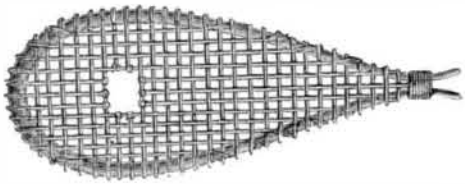


MECHANICAL SKILL OF SAVAGES.

The claim which we, as scientific and mechanical people make, of possessing all the scientific knowledge and mechanical skill belonging to the race, and that civilization alone confers a power over the forces and materials of nature, is hardly borne out by the facts. The ingenuity of some savage tribes in adapting themselves to circumstances and in providing means for overcoming natural obstacles is surprising, and would reflect credit on those who pride themselves upon their practical knowledge of mechanics and the laws governing the conditions of matter. Our cabinets of curiosities contain many specimens of skill made by untaught savages, the workmanship of which would be a source of pride to an educated mechanic. We do not refer merely to the results of expenditure of time and labor, but to the adaptability of the implement to the purpose desired. Some of these specimens are not only unique in appearance, but their form and mode of employment involve natural laws with which we are not fully acquainted. In many instances the savage can excel the civilized man even by the use of similar means. As illustrative of these remarks we introduce an engraving of a snow shoe, the invention of our North American Indians, and a boomerang, discovered first among the Australian savages.

The heavy snows which cover our continent above the 43d parallel of latitude for successive months in the year, would



prove a very serious impediment to foot travel but for the snow shoe. When the surface of the snow is frozen sufficiently to sustain the weight of a man this contrivance is not necessary, but when it lies like a deep bed of fleecy down, and offers as much resistance to the passage of the human body through it as an equal depth of water, the value of the snow shoe becomes apparent.

Its form, as generally made, is shown in the engraving. The rim is a piece of tough wood thickest in the middle and tapering to the ends. This is bent in the form shown, and the ends bound together with thongs of moose hide or deer skin. The frame is about three feet long, or less, to accommodate the size of the wearer. The space between the sides of the bow or frame is covered with a network of moose hide thongs interlaced like basket work. A space is generally left near the toe (the large part of the shoe) to receive the ball of the wearer's foot, although some prefer the network to cover the space. The toe or front of the foot alone is fastened to the shoe by straps, leaving the heel perfectly free, so that in walking the rear or tail of the shoe drags along on the snow. Only the toe of the shoe is raised in walking. One has an unpleasant sensation of being slipshod when first using the snow shoe. Only moccasins are adapted for snow shoes, as the ordinary boot or shoe is too rigid and unyielding. It might be supposed that the width of the shoe (ten to thirteen inches) would compel the wearer to spread his feet wide apart, but in walk-



ing the toe of the advancing shoe is raised slightly and slid over the one at rest, requiring no unnatural exercise or position of the legs or feet. A practiced walker can get over the snow at a very good speed; in proof of which it may be noted that on the 2d of January at a snow shoe race in Hamilton, C. W., five miles were made by the contestants in 31 minutes, 15 seconds, and 32 minutes, 11 seconds, respectively.

The boomerang is simply a curved piece of a hard heavy wood, with its edge on the concave side, like that of a scythe. The wood appears like ebony or very dark Honduras mahogany, and is highly polished. With this simple instrument the Australian savage can wound or kill his foe or game even when hidden by a rock or tree, by "shooting round a corner" like the negro's crooked gun. In the hands of an expert it may be used with great effect. Thrown from the hand it goes whirling on the same horizontal plane, at a height of two feet from the ground, but on a sudden takes a turn, rising in a spiral plane and returning on a plane nearly parallel to that of its direct flight. Or it may be made to describe the arc of a horizontal circle and thus shoot round the corner. In the hands of the inexperienced, however, it is a dangerous plaything, coming, like curses, home to roost.

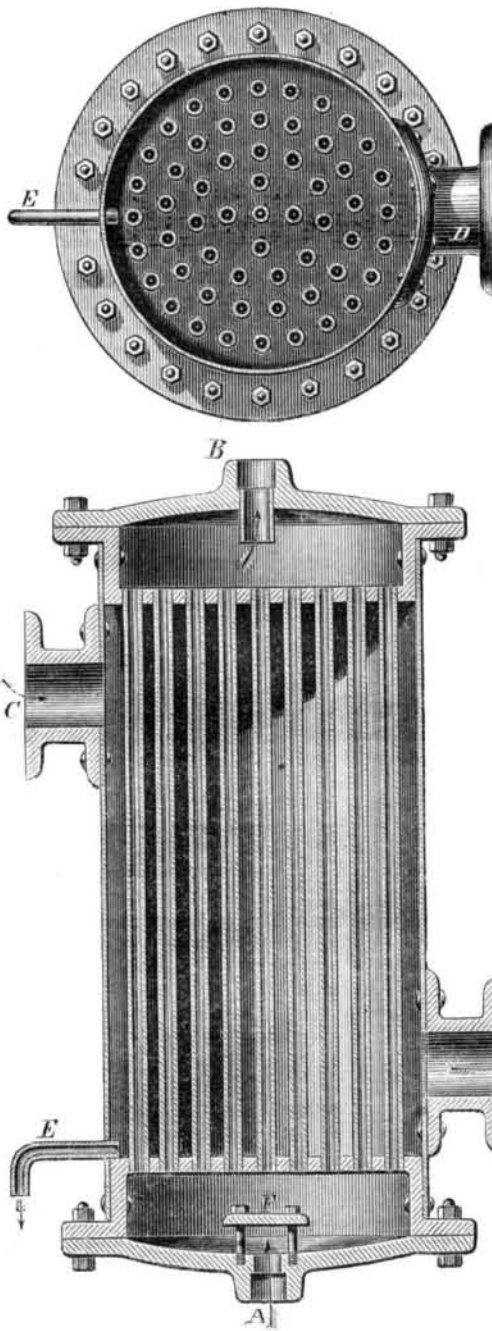
We are not aware that the philosophy of the boomerang has ever been comprehended, or its erratic behaviour explained. The "scaling" of flat stones or clam shells by boys seems to bear an analogy to the flight of the boomerang; but while the course of the stone or shell may be accounted for by the form of the missile and a mathematical formula deduced therefrom, the shape of the boomerang, when critically examined and gaged, affords no adequate basis for a philosophical conclusion.

A NEW SILVER ORE.—A new mineral called parisite, was discovered in the district of Mono, California, by Dr. Paris in 1865; it has recently been analysed by Professor Arant, and yields 612 per cent of oxide of silver.

ECONOMICAL AND SIMPLE HEATER FOR STEAM BOILERS.

The following communication with accompanying illustrations is from a practical engineer, who has frequently enriched our columns with the results of his experience, and whose name is sufficient guaranty of the value of his contributions:

Heaters for feed water for boilers of non-condensing engines are nothing new, but as a general rule they are imperfect in construction and of not sufficient capacity to permit a free exhaust; nor do they present sufficient surface to heat the water to the degree that they should, thereby producing "back pressure" and putting the water into the boiler at a far lower temperature than is due to that of the exhaust steam, which of course varies according to the work done previous to its being exhausted, or, perhaps, more properly speaking, expelled from the cylinder. This rarely falls below 212°, generally much above that, and there is no reason why we should not put our feed water into the boiler at very near the same temperature as that of the exhaust steam. Many devices for this purpose have been used. Heating the water by direct contact with the exhaust steam was formerly in general use:



it has this advantage, in case the water is impure—makes scale—a portion of the impurity will be left in the heater and pipe leading to the pump. I have known a heater of the capacity of 200 gallons in which more than half of its capacity was filled with a hard incrustation like limestone, and the pipe (2 inch) leading to the pump would become filled in three or four months to a degree that it would not supply the boiler. This was a serious objection, because to remove it was impossible without taking the pipe up and subjecting it to a heat sufficient to convert the limestone with which it was filled to commercial lime. Another objection to the above mode is that the feed water is heated before it is taken by the pump and the vapor constantly being given off from hot water, accumulating in the pump barrel, becoming compressed, and thereby leaving no room for the water on the rise of the plunger to follow, the pump fails to supply the wants of the boiler.

The true and only safe way, then, is to supply the pump with cold water and heat it between the pump and the boiler; by this means a regular supply can be given the pump, which, if the consumption of the steam is nearly regular, will keep the water in the boiler nearly at the same level—an important point for economy and safety.

To effect this the "Coil Heater" was devised, which is a coil of pipe say one inch in diameter placed in a vessel of cylindrical form, the water being forced through the coil, the exhaust steam admitted into the cylindrical vessel impinging the coil containing the cold water, consequently heating the water, within the coil to a degree corresponding to the temperature of the steam, the surface exposed, the quantity of water, and its temperature passing through in a given

time. Now this would require for an engine of 45-horse power, about 171 feet of one inch pipe in a coil, the water from the pump would have to pass the entire length of the coil to reach the boiler, and of course, following the convolutions of the pipe, more friction would ensue than if the pipe was straight. Then, again: if the water should be impure, incrustation of necessity would follow, reducing the conducting power, increasing friction, until the aperture became too small and the result would be the breaking down of the pump or bursting of the coil. From the nature of the coil it cannot be cleared, but must be taken out and a new one put in at a great expense.

I present to your readers the tubular heater, which is not claimed as anything new, but I wish to show its superiority over the open or coil heater, both as regards economy of fuel, original cost, and facility of repairs. The accompanying engravings show a section and plan of a feed water heater that was made for the writer in the year 1846, and which has been and is now in extensive use in New England, where coal costs more than here.

By this, it will be seen that in case of incrustation, on removing the head, an instrument can be introduced to clean the tubes from scale or other deposits. In case of the failure of a tube or tubes from any cause they may be easily removed and others substituted, by any ordinary mechanic with facility without removing the heater from its place.

Another advantage it has, is that with one set of patterns a heater can be made that is adapted to engines from ten to three hundred horse power—more or less—the difference only being the extension of the length, the tubes and shell being made to any desirable length.

It is found that one square foot of tube surface exposed to the action of the exhaust steam is sufficient for each indicated horse power. This may be varied according to circumstances. If the engine works full stroke, with, say 60 lbs. steam without cutting off, the surface may be reduced. If cutting off very short, say at $\frac{1}{4}$, it should be increased, unless steam of a very high tension, say 100 lbs. or above, is carried. With the pump graduated to supply the boiler the temperature of the feed water will be found to be from 205° and upwards.

The engraving is intended to be on a scale of one inch to a foot.

The tube plates, flanges, and covers are of cast iron. The holes in the plates are reamed out smooth and slightly countersunk on the outside. The tubes are one inch outside diameter, made of copper, brass, or iron, fitted to the holes in the tube plates nicely, projecting at each end $\frac{1}{8}$ of an inch. A slightly tapered steel plug is driven in at each end, then the projecting ends are clinched down with a staking tool. When thus secured they are invariably tight and easily removed if required. The shell is made of boiler iron, say of $\frac{3}{8}$ thick.

The vessel is placed upright. The water enters at the bottom at A, and is discharged at the top, B, passing through the tubes. The exhaust steam enters at the top nozzle, C, on the side, bathing the tubes which are filled with water, and is discharged at the side nozzle, D, at the bottom.

Now it will be seen that, from the diameter and length of the 57 pipes, with a pump sufficient to supply a 50-horse power boiler the water would be subjected to the action of the steam fully, giving ample time to heat it.

The small pipe, E, at the bottom on the left hand side is to take off the water that is made from the condensation of the steam. The short pipe, B, projects from the top cover downwards to leave a space above its open or lower end to act as an air chamber to relieve the shock caused by the action of the pump.

The circular plate, or disk, F, over the water entrance at the bottom is to deflect the water so that it may not pass in undue proportion through the center tubes.

F. W. BACON.
Consulting Engineer.

84 John street, New York.

NEW PUBLICATIONS.

ONWARD.

The first number of Mayne Reid's new magazine, "Onward," is one of the best illustrated and printed magazines that has found its way to our table this month. It purports to be a magazine for youths, and if the promise which this number gives is to be fulfilled in the future, the youths of this country have got much to be grateful for. Ourselves, albeit we have found lately some silver lines creeping in around our temples, and relieving the otherwise somewhat too vivid hue of our beard, wish to be counted as youthful, if such an intellectual treat is to be monthly set before the youths of the United States. In short, we are more than pleased with everything about it except the uncut leaves; but we hope Mr. Carleton, the publisher, will, in future, remember that there are some old youths in this land whose fingers are not so nimble as of yore, and with whom a magazine with leaves cut to hand finds much favor. We predict a brilliant career for "Onward."

THE AMERICAN BUILDER AND JOURNAL OF ARTS.

This new journal comes to us greatly improved and enlarged. Its illustrations are excellent, and its editorial articles have a fine flavor. We have already had the pleasure of welcoming the advent of this journal, as our readers will remember, and we consider it amply worth its subscription price, three dollars. It is published by Lakey & Adams, Chicago, Ill.

THE OLD WORLD IN ITS NEW FACE: IMPRESSIONS OF EUROPE IN 1867-1868. By Henry W. Bellows. 2 volumes. Cloth, \$3.50.

We are indebted to the author, Rev. Dr. Bellows, for the above very entertaining and instructive volumes of European travel, the reading of which we have enjoyed with peculiar pleasure, greatly enhanced by the fact that during a part of the year 1867 it was our privilege to enjoy the society of Dr. Bellows and his family through Holland, Germany, and some portions of Switzerland. Dr. Bellows is an original thinker, a keen observer, and an accomplished writer, and there is a freshness and vigor about his observations which commend them to all who enjoy reading about foreign countries. The author's travels extended through Egypt, Syria, Palestine, Turkey, and Greece, and one of the most instructive features of the work is that which treats of the condition and prospects of heroic little Greece. Next to the enjoyment of the trip itself, we can recommend no better substitute than Dr. Bellows' admirable volumes, which can be obtained through any bookseller.

TRAVELS AND ADVENTURES IN SOUTH AND CENTRAL AMERICA. Charles Scribner & Co., 654 Broadway, N. Y.

A very interesting volume, from the pen of Don Ramon Paez, on the climate, products, and animals of South and Central America has just been published. The subjects are pleasantly treated by the author, whose home was formerly in Venezuela, and the book is handsomely illustrated with engravings of wild beasts, crocodiles, etc., which are indigenous to those tropical countries.

Recent American and Foreign Patents.

Under this heading we shall publish weekly notes of some of the more prominent home and foreign patents.

RAILROAD CAR HEATER AND VENTILATOR.—Asa Weeks, Minneapolis, Minn.—The object of this invention is to provide an apparatus for warming and ventilating railway cars in winter, and cooling and ventilating them in summer; the apparatus being so constructed that it is cheap, convenient to manage, and economical in operation, and can be applied to a whole train without any difficulty arising from the coupling and uncoupling of the cars.

DETACHING BOATS.—Thomas H. Mortimer, Charleston, S. C.—This invention has for its object to provide a simple, cheap, and effective device, by which boats at sea can instantly be detached from the davittackle when lowered into the water.

GATE.—S. S. Allen, Belvidere, N. Y.—This invention relates to improvements in gates, whereby it is designed to provide a convenient and reliable means for opening and closing the same, when riding either on horseback or in carriages, without the trouble and delay of dismounting.

DEVICE FOR CLEANING OIL WELLS.—Jacob Taylor, Petroleum Center, Pa.—This invention has for its object to produce a device by which the cracks and crevices of oil wells can be scraped open when they are clogged by paraffin and other impurities.

FIRE ARMS.—Peter Shuler, Morris, Ind.—This invention relates to a new and useful improvement in fire arms of that class which are commonly termed needle guns.

PISTON PACKING.—Francis A. Brown, Ithaca, N. Y.—This invention relates to a new and simple metallic packing for pistons, and it consists in a novel and improved mode of construction and arrangement, whereby a closely-fitting piston is obtained, and one which will not be liable to become affected by wear.

VEGETABLE SLICING MACHINE.—Samuel Markel, Roseburgh, Pa.—The object of this invention is to provide a machine for slicing up large quantities of vegetables, as cabbage, beets, turnips, and the like.

CORN PLANTER.—James S. Coe, Attica, Ind.—This invention relates to a new and improved machine for planting corn, and it consists in a peculiar construction of the frame of the machine and its working parts.

STEAM TRAP.—George H. Corliss, Providence, R. I.—The object of this invention is to effect an automatic escape for the products of condensation from steam, and other pipes or vessels, and at the same time prevent the escape of steam, vapor, or gas, from the pipes or vessel in which it is confined.

SMOKER'S COMPANION.—William H. Waite, New York city.—This invention has for its object to furnish a simple and convenient instrument for holding a cigar when smoked close, and also for use as a pipe stopper and for cleaning out the bowl of the pipe.

HORSE RAKE.—J. C. Stoddard, Worcester, Mass.—This invention relates to a new and improved hay rake, and is a modification of and an improvement upon a hay rake for which Letters Patent were granted September 11, 1860.

SOWING PULVERULENT MANURES.—Joseph L. Stegall, Thomasville, Ga.—This invention relates to a new and improved machine for sowing pulverulent manures, such as lime, plaster, ashes, guano, etc., etc. The object of the invention is to obtain a simple, efficient, and mechanical device for the purpose specified.

PRESSURE REGULATOR.—George H. Corliss, Providence, R. I.—This invention is for the purpose of effecting an automatic reduction of the pressure of steam, when it is to be used for heating, or where a higher pressure is raised in the boiler than is required for the purposes to which it is to be applied, and making such reduced pressure uniform.

ATOMIZING TUBES.—William K. Leach, Boston, Mass.—This invention relates to an improved method of constructing what is known as atomizing tubes, an apparatus employed in drawing up any medicated or other liquid from a suitable vessel, and diffusing the same in the air in the form of finely divided spray or atoms.

PULVERIZER.—Isaac N. Jennings, Danbury, Conn.—This invention relates to a new implement for pulverizing the soil, which can be used as an attachment to harrows or independently, as may be desired. The invention consists in applying to a horizontal beam or head a series of metal straps, which project from front and rear; those in front serving to hold down and break up loose lump, while those in rear project downward into the ground and pulverize the same. The lower front corner of the beam, is protected by metal straps, and works on the ground so as to prepare the same with its weight, crushing the lumps and evening the ground before the back teeth commence to act.

IMPLEMENT FOR PULLING HOP POLES.—A. L. Hatch and W. A. Hatch, Loyd, Wis.—This invention consists of a lever or handspike pivoted to the upright of a pedestal board or block with a joint permitting a double movement of the lever; to wit, the usual vibrating movement and a downward swinging of the lever. The lever is provided with a stout iron prong or tine affixed near the end of the same, and running out parallel to the short arm of the same, leaving a space between it and the said short arm suitable for receiving and cramping upon hop poles in the act of extracting them from the ground.

MOUNTING ARTIFICIAL TEETH.—William C. Michaelis, New York city.—This invention has for its object to improve the construction of lower sets of artificial teeth so as to make them stronger and better than when mounted in the ordinary manner, and at the same time less liable to move when used for masticating purposes.

CHURN.—James King, Succasunna, N. J.—This invention relates to a churn in which a square dasher is arranged in an oblong box in such a manner that, by revolving the said dasher the whole inner space of the churn will be swept by the dasher, and its contents well agitated, so that butter can be quickly made.

VEHICLE.—Charles De Damseaux, New York city.—This invention relates to a new manner of arranging the wheels of cars and wagons, and by connecting them with sliding rails, so that the rails will be automatically placed below the wheels as the vehicle progresses in either direction. The invention also consists in the use of segmental wheels arranged side by side, in such a manner that a certain number of segments serves to make up a whole wheel. In connection with these wheels are arranged sliding rails, which are at both their ends secured to weighted chains or ropes, and which lie on the ground to form the treading surfaces for the wheels.

HOT-AIR DRUM.—William Allchin, Newburgh, N. Y.—This invention relates to a new apparatus for heating air by the products of combustion that escape from a stove, furnace, oven, or range of suitable construction. The invention also consists in the use of a flat, rectangular drum, which is by interior partitions divided into three zig-zag channels, of which the central one serves to conduct the products of combustion to the chimney or flue; while the outer ones are passages for air which, entering the drum at the lower end in a cold state, becomes heated by the hot plates and partitions, the latter having been heated by the smoke passing up between them.

PORTABLE ADJUSTABLE STILL-WATER DAM.—Samuel Lewis, Brooklyn, N. Y.—This invention relates to improvements in a portable adjustable still-water dam, and consists in an arrangement whereby the boat float or vessel bearing the machinery may be raised clear of the water and be anchored to the bottom of a stream by long timbers or spuds.

EARTH SCRAPER.—Nelson Peck, Jay, N. Y.—This invention has for its object to improve the construction of the improved scraper, patented by the

same inventor, September 4th, 1866, and numbered 57,757, so as to simplify its construction, and make it more convenient and effective in use.

SUBAQUEOUS DRILLING APPARATUS.—Samuel Lewis, Brooklyn, N. Y.—This invention consists in apparatus, designed to simplify the operation of drilling rock under water.

TOBACCO PIPES.—G. Corey, Brooklyn, N. Y.—This invention consists in hanging the bowl of the pipe on pivots in a forked stem, so that it may revolve, if desired, and so that it will by its gravity hang in an upright position.

PISTON PACKING.—David Neahr, Fort Yuma, Cal.—This invention consists of metal packing rings, made in segments, one ring fitting into a chamber or recess in another ring, said segments being so placed together as that the joints of the segments of each ring are broken by the other ring; said segments held together by a coiled or spiral spring around the same, so placed upon a follower on a metallic coiled spring in the stuffing box as to be kept tight upon the seat, the same in the inside of cap or cover of the stuffing box, whereby the same is prevented from leaking steam around the piston or through the aperture in the cap.

RICE SOWING MACHINE.—T. D. Dotterer, Charleston, S. C.—The object of this invention is to provide a machine which will work close to the ditches or fences, and over the unequal ground, and otherwise perform the work in a better manner than machines now in use.

HORSE POWER.—Charles F. Gay, Albany, Oregon.—This invention has for its object to furnish an improved horse power, simple in construction, strong and durable, and which shall be so constructed as to greatly diminish the friction and increase the effective power of the machine.

PORTABLE FENCES.—P. Lambkin, St. Albans, Vt.—This invention has for its object to furnish an improved portable fence, so constructed that it may be durable, substantial, and effective; easily and quickly set up and taken down, and which may be folded or shut up into small compass for transportation.

GANG PLOW.—Z. T. Sweet, Eugene City, Oregon.—This invention relates to a new and improved gang plow of that class which are provided with a driver's seat and are commonly termed sulky plows.

CORN CUTTER AND SHOCKER.—Hiram Harris, Circleville, Ohio.—This invention has for its object to furnish a simple, convenient, and effective machine for cutting and shocking corn, by the use of which the time and labor usually required for these operations may be greatly diminished.

CORN PLANTER.—Wm. B. Goodwin, Kilmundy, Ill.—This invention has for its object to improve the construction of the parts of a corn planter, by which the dropping slides and the marker arms are operated, so as to make them more simple in construction, more effective in operation, and less liable to get out of order.

WINDOW SASH.—M. R. Perkins, Portsmouth, N. H., J. V. Bogert, New York city, and J. F. Lowell, Boston, Mass.—This invention has for its object to improve the construction of window sashes, so that they may be conveniently turned down inward for convenience in washing them, and which shall at the same time in no wise disfigure the window.

CORN SHELLER.—Jas. M. Hawley, Holton, Ind.—This invention has for its object to furnish an improved corn sheller, by means of which the corn may be removed from the cobs rapidly and entirely, whatever may be the size or shape of the ear, and which shall at the same time be simple in construction and easily operated.

Business and Personal.

The Charge for Insertion under this head is One Dollar a Line. If the Notices exceed Four Lines, an Extra Charge will be made.

Wanted.—An apparatus for the distillation of wood, in which the gas is converted into fuel. Capacity about one cord. Address Wm. Gurney, Clinton, La.

Manufacturers and machinists who want orders, read Boston Bulletin, whose reports of manufacturing news of the U. S., show who needs machinery, etc. Address Boston Bulletin. Terms \$4 a year.

Tin scrap, of different sizes, up to pieces six inches long by three to four inches wide, for sale cheap. Apply to Manning, Bowman & Co., Middletown, Conn.

"Broughton's" lubricators for steam chests possess all the qualities requisite. They use either suet or oil; can be graduated at will, and are more simple, cleaner, more durable and efficient than any others; they cannot leak, and will pay for themselves in saving of oil in a few weeks. Send to Broughton & Moore, 41 Center st., N. Y., for circulars.

For sale at a bargain.—A good second-hand steam engine, 30-horse power. Apply at once to P. & F. Corbin, New Britain, Conn.

Parties interested in propulsion, treated of on pages 2 and 44, Scientific American, may address F. R. Pike, 56 Cedar st., New York.

I will visit the principal cities throughout the U. S., beginning with New York, the 1st of March, with my one-wheeled velocipede, perfectly balanced drive wheel, from 4 to 6 feet in diameter, with an elastic wire, that will run over the roughest pavements with perfect ease. Speed from 15 to 20 miles per hour. Manufacturers interested. Patent pending through the Scientific American Agency. L. H. Soule, Mt. Morris, N. Y.

Wanted immediately.—The address of all inventors and manufacturers at the Whitlock Exposition, 245 Broadway, New York.

For steam pumps and boiler feeders address Cope & Co., No. 118 East 2d st., Cincinnati, Ohio.

Peck's patent drop press. Milo Peck & Co., New Haven, Ct.

Responsible and practical engineers pronounce the Trupp r Grate Bar the best in use. Send for a pamphlet. L. B. Tupper, 120 West st., N. Y.

Iron.—W. D. McGowan, iron broker, 73 Water st., Pittsburgh, Pa.

For sale.—100-horse beam engine. Also, milling and edging machines. E. Whitney, New Haven, Conn.

Millstone dressing machine, simple, durable, and effective. Also, Glazier's diamonds, and a large assortment of "Carbon" of all sizes and shapes, for all mechanical purposes, always on hand. Send stamp for circular. John Dickinson, 64 Nassau st., New York.

For sale cheap.—one engine lathe, 5 feet swing, 20 feet bed, in perfect running order. Address D. Lane, Montpelier, Vt.

Get a fire extinguisher for your building. It may save it from destruction. Send to U. S. Fire Extinguisher Company, 8 Dey st., New York, for descriptive circular.

Wanted.—Marbelizer of slate, marble, and iron mantles. Address Bissell & Co., Pittsburgh, Pa.

Water-power, with grist & saw mill, 90 miles from N. Y., for sale, good location for paper mill or manufactory. H. Stewart, Stroudsburg, Pa.

J. H. White, Newark, N. J., will make and introduce to the trade all descriptions of sheet and cast metal small wares, dies and tools for all kinds of cutting and stamping, patterns, etc., etc., for new and experimental work.

For descriptive circular of the best grate bar in use, address Hutchinson & Laurence, No. 8 Dey st., New York.

For solid wrought-iron beams, etc., see advertisement. Address Union Iron Mills, Pittsburgh, Pa., for Lithograph, etc.

N. C. Stiles' pat. punching and drop presses, Middletown, Ct.

Prang's American chromos for sale at all respectable art stores. Catalogues mailed free by L. Prang & Co., Boston.

Winans' boiler powder, N. Y., removes and prevents incrustations without injury or foaming; 12 years in use. Beware of imitations.

The paper that meets the eye of all the leading manufacturers throughout the United States—The Boston Bulletin. \$4 a year.

Official List of Patents.

Issued by the United States Patent Office.

FOR THE WEEK ENDING JANUARY 5, 1868.

Reported Officially for the Scientific American.

SCHEDULE OF PATENT OFFICE FEES:

On filing each caveat	\$10
On filing each application for a Patent (seventeen years)	\$15
On issuing each original Patent	\$50
On appeal to Commissioner of Patents	\$20
On application for Release	\$30
On application for Extension of Patent	\$50
On granting the Extension	\$50
On filing a Disclaimer	\$10
On filing application for Design (three and a half years)	\$10
On filing application for Design (seven years)	\$15
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In addition to which there are some small revenue-stamp taxes. Residents of Canada and Nova Scotia pay \$500 on application.

Patents and Patent Claims.—The number of patents issued weekly having become so great, with a probability of a continual increase, has decided us to publish, in future, other and more interesting matter in place of the Claims. The Claims have occupied from three to four pages a week, and are believed to be of interest to only a comparative few of our readers. The publication of the names of patentees, and title of their inventions, will be continued; and, also, as heretofore, a brief description of the most important inventions. We have made such arrangements that we are not only prepared to furnish copies of Claims, but full Specifications at the annexed prices:

For copy of Claim of any Patent issued within 30 years.....\$1
A sketch from the model or drawing, relating to such portion of a machine as the Claim covers, from.....\$1
upward, but usually at the price above named.

The full Specification of any patent issued since Nov. 20, 1866, at which time the Patent Office commenced printing them.....\$1-25
Official Copies of Drawings of any patent issued since 1866, we can supply at a reasonable cost, the price depending upon the amount of labor involved and the number of views.

Full information, as to price of drawings, in each case, may be had by addressing

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85,503.—DIE FOR FORMING PLIER JOINTS.—George R. Andrus, East Berlin, Conn.

85,504.—MOTIVE POWER FOR SEWING MACHINES.—Samuel J. Baird, Staunton, Va.

85,505.—MOTIVE POWER FOR SEWING MACHINES.—Samuel J. Baird, Staunton, Va.

85,506.—FENCE.—Augustus T. Barnes, Seneca, N. Y.

85,507.—COFFIN.—John D. Bayliss, Alexandria, Va.

85,508.—WIND WHEEL.—John Beach, DeRuyter, N. Y.

85,509.—CULTIVATOR.—Nathan Carr, Jr., and John Carr, Monmouth, Ill.

85,510.—MEANS FOR REPAIRING BLOWING ENGINES.—Thomas Critchlow, Swatara township, Pa.

85,511.—BAG HOLDER.—Leonard Crofoot, Pavillion, N. Y.

85,512.—RAG-CUTTING MACHINE.—Adario E. Crosby, Glastenbury, Conn.

85,513.—RAG-CUTTING MACHINE.—Adario E. Crosby, Glastenbury, Conn.

85,514.—SKIPPING ROPE.—John R. Cross, Chicago, Ill. Antedated December 19, 1868.

85,515.—PRINTING PRESS.—H. B. Denny, Washington, D. C.

85,516.—CORN PLANTER.—T. Duncanson, Buford, Ohio.

85,517.—PUMP.—Daniel S. Evans, Brockway, Mich.

85,518.—CAR SPRING BOX.—J. W. Evans, New York city.

85,519.—IRON FOR CARRIAGE POLES.—Benjamin Foltz, Rockford, Ill.

85,520.—APPARATUS FOR MAKING WIRE OF SHEET METAL.—Thaddeus Fowler, Seymour, Conn.

85,521.—OIL CAN.—O. H. Gardner, Fulton, N. Y.

85,522.—NAIL MACHINE.—F. A. Gleason, Brooklyn, N. Y.

85,523.—BIRD CAGE.—Gottlob Gunther, New York city.

85,524.—SEED SOWER.—Thurston G. Hall, Hume, N. Y.

85,525.—RULING PEN.—Alfred Hathaway, Charlestown, Mass.

85,526.—MACHINE FOR WASHING SHAVINGS IN BREWERIES.—Frederick Hinkel, Albany, N. Y.

85,527.—VELOCIPEDE.—John H. Irwin, Philadelphia, Pa.

85,528.—DEVICE FOR FEEDING CENTRIFUGAL SUGAR-DRAINING MACHINES.—Alfred Kusenberg, Philadelphia, Pa.

85,529.—"COLD FIX" FOR LINING IRON CHILLS, MOLDS, PIG BENDS, ETC.—Henry A. Laughlin, Pittsburg, Pa.

85,530.—COMBINED PRESS AND STRAINER.—Joseph H. Littlefield, Cambridge, Mass.

85,531.—MACHINE FOR BENDING SHEET METAL.—William J. McLea, Leroy, N. Y.

85,532.—COTTON PICKER.—Albert Pettingill, East Livermore, Me.

85,533.—PLOWSHARE.—L. M. Reed, Troy, Ohio.

85,534.—SAP SPILE.—L. M. Reed, Troy, Ohio.

85,535.—BUTTON-HOLE FOR PAPER COLLARS.—William H. Robinson, Rochester, N. Y. Antedated December 22, 1868.

85,536.—STEAM ENGINE.—Horace Rockwell, Roanoke, Ind.

85,537.—EMERY WHEEL.—Addison M. Sawyer, Athol, Mass. Antedated December 26, 1868.

85,538.—POLISHING WHEEL.—Addison M. Sawyer, Athol, Mass. Antedated December 26, 1868.

85,539.—PLAYING TABLE.—Henry Seher, New York city.

85,540.—COFFEE POT.—Daniel M. Skinner, Sandwich Center, N. H.

85,541.—WHIFFLE TREE.—E. A. Smead, Tioga, N. Y.

85,542.—MACHINE FOR PRODUCING UNIFORM TWIST IN TABLE CUTLERY, SPOONS, ETC.—Egbert W. Sperry, Wolcottville, Conn.

85,543.—LOG-CANTING APPARATUS.—Benjamin R. Stevens, Grand Rapids, Mich.

85,544.—SHOOL DESK AND SEAT.—G. A. Stewart, Des Moines, Iowa.

85,545.—REAMING TOOL.—Edward Sullivan, Pittsburg, Pa. Antedated December 17, 1868.

85,546.—KNITTING MACHINE.—William A. Tangeman, Lockland, Ohio.

85,547.—POTATO PLANTER.—Joseph L. True, Benton, Me.

85,548.—PUMP.—James Underwood, Mason county, Ill.

85,549.—MANDREL FOR COILING SPRINGS.—Richard Vose and James Anderson, New York city.

85,550.—PAPER-RULING MACHINE.—J. J. Walser, Chicago, Ill.

85,551.—BUTTER WORKER, ETC.—James T. Whipple, Chicago, Ill.

85,552.—ENGINE LATHE.—A. E. Whitmore, Boston, Mass.

85,553.—COMBINED CALIPER, RULE, AND WIRE GAGE.—Frederick A. Adams, Shelburne Falls, Mass.

85,554.—HOT-AIR DRUM.—William Allchin, Newburgh, N. Y.

85,555.—GATE.—S. S. Allen (assignor to himself and David Allen), Belvidere, N. Y.

85,556.—CARDING MACHING.—Anthony A. Bennett and George Vine, Norwalk, Conn. Antedated December 23, 1868.

85,557.—DOG KENNEL OR HOUSE.—Samuel S. Bent, Portchester, N. Y.

85,558.—MACHINE FOR PIERCING STITCH HOLES.—Reuel Blackwood, Philadelphia, Pa. Antedated December 30, 1868.

85,559.—PIPE CONNECTION IN RAILROAD CAR HEATERS.—Marilyn S. Bolt, Elmira, N. Y.