March 5, 1935. C. P. SCHMIDT ET AL 1,993,488

BREAD WRAPPING AND SEALING MACHINE

Filed Sept. 26, 1932 5 Sheets-Sheet 1

Fig. 1.

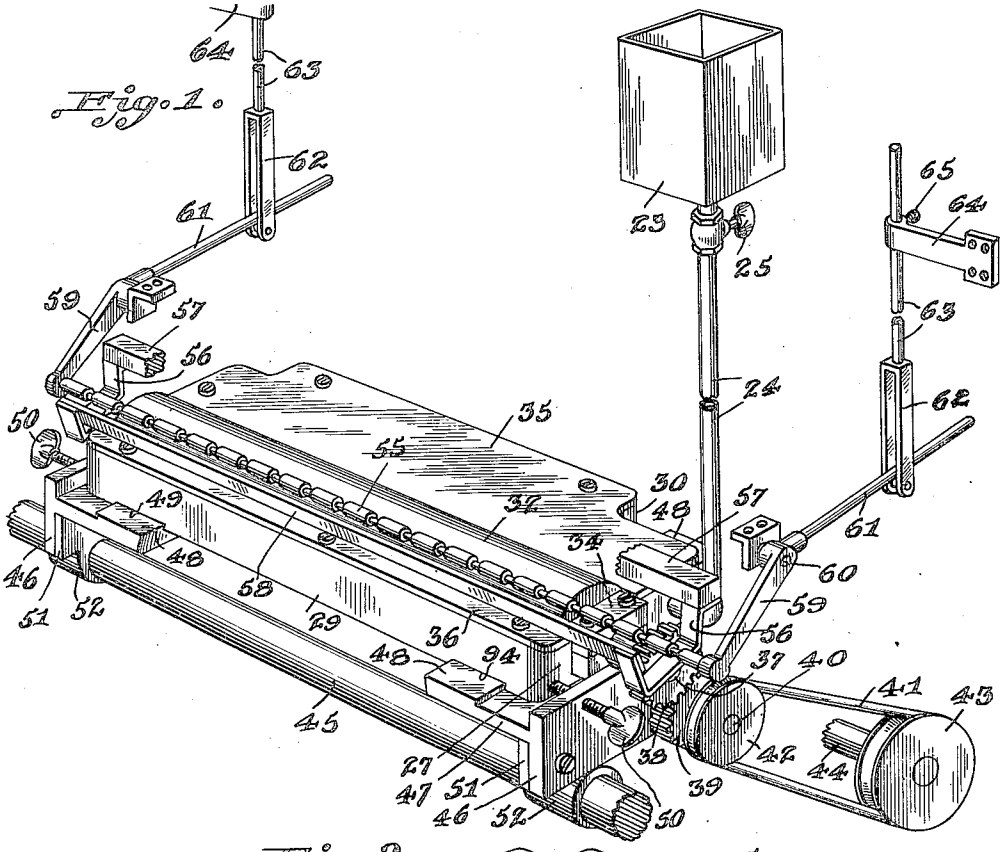


Fig. 2.

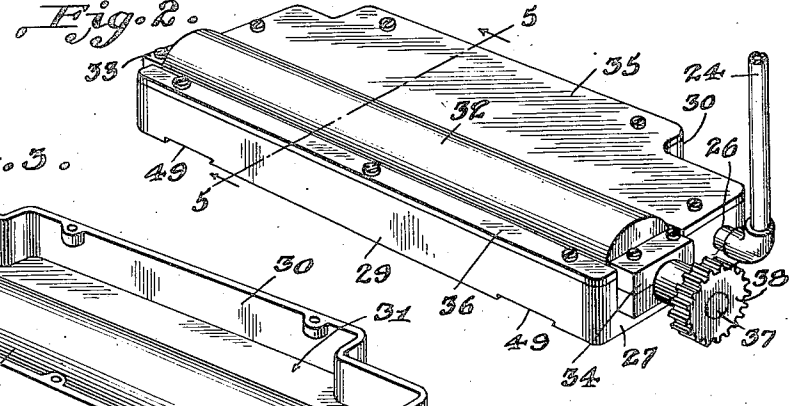
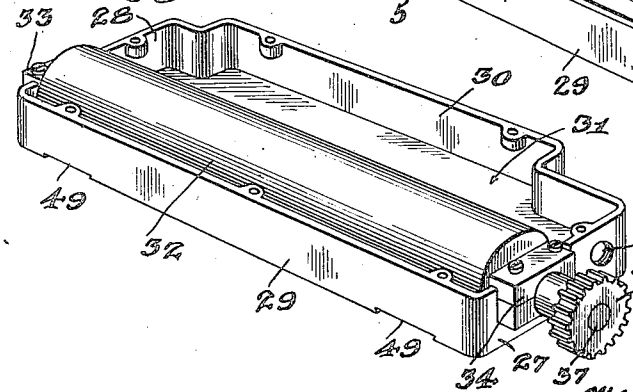


Fig. 3.



Inventors,
Curt P. Schmidt
AND Edmund C. Jansen

By Wilkinson & Mawhinney
Attorneys

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BREAD WRAPPING AND SEALING MACHINE

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Fig. 4.

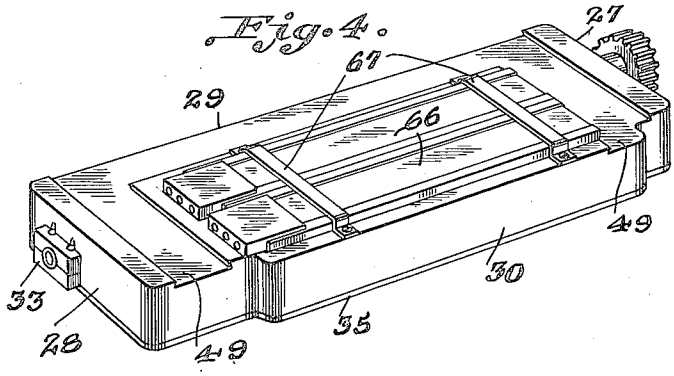


Fig. 5.

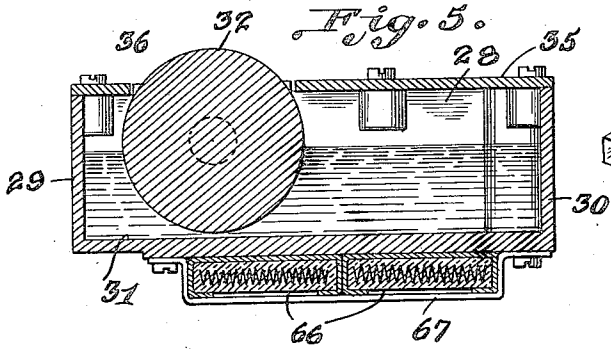


Fig. 6.

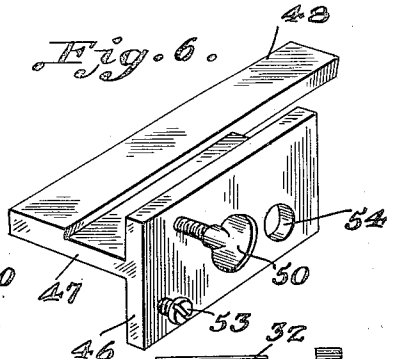


Fig. 7.

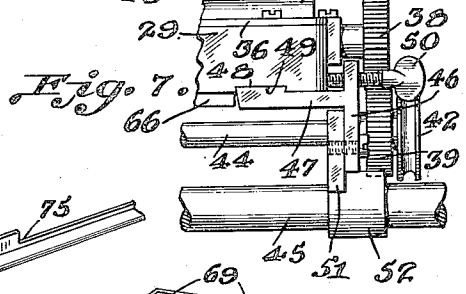


Fig. 8.

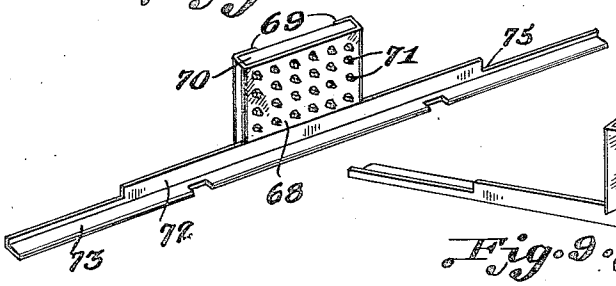
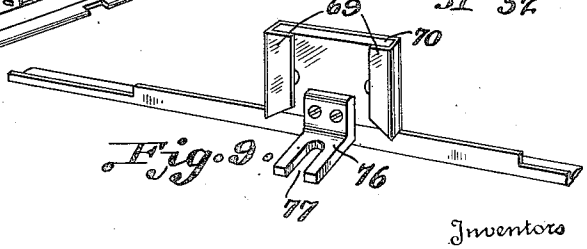


Fig. 9.



Inventors

Carl P. Schmidt

AND Edmund C. Jansen

By Wilkinson & Mawhinney

Attorneys

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BREAD WRAPPING AND SEALING MACHINE

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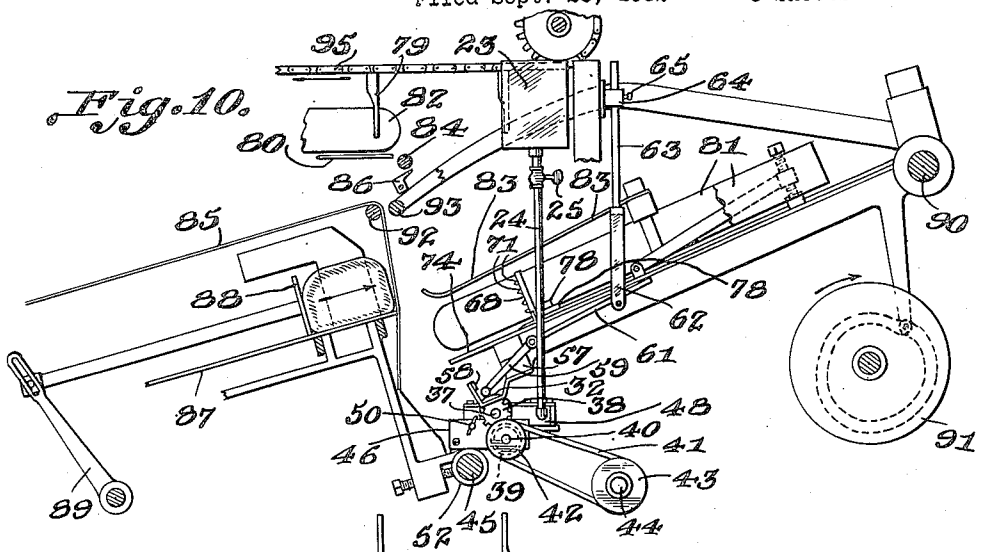
Fig. 10.



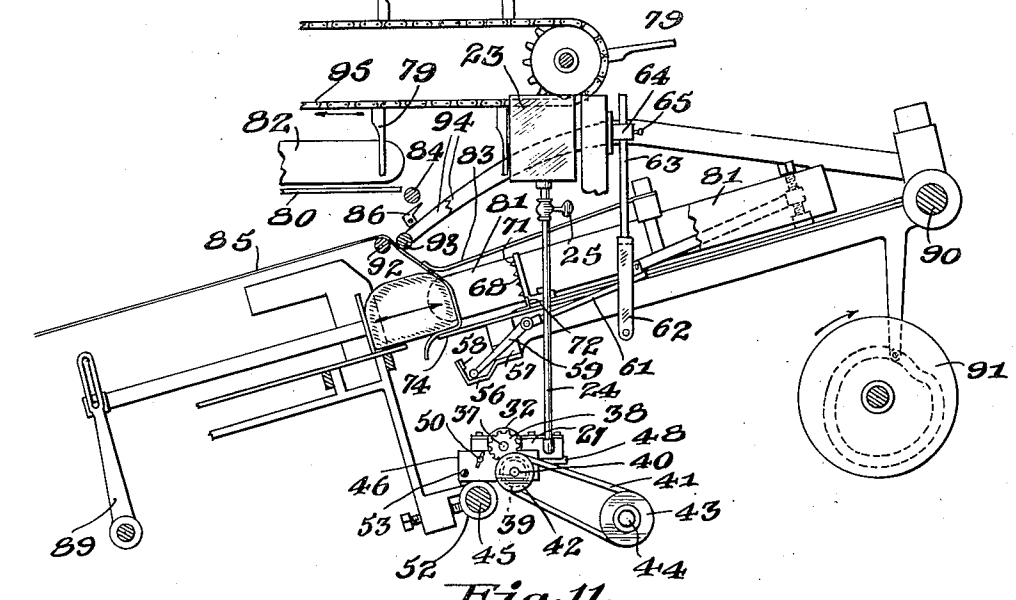


Fig. 11.

Inventors
Carl P. Schmidt
AND Edmund C. Jansen

By Wilkinson & Mawhinney
Attorneys

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Fig. 12.

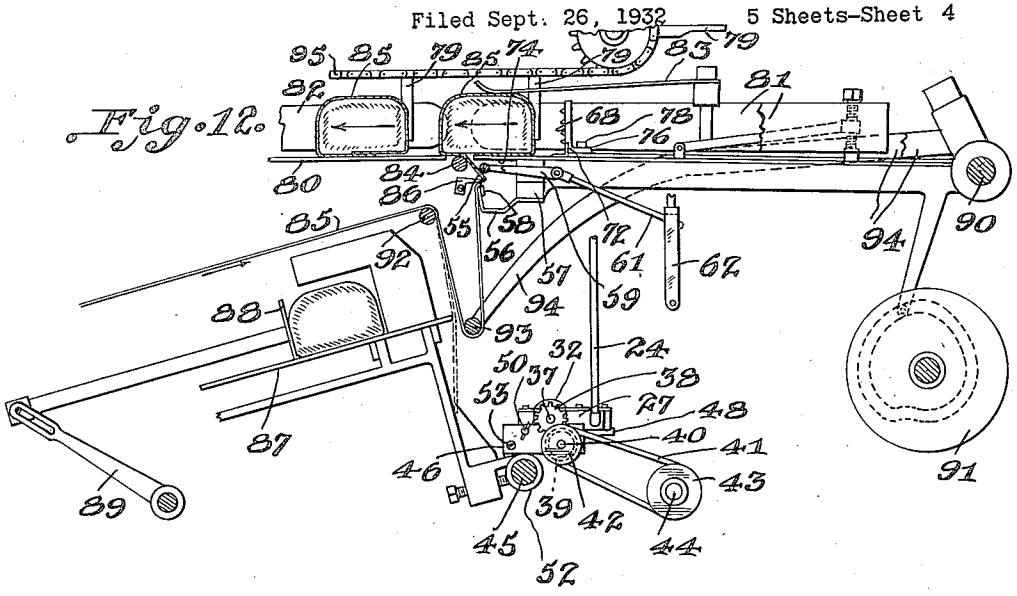


Fig. 13.

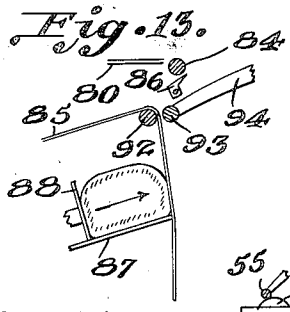


Fig. 14.

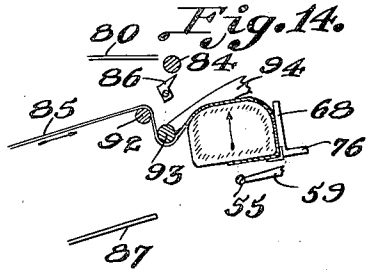
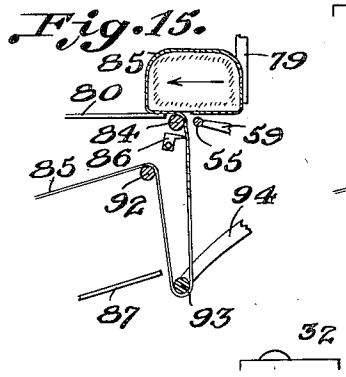


Fig. 15.



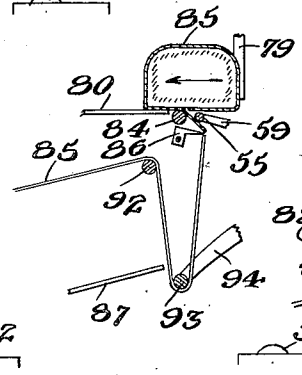


Fig. 17.

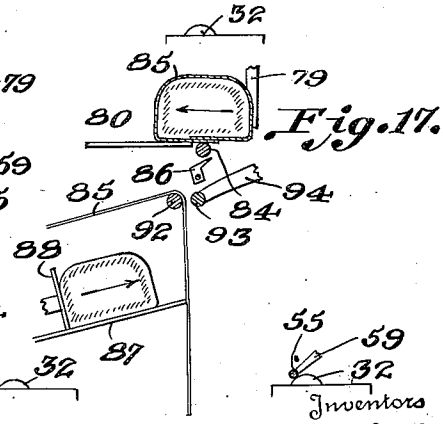


Fig. 16.

Inventors
Carl P. Schmidt
AND Edmund C. Jansen

By Wilkinson & Mawhinney
Attorneys

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BREAD WRAPPING AND SEALING MACHINE

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Fig. 18.

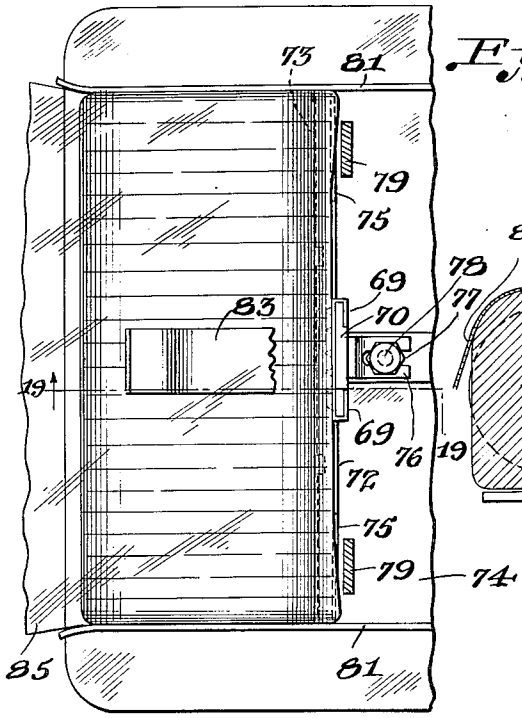


Fig. 19.

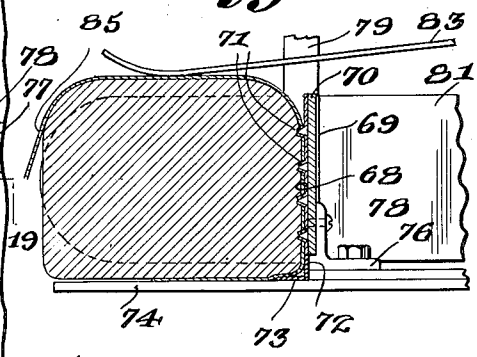


Fig. 20.

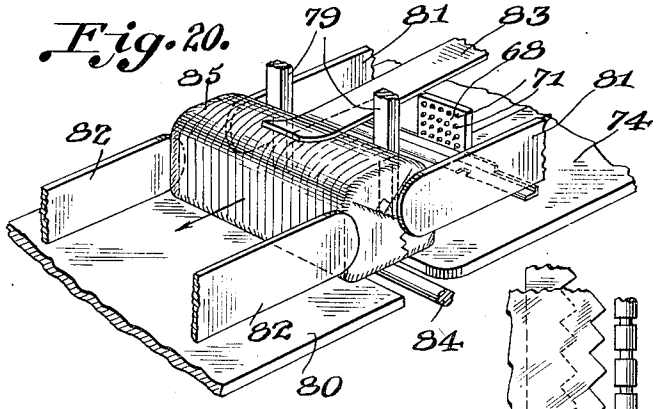


Fig. 22.

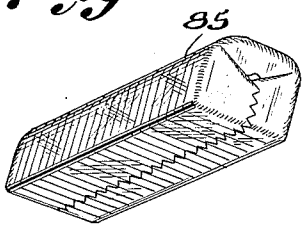
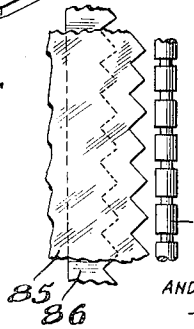


Fig. 21.



Inventors
Carl P. Schmidt
AND Edmund C. Jansen

By Wilkinson & Mawhinney
Attorneys

Patented Mar. 5, 1935 1,993,488

UNITED STATES PATENT OFFICE

1,993,488

BREAD WRAPPING AND SEALING MACHINE

Carl P. Schmidt and Edmund C. Jansen, Baltimore, Md., assignors to The Schmidt Baking Company, Inc., Baltimore, Md., a corporation of Maryland

Application September 26, 1932, Serial No. 634,979

2 Claims. (Cl. 93—2)

The present invention relates to improvements in bread wrapping machines and has for an object to provide an improved machine for the expeditious and efficient wrapping of bread and like articles, in which an attractive article of commerce is provided conforming in all respects to the present views of a sanitary and attractive package.

Bread wrapping machines, as heretofore constructed, have proved generally capable and reasonably efficient for the purpose intended, except that when "Cellophane" appeared on the market, considerable difficulty was experienced in the manipulation of this transparent and glossy, yet tough, material, the same resisting the ordinary adhesives and the customary devices for applying adhesive to wrapping paper and the like.

Existing bread wrapping machines proved to be unequal to the task of coping with "cellophane" and great losses were entailed in discarded "Cellophane" and other incidentals.

It is an object of the present invention to avoid the difficulties heretofore experienced and to provide an improved device for the wrapping and particularly for the sealing of the "Cellophane" wrapper upon the length-wise fold whereby this fold will become permanently sealed in an air-tight manner.

Also, great difficulty was experienced with cold glue and as a consequence glues were heated, but in so doing, the glues were burned and they became black and otherwise discolored, such discoloration being transferred to the wrapper and to the package so that the package became unsightly and was not viewed with favor by the purchasing public.

It is also an object of the invetnion to correct this prior failure and to provide at all times a uniform distribution of the mucilage over the overlapped surfaces of the wrapper in such manner that the adhesive will at all times be in proper condition and of its original transparency whereby not to detract from the appearance of the package.

With the foregoing and other objects in view, the invention will be more fully described hereinafter, and will be more particularly pointed out in the claims appended hereto.

In the drawings, wherein like symbols refer to like or corresponding parts throughout the several views,

Figure 1 is a fragmentary perspective view showing parts of a bread wrapping machine and illustrating more particularly the improved glue pot and associated elements.

Figure 2 is a perspective view of the glue pot and its roller, apart from the other features.

Figure 3 is a similar view with the cover plates removed from the glue pot.

Figure 4 is a bottom perspective view of the glue pot showing the heaters.

Figure 5 is a transverse section taken on the line 5—5 in Figure 2.

Figure 6 is a perspective view showing one of the supports for the glue pot.

Figure 7 is a fragmentary front elevation of one end portion of the glue pot and its support.

Figure 8 is a perspective view of the abutment member from a front view-point.

Figure 9 is a similar view taken from the rear.

Figure 10 is a side view, taken partly in section, of the machine showing a similar step in wrapping the bread.

Figure 11 is a similar view showing a further step.

Figure 12 is a view similar to Figure 10 showing the parts in a third position.

Figures 13 to 17 inclusive are diagrams showing the various phases of movement of the bread in the act of wrapping and sealing the same.

Figure 18 is a plan view, taken on an enlarged scale, of the movable table showing a loaf of bread thereon.

Figure 19 is a sectional view taken on the line 19—19 in Figure 18.

Figure 20 is a fragmentary perspective view showing the upper table and the movable table with a loaf of bread therebetween.

Figure 21 shows the knife plate with the "Cellophane" wrapper over the same and the gluing roller adjacent thereto and

Figure 22 is a perspective view of the commercial package resulting from the above operation.

Referring more particularly to the drawings, and to the present Figures 1 to 7 inclusive, 23 designates the reservoir or supply tank for a liquid glue adapted to flow out downwardly by gravity through a pipe 24, as permitted by the valve 25, to a glue pot appropriately held upon the wrapping machine. In Figure 3 the glue pot is shown as having an opening 26 in one end wall 27 to receive the pipe 24.

The glue pot consists of the shallow end walls 27 and 28, the shallow front and rear walls 29 and 30 and of the base or bottom 31.

In the glue pot is a roller 32 partially immersed in the liquid glue therein, such roller having its

trunnions mounted rotatably in bearings 33 and 34 secured in the end walls 27 and 28. The top of the glue pot is closed by cover plates 35 and 36 save for an open space up through which the roller 32 projects. The cover plates may be removably held to the glue pot by screws or other appropriate fastenings.

One trunnion 37 of the roller 32 extends outwardly beyond the end wall 27 of the glue pot and carries a pinion 38 disposed in mesh with a companion pinion 39 on a shaft 40 which is driven by a belt 41. Such belt is engaged with pulleys 42 and 43, the latter being on a drive shaft 44 receiving movement from a moving part of the wrapping machine.

The glue pot is mounted and supported upon an appropriate part of the wrapping machine, for instance upon a bar or shaft support 45. The shaft receives two supports, one of which is shown in Figure 6, and includes a vertical web or plate 46 from an intermediate portion of which extends the horizontal supporting plate 47. A rail 48 is carried upon the horizontal plate 47 and the sides of this rail are preferably dove-tail to mate with dove-tail grooves 49 provided upon the underside of the glue pot, as shown in Figure 4, this construction being for the purpose of preventing the glue pot from being lifted up directly from its supporting member, but allowing the glue pot to be slid horizontally off the rails 48. Once the glue pot is adjusted upon the rails 48, it is held in the correct horizontal position by means of set screws or other appropriate fastenings 50 carried by the upstanding portions of the vertical webs 46. The lower portions of the vertical webs 46 are disposed outwardly of lugs 51 having sleeves 52 embracing the shaft 45. Screws or other fastenings 53 pass through the webs 46 and engage with the lugs 51. The vertical webs 46 are also provided with openings 54 to receive therethrough the shaft 40.

The roller 32 constitutes a glue supply roller. It is constantly rotated in the bath of adhesive contained in the glue pot, and during its rotation it affords successive fresh surfaces to the glue applying roller 55. This roller 55 consists of alternate enlarged and reduced sections, the enlarged sections being preferably longer in an axial sense than the reduced sections, the reduced sections not contacting with the surface of the roller 32 and not receiving any glue supply. It is found with this construction that a more even distribution of the glue to the "Cellophane" wrapper is had, it being the purpose of the invention to wipe the glue applying roller 55 directly against the end of the "Cellophane" material.

The roller 55 is adapted to rest upon the roller 32, as shown in Figure 1, but it may be lifted from this roller by the use of stirrups 56 carried by a cross bar 57. The stirrups in turn support a cutter backing bar 58.

There is a further means for lifting the glue applying roller 55 from the stirrups 56 in the nature of arms 59 pivoted as indicated at 60 and having actuating rods 61 playing through an adjustable slotted guide 62, the guide being suspended from a rod 63 vertically slidable through a support 64 and affixed in adjusted position by means of a set screw 65.

Referring more particularly to Figures 4 and 5, 66 indicates one or more heaters. The heaters preferably take the form of electrical resistance units adapted to be plugged into an appropriate source of current. These units are held in place by metallic or other straps 67 and are applied directly to the under surface of the bottom wall 31 of the glue pot. These electrical units, being of flat long and wide form, will come into contact with a great surface area of the glue pot bottom, thus applying a substantially mild temperature but throughout a great area. In this way the glue may be kept in a desirable state of fluidity without danger of burning or blackening the same. The transparency of the adhesive is thus promoted as well as its proper distribution upon the gluing rollers and its proper application to the package.

Referring more particularly to Figures 8, 9, 18 and 19, 68 indicates an abutment, preferably of sheet metal, having the rearwardly over-turned flanges 69 forming a hollow construction in which may be mounted a reinforcing backing 70, which backing may be introduced after the abutment plate has been punched out to provide numerous small burrs 71, which burrs will project outwardly and have ragged edges to catch into the "Cellophane" wrapper and the bread as the same is forced against this abutment, as indicated in Figures 18 and 19.

The abutment is welded or otherwise secured to or integrally formed with a vertical flange 72 rising from the rear edge of a strip 73, such strip being secured by appropriate fastening means transversely of a tilting bread receiving platform 74. Cut-away portions 75 of the flange 72 for a distance from the ends thereof permit end portions of the loaf of bread to be forced over the flange 72, as indicated in Figure 18, thus enabling the rear edge of the bread to be bowed or bent tightly against the backing plate 68 whereby the "Cellophane" wrapper, which has been previously engaged with this rear edge of the bread, will be impaled on the burrs or prongs 71. In this way the "Cellophane" will be prevented from movement relatively to the bread whereby it may be wound tightly about the bread.

Another important feature consists in the bevel or taper given the strip 73, the same progressing down to a very thin free edge. This is for the purpose of enabling the bread to very readily ride up on the strip 73 when forced against the abutment 68. The abutment and strip are held to the platform 74 as by the use of a claw or angle piece 76 having a forked slot 77 for receiving the fastening member 78 shown in Figure 18.

Figure 18 also shows the fingers 79 which are used to move a loaf of bread from the platform 74 across to the final discharge platform 80. The transfer of the bread from the platform 74 to the final platform 80 is shown in Figure 20. The bread is guided in its movement by the side members or end wrappers 81 and 82. A hold down plate or member 83 is adapted to engage the upper part of the loaf. In Figure 20 the sealing roller 84 is shown as engaging the bottom of the loaf between the two platforms 74 and 80.

In Figure 21, there is shown the glue applying roller 55, a portion of the "Cellophane" wrapper 85 and the knife 86 by which the "Cellophane" is severed. It will be noted that this knife has a scalloped edge for severing the paper in a zig-zag manner whereby to introduce the attractive appearance indicated in Figure 22.

Referring more particularly to Figures 10, 11 and 12, the loaf of bread is originally placed upon an inclined table 87 and moved along the table by means of a pusher or plunger member 88 under

the action of a lever 89, this being usual in bread wrapping machines.

Initially, as shown in Figure 10, the platform 74 is in a lowered position where the glue applying roller 55 is in contact with the supply cylinder or roller 32. The platform 74 pivots about a center or axis 90 and is moved up and down through the action of a cam 91 which is also common in this type of machine. The cutter 86 is mounted below the sealing roller 84 and has a pivotal motion, being moved over to the cutting position shown in Figure 12 by a well-known mechanism.

The "Cellophane" wrapper comes from a supply roll over the roller 92 and normally projects down, as shown in Figure 10. This "Cellophane" wrapper is adapted to be engaged by a lap roller 93 carried upon pivoted arms 94 by which the roller 93 is adapted to rise and fall from the position shown in Figure 11 to that shown in Figure 12. The arms 94 are operated in accordance with the usual mechanism.

The fingers 79 are carried upon an endless chain 95 moving above the platforms.

In operation, Figures 10 and 13 show the initial position with the loaf of bread on the inclined table 87 and with the platform 74 in lowermost position where the gluing or applying roller 55 is taking its supply of glue from the rotating cylinder 32.

In Figure 11, the platform 74 has been raised into alignment with the table 87 and the loaf of bread is in the act of being propelled from the table 87 onto the platform 74. In so doing, the loaf of bread entrains the "Cellophane" wrapper which hangs down from the roller 92 between the table and platform. The plunger 88 forces the loaf of bread home against the abutment 68. This position is shown in Figure 14. Figure 14 further shows that the platform 74 has been raised somewhat above the table 80. Figure 14 also shows the lap roller 93 as bringing down the wrapper upon the top and forward side of the loaf.

Figure 15 shows the bread elevated to a position in alignment with the removal platform 80 and as having been partly moved on to such platform by the action of the travelling fingers 79. In this figure, the lap roller 93 has moved down to a position below the table 80 forming a loop in the "Cellophane" wrapper and drawing additional "Cellophane" from the source of supply. A sealing roller is also shown as having brought the wrapper on the bottom side of the loaf. In this view is also shown the glue applying roller 55. As the pivoted platform 74 rises, the rods 61 will move up in the guide 62 until reaching the upper ends of the guides whereupon such rods will cause pivotal movement of the arms 59 thus raising the glue applying roller 55 out of the stirrups 56 and into a position very close to the bottom of the loaf whereby the glue may be applied to the bottom overlapped edge of the wrapper by such roller 55 in the manner shown in Figures 12 and 16. The sealing roller 84 and the knife 86, which is in the cutting position, bridges the "Cellophane" strip across between same and in position to be engaged by the gluing roller. As shown in Figure 16, the knife severs the wrapper and the severed end falls down to the position shown in Figure 10 in readiness for engagement by a subsequent loaf. Such subsequent loaf is indicated in Figure 17.

Meantime, as also shown in Figure 17, the fingers 79 have moved the original loaf over further to the left on the removal table 80 thus bringing the glued edge into engagement with the sealing roller 84 by which such glued edge is firmly pressed against the initially applied edge of the "Cellophane". The knife exerts pressure upon the "Cellophane", as shown in Figure 16, for pressing the "Cellophane" tightly against the gluing roller 55. By reason of the scalloped edge shown in Figure 21, the points of the edge will drag with great traction against the enlarged surface portions of the roller 55, such surface portions being long enough to bridge the scalloped points and to apply glue throughout such scalloped points so that the entire edge of the wrapper is supplied with glue and thereupon becomes tightly sealed and makes an air-tight package which is not open to contamination.

Although we have described the invention as appliable to "Cellophane" it will be understood that the apparatus and method is equally applicable to other transparent paper of cellulose, sulphide and other varieties.

It will be obvious that various changes in the construction, combination and arrangement of parts could be made, which could be used without departing from the spirit of our invention, and we do not mean to limit the invention to such details, except as particularly pointed out in the claims.

Having thus described our invention, what we claim and desire to secure by Letters Patent of the United States is:—

1. In a bread wrapping machine, a movable platform for receiving a loaf of bread entrained with a wrapper, an abutment of a width to only engage the intermediate portion of the loaf of bread, a strip having a flange mounted on the platform and associated with said abutment, said flange being cut away at the end portions thereof to permit the end portions of the loaf to ride back of the flange whereby to more firmly engage the abutment, and means for completing the wrapping of the loaf.

2. In a bread wrapping machine, a movable platform for receiving a loaf of bread entrained with a wrapper, an abutment against which one side of the bread is forced during the wrapping operation, a strip supporting said abutment and extending forwardly thereof into the path of movement of the loaf, said strip tapering forwardly to enable the loaf to readily ride thereupon, and means for completing the wrapping of the loaf.

CARL P. SCHMIDT.
EDMUND C. JANSEN.