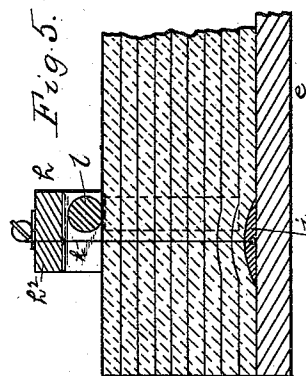
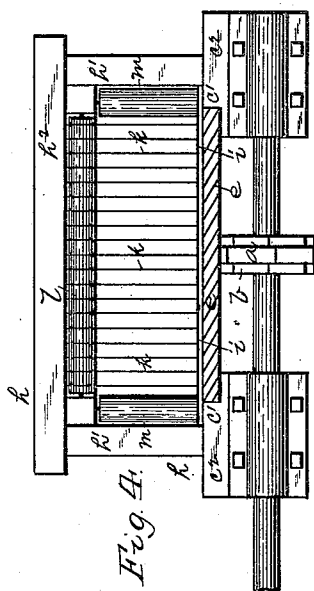
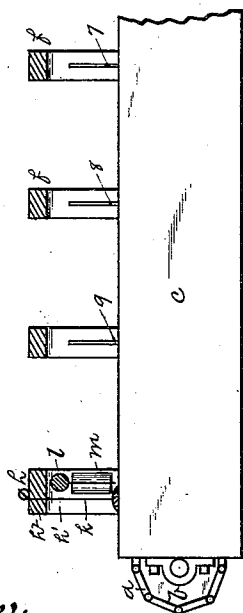
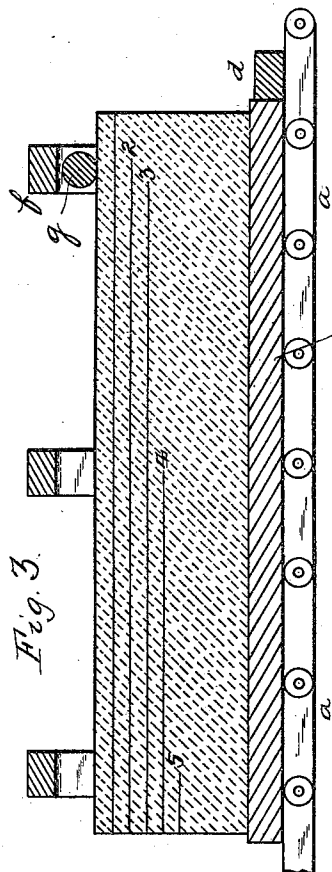
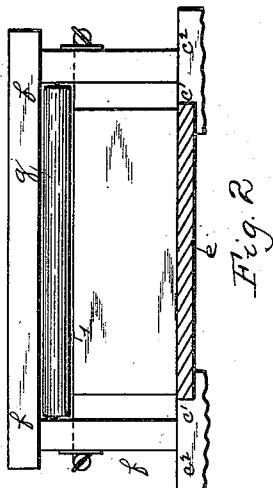
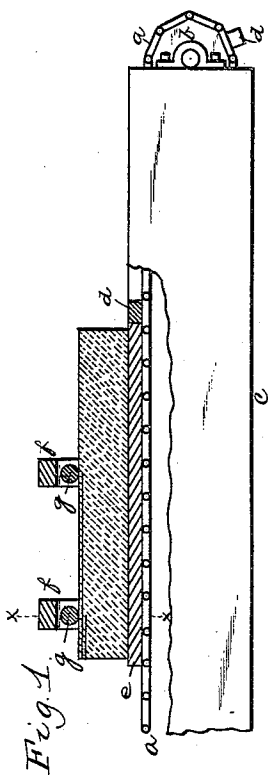


(No Model.)

C. KELLER & J. CONLY.
APPARATUS FOR CUTTING GLUE.

No. 407,865.

Patented July 30, 1889.



Witnesses:
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UNITED STATES PATENT OFFICE.

CHARLES KELLER AND JOHN CONLY, OF SPRINGDALE, PENNSYLVANIA.

APPARATUS FOR CUTTING GLUE.

SPECIFICATION forming part of Letters Patent No. 407,865, dated July 30, 1889.

Application filed August 14, 1888. Serial No. 282,743. (No model.)

To all whom it may concern:

Be it known that we, CHARLES KELLER and JOHN CONLY, residents of Springdale, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Apparatus for Cutting Glue; and we do hereby declare the following to be a full, clear, and exact description thereof.

Our invention relates to the cutting or slicing of glue, its object being to provide a means for automatically slicing the block of glue after it is sufficiently congealed and reducing it either to sheets or to thin strips or noodles, the sheets or noodles being subsequently dried and being then ready for the market. The apparatus heretofore employed for this purpose has required manual labor, and the labor has been severe, as it was generally considered necessary to cut through the block of glue at one operation in order to hold it in proper line and insure the cutting of the sheets or strips to the proper size, and this part of the glue-making process has added considerably to the expense thereof. By our invention we are enabled to cut the block of glue into sheets or strips, as may be desired, by mechanical means, overcoming the necessity of manual labor for the purpose, therefore reducing the cost of manufacture, while at the same time insuring a more perfect or even cutting or slicing of the glue.

To these ends our invention consists, generally stated, in a traveling carriage adapted to carry the block of glue and a series of cutting-wires supported at different heights, the higher wires being arranged in front of the lower ones successively, so that as the block of glue is carried through the apparatus a strip is first cut from the top thereof by one wire or knife and a strip of proper thickness by the next wire or knife, and this being continued during the advancement of the block until the entire block is cut into sheets or strips.

Our invention also consists in certain other improvements, as will hereinafter be more fully set forth and claimed.

To enable others skilled in the art to make and use our invention, we will describe the same more fully, referring to the accompanying drawings, in which—

Figure 1. is a longitudinal section of our im-

proved glue-cutting apparatus. Fig. 2 is an enlarged cross-section on the line xx . Fig. 3 is an enlarged view illustrating the cutting of the block of glue. Fig. 4 is a rear end view, and Fig. 5 is a detail sectional view showing the operation of slitting the block vertically.

Like letters of reference indicate like parts in each.

In our improved glue-cutting apparatus we employ a suitable traveling belt or carrier a , this traveling belt being supported on suitable pulleys or sprocket-wheels b , one of which is driven by suitable power, the sprocket-wheels being mounted on a suitable bed-frame c , as shown, and the chain a , passing over said sprocket-wheels, carrying at intervals thereon the bars d , which are secured to the chain or belt and act in connection therewith to carry or force forward the board e , on which the block of glue to be cut is supported. This board e runs in suitable rabbets or seats c' in the side bars c^2 of the bed-frame c , the surface of the board e being thus held about even with the upper edge of the side bars c^2 . This traveling board e is generally made slightly larger than the block of glue to be cut—such, for instance, as a board thirty by ten inches in length and width for supporting a block of glue twenty-nine inches long, four and one-half thick, and nine inches wide, a block of substantially such proportions being shown on the drawings. Extending up from the side bars c^2 are a series of frames f , these frames being of sufficient width to permit the passage of the block of glue under them and the frames supporting suitable wires 1 2 3 4, &c., which extend between the uprights of the frames in the course of the block of glue to be cut.

Instead of the frames a closed box suitable to support the wires in the different positions and at the proper distances apart may of course be employed; but we prefer the frames, as shown, as a more easy adjustment of the wires can be obtained. In slicing a block of glue into thin sheets more cutting wires or knives will of course be required than where it is cut into thicker sheets, the number of wires, say for a block four and one-half inches thick, being from ten to thirty, according to the desired thickness of the sheet of glue. We prefer, also, to provide one frame for each

horizontal wire, in order to obtain a more perfect adjustment and to prevent too great pressure upon the block of glue; but in many cases each frame may support two or more wires, as shown in Fig. 3, the highest wire being placed in front of the other or others, so that it will first engage with the block of glue and commence its cutting operation before the next wire engages therewith. We prefer to arrange these frames carrying the horizontal wires at such a distance apart that two or more can engage with a block of glue at the same time—such, for instance, as shown in the drawings, where the block of glue thirty inches in length is engaging with the wires of, say, three frames, the frames being placed about ten inches apart.

In order to hold the block of glue down upon the carrying-board, and prevent the rising thereof by the pressure of the wire upon the block at the forward end of the apparatus, we find it desirable to employ anti-friction rollers—such as shown at *g* in the first two or three frames—these rollers being arranged with their lower faces the exact height of the block of glue above the board, and pressing on the block of glue and holding it down while the wire or knife engages therewith. It is found, however, that such anti-friction rollers are not necessary where the wires engage with the lower part of the block, as the tendency of the block to rise is overcome by the weight of the glue above the point where the wire or knife engages with it. These wires are thus arranged in different heights, the successive wires being adjusted the desired distance below the wires in front of them to cut or slice off the desired thickness of sheet until sufficient wires are provided to cut the entire block into sheets, and if it is desired to form only the sheet-glue that is all the apparatus necessary for the purpose. Where, however, it is desired to form the glue into long strips or noodles, we employ at the end of the apparatus a series of vertical wires, as shown more particularly in Figs. 4 and 5, the purpose being, through these wires, to cut the block of glue vertically after it has been severed into sheets by the series of wires supported in the frames *f*, as above set forth. In said device a frame or standard *h* is employed, this standard having extending across from the uprights *h'* thereof a thin flat bar *i*, this bar being firmly secured to the uprights, and the wires *k* extending up from the bar *i* through the cross-bar *h*², or through a suitable support in the upper part of the standard *h*. This bar *i* is placed in such position that the traveling board *e* can pass under it; but the forward end of the bar is drawn to an edge, so that it will pass under the sheets of glue supported on the board, raising the body of cut sheets a short distance off the board *e*, so that all of the sheets may be cut by the vertical wires *k* as they are forced against them, while the board *e* passes under this cross-bar *i*. At the same time the

cross-bar *i* acts as a support for the wires *k*, which, as above set forth, pass therefrom up to the upper part of the frame *h*, and to hold it in proper line we provide at the upper end thereof a horizontal anti-friction roller *l*, the lower face of which is the same distance above the board *e* as the thickness of the block of glue. We also prefer to employ the vertical anti-friction rollers *m*, which will fit against the sides of the block of glue, holding it in line, and with the roller *l* holding the body of glue in such compact condition that the wires *k* can cut into it and separate the sheets therefrom into strips, as above set forth. These anti-friction rollers *l m* are generally placed, as shown, in front of the wires *k*, being supported on suitable journals, and, if desired, these rollers may be driven by any suitable power connections in order to assist in forcing the block of glue through the wires *k*.

It is of course to be understood that the board *e* may be forced through the apparatus by any suitable mechanism, the sprocket-chain shown being, however, considered the most simple and best adapted for the purpose.

Our improved apparatus is employed in the following manner: After the formation of the glue, while it is still in a liquid condition, it is cast in a suitable mold and permitted to cool and congeal therein until brought to a gelatinous condition, when it is removed from the mold and placed upon the board *e*. The block of glue thus supported is then brought to the apparatus and the board placed upon the seats *c'* on the side bars *c*², and as the drive-chain *a* is drawn along one of the cross-bars *d* comes against the rear end of the board *e* and carries the board and the block of glue supported thereon through the apparatus. As the block of glue is thus drawn through the apparatus, it comes in contact with the highest wire *l*—such as a wire adapted to cut sheets of glue one-fourth inch in thickness from the upper part of the glue block—and this wire being thin will cut into the glue, the block of glue being held down and prevented from being raised by the pressure of the wire thereon by the anti-friction roller *g* in the front frame *f*. As the block is drawn farther along it comes in contact next with the wire 2 in the second frame, and this wire cuts into it—say one-fourth inch below the other wire—so cutting another sheet one-fourth inch in thickness from the glue block, this being continued until the entire block is cut into sheets, as shown in Fig. 5, and it being preferred that only from two to four wires engage with the glue block at one time, so that the pressure thereon will not be sufficient to raise it from the supporting-board *e*. It is found in practice, however, that these sheets of glue will adhere sufficiently to each other, so that even if there is no supporting medium directly back of the glue block it will be cut into the several sheets by the wires without disturbing its

position upon the supporting-board. If it is desired to form sheets of glue, the block is thus automatically carried through the apparatus and cut into the desired sheets, and
 5 subsequent to the operation the sheets are stripped from the block one by one and placed upon suitable drying-frames containing netting and dried ready for use. Where, however, it is desired to form strips or noodles,
 10 the standard *h* is added to the apparatus, and after the cutting of the glue into sheets, as above set forth, it comes in contact with the wires in said standard *h*, the vertical wires *k* therein acting to cut the several sheets formed
 15 into strips or noodles, while the cross-plate *i* raises the glue from the supporting-board *e*, permitting the board to pass under the frame and at the same time supporting the vertical wires, which act to cut the glue vertically and
 20 form the strips or noodles. As the glue supported on the board is carried against and through these vertical wires, it is maintained in a solid condition by the horizontal and vertical anti-friction rollers *l m*, above referred to, which hold it in such compact form
 25 as to enable the wires *k* to easily cut into the block, the apparatus thus acting not only to automatically split or cut the block into sheets, but also to cut it vertically into strips or noodles of any desired size, and as the
 30 force exerted against the block at any one time, except with the vertical wires, is very slight, it is evident that the operation requires but little power and simplifies greatly the cutting of these blocks of glue into sheets or
 35 strips, ready for drying.

What we claim as our invention, and desire to secure by Letters Patent, is—

1. In apparatus for cutting glue, a combination, with a board supporting the block of glue, of a traveling carrier engaging therewith and a series of cutting-wires supported at different heights, the higher wires being arranged in front of the lower ones successively and adapted to engage with the block
 40 of glue supported on such board and cut the same into sheets, substantially as and for the purposes set forth.

2. In apparatus for cutting glue, the combination of an endless chain supported and driven by sprocket-wheels and having cross-bars arranged at intervals thereon, a board carrying a block of glue with which said cross-bars engage, and a wire supported in a suitable frame and extending across the course
 50 of the block of glue, substantially as and for the purposes set forth.

3. In apparatus for cutting glue, the combination of a board supporting a block of glue, a traveling carrier engaging therewith, and a frame having a vertical wire arranged in the course of said block, a horizontal bar or plate extending across the frame on a higher level than the supporting-board and to which the lower end of the wire is secured and adapted
 60 to pass between said board and the block of glue, substantially as and for the purposes set forth.

In testimony whereof we, the said CHARLES KELLER and JOHN CONLY, have hereunto set
 70 our hands.

CHARLES KELLER.
 JOHN CONLY.

Witnesses:

JAMES I. KAY,
 ROBT. D. TOTTEN.