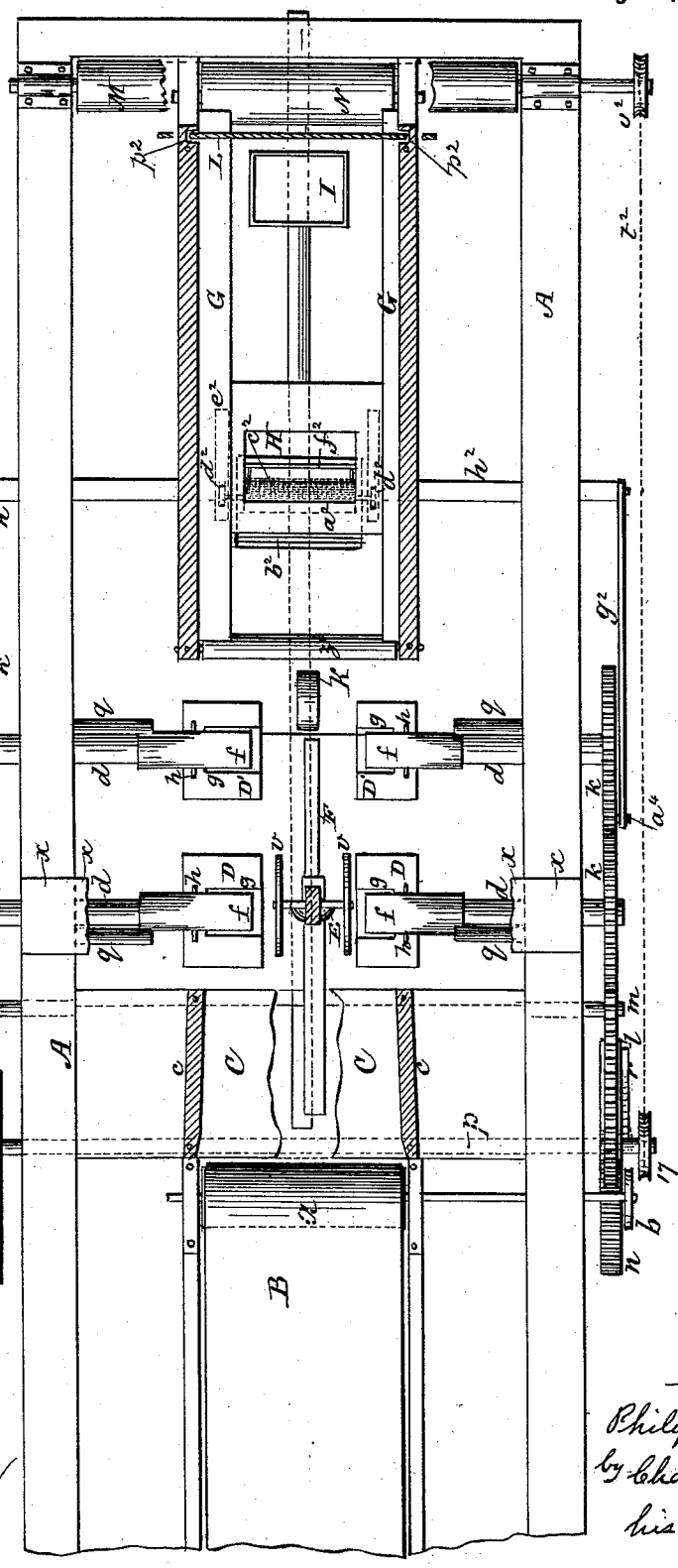
(No Model.) 4 Sheets—Sheet 1.

P. W. WILEY.

MACHINE FOR ATTACHING LABELS TO PACKAGES.

No. 301,843. Patented July 8, 1884.

Fig. 1.



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(No Model.) 4 Sheets—Sheet 2.

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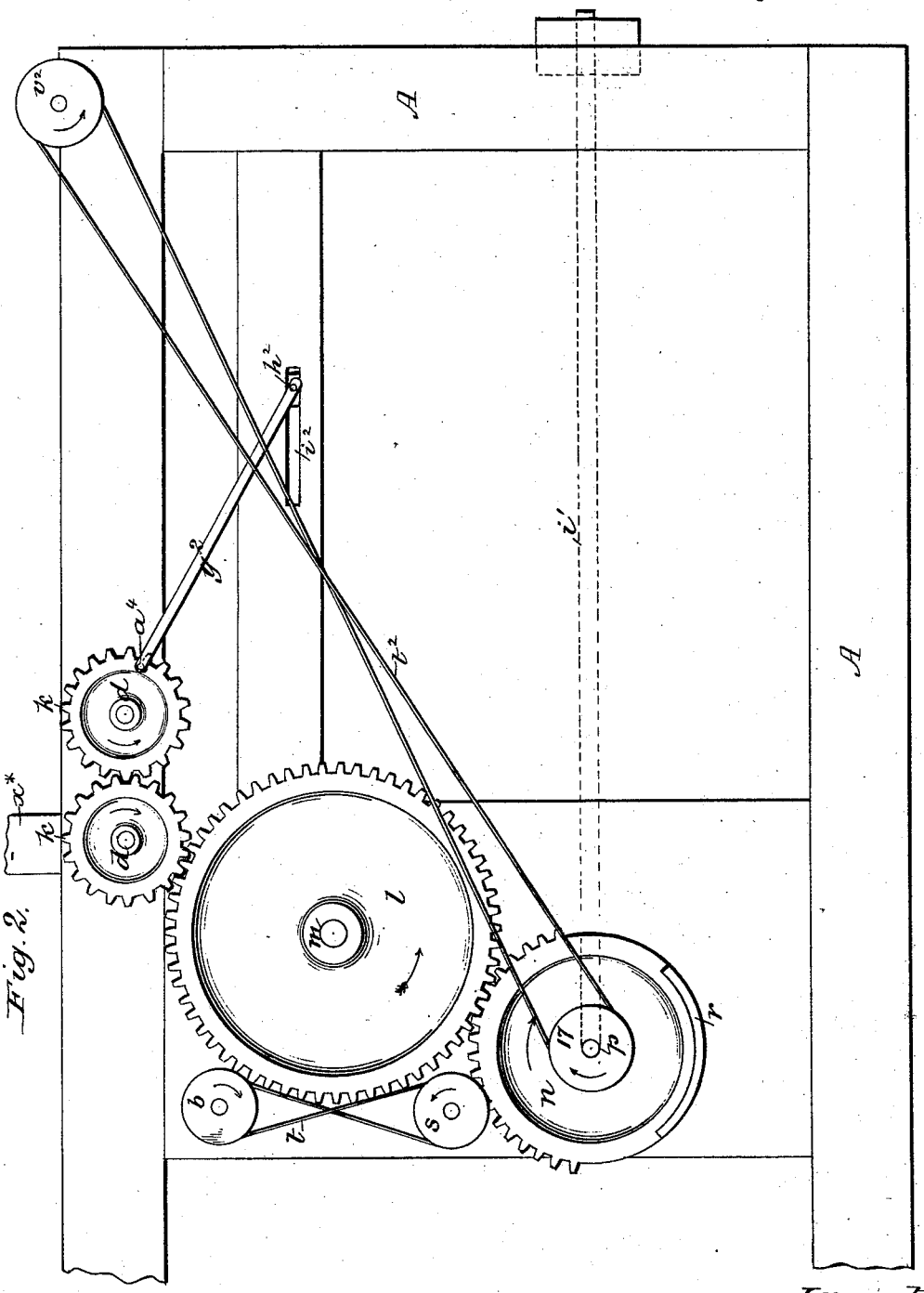

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MACHINE FOR ATTACHING LABELS TO PACKAGES.

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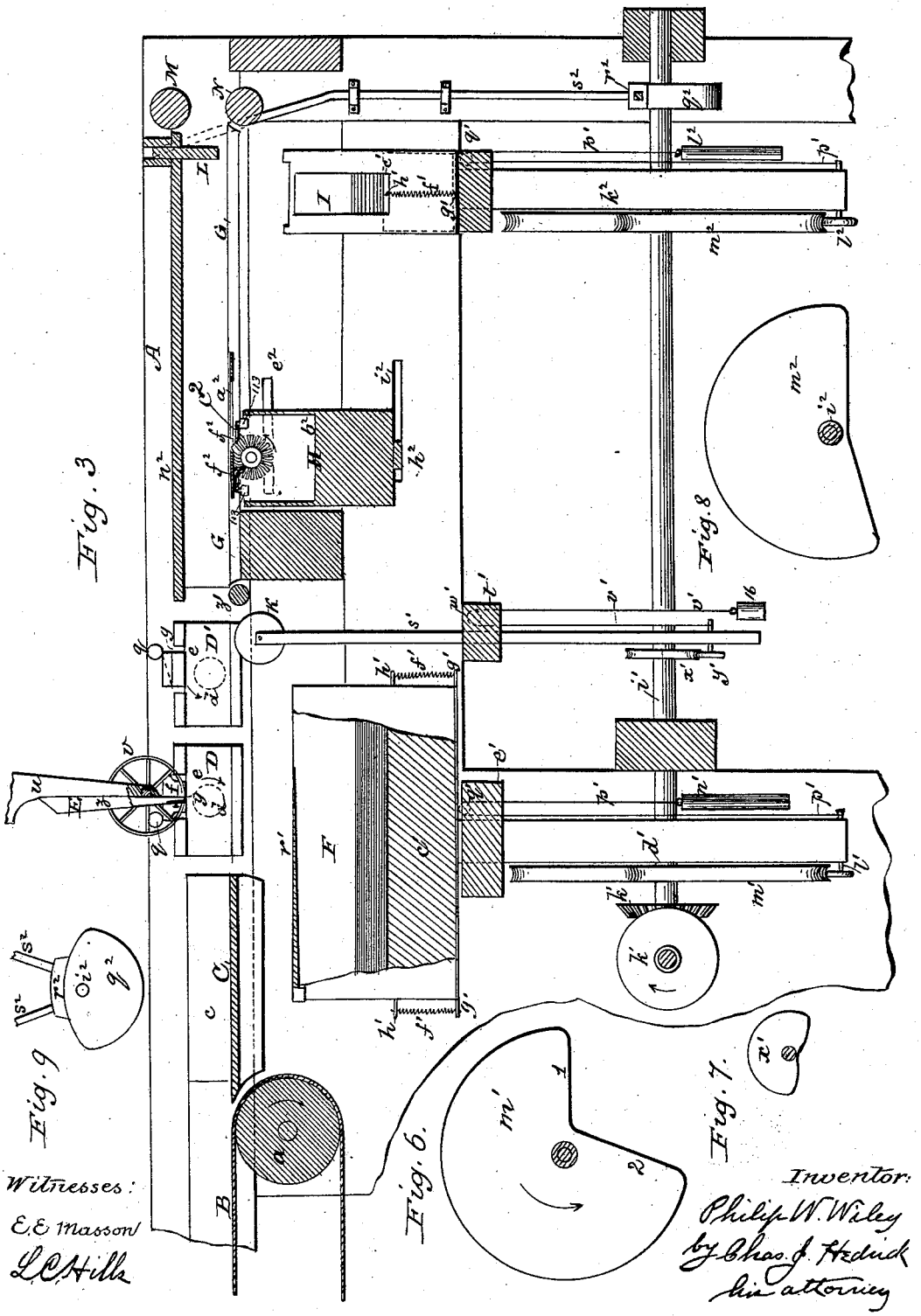

Fig. 3

Fig. 8

Fig. 9

Fig. 6.

Fig. 7.

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(No Model.) 4 Sheets—Sheet 4

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MACHINE FOR ATTACHING LABELS TO PACKAGES.

No. 301,843. Patented July 8, 1884.

Fig. 12.

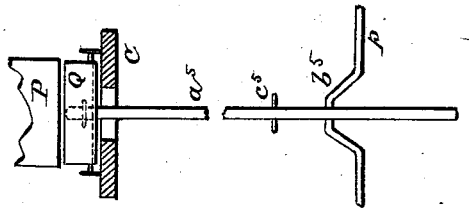


Fig. 11

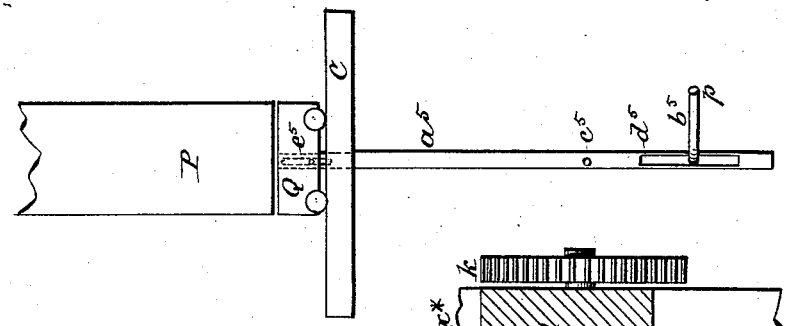
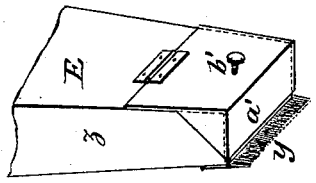


Fig. 5.



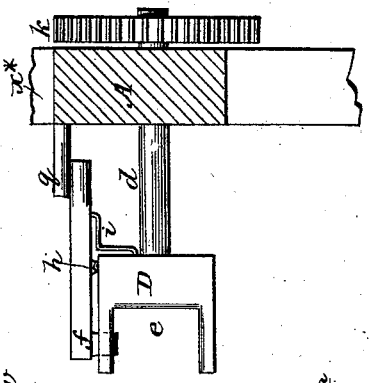


Fig. 4.

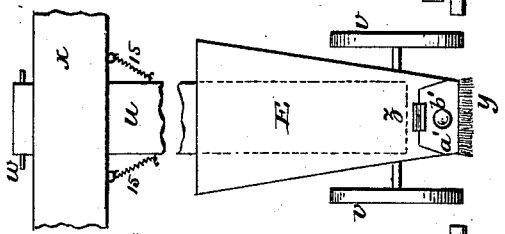


Fig. 10a.

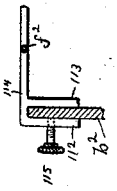
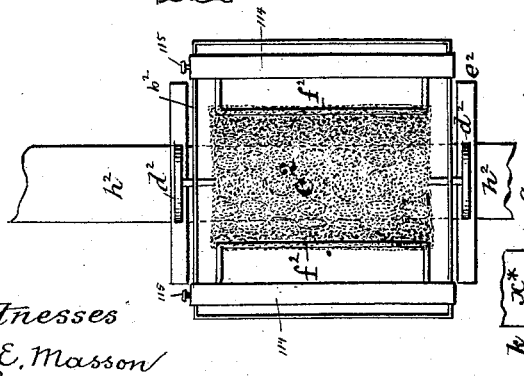
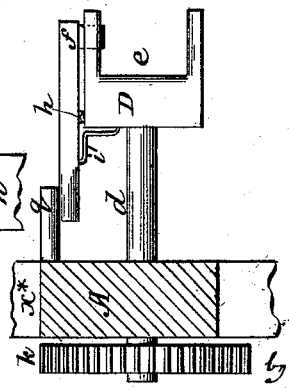


Fig. 10.





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UNITED STATES PATENT OFFICE.

PHILIP W. WILEY, OF RALEIGH, NORTH CAROLINA.

MACHINE FOR ATTACHING LABELS TO PACKAGES.

SPECIFICATION forming part of Letters Patent No. 301,843, dated July 8, 1884.

Application filed January 9, 1884. (No model.)

To all whom it may concern:

Be it known that I, PHILIP W. WILEY, a citizen of the United States, residing at Raleigh, in the county of Wake and State of North Carolina, have invented certain new and useful Improvements in Machines for Attaching Labels to Packages, of which the following specification is a full, clear, and exact description.

This invention has reference more particularly to machinery for attaching the labels to packages or bags of smoking-tobacco; but it is applicable in whole or in part to machines for attaching labels to other articles. These packages are squared in a mold, so that they are in the form of rectangular parallelopipedons with an oblong base, and they have two labels applied to them, one in the form of a narrow strip encircling the package at its middle, and the other in the form of an oblong sheet affixed to the face of the package over the two ends of the strip-label.

The invention consists, first, in combining with holders for supporting the packages and means for introducing the latter into the holders, devices for pasting the strip-labels around the squared or irregular bodies of the same, the said devices being adapted to conform in their movements to the irregular outline.

Heretofore machines have been made for pasting labels around cans; but these have not been adapted to the purposes of this invention, because the rolling of the can is relied upon to effect the pasting of the label to its periphery; or if this be not the case in some instances the cylindrical shape of the can is nevertheless necessary for the operation of the machine.

The invention consists, secondly, in the combination, with the means for pasting strip-labels around the packages, of means for applying face-labels to them and mechanism connecting the said means, so that said labels are successively and automatically applied to each package.

This invention further comprises certain special constructions, combinations, and arrangements of parts in the label-attaching mechanism, as hereinafter set forth and claimed.

The following is a description of what is considered the best mode of applying the principle of the invention, reference being had to the accompanying drawings, which represent one of the improved machines.

Figure 1 is a plan view, partly in horizontal section; Fig. 2, a side elevation; Fig. 3, a vertical longitudinal section; Fig. 4, a partial view showing the rotatory holders in connection with the upper fountain-brush; Figs. 5 to 10^a, detail views, and Figs. 11 and 12 views of a modification.

A is the machine-frame in which the several parts are supported; B, an endless traveling apron; C, a stationary table; D D′, rotatory holders for supporting the bags or packages in applying the strip-labels; E, a fountain-brush; F, the box or receptacle for the strip-labels; G, stationary ledges; H, a second fountain-brush; I, the box or receptacle for the face-labels; K, a pressing-roller; L, an automatic stop, and M N, pressing and delivery rollers. The apron B is supported at its inner end (right-hand end in Figs. 1 and 3) on a roller, *a*, journaled in bearings in the machine-frame and revolved intermittently by means of a belt on the pulley *b*. The outer end of the apron may be supported by a similar roller; but, as shown, the apron is broken off. It may extend to any desired distance. The bags or packages to be labeled are placed on the apron.

The table C is supported on the machine-frame, with its upper surface on or nearly on a level with that of apron B, so that the bags or packages will pass onto it from said apron. There are upright walls *c* at the sides of the table, which converge slightly toward the inner (right-hand) end, so as to place the bags or packages in the proper position to pass into the first pair of holders, D. These (and the holders D′ also) consist of blocks mounted upon short shafts *d*, which are journaled in the machine-frame. The face of the blocks is grooved at *e*, so as to receive the ends of a package. The height of the grooves is about equal to the thickness of a package, and the length is a little less than its width. Each block or holder is provided with a clamping-jaw, *f*, which passes through a notch, *g*, in one side of the groove, so that it may bear upon the package within. It is hinged at *h* to the block, and is operated by means of a spring,

i, which presses up the tail of the jaw and causes the opposite end to clamp the package in the groove. Between the holders D and D′ of each pair space is left, so that the middle of the packages will be exposed for the application to that portion of the strip-labels. During this application the holders, with the packages, are revolved by means of gears *k* at the ends of the short shafts *d*. The two gears *k* on each side mesh with each other, so that the holders D′ revolve in the opposite direction to the holders D, and one of the said gears *k* on each side meshes with an idler, *l*, mounted on a journal pin or stud, *m*, fixed to the machine-frame, and this idler in turn meshes with a mutilated gear, *n*. The mutilated gear has the same number of teeth as the gears *k;* but the teeth are arranged in a semi-circumference, so that the gears *k* and the holders D D′ make one complete revolution in one half-turn of the gear *n* and remain at rest during the other half-turn. The mutilated gears *n* (for there are two such gears—one for each side of the machine) are fixed on the shaft *p*, which is the main shaft of the machine, and to which the power is or may be applied in any known or suitable way, so as to revolve it continuously. As the holders D D′ finish their revolution the tail of each clamping-jaw *f* passes under a fixed pin, *q*, which forces it down against the pressure of the spring *i* and raises the front or clamping end of the jaw *f*. When at rest the grooves in the holders are horizontal, and their bottoms form substantially a continuation of the apron B and table C, so that the packages may readily be moved into the holders D from the table C, or into the holders D′ from the holders D. The clamping-jaws, being withdrawn by the pin *q*, do not interfere with the movements of the packages. As soon as or shortly after the holders begin to turn, the tails of the clamping-jaws pass from under the pins *q*, and the springs *i* cause the jaws to clamp the packages in the holders. The feeding of the bags or packages is effected by the movement of the apron B, which begins as soon as the holders come to rest, and occupies a quarter of a revolution of the main shaft *p*. The movement is imparted from the segment or arc *r* on the side of the mutilated gear *n* (shown in Fig. 2) through the pulley *s*, turning on a fixed stud. The crossed belt *t* and the pulley *b* are the shaft of roller *a*. The segment or arc *r* operates by friction. The remaining quarter of a revolution, during which the apron B, as well as the holders D D′, remain stationary, is occupied in applying one end of the strip-label to the package in holders D′, as will be hereinafter explained.

Above the open space between the holders D is supported the fountain paste-brush E. It is fastened to the lower end of a rod, *u*, which is free to slide in a hole in the stationary cross-bar *x*. This bar *x* is supported at the ends by the uprights x^*, which are fastened at the bottom to the frame A. In Fig. 1 the middle of the bar *x* is broken away, and in Fig. 4 the two ends. The upper parts of the uprights x^* are broken off in Fig. 4. The weight of the brush and the rod *u* is or may be partly supported by springs 15, Fig. 4, (shown as spiral tension-springs,) or by equivalent means. When there is a package in the holders D, the brush is upheld by the wheels *v*, which rest upon the package. The brush is then in contact with the bag or wrapper of the package, and when the latter is revolved by the holders leaves a band of paste around it of the width of the strip-labels. The wheels resting upon the package raise and lower the brush, so that it conforms in its movements to the irregular outline of the package. When a package is not in the holders, the brush is held up by a pin, *w*, in the rod *u* at such height that the packages can easily be forced under it.

The paste-brush E may be of any ordinary or suitable construction. As shown, the fibrous part of the brush *y* is fastened to one side of the paste-holder or fountain *z*, and a gate, *a′*, is provided for closing more or less the outlet of the holder or fountain. It is adjustable, by means of a screw, *b′*, to vary the opening in the mouth of the holder or fountain, so as to allow more or less paste to flow onto the fibrous part, to be wiped off on the bag or package.

Below the level of the holders D D′ is the box or receptacle F for the strip-labels. The bottom *c′* rests upon the flat bar *d′*, which is adapted to slide in a hole in the stationary cross-bar *e′*. The frame of the box, composed of the sides and ends, fits loosely over or around the bottom, and is held up by the spiral tension-springs *f′*, each connected at the lower end with a pin, *g′*, attached to the frame, and at the upper end with a pin, *h′*, fixed in the bottom and projecting through a slot in the ends of the box. (See box I.) The frame of the box may therefore be depressed independently of the bottom, which acts as a plunger to force the labels to the top, and when relieved the springs return the frame. The bar *d′* passes down in close proximity to the shaft *i′*, which extends lengthwise of the machine, and is geared to the cross-shaft *p* by bevel cog-wheels *k′*. A pin, *l′*, provided with a friction-roller, projects from the bar *d′* under the edge of the disk-cam *m′*, and the said roller is usually held in contact with the cam *m′* by the weight *n′*. This weight is fastened to one end of a cord, *p′*, which passes over the fixed pulley *q′*, and is fastened at the other end to the pin *l′*. The weight is sufficient to overbalance the label-box and the bar *d′* when the former is full of labels, and it therefore constantly tends to raise the bar and the label-box. The cam *m′* is a disk molded or cut away, as shown in Fig. 6, so as to leave two inclines, 1 and 2, the former, or number 1, being more nearly radial, and therefore more abrupt, than the other. In the revolution of the cam the roller on pin *l′* is first drawn over the more abrupt incline 1, so that the bar *d′* and

label-box F are lifted rapidly by the weight n', but are more slowly drawn down by the action of the incline 2. When the label-box rises, the top of the frame comes into contact with the bottom of the table C, and also with the bottoms of the packages in holders D D', and is held stationary, while the bottom or plunger c' is farther advanced by the weight n', and the labels are lifted by it until the upper label is brought into contact with the package in the holders D'. This package has had a ring of paste applied to it when supported in the holders D, from which it has been transferred to the holders D'. The end (right-hand end in drawing) of the upper label being pressed into contact with the moist paste, adheres thereto and remains suspended when the label-box F is drawn down by the action of the cam m'. The withdrawal of the box being comparatively slow, gives time for the outer labels to fall back into the box. The label-box is or may be provided with a cover, r', extending over the top, so as to leave only the proper end exposed. After the end of the strip-label has been stuck to the package in holders they are revolved by the means before explained. As they revolve the roller K presses the strip-label into contact with the paste on the package. This roller, which is preferably made of or surfaced with rubber or similar elastic material, is carried by a bar or rod, s', that is free to slide in a hole in cross-bar t', and is forced up so as to press the roller against the package by the weight 16. This weight is fastened to the cord v', which passes over the pulley w', and is at the other end fastened to a pin in the end of the bar or rod s'. Being held by yielding pressure, the roller can move in and out to conform to the irregular outline of the bag or package. In order to keep the roller out of the fresh paste on the package it is not allowed to come into contact with the bag until the holders D' have revolved a sufficient distance to bring the end of the label over the roller. To hold off the roller until the proper time, a cam, x', on the shaft i' is arranged to strike and bear down a roller, y', on a pin attached to the bar or rod s'. The shape of the cam x' is shown in Fig. 7. After the strip-label has been applied the package is passed from the holders D' onto the ledges G. A roller, z', at the front of the ledges, causes the packages to run onto them more easily. Between the ledges is fastened a plate, a^2, its upper surface slightly below the top of the ledges. This plate has an opening the size of the face-label. Below this plate is the fountain-brush H, for applying paste through the opening to the face of the package. The plate a^2 serves therefore as a stencil. The fountain-brush H consists of a well, b^2, and a cylindrical brush, c^2, journaled in bearings attached to the well, and provided with rollers d^2, fixed on the journals of the brush. These rollers are surfaced with rubber or similar material, and rest upon or work against the stationary plates e^2, so that as the well is reciprocated the friction causes the brush to be turned back and forth in the paste in the well. Wire scrapers f^2 prevent the brush from taking up an excess of paste. They are made adjustable by attaching them to the edge of the well by set-screws or by other suitable means, so that they can be set nearer to or farther from the axis of the brush in order thus to regulate the amount of paste taken up. The wires f^2 are fastened to the bars 114, which have at the ends depending lugs 112 and 113 (see Fig. 10ª) that fit over the edge of the well b^2. Set-screws 115, tapped through the lugs 112, press against the well and retain the scrapers in place.

The fountain H is reciprocated by pitmen or connecting-rods g^2 between crank-pins a^4 on two of the gears k, and pins on the ends of a long plate or wide bar, h^2, which passes through slots i^2 in the machine-frame and under the paste-well b^2. It supports the latter. After the paste for the face-label has been applied, the package is pushed along the ledges until it is over the box or receptacle I for the face-labels. This box is substantially like the box F for the strip-labels, and the description need not be repeated. The same letters indicate corresponding parts. It rests upon and is fastened to the sliding bar k^2, which is pressed up by the weight l^2 to bring the upper label into contact with the pasted face of the package, and is drawn down afterward by the cam m^2 on the horizontal shaft i', leaving the top label sticking to the package. The packages while on the ledges G are held down by the cover n^2. The stencil-plate a^2 being set below the top of the ledges, is not liable to scrape off the fresh paste when the packages are moved past it. The movement of the packages through the machine is effected by the intermittent rotation of the apron B, the package behind pushing along those in front, and the whole moving the width of a package at each step.

In order to prevent the row of packages from advancing too far the stop L is provided. It is supported as a slide in ways or grooves p^2, and is raised or lowered as required by the cam q^2 through the shoe r^2 and supporting-rods s^2. The cam is so arranged that it allows the stop L to drop behind the package, which has just been labeled, and which is carried off by the rollers M N. It thus stops the succeeding package in the proper position over the label-box I. The roller M is revolved continuously by the belt t^2, which conveys motion from the pulley 17 on shaft p to the pulley v^2 on shaft of roller M.

The operation of the whole machine is as follows: The packages are placed in order on the apron B, face down, and the mouths or stamped ends all point in one direction. The apron being rotated through the arc or segment r, pulley s, belt t, pulley b, and roller a, the packages thereon are advanced and push those in the machine forward the width of a package. The package previously on the table C is pushed into the holders D, the one

in holders D into holders D′, the one previously in holders D′ onto the front or inner ends of the ledges G, the one on the front of the ledges over the stencil-plate a^2, the one previously over the stencil-plate into the space between the said plate and the label-box I, the one previously in this space into position over the label-box I, and the one over the label-box between the delivery and pressing rollers M N, which immediately carry this last package out of the machine. The rollers M N feed the package somewhat faster than the line of packages is advanced by the apron B, so that the last package is not in the way of the stop L, which drops down immediately behind it. It thus stops the advance of the line of package until the arc or segment r, having passed from under the pulley s, the apron B comes to rest. The cam q^2 thereupon raises the stop out of the way. At the same time the cams m' and m^2 allow the label-boxes F and I to be raised by the weights n' and l^2, and the end of the strip-label is stuck on the package in holders D′, which package has previously been pasted while in the holders D, and the face-label is stuck on the face of the package to which paste had previously been applied by the fountain-brush H through the stencil-plate a^2. The cams m' m^2 afterward withdraw the label-boxes F. The cam m' is so shaped that it withdraws the label-box F while the holders D are stationary; but so quick a movement is not required for the box I, and therefore the cam is shaped as shown in Fig. 8, to permit a slow movement. The movement of the label-box I to apply the face-label takes place therefore partly, and might take place wholly, during the revolution of the holders D D′. As soon as the label-box F is out of the way, the holders D D′ revolve, being made to do so by the engagement of the teeth of the mutilated gears n with the idlers l, and the fountain-brush H is reciprocated by means of the pitmen or connecting-rods g^2. The revolution of the holders D turns the package held therein under and in contact with the brush E, which leaves a ring of paste around the package, and the revolution of the holders D′ turns the package held therein (together with the strip-label stuck on by one end) over the roller K, which presses the said label smoothly upon the package. When the holders D D′ have finished their revolution, the clamp of the jaws f is released, the apron B revolves, and the row of packages is advanced, when the operations are repeated in the order described upon the succeeding packages.

The foregoing constitutes what is believed to be the best mode of applying the principle of the invention; but the invention is not strictly or wholly limited thereto, since it is obvious that modifications may be made in detail without departing from the spirit of the invention. For example, instead of using the intermittently-revolving apron-feed, the arrangement shown in Figs. 11 and 12 can be adopted and be used with or without the automatic stop L. The packages are placed in the hopper P, supported above a table, which, as it corresponds to the table C of Figs. 1 and 3, is designated by that letter. The hopper-mouth is distant from the table about the thickness of a package. Upon the table is a feed-block, Q, mounted upon rollers that travel on the table. It is connected by the lever a^5 with a crank, b^5, on the shaft p, the said lever being pivoted at c^5 to a stationary part of the machine. The wrist of the crank works in a slot, d^5, in the lever. The upper end of the lever has, by a slot and pin, connection with the feed-block at e^5. The effect of the crank-connection is to reciprocate the feed-block. As it moves back from under the hopper it allows a package to fall upon the table. As it moves forward again it pushes this package against the other and advances the whole line. The operator could place the packages one at a time in front of a feed-block, if it be desired to keep his attention fixed on the machine.

Other modifications could be made. Thus, instead of the label-boxes shown, other means of known or suitable construction for applying labels to pasted surfaces could be used. It should be observed, however, that the means shown are, it is believed, of new and improved construction, and are specially claimed.

It is evident that parts of the invention could be used separately.

I claim the new improvements herein described, all and several, to wit:

1. In a machine for attaching labels, mechanism for pasting strips or long labels around packages of a squared or irregular form, the same comprising rotatory holders constructed to hold such packages, combined with devices, substantially as described, for pasting the strips or labels around them, said devices being movable toward and away from the axis of the holders to conform to the irregular outline, as set forth.

2. A machine for automatically attaching to packages a strip or long label around each package, and a sheet-label on the face thereof, said machine comprising mechanism, substantially as described, for rotating the packages and pasting strip-labels around their middle, and mechanism, substantially as described, for supporting said packages without rotating them, and while thus held pasting a sheet-label on the faces of the same, in combination with devices for operating said mechanism, and a feeder for carrying the packages to and from the same, as set forth.

3. The combination, with rotatory holders, of a paste-brush, a movable carrier for the said brush, and means, substantially as described, for supporting it in contact with the package, and for moving the same toward and away from the axis of the holder in conformity to the shape of the package, as set forth.

4. The combination, with rotatory holders, of the box or receptacle for the strip-labels, having a bottom adapted to act as a plunger, and

the mechanism, as described, for raising and lowering the same to stick the top label against the package in said holders, substantially as set forth.

5. The combination, with rotatory holders, the paste-brush for applying a ring or band of paste to the package, and the mechanism, substantially as set forth, for sticking one end of a label to said paste, and the pressing-roller for pressing or wrapping the label around the package, of the cam for holding the roller out from package until the label interposes itself so as to keep it out of the paste, substantially as described.

6. The combination of the two sets or pairs of rotatory holders, the paste-brush, the box or receptacle for the strip-labels, the pressing-roller, and the operating mechanism, substantially as described.

7. The rotatory holders having grooved faces to receive the ends of the packages, and clamping-jaws to hold them in the grooves, substantially as described.

8. The combination, with grooved holders and mechanism for revolving the same intermittently, of a feeder, and mechanism, substantially as set forth, for operating it to advance the packages in the interval between the rotation of the holders, so as automatically to insert the packages in the grooves, substantially as described.

9. The combination of an intermittent feeder, intermittently rotated package-holders, a paste-brush, a label-box or receptacle, and a presser or pressing roller, substantially as described.

10. The combination, with a label-box for holding a number of labels, of a cam and connected parts, substantially as described, for moving the same toward and away from the package, to attach a label to it, as set forth.

11. The combination, with rotatory package-holders, of a brush and a movable support or carrier therefor, provided with wheels to rest upon the package, substantially as described.

12. The combination, with a label-box and a movable support or carrier therefor, of a cam for controlling the movements of the said box and its carrier, said cam having inclines or cam-surfaces of different degrees of abruptness, arranged as explained, so that the label-box is drawn away less rapidly than it approaches the package, substantially as described.

13. The combination of the grooved rotatory holders, the brush, the wheeled brush-carrier, and the box for the strip-labels, substantially as described.

14. The combination of the rotatory holders, the paste-brush, the wheeled brush-carrier, the box for the strip-labels, the pressing-roller, and the operating mechanism, substantially as described.

15. The combination, with the rotatory holders, paste-brush, label-box, pressing-roller, and operating mechanism for pasting a strip-label around a package, of a paste-brush, label-box, and operating machines for pasting a short label on the face of the package, substantially as described.

16. In a machine for attaching labels, a stencil-plate, in combination with a paste-brush, substantially as described.

17. The combination of the ledges by which the package is supported, the stencil-plate between the ledges, and the paste-brush below the said plate, substantially as described.

18. The combination, with the paste-brush for applying paste to the face of the package, the box or receptacle for the face-labels, and the mechanism, substantially as described, for operating said paste-brush and label-box, of a feeder for moving the packages from the brush to the label-box, as set forth.

19. The combination, with mechanism, as explained, comprising the ledges G, cover n^2, fountain-brush H, and label-box I, for pasting a label on the face of packages, of the delivery and pressing rollers arranged to receive between them the packages with the applied labels, substantially as described.

20. The combination, with the paste and label applying mechanism of a machine for attaching labels to packages, of an intermittent feeder for advancing the line of packages, and an automatic stop to arrest their advance, substantially as described.

21. The herein-described machine for attaching labels, comprising, in combination, the following elements, to wit: an intermittent feeder, the rotatory holders, the two paste-brushes, the two label-boxes, the presser-roller, and the pressing and delivery rollers, and their operating mechanism, substantially as set forth.

22. The grooved holders for the packages, provided with clamping-jaws, in combination with devices, as explained, for releasing the jaws when the holders come to rest in the position for receiving the packages, substantially as described.

23. The fountain-brush for applying paste to the packages, comprising a well and a rotatory brush working therein, and provided with rollers on its shaft, in combination with adjustable scrapers, substantially as described.

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

PHILIP W. WILEY.

Witnesses:
R. S. WYNNE,
P. A. WILEY.