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PATCHING ENGINES AND BOILERS.

Some years ago, a little steamer called the *Flow-boy*, which ran between Detroit and a lake port, knocked the bottom of her cylinder out, and was laid up for repair. The engine was of the beam class, and the bottom of the cylinder and the nozzle, which the lower steam chest is bolted to, were in one piece. A new casting was soon applied and the boat went out again. She had scarcely made one trip, however, before the same accident occurred again, this time from a wholly different cause. In the first disaster the bottom was knocked out from the breaking of the piston rod, but in the second it was from the inequality in the ratio of expansion between the new metal and the old. Since there was nothing to compensate for this, no way in which the weaker could yield a little to the stronger metal, the bottom and side of the cylinder were rent away, and the last end of it was worse than the first.

A serious accident which recently occurred to a steam boiler in England, shows what may happen when they are improperly repaired.

The boiler in question was twenty-five years old, but had not been in use during the whole of that period. It was a plain cylinder boiler, 30 feet long, 9 feet diameter, and made of  $\frac{3}{8}$  iron, in the usual manner, while the safety valve was loaded to a pressure of but 40 pounds to the square inch.

This boiler gave way over the furnace, and was repaired there, by having a new sheet put in. Immediately after, the boiler exploded, killing one man and injuring five others. The seat of the rupture was at the junction of the old and new metals, tearing the old sheet through by the line of rivets. The direction of the break was in the length of the boiler for five feet, when the rupture developed transversely and tore the boiler into three pieces, one of which was thrown 200 yards from the original locality.

Many persons would say that this is extraordinary, and instead of looking in the right direction seek, to mystify themselves and others by elaborate theories,

but the cause was plainly the weakening of the old plate by the strain imposed on it in putting in the new.

It is not a little singular, and significant that while the inspectors in England who have charge of those excellent institutions for the prevention of steam boiler explosions, denounce the cylinder boiler in such terms as these: "the recommendation is not given without good reason, that boilers of this treacherous, plain, cylindrical, externally-fired construction, should be discarded for those fired internally, which are much more reliable," a few unthinking persons at the West are endeavoring to have tubular boilers rejected and these "treacherous, plain, cylindrical, boilers" substituted instead.

"HOT ENGINEERS."

While public attention seems to have been directed not unreasonably, to the disastrous boiler explosions at the West, another class of men are changing the order of things, and seem to be turning their efforts in the other direction, endeavoring to destroy boats and boilers as fast as possible.

A letter recently received from a correspondent at Beetown states that on the Western waters, particularly the Upper Mississippi, the most reprehensible practices prevail. Engineers are sworn to carry not over one hundred and fifty pounds pressure, "but," says our correspondent, "they do not consider their oath binding;" therefore they proceed to alter the gages. Two hundred and two hundred and fifty pounds to the square inch, is not uncommon. "Men that refuse to work the boilers at such pressures are not in great demand." Our informant says: "Here you may wonder how it is that the passengers do not discover this." In the first place the gages are so set that the passengers would have to go on the foot board of the engine to see them, and he would be a bold man who would do that where he wasn't wanted; and in the next place, the face of the gage is taken off and the hand changed, so that there will be fifty or sixty pounds pressure in the boiler before it indicates at all. Instead of this, however, a good many who wish to be popular with the captain and crew, and be known as "hot engineers, without the risk, practice the reverse and set the gage the other way, so that it will show fifty or sixty pounds cold." It must be confessed that of the two, this is much the best deception.

The men also shut off the cock on the gage partially, so that it will show incorrectly. "Hot engineer," we take to mean a reckless man, and if these persons habitually break the laws and take oaths which they "do not regard binding," their places should be supplied by others.

CITY REFORMERS.

The Legislature of New York has blessed this city with a most admirable health law, and the Commissioners, of whom Jackson S. Schultz, Esq., is the President, are working with great energy to carry out the provisions of the bill, and already our hitherto dirty streets, and many other abominable nuisances that have festered here under municipal misrule, are being cleaned up and removed.

We called on Mr. Schultz a short time since to inquire if the inhuman system of driving droves of animals through our crowded streets could not be abated. He assured us that the whole thing would be stopped in less than three months, and, furthermore, that the slaughtering of animals in the thickly settled parts of the city would also be stopped. This business is hereafter to be carried on outside the city limits.

The new License Law has been placed under control of the Health Board, and the Commissioners are determined to so fix the licenses that liquor sellers shall hereafter pay the expenses of our police force, for the reason that most of its duties arise from the sale of intoxicating liquors. Commissioner Acton declared that seventy thousand persons were arrested last year for crimes that were directly traced to the influence of liquor. It was decided by the Board of Commissioners that there should be two classes of licenses—the first to pay \$250, the second, \$100, which at present calculation would yield an annual revenue of over one million dollars.

Verily the world moves; the millennium is coming.

ILL VENTILATED, OVER CROWDED SHIPS.

The steamship *Virginia* arrived at this port recently with a large number of passengers, many of whom were on the sick list. She was immediately put in quarantine, the sick cared for and isolated from the city until cured.

Investigations made by the proper officers show that none of the passengers came from ports infected with cholera, and that it was not until some eight days after the departure of the *Virginia* from Liverpool, that disease broke out on board. It appears that the ventilation was so defective that the passengers suffered greatly, and being enfeebled by bad air and insufficient food, poor in quality, were especially liable to attack. That many died is not to be wondered at. But it seems passing strange, however, that with all the modern appliances for obtaining fresh air and creating a thorough circulation in apartments, that so little attention is paid to it. On ship board, of all other places, this matter is easy to regulate. The loss to the owners by the detention of their vessel amounts to a large sum, and if not for humanity then for the pocket's sake, a little more interest in the welfare of the steerage passengers would pay. Every person who has been to sea, however, in a steamship, must acknowledge that the officers are not always to blame in this matter. When there are only one hundred passengers it is a matter of the greatest difficulty to get those in the steerage to behave with common decency. They defy persistently all the laws and rules of the ship, not perhaps in all cases to be ugly, but from their inability to comprehend the importance of them. Tell a man who has lived thirty years without ever being really clean, that if he does not instantly change his habits he will lose his health and life, sooner than heed the advice he will die, and his fellow by his side will die from the same cause.

They prefer to skulk away in their berths, to grovel in filth in the darkest corners, to be dirty when it is easier to be clean, because that is the way they have always lived. It requires close watching and strict discipline to preserve even an ordinary degree of health in emigrant vessels at all times, still more when epidemics rage.

In view of these facts the strictest quarantine should be enforced, and if legislation is necessary to security, certainly those in authority should see that nothing is omitted.

AGRICULTURAL EXHIBITION IN BRAZIL.

Senor D'Aguiar, the Consul General of Brazil, has handed us the rules and regulations that are to govern the "Exhibition of Agricultural Implements," which is to open at Rio Janeiro on the 19th of October next. These rules are published in another column. The Consul General informs us that already agricultural implements made in the United States have been introduced into Brazil to a considerable extent, and the future promises greater encouragement. Our manufacturers of farming implements are generally very enterprising, and if the prospect of reward is sufficient they will enrich the Brazilian exhibition with some of their best productions.

How to Preserve Newspapers.

H. R. Heyl, of Philadelphia, has recently secured a patent for an adhesive binding tag which is an excellent article for temporarily binding newspapers, magazines, music, and other documents. Each of these tags has a string loop secured to it, and by punching through the edges of the sheets and sticking on two or three tags on the inner fold of the sheet, a string can be passed through the loops, and when tied makes the sheets secure. For a single number of the SCIENTIFIC AMERICAN three tags are enough, and two sheets of pasteboard, provided with suitable metallic eyelet holes, can be used for covers.

The tags are put up 200 in a box with punch and strings for tying up the sheets after the tags are stuck on. We can supply the boxes at our office sent by mail at \$1. If a portfolio with leather back is wanted, the price of portfolio at the office is \$1 25, or \$1 50 by mail.

A LATIN journal, in Paris, will be a literary curiosity, equal to the Chinese journal announced for appearance in London. It has begun business under the title of *Apis Romana*.