carry the cotton down, gradually compressing it, and the bat then passes between a compression roll and a stationary roll. A solid bat of cotton is thus formed which again passes on to a bale now being formed between the two main compression rolls. The pressure of the bale is produced by an hydraulic cylinder and as the bale increases in size, it regulates automatically the pressure required. By an ingenious contrivance the pressure can be regulated up to a maximum of 200 lbs. per square inch. The standard "round" bale produced is cylindrical, weighs 425 lbs., is 4 feet long, 2 feet in diameter, and its density is about 35 lbs. per cubic foot, or 50 per cent. more dense than a best compressed bale on the old system, although the average pressure exerted in making the "round" bale is only about 10 tons, as compared with 2,400 tons in making the "compress" bale.

As the tendency of modern fire prevention methods is to reduce, rather than increase, the storing capacity of each separate room in the warehouse, this advantage as to bulk is important. The Liverpool Fire Prevention Act grants the maximum of 4,000 sup. feet for warehouses, 6,000 feet for sheds of two floors, and 7,000 square feet for ground floor sheds only. As an example of what may be done in packing these bales in a small space, I may mention that in December, 1896, the largest single truck load of cotton ever carried was conveyed by the Illinois Central Railway in a box truck, the bales being made on the "round" bale system. It consisted of 160 bales and weighed 68,628 lbs.

Now the principal feature of this bale in relation to fire prevention is that it is claimed to be both fire and water proof. It is formed in a short space of time and not left about the yard to pick up dirt, sand or wet; it contains no compressed air; it is much better packed and secured, and is not only less liable to self-ignition, but should the warehouse or shed in which it may be stored be attacked by fire we have ample proof from theory, from experiment, and from practical experience, that this form of bale resists the attack of fire admirably. Various experiments have been made in placing a "turtle-back" and a "round" bale on the same fire. In favor of the former it may be said that should a fire have worked its way into a bale before it is discovered, a dash at the bands with a hatchet will release the cotton and allow water to be thrown on the burning spot. On the other hand the "round" bale would have to be unwound in a similar contingency. But it must be remembered that it is denied that a fire can penetrate a "round" bale, and if a non-inflammable covering be used in the packing, no doubt this risk will be reduced to a minimum.

An interesting experiment was made last year in Liverpool, where a cylindrical bale and an ordinary bale were both exposed to the same fire. After half an hour the fire was extinguished and the bales rolled off. The old bale fell off with bands complete, but the new bale became unrolled in the process of removing it from the furnace and the cotton blazed up. However, only a small portion was found to be alight, and this was extinguished in a few seconds, while the cotton in the old bale was still burning next morning. Prior to the test the old bale weighed 410 lbs., of this, 261 lbs. of sound cotton was obtained after the fire, showing a loss of 36·3 per cent., while the "round" bale, which weighed 504 lbs., lost 22·2 per cent., or 112 lbs. by damage from the fire.

This shows in favor of the new system and taking into account the greater density of the cotton, and under recent improvements the non-combustibility of the Hessian cloth, chemically treated, with which it is suggested all cylindrical bales should be encased, the latter have a decided advantage in the matter of fire prevention.

But leaving experiments which have been carried out in the interests of insurance offices, both in this country and America (with the result that the offices have reduced the premium on round bales by one-half), I will just mention a fire which occurred in the Rock River Cotton Co.'s works at Janesville, Wisconsin, in July last year. The official report says "the main building with machinery became a total loss. The cotton, some 40 round bales, which was lying where the fire was the hottest, and could not be reached until after the building was entirely burned out, was entirely saved. When found, only the covering was gone and about an inch of cotton scorched, the rest of the cotton perfectly dry, white and wholly uninjured. The bales with ends cut, opened as well as if they had never been burned. The water had not penetrated any at all." This latter statement is, perhaps, of primary importance, for it is well known how often more damage is done to the cotton by water than by actual fire. To repeat, I hold that the spread of a cotton fire can only be limited by giving more attention to the packing of bales, which not only governs the extent of the spread, but the extent of the salvage after the fire. As the expense of improved bales is often argued, I would only add that, as a matter of fact, what with the easier porterage, reduced insurance rates and other economies which the new bales allow for growers, shippers and merchants alike, their introduction means a material saving to all concerned, quite independent of the lesser risk, which should count for something, considering the inconvenience generally caused by fire loss, no matter how well goods may be covered by insurance.

THE STEAM GIG.

The steam gig is used almost exclusively for steaming kerseys, beavers and face goods. The upright steamer is effective, but requires too much unnecessary handling of the goods back and forth from the roll-gig, unrolling, wet gigging, and rolling again. The principal object in steaming any of the modern types of steam gigs is to keep the steam right, the cylinder