Improved Steam Gage.

On page 375, volume XXIII., of the SCIENTIFIC AMERICAN, in an article headed "Safety *versus* Economy in Steam Boilers," we expressed our opinion that "unsafe boilers should be legislated out of the market, if possible," etc. Since we thus wrote, the daily journals have given accounts of several sad disasters from "Boiler Explosions," on land and water, which are doubtless to be attributed either to imperfect construction, or to the unfaithfulness or incompetency of employés—provided the owners themselves were not in fault, from unworthy pecuniary considerations. Not seldom do the latter force their employés to use apparatus which they know to be extra hazardous, or of the safety of which, at least, they have no assurance. We feel justified in the inference that the party who sells and the one who buys a boiler second-hand, for one fourth its first cost, cannot be ignorant of the probable existence of defects from which serious consequences may result. If, however, they persist in the use of such boilers, they endanger lives and property criminally.

We also stated in the article alluded to, that it is somewhat difficult to frame a law the enforcement of which would secure proper care in the attendance of boilers, and their usual attachments, or to conceive any system of legal inspection which would be sufficiently stringent with one class, without having conditions that would be onerous in their bearing upon others.

Such being the case, we must look for some mechanism to be used in connection with the various adaptations of steam, both as a power and in its general application as a vehicle for transmission of heat, which will afford greater security to the public against foolhardiness, presumption, ignorance, and irresponsibility.

Pertinent to this subject, we present to our readers an illustration and description of Edson's Recording Steam Gage, an invention which received the first premium at the late Fair of the American Institute, and which seems to meet a long-felt want. This instrument will doubtless be as fully appreciated in its practical use as it already has been in anticipation. We have evidence that the charts, or steam-written "logs" it affords, are considered by the life, fire, and marine underwriters, as reliable vouchers of the care exercised by those in charge of steam, and that they consequently are valuable to them in determining risks which they assume. If, as is claimed by the inventors (who have been several years secretly perfecting these steam gages, before submitting them to public inspection), these instruments shall prove to be more reliable for accuracy in denoting the steam pressure than the gages heretofore used, in addition to their recording features, users of steam will not fail to discriminate in their favor. A watchman of this kind will supervise machinery and workmen with more fidelity than many a living watchman. An alarm gong is continuously sounded when any limited pressure is exceeded.

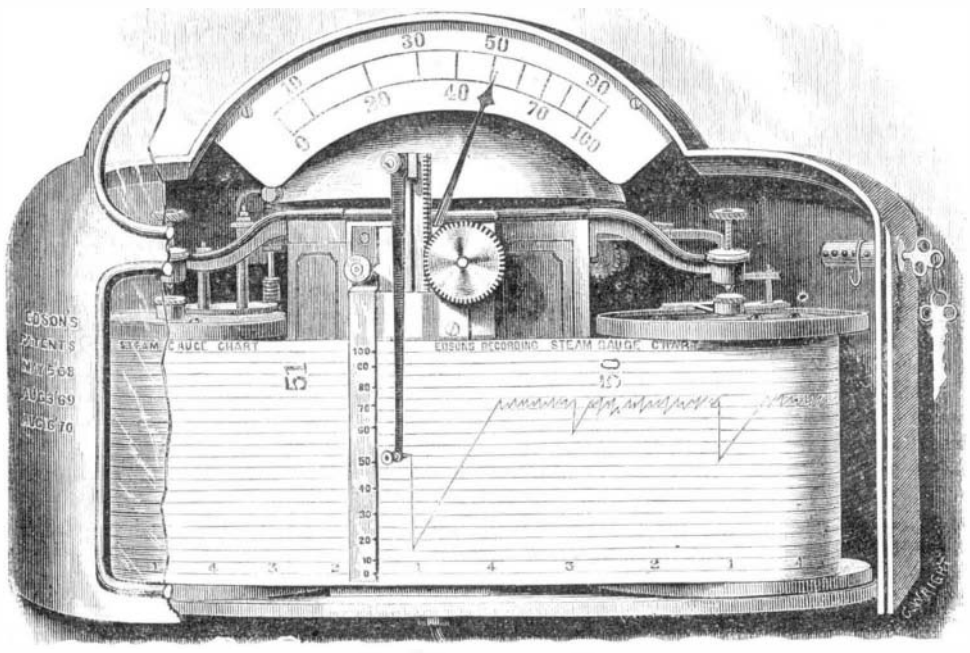
One of the charts will last for several months, and portions may be removed from time to time and filed away for future reference. The cut needs but a brief description. The steam enters by an ordinary pipe coupling into a series of circular, horizontal chambers, placed behind the pencil bearing, and by expanding, the former is made to operate the gear, causing the pencil to move upward in proportion to the degree of steam pressure, and ringing the alarm when the previously fixed limit is reached. The reverse movement of the gear, produced during the reduction of pressure, moves the pencil downwards, simultaneously with the rotary motion (given by means of a horizontal rack and lever operating a pawl within the upper rim) of the receiving drum, and, in consequence of the motion thus given to the chart, the pencil is made to trace an oblique line, invariably in proportion to the fluctuation or reduction of pressure. A vertical line always denotes degrees of increasing pressure.

The chambers consist of pairs of corrugated steel disks, each disk, as well as the other motive parts, being nickel-plated, to prevent them from corrosion, even in a saline atmosphere.

The vertical scale is placed at the left of the pencil, as a guide for the chart; also for greater convenience when marking the pressure upon the chart, previous to its removal. The charts are divided into sections, numbered consecutively "50," "51," etc., the sections being sub-divided into four parts, marked 1, 2, 3, 4.

The instrument is secured with a combination lock, and may be placed in the cabin of a steamer, or office of the commander, as well as in an engineer's or superintendent's room, when required. It is adapted to locomotive, stationary, and marine boilers, of high or low pressure, and to any vessels sustaining internal pressure, as gas receivers, stills, soda fountains, etc.

It was patented in the United States May 5, 1868, Aug. 3, 1869, and Aug. 16, 1870; also in several foreign countries. Manufactured and sold solely by "The Recording Steam Gauge Company of New York," 91 Liberty st., New York.



EDSON'S RECORDING STEAM GAGE.

A Queer Capture of Telegraph Apparatus.

At Manheim there is on exhibition a telegraphic apparatus, taken from the French, which is to be sold for the benefit of the captor. It was obtained in the following manner: A certain dragoon of the Baden Guards, by name Muench, with two of his comrades, was sent to reconnoitre as far as the Vosges. They had to pass through the village of Raon l'Etampe, the simple inhabitants of which place had not, as yet, seen any Germans. On the entrance of the three armed dragoons they fled in every direction, with the cry of "The Prussians! the Prussians!" and shut themselves up in their houses. Thus left masters of the town, the dragoons, coolly smoking their cigars, rode to the Town Hall and summoned the *Maire*. He soon came, pale and trembling. They asked him where the Telegraphic Bureau was located. He pointed it out, and they at once went to it, and Muench singly, and in the presence of the assembled City Council, cut the wires, unscrewed the apparatus, and buckled it on to his horse. The three dare-devils then coolly mounted and rode away. The commandant of the place, on learning what had happened, declared that he could not survive the dishonor of having commanded in a town of 8,000 inhabitants, where three of the enemy's men were allowed to enter and work their own will, and shot himself dead on the spot. The apparatus is worth about 600 francs, and was presented to Muench, on his return to camp, by his commanding officer.

MERRIMAN'S IMPROVED WATER-PROOF DRESS AND LIFE PRESERVER.

The accompanying engravings represent C. S. Merriman's patent water-proof dress and life preserver ready for use, and a detail of the same.

It consists of two parts; namely, pantaloons and coat joined at the waist, so as to be water-tight, by means of a metallic ring and elastic rubber bands, as shown in Fig. 2.

The coat is provided with a hood, which covers the head, leaving an aperture about the nose, eyes, and mouth, which is surrounded by a band of elastic india-rubber.

The neck of the garment is made of a size sufficient to allow the head to pass up through into the hood, which has a lining extending down the back of the neck in such manner as to form an air chamber. When unfolded the air chamber presses upon the back of the head of the wearer, causing a tendency to push the head forward out of the opening, and causing the flexible rubber to be drawn smoothly and tight about the faces so as to exclude water from pressing in.

The front and back of the coat are also lined, and are inflated by means of the tubes shown. Vertical partitions in the middle of the front and back of the coat, and also at the side seams, divide the space between the outside of the coat and the lining into four air chambers, besides the one at the back of the head. The sleeves terminate with rubber gloves, as shown.

The bottom of the coat is provided with an elastic rubber band, three inches wide, and one sixteenth of an inch thick. The inside and lower edge of this band for a width of one inch is left three sixteenths of an inch thick, with the projection on the inside, and square shoulders at the top, as shown in the detail.

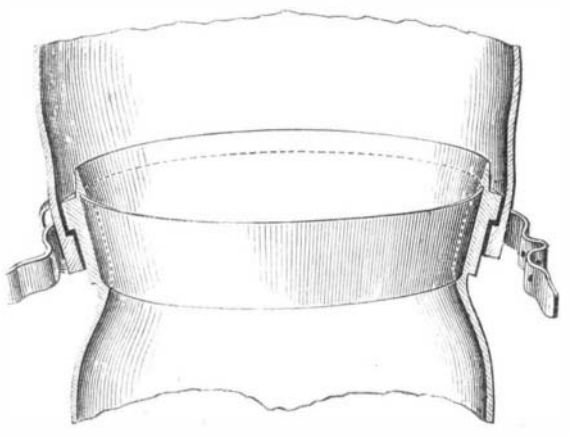
The pantaloons are provided with a ring or band of metal or other rigid material, sufficiently large to pass over the hips of the wearer. Said band is made flaring, with the large side up, and is put between the inner lining and outside material at the top of the pantaloons. A rubber band, two and one half inches wide and one eighth of an inch thick, is then drawn smoothly about the first even with its upper edge, and all firmly cemented together.

The pantaloons are lined down to the knees, and are inflated by means of rubber tubes which pass in at the pockets. The lower portions of the pantaloons terminate with tight boots.

When the coat and pantaloons are joined together, the bottom of the former is drawn over the top of the latter, so as to have the thicker portion of the rubber band on the coat below the thicker portion of the similar band on the pantaloons. The joint then forms a dovetail or lock-joint, as shown in the detail. The whole is now secured by means of a strap buckled tightly over the joint. The strap is secured in its place by small loops or thimbles placed at intervals about the rubber band of the coat.

On the 18th day of October, 1870, the inventor, as we learn from a Western exchange, swam and floated fully three miles in the Missouri River in presence of many spectators. The water was very cold, ice having formed a quarter of an inch thick the night before. On coming from the water he found himself perfectly dry, warm, and comfortable. On the 19th day of December, 1870, he gave an exhibition off the Battery, at New York, with equal success, which exhibition we had the pleasure of witnessing, and from which we formed a very favorable opinion of the usefulness of the device as a life-preserving apparatus.

The dress is convenient to carry, weighing only from ten to fifteen pounds, and when folded, being easily packed in a carpet bag. It can be put on and adjusted in from two to three minutes, and when properly put on excludes the water perfectly. When the dress is fully inflated the body is surrounded with a stratum of air, and lies with the utmost ease upon this elastic cushion. The non-conducting property of this layer of air, and the material of which the suit is made,



keeps the body warm even in a very cold atmosphere. The body floats about one third above the surface, and the head rests on the elastic pillow formed by the inflated hood. We judge from the experiment we witnessed, that, under favorable circumstances, a man in this dress could swim from two to three miles in an hour without exhaustion.

Patented in the United States, August 10, 1869, and subsequently patented in most of the foreign countries through this office. Communications may be addressed to the inventor, Mr. C. S. Merriman, 363 Broadway, New York.

THE lessons of the war to surgical science are beginning to be published. One of the most remarkable facts made known from the hospital reports is that the French soldiers have suffered more from the Prussian shells than from the needle gun and bayonet combined. This is contrary to usual experience, which has reckoned artillery more powerful to frighten than to harm; but it agrees with Napoleon's reported remark to King William at Sedan, as to the marvelous precision of the German cannoneer. It is also said that the needle-gun bullets, though larger than those of the chassepot, do not penetrate the flesh so far, and so make less serious wounds. The sword bayonet used by the French is a much more savage weapon than the old-fashioned triangular blade, which is still retained by the Prussians. Shell wounds are generally found to heal very easily if no bones are fractured

IT is said that in the Antarctic seas there are sea weeds which have stems about twenty feet high, and with a diameter so great that they have been collected by mariners in those regions for fuel, under the belief that they were drift-wood. They are as thick as a man's thigh.