No. 831,198. PATENTED SEPT. 18, 1906.

J. H. TUTTLE & C. B. FROST.

PACKAGE SEALING DEVICE.

APPLICATION FILED MAR. 17, 1906.

2 SHEETS—SHEET 1.

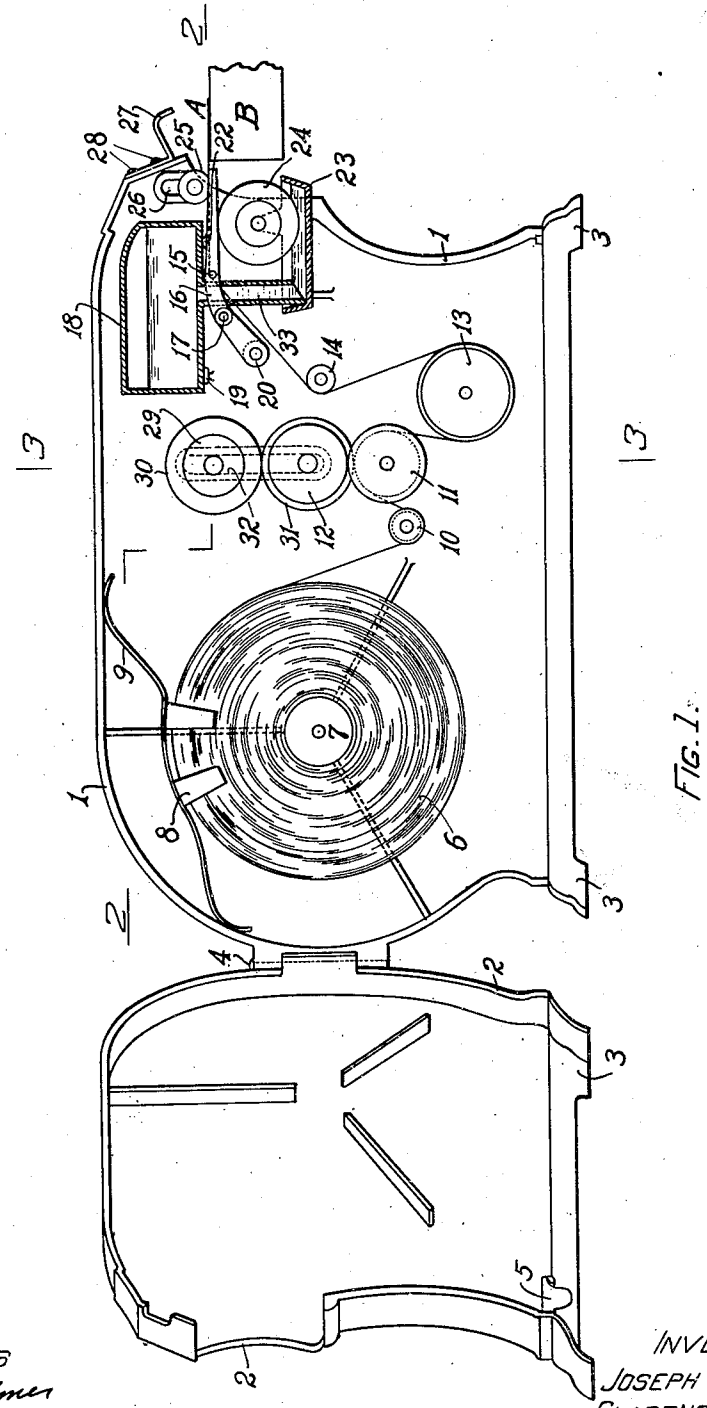

FIG. 1.

WITNESSES
A. T. Palmer
Jerome C. Smith

INVENTORS
JOSEPH H. TUTTLE
CLARENCE B. FROST
BY THEIR ATTORNEY
Everett & Kent

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2 SHEETS—SHEET 2.

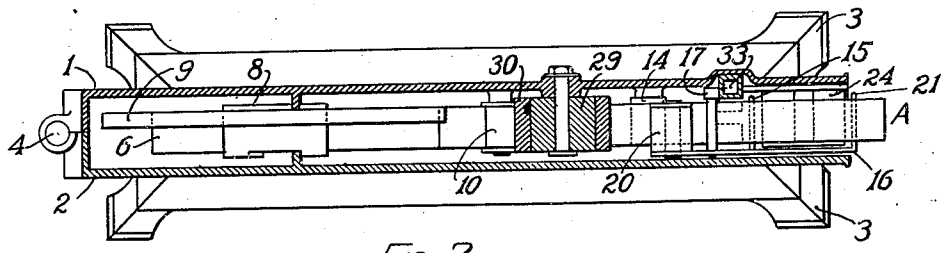

FIG. 2.

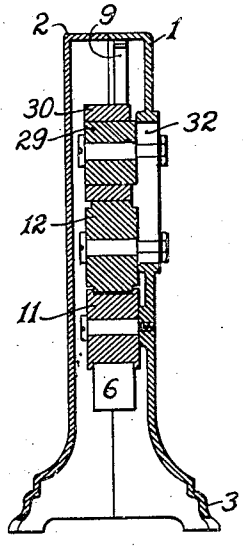

FIG. 3.

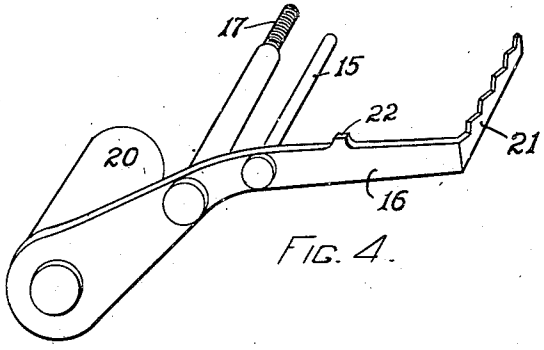

FIG. 4.

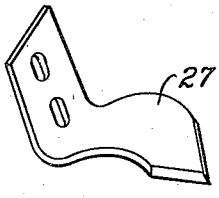

FIG. 5.

WITNESSES

A. T. Palmer

Jerome B. Smith

INVENTORS

JOSEPH H. TUTTLE

CLARENCE B. FROST

BY THEIR ATTORNEY

Everett E. Kent

UNITED STATES PATENT OFFICE.

JOSEPH H. TUTTLE, OF BOSTON, AND CLARENCE B. FROST, OF CAMBRIDGE, MASSACHUSETTS, ASSIGNORS TO FROST SPECIALTY COMPANY, OF BOSTON, MASSACHUSETTS, A CORPORATION OF MAINE.

PACKAGE-SEALING DEVICE.

No. 831,198. Specification of Letters Patent. Patented Sept. 18, 1906.

Application filed March 17, 1906. Serial No. 306,695.

To all whom it may concern:

Be it known that we, JOSEPH H. TUTTLE, a resident of Boston, in the county of Suffolk, and CLARENCE B. FROST, a resident of Cambridge, in the county of Middlesex, State of Massachusetts, citizens of the United States, have invented certain new and useful Improvements in Package-Sealing Devices, of which the following is a specification.

This invention relates to package-sealing devices.

More particularly, it relates to devices for binding and fastening packages or parcels with strips of gummed paper or other adhesive fabric. It differs from other machines previously known to us in that it enables the user to avoid grasping the adhesive side of the strips when using the machine.

Another feature of novelty is the provision for a device for printing advertising matter or other matter on the strips, which being made adjustable can be thrown out of use or changed when desired.

Among other features of novelty are the inclosing frame and method of mounting the parts hereinafter described, the provision for automatically forcing the tape into contact with the device for rendering the tape adhesive, the shape and arrangement of means for severing the tape, and other features hereinafter described.

In the drawings, Figure 1 is a side elevation with the case thrown open and part of the device shown in section. Fig. 2 is a plan shown in section on the line 2 2 of Fig. 1. Fig. 3 is a cross-section on line 3 3 of Fig. 1. Figs. 4 and 5 are details in perspective.

In the preferred embodiment of the various features of the invention the casing, which also serves as a frame for mounting the moving parts, consists of two symmetrical castings 1 and 2, provided with feet 3, which may be so arranged that the machine can be fastened to the shelf or counter on which it will rest when in use. The halves 1 and 2 are hinged at 4 and are provided with a spring-catch 5 to lock them together. In casing 1 are mounted all of the operative portions of the machine, thus making it possible to examine readily the interior without displacing any of said portions. It is also possible to widen the casing sufficiently to mount a duplicate machine in half 2, thus having two complete machines in one frame. This feature of inclosing the entire machine in a casing which acts as a frame and the mounting of the parts in one half of the frame only are new with us, so far as we know.

It will be noticed that the machine is self-supporting when the casing is swung open, as in Fig. 1, and does not have to be laid upon its side for examination.

6 is a reel of binding-tape of gummed paper or fabric, mounted on spool 7.

8 is a friction device, which is held against the reel by spring 9 in such a way as to give greater pressure against a large roll than a small one. This is advisable, as there is more momentum to overcome when the roll is large, and it would be objectionable to allow the reel freedom to continue its unwinding motion after sufficient tape has been drawn off for present use. Any form of tension device may be used, however, and in some cases the use of a special means for producing tension is unnecessary.

The tape preferably consists of a strip of paper which has previously been gummed and wound into a roll, as stated; but the tape may be arranged in some other form, if preferred. We consider it best to use such tape and to render it adhesive by means of a moistening device, the tape being applied to the package immediately after passing the moistening device.

From reel 6 the tape passes under an idler-spool 10 over an abutment-roll 11, where it comes in contact on its plain surface with printing-roll 12 when said roll 12 is in use. Thence the tape passes around a blotting-roll 13 for drying the ink impression and then to idler-spool 14 and above a pin 15 in the weighted arm 16 and out at the front of the machine. Arm 16 is pivotally mounted at 17 under a moistening-reservoir 18, which rests upon supports 19 in casing 1. Said arm is provided at its rear end with a weighted part 20 and at its front end with a cross-bar 21, which has a serrated upper edge to support the moistened side of the tape. (See Fig. 4.) Lug 22 impinges against the under side of reservoir 18 when the machine is not in use and limits the effect of weight 20.

23 is a moistening-pan and carries a rotatable moistening-roll 24.

25 is an adjustable idler-spool mounted in

casing 1 and is positioned when in use so that it is impossible to draw off the tape without its coming in contact with moistening-roll 24. If it is desired to deliver unmoistened tape, this roll 25 is raised in slot 26 in frame 1. This is an important feature in our invention, as this machine is the first to eliminate the necessity of watching to see that the tape gets properly moistened.

27 is a cutting-knife adjustably mounted on casing 1 at 28 and is provided with a V-shaped cutting edge, so that no tearing motion is necessary in cutting off the tape. The shape of this knife is shown in Fig. 5. When used, the tape is raised until the point of the V encounters and pierces the center of the tape. This centers the tape upon the knife and eliminates the tendency of the tape to slide sidewise and also eliminates the tendency of displacement whenever a tape is severed by tearing across a serrated edge, as has sometimes hitherto been done. Further upward movement of the tape while held in the hand of the user causes the tape to be severed by extension of the central hole sidewise in each direction. It will be observed that this knife, although adjustable in position, is rigidly mounted. The tape being composed of fragile material and held taut by the mechanism within the casing when it is brought against the rigid point of the V it is readily pierced thereby and severed. This dispenses with serrated edges and also with shearing-blades and the necessity of keeping the shearing edges close-fitting and sharp.

29 is an inking-roll provided with an inking-pad 30, which is revolved by contact with the printing-surface 31 of roll 12. Rolls 12 and 29 are adjustably mounted in slot 32 and when in use are preferably loose in said slot, so that their weight may press the printing-surface 31 more firmly against the tape. When it is desired to deliver unprinted tape, these rolls 12 and 29 are raised, so that printing-surface 31 no longer contacts with the tape. This adjustable feature is more especially designed to permit different sizes of printing-rolls to be used, thus varying the inscription on the tape.

If desired, the inscription may be changed at stated intervals, as each day or each hour, and may thus indicate by printing upon the tape the day and hour at which the package is sealed or the name of the clerk sealing the same.

The operation is as follows: When the machine is at rest, the free end of the tape A projects sufficiently to permit the package B to be brought into the desired relation with it. As the tape lies across the top of serrated bar 21 and pin 15, the weight 20 keeps it clear from moistening-roll 24 and prevents smudging or soiling of the printed surface. It is not necessary to waste the end of the tape which has already passed moistening-roll 24, for before placing package B in position the end A can be touched against the surface of roll 24, and it is then ready to adhere to B when desired. The package B is placed as shown in Fig. 1 and tape A is pressed against it, and then by withdrawing the package a sufficient amount of tape is unreeled for that fastening and is wound about the package, binding it. Without changing the grasp of the package an upward motion of the hand containing said package, with the tape adhering to it, brings the tape against knife 27, and it is thereby severed. The cut end can then be secured to the edge of the package without any risk of gumming the fingers. The unreeling of the tape just described brings it into contact with moistening-roll 24, as was previously stated. By an inspection of Fig. 1 it will be noticed that when the free end A of the tape is pulled the weight 20 is overcome and the tape tends to lie in a line tangential to the upper surface of spool 14 and the under surface of spool 25. This is prevented only by roll 24, and consequently, no matter what direction of pull is given to the free end A of the tape, moistening is insured as long as spool 25 is in use. This unreeling of the tape also causes rotation (by friction) of the printing-roll 12, and a fresh impression of the type is taken by the tape. The friction device 8 brings the reel 6 to rest as soon as the pull has ceased, as before described.

The moistening-reservoir 18 is in the shape of a narrow-necked vessel, open only at the end of the neck 33. This opening is oblique to the axis of neck 33 and serves to govern the height of liquid in pan 23 by admitting a small portion only of air to the reservoir 18 whenever the level of the liquid in pan 23 falls below the uppermost edge of said opening in neck 33. This admission of air to reservoir 18 allows a small quantity of water to descend and re-form the seal at the mouth of the neck by raising the surface of water in the pan. This action is automatic and will be readily understood without further description.

The method of rendering the tape adhesive, hereinbefore described, consists in providing tape having one surface previously gummed and in moistening that surface as the tape is needed for use; but ungummed tape may be used, if preferred, in which case a liquid adhesive, such as mucilage, may be substituted for water in the moistening device. The particular form of this device may be varied and machines may be constructed, varying in other respects from the specific form here described, without departing from the scope of the patent.

By adjusting the relative positions of the guide-roll 14, the moistening-roll 24, and the outside guide-roll 25 it is possible to adjust the device for rendering the tape adhesive,

so as to obtain any desired effect. The form of adjustment here shown consists in mounting roll 25 in adjustable position. By raising this roll, so that the moistening-roll projects to a less degree through the straight line between it and roll 14, the length of contact of the tape with said moistening-roll is diminished, and by raising the roll 25 high enough the necessary contact diminishes to zero and the tape may be drawn off unmoistened, as before described. By lowering the roll 25 a longer distance of contact of the tape with the moistening-roll is compelled. These adjustments are useful according to the degree of dampness of the moistening-roll, the quality of gum on the paper, or the character of mucilage or other adhesive material which is applied to the tape.

The roll 25 may be dispensed with, if desired, in which case it will be observed that the one motion of the user's hand in lifting the package for severing the tape also lifts the tape from the moistening device.

The cross-bar 21, which is arranged outside the moistening device between it and the severing device, is an important feature, as it supports the end of the tape in a position easily accessible for use in sealing the next package. This has never been accomplished before, as far as we are aware, the effect of prior devices intended to remove the tape from contact with the moistening device being found in practice to withdraw the end of the tape to a place inconvenient to reach within the machine. In connection with this bar it is to be observed that when the tape is being drawn out the bar swings so far downward, the arm 16 turning upon pivot 17, that it is entirely out of contact with the tape, and the tape is therefore never drawn over this bar, but simply rests upon it when not being drawn out.

We claim—

1. The combination of a hollow inclosing frame, having vertical inner walls, with means to hold a roll of tape, and a device for rendering the tape adhesive, both supported within the frame; said frame having one wall hinged vertically to the other, and an opening at one end between the vertical walls for withdrawing the tape.

2. The combination of a hollow inclosing frame, composed of two sections vertically hinged together, having vertical inner walls, with means to hold a roll of tape; guides for the tape; and a device for rendering the tape adhesive; all mounted within the frame in one of the sections thereof.

3. The combination of a tape-holder with a device for rendering the tape adhesive, and guides for the tape on each side of said device, said device intervening between the guides, whereby a pull upon the tape draws it against said device.

4. The combination of a tape-holder with a device for rendering the tape adhesive, and guides for the tape on each side of said device; the relative positions of said guides and device when in operation being adjustable, thereby adjusting the action of said device upon the tape.

5. The combination of a tape-holder with a device for rendering the tape adhesive, and a V-shaped blade mounted rigidly outside said device with its point adjacent thereto for severing the tape.

6. The combination of a tape-holder and a device for rendering the tape adhesive, said device comprising a pan, a body of absorbent material rising therefrom, and means to guide the tape over said absorbent material; with a closed reservoir for liquid, removable from the pan and having an enlarged body portion at a high level, and a narrow neck leading downward therefrom, terminating at an opening within said pan.

7. The combination of a tape-holder with a device for rendering the tape adhesive, and a movable bar arranged on the outer side of said device for supporting the end portion of the tape.

8. The combination of a tape-holder with a device for rendering the tape adhesive, and a movable frame over which the tape passes, having a bar on the outer side of said device arranged normally to retract the tape automatically therefrom, and to yield under slight pressure and permit contact of the tape therewith.

9. The combination of a tape-holder with a device for rendering the tape adhesive, and a movable frame arranged adjacent to said device, having a bar over which the tape passes on each side thereof, said frame and bars being arranged to maintain the tape out of contact with said device but to yield under slight pressure and permit such contact.

10. The combination of a tape-holder and a device for rendering one side of the tape adhesive, with guide-rolls intervening, guiding the tape from the holder to said device, one of said guide-rolls supporting the other side of the tape against a printing-roll, and another of the guide-rolls bearing an absorbent for blotting the same.

11. The combination of a tape-holder and a device for rendering one side of the tape adhesive, with a guide-roll intervening between them, and means to maintain a printing-roll coöperating with said guide-roll to print the other side of the tape.

12. The combination of a tape-holder and a device for rendering one side of the tape adhesive, with a guide-roll for the tape intervening between them, a printing-roll pressing against the other side of the tape upon the guide-roll; and means to sustain the axis of the printing-roll at an adjustable distance from the guide-roll.

13. The combination of a tape-holder with

a device for rendering one side of the tape adhesive; and movable supports arranged to bear against the tape on each side of said device and maintain the tape normally out of contact therewith, one of the supports receding when the tape is pulled, and there being means to compel contact of the tape with said device when pulled.

14. The combination of a tape-holder with a device for rendering the tape adhesive, and a yieldable arm having a bar arranged on the outer side of said device adapted normally to prevent contact of the tape therewith and automatically returning to said position after displacement.

15. The combination of a tape-holder with a device for rendering the tape adhesive, a bar normally supporting the tape on the outer side of said device; and means to remove said bar automatically from contact with the tape when the tape is drawn out.

16. The combination of a tape-holder with a device for rendering the tape adhesive; tape-supporting bars on the inner and outer sides of said device; and an arm connecting said bars, movable about a support; whereby the pull of the tape upon the inner bar, when the tape is drawn out, moves the outer bar out of contact with the tape.

In testimony whereof we have affixed our signatures in presence of two witnesses.

JOSEPH H. TUTTLE.
CLARENCE B. FROST.

Witnesses:
EVERETT E. KENT,
ELLIOTT B. CHURCH.