

# UNITED STATES PATENT OFFICE.

WALTER D. FIELD, OF MILBURN, NEW JERSEY.

## COMPOUND OF BLOWN OILS.

SPECIFICATION forming part of Letters Patent No. 491,880, dated February 14, 1893.

Application filed October 18, 1892. Serial No. 449,286. (No specimens.)

*To all whom it may concern:*

Be it known that I, WALTER D. FIELD, a citizen of the United States, residing at Milburn, in the county of Essex, in the State of New Jersey, have invented certain new and useful Improvements in Compounds of Blown Oils and Products Therefrom; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to use the same.

My invention relates to that class of compounds which are used alone or in combination with other elements as a coating for textile fabrics, paper and leather for insulating purposes and for various other purposes too numerous to mention.

The object of the invention is to produce a compound that will be stable and durable, not liable to decompose or evaporate or oxidize, that will be proof against water and the action of the atmosphere and that can be made very flexible, while at the same time having great body, if desired. To accomplish these results I propose to use certain kinds of what are known in the arts as "blown oils" in combination with pyroxyline or nitro cellulose, the resultant compound being used alone or in combination with other elements. The pyroxyline or nitro cellulose used in combination with the blown oils is of that grade or kind known in the arts as "soluble pyroxyline" or "nitro cellulose" and is obtained by subjecting vegetable fiber or cellulose to the action of nitric acid or to nitric and sulphuric acids, as is well understood, and before combining this nitro cellulose with the blown oil I would preferably dissolve the nitro cellulose in some solvent which also would be a solvent of the blown oil, and then combine the same with the blown oil, as is hereinafter described.

I will proceed now to describe what I mean by blown oils: and what kinds of blown oils I propose to use. It is well known that the non-drying members of that group of oils which are chemically known as the glyceryl ethers of the unsaturated fatty acids, increase in viscosity and stability when air is driven through them at various temperatures and some of the oils of the cotton seed group have been thus treated and afterward used for lubricating purposes. For the purposes of this

invention I have most frequently used those glyceryl ethers of the unsaturated fatty acids known as cotton seed oil and olive oil and have found them well adapted for my purposes, but any of the other oils belonging to the class of glyceryl ethers of the unsaturated fatty acids excepting thereout those oils known as drying oils and chemically known as the linseed oil group, may be used, but some of them which contain considerable proportions of the tri-glycerides of the saturated fatty acids are not as useful for all purposes as those oils that contain none or only small proportions of these tri-glycerides of the saturated fatty acids, but with these exceptions and explanations I know of none of the class of the glyceryl ethers of the unsaturated fatty acids which are not useful, when blown, for the purposes of this invention. The action of the air produces an oxidation effect and forms oxy-fatty ethers of glyceryl. These oils when thus blown are practically neutral bodies, having substantially the same solubilities as the oil and they may be produced of any desired degree of viscosity, even to the point of not flowing at all. For my purposes I prepare this blown oil by forcing air through the oil while it is at the temperature of about 200° centigrade until the oil is of about the proper degree of viscosity, which varies with the use to which the resulting product is to be put. The method of blowing air through these oils does not require description here, as it may be done in any of the well known ways. While these blown oils may be made of almost any degree of viscosity, they do not have the property of drying when alone to a hard film and they, therefore, are of no practical use for coating fabrics or for the other purposes of this invention when used in an uncombined state. These oils are thus distinguished from the oils known as drying oils whose drying qualities are greatly increased by blowing.

It is the object of this invention, therefore, to produce such a compound of these blown oils with some other substance, as will dry to a smooth hard film and yet retain the flexibility of the oil, so that the same may be used as a coating in any of the methods which I have heretofore pointed out. And I have discovered that by combining pyroxyline in com-



paratively small quantities with these blown oils, I can produce a compound, which when spread upon textile fabrics and other surfaces, will be tough, elastic and at the same  
5 time hard and smooth, water proof, not perceptibly affected by the atmosphere, and durable.

The amount of blown oil is regulated by the kind of product required. If it is desired to  
10 produce a very flexible compound, a larger proportion of blown oil is used than if a comparatively stiff compound is desired. But I have found the following proportions to be useful for a coating for textile fabrics: Blown  
15 oil one hundred and fifty parts, specific gravity .89, pyroxyline forty-five parts, both by weight.

In preparing my compounds I first dissolve the pyroxyline or nitro cellulose in a mixture  
20 of amyl acetate and benzine in the proportions of two parts of amyl acetate to one part benzine, reducing the pyroxyline solution to the consistency desired, but instead of amyl acetate I may use propyl or butyl acetates, or  
25 benzole and some other solvents of pyroxyline. After having dissolved the pyroxyline and reduced it to a proper consistency for mixing I gradually add the blown oil in small quantities at a time, with constant stirring,  
30 and I regulate the amount of blown oil to be

used in combination with the pyroxyline by the amount of flexibility desired in the resulting film. In my experience the lesser amount of oil gives the film the lesser amount of flexibility and the greater amount of oil  
35 gives the greater amount of flexibility. To this compound I will add any desirable pigment for the purpose of coloring the compound and to a certain extent for the purpose of giving body to it, but care must be taken  
40 in adding the pigment not to add too great a weight of pigment when the compound is to be spread upon fabrics and great flexibility and strength is desired, but when the compound is to be spread upon paper or other  
45 material the amount of the pigment may be increased.

What I claim as new is,

A new composition of matter consisting of a blown non-drying glyceryl ether of an unsat-  
50 urated fatty acid in combination with pyroxyline or nitro-cellulose, substantially as described.

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

WALTER D. FIELD.

Witnesses:

WILLIAM S. DODD,  
CHAS. W. BROWER.