

In some factories there were too many cartridge packing machines in one building. The objection to this practice does not lie in the number of machines but in the large number of men who must be present in the buildings to attend to the machines. In one instance, all the machines in the factory were under one roof, and no less than 15 men were present. Apart from humanitarian objections to the exposing of so many lives to one risk, I am strongly of opinion that it is economically unwise to concentrate all the cartridge packing in one building. I understand that in one factory last year 11 lives were lost, due to explosions which occurred in the packing house. This number exceeds the annual average number of deaths in all the explosives factories in Great Britain. Generally speaking, there appears to be a tendency to allow unnecessary articles to accumulate in danger buildings. The object of the manufacturer should be to reduce the number of movable implements to the minimum. When it is remembered that a thin layer of most explosives can be exploded by a blow from a comparatively light weight falling a distance of a few feet, the importance of this point will be realized. I may mention in this connexion that I have more than once witnessed the experiment of a thin layer of gunpowder spread on a wooden floor being ignited by a glancing blow from a wooden broom stick.

The presence of iron hammers and other tools is also objectionable. When they are required, they should only be used by a responsible person and should be removed as soon as they are no longer wanted.

Greater care should be exercised to prevent grit getting into the explosive and also to prevent explosive from lodging in crevices in the walls and floors of buildings. The iron framework of machines should be painted to prevent the detachment of rust, which is otherwise almost certain to find its way into the explosive.

I do not think that manufacturers pay sufficient attention to details, and it is only by studying details that it is possible to make the manufacture of explosives relatively safe. Apart from the risk of spontaneous decomposition, which may arise on rare occasions during the manufacture of nitro-glycerine, there is the risk of spontaneous decomposition from explosive dust settling on heating pipes and being left there, and from accumulations of explosive in cracks and crevices. With reasonable precaution these latter risks should be practically non-existent. The heating pipes should be so placed that they are readily accessible to inspection and the walls should be lined with a suitable material; the floor, if not close joined, should also be covered. I understand that rubberoid has been employed both as a lining for the walls and a floor covering by several manufacturers, with excellent results.

Another risk to be guarded against is the ignition of a thin film of explosive by a blow. As I have already stated, as few movable articles as possible should be present in a building. When it is remembered that most explosives when heated are much more sensitive to friction or percussion, special precautions should be taken in drying houses to eliminate this risk, and I think that the explosive should be allowed to cool down to the normal temperature before it is handled or the drying racks removed.

Grit mixed with explosive renders it far more sensitive; precautions should, therefore, be taken to prevent its introduction either by the work persons themselves, or by its adhering to boxes and packages brought into the building. It is impossible to prevent a certain amount of grit entering a building, and this grit will, of necessity, be mostly present on the floors of the buildings; it is important, therefore, to minimize the quantity of explosive spilt on the floor and also to have the floors swept periodically.

In buildings in which explosion is likely to be preceded by fire it is especially necessary to provide adequate means of escape for the work people, and care should be taken that the exits are not blocked by boxes or packages.

Sufficient forethought does not seem to be paid to the wiring of the electric light system. Apart from the dangers of ordinary wear and tear, there is always the risk that the concussion caused by an explosion in a neighbouring building may so dislodge the wiring as to cause a fire.