No. 785,480. Patented March 21, 1905.

UNITED STATES PATENT OFFICE.

FREDERICK G. DOKKENWADEL, OF COSHOCTON, OHIO, ASSIGNOR OF ONE-HALF TO HARRY M. GRANT, OF NEW YORK, N. Y.

BLASTING COMPOUND.

SPECIFICATION forming part of Letters Patent No. 785,480, dated March 21, 1905

Application filed May 20, 1904. Serial No. 208,914.

To all whom it may concern:

Be it known that I, FREDERICK G. DOKKENWADEL, a citizen of the United States, residing at Coshocton, in the county of Coshocton and State of Ohio, have invented certain new and useful Improvements in Blasting Compounds, of which the following is a specification.

This invention relates to blasting compounds.

The object of the invention is to produce a blasting compound or mixture which is safe against explosion except when confined and which by graduating the size of the explosive-carrying medium can be made slow-burning or quick-burning.

The invention consists in the process of producing the compound to be described and in the compound so produced.

My compound is composed of the following ingredients: nitrate of soda, forty pounds; nitrate of potash, seven and one-half pounds; sulfur, fifteen and one-half pounds. These ingredients are finely pulverized and mixed dry in suitable quantities, but not granulated.

I take the husks of maize or Indian corn, (about thirty-seven pounds.) These husks are cut into small squares or pieces. For a slow powder the husks are cut fine—say to the average area of one-eighth of an inch. For a quick-burning powder the husk-shreds are made larger—say three-eighths of an inch in diameter on an average. The husks can be cut fine enough for my use in many well-known cutting-machines. After the husks are cut into small pieces they are soaked in water in which sugar has been dissolved to a consistence as to sweetness less than the thin syrups of commerce. The principal object of the sugar-water is to secure adhesion of the chemicals to the shreds of corn-husks; but the sugar is believed to have some chemical effect also. The shredded maize-husks are kept in the sugar-water until thoroughly soaked and are then pressed until the shreds are just damp with the sugar-water. The mixed chemicals are then applied to the dampened husks and stirred until the husks take up a coating of the chemicals. The mass is then allowed to stand some twelve hours, when the loose chemicals may be sifted out or otherwise removed. If the mixture has been well done, there will be but a small quantity of the chemicals to remove, as most of it will be attached to the shreds of husk, the sugar serving as a binding medium, or the loose chemicals may be mixed with the mass. The mixture is finally dried in the sun or over a heater of moderate temperature.

The compound when dry has the appearance of fine chips or turner's shavings covered with meal.

The completed compound or mixture is light in weight in proportion to bulk. It can be handled with impunity, as it is not liable to explode except in confinement. The finer mixture packs closer, and as the corn-husks and sugar seems to retard combustion the finer shreds burn more slowly. The coarse shreds permit more rapid combustion, probably by reason of the larger amount of air contained in the interstices of the mixture.

The compound or mixture has been successfully used for blasting in the usual manner. It leaves considerable residuum when burned and is not adapted for use as gunpowder.

I have used short sections of straw, leaves, and the husks of other grain than maize for the purpose of a base to which the chemicals are attached; but I find maize-husks most satisfactory, as they are light, porous, easily combustible, and do not readily mat or pack in a solid bunch.

In burning the compound very little smoke is produced, and the smoke and gases developed in mines by blasting with this compound are less than with any other blasting compound known to me.

What I claim is—

1. The method of producing a blasting compound, which consists in shredding vegetable husks to small pieces, soaking them in sugared water, expressing the liquid until the husks

are just damp, then covering the shreds with a mixture of pulverized sulfur, nitrate of soda, and nitrate of potash.

2. A blasting mixture consisting of small shreds of vegetable husk to which a compound of nitrate of soda, nitrate of potash, and sulfur is attached by a saccharine binding agent.

3. A blasting compound consisting of shredded maize-husks in small pieces, having attached by a saccharine binder a compound of nitrate of soda, nitrate of potash, and sulfur in about the proportions specified.

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

FREDERICK G. DOKKENWADEL.

Witnesses:

W. A. BARTLETT,

M. E. BROWN.