

(No Model.)

N. G. WILLIAMS.

BUTTER WORKER.

No. 332,128.

Patented Dec. 8, 1885.

FIG. 1.

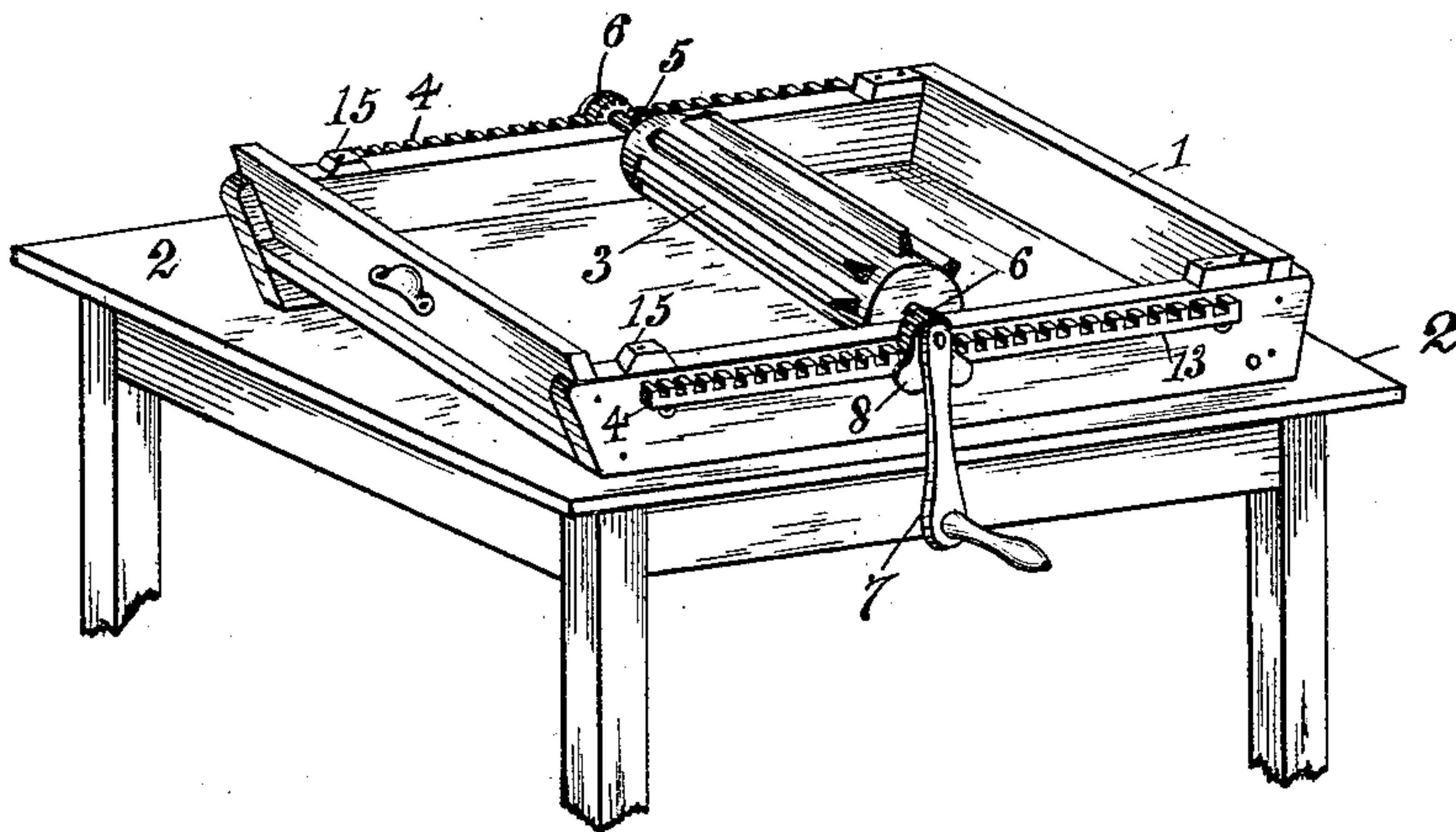


FIG. 2.

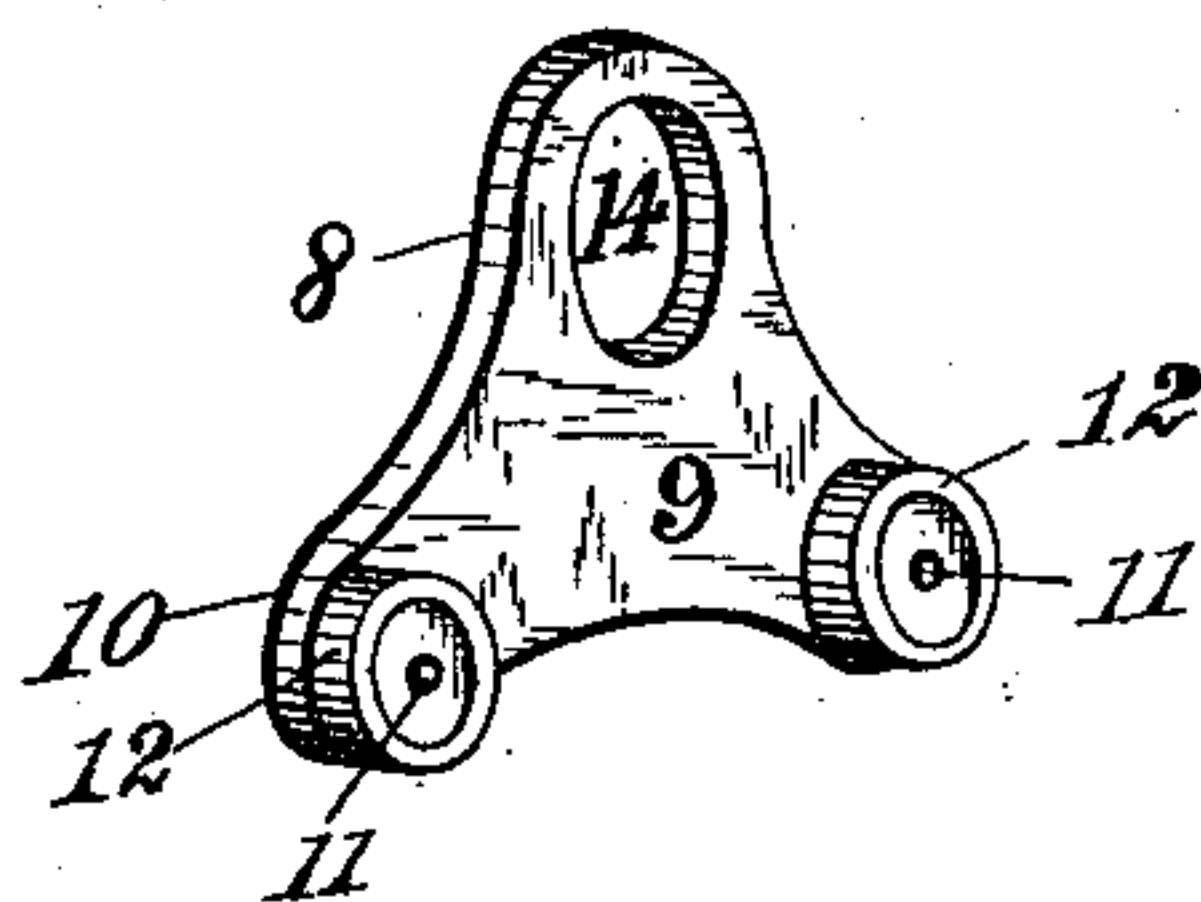
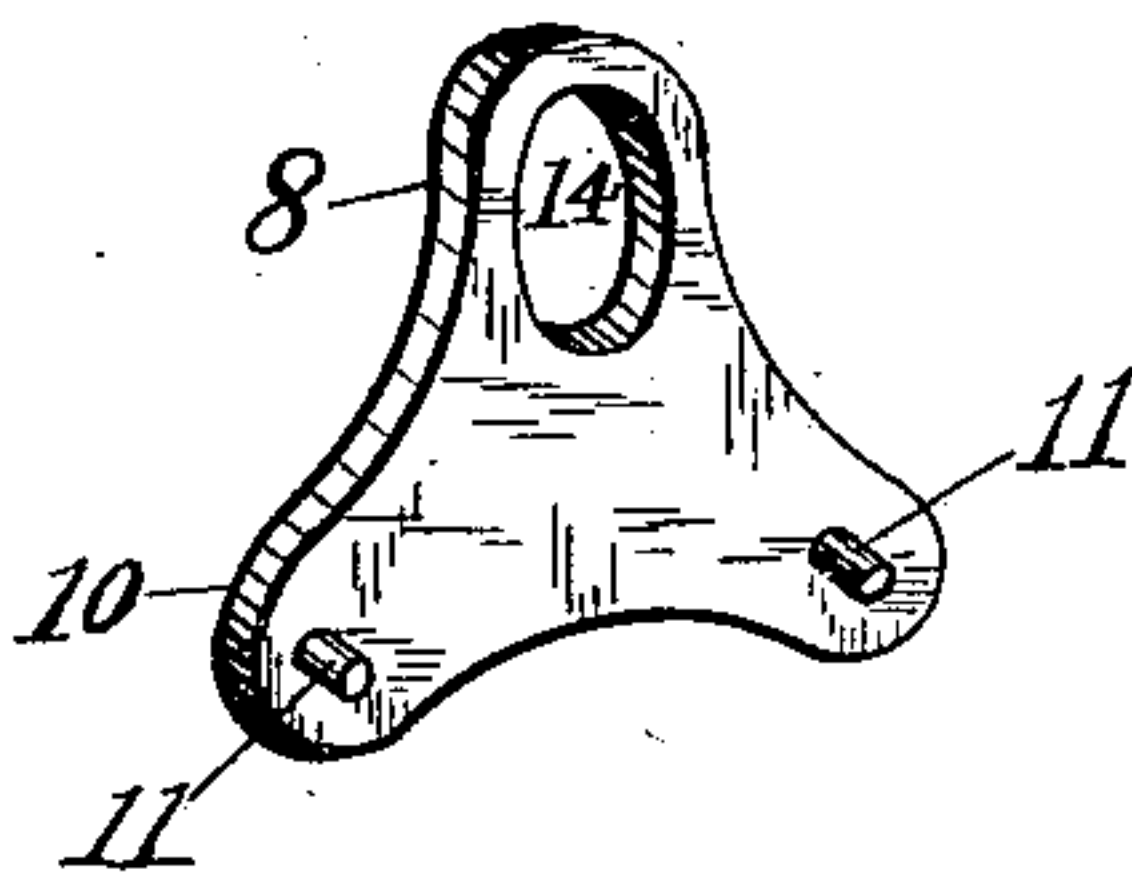


FIG. 3.



Witnesses:

Percy White,  
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Inventor:

Nathan G. Williams  
by John J. Halsted & Co.  
his Atty.

# UNITED STATES PATENT OFFICE.

NATHAN G. WILLIAMS, OF BELLOWS FALLS, VERMONT, ASSIGNOR TO THE  
VERMONT FARM MACHINE COMPANY, OF SAME PLACE.

## BUTTER-WORKER.

SPECIFICATION forming part of Letters Patent No. 332,128, dated December 8, 1885.

Application filed May 7, 1885. Serial No. 164,685. (No model.)

*To all whom it may concern:*

Be it known that I, NATHAN G. WILLIAMS, of Bellows Falls, in the county of Windham and State of Vermont, have invented certain  
5 new and useful Improvements in Butter-Workers; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others  
10 skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

My invention relates to that class of butter-  
15 workers in which a working roller or kneader travels forward and backward in a tray, and more particularly to the construction of the gib or retainer and its combination and connection with its adjacent parts.

20 Figure 1 represents a table supporting a butter-worker having my improved gib or retainer applied thereto. Fig. 2 shows my improved gib or retainer with its friction-rollers applied thereto, and Fig. 3 the same  
25 before receiving its friction-rollers.

The tray shown at 1 may be placed on any appropriate table or support, 2, for convenience when in use. The traversing working-roller is shown at 3, and may be of any well-  
30 known or desired construction, and the side toothed racks, 44, having teeth on their upper edge, are of such length as to leave a free space between their ends and the ends of the tray, as shown. The shaft 5 of the roller has a pin-  
35 ion or toothed wheel, 6, at each end to engage with the racks, and also a handle, 7, for revolving and traversing the roller. The gib or retainer is shown at 8. It is made with both its inner and outer faces, but more es-  
40 pecially its inner face, 9, in a plane or flat surfaced, and without any inwardly-projecting fixed bearing or projection to rub or grind along the under or toothless side of the rack, but on the contrary has at or near each of its  
45 lower arms or corners, 10, journal-pins 11, either made integral with or secured to the retainer for the purpose of receiving and carrying the friction wheels or rollers 12 12, and  
50 applied ready for use, as shown in Fig. 1,

these friction-rollers may bear against and run upon the flat under side, 13, of the rack. The retainer has a circular opening, 14, by which it is suspended or hung on the shaft, to allow its lower arms, 10, and to allow its friction-  
55 rollers to have a little freedom to swing or sway under the rapid traverse motions, and it is made, as seen, tri-armed in shape, the two lower and projecting arms carrying each its roller 12, and the upper arm being that by  
60 which it is suspended on the shaft. This form is the simplest, and it has no clumsy or weighty part either below the lower level of the rack or projecting underneath it. The lower arms, 10, extend equally from a vertical line, which  
65 would pass through the center of the opening 14. The pins 11 are also equidistant from such central line, and the rollers 12 being both alike and supported on such pins, it follows that when the retainers are applied to the op-  
70 posite ends of the roller-shaft and the apparatus is all ready for use, each retainer in its normal position hangs by its own weight true or in equipoise, each of its friction-rollers bearing the same relation to its track, and  
75 there is no undue binding at any time of the teeth of the gears 6 with the teeth of the racks when the apparatus is at work, and this insures also an equal and uniform action and traverses on both sides of the tray, permitting  
80 each gear 6 to run freely on its rack, and so preventing the working-roller 3 from getting retarded at either end, and thereby being checked or arrested in its movements or strained from its proper position.

85 The advantages of my improvement in practice are very important, to wit: The tri-armed retainer being pendent and free to sway more or less in working the machine, especially at the end of each traverse, and also when sud-  
90 denly commencing the traverse in the opposite direction, tends to fly upward at one of its lower arms and proportionately downward at the other lower arm by a well-known law of motion and inertia, and without the rollers  
95 applied as I have shown and described them in their relation to the retainer and to the track, the effect naturally and unavoidably of a solid inwardly-projecting portion of the retainer, instead of such rollers, would be to 100



cause the retainer to have a continual tendency to act like a cam at every sudden movement, and thus to bind against the under side of the rack. Such a difficulty I avoid altogether, as the rollers prevent any such binding, being always one or both in position and in condition freely to revolve, and never to check or arrest the traverse at any stage of the operation. Again, any tendency to bind against the under side of the rack, as above stated, where friction-rollers are not used on this under side, is liable from slight causes to be not equal at the opposite sides of the tray; or, rather, to express it more accurately, the force imparted by the operator being applied to one side only of the machine, the force received at the other end of the worker-shaft is much reduced, and consequently the retainers cannot act so equally as they do and must with the rollers 1 2 thereon. Again, by using the rollers on this centrally-suspended or equi-poised retainer I dispense with the need of heavily weighting it at a point or portion between and below the lower arms, and, also, I dispense with the need in making the retainers of nicely calculating the varying requisite amount of weight to be given them to adapt them for machines of different sizes. Again, such weighted parts have to extend down too far below the under side of the rack, and in some cases would be found very inconvenient, and there is always a liability of breaking at that line where the inwardly-projecting part connects with the upper or pendent part of the retainers, because the strain, when such a retainer binds like a cam, is the greatest at such line, and this line is the weakest part.

I make the castings of galvanized iron to prevent their rusting. On the top edges of the tray I place small turn-buttons 15 15, at such points relatively to the ends of the racks that when the longer ends of these buttons are turned away from the rollers 3 they will allow this roller to pass nearer the end of the tray, and also allow the gibs or retainers, which hold such rollers down, to be raised from underneath the rack, and thus permit the roller to be lifted off. My construction of retainer permits the working-roller, its shaft, pinion, and both retainers to be thus released from the ends of the racks, and the buttons, when again turned back to their original positions after the roller and its connected parts have been replaced in the tray, prevent the roller running too far. The ends of the racks are so constructed as to their length that a revolution may be given to the roller every time the latter reaches the end of its traverse, and the teeth at the ends of these racks are such that the roller can readily come back into gear with them. The revolution of the roller after reaching the end of its traverse serves to push the butter back from the end.

I claim—

In combination with the track 13 of a butter-worker, the pendent tri-armed retainer-frame 8, provided with an opening, 14, and with anti-friction rollers, the gear-wheel 6, and the shaft 5, as set forth.

NATHAN G. WILLIAMS.

Witnesses:

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