# UNITED STATES PATENT OFFICE.

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## EXPLOSIVE.

1,038,275. Specification of Letters Patent. Patented Sept. 10, 1912.

No Drawing. Application filed April 11, 1912. Serial No. 690,214.

*To all whom it may concern:*

Be it known that I, HARVEY P. BOSTAPH, a citizen of the United States, residing at Windsor, Province of Ontario, Dominion of Canada, have invented a new and useful Explosive, of which the following is a specification.

This invention has reference to improvements in explosives, and its object is to provide an explosive of high power having all the best qualities of explosives like dynamite and blasting powders, but possessing none of the faults of such explosives. The explosive of the present invention is not sensitive to ordinary friction or shock, is not affected by heat, will not freeze, is not affected by moisture, gives off no noxious gases when exploded, is not rendered dangerous by and does not materially deteriorate from age, is particularly adapted for storage, and is comparatively cheap and safe to manufacture.

The improved explosive compound comprises perchlorate of ammonia, dinitrobenzene, nitrate of soda, wood meal, and rosin.

While not confined strictly to exact proportions, it has been found that most excellent results are obtained by compounding the explosive in the following proportions:

| | |
|---|---|
| Perchlorate of ammonia | 37 per cent. |
| Dinitrobenzene | 11 per cent. |
| Nitrate of soda | 43 per cent. |
| Wood meal | 8 per cent. |
| Rosin | 1 per cent. |
| | 100 per cent. |

To prepare the compound the chemicals are pulverized so that the perchlorate of ammonia will pass through an 80 mesh or smaller mesh screen and good results have been obtained when the screen is of 100 mesh. The dinitrobenzene should be pulverized to pass through a 50 mesh or smaller mesh screen, and good results have been obtained with a 60 mesh screen. The nitrate of soda should be pulverized to pass through a 60 mesh or smaller mesh screen, and good results have been obtained by the use of an 80 mesh screen. The wood meal should pass through a 40 mesh or smaller mesh screen, and good results have been obtained with a 60 mesh screen. The rosin should be pulverized to pass through a 30 mesh or smaller mesh screen, and good results have been obtained by the use of a 40 mesh screen.

After the several ingredients have been thoroughly dried, pulverized and screened as stated, the rosin is first mixed with the wood meal, and then these two ingredients are mixed with all the other ingredients together.

From extensive tests it has been found that the proportions given produce the best results, while the rosin employed distributes the detonations to the whole of the substance, but does not affect the safety of the compound. It has been found that if the rosin be omitted the compound is not reliable and in many instances will not explode when detonated, and sometimes explodes only in part. Too much rosin lowers the safety factor. Furthermore, exhaustive tests have demonstrated the necessity of pulverizing the ingredients so they pass through the screens as described, and that they should be absolutely dry before being mixed together, the degree of pulverization named having been found to increase the strength of the explosion as much as 100 per cent., and when not so compounded the explosive is so unreliable as to refuse to explode at all in many instances.

What is claimed is:—

1. An explosive compound comprising perchlorate of ammonia, dinitrobenzene, nitrate of soda, wood meal and rosin.

2. An explosive compound comprising in every hundred parts perchlorate of ammonia 37 parts, dinitrobenzene 11 parts, nitrate of soda 43 parts, wood meal 8 parts, and rosin 1 part.

3. The method of compounding explosives which consists in pulverizing perchlorate of ammonia to a fineness which will pass through a screen not larger than 80 mesh, pulverizing dinitrobenzene to pass through a screen not larger than 50 mesh, pulverizing nitrate of soda to pass through a screen not larger than 60 mesh, producing wood meal to pass through a screen not larger than 40 mesh, pulverizing rosin to pass through a screen not larger than 30 mesh, and then mixing such materials.

4. The method of compounding explosives which consists in pulverizing perchlorate of ammonia to a fineness which will pass through a screen not larger than 80 mesh, pulverizing dinitrobenzine to pass

through a screen not larger than 50 mesh, pulverizing nitrate of soda to pass through a screen not larger than 60 mesh, producing wood meal to pass through a screen not larger than 40 mesh, pulverizing rosin to pass through a screen not larger than 30 mesh, and then mixing such materials by first mixing the rosin with the wood meal and then mixing the two ingredients so mixed with the other ingredients.

5. The method of preparing an explosive compound which consists in mixing together one part of rosin to a fineness to pass through a 40 mesh screen, with eight parts of wood meal of a fineness to pass through a 60 mesh screen, and incorporating the mixture so formed with 37 parts of perchlorate of ammonia of a fineness to pass through a 100 mesh screen, 11 parts of dinitrobenzene of a fineness to pass through a 60 mesh screen, and 43 parts of nitrate of soda of a fineness to pass through an 80 mesh screen.

6. An explosive compound comprising a mixture of perchlorate of ammonia in a condition of fineness to pass through a 100 mesh screen, dinitrobenzene in the condition of fineness to pass through a 60 mesh screen, nitrate of soda of a fineness to pass through an 80 mesh screen, wood meal of a fineness to pass through a 60 mesh screen, and rosin of a fineness to pass through a 40 mesh screen.

In testimony, that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

HARVEY PERRY BOSTAPH.

Witnesses:

E. S. TIMONS,

MARIE GREER.