

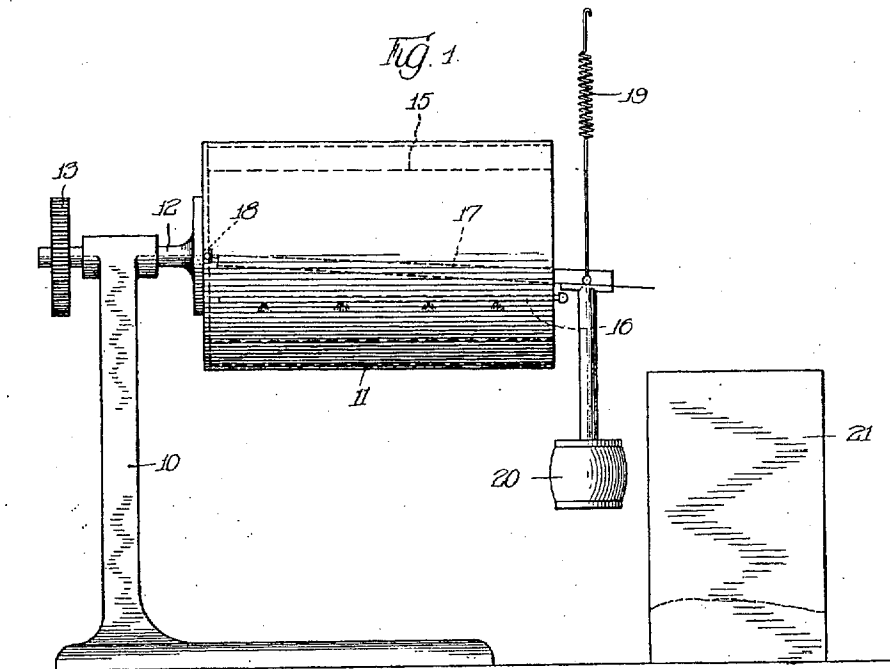
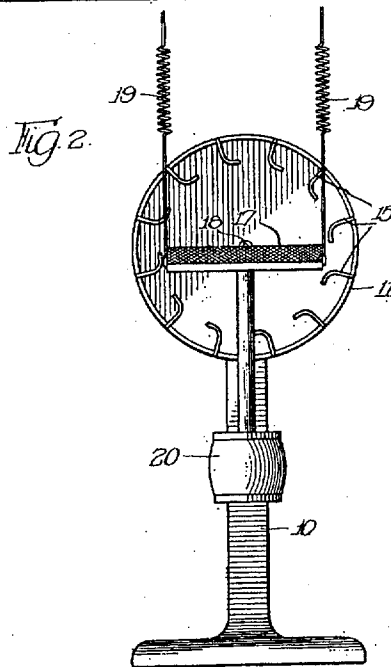
May 16, 1933.

C. A. HERBST

1,908,979

FUSE POWDER

Filed Feb. 18, 1931



Inventor:
Clarence A. Herbst,

By *William H. Hays, Byron Knight*
Attys.

UNITED STATES PATENT OFFICE

CLARENCE A. HERBST, OF CHICAGO, ILLINOIS, ASSIGNOR TO ECONOMY FUSE AND MANUFACTURING CO., OF CHICAGO, ILLINOIS, A CORPORATION OF NEW YORK

FUSE POWDER

Application filed February 18, 1931. Serial No. 518,687.

This invention relates to improvements in methods for manufacturing a filler for electrical fuses commonly called a "fuse powder" and wherein, by the improved method, the filler or fuse powder is composed of particles of substantially uniform size.

According to the ordinary practice it has been customary to add a certain percentage of water to calcium sulphate as a base material so that the material becomes caked. The caked material is then broken up and ground and may be screened to remove the large particles. When this material, consisting of varying sizes from fine particles to small lumps, is used in an electrical fuse, it is found that there is a tendency for the material to pack and quite often injury to the fuse element is caused during shipment. Even if it is attempted to screen out particles or lumps of a uniform size, the particles readily break up into finer particles and the same troubles occur.

It is a purpose of the present invention to provide an improved method of manufacturing the fuse powder so as to produce granules or pellets of material of substantially uniform size and which will not readily disintegrate.

It is further an object of the invention to provide a method whereby the final product can be obtained in one stage of treatment without subsequent screening.

It is an object of the invention to introduce the powdered calcium sulphate in a tumbler barrel and to spray water into the tumbler barrel so that the calcium sulphate takes up a certain percentage of water and tends to form granules or pellets as the barrel is rotated and to continuously screen the material as it is being mixed with the water so as to remove the particles or granules of desired size as they are formed.

Further objects and advantages of my improved method will be more readily apparent from the following description taken in connection with the attached drawing, in which—

Figure 1 illustrates diagrammatically a vertical elevation of the apparatus which I employ, and

Figure 2 is an end view of the apparatus illustrated in Figure 1.

As shown in the drawing, the apparatus is of simple construction and may consist of a frame 10 carrying a tumbler barrel 11 which is supported by shaft 12 and driven from gear 13. The barrel 11 is closed at the left-hand end and curved lifting blades 15 are arranged longitudinally in the barrel. A spray pipe 16 serves to admit water so that the material which is charged into the barrel at the open end will become mixed with the water. A flat screen 17 is suitably held by a free pivot 18 at the center of rotation of the barrel and is supported by a spring 19 at the other end of the barrel. The screen may be vibrated by suitable means, such as by a vibrator 20. The screen 17 is so arranged that the material which is lifted to the top of the barrel by the lifting blades falls upon the screen 17 and the particles of the proper size which do not pass through the screen are directed into a receptacle 21.

The base material which is used is plaster paris or calcium sulphate but in addition, any inert fine material up to the percentage of 40% may be used, such as silica, whiting, slaked lime, magnesium oxide, infusorial earth or any other material not affected by water. As the particles of calcium sulphate unite with the water, they are continuously rolled over each other and mechanically unite to form the larger particles. The lifting blades 15 carry the material to the top of the barrel whereby it is deposited on the screen 17. The mesh of the screen 17 determines the size of the particles desired. The particles which are not yet of the proper size fall through and are again subjected to the tumbling action to form particles of larger size. It will, therefore, be apparent that the rotation of the tumbler may be continued until all the material has been deposited in the receptacle and the final product will have a substantially uniform particle size.

The final product will not settle or cake when used as a filler for electrical fuses and therefore injury to the fuse element will not occur due to shaking of the fuse in shipment.

Although the final product is especially

suitable for use as a filler in an electrical fuse, it will be obvious that a method such as I have described will be applicable to other uses in which a powdered material is united with a fluid so as to form granules or pellets.

I claim:

1. The method of treating material which is capable of setting with water so as to form pellets which consist in adding the water to the material while it is being subjected to a tumbling action and simultaneously screening the material as it is tumbled to remove pellets of the desired size.
2. The method of manufacturing a fuse powder which consists in charging a powdered base material capable of setting with water into a tumbling barrel, spraying water upon the material while the barrel is rotated and simultaneously screening the mixed material while it is being subjected to the action of the tumbling barrel so as to remove pellets of the desired size as soon as they are formed.
3. The method of manufacturing a fuse powder which consists in subjecting a powdered mass of calcium sulphate to a tumbling action, spraying water upon the powdered mass while it is being tumbled and continuously screening the tumbling mass so as to remove pellets of the desired size from the tumbling action substantially as fast as the pellets are formed.

Signed at Chicago, Illinois, this 13th day of February, 1931.

CLARENCE A. HERBST.