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IMPROVED AUTOMATIC FIRE ESCAPE.

The accompanying engraving represents a new fire escape, whereby a person may escape from a burning building without the help of any one else, and with no exertion on his part beyond the buckling on of a simple belt. The device is entirely automatic, and is claimed to let down heavy or light weights without change of speed. Its mechanism is positive and free from springs and catches, and its construction is sufficiently strong to guard against accident by break age.

The lowering rope to which the belt which the person escaping buckles around him is attached, is wound upon a drum, on the shaft of which is the bevel gear wheel shown. Meshing with this wheel is a bevel pinion (not exhibited in the engraving) on the vertical shaft, A. The upper portion of the standard, B, in which the drum shaft is journaled; and in which also steps the shaft, A, is flared to receive the bevel pinion. The latter engages with the gear wheel through an opening in this flared portion. On a sleeve which traverses on the shaft, A, is formed the inverted cup or hollow conical frustrum, C. Also on the sleeve is attached the crossbar which receives the lever arms of the ordinary ball governor shown.

It will be obvious that when the drum is caused to rotate by the drum unwinding as a person descends, the governor will likewise be revolved, and the balls will fly out more nearly horizontal as the speed augments. But as the balls move outward their levers carry downward the sleeve on shaft, A, and consequently jam the cup, C, over the stationary flared portion of the standard. The cup thus acts as a brake which is the more closely applied in proportion as the velocity of descent increases. The machine is intended to be bolted on the floor inside the apartment and hence is protected from the weather. After the rope has been unwound it can easily be wound up again by a handle, or the drum may be made double as shown at the right of the engraving and have two ropes upon it—either hemp or wire as indicated—wound in reverse direc-

tions. Then when one rope is unrolled, the other is rolled. Belts with simple buckles are attached to each.

Patented August 28, 1877. For further information address Mr. Charles Leavitt, 453 Prospect street, Cleveland, Ohio. E. Dunbar, agent, 31 Courtlandt street, New York.

Effect of Salt Water on Candles.

Some candles which had been sunk in the wreck of a vessel off the Spanish coast for about 173 years have been examined by Professor Gladstone. The wicks had all rotted away,

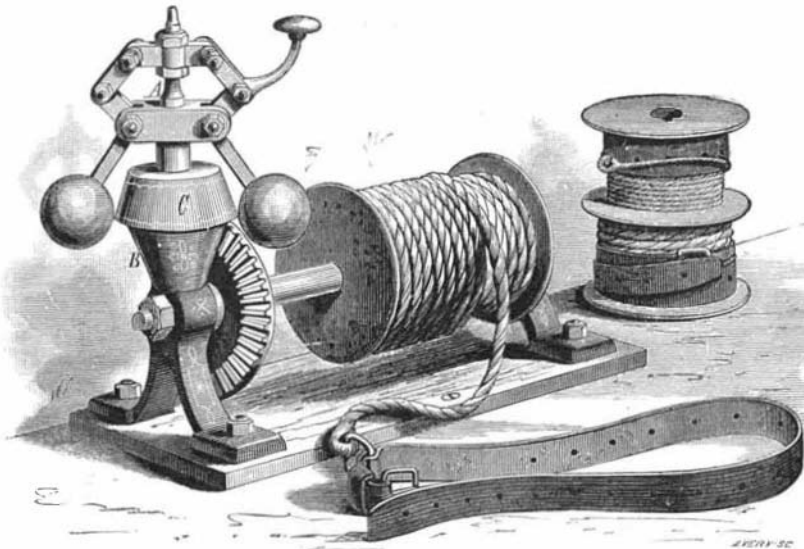
length of time the fat had been exposed, the reaction had only been about one half accomplished.

AN OBELISK AT SEA.

We have already described the manner in which Cleopatra's needle, the obelisk presented by the Khedive of Egypt to the British Government, has been built as it were in a vessel, and so made ready for the voyage to England. The annexed illustration represents the Cleopatra, as the vessel containing the stone is called, *en route*. The following particulars of the launch of the ship we take from *Engineering*. The cabin recess of the ship was filled with old rails to balance the eccentrically placed obelisk, and the cylinder was lagged with 6 inch planks for a length of about 12 feet at each end, in order to protect the iron skin against possible injury from the stones on the sea bed. Some half dozen screw-jacks were ranged along the cylinder to start it down the incline, which had been formed of quarry rubbish from the shore to the point where the cylinder would float, and a couple of lighters with winches were moored ahead to haul on the wire hawsers, which were wound five times round the cylinder at each end. The screw-jacks were manned, and the ship went slowly and surely ahead, making in the course of the day two attempts to run off to sea, amidst the cheers of the lookers-on, but stopping each time after about a quarter of a turn had been made, so that at sunset the cylinder had advanced into but 3 feet of water.

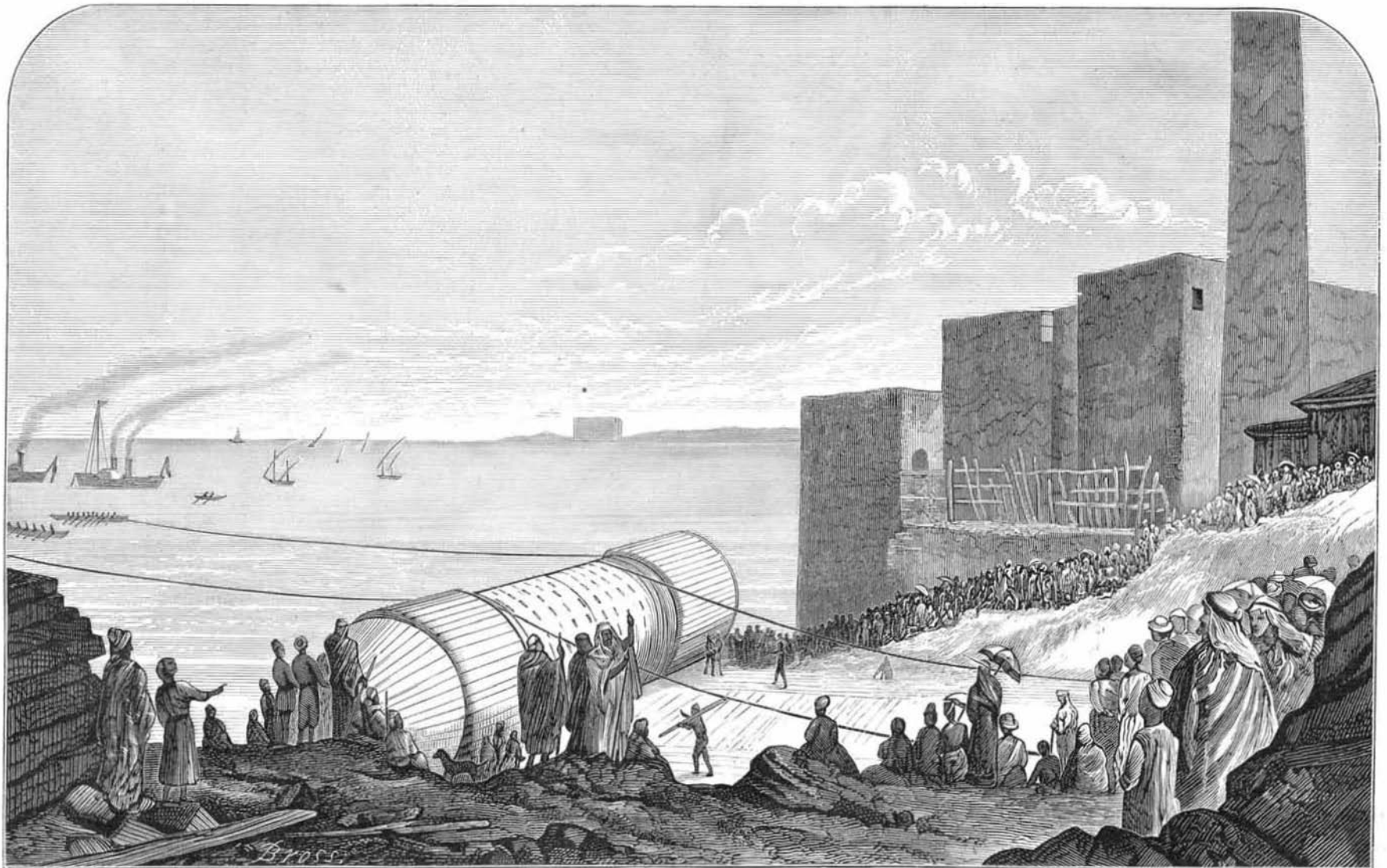
On the morning of the second day the jacks were set to work again, and with the help of the tugs the cylinder took a fine roll into about 7 feet of water, and then to the disappointment of all again pulled up. The tugs were backed and ran at the hawsers again and again, until towing tackle and almost everything was smashed, except the splendid steel wire hawser. It was then discovered that the cylinder was full of water, and the manhole covers being downwards, it was considered probable that one of them had been torn

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AUTOMATIC FIRE ESCAPE.

and the fat had been converted into a heavy substance of a dull white color by the action of the salt water. After the fat had been removed by ether, there remained carbonate and chloride of calcium and sodium, with traces of potassium and magnesium. The calcium, though less abundant than sodium in the ocean, had apparently the greatest influence in effecting the change noted; but notwithstanding the



CLEOPATRA'S NEEDLE.—LAUNCH OF THE OBELISK AT ALEXANDRIA.