

ENGINEERING INVENTIONS.

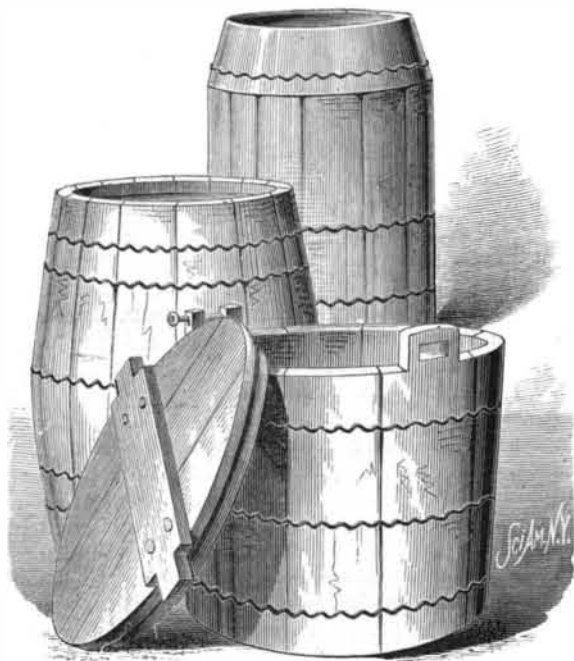
Mr. Allen T. Miller, of Philadelphia, Pa., has patented an improved guard for car wheels, the use of which, it is claimed, will render it impossible for any person or anything to be run over by the wheels.

Mr. Strafford C. Hallock, of Yaphank, N. Y., has invented an improved snow plow, which is so constructed as to raise the snow and discharge it at the sides of the track, however solid it may be packed. The invention consists in the combination of three shovels, placed one above the other, with their rear ends farther apart than their forward ends.

Mr. James Robson, of North Shields, County of Northumberland, England, has patented an improved gas engine. The invention consists in employing a piston and rod working in a cylinder. The instroke of the piston is used to draw in on one side of it a charge of gas or vapor and air. On the return stroke this charge is forced through passages into a combustion reservoir, and there retained until the piston returns to the back end of the cylinder. The reservoir is then made to communicate with the back or opposite side of the piston. The gases in the reservoir are then exploded by a flame; their expansion drives the piston forward, which, by its rod and connecting rod to the crank, turns the shaft and fly wheel. On the return of the piston the products of combustion are allowed to escape.

NOVEL BARREL HOOP.

A great deal of annoyance is experienced in using barrels, tubs, etc., from the frequent loosening or bursting of the hoops caused by the shrinking or swelling of the staves. Mr. Adolph Eiselein, of Waconia, Minn., has recently patented a device for avoiding this difficulty. The invention consists of a hoop made of wire bent into corrugations, so that it will have a serpentine form. This hoop, when driven upon a dry barrel or tub, will compress and hold the staves tightly together like the ordinary hoop, but will have elasticity or spring enough to stretch when the staves expand by moisture, and return to its former position when the staves again contract upon becoming dry; in this way the hoops will adapt themselves to the expansion and contraction of the barrel, and the annoyance of loose or bursting hoops will be avoided.



EISELEIN'S CORRUGATED HOOP FOR BARRELS.

By forming the corrugations to rest flatwise against the staves no obstruction is offered to rolling in case of barrels, while a much larger amount of friction surface is brought to bear upon the staves, increasing their holding power.

The ends of the wire are secured together by twisting one end around the other. These hoops, being made of wire, will withstand corrosion much better than flat hoops, as less metal comes in contact with the wood, and less opportunity is afforded for the retention of moisture. It is more easily and cheaply made than the ordinary hoop, is easier applied, and can be made ornamental.

The corrugated hoops may sometimes be used in conjunction with ordinary hoops to advantage; one peculiar advantage of this hoop is, that it may be applied to straight or bulgeless barrels. The rear view in the engraving illustrates the method of applying the hoop to such a barrel. A tapering mandrel, with its larger end the same size or slightly larger than the end of the barrel, is placed at the end of the barrel, and the hoop is placed on the small end of this mandrel and driven down over the mandrel upon the barrel to its proper position, its elasticity enabling it to conform to the barrel and compress it at all points, so that it will remain wherever left.

ONCE a week, as regularly as clockwork, says a valued contemporary, the SCIENTIFIC AMERICAN appears upon our editorial table. This—proceeds the writer—is the only reliable scientific paper published in the country, and is worth to all lovers of science many times the subscription price. We hardly take up a number, adds the editor, but we find something new and useful in it, worth all that is asked for a year's subscription.

NEW WIND MILL.

The annexed engravings represent a wind mill patented by Mr. C. B. Post, and made by C. B. Post & Co., of New London, Ohio. The design of the inventor has been to produce a mill that will maintain a regular speed under a vary-

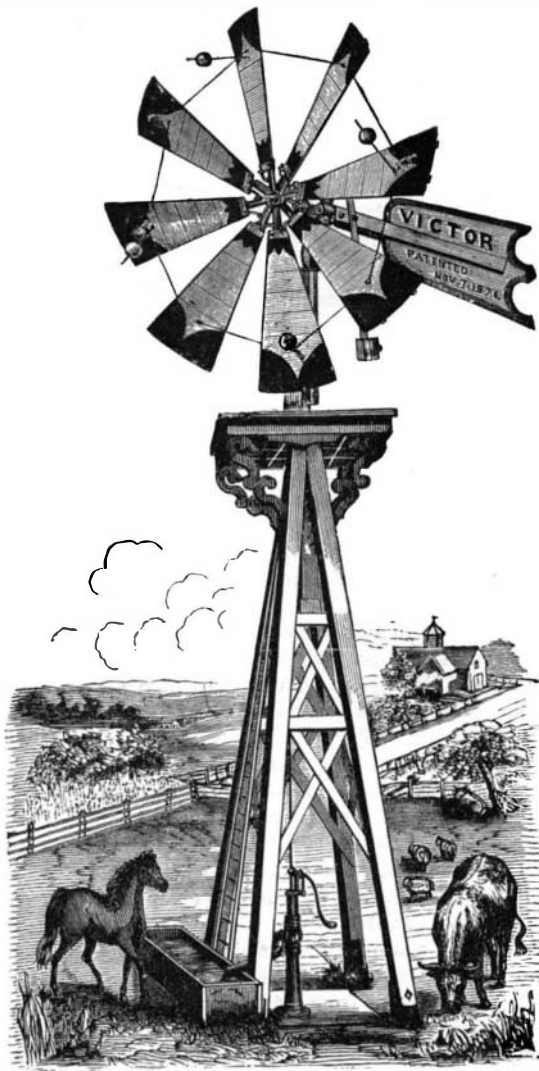


Fig. 1.—POST & CO'S WIND MILL.

ing wind pressure and to prevent damage to the mill during high winds. The wheel is composed of iron sails mounted upon iron arms, upon which they are capable of turning, and the motion of the mill is controlled by the weighted arms attached to the sails, which, by centrifugal action, turn the sails more or less toward the wind. The inventor claims that the same sail area, when presented to the wind in large surfaces, is much more effective than it is when it is divided up among small ones.

The weighted lever hung near the tail vane is connected with a sleeve that operates the sails and holds the sails to the wind until the centrifugal force of the weighted arms, projecting from the face of the sails, is sufficient to overcome the action of the lever, when the sails will be automatically adjusted to the proper angle in relation to the wind to maintain a uniform speed. By changing the adjustment of the weights the speed may be varied to suit different purposes.

The manufacturers inform us that the running parts of this mill are large and well proportioned. The crank for imparting motion to a pump is formed by bending the shaft, and it works in a slot in the pump rod. The mill swivels



Fig. 2.—REAR VIEW OF WIND MILL.

on a gas pipe standard, and turns easily, allowing the wheel to stand squarely to the wind. The mill is thrown out of action by means of a wire attached to the weighted lever, and it may easily be arranged so that a float in a water tank will stop the mill when the tank is full.

This mill is certainly very simple and easily made, and appears to be well designed.

The Largest Flour Mill in the World.

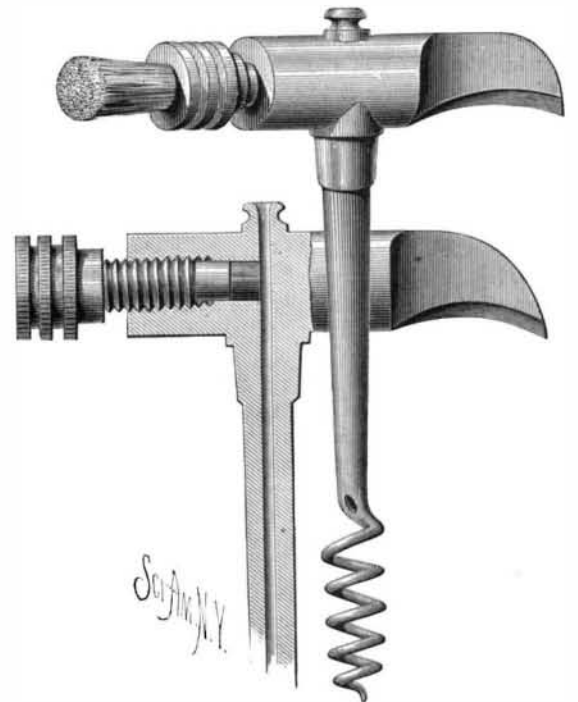
Among the giant mills which rise on every hand about the milling districts of Minneapolis, the great "Washburn A," says the *Pioneer Press*, looms up conspicuously. Beside it the Humboldt and the Pettit and the Arctic and others in that vicinity look like pygmies. From the canal way back to Second street, a distance of 250 feet, and with a frontage of 100 feet on the canal, the solid walls of limestone are slowly rising under the skillful guidance of Mr. McMullen, the builder of the "B" mill. These are to be carried to the

height of eight stories, thus making the building not only the largest mill on the ground, but the highest of any in the city, for the distance from the level of the canal to the capstone will be 114 feet. To gain an idea of its size one needs to walk about it, both outside and in. The railroad which runs through the building on the second story seems to take up but little room, and yet think of a train of cars passing through any other of our public buildings, how much room would there be left besides? The height of the basement story seems considerable to look at, yet one gets but an imperfect idea of the vast amount of space until he is told that the western half, which is to be used for storing, will hold 100,000 bushels. He can get another idea of its size by figuring the area, when he will be astonished to discover that there are inclosed 8,850,000 cubic feet.

How much flour this monster is to turn out when completed is a secret which Mr. Washburn keeps to himself. It certainly is large enough to make from 2,500 to 3,000 barrels per day, for it will contain twice as much room as the old "A" mill, on whose site it stands, and that mill the last day it ran made over 1,500 barrels. In regard to the process to be used it is premature yet to speak, but this much can safely be said, it will be the most approved now in use. Mr. Washburn has been testing the Hungarian process in the "B" mill for some months past, and the conclusion has been reached that the exclusive Hungarian system has some disadvantages connected with it. A portion of the walls are now up to the third story, and the entire building will be under roof by the 1st of December. When completed, there will be nothing to compare with it in the United States as regards size, and if there is anything across the water its equal, we should be very glad to hear from it.

COMBINED CORKSCREW AND BOTTLE FAUCET.

We give herewith a novel combination recently patented by Mr. Wm. E. Lant, of Lancaster, Pa. It answers as a bottle faucet, a corkscrew, a bottle opening knife, and brush. It is contrived so that it answers all these purposes without being complicated, and it is cheaply made. The handle is cast together with the hollow conical shank carrying the corkscrew. One end of the handle is formed into a knife for cutting cords, wires, etc., and the other end is drilled



LANT'S COMBINED CORKSCREW AND BOTTLE FAUCET.

and tapped to receive a milled screw having at its inner end a soft rubber plug which may be driven forward by the screw so as to stop the passage through the shank. The outer end of the milled screw carries a brush used for removing cork chips, etc. The arrangement of the passage from the upper end of the corkscrew will be understood by examining the sectional view. The device is used by passing the corkscrew through the cork, and forcing inward the hollow shank until its lateral opening is below the cork. Then, when the milled screw is loosened, the liquid may flow out of the bottle.

Coal Near Hudson's Bay.

Officers of the Canadian Geological Survey, now engaged in the Northwest Territory, report the discovery of extensive beds of coal in the neighborhood of Nelson River. This find, it is thought, will hasten the proposed expedition to test the navigability of Hudson's Bay and Straits during the summer months, as recommended by Professor Hind and Colonel Dennis, Deputy Minister of the Interior.

A Transparent Fish.

A very remarkable fish was captured here on the 21st instant by Mr. O. Blossom. It is about ten feet in length, and its weight is estimated at about four hundred pounds. It is perfectly transparent, and the action of the heart and other functional organs can be plainly seen. Altogether, it is a very remarkable specimen of the finny tribe, and is well worth the attention of scientists and naturalists. Mr. Blossom will arrange a tank containing alcohol in order to preserve it.—*MacKinnon, Mich., letter to Chicago Times.*