Nov. 20, 1934. T. K. LOWRY 1,981,806

DRIER AND METHOD FOR THE MANUFACTURE OF GELATINOUS SUBSTANCES

Filed June 28, 1929 2 Sheets-Sheet 1

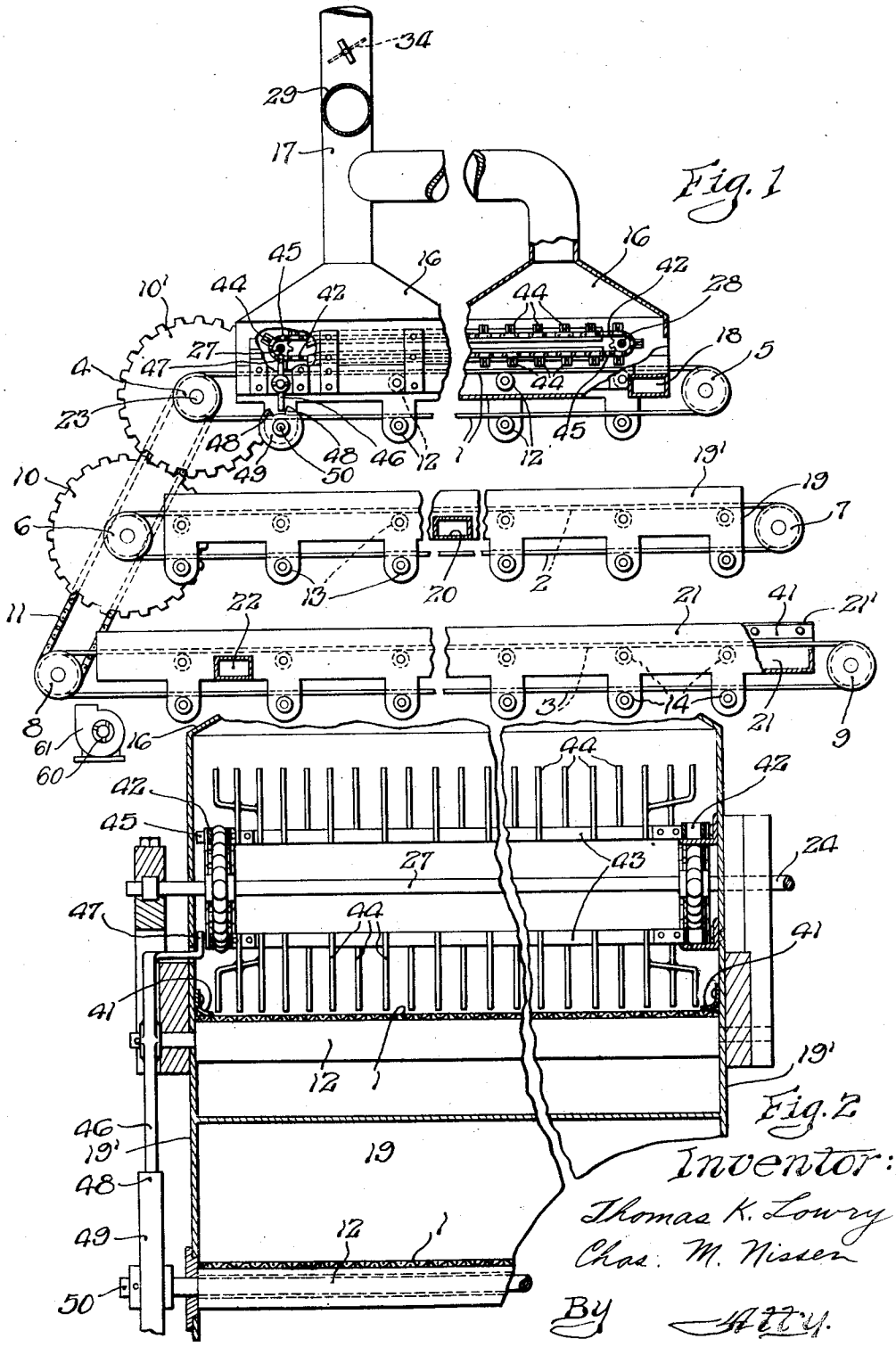


Fig. 1

Fig. 2

Inventor:
Thomas K. Lowry
Chas. M. Nissen
By Atty.

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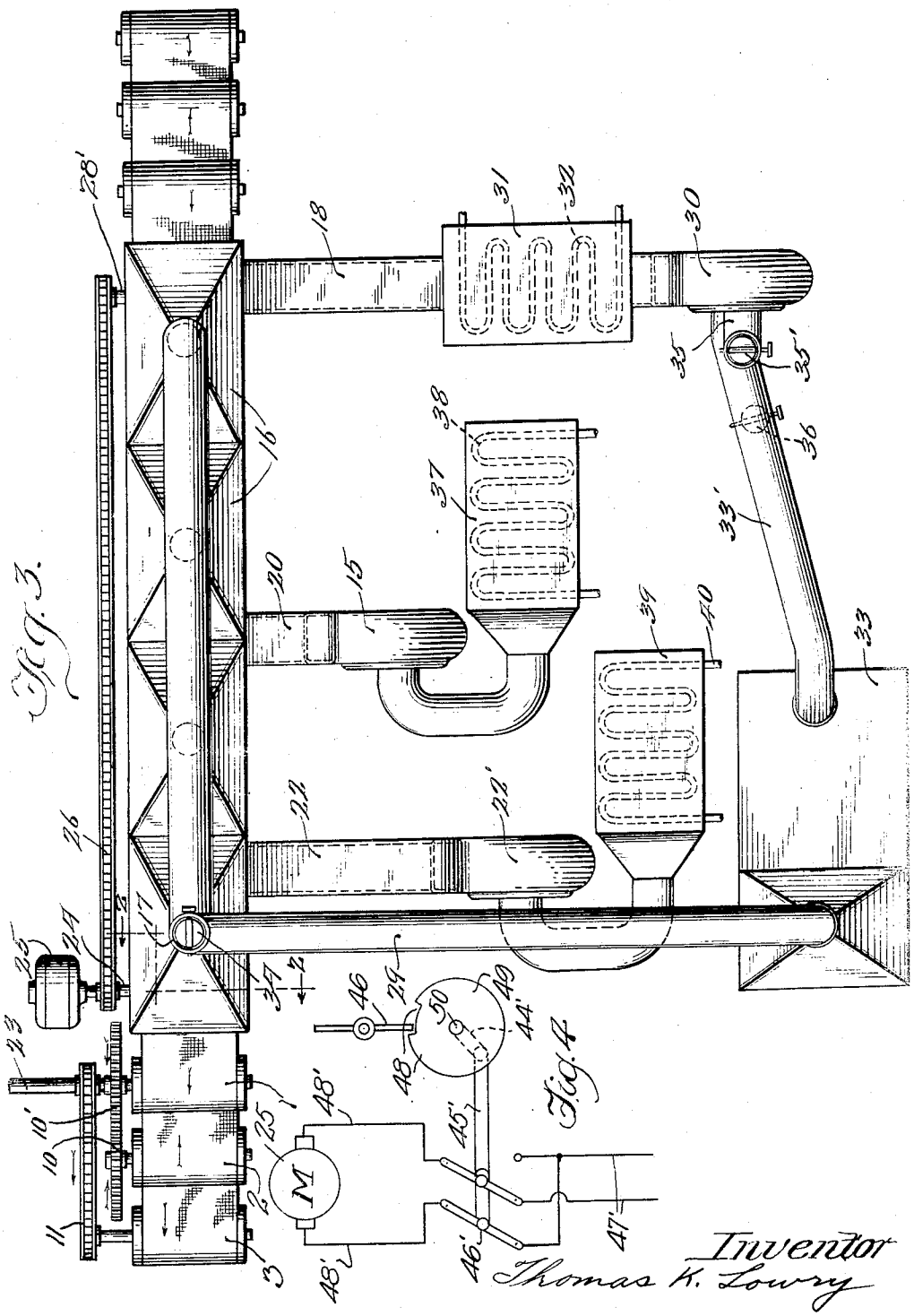


Fig. 3.

Fig. 4

Inventor
Thomas K. Lowry
By Chas. M Nissen Attys.

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1,981,806

DRIER AND METHOD FOR THE MANUFACTURE OF GELATINOUS SUBSTANCES

Thomas K. Lowry, Chicago, Ill., assignor to Darling & Company, a corporation of Illinois

Application June 28, 1929, Serial No. 374,524

18 Claims. (Cl. 34—12)

The present invention relates to the manufacture of glue and other gelatinous products and has for one of its objects the provision of a drying apparatus for such products to be used especially when the same have been formed into small pellets.

Another object of the invention is to provide a new and improved method of drying glue that will decrease the time necessary to thoroughly dry the glue. This method contemplates partially drying the glue with cold air and thereafter applying heated air at a temperature which will dry the glue without causing the same to revert back to its liquid state.

Another object of this invention is to provide an improved method and apparatus for drying glue, which comprises the steps of first forming a non-adhesive coating on the outer surface thereof in the form of a thin skin by means of a blast of relatively cool air or other drying medium and thereafter successively subjecting the glue to warmer mediums whereby the moisture of the glue is driven therefrom.

Another object of this invention resides in providing a new and useful method of drying glue, which contemplates the drying of pellets of appreciable size and thickness by first jellifying the glue and subsequently producing first a thin skin on the outer surface of the pellets by a drying medium conditioned to a temperature which will not melt the glue and cause the same to revert to a liquid state, and thereafter subjecting the pellets to increased temperatures to drive the moisture from the glue, the glue being prevented from reverting to its liquid state after the first step of drying because of the thin skin formed, which skin will not break down under the influence of increased temperatures of the drying mediums at successive stages of the drying process.

Still another object of the invention is the provision of a compact conveying apparatus for conveying the glue into contact with the various drying fluids or mediums and providing an agitating apparatus which will keep the pellets of glue from adhering to each other or to the conveyer while they are still in a somewhat adhesive state.

Finally, the invention has for its object the provision of novel means for giving the right temperatures to the drying mediums used.

In the drawings:—

Fig. 1 represents a side elevation of a conveyer mechanism embodying my invention;

Fig. 2 is a cross section on the line 2—2 of Fig. 3;

Fig. 3 is a plan view of the apparatus shown in Fig. 1; and

Fig. 4 is a diagrammatic view of the mechanism for reversing the motor.

The apparatus shown comprises a plurality of conveyers 1, 2 and 3 adapted to support the pellets of glue while they are being dried and forms a means for conveying said pellets into contact with the various drying fluids or mediums. The conveyer 1 is supported upon the rotatable drums 4 and 5 and idle rollers 12. Similarly, the conveyer 2 is supported by means of the drums 6 and 7 and idle rollers 13. The conveyer 3 is supported by drums 8 and 9 and idle rollers 14. The conveyers 1 and 3 move in the same direction which, in the embodiment shown, is to the left, while the conveyer 2 moves in the opposite direction, or to the right in the embodiment shown, as will be seen by the arrows in Fig. 3.

A drive shaft 23 furnishes the power to drive the conveyers in the specified directions. A chain 11 directly connects the shaft 23 to the shaft upon which the drum 8 is rotatably mounted. The gears 10 and 10', mounted respectively on the shaft which carries the drum 6 and on the shaft 23, are adapted to drive the drum 6 in a direction opposite to that of the drum 8 and the drum 4, the latter being mounted directly upon the drive shaft 23.

Mounted directly over the conveyer 1 are a plurality of interconnected hoods 16 which form a covering for substantially enclosing the upper run of the conveyer 1. These hoods are all connected to a common outlet pipe 17 by means of suitable conduits, as shown in Fig. 1. A conduit 18 forms a common inlet for the plurality of hoods which cover the conveyer 1. A drying fluid or medium, preferably air, is introduced into the hoods through the conduit 18 below the upper run of the conveyer 1. This conveyer is formed of a suitable wire mesh or screening so that the drying fluid passes upwardly through the conveyer and in and around the pellets of glue which are supported upon the conveyer, thus causing the drying fluid to have a more intimate contact with the glue pellets. This lessens the time necessary for drying the glue.

The conveyer 2 has the upper run thereof passing through the conduit 19 which is open at the top and an inlet 20 is provided for introducing the drying medium into the conduit 19 beneath the upper run of the belt. The drying medium

passes through the perforate conveyer and through the open top of the conduit, thus providing a very efficient means for circulating the drying medium around the pellets on the conveyer. An inlet 22 provides a means whereby a drying medium is introduced into the conduit 21 below the conveyer 3, the conduits 19 and 21 operating in substantially the same manner but using drying mediums at different temperatures. The pellets of glue are formed just prior to placing the same upon the conveyer 1 and at the time when they are received by the conveyer 1, they are in a more or less adhesive condition so that they have a tendency to stick together. In order to prevent this, I provide means for agitating the pellets while on the conveyer 1. This means comprises a pair of sprocket wheels 27 and 28 which carry the chains 42 which have the cross bars 43 connected to opposed links thereof. Each of these links carries a plurality of teeth 44 arranged in staggered relation on opposite sides of each of said members 43. It is to be understood that the teeth 44 on each of the bars 43 are staggered with respect to the teeth on adjacent bars and in a direction longitudinally of the conveyer 1 so that as the teeth move through the pellets of glue on the conveyer 1, they will not merely form tracks through the pellets, as would be the case where the teeth were all in alinement longitudinally of the conveyer 1.

Suitable means is provided for rotating the sprockets 27 and 28 and this means comprises a source of power independent from the source of power which drives the shaft 23. This independent source of power may be a motor 25 provided with a suitable reversing switch for reversing the direction of rotation thereof for a purpose later to be described.

In the embodiment shown, I provide a chain 26 which is trained over suitable sprockets on the shafts 24 and 28', the latter shaft also carrying the sprockets 28. This provides a positive drive for both the sprockets 27 and the sprockets 28. However, it is to be understood that the chain 26 may be omitted since the shaft 28' will be rotated due to the chains 42 being trained over both the sprockets 27 and 28.

The chains 42 may be moved continuously in one direction if desired but I prefer to have these chains move alternately in first one direction and then the opposite direction so as to keep the pellets of glue from piling up at one end of the conveyer in case the movement of the conveyer should be stopped for any reason and there is a tendency to drag the pellets along faster than the conveyer when the conveyer is in operation.

By providing a separate motor 25, the chains 42, and, consequently, the teeth 44, may be kept moving even though the movement of the conveyer 1 has been stopped. In order to reverse the direction of movement of the chains 42, I provide the lugs 45 on one of the chains 42. I also provide a pivoted lever 46 having a projection 47 thereof extending through a slot 48 into the closed chamber formed by the hoods 16. The projection 47 is so arranged as to be in the path of movement of the lugs 45. As the lugs 45 come into engagement with the projection 47, the lever 46 is rocked about its pivot and the lower end of the lever engages one of the lugs 48 on the rotatable member 49 rigidly fastened to the shaft 50 and this causes a slight rotation of the rotatable member 49 and also of the shaft 50. The rotation of the shaft 50 actuates any suitable type of reversing switch for the motor 25 and in Fig. 4 there is shown diagrammatically a means for accomplishing this result. This means comprises an arm 44' secured to the shaft 50 and a link 45' operatively connected to a reversing switch indicated by the reference numeral 46', the reversing switch being of the pole changing type common to electrical apparatus. The power circuit for the motor is indicated at 47' and the leads to the motor at 48'. It will be obvious that as the rotatable member 49 is alternately rocked in opposite directions the current will flow through the motor in opposite directions for the purpose of reversing the direction of rotation thereof. It will be understood, of course, that any other desired reversing means for the chains 42 may be used. Also, it is possible to use only one lug 45 with the reversing mechanism as this lug will engage opposite sides of the projection 47 to cause the lever 46 to operate the reversing switch in the manner previously described.

By the use of the agitating means just described, it will be noted that even though movement of the conveyer 1 is stopped, the teeth 44 on the bars 43 will continue to agitate the pellets of glue thereon and will not cause the pellets to pile up at one end or the other of the conveyer due to the fact that the tendency of the teeth 44 is to move the pellets first in one direction and then the other longitudinally of the conveyer during opposite movements of the chains 42. It will be understood, of course, that any other desired means may be used to agitate the pellets of glue on the conveyer 1. Pellets of glue are formed substantially in the manner described in my co-pending application, Serial No. 349,032 filed March 22, 1929 and these pellets fall or are otherwise positioned on the conveyor 1 at the extreme right hand portion thereof as viewed in Fig. 1. This glue is relatively cool and sticky and a thin skin should be formed on the outer surface thereof before the glue can be subjected to any great amount of drying action. I therefore subject the glue first to a relatively cool drying medium to form a thin skin on the outer surfaces of the pellets, for if a warm drying medium were applied thereto, the jelled glue would immediately revert to a liquid state and of course thereby prevent any further drying of the glue and render it impossible to operate the drying apparatus as intended. A conduit 29 leads from the common outlet pipe 17 into a refrigerating apparatus 33 which has another conduit 33' connected to a blower 30. This blower 30 is so arranged as to draw the drying medium through the conduit 33', and blow it through the heating chamber 31, conduit 18 and conveyer belt 1, in and around the glue on the conveyer belt, and then into the hoods 16, the heating chamber 31 having a suitable heating coil 32 therein. This heating coil may be constructed in any suitable manner such as by means of a coiled pipe which has a heating means, such as hot water or steam, passing therethrough, or, if desired, it may be an electrical heating element.

It will be seen that by the arrangement just described, a substantially closed circuit is provided for the drying medium supplied to the glue on the conveyer 1 so that the same drying medium is used over and over again. As the drying medium passes through the refrigerating chamber, 33 its temperature is lowered and, as a result, some of the moisture therein is deposited in the chamber 33 before it passes through the conduit 33' to the blower 30. As the drying medium passes through the heating chamber 31, its temperature

is raised slightly but not to an extent that will make it be considered a warm drying medium, as its temperature, after it leaves this chamber, is still quite low, but by cooling it in the chamber 33, where some of its moisture is deposited, and then heating it again a slight amount, the drying medium acquires considerably more drying power as it is capable of taking on more moisture. Therefore, as the drying medium passes through the pellets of glue mounted on the conveyer 1, it can absorb moisture therefrom to hasten the drying thereof. As the drying medium again returns to the chamber 33, some of the moisture is again deposited therein, and as soon as it is again heated in the chamber 31, it is capable once more of absorbing some of the moisture in the glue pellets on the conveyer 1.

The purpose of supplying a substantially cool drying medium to the pellets on the first conveyer is to do the preliminary drying at a temperature which will not permit the glue to go back to a liquid state. A dry skin is formed around the outside of glue particles in this operation. After this has been done, a warmer heating medium may be applied thereto to cause said pellets to be more quickly dried.

The upper run of the conveyer 1 is moving toward the left, as seen in Fig. 1, and, as the pellets of glue thereon leave the last of the hoods, they are carried over the drum 4 and drop onto the conveyer 2, located directly therebeneath, the conveyer 2 being made slightly longer than the conveyer 1 for this purpose. The pellets are then carried by the conveyer 2 between the opposed walls 19' of the conduit 19 into which a warmer drying medium is introduced below the conveyer 2 by means of the blower 15 which draws air into the chamber 37 and forces it through the conduit 20 into the conduit 19. The chamber 37 has a heating coil 38 therein which heats the air when it is driven by the blower 15 into the conduit 19. After the pellets of glue have reached the extreme right-hand portion of the conveyer 2, as seen in Fig. 1, they are carried over the drum 7 and fall onto the conveyer 3 located therebeneath. Thereafter, these pellets are carried between the opposed walls 21' of the conduit 21 into which a drying medium is introduced at a temperature higher than that of the drying medium in the conduit 19. The drying medium is introduced into this conduit 21 by means of a blower 22' which draws the drying medium through the chamber 39 and forces it through the conduit 22 into the conduit 21. A suitable heating coil 40 is mounted in the chamber 39 for heating the drying medium therein to the desired temperature. After the pellets of glue have reached the extreme left-hand portion of the upper run of the conveyer 3, they are carried over the drum 8 onto any suitable receiving device which may be desired. It is to be understood that the pellets are formed in any suitable manner prior to being placed upon the conveyer 1.

Although a closed circuit is provided for the drying medium supplied to the hods 16, it may be found desirable, for the sake of economy, to cut out the refrigerating apparatus 33 when the temperature, either of the air surrounding the apparatus or that outside of the building in which the apparatus is located, is sufficiently low to be used as a drying medium in the hoods 16. In order to do this, the blower 30 is provided with an auxiliary conduit 35 connected to the outside atmosphere and this conduit has a damper 35' arranged therein to close this conduit when the closed circuit, previously described, is being used. The common outlet pipe 17 is also provided with a damper 34 which is closed while the closed circuit is being used. When it is desired to use the outside atmosphere as the drying medium, the damper 35' is opened as is also the damper 34 and the damper 36 is closed so that that part of the apparatus which comprises the conduit 29, refrigerating apparatus 33 and conduit 33', is no longer in use. It will readily be seen that by providing a device which can use the outside atmosphere when it is at or below the temperature desired, the cost of maintaining the refrigerating apparatus is done away with and the cost of operation of the device is greatly lessened.

Suitable guard members 41 are provided for each conveyer and are located adjacent the edges of the conveyers 1, 2 and 3 to prevent the pellets of glue on the conveyers from dropping down between the edges of the conveyers and the adjacent sides of the member 16, 19 and 21. These members 41 also seal the opening between the edges of the conveyers and the adjacent sides of the members 16, 19 and 21, so as to cause the drying medium to pass through the perforate conveyers 1, 2 and 3 and do not permit any of the drying medium to leak past the edges of the conveyers, since, obviously, any of the drying medium circulating past the edges of the conveyer would not have any appreciable drying effect upon the glue but would merely pass into the hoods 16 or into the atmosphere.

By drying the glue while it is in the form of small pellets, a greater drying surface per unit volume is obtained than where flat slabs of glue are used, as in prior known processes wherein long drying alleys are used and in which the slabs are stacked on cars or trucks which carry the slabs through the alleys. The rate of drying of the glue is a function of the surface per unit volume exposed to the drying medium, and it will be readily seen that with a device constructed according to this invention, the time required for drying is considerably lessened, due to the form of the glue being dried. In addition, the novel apparatus described insures a quicker drying of the glue even where the glue being dried is not in the form of small pellets.

The device is shown with the conveyers arranged one above the other but this has been done purely for the sake of convenience and for the purpose of providing a compact arrangement which can be placed in a very small area. This is an advantage over the old drying alleys which were previously used and which required considerable area for installation. It will be understood that other arrangements may be made for the conveying mechanism without departing from the spirit of this invention. The second and third conveyors preferably will be so arranged, however, as to receive the pellets by gravity from the preceding conveyor. The conveying mechanism may also be arranged in any suitable manner or be constructed in other ways than indicated as long as there is a means provided for subjecting the glue to distinct quantities of drying mediums or distinctly different conditioned quantities of a drying medium.

With the old types of drying apparatus, the time required for drying was from three days to a week whereas with the present device, it is only necessary to keep the glue on each conveyer for approximately two to six hours, making a total of approximately six to eighteen hours to thoroughly dry the glue, depending on the grade of glue and

the condition of the drying medium. The advantages arising from the saving of time are obvious and for this reason it will be seen that the present device is far superior to the prior devices, with which I am familiar.

When the glue reaches the left-hand end of the conveyer 3, it is quite hot and is in a somewhat sticky state which makes it difficult to handle and, if desired, a fan 60 can be arranged underneath the conveyer 3 to direct a blast of cool air through the belt to cool the glue thereon. A housing 61 directs the blast of air against the pellets in order to bring the same into proper contact with the glue, the housing being preferably arranged so that the blast of air passes through the conveyor from the underside thereof. This changes the surface of the glue so that it is no longer sticky and can then be readily handled. Or, if desired, the cooling medium can be directed on the glue after the glue leaves the conveyer.

The present device is not limited to having the glue subjected to distinct changes in temperature and it is understood that the change from a low temperature to a high temperature may be a gradual one, if desired.

While the conveyers 2 and 3 are each provided with conduits which are open at the top, it is to be understood that, if desired, the conveyers 2 and 3 may be closed circuits such as that illustrated for the conveyer 1.

Obviously, those skilled in the art may make various changes in the details and arrangement of parts without departing from the spirit and scope of the invention as defined by the claims hereto appended and I therefore do not wish to be restricted to the precise construction herein disclosed.

Having thus fully disclosed an embodiment of my invention, what I claim and desire to secure by Letters Patent of the United States is:—

1. The method of drying glue pellets which comprises the steps of subjecting the pellets to a conditioned drying medium substantially free from moisture and simultaneously agitating the pellets to prevent the pellets from adhering to each other and to form a non-sticky surface on each of said pellets.

2. A pellet glue drying apparatus including a movable longitudinally disposed and perforated conveyor for receiving pellets to be dried, means for moving said conveyor, agitating means mounted in the vicinity of said conveyor, said agitating means being adapted to move in opposite directions along a given path, whereby pellets positioned at a given location on the conveyor may be engaged in opposite directions by said agitating means, means for moving said agitating means in opposite directions longitudinally of the conveyor, and means for supplying a drying medium to the pellets carried by said conveyor.

3. The method of drying glue pellets which comprises the steps of subjecting the pellets to a relatively cool drying medium substantially free from moisture and conditioned to form a surface on the pellets which will prevent their adhering to each other, and simultaneously agitating the pellets while they are subjected to the action of said drying medium.

4. The method of drying glue pellets which comprises the steps of agitating the pellets while on a supporting surface, subjecting said pellets to the action of an unsaturated drying medium conditioned to a temperature to form a substantially non-adhesive coating on the outside of said pellets and thereafter subjecting said pellets to a drying medium conditioned to thoroughly dry the same.

5. A glue drying apparatus for drying glue pellets comprising a conveyor for conveying glue pellets continuously in one direction along a predetermined path, an endless flexible element having a run thereof substantially parallel to said conveyor and carrying a plurality of agitating means arranged over said conveyor and moving through the pellets while on said conveyor for agitating said pellets, and means for moving said endless flexible element in opposite directions and independently of the movement of the conveyor.

6. Glue drying apparatus comprising means for conveying pellets along a predetermined path, separate means for supplying a heating medium to the pellets at different positions along said path, a conduit for conveying the heating medium from the pellets at the first of said positions after it has been in contact with the pellets, a chilling means into which said drying medium is conveyed by said conduit, means for directing said drying medium through a heating unit after it passes through said chilling means, means for returning said drying medium to said conveyer after it has passed through said heating unit, and means for cutting off communication between said heating medium and said chilling means when desired, and additional conduit means communicating with the atmosphere and said heating unit to supply a drying medium to said heating means when said last mentioned means is operative, whereby the air from the surrounding atmosphere, if at a sufficiently low temperature, may be used in place of said chilled drying medium to supply said heating unit, agitating the pellets while at said first drying position, and means for conditioning a heating medium to be supplied to said pellets at each of the remaining positions through which the pellets pass while moving along said path, said heating mediums supplied at successive positions being at higher temperatures than at said first position.

7. The method of drying jellified glue pellets and the like which comprises the steps of moving a bed of pellets along a predetermined path through different drying positions, passing unsaturated air through said bed of pellets into intimate contact with said pellets at the first of said positions, said air being at a temperature which is not sufficiently high to melt said pellets, whereby the outer surfaces of said pellets are dried to form a skin thereon before the same are subjected to a later stage of drying, simultaneously agitating the pellets in said bed to prevent the same from cohering, and passing unsaturated air through said bed of pellets at a subsequent one of said positions, the said air being at a higher temperature than the air supplied to the glue at said first position.

8. The method of drying jellified glue pellets and the like which comprises the steps of moving a bed of pellets along a predetermined path through different drying positions, passing unsaturated air through said bed of pellets into intimate contact with said pellets at the first of said positions, said air being at a temperature which is not sufficiently high to melt said pellets, whereby the outer surfaces of said pellets are dried to form a skin thereon before the same are subjected to a later stage of drying, simultaneously agitating the pellets in said bed to prevent the same from cohering, passing unsaturated air through said bed of pellets at a subsequent one of said positions, the said air being at a higher

temperature than the air supplied to the glue at said first position, and passing unsaturated air at a still higher temperature than at either of said first two mentioned positions through said bed of pellets at a third subsequent position in said path of travel of said pellets to thoroughly dry said glue.

9. The method of drying glue pellets and the like by conditioned air after they have been put in a jellified condition which consists in moving the pellets along a predetermined path through successive drying positions, cooling the air to be supplied to said glue at the first position to remove the moisture therefrom, subsequently heating the air a substantial amount above the temperature at which the same was cooled without the addition of moisture thereto to a temperature which is insufficient to cause said pellets to melt when said air contacts with the same but is high enough to cause a substantial transfer of moisture from the glue to the air, supplying said heated air to said jellified pellets at the first position thereof for a time sufficient to form a protective skin on the same, simultaneously agitating the pellets while they are subjected to the drying action of said air, and thereafter subjecting the pellets at a subsequent position to a higher temperature for removing the remaining moisture from the interior of the pellets.

10. The method of drying glue pellets and the like by conditioned air after they have been put in a jellified condition which consists in moving the pellets along a predetermined path through successive drying positions, removing the moisture from the air to be supplied to said glue at the first position, cooling the same to a temperature at which the air is to be supplied to the pellets for drying purposes, subsequently heating the air without the addition of moisture thereto to a temperature which is insufficient to cause said pellets to melt when said air contacts with the same, but is sufficiently high to cause a rapid transfer of moisture from the glue to the air, moving the pellets along a predetermined path, supplying said heated air to said jellified pellets at the first position thereof for a time sufficient to form a protective skin on the same, agitating said pellets substantially at all points along the path of movement of said pellets irrespective of whether said pellets are in motion along their path to prevent caking of the pellets and to permit them to come in contact with the pellets, and thereafter subjecting the pellets at a subsequent position to a higher temperature for removing the remaining moisture from the interior of the pellets.

11. The method of drying glue pellets and the like by conditioned air after they have been put in a jellified condition which consists in moving the pellets along a predetermined path through successive drying positions, removing the moisture from the air to be supplied to said glue at the first position, cooling the same to a temperature below the temperature at which the air is supplied to the pellets for drying purposes to thereby remove moisture from the air above the saturation point of the air at the temperature to which it is cooled, subsequently heating the air without the addition of moisture thereto to a temperature which is insufficient to cause said pellets to melt when said air contacts with the same but which is high enough to cause an appreciable transfer of moisture from the glue to the air, moving a bed of pellets along a predetermined path and supplying said heated air at one position along the path of movement thereof to one side of said bed and forcing it through said pellets to the other side of said bed throughout all portions thereof simultaneously for a time sufficient to form a protective skin on the same, simultaneously agitating the pellets while the air is being forced through said pellets, and thereafter subjecting the pellets at a subsequent position of said bed to a higher temperature for removing the remaining moisture from the interior of the pellets.

12. A glue drying apparatus comprising a reticulated conveyer for conveying glue pellets along a predetermined path, means for forcing a drying medium upwardly through said reticulated conveyer throughout substantially the entire pellet supporting portion thereof from one side to the other substantially simultaneously, and means for agitating the pellets on said conveyer while subjected to the action of said drying medium comprising a plurality of agitating members movable relative to said conveyer substantially parallel thereto at a greater rate of speed than said conveyer and independently of the movement of said conveyer, whereby the pellets on said conveyer are agitated substantially at all times while supported on said conveyer and irrespective of whether or not said conveyer is in motion.

13. The method of drying moisture laden glue, which includes the steps of passing small particles of glue through successive drying zones, agitating said particles as they pass through the first zone, supplying heated substantially moisture free drying medium to said zones, maintaining the temperature in successive zones at increased degrees, and accurately controlling said temperatures and condition of dryness to prevent melting of the glue and to insure the presence of a non-adhesive surface on the particles.

14. The method of drying moisture laden glue which includes the steps of passing small particles of glue through a drying zone, cooling a drying fluid to rid it of moisture, heating the moisture free fluid to a predetermined temperature, passing said heated fluid about the small particles of material in said zone, agitating the particles in contact with said heated fluid, then successively passing said particles through separate additional successive zones, applying heated drying fluid to said zones, maintaining the temperature in said successive zones at increased degrees and accurately controlling said temperatures and condition of dryness to prevent melting of the glue and to insure the presence of a non-adhesive surface on the particles.

15. An apparatus for drying glue pellets which includes a longitudinally movable screen conveyor for receiving glue pellets, a drying chamber associated with said conveyor, means for moving the conveyor in a predetermined direction through said drying chamber, means for cooling air to rid it of moisture, means for heating the moisture ridden air after it has passed through said cooling means, means for blowing said heated air through the conveyor into the chamber to dry the pellets, means for agitating the pellets carried by said conveyor, said agitating means including means adapted to be moved back and forth in substantial parallel relation to the plane of movement of the conveyor, a second screen conveyor upon which pellets may be received from the first conveyor, means for moving said second screen conveyor in a direction opposite to the first conveyor and beneath said first con-

veyor, means for supplying a draft of air through the second conveyor for glue drying purposes, and means for controlling the temperatures and condition of dryness of the air supplied to said pellets to prevent melting of the glue and to insure the presence of a non-adhesive surface on the pellets.

16. An apparatus for drying glue pellets which includes a longitudinally movable screen conveyor for receiving glue pellets, a drying chamber associated with said conveyor, means for moving the conveyor in a predetermined direction through said drying chamber, means for cooling air to rid it of moisture, means for heating the moisture ridden air after it has passed through said cooling means, means for blowing said heated air through the conveyor into the chamber to dry the pellets, means for agitating the pellets carried by said conveyor, said agitating means including means adapted to be moved back and forth in substantial parallel relation to the plane of movement of the conveyor, a second screen conveyor upon which pellets may be received from the first conveyor, means for moving said second screen conveyor in a direction opposite to the first conveyor and beneath said first conveyor, means for supplying a draft of air through the second conveyor for glue drying purposes, and means for maintaining the temperature in the vicinity of the successive conveyors at increased degrees and for controlling said temperatures and conditions of dryness of the air contacting with the pellets to prevent melting of the glue and to insure the presence of a non-adhesive surface on the pellets.

17. A glue drying apparatus for drying relatively small particles of glue comprising a movable longitudinally disposed perforated conveyor for receiving the particles to be dried, means for moving said conveyor, agitating means mounted in the vicinity of the conveyor, said agitating means being adapted to be moved bodily in a longitudinal direction along a given path whereby the glue particles positioned on the conveyor will be engaged by the agitating means, said conveyor passing through independent drying zones each having different temperatures, the temperatures of said drying zones being such as to prevent melting of the glue particles but to insure the presence of a non-adhesive surface on the particles.

18. An apparatus for drying glue pellets which includes a longitudinally movable screen conveyor for receiving glue pellets, a drying chamber associated with said conveyor, means for moving the conveyor in a predetermined direction through said drying chamber, means for cooling air to rid it of moisture, means for heating the moisture-ridden air after it has passed through the cooling means, means for blowing said heated air through the conveyor into the chamber to dry the pellets, means for agitating the pellets carried by said conveyor, said agitating means including means adapted to be moved bodily in a longitudinal direction and in substantial parallel relationship to the plane of movement of the conveyor, a second screen conveyor upon which pellets may be received from the first conveyor, means for moving the second conveyor in a direction opposite to the first conveyor and beneath said first conveyor, means for supplying a draft through the second conveyor for glue drying purposes, and means for controlling the temperatures and condition of the dryness of the air supplied to said pellets to prevent melting of the glue pellets and to insure the presence of a non-adhesive surface on said glue pellets to prevent the pellets from sticking together and forming a homogeneous mass.

THOMAS K. LOWRY.