UNITED STATES PATENT OFFICE.

WILLIAM A. HALL, OF BELLOWS FALLS, VERMONT.

ADHESIVE.

SPECIFICATION forming part of Letters Patent No. 695,926, dated March 25, 1902.

Application filed April 11, 1901. Serial No. 55,325. (No specimens.)

To all whom it may concern:

Be it known that I, WILLIAM A. HALL, a citizen of the United States, residing at Bellows Falls, in the county of Windham and State of Vermont, have invented or discovered certain new and useful Improvements in Casein-Glue, of which the following is a specification, reference being had therein to the accompanying drawings.

The casein-glues which are now in use have one serious disadvantage in that when applied to wood they sink into the pores to such an extent that before they become thoroughly dry a very considerable amount of the material strikes into the wood and is practically lost, and the adhesion of the glue at the joints is consequently greatly impaired.

This invention has for its object to provide an improved casein-glue which while sufficiently penetrating to enter the pores of the wood to a proper extent will in entering the pores of the wood act partly as a filler, so that a sufficient quantity of the glue will remain upon the surface of the wood at the joints to make a strong union between the parts to be secured together.

To this end my improved casein-glue consists, preferably, of about eighty-five to ninety-five parts of dry powdered casein and five to fifteen parts of zinc oxid in powdered form. The stated proportions are by weight. These two ingredients are thoroughly mixed together and are then dissolved in about four to six parts of water to which has been added one ounce of 26° ammonium hydrate to each part or pound of the mixture of casein and zinc oxid. The entire mixture is then heated to about 140° or 150° Fahrenheit by means of a jacket-kettle or steam-jet, and when thus heated and the mixture entirely dissolved the glue is ready for use.

The zinc oxid in the casein solution herein described acts not only as a filler for the pores of the wood, but also serves to thicken the casein solution, so that it is not as penetrating as it otherwise would be, the thickening of the solution being due to a chemical combination of the ingredients.

The casein-glue composition in its commercial form will preferably consist of dry powdered casein and powdered zinc oxid mixed together in substantially the proportions hereinbefore stated and in readiness to be made into liquid glue by the weak ammonium-hydrate solution, as hereinbefore stated, although the improved casein-glue may also be placed on the market in liquid form.

Having thus described my invention, I claim and desire to secure by Letters Patent—

1. The herein-described casein-glue consisting of casein, zinc oxid, ammonium hydrate and water, in substantially the proportions specified.

2. The herein-described casein-glue composition consisting of dry powdered casein and powdered zinc oxid, in substantially the proportions specified.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM A. HALL.

Witnesses:

HENRY V. DUNHAM,

HENRY CALDER.