

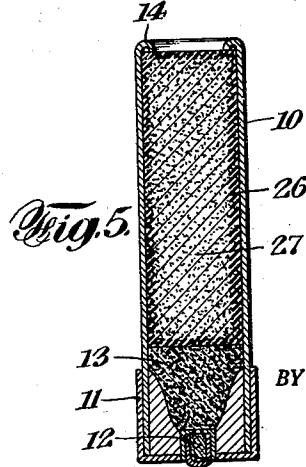
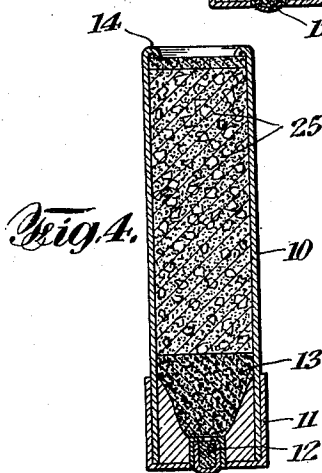
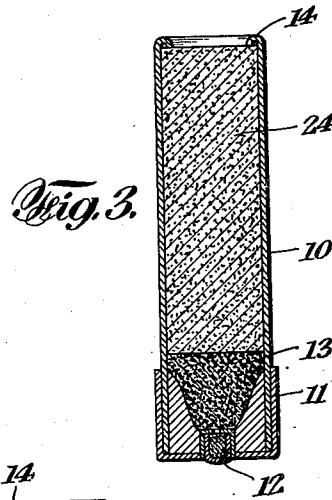
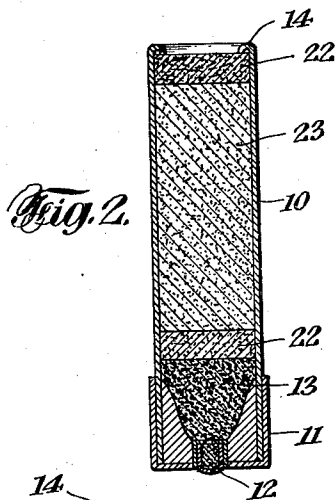
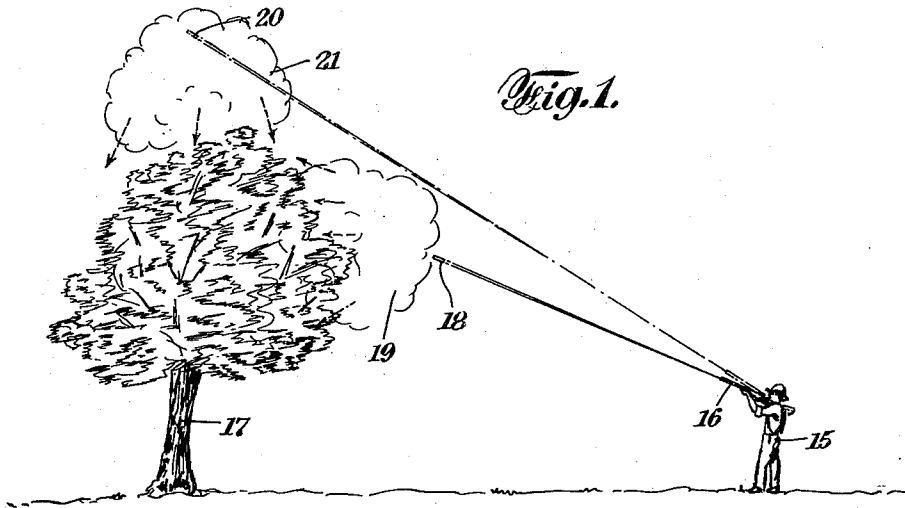
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ANTIPARASITIC AGENT AND AGENCY

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ANTIPARASITIC AGENT AND AGENCY

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2 Claims. (Cl. 102-12)

This invention relates principally to the extermination of harmful insects and plant growths by the use of parasiticides or prophylactics. More particularly, it provides improved means for the spraying or spreading of such agents in a cloud form by explosive means.

Heretofore, spraying has been done in two ways. In a wet spray, a solution or mixture of water and an anti-parasitic agent is used. Equipment for this work includes the use of protective clothing, pumps, ladders and considerable labor. Dry dusting or spraying seems to produce better results but requires more careful application and involves more risk to the operator to whom the agents used may be poisonous. Whichever method is used requires the close presence of the operator and direct application from a nearby point. The expense of the equipment and labor considerably increases costs.

The object of this invention is to provide a new way of disseminating an exterminating agent or prophylactic agent by an explosive charge. A further object is to effect a controlled spreading preferably in a cloud form, for the area to be treated and commencing at a point remote from the operator. Another object is to make up an anti-parasitic agent in a new and improved form and manner. It is an important feature of this invention that the agent is preferably disseminated by means of any type of firearm.

In a preferred form of the invention, the anti-parasitic agent which is originally in powdered form, is compressed and loaded into a shotgun shell to occupy all that space which would formerly be taken up by the shot and various wads. Preferably the compressing of the powdered antiparasitic agent is done directly in the gun cartridges by well-known loading machines. When such a shell is fired, the detonation projects the exterminating agent an approximately calculated distance and then breaks it down into a cloud of ultrafine particles, whereas heretofore, immediate dispersion of the powdered agent has been the only result desired. The point at which the agent flies into ultra-fine particles depends in a measure upon the moisture content, because the drier the compressed agent, the sooner it will break up, and upon the amount and type of compressing done. Thus a solid stick will ordinarily fly further before disintegrating when it is composed of compressed powder and binding material than when of powder alone or powder and agglomerated particles. In a simpler form of the invention the explosive and the anti-

parasitic agent are compressed together and detonation will immediately disperse the agent.

Actual tests of the invention have shown some interesting phenomena. For example, a 12-gauge shell can be loaded with enough exterminating powder to effect the same coverage as an amount between one and two gallons of spray will do. Again, by placing trays containing a chemical indicator at various points in a tree, it was conclusively demonstrated that the fired particles penetrated everywhere. So fine was the dust produced, that it found its way inside of curled leaves. Upon firing, almost immediately at some distance from the operator a cloud would form, and under favorable conditions would hang suspended and completely envelope a large tree. It is thought that the suspension is so fine that certain exterminating agents such as lead arsenate enter the spiracles of insects and begin corrosive action in that way, as well as settle on the foliage. Some insecticides which are not designed to poison by being eaten merely clog the spiracles. Again, under certain conditions moisture was added to obtain almost a mud which splattered when fired. Such splattering will reach inaccessible branches and limbs as distinguished from the foliage. Then, when two powders are used, it has also been found that the heavier should be in front to obtain the greater distance before dispersion.

Important advantages result from the use of this invention. No equipment and no labor are required. It is an easy matter to load shells with the properly compressed anti-parasitic agents. By proportioning a binder and an agent a good degree of control as to the point where the parasiticide or exterminating agent begins to break up and spread is obtained. The ultra-fine dust reaches everywhere and may be directed into the area to be treated from any point. Finally, the new improvements are quicker in operation and more effective. Other objects and advantages will appear from the following description and drawing, in which:

In Fig. 1 is shown in diagrammatic view a preferred method of carrying out the objects of this invention; in Fig. 2 is shown in cross-section a shotgun shell loaded in one manner with a preferred anti-parasitic agent; in Fig. 3 is shown a similar shell in cross-section and loaded with a compressed agent; and in Figs. 4 and 5 are shown other types of anti-parasitic charges.

Referring to the drawing, 10 indicates the usual shot chamber of a gun shell and provided with a cup 11 and a primer 12. At the base of the shell,

in the interior thereof, is to be found the usual powder charge 13. In the usual shotgun shell, the shot chamber would contain a powder wad, two felt wads, shot and would be sealed with a shot wad at the top held in place by crimped edges of the case similar to the crimped edges 14 of chamber 10. In this invention, the wads and shot are replaced by an anti-parasitic agent which may take many forms depending upon the amount of control which the operator wishes to exercise. Such an operator is indicated in Fig. 1 at 15, who holds in his hand a firearm 16 from which he fires by means of the prepared shells, slugs or loads of the antiparasitic agent contained within the chambers 10 of the shell. Assuming a tree 17 to be treated or sprayed, the operator 15 may, depending upon the character of the agent and the manner in which it is prepared, cause the agent to break up at a point such as 18, thereby forming a cloud of particles 19 which will move into the foliage of the tree 17. On a day in which there is no wind or in case the operator wishes to make certain that the dust or powder will settle upon the top surfaces of the leaves of the tree, he may elevate the gun 16 and by using a charge of the proper agent having a slightly different character, the operator 15 can delay dispersion of the charge until the point 20 is reached. Thereafter the formed cloud 21 will settle as desired and as shown by the arrows in Fig. 1. It will be noted that at no time is there any likelihood of the operator 15 becoming enveloped by the clouds of dust particles which are formed because of the fact that dispersion does not take place until points such as 18 and 20, which are remote from the operator, are reached. If the operator makes due allowance for the wind, he can by means of this invention reach any portion of any area to be treated in any manner and from any direction he may wish while at the same time he himself remains at a distance from such area.

In controlling the points at which dispersion of the cloud of active particles begins to form, the manner in which the charges are prepared is important. Thus in Fig. 2 is to be found a charge comprising two tablets 22 of an exterminating or preventive agent mixed with some binding material and pressed into wad or tablet form. Between these two tablets, positioned as shown, a certain amount 23 of the agent is packed between the tablets 22. By proper compression of the powdered agent it is possible to put twice as much in a single cartridge by weight than would be the case without such compression. Portion 23 receives considerable compression between the two tablets 22 at the instant of explosion, depending largely upon the character of the explosive used.

A type of charge, in which it was desired to hold together for a considerable distance before the formation of the cloud begins, is to be found in Fig. 3 in which a stick 24 of the exterminating or preventive agent is compactly compressed and

loaded into the chamber 10 of the shell. The drier the charge 24, the sooner it will begin to break up and disperse. Likewise the more binder material, if any, mixed with the agent in the stick 24, the greater distance it will go before formation of a dust cloud begins. It is altogether possible to standardize such charges to begin dispersion at the definite interval away from the operator 15, and such information could be plainly marked on the shell. In Fig. 4 is shown a charge comprising coarse particles 25 which have been made with a binding material and some of the agent in powdered form to fill up the spaces between the particles 25. The whole charge as compressed and loaded has upon firing a characteristic which will carry it further than the charge shown in Fig. 2 and not quite so far as the charge shown in Fig. 3. Likewise, in Fig. 5 is shown a cylinder, the exterior 26 comprising a mixture of an agent with a binding material and containing on the inside thereof at 27 a quantity of the compressed exterminating agent but without being mixed with any binder. This cylinder of compressed powder with a composition wall provides a means for overcoming friction in the gun barrel because talcum may be used on the hardened surface and likewise may serve to confine corroding powders. Still another form of the invention is to combine an explosive and an anti-parasitic agent in the shape of a stick for use with a detonating cap and a fuse. When a stick such as this is exploded, the anti-parasitic agent will be disseminated in an ultra-fine dust throughout the entire area surrounding the place where the stick is exploded.

In the practice of this invention, the usual loading processes and present-day loading machines may be used for both filling and compressing the powdered anti-parasitic agents in the cartridges. Furthermore, the composition wads comprising such an agent with a binder are capable of being fed by the usual wad-feeding machines. Likewise, the same machines for crimping the edge of the cartridge to hold the charge in place may be used in this invention.

There are many modifications of this invention, particularly those which may have to be made to suit the necessities of the case, and such are expressly contemplated as coming within the scope of this invention.

I claim:

1. An anti-parasitic charge for a gun cartridge comprising an intermixture of an explosive, a non-fluid anti-parasitic agent and a binder whereby said explosive and said agent are held together in one unitary mass.

2. An anti-parasitic charge for a gun cartridge comprising a primer, a propelling explosive, a compressed anti-parasitic agent and wads at each end of said compressed agent, said wads being composed of a quantity of the self-same agent and a binder.

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