NOVEL SWIMMING DEVICE.

Our engraving represents a simple apparatus for the use of bathers and persons unable to swim, the invention of Mr. A. Gamonet, of Lyons, France.

Inflated India-rubber bags support the swimmer, and enable him to sit upright with head and shoulders above water, so that he can propel himself. The principal novelty of this contrivance lies in the propelling device, which is constructed so as to collapse when pulled forward, and to spread open when pushed back, like a duck's foot when swimming. The propellers are suspended by chains or cords attached to the buoying jacket.

NEW INVENTIONS.

Mr. William C. Beattie, of Taunton, Mass., has patented improvements in jewel cases and analogous articles; it consists in a stand or case, having a stationary bottom portion, a stationary and elevated top or cover, and two standards connecting the said top and bottom portion and forming a handle, in combination with one or more receptacles hinged upon the standards and folding horizontally between the stationary top and bottom portions.

A new key ring, which can be easily opened and may be locked securely, has been patented by Mr. Bryant H. Melendy, of Battle Creek, Mich. The invention consists of a flat ring a part of which is straight and provided with a cut, thus forming two ends and permitting the ring to be bent sidewise for admitting the keys. One of the ends of the ring is provided with a small shoulder, and a clasp is pivoted to the other end, which clasp swings over the end with the shoulder and locks it.

Mr. William E. Ferguson, of New York city, has patented an improved device for preventing the shifting of grain cargoes in vessels, and to strengthen the vessel at its weakest point, or at the point exposed to the greatest strain when the vessel is loaded to the dead-weight capacity with a cargo of grain.

Mr. William C. Beattie, of Taunton, Mass., has patented an improvement in pickle casters, butter dishes, jewel cases, sugar dishes, and other analogous covered dishes, which is designed to raise the cover of the article and maintain it in an elevated position.

An improvement in automatic car couplings has been patented by Mr. Orlo H. Drinkwater, of Cedar Point, Kan. It consists in a peculiar construction and arrangement of parts which cannot be clearly described without engravings.

A water and wind mill, which the inventor designates as a "wing-motor," of especial simplicity of construction, automatic in the adjustment of its sails, and capable of utilizing a large percentage of the power of the wind and current of water, has been patented by Mr. Jean L. Nevers, of Pass Christian, Miss.

Mr. Robert F. Dobson, of Darlington, Wis., has patented improvements in that class of weighing scales in which the weight of the object to be weighed is made to deflect a lever over a curved scale bar, and throw a weight carried by the lever into a position approaching more nearly the horizontal, in which the leverage of said weight is greater.

Messrs. Charles H. Spray and Edward M. Bush, of Seymour, Ind., have patented an improvement in the class of ovens of cooking stoves and ranges whose doors have a movable shelf so connected therewith that the opening and closing of the doors will slide the shelf along the bottom of the oven. The improvement relates to a shelf or false bottom, which is made the full size of the true bottom of the oven chamber, and is supported in guides and moved out and in, as the door opens and closes, by means of a rack and a segmental toothed lever that is connected with and operated by the door.

NOVEL SWIMMING DEVICE.

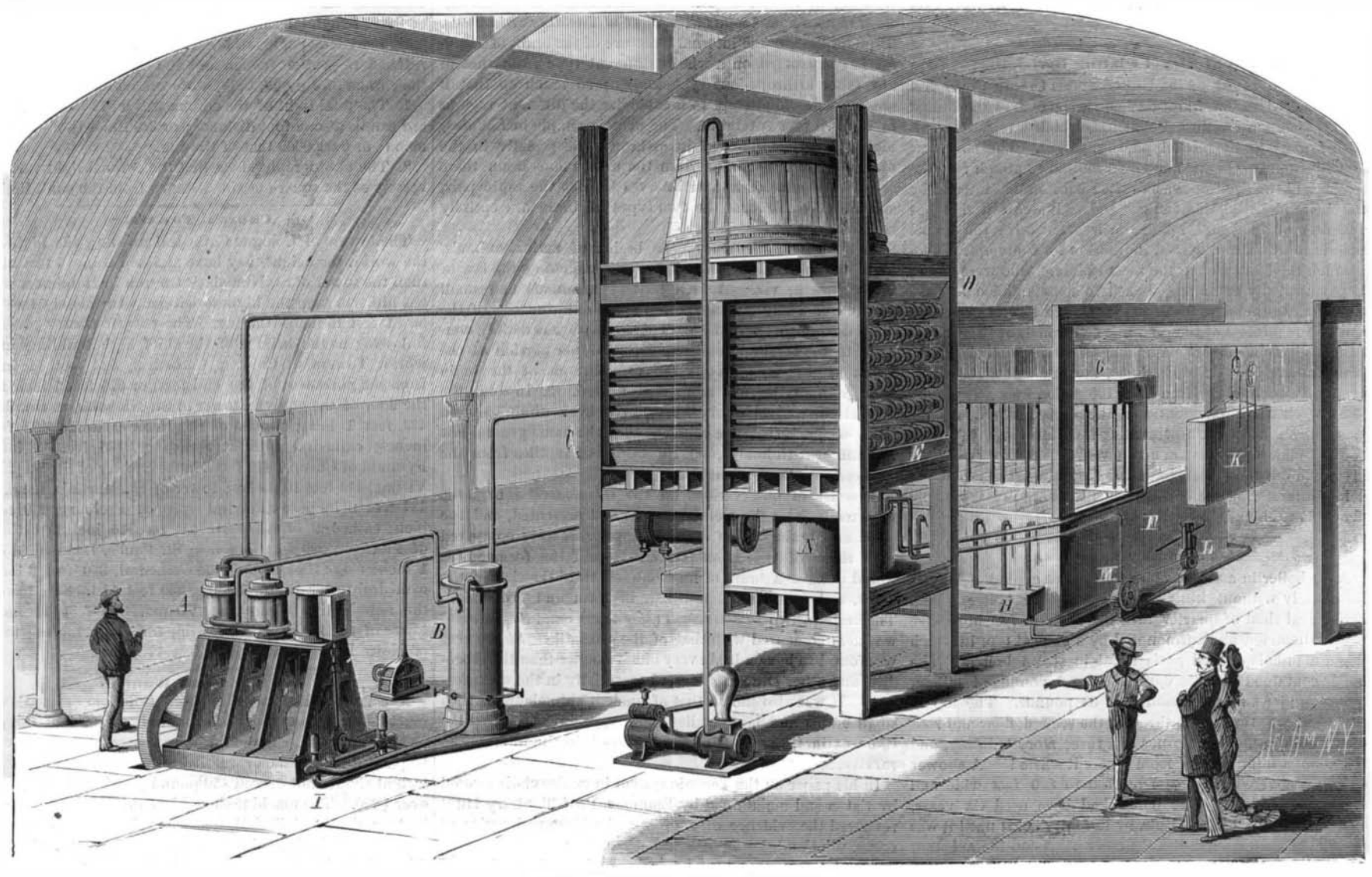
A LARGE ICE MACHINE.

The successful refrigerating apparatus of Messrs. D. L. Holden & Bros., 725 Sansom street, Philadelphia, as first developed for use in breweries, was quite fully described and illustrated in the SCIENTIFIC AMERICAN for August 18, 1877. Subsequent improvements and additions, fitting the apparatus for the manufacture of ice, were shown in our issue of March 16, 1878; and to-day we illustrate a section of what will probably be the largest ice factory in the world, the same system being employed. The factory is now approaching completion for the Compania Habanero de Hielo, of which Guillerino de Zaldo is president, at Havana, Cuba.

As in all machines of this class, refrigeration is produced by the conversion of a volatile liquid into vapor by the action of the exhaust pump; the vapor being recondensed by passing through coils immersed in running water, aided if necessary by the power of compression exerted by force pumps; thus pursuing an endless round of vaporization and recondensation. When this liquid is volatilized in the refrigerator, intense cold is produced and utilized by chilling a non-congealing liquid, which in turn serves to reduce the temperature of the air to be cooled, or, in the case of ice machines, the water to be frozen.

With this brief explanation of the general process the special working of the great machine figured in the accompanying illustration will be easily understood.

In the left foreground will be seen the vapor pumps, A, and the steam engine, resting on the same bed plate. Next in rear stands the upright refrigerator, B, with a pressure blower to the left. The volatile fluid used is chymogene. Behind the refrigerator, supported by a timber staging and surmounted by a large tank, are the condensers, C; the large upper coil condenser being of wrought iron, and the lower a cylindrical shell containing U tubes, through which the vapor to be liquefied passes. In the middle foreground stands the pump, which controls the fresh water supply, raising it to the tank above, whence it passes around the condensers, thence to the spray pan, D, whence it trickles to the lower pan, E, from which it is led away as waste or to the steam boiler as feed water. Back of the condensers is the ice box, divided into two compartments, containing twenty-eight congealers, through which the cold brine from the distributing system of pipes above the ice box is circulated. The overflow from the congealers falls into the double trough, H, whence the brine is led to the circulating pumps, I, which return it to the refrigerator. The fresh water to be frozen surrounds the congealers, and when converted into ice the congealers are loosened by a circulation of warmer brine. The ice is then hoisted out and conveyed to the point of delivery, K, by means of trucks running upon the rail track above. The pump, L, for the circulation of the fresh water in the ice box, to prevent the imprisonment of air-bubbles in the ice. The rotary pump, M, is used to circulate the brine to be warmed through a coil of pipe immersed in the tank of fresh water, N, which water is to be run into the ice box to be frozen. By this arrangement there is no loss of cooling effect when the brine is warmed for thawing out the converters. This machine is guaranteed to make ten tons of ice a day in Havana. Under more favorable conditions of temperature its capacity is rated at twenty tons of ice in twenty-four hours.



THE HOLDEN ICE MACHINE.

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