Lieut. Wise's Escape.

Lieut. H. D. Wise, stationed at Governor's Island, who has been experimenting with man-carrying kites, had a narrow escape on October 21 from being a victim of his own experiments. The kites used were of the well known Hargrave type which we have before described. They are flown three at a time. The half inch rope was attached to a windlass to take up the strain.

Attached to the cable, about a foot below the lowest kite, was a pulley, from which was rigged a boatswain's chair, one end of a line through the pulley block being attached to the chair and the other being left free. The purpose of this was to enable the observer to take his seat after the kites had been raised to a point where they would be steady. The pulley rope was 2,500 feet long and capable of sustaining a weight of 900 pounds, while the kites were planned to lift a weight of 186·9 pounds. The lieutenant weighs about 130 pounds.

As the kites were raised, the chair was held down on the ground, while the other end of the rope was payed out along with the kite cable, until the kites had attained a height of 200 feet. They were then held taut, and the chair and lanyard were carried to a point immediately beneath them.

The lieutenant seated himself in the chair and was about to make the free end fast, after which the kites were to be permitted to ascend, carrying the observer up with them. Just at that moment there was a slacking of the cable, the pulley fell to the ground, and the kites, tumbling and diving, gradually settled to a point back of Fort Columbus, just south of Castle William. It was found on examination that the central spine of the lowest kite had broken and the kite itself was torn in pieces. This had released the cable and pulley. Lieut. Wise has been conducting interesting kite flying experiments for some time.

A New Port for Russia.

Russia has at last determined to secure access to the Atlantic, and work is actually being begun by the Muscovite government for the construction of a new port and city at a place called Ekatrinograd, situated on the Murman coast of Lapland, between the White Sea and the Norwegian boundary, and at a point which, thanks to the Gulf Stream, is free from ice the whole winter through. A line has likewise been begun to connect by rail the new port with St. Petersburg. The building of this new city and port on the dreary shores of Russian Lapland bids fair to prove one of the great events in Russian history, comparable only to the construction of St. Petersburg, by Peter the Great, at the mouth of the Neva. At the present moment the access to all Russia's ports in the north could be barred by the powers holding the entrance to the Baltic, while in the same way it is the power commanding the entrance to the Dardanelles upon whom the Czar must depend for access to his ports in the southern portion of his empire. The possession of a great port opening out upon the Atlantic will vastly increase the importance of Russia as one of the great maritime powers of the world.

CLAY PIPE BINS FOR WINE CELLARS.

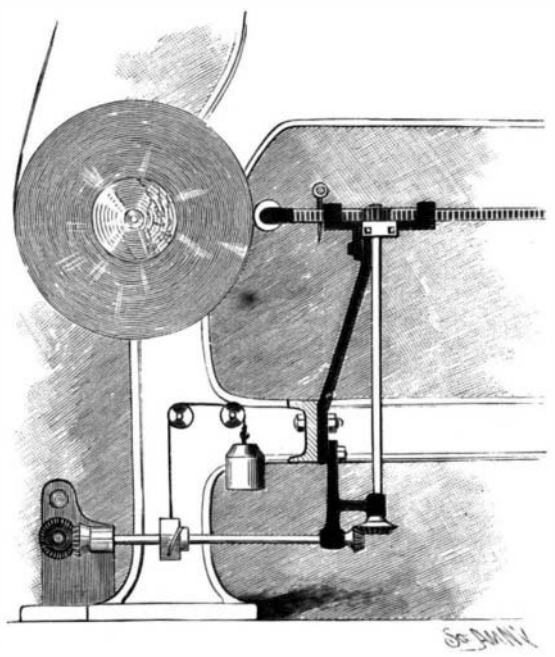
The illustration represents a method of storing wine in cellars designed to be a great improvement upon shelving and metal racks. Clay pipe wine bins, such as shown in our illustration, have been known in England for some years past, where the price of such clayware bottle racks is about fifty cents per dozen. The pipes, being separate, are easily transported and stacked in any required position, though in new buildings they can be built into the wall, thus giving a foot more of room in the cellar each way. The crushing resistance of these pipes has been proved to be over sixteen tons per square foot. The advantages claimed for them are simplicity, cheapness, firmness, durability, freedom from corrosion, adaptability to spaces of irregular form and odd corners, and a great number of bottles can be stored in a given space. Each bottle, having a separate chamber, is protected from currents of air and sudden changes of temperature, and the breakage of one bottle cannot affect another. Being porous, the tubes will absorb water sprinkled over them, and the evaporation that ensues will materially reduce the temperature; so that when wines and aerated waters are required to be kept cool, the tubes may become a simple and ready form of refrigerator. Weeping bottles can be detected at a glance, each tube being longer than the bottle. Any clay that will make a good drain tile will do equally well for these tubes.

HONEYCOMB WINE BINS OF VITRIFIED CLAY PIPE.

THE quantity of oxygen abstracted from the atmosphere by an acetylene gas flame is much less than that required for the combustion of ordinary lighting gas. For a given illuminating power the acetylene flame raises the temperature less than does that of lighting gas.

AN AUTOMATIC LET-OFF MECHANISM FOR LOOMS.

The illustration represents a mechanism whereby the reduction of tension called for in consequence of the unwinding of the yarn from a loom warp beam, and consequent change in diameter and power of purchase, can be governed automatically and correctly, from a full to an empty beam, with one setting of the mechanism, on the weight and lever principle. The mechanism has no connection with any running or moving part of the loom except the free roller which bears against the warp on the beam, and all the parts



FORBES' LET-OFF MECHANISM FOR LOOMS.

are so arranged that the operator cannot, without using a wrench, put in fewer picks of filling per inch than the mechanism is set and loaded for. The improvement has been patented by Arthur A. Forbes, of St. Hyacinthe, Canada. Our illustration is a rear view at one end of the loom, showing the bearing of the free roller on the yarn on the beam, the roller being journaled in a fork integral with a rack sliding in a frame, and the rack having an aperture in which may be placed a pin to limit its movement when it is moved to set the mechanism. The rack may also, by means of engaging lugs and a screw in one side of the frame, be moved to bring it into or out of engagement with a pinion on a vertical shaft at whose lower end is a bevel wheel engaging a similar wheel on a horizontal shaft. On the latter shaft is a scroll or pulley having a spiral groove, which receives a wire passing over pulleys on the loom leg to a weight attached to its other end. The other end of the shaft is connected by bevels to a shaft extending longitudinally of the loom, and on the latter shaft is a pinion engaging a loose pinion on a parallel shaft above. On this upper shaft are pulleys, not shown in the illustration, to each of which is connected one end of a friction band encircling the head of the beam, there being a friction band for each head, and on the shaft are also rigidly secured parallel arms or levers on which runs a car propelled by a chain from the loose pinion, and the car may be locked so that the operator cannot interfere with the weight. The arrangement is such that, upon a proper adjustment, the predetermined position of the car always corresponds to the proper position of the free roller relative to the center or axis of the beam, and the leverage exerted by the weighted car always has a predetermined relation to the distance of the roller from the center of the beam. When the roller has come in contact with the yarn, it gradually follows the reduction in thickness which ensues as the yarn is reeled off the beam, and simultaneously the car travels on the levers to gradually reduce the pressure of the friction bands upon the beam heads. The mechanism is designed to suit any unusual make of loom and comply with the requirements for any class of goods.

"Chronophotography."

"Chronophotography," or that branch of instantaneous photography which faithfully records movement phases, claims more attention than it has hitherto received in connection with its application to medical subjects. M. Marey, the eminent French physicist and physiologist, was among the first to elaborate the chronophotographic method and to extend it to fields of interest in medicine. Everybody is familiar with the zoetrope, an instrument which, when set revolving, portrays some moving figure—e. g., a horse in full gallop. Formerly the pictures—each of which represented a different stage of movement—were drawn by hand, but now by the introduction of photography the zoetropic representation of motion has been brought to a beautiful degree of perfection. The application of chronophotography to the study of the vital processes of the movements concerned is extremely interesting. Thus a very accurate observation of the movement of the blood in capillary vessels may be observed, and among the facts brought to light is that the circulatory current, though appearing very swift to the eye, is in reality a very sluggish stream. Very curious movements also may be observed in zoospores. "The movements of the zoospores may be followed throughout by observing in a series of photographs the successive position they occupy in the mother cell. But no adequate description could be given to those who have never watched the phenomenon of the activity which reigns within the cell, and only ceases when all the zoospores have succeeded in effecting their escape." Chronophotography has also afforded fresh information of a most important and interesting kind as to the nature of physiological movement, and particularly has this been so in the case of the analysis of cardiac movements by this means. Thus experiments have led to the knowledge of the order and sequence of the auricular and ventricular movements from the changes in pressure which they express. It has been shown that the diastole of the ventricles coincides exactly with the systole of the auricles. Obviously the study of such minutely accurate observations is of the utmost importance to medical science, and we are glad to find that this extremely delicate method of recording movement is likely to become of more general interest and of more extended application now that an excellent and well translated little work on the subject* has been published, which we strongly recommend to the notice of our readers.

The Destruction of the Colosseum.

The Colosseum was made to stand forever. If we gaze at it from the east side, where it appears still intact, we are forced to exclude the possibility of a spontaneous collapse of such a substantial structure. Yet the repeated concussions of the earth in the fifth century may have caused a crack or rent like the one which cuts the Pantheon on the side of the Via della Palombella. If such an accident occurred in the Pantheon in a solid wall fifteen feet thick, built by such an experienced architect as Hadrian, it is even more likely to have happened in the Colosseum, the outer belt of it being of stone without cement, and pierced by three rows of arcades and one row of windows. The equilibrium once destroyed, the results are obvious, especially if we remember how quickly arborescent plants and trees take root and prosper in the dry soil of an abandoned building. The stones on the edges of the crack must have been lifted or wrenched from their sockets by the roots wedging themselves into the joints and acting as levers. Readers familiar with the vignettes of the Colosseum of the sixteenth and seventeenth centuries will remember how exactly they represent this process of disintegration of the edges, stone by stone. When Pius VII determined to build the great buttress to support the edge of the outer belt on the side of the Via di S. Giovanni in Laterano, he was obliged to employ convicts serving for life, promising them a reduction in the term of imprisonment if they succeeded in propping it up. The danger was such that the forest of timber used in the scaffolding could not be removed while the masons were progressing with their work, but had to be left embedded in the thickness of the supporting walls.—Prof. Lanciani in the Atlantic.

* Movement. By E. J. Marey, Professor at the College of France, Director of the Physiological Station. Translated by Eric Pritchard, M.A., M.B., B.Ch. Oxon. With 200 illustrations. London: William Heinemann. 1895