

# UNITED STATES PATENT OFFICE.

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## IMPROVEMENT IN COMPOSITIONS FOR PRINTERS' INKING-ROLLERS.

Specification forming part of Letters Patent No. **147,569**, dated February 17, 1874; application filed December 6, 1873.

*To all whom it may concern:*

Be it known that I, JOSEPH H. OSGOOD, of Boston, in the county of Suffolk and State of Massachusetts, have invented a new and useful Improvement in Composition for Printers' Inking-Rollers, &c., of which the following is a specification:

The method or process now in use for making composition for printers' inking-rollers is the following, these compositions being all made with glue as a basis: The glue is combined with molasses or sirup, or saccharine matter of some kind, to which other ingredients, as glycerine, acetate of potash, chloride of calcium, &c., are sometimes added. Glue and glycerine alone are sometimes used. The glue is soaked in as small a quantity of water as it is possible to use, and after it is thoroughly soaked and softened it is put into a kettle, in which it is heated by steam or other heat applied to the kettle, the glue being stirred until it is melted or liquefied. The molasses or sirup is then added, together with any other ingredients which are used, and the mixture is stirred and heated until the materials are perfectly combined. The composition is then poured into molds to cast rollers, or is poured into pans and allowed to cool in thick sheets, in which sheets it is sold to printers to be remelted and cast into rollers.

My new process is as follows: Into the tubs or other vessels in which the glue is soaked in water by the old process I put a certain amount of glue, and add to it in the same vessel the proper proportion of water, and of molasses or sirup or other saccharine matter, and the other ingredients, if it is desired to use them; and by absorption alone, entirely without the aid of heat, these materials combine perfectly and furnish a composition having many advantages over the old. I use, preferably, glue in a fine state of division, because it combines more quickly and furnishes the product in better shape; but glue in any state can be used. The result of this process, when the fine glue is used, is a mealy, moist mass, in which each particle of glue retains its original shape and its identity, except as to increase in size by the combination with it of the other ingredients. This mealy, moist composition can be handled and stored with the greatest

facility, and can be sold to printers to cast rollers from. By heating it in a proper kettle, it melts down at once into a thick liquid, of which the best rollers can be made.

The advantages of this process and the resultant product over the old are these: First, less water is required. With the strong glue that must be used to make good composition, nearly one part of water to one of glue are the proportions that must be used to liquefy or dissolve the glue by the aid of heat in order that it can be mixed with the other ingredients of the compound. Now, this water is not essential to the composition, and is only used to facilitate its manufacture by dissolving or liquefying the glue. It escapes from the composition after it is cast into rollers, causing them to shrink and crack, and is thus detrimental. I find that by the new process the quantity of water can be reduced one-half, so that one part of glue to one-half part of water is all that is necessary to be used. Second, the cheapness of its production. Since the combination of the ingredients is effected entirely without the aid of artificial heat, the expense of the production and maintenance of it is saved. Again, no kettles are required. The vessels in which the glue is soaked in water by the old process serve to make the finished product by the new process. There is also a great saving in apparatus, and the labor required is much less. By the old process constant stirring and attendance are required while the composition is being made, in order that the ingredients may be properly and thoroughly mixed and heated. By the new process, as the combination effects itself, stirring of the mass is not required more than once or twice in twenty-four hours, and this is all the attention it needs. It is thus possible for one person to attend to the manufacture of two or three tons of the composition—a thing which would be impossible with the old process, except with a large outlay for stirring and heating apparatus. There is no loss by waste of material. By the old process more or less of the composition bakes or crusts onto the sides of the kettle in which it is made. This has to be soaked off with water, and is thrown away. From four or five to twenty pounds are thus lost with every boiling, varying according to the size of

the kettle. By the new process the exact weight of the ingredients is obtained in composition without a particle of loss.

The product of the new process has many advantages. When made from the ground glue, it is in a much better and more convenient shape for handling, storing, packing, and using. The old product, being in thick sheets or solid chunks, must be cut up with a knife before it can be remelted. The granular condition of the new product enables one to weigh the smallest quantities with the greatest ease. It can be packed in bags, boxes, or barrels with as much facility as granulated sugar, and used from time to time in just such quantities as may be wanted. The great and signal advantage the new product has over the old is that it will keep for any length of time. The old product becomes, after a while, so changed that it cannot be remelted. This change is not owing to its drying up, for even when hermetically sealed in tin cans this change takes place in three or four months, and the composition, as it cannot be remelted and cast into rollers, is useless and is thrown away.

All manufacturers and dealers in, and consumers of, composition have had more trouble and complaint from this one point than from all others. It makes it necessary for the manufacturer to prepare the composition in only such quantities as can be consumed within a few weeks. The printer has to buy as he wants it to use from time to time, and in only such quantities as he can use at once. It almost wholly prevents the sale of the composition to dealers in printing materials, who would buy to sell again, and they will not buy it, except in small quantities as it is ordered of them. If the old composition becomes hardened by exposure to the air and drying, it cannot be remelted, even if it is soaked in water and heated in a kettle in the usual way. The new article may be dried at once after it is made, at low temperatures. Whenever it is wanted for use, by the addition of the amount of water it lost by evaporation, it will at once, upon the application of heat, melt down into a perfect composition.

It will be obvious, therefore, that the new composition may be sold in two forms—either moist, just as it is prepared and all ready to melt and cast into rollers, or dried—that is, the water having been evaporated from it. This second form may be dissolved at once in the proper amount of hot water, or soaked in cold water and melted by heat. The cause of the difference in the two compositions, as pre-

pared by the old or heating process and the new or cold process, it is difficult wholly to explain. It is probably owing to some effect which the high temperature has upon the glue. Something analogous to it occurs in the manufacture of the glue itself, and perhaps will explain the difference in the two products. It is a well-known fact to glue-manufacturers that the glues dried by exposure to the direct rays of the sun are much less easily dissolved than those dried in the shade, and the best manufacturers are careful to dry their glues under cover. So, also, if these dried glues be still further dried by exposure in an oven, they become still less soluble.

It will be seen that the essential difference between the two processes is that, in the old, heat is used to combine the ingredients, while in the new this combination is effected by absorption wholly, without the aid of artificial heat. It is also the use or non-use of heat which gives to the two products their different qualities. By the new process I produce a better article, at less cost, than by the old. Its advantages are, first, that it will keep for any length of time, which is invaluable, and overcomes the most serious objection to the old composition; second, its cheapness of production; third, its convenience and economy.

This new mode of combining glue with saccharine matter or other materials, it is obvious, may be applied to the production of other compounds besides that for printers' rollers. A soluble glue, for sticking purposes, may be made with glue and saccharine matter alone, and in the shape in which it is produced by the new process it has great advantages over the old. A composition of glue and glycerine alone may also be made by this same process, and such a compound is sometimes useful to the printer in place of the ordinary composition.

I claim—

1. The process herein described for making a granular composition to be cast into printers' inking-rollers, or melted for an adhesive cement, the same consisting in combining glue, water, and saccharine matter without the application of heat, substantially in the manner set forth.
2. The granular composition herein described, consisting of glue, water, and saccharine matter, for the purpose specified.

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Witnesses:

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