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THE PRACTICAL MANAGEMENT OF
STEAM BOILERS.

Although there are numerous treatises and pocket companions for the workshop of the machinist and engineer, there has not been as yet, in general use, any good practical rules laid down to instruct the mechanic or the owner of engines, as to the proper management of steam boilers, an all important branch of Engineering; for however accurately finished and well got up an engine may be, unless it be carefully and properly attended to, it will very soon get into a state of disorder and derangement; and one of the principal points to be attended to is the steam boiler, the only part attended with danger, as the moving parts of a steam engine are not more dangerous than those of other machinery. From the numerous explosions that are now occurring, and the apparent recklessness of those connected with them, it behoves every one who is at all conversant with the subject to contribute his quota to the general stock of knowledge which has been published. This short treatise, therefore, however humble the effort may be, is intended to draw more attention to this very important subject.

In the following remarks, the usual causes immediately preceding explosions, besides those occurring from the waste of water, viz: incrustation, corrosion, furrowing, &c., are not treated of. It is the prevention of any or all of these causes that has been aimed at. We are fully persuaded that the adoption of what is here recommended is the only certain remedy for the prevention of these causes, which are secondary in their character; the first being negligence in not keeping the boiler clean, and in not keeping a true register of its condition from time to time, which record should always be made during the cleansing of the boiler.

The First Requisites of a Steam Boiler.

The first requisites of a steam boiler, are: that it be made of good material, of the best workmanship and of proper construction; that is, besides being of good plate, well punched, rivetted and stayed, it should be of proper dimensions in the

various parts, so as to ensure more than is merely sufficient as to capacity and strength; to have manhole and mudholes and a safety valve, and a tested pressure of double the pressure intended to be carried by the boiler while doing its work. The safety valve should be of sufficient capacity to carry off freely all the steam that the boiler can make, at the tested pressure; the safety valve lever should work freely, and be accurately graduated, and mounted with a rope and pulleys, for lifting it from time to time, when necessary, to see that it is working freely, and that everything is satisfactory and safe. In setting a boiler, provision should be made for getting to any part of it for examination; and also to be very careful of those parts which are in contact with mortar. In some cases the shell has been found nearly eaten through, before being discovered, when it was in contact with lime in the brickwork. When the boiler rests on piers, a thick cast iron plate should be placed for the shell to rest upon; and even with this plate, unless kept perfectly dry, it will suffer from corrosion.

Who should be employed about a Steam Boiler.

It is of the utmost importance that the person employed to look after the boiler, as to its being supplied with a sufficient quantity of water, should be a person of previous good character; not "reckless", nor "careless," but an active, steady, and cautious person. If he has any aptitude for mechanics, so much the better. Caution, however, and a quick perception of his duties, are indispensable. His duties, though simple, are only second in importance and responsibility to those of his employer.

It is the duty of the attendant's chief, whoever he may be, employer, foreman, or engineer, to look round from time to time, to see that all is right, &c.; that the said attendant is doing his duty, by trying the gauges and noting the times he may find too much or too little water in the boiler. He should also draw the attention of the attendant to the notes he has made of such cases of neglect or carelessness, and admonish him accordingly, taking no excuse whatever. The safety valve and pump should also be examined by him at the same time; first the gauge cocks, next the safety valve and pump. Few explosions occur with such a system of inspection (along with the other inspections, to be treated of by and by), and all kept in perfect working order.

This inspection by the chief will only take up a few minutes at a time, perhaps not more than half an hour in the day when all is going right; and when anything is found wrong, although it take much