the direction of presentation.

In testimony whereof, I have signed my name to this specification.

WILHELM B. BRONANDER.