

NEW INVENTIONS.

Improvements in Spinning.

Mr. Wanto Rouse, of Taunton, Bristol Co., Mass., the patentee of some valuable improvements in machinery for spinning cotton, has taken measures to secure another patent for useful improvements on the "self-acting spinning mule." The improvements of Mr. Rouse are designed to simplify the construction of the mule, in relation to governing the revolution of the spindles in laying the thread on the cops, and in backing off, preparatory to the said laying on, by a cam barrel having an irregularly formed periphery, both in its length and circumference. The cam is made to give motion to the spindles, by means of a finger which bears continually on its periphery, and which is attached to a swinging frame, furnished with toothed segments that gear with toothed wheels upon a shaft, which, through a train of gearing, drives the spindles. The cam is made to revolve at the time the backing off should be performed, and also during the time the mule is running up to the beam, when the winding of the thread on the spindle is to be performed. Its periphery is of such a form, circumferentially, that the finger will be running towards the axis at the proper time for backing off, and from the axis at the proper time for laying on. Thus, by causing the segments to move in opposite directions, it drives the spindles in opposite directions. The cam is of such a form on that part where the finger bears during the running of the carriage, as to drive the spindles with a constant accelerated motion, which is necessary, owing to the decreasing diameter of the cop towards the top, where the laying on of the thread finishes; its circumferential form varies at different parts of its length, which gives it the longitudinal irregularity of form spoken of before; this is to suit the degree of speed, and the amount of back-off, at different stages of the building of the cop, the form of which is a constantly changing one, from the commencement to the termination of laying on the last inch of thread. The finger spoken of having a slow movement from end to end of the cam, it gives a changing movement to the segments, and consequently to the spindles of the cops. There are some other minor improvements connected with the working of this cop-making cam. It is well known that the self-acting spinning mule is a complicated machine, and does not produce such good work as the carriage worked by hand. The improvements of Mr. Rouse greatly simplifies the construction of the mule by reducing the number of parts, and substituting other mechanical devices, which makes a better thread and also builds a better cop.

Improved Furnace for Warming Dwellings.

Dr. Stephen Gates, of Albion, Orleans Co., N. Y., has taken measures to secure a patent for a furnace, the improvement on which consists in having a series of flues or tubes directly over the fire chamber and leading therefrom into a smoke chamber, which communicates with the smoke pipe; the flues and fire chamber are enclosed within a case into which cold air is admitted through a pipe—the outer end of said pipe communicating with the open air on the outside of the building; the cold air is made to pass between the flues or pipes by means of deflecting plates, which thoroughly heat it, and it is then conveyed through necessary pipes to the apartments to be warmed.

Improved Knife for Cutting Hay.

Mr. John F. Holden, of Genoa, Cayuga Co., N. Y., writes us that he has seen a very good knife used, this winter, for cutting hay in the stack or hay-mow. It has a long handle, like a pitchfork, and near the foot it has a jog or short arm which has a shank for a knife of a crescent formed edge. The foot is placed upon the jog or arm, to work the knife, and the handle answers for a lever. The improvement is a good one, and one much required, as we have often felt in days of youth, long ago.

Another Great Rifle.

We see it stated in a number of our exchanges, that Mr. Porter, of Nashville, Tennessee, has recently invented a repeating rifle which will take all the others down in short order, it

seems. It is self-loading, and contains a magazine of sixty charges; all that has to be done is to put the charges into the cylinder or magazine and pull away at the trigger—that is all, until the whole are discharged.

Steam Fire Engine.

A number of our cotemporaries have noticed

a fire engine worked by steam, which was recently tried at Cincinnati. It is said that the steam was raised in four minutes, and it threw a stream 130 feet through a 3-4 inch nozzle. A steam fire-engine is nothing new at all. One was tried in this city a number of years ago. It was built by Mr. Ericsson, and is illustrated in Ewbank's Hydraulics,

CONGER'S TURBINE.

Figure 1.

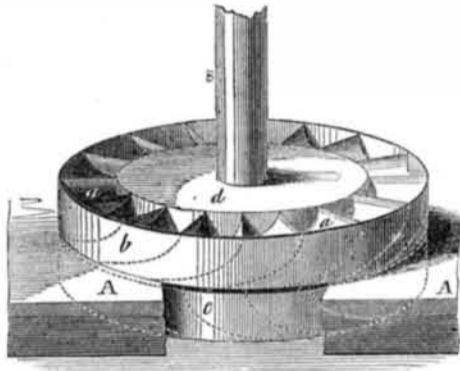
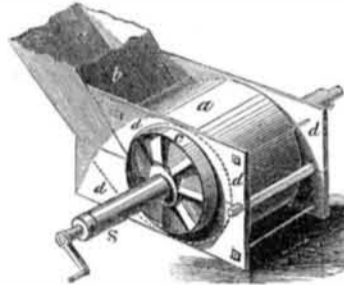


Figure 2.



As there is a great deal said about water wheels at present, owing to the excitement in some places, about Parker's Wheel, we present the accompanying engraving of the improved Water Wheel of Mr. J. B. Conger, of Jackson, Tenn., which was patented July 10th, 1847, the patent for which has something more than nine years yet to run. Fig. 1 is a perspective view of the wheel, with the guides, rim, and centre of a wheel 6 1/2 feet diameter, having 16 stationary guides placed on the edge of a circular space in the floor directly over the wheel, into which they direct the water. Fig. 2 is a perspective view of the wheel, guide, and scroll, as applied to a saw mill with a small fall of water. Fig. 3 is a vertical section of the same, and fig. 4 is a horizontal section of it. Fig. 5 is a diagram, showing the curve and position of the guides

of the wheel, fig. 1. The accompanying description refers to the figures, particularizing the same by the letters of reference.

In fig. 1, c is the turbine wheel; it is precisely similar to the one above it, except in the guides which are placed in a reversed position, as shown in the diagram, fig. 5; S is the shaft of the wheel; it passes through the centre of the guides. A A is part of the floor of the pen-stock that surrounds the wheel, into which the water is admitted, and where it stands with its whole head above the wheel. The wheel, however, for convenience, may be placed more near the level of water, by having an air-tight vessel to conduct the water below the lower level, and this will not affect the operation of the wheel. This principle is well known in the United States, and has been practiced for some twenty years, although

Figure 3.

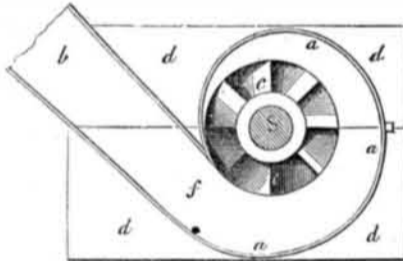
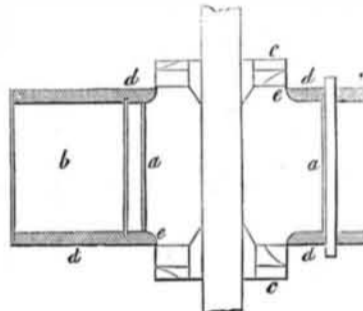


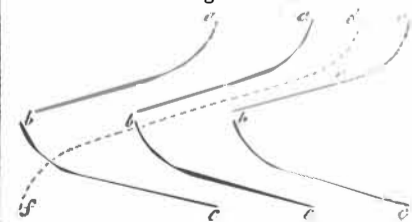
Figure 4.



it is spoken of in a recent French work, in describing a wheel, as being something new and a French invention.

In the diagram, a b, a b, a b, show the curve and position of the guides of the wheel, and b c, b c, b c that of the buckets of the wheel. The curve of both guides and buckets is similar; from a to e (fig. 1) is part of a cycloid, e being the vertex and a the cusp; c and b are tangential to the vertex, e (small letters in the middle dark line, fig. 1). The top and bottom, and all the horizontal sections of the guides and buckets, are radial to the wheel. The dotted line, d f, in the diagram, shows the direction or path of a molecule of water in its passage through a guide, and a bucket of the wheel. Its downward velocity is equal throughout its whole descent from d to f.

Fig. 5.



The water enters the turbine without shock, as nearly in the direction of its rotation as it is possible for it to do, and leaves it at e, in as near an opposite one, without velocity, except a downward motion, sufficient to give place to the succeeding water. With any other form of guides or buckets, it is not possible to make the water enter the turbine as near in the direction of its rotation, and to leave it in the opposite one, with as little velocity; for, if

the bottom part, b e, has any curve at all, the direction of the influent and affluent water will form a greater angle with the plane of rotation. The loss of effect sustained by this indirect action of the water on the turbine, will be as the difference of the cosine of this angle and radius. The principle claim of Mr. Conger's patent is for the form of the guides and buckets. A wheel formed with the buckets or guides having the bottom part plain, is claimed to be an infringement of this patent. A more full description of this action of the water on this wheel was given in Nos. 50 and 51, Vol. 6, Scientific American.

In the figures, 2, 3, and 4, a a is the scroll which gives the water a whirling motion in the direction of the wheel's motion; b is the chute which admits the water into the scroll; c is the turbine wheels, two on a shaft, only one of which can be seen in figs. 2 and 3, but the section, fig. 4 (although in a reversed position), shows the two wheels. d d, d d, are the ends of the scroll; it is made of three or four inch planks, confined together with iron rods. There is a circle cut out of the rim of the wheel, as shown at c, fig. 3, and at e e, fig. 4; S is the shaft. The area of the cross section of the chute, at f, should be equal to that of all the issues of both wheels. The principle of action is the same in these turbines as the one (fig. 1) on the vertical shaft; the curve and position of the buckets is the same.

More information may be obtained by letter addressed to the patentee, at Jackson, Tenn.

Our friends of the Pittsburg Daily Dispatch will accept our thanks for their complimentary

ry notices of the Scientific American. To the press generally we add our acknowledgments for friendly favors.

Improvement in Head and Tail Block.

MESSRS. EDITORS—I observed, in your paper of Jan. 17, on page 140, a statement of C. F. Drake, of Xenia, Ohio, that a Mr. Snyder, of Fairfield, Ohio, has made the above-named improvement in saw mill setting blocks, which work admirably, and Mr. Drake has tested them for nearly a year. We have had setting blocks that do the same business, they are worked by a short lever, and set both ends of the log at the same time, with perfect accuracy, and to any desired thickness that the sawyer wishes. These blocks were invented by John E. Randall, of Ontario, Wayne Co., N. Y., and have been in successful operation for more than three years, and give perfect satisfaction; they dispense with the service of one man in most cases, and make better lumber than by the old method of dogging. The construction of the blocks is simple, permanent, and durable, and not liable to get out of order, with fair usage. The blocks can be afforded at two-thirds of the price of the other block, which cost \$150, I think.

JOHN W. RANDALL.

Ontario, N. Y.

The Telegraph Superseded.

The editor of the Boston Transcript has seen the model of an apparatus by which mails of any weight may be transported between two places, say Boston and New York, in 15 minutes. That paper remarks,—“We are not at liberty to say much upon the subject at present; but the experiments which we witnessed were of a character to inspire confidence in the success of the principle, applied even to a distance of 300 miles or more. The beauty of the contrivance is its perfect simplicity.”

[Perhaps this is an old exploded invention revived—the exhausted air tube or the like.

London Steamboats Picking Up.

Eight new steamboats are now being built by a new company to run upon the river Thames and carry passengers. They are not to draw over 18 inches of water; they are to be long and of far greater room than the kind now in use on the Thames. They are to be richly fitted up like our American river boats, and are to be light, swift, beautiful and airy. One peculiarity about them is, no smoke pipe is to be used on deck. The smoke is to be drawn by a blower and discharged at the side of the boat under the paddle wheels.

Corns, Shoes, and Proper Measures.

If shoes were made of the shape of the human foot, there would be very few corns, but ladies like to cramp their toes in tight shoes to show a small foot. There are but few shoemakers, either, who seem to understand the anatomical structure of the foot, and the nature of its action; they make boots and shoes upon the same principle as carpenters make boxes. No wonder one boot or shoe is easier than another, and that one inclines to the one side and another to an opposite one. To cut the leather properly for a good fitting shoe or boot, a measure like that of McGinnes' Tailors' Measure, is wanted by it they would get the precise form of every foot, and thus cut their leather to their measure.

A High Bridge.

There is a bridge in the course of construction on the Buffalo and New York Railroad, where it crosses the Genesee River, near Portageville. When completed it will be 230 feet high, and 500 feet span; stone piers set on the bed of the rock, are carried up 30 feet high from the bed of the river, a few rods above the upper falls. From the top of the piers, the wood-work rises 200 feet, and so perfect is the model of the bridge, that it is thought there will not be the least tremor or motion under the heaviest train of cars that may ever have occasion to pass over it.

Discovery in Sculpture.

A number of persons have inquired of us what the discovery in sculpture, which has been attributed to Hiram Powers, and which has been so extensively noticed, "consists of." We cannot tell, perhaps some of his friends have overrated it.