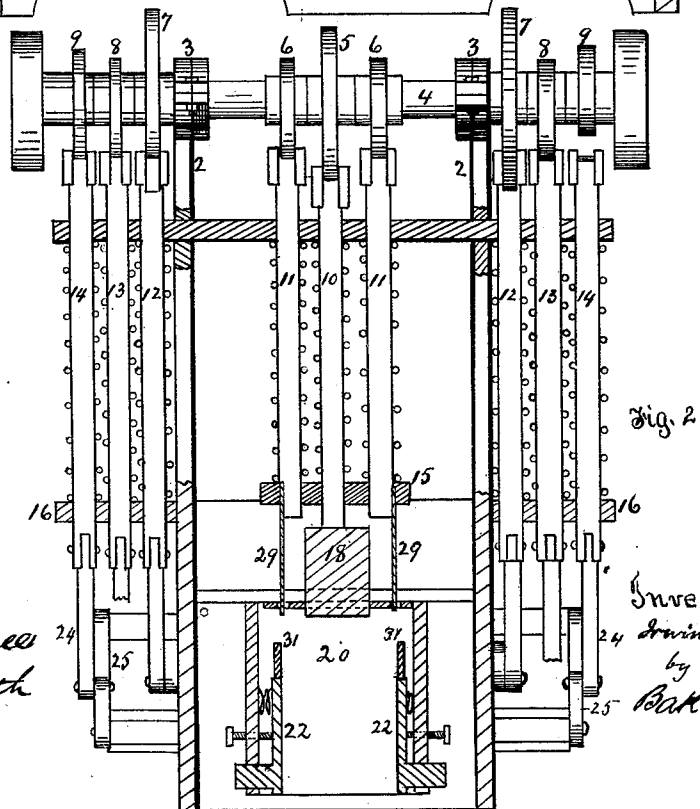
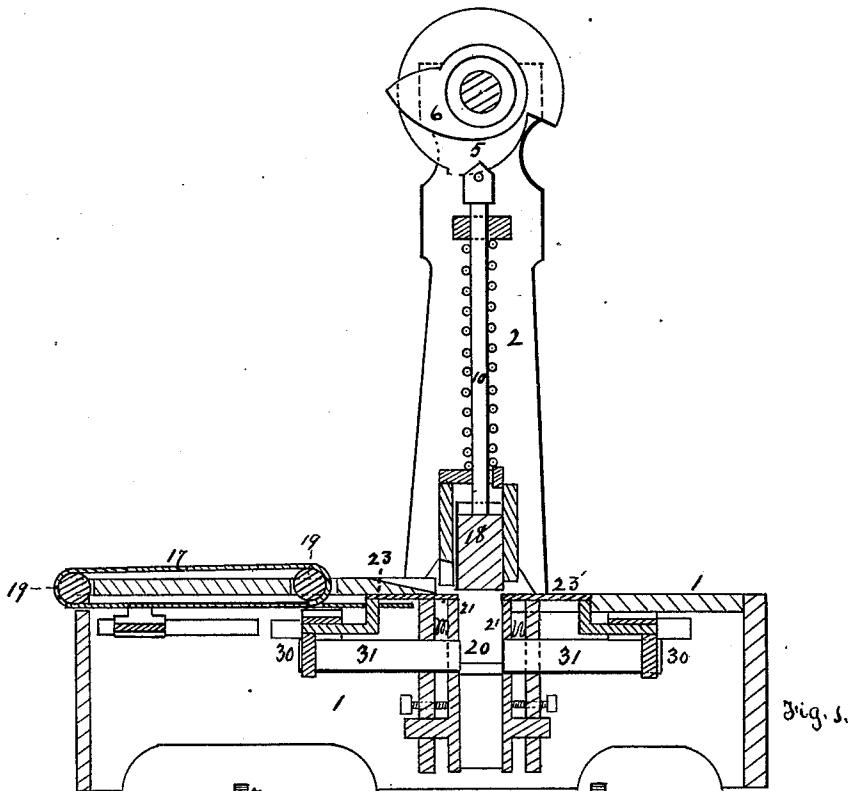


(No Model.)

3 Sheets—Sheet 1.

I. M. O'DONEL.
Package-Wrapping Machine.
No. 231,444. Patented Aug. 24, 1880.



Witnesses.

R. L. Bushnell
Geo. K. Smith

Inventor.

Irwin M. O'Donel
by his attys
Buttwell & Kerr

(No Model.)

3 Sheets—Sheet 2.

I. M. O'DONEL.

Package-Wrapping Machine.

No. 231,444.

Patented Aug. 24, 1880.

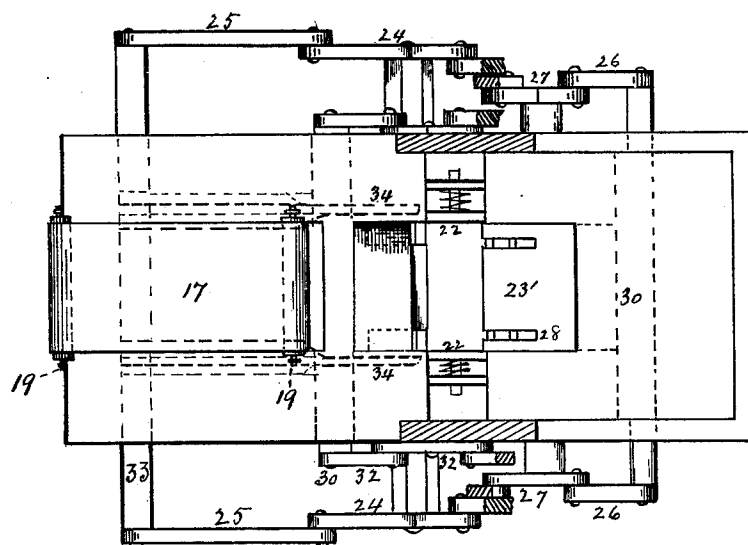


Fig. 3.

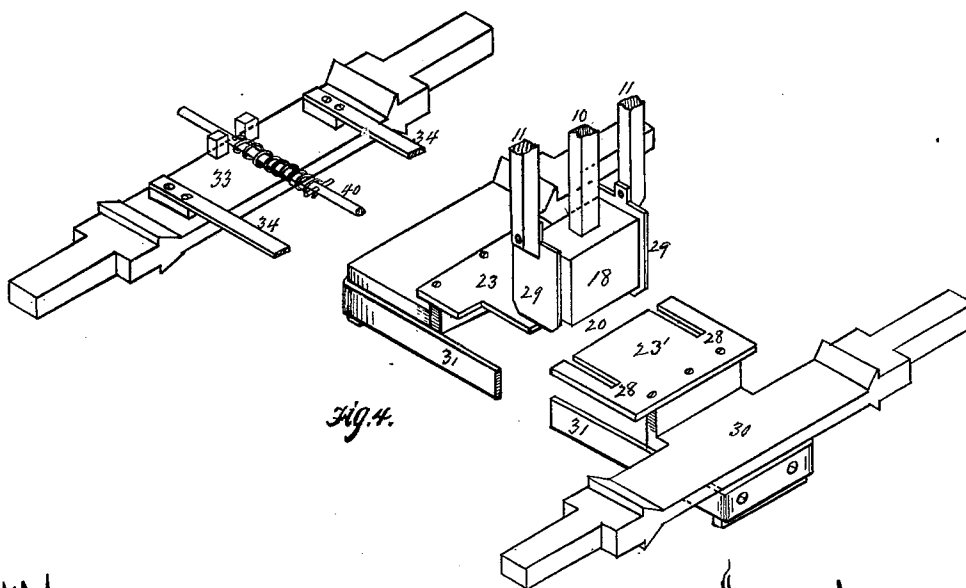


Fig. 4.

Witnesses.

R. W. Wmchace
Jno K Smith

Inventor.

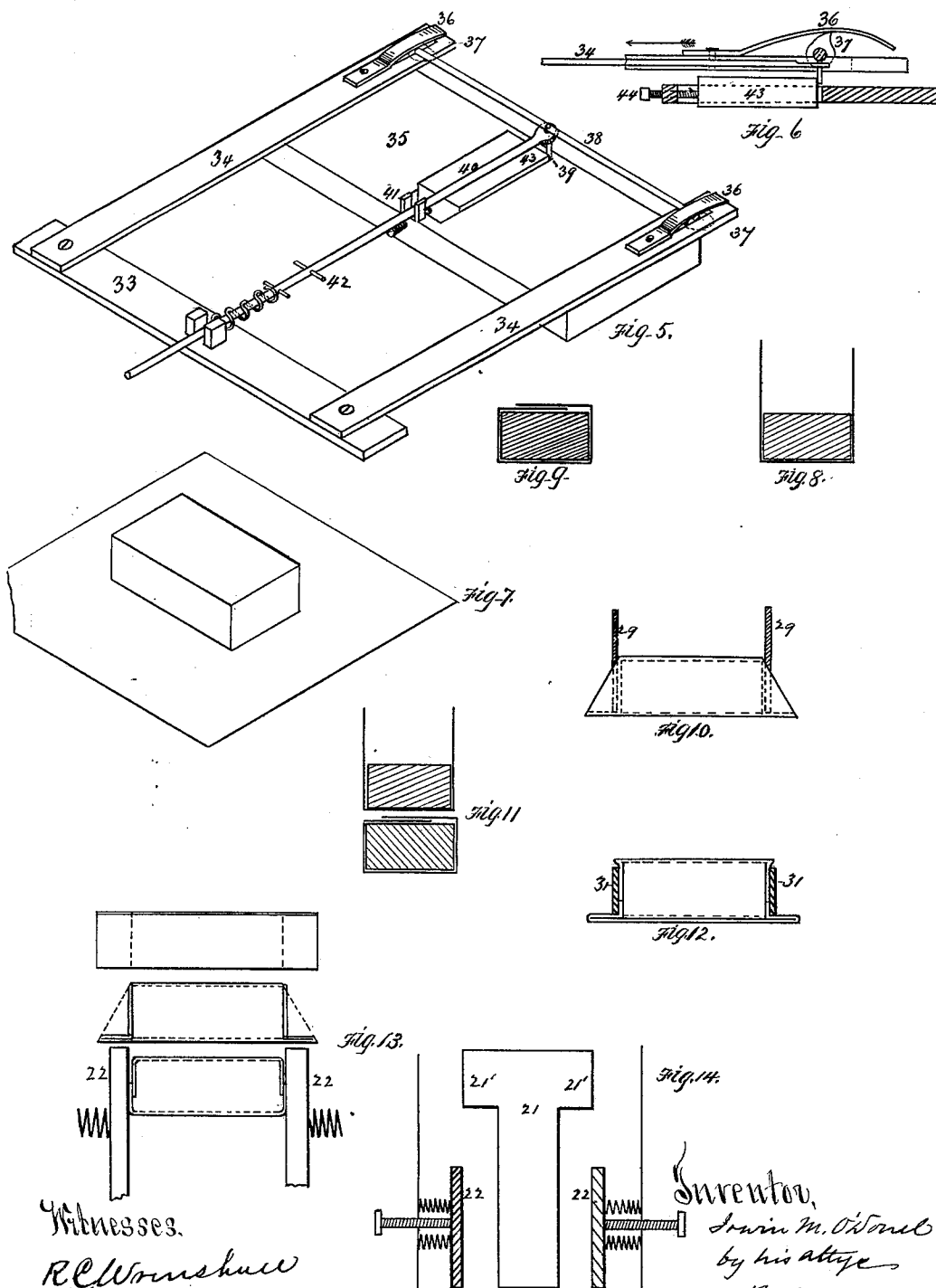
Irwin M. O'Donnell
by his attys

Bakerwell & Co.

(No Model.)

3 Sheets—Sheet 3.

I. M. O'DONEL.
Package-Wrapping Machine.
No. 231,444. Patented Aug. 24, 1880.



Witnesses.

R. C. Worschall
J. K. Smith

Inventor,
I. M. O'Donel
by his atty
Bakerwell & Kern

UNITED STATES PATENT OFFICE.

IRWIN M. O'DONEL, OF PITTSBURG, PENNSYLVANIA.

PACKAGE-WRAPPING MACHINE.

SPECIFICATION forming part of Letters Patent No. 231,444, dated August 24, 1880.

Application filed June 28, 1880. (No model.)

To all whom it may concern:

Be it known that I, IRWIN M. O'DONEL, of Pittsburgh, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Package-Wrapping Machines; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a vertical longitudinal section. Fig. 2 is a vertical end elevation, partly in section. Fig. 3 is a plan view, partly in section. Fig. 4 is a perspective view, illustrating the position of the plunger and folding-blades. Fig. 5 is a perspective view, and Fig. 6 a side view, of the gripping devices. Figs. 7 to 13 are views illustrating the various steps of the folding operation, and Fig. 14 is a detached view of the spring side and end pieces.

Like letters of reference indicate like parts in each.

My invention consists of an improved machine for papering soap and similar articles, and its main features are a sliding griper for seizing and drawing a sheet of paper into position to receive the soap, a traveling carrier or band for carrying the cakes or bars of soap into position upon the sheet of paper, a plunger for forcing the soap down into a recess upon the paper and causing the paper to be folded up along two sides, a pair of reciprocating and overlapping top-folding blades for closing the paper over the top of the cake of soap, a pair of reciprocating vertically-moving folding-blades for closing the paper around the upper end corners of the piece of soap, two pairs of overlapping reciprocating folding-blades for closing the edges of the paper around the ends of the soap, and spring end pieces in the folding-cavity, which, when the piece of soap is pushed down by the action of the plunger, causes the final fold of the ends of the paper to be made. These various parts are all operated from one power-shaft by means of a system of cams, connecting-links, and levers, the links being held in contact with the cams and retracted by means of springs mounted upon them.

To enable others skilled in the art to make and use my invention, I will now proceed to

describe its construction and mode of operation.

The frame of the machine is shown at 1. It has two uprights, 2 2, which sustain, in suitable bearings, 3, a power-shaft, 4, upon which are mounted the various cams which communicate the movement to the parts. Power is applied to this shaft in any desirable way.

The cams 5 to 9, which operate the various parts, are made of the required form to effect the projection of the plunger and the folding-blades in the proper manner. Below each cam, and operating in connection therewith, is a link or rod, numbered, respectively, from 10 to 14, and upon each rod is a spiral spring, which springs, bearing against the cross-pieces 15 and 16, and being fastened to the rods upon which they are mounted, cause the rods to bear against the cams and effect the retraction of the parts.

Upon the bed 1 is a traveling band or carrier, 17, which carries the bars or pieces of soap forward under the plunger 18. This band is operated by means of rollers 19, to which power is applied in any desired way. The bed 1 is slotted directly below the plunger 18, to form the mouth of a tunnel or folding-cavity, 20, provided with spring sides 21, and said spring sides are of such a length and such a distance apart as to receive and hold the pieces of soap when forced down between them by the plunger. At the lower end of the cavity 20 are spring end pieces, 22, of similar construction to the spring sides 21, except that they are narrower and shorter, and the purpose of these spring end pieces, 22, is to bear upon the ends of the piece of soap when it is forced down between them to effect the final fold of the paper.

In the bed 1 are a pair of flat reciprocating folding-blades, 23 23', of which 23 is operated by means of the cams 7, rods 12, and levers 32 32, and 23' by the cams 8, rods 13, and levers 26 27, and which have an alternate movement across the soap-folding cavity 20. One of these folding-blades, 23', is slotted at 28 for the passage of the vertical end-folding blades 29 29.

The plunger 18 is mounted upon a rod, 10, and operated by the cam 5. It has a vertical reciprocating motion, and its purpose is to

push the piece of soap down upon the paper into the soap-folding cavity. Arranged at the end of the plungers are two vertical end-folding blades, 29, which are operated by rods 11 and cams 6. The top-folding blades 23 and 23' are each mounted on a cross-bar, 30, and attached to the same bars, but lower down in the frame of the machine, so as to be below the first cake of soap; and opposite the end of the second cake are two pairs of end-folding blades, 31, one pair being on each side. These folding-blades, being mounted upon the same cross-bars which operate the top-folding blades, have the same movement and operate alternately, so that in crossing the pieces of soap they shall not come in contact with each other.

The spring end pieces, 22, of the folding-cavity are opposite to the position which will be occupied by the third cake of soap—that is, a distance from the top of the bed-plate equal to the thickness of two cakes of soap.

Just under the soap-feeding side of the bed is a reciprocating griper device operated by the cams 9, rods 14, levers 24 25, and cross-bar 33, it being mounted upon the said cross-bar. The purpose of this reciprocating griper device is to grasp the piece of paper as it is fed to the machine and draw it under the plunger. The griper consists of a frame composed of the bar 33, two side bars, 34, which slide on the cross-head 35, below the bed 1 and between the uprights.

On the side bars, 34, and closing down upon them, are two spring-grippers, 36, and under each griper is a cam, 37, the two cams being connected and operated by a transverse rod, 38. At the middle of the rod 38, and projecting from its under side, is a spur or pin, 39, attached to which is a stem, 40, running back centrally of the griper-frame between projections 41 on the cross-head 35. The stem 40 is provided with a laterally-projecting pin, 42, back of the projections 41.

In the cross-head 35, under the stem 40, is an adjustable stop, 43, for engaging the pin 39, and thereby tripping the cam-rod 38.

The operation of the griper device is as follows: When the frame is drawn back, after grasping a sheet of paper, the pin 39 strikes the adjustable stop 43 at the proper moment to release the sheet and leave it resting over the folding-cavity 20 and under the plunger. This causes the rod 38 to turn, and thereby throws the cams 37 over, raising the grippers 36 and releasing the sheet. The grippers remain open during the backward and forward motions of the frame until it comes to the point where the sheet of paper is fed to it. At that moment the pin 42 encounters the projections 41, which causes the rod 38 and cams 37 to be turned and release the grippers, which come down upon and grasp the sheet against the side bars, 34. The tripping-stop 43 is adjusted to the required position by the screw 44.

The operation of my machine is as follows:

The sheet of paper being fed to the grippers is caught by them and drawn across the soap-folding cavity, and a cake or bar of soap is fed forward on the traveling band 17 and deposited on the piece of paper under the plunger, as shown at Fig. 7. The plunger then descends and forces the soap down between the spring sides 21, and leaves it with its upper surface about the level of the under side of the top-folding blades 23 23'. This operation causes the paper to fold around the bottom and up along two sides of a cake of soap, as illustrated in Fig. 8 of the drawings. The top-folding blade 23 then comes forward and folds one side of the paper over the top of the cake, and it being retracted the second top-folding blade 23' advances and folds the other end of the paper, overlapping it on the first fold. The condition of the piece of soap after this operation is shown by Fig. 9 of the drawings. The vertical end-folding blades 29 are then projected downward, passing through the slots or by the sides of the top-folding blade which made the final top fold, and folds the paper down around the upper end corners of the soap. The condition of the piece of soap after this operation is illustrated by Fig. 10 of the drawings. By this time the operation of the machine has caused a second sheet of paper to be drawn forward under the plunger and a second piece of soap to be deposited thereon. The plunger then descends and forces this second piece of soap down into the soap-folding cavity, and thereby pushes the first piece down to the second place in said cavity. The position of the soap and paper after this operation is shown by Fig. 11 of the drawings. This operation brings the first piece of soap opposite the end side-folding blades, 31, which being projected forward alternately from opposite sides fold the ends of the paper laterally in around the ends of the piece. The condition of the piece of soap after this operation is illustrated by Fig. 12 of the drawings. By this time the third piece of soap is fed to the machine, and being pushed down by the plunger causes the first piece to be pushed down between the spring end pieces, 22, and this movement causes the remaining end fold to be made and turns up the corners of the paper against the ends of the piece of soap. This completes the folding, and the condition of the piece is shown by Fig. 13 of the drawings.

The continued feeding of the machine finally causes the first piece of soap to be discharged from the bottom of the soap-folding cavity. The spring sides and end pieces bearing against the pieces of soap as they are forced downward hold them in position.

It is apparent that my machine is equally adapted to the papering of other square articles beside soap, such as confections, compressed yeast, plug-tobacco, &c.

The same machine may be employed with articles of various sizes by making the spring side and end pieces adjustable. The side

2/

pieces being of T shape, as shown in Fig. 14, and the end pieces 22 being below their long portions 21', they may be adjusted inward without encountering the ends of the side pieces, as shown in Fig. 14.

The laterally-moving end-folding blades 31, being mounted on the same cross-bars 30, with the top-folding blade on that side of the machine, the end folds of the second cake will be made in the same order as the top folds are, and thus the laterally-moving end-folding blades will be prevented from getting under and raising the fold on the opposite side.

The advantages of my machine consist in its rapid, efficient, and labor-saving operation, it accomplishing with much greater rapidity and perfection work that has heretofore been done successfully only by hand.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a machine for applying wrappers to packages, the combination of a plunger, two spring side pieces arranged parallel to the path of the plunger, and adapted to receive the wrapper and package when forced down by the plunger, and reciprocating folding-blades arranged to operate alternately across the path of the plunger to give the first or top fold to the wrapper, substantially as specified.

2. In a machine for applying wrappers to packages, the combination of a plunger, two yielding side pieces for receiving the wrapper and package when forced down by the plunger, folding-blades arranged to work over the side pieces and across the path of the plunger to give the top fold, and vertically-reciprocating blades arranged at the ends of the package and adapted to give the first end folds of the wrapper, substantially as specified.

3. In a machine for applying wrappers to packages, the combination of a plunger, two yielding side pieces for receiving the wrapper

and package when forced down by the plunger, folding-blades arranged to work across the path of the plunger and over the side pieces to give the top fold, two vertically-reciprocating blades arranged to work across the ends of the package and produce the first end folds, and folding-blades arranged to work laterally and alternately across the ends of the package and produce the edge folds of the wrapper, substantially as specified.

4. In a machine for applying wrappers to packages, the combination of a vertically-moving plunger, side pieces, between which the package is forced by the plunger, reciprocating folding-blades operating from opposite sides and across the path of the plunger to make the top fold, vertically-moving end-folding blades for making the first end folds, reciprocating folding-blades operating laterally and alternately from opposite sides of the machine for making the edge folds, and spring end pieces arranged below the folding-blades for making the final end folds, substantially as specified.

5. In a machine for applying wrappers to packages, the combination of the plunger and the spring end pieces, arranged below the folding-blades, and forming the lower end of the folding-cavity, substantially as and for the purpose specified.

6. In a machine for applying wrappers to packages, the combination of adjustable T-shaped sides and adjustable ends working into the recessed sides, said parts forming a folding-cavity, substantially as and for the purpose specified.

In testimony whereof I have hereunto set my hand.

IRWIN M. O'DONEL.

Witnesses:

T. B. KERR,
JNO. K. SMITH.