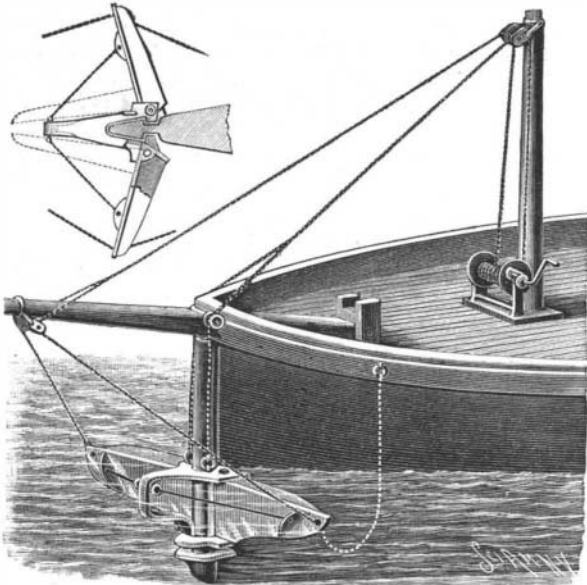


an enormous sum will be received by the Fair managers to be devoted to the expenses of the Exposition. It is impossible, therefore, to say whether or not the Exposition will pay expenses, but it seems a very safe prediction that from a proper point of view it will be far from a failure. It has been calculated that any attendance over a daily average of 100,000 will represent the profits of the Exposition, and there is every reason to believe that such an attendance may be realized.

A VESSEL STOPPING DEVICE.

The illustration represents an improvement designed to facilitate the quick stopping of a vessel moving in dangerous places, or in danger of colliding with another vessel, an iceberg, etc. The invention has been patented by Mr. Pedro Samohod, Nazarenas 145, Lima, Peru. A vertically sliding frame on a post at the bow of the



SAMOHOD'S VESSEL STOPPING DEVICE.

vessel has on its sides pivoted wings adapted to expand transversely to offer resistance to the forward motion of the vessel in the water when the frame is in its lowermost position. The wings are held in extended position by means of chains attached to a forward projection of the frame, and, to prevent accidental closing, other chains connect the free ends of the wings with the sides of the vessel. The frame is raised and lowered by chains or ropes leading upward over pulleys on the bowsprit to a common chain passing over a sheave on the mast and thence to a winch on the deck. To close the wings, chains connected to their outer ends pass over sheaves near the outer end of the bowsprit, thence to a common chain passing over a sheave on the mast and to the winch, the operation of which closes the wings, as indicated by dotted lines in the small figure, simultaneously with the raising of the frame and its wings out of the water. The winch is preferably provided with a locking mechanism under control of the officer in charge, on the bridge or other place, so that the frame may be quickly released, the chains rapidly unwinding as the frame drops to place of its own weight, the wings at the same time spreading out.

EXPOSITION AT LYONS, FRANCE, IN 1894.

Arrangements are being rapidly pushed forward for holding an Exposition at Lyons next year. The fair is to be opened on April 26, 1894, and the accompanying engraving, issued by the official bulletin of the Exposition, shows the plans for the principal building.

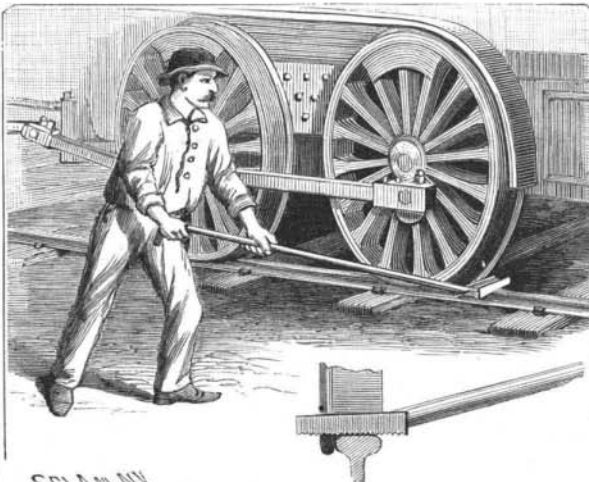
It is to be polygonal in shape, with a lofty central dome which will rise to a height upon the interior of some 180 feet. It rises in a graceful curve, the structure being strengthened by means of the airy lateral supports which resemble the flying buttress of a Gothic cathedral. The work is being carried on from designs of Messrs. Claret & Grenier, the engineers in charge. The building will be 760 feet in diameter, and will cover a space of nearly 500,000 square feet. The total weight of the entire structure will be only about 2,480 tons.

Economies Wrought by Chemistry.

Chemists turn scrap iron into ink, old bones into lucifer matches, the shavings of the blacksmith's shop into Prussian blue, fusel oil into oil of apples and pears, the drainings of cow houses into fashionable perfumery, beggars' rags into new pilot coats, cesspool filth into ammonia, and tar waste into aniline dyes and saccharine. In Paris they first utilize rats to clear the flesh from the bones of carcasses, then kill the rats, use up their fur for trimmings, their skin for gloves, their thigh bones for tooth picks, and their tendons and bones for gelatine wrappers. These are a few of the things *Iron Industrial Gazette* names among the products converted into use by the chemist and inventor.

AN IMPROVED PINCH BAR.

This bar is especially adapted for moving locomotives and railway cars, or for turning a wheel thereof, when there is no other power convenient, its construction being such that it may be conveniently used when at right angles to the track and wheel, the bar being made to pinch upon the flange and not upon the tread of the wheel. The improvement has been patented by Mr. John McDonald, of Tokio, Japan (*Railway Shinbasi*). As more distinctly shown in the side view, representing the bar applied to a rail and wheel, the foot is practically rectangular in cross section, and both its upper and lower surfaces are dished to produce central longitudinal depressions, with knife-like side edges on the top, while the under side edges form flat side ribs, which may be smooth or roughened, or have serrations or teeth produced in them. The upper

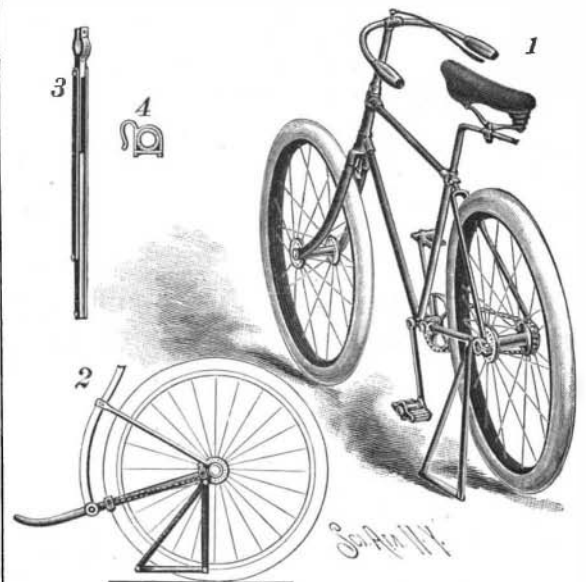


McDONALD'S PINCH BAR.

knife edges engage with the flange of the wheel, and the ribs rest transversely on the tread of the rail. The handle is bent downward at its outer end, forming a protection for the hands in case the bar should slip, and also has a ring, by which the bar may be hung up. The bar may be quickly and conveniently manipulated, and is designed to afford a much more powerful leverage than that obtainable with the old form of bar.

A CONVENIENT BICYCLE STAND.

The illustration shows a very cheap and convenient stand, readily applied to any bicycle, which may be carried about without inconvenience, and at any time dropped into position to sustain the wheel without compelling the rider to hunt around for a fence or other support. It has been patented by Mr. Clayton J. Whipple, Nos. 270 and 272 Wabash Avenue, Chicago, Ill. Fig. 1 shows the stand in open position attached to a man's bicycle, Fig. 2 showing its application to a woman's wheel, and Fig. 3 being an edge view of it in collapsed position. It has two swinging side pieces, one longer than the other, and at their upper ends is pivoted a clamp with a socket to receive the axle or step of the rear wheel of the bicycle, or to receive the side bar of the frame, the clamp being made fast by a screw or bolt. The base of the stand consists of a flat slotted rod pivoted at the lower end

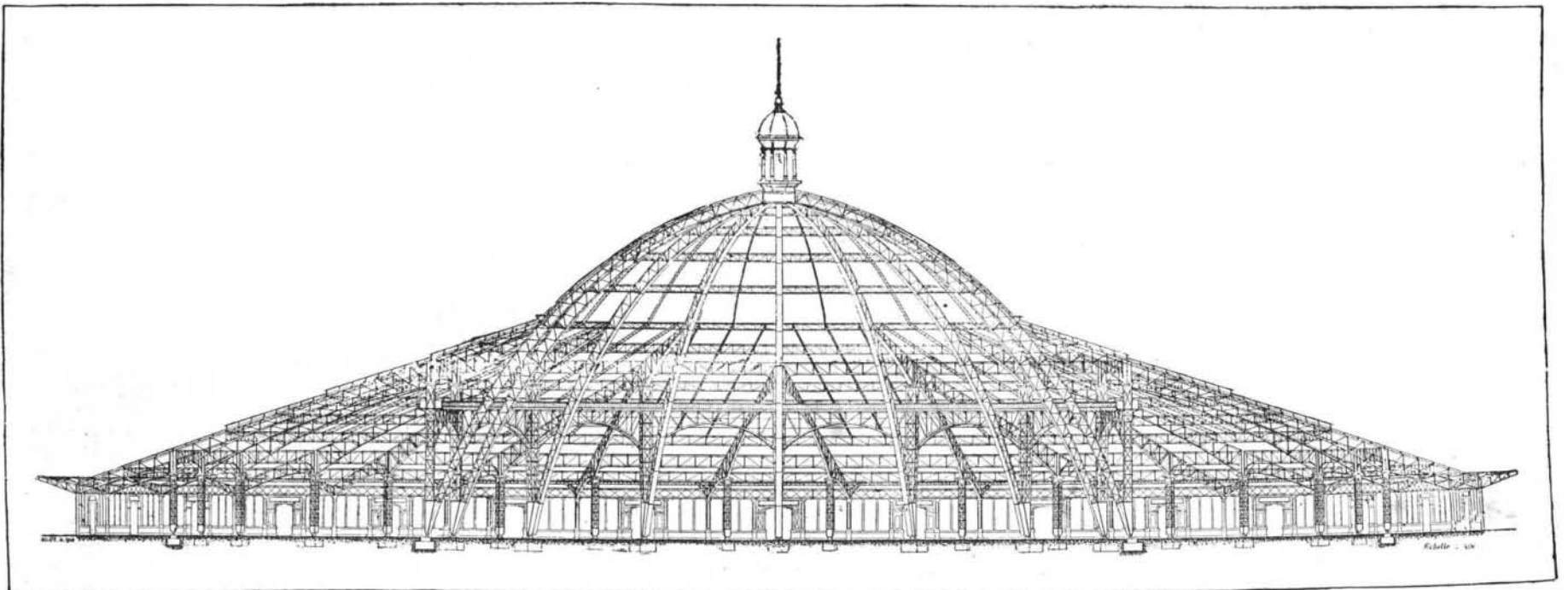


WHIPPLE'S SAFETY BICYCLE STAND.

of one side piece, a pivot pin on the lower end of the other side piece passing through the slot, so that the three pieces fold together in parallel position, and when open assume a triangular shape, giving great strength in proportion to its weight. When applied to a man's bicycle, and swung up into folded position parallel with the side bar of the frame, it may be thus retained by any suitable fastening device, a simple form of clip for such purpose being shown in Fig. 4. When the stand is released from the catch and dropped down it opens of itself, allowing the bicycle to lean slightly upon it, but forming a secure support therefor. For a woman's wheel the clamp is preferably applied to the side bar of the frame adjacent to the rear axle, as it is not convenient to secure the clamp to the axle.

Steel Rails Very Cheap.

Mr. Andrew Carnegie says: "The robber baron has ceased to rob, and is now being robbed. The eighth wonder of the world is this—two pounds of ironstone purchased on the shores of Lake Superior and transported to Pittsburg, two pounds of coal mined in Connellsville and manufactured into one and one-quarter pounds of coke and brought to Pittsburg, one-half pound of limestone mined east of the Alleghenies and brought to Pittsburg, a little manganese ore, mined in Virginia and brought to Pittsburg, and these four and one-half pounds of material manufactured into one pound of solid steel and sold for one cent."



THE FRENCH UNIVERSAL INTERNATIONAL AND COLONIAL EXPOSITION AT LYONS, 1894.