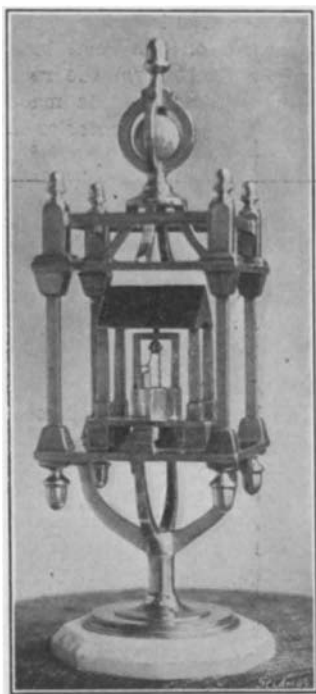


A CLEVER PIECE OF MOLDING.

The accompanying photograph, for which we are indebted to Mr. John W. Kelton, foreman of the N. C. & St. Louis Railway, represents an ingenious and

**A REMARKABLE WORK OF MOLDING.**

Single brass casting, representing "the old oaken bucket."

unique piece of mechanism, the work of Mr. Daniel Galvin, of Paducah, Ky., a skilled artisan and a molder of more than local repute. The casting is of brass, and represents his interpretation of the old but ever-popular song, "The old oaken bucket, the iron-bound bucket, which hung in the well." The entire representation, from the bottom of the pedestal to the top of the cap-tion, with the one exception of the buckets and chain, was done at a single cast, and therein is the charm of this pretty toy. The dimensions of this truly admirable piece of mechanism are 12 inches high by 4 inches square, the well house being $2\frac{3}{4}$ inches high, 2 inches long, and $1\frac{1}{2}$ inches wide. We are informed that it has elicited much favorable local comment, both as regards its intrinsic merit, and as a display of remarkable ingenuity in the art of molding.

A WOODEN SMELTER STACK.

By the courtesy of Mr. A. Rica, general manager of the Compañía Minera de Peñoles, we are able to present illustrations of a lofty smoke-stack of most unique construction. The stack was built by the above-named company at Mapimi, Durango, Mexico, some four years ago, at a cost of only \$10,000 Mexican currency. Wood was used in its construction, because of its cheapness, and because of the distance of the smelter from the nearest brick works. The saving in cost will be seen when it is stated that a stack of similar capacity, built in brick, would have cost fully \$40,000. The stack is 180 feet in height and the dimensions of the flue are 10 x 10 feet. The flue proper is constructed of one-inch matched flooring lumber, and the whole of the inside is lined with No. 22 corrugated roofing iron. As is clearly seen from the illustration, the stack is secured against overturning by a system of inclined wooden bracing, consisting of posts, ties, and waling pieces, which closely resemble, in the method of framing, the tall timber trestles which are used so largely on our Western railroads. The bracing is built chiefly of 4 x 6 and 6 x 6 inch lumber with a small number of 8 x 8 sticks. The inclined posts are carried down to a footing which consists of stout timber trestles, as shown in the illustration. The whole of the work was completed in six weeks' time by Mexican labor, the only white men employed being the contractor and a carpenter. The cost of the lumber laid down at Mapimi was \$60 per thousand feet board measure. The fumes from the smelter are carried off by means

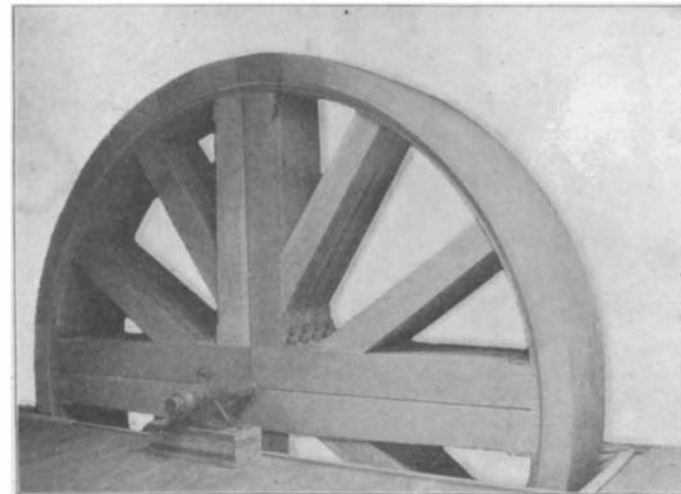
of a masonry conduit, which is shown clearly in the illustration. Of course, the most serious risk in a stack of this kind is that from fire, and to control any outbreak, a platform has been erected at every 40 feet of the height of the stack, and on this platform is a length of hose, which is connected to a 2-inch water main. Should the corrugated iron lining burn out and the timber be attacked, the smoke issuing from the side of the stack gives timely notice, and it has proved a simple matter to extinguish the fire before any serious injury was done to the stack. We are informed that the corrugated iron is standing the test of service, and that the stack is to-day in good condition, although it has been carrying off for three years the arsenical fumes from four to six 60-ton blast furnaces.

An interesting type of vessel has been launched from the yard of Messrs. Smith & Co., shipbuilders, of Newcastle-on-Tyne, England, to the order of the River Tyne Commissioners. It has been specially designed and equipped for the purpose of dealing with the extensive system of moorings on that river. The work which this vessel will have to carry out is of a most varied description, such as driving screw moorings into the bed of the river; lifting and paying out cable chains; examining and repairing moorings; assisting in salvage operations, and so forth. The vessel is 80 feet in length with a beam of 25 feet and a depth of 8 feet 6 inches. She is divided into four watertight compartments, with pumping equipment for sinking and raising the craft, as the exigencies of the cases may require. She is built of steel with a strong superstructure suitable for the handling of heavy gear and buoys, and has a massive bow davit with a lifting capacity of 40 tons. She also carries a crane swinging through an 18-foot radius, and cap-

able of lifting 5 tons. The boat is supplied with a center well 10 feet square, through which opening the appliances pass for connecting the screw mooring at the bottom of the river to the capstan.

A LARGE WOOD PULLEY.

Wood pulleys, by reason of their superior frictional qualities, are being used in large numbers and of all

**A LARGE WOOD PULLEY.**

sizes. Split wood pulleys can also be secured to the shaft without taking the shaft down, as they are built in two or more sections. One of the largest all-wood, belt-transmission wheels running in the United States has recently been constructed by the Reeves Pulley Company of Columbus, Ind. It is made in quarters, and the whole pulley is built up of a large number of pieces of southern Indiana oak. Its diameter is 16 feet, the face is 31 inches, and the bore $8\frac{1}{4}$ inches. Its exact weight is 13,440 pounds. Compression bolts at the hub serve to bind the various sections together.

Consul-General Hughes, of Coburg, reports that a railway to connect Iwakopmund and Windhoek, in German Southwest Africa, is in course of construction. Last year, 194 kilometers (120 miles), from Iwakopmund to Karibib, were completed, and traffic was opened on that portion a few months ago. For the fiscal year 1901, 3,000,000 marks (\$714,000) have been appropriated for continuing the line toward Windhoek. After the whole line is completed, it is planned that two freight trains shall be run daily and two passenger trains weekly. Twenty-eight double engines and four single engines will be provided for that purpose; the latter are principally to help the trains up steep grades. In the construction of the passenger cars particular care will be taken to offer every possible comfort and protection to travelers, who otherwise would have to suffer severely in the hot climate of that region. It is proposed that seats shall be provided which, by turning, can be converted into beds. The cars will be protected by sunshades, dark glass, and window screens. Stations will be established at Iwakopmund, Windhoek, Okahandja, and Karibib. The last, being well provided with good water, will be the central and repair station of the new line.

A new railway for connecting the center of Africa with the sea has been sanctioned by the British government, from Chiromo to Blantyre in the British Central Protectorate. Blantyre is the center of the coffee-growing country, which is one of the most extensive industries in this part of Africa. It has, however, suffered keenly from the want of rapid communication with the sea, for the growers have been unable to transport their produce expeditiously to the coast, and have also been unable to have their stores, provisions, and agricultural implements dispatched to them with the requisite celerity. This new railroad, however, will place Blantyre in direct communication with the sea, and will result in great developments of this the richest part of East Africa.



Interior dimensions, 10 feet by 10 feet; height, 180 feet.

WOODEN SMELTER STACK AT MAPIMI, MEXICO.