

NEW HAND POWER BAND SAW.

The engraving shows a new hand power band saw made by Frank & Co., of Buffalo, N. Y., and designed to be used in shops where there is no power and where a larger machine would be useless. It is calculated to meet the wants of a large class of mechanics, including carpenters and builders, cabinet makers, and wagon makers. It is capable of sawing stuff six inches thick, and has a clear space of thirty inches between the saw and the frame. The upper wheel is adjusted by a screw pressing against a rubber spring which compensates for the expansion and contraction of the saw.

The machine has a very complete device for raising, lowering, and adjusting the wheel, and all of the parts are made with a view to obtaining the best results in the simplest and most desirable way.

The machine is six feet wide and five feet high, and weighs 380 lb. The wheels are covered with pure rubber bands well cemented.

Further particulars may be obtained by addressing Messrs. Frank & Co., 176 Terrace street, Buffalo, N. Y.

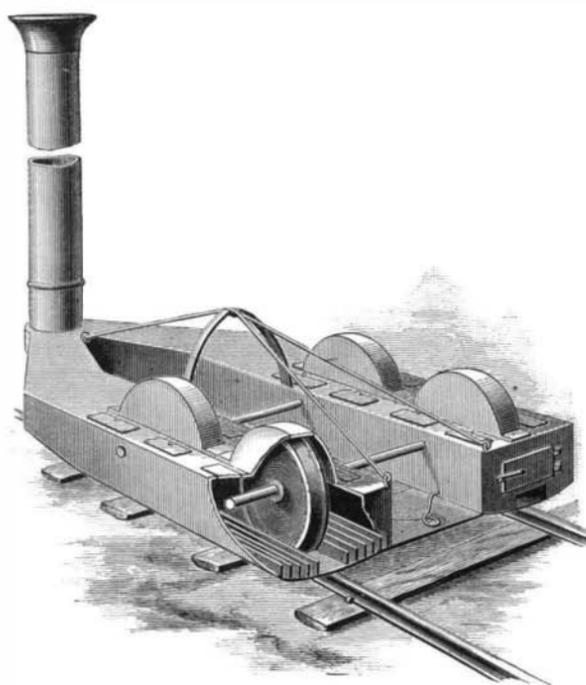
The Harbor of Montreal.

A plan for the improvement of the harbor of Montreal, Canada, has been submitted to the City Board of Trade by James Shearer, a well known citizen. Mr. Shearer's plan is to divert the current of the St. Lawrence opposite the city into the channels between St. Helen's Island and the southern shore, and by having various obstructions removed from the channel, and running a dam, or "peninsula," as he calls it, built from Point St. Charles, in the west end of the city, to St. Helen's Island, midway in the river, thus stopping the current from running through the present main channel between the city and St. Helen's Island.

Among the practical advantages that will accrue to the city and harbor from the carrying out of this project, Mr. Shearer sets forth the following: The dam will prevent the shoring of ice opposite the city, and the consequent flooding of the Griffintown district, which is annually very destructive to property, and will make a still harbor, where vessels may lie during the winter. It is estimated that the construction of the dam, which would be 2,700 feet long and 900 feet broad, would raise the water two feet in the river and lower it ten feet in the harbor. This would give a head of twenty-five feet for mills, elevators, and factories, and the transportation of freight. The dam would afford a roadway across the river, upon the construction of a bridge from St. Helen's Island to St. Lambert, thus removing the necessity of a tunnel. The roadway could be utilized for a railway, a road for carriages and foot passengers. The estimated cost of the improvement is \$7,000,000.

APPARATUS FOR REMOVING ICE FROM RAILROADS.

The engraving shows an improved apparatus for removing snow and ice from railroads and streets by means of heat. The invention consists of a double furnace mounted on wheels, which are incased in the fire boxes of the furnaces.



APPARATUS FOR REMOVING ICE FROM RAILROADS.

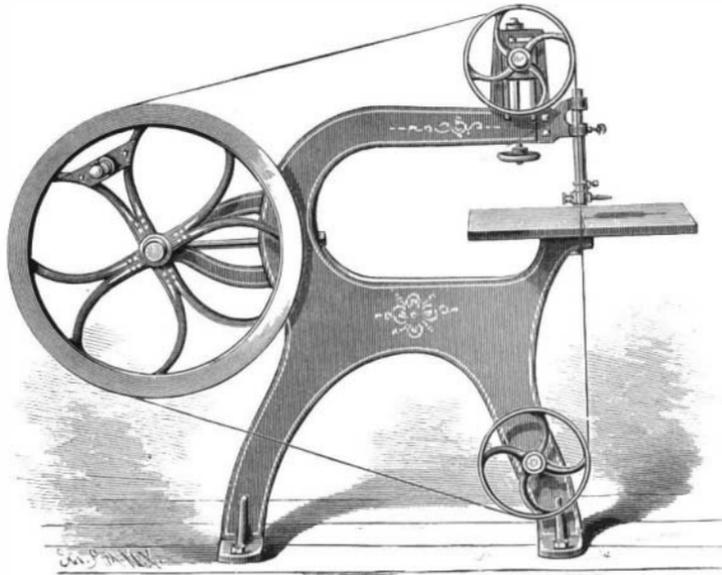
nance, so that in use the entire apparatus, including the wheels, will become highly heated, so that the snow and ice will not only be melted by radiant heat, but by the actual contact of the hot surfaces of the furnace and wheels. This apparatus was recently patented by the late E. H. Angamar, of New Orleans, La.

Eriesson's New Submarine Gun.

The protracted trials conducted on board the Destroyer to test its submarine gun terminated last week. Having, says the *Army and Navy Journal*, in a previous issue described this novel type of naval artillery, it will suffice to remind

our readers that its caliber is 16 inches, length of bore 30 feet, and that it is placed at the bottom of the vessel, the muzzle passing through an opening formed in the wrought iron stem.

We have hitherto, in discussing the properties of the Destroyer, referred to its offensive weapon as a "torpedo," a term not altogether inappropriate while it was actuated by compressed air. But Capt. Eriesson having in the meantime wholly abolished compressed air in his new system of naval attack, substituting guns and gunpowder as the means of producing motive energy, it will be proper to adopt the constructor's term, *projectile*. It will not surprise those who are



HAND POWER BAND SAW.

acquainted with the laws of hydrostatics and the enormous resistance offered to bodies moving swiftly through water, that the determination of the proper form of projectile for the submarine gun has demanded protracted experiments, commencing at the beginning of June and continued up to last week, as before stated. The greater portion of these experiments, it should be observed, has been carried out with a gun 30 feet long, 15 inches caliber—not a breech-loader, however, as in the Destroyer, but a muzzle-loader, suspended under the bottom of two wrecking scows, the gun being lifted above the water, after each shot, by shears and suitable tackle. The present projectile of the Destroyer is the result of the extended trials referred to; its length is 25 feet 6 inches, diameter 16 inches, and its weight 1,500 pounds, including 250 pounds of explosive materials. We are not at liberty at present to describe its form, but we may mention that the great length of the body and the absence of all internal machinery enable the constructor to carry the stated enormous quantity of explosive matter. With minimum charge of powder in the chamber of the gun, the speed attained by the projectile reaches 310 feet in the first three seconds.

The question may be asked, in view of these facts, whether the boasted costly steam ram is not superseded by the cheap aggressive system represented by the Destroyer. Evidently the most powerful of the English steam rams could not destroy an armored ship as effectually as the projectile from the submarine gun, the explosion of which is capable of shattering any naval structure.

It should be borne in mind, also, that being protected by heavy inclined transverse armor, the Destroyer, attacking bows on, can defy ordnance of all calibers. Again, the carrier of the submarine gun, in addition to the swiftness of its projectile, can outrun ironclad ships.

RECENT INVENTIONS.

Mr. Francis M. Osborn, of Port Chester, N. Y., has patented a covering for a horse that protects him from the weather and from chafing. The blanket has a band, also stays and straps, the use of which does away with the surcingle and affords a most efficient protection for the horse, and may be easily worn under harness in wet weather or at other times, when desirable.

A novel device, designed especially for containing boxes of cigars and protecting and displaying their contents, has been patented by Mr. Robert B. Dando, of Alta, Iowa. The invention consists of a case containing shelves, on which are fixed the covered cigar or other boxes, cords connecting the box lids and case doors, so that the opening of the case doors causes the box lids to open.

An improved bottle stopper has been patented by Mr. Andrew Walker, of Cincinnati, O. The invention consists in combining with the stopper caps connected by an intermediate spring.

Mr. James B. Law, of Darlington Court House, S. C., has patented an improved construction of buckle for fastening the ends of cotton and other bale bands; it consists in a buckle having a permanent seat for one end of the bale band, a central opening, into which the other end of the band is entered through an oblique channel, and a bar offsetting from the plane of the buckle, notched or recessed to prevent lateral movement of the band, and connecting the

free ends of the buckle on each side of the oblique channel to strengthen the buckle.

An improved buckboard wagon has been patented by Mr. William Sanford, of Cohoes, N. Y. The invention consists in combining with the buckboards curved longitudinal springs placed beneath the buckboards, and curved cross springs connected at their ends with the buckboards by cap plates so as to increase the strength and elasticity of the wagon.

An improved vehicle wheel has been patented by Messrs. George W. Dudley and William J. Jones, of Waynesborough, Va. The main object of this invention is to form a wheel hub for vehicles in such manner that the wheel will yield sufficiently when undue and sudden strains or jars may come upon it to receive the force of the blow and shield the other portions of the vehicle from the destructive effects of such action, as well as to afford ease and comfort of motion to the occupant; and the improvement consists in securing the inner ends of the spokes to rim plates, to form a fixed and solid connection therewith, the rim plates being loosely secured to the butt flanges and box of the hub, so that it is free to move in a vertical plane, but prevented from moving laterally and limited in its vertical movement by an elastic packing interposed between the inner ends of the spokes and the hub box.

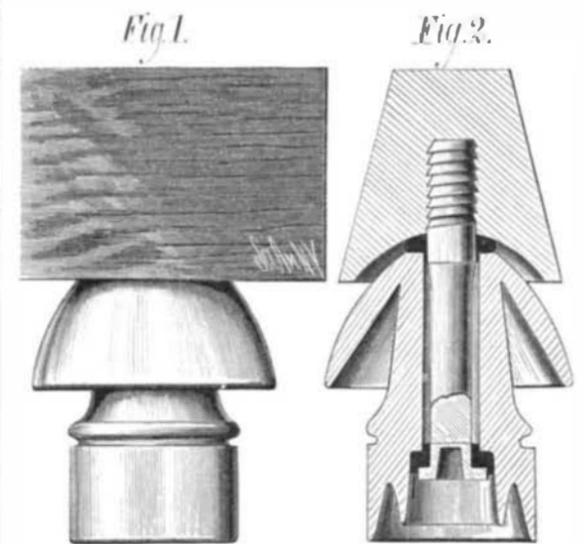
Mr. Francis G. Powers, of Moweaqua, Ill., has patented an improvement in the class of atmospheric clothes pounders, that is to say, pounders which are constructed with one or more chambers or cavities in which the air is alternately compressed and allowed to expand at each reciprocation.

An improved means for connecting the body of a baby carriage to the running gear has been patented by Mr. Charles M. Hubbard, of Columbus, Ohio. It consists in supporting the rear end by one or more coil springs, and hinging the front portion of the body to a pair of upturned supports rising from the front axle.

An improved ferrule for awl handles has been patented by Mr. Jules Steinmeyer, of St. Louis, Mo. The object of this invention is to prevent splitting of the handle, to secure both the ferrule and leather pad firmly in place, and to furnish a durable and serviceable awl handle.

NEW TELEGRAPH INSULATOR.

The insulator represented in the annexed engraving was originally designed to meet the requirements of South American telegraph service, but it is equally well adapted to lines in other places. The main idea is to avoid breakage from expansion and contraction in a climate subject to sudden changes of temperature, and to avoid the mischief occasioned by a well known South American bird, the "hornero," by building nests of mud on the brackets and insulators. With this insulator these nests cannot cause a weather contact or earth; on the contrary, the nest rather improves the insulation. The sectional view, Fig. 2, shows the construction of the insulator and the manner of fastening it to the cross arm or bracket. A rubber ring is placed between the upper end of the porcelain insulator and the cross arm, and another similar ring is placed between the head of the suspending screw and the bottom of the insulator. It will be noticed that with this construction the insulator cannot



IMPROVED TELEGRAPH INSULATOR.

be broken by the contraction of the screw or by the swelling of the cross-piece. This insulator can be used on an iron bracket and in connection with either iron or wooden posts, and is in every way more secure than the insulators in common use. The first cost of these insulators compares favorably with the cheapest in market, while it is less liable to breakage, lasts longer, and gives better results. It has been patented in this country and in Europe.

Further information may be obtained by addressing Mr. J. H. Bloomfield, Concordia, Entre Reos, Argentine Republic, South America.