THILL COUPLING.—Silas Rogers, Stanfordville, N. Y.—This invention relates to a new and improved mode of connecting thills to axles, whereby the thills may be readily attached to and detached from the axle, and all rattling of the parts avoided.

DEVICE FOR CUTTING BOOT AND SHOE HEELS.—Benj. F. Goddard, Charlestown, Mass.—This invention relates to a new and improved machine for cutting boot and shoe heels, and is designed to save labor and stock in the production of that work. The invention consists of a combination of dies or cutters, of different sizes, arranged in such a manner that they may be manipulated or adjusted so that the several layers of leather composing a heel may be cut out to form a heel approximating to the desired shape, requiring but a trifling amount of trimming in order to finish it.

TOWELS.—John Cash, Coventry, England.—This invention relates to an improved method of manufacturing towels to be employed for friction of the surface of the skin of persons after bathing, or similar purposes.

HAND LOOM.—T. Henry Tibbles, Kansas City, Mo.—This invention relates to imporvements in an ordinary hand loom, and consists in a new device for operating the drivers and throwing the shuttle by the motion of the lay, with one picker staff and a shifting weight, and working the treadles by direct action of the lay, without treadles, through the medium of cam rollers.

HAND LOOM.—A. Smith and P. P. Smith, Plymouth, Mo.—This invention relates to improvements in the construction and arrangement of a hand loom, and consists in a device connected with the shuttle drivers in such a manner that the motion of the lay shall operate on the drivers to throw the shuttle, and also a device connecting the treadle shaft with the lay to work the treadle.

SNOW PLOW.—James S. Zane, Pleasant Plains, Ill.—This invention relates to an improvement in the construction of snow plows for railroads, and consists in inclined planes which are mounted on a truck and rise from the bed of the road to an elevated double mold board, which is hinged and so arranged in combination with machinery that it may be raised and lowered as required.

WINDOW JACK.—S. P. Loomis, Philadelphia, Pa.—This invention relates to an improvement in the construction and arrangement of a window jack or platform support for house painters.

BURGLAR ALARM.—D. B. Skelly, Lockport, N. Y.—This invention consists in an arrangement of springs which, when set or strained, are held in position by a small wire or thread, but when the wire or thread is broken or loosened the springs are liberated, which liberation or recoil gives the alarm by ringing a bell and discharging a pistol, and at the same time it ignits a match and lights a lamp.

CENTER BOARD.—Felix Doming, Penataquit, N. Y.—This invention has for its object to improve the construction of center boards, and make them more effective in operation.

DRILLING MACHINE.—George Downing, Schuylerville, N. Y.—This invention has for its object to furnish an improved drilling machine, simple in construction, easy to be operated, which can be so adjusted that the full force of the blow may be effective, whether drilling a shallow or deep hole, and which will drill vertical or inclined holes with equal facility.

BROADCAST SEEDING MACHINE.—Augustus Weitman, West Union, Iowa.—This invention relates to a new and improved broadcast seeding machine, and it consists in means employed to prevent the choking of the harness and also in means to insure a proper distribution of the seed and the sowing of the same in a perfect manner.

PADDLE WHEEL.—E. F. Bostrom, Newnan, Ga.—This invention relates to a new and improved paddle wheel designed for both river and sea steamers and has for its object a more efficient action than hitherto of the buckets or float boards against the water and the perfect operation of the buckets or float boards at varying depths of immersion.

HAIR PICKING MACHINE.—Franklin Frey, Liberty, Ill.—This invention relates to a new and useful improvement in the construction of a machine for picking or breaking up the matted knots of hair used for mixing with mortar to plaster houses.

AIR CHAMBER.—Richard H. Hilton, Newbern, N. C.—This invention relates to a new and improved method of constructing air chambers for pumps and other purposes where it is desired that a steady and uniform current of liquid or fluid should be discharged and the invention consists in arranging a strainer and ball valve in the chamber and also a sand trap or sediment chamber therein.

COMBINED HORSE BLOCK AND HITCHING POST.—George W. Preston, Corning, N. Y.—This invention which relates to a combined horse block and hitching post consists essentially in combining in one device made of cast iron or other suitable material a horseblock and hitching post.

COMBINED SHRINKING AND PUNCHING MACHINE.—C. V. Statler, Woodhull, Ill.—This invention relates to a new and improved method of shrinking and punching wagon tires and other articles.

FORMING AMD CUTTING WIRE.—J. Wasson, Elyria, Ohio.—This invention consists in the arrangement of a hollow circular guide and in feeding rollers which are driven by gearing and in a cutting knife which may be operated by the foot whereby wire for tinners' use and for other purposes may be formed, measured off, and cut with great celerity.

CHAIR BOTTOM.—C. W. Royse, Peterborough, N. H.—This invention relates to an improvement in chair bottoms and consists in securing the overlapping ends of the network to the frame by means of wire staples.

DEVICE FOR BENDING TIRES.—Dennis Wetzel, Springfield, Mo.—This invention relates to an improved device for bending tires for wheels. It consists of a double-rimmed wheel to suit tires of different sizes.

MANUFACTURE OF WHITE LEAD.—Isaac M. Gattman, New York city.—The nature of this invention consists in manufacturing white lead by a new and improved process whereby the metal is wholly converted without waste, into white lead of great purity of color and perfect opacity in a very short time compared with the ordinary and most approved process by corrosion of the metallic lead known as the Dutch method.

BULLET MACHINE.—W. Spillman, Marion Station, Miss.—This invention relates to improved devices for forming bullets or minie balls and consists in revolving disks or rollers having one or more eccentric grooves cut in the face of their peripheries in combination with cams and impinging rollers or stationary dies so constructed and arranged as to compress and shape cylindrical sections of lead fed into the machine as to form spherical or conical balls as described.

COAL SCREEN.—Edward W. Weston, Providence, Pa.—This invention relates to an improvement in the construction of screens for separating broken anthracite coal and assorting it in different sizes, and other similar purposes.

DISTILLING SPIRITS OF TURPENTINE.—David Cashwell, Fayetteville, N. C.—This invention relates to an iuprovement in distilling spirits of turpentine and consists in an apparatus for applying steam to extract and expel the spirits of turpentine and rosin from crude turpentine and pine wood.

HAND LOOM.—H. M. Cooper, Lindley, Mo.—This invention relates to improvements in the construction of hand looms and consists in an arrangement of mechanism in connection with the lay or batten by the motion of which back and forth all the operations of the loom are performed, the whole structure being simple, easily regulated and kept in order, while the working of the loom is positive and effective in every part for weaving fine or coarse cloth.

WINDOW FASTENING.—Benson Mayo, Chatham, Mass.—This invention relates to an improved fastening for window blinds and consists in a device which catches and holds the blinds either open or closed alike.

DOOR AND GATE SPRING.—Enos Stimson, Montpelier, Vt.—This invention relates to a door and gate spring for holding a door or gate either open or closed, as desired.

TOILET TABLE OR STAND.—F. Kopper, New York city.—The present invention relates to improvements in a toilet table or stand, which consists in so constructing the stand that it can be folded up into a compact shape when not in use, and when to be used brought to the proper form to receive and support a foot bath or a wash bowl, or any other toilet article, or to be used for any of the ordinary purposes of the toilet.

TRY SQUARE.—J. E. Cowdery, Wheatland, Iowa.—This invention relates to an improvement in try squares, and consists in a blade held to a cross piece by a pivot and furnished with a finger pointing to a graduated scale.

IRONING TABLE.—Albert A. Chittenden, Boston, Mass.—This invention relates to an improved ironing table, and consists of a table or skirt board supported at one end upon a rail secured to the wall and setting under a bracket.

WOOD TYPE CABINET OR CASE.—Charles Aldrich, Marshalltown, Iowa.—By the present invention a cabinet or case for wood type is provided, which in its construction is simple, and in its operation convenient and most practicable, and one in which the type can be kept entirely free of dust or dirt.

TRACE BUCKLE.—A. E. Bailey and H. Nichols, Middleville, N. Y.—The buckle embraced in the present invention is extremely simple in its construction and arrangement, and in use most efficient and practicable.

HOOK FOR HOLD BACK STRAPS.—Wm. A. Bagley, Ansonia, Conn.—The hold-back hook embraced in the present invention is constructed in two parts or sections, one of which is fixed to the shaft and the other arranged to swing therein, so as to open or close the same, it being made with a spring so as to fasten itself to the fixed part when brought over the same.

SNOW HORSESHOE.—Ervine Carman, Schoolcraft, Mich.—This invention relates to an improvement in snow horseshoes, and consists of a spring placed beneath the hoof with a rubber between it and the hoof.

SHOW STAND.—John G. Oonk, Owensville, Ohio.—The present invention relates to an improved stand for the storing and showing of goods, etc., in stores, which consists in providing the stand or closet with a series of rollers on which the goods are wound and from which they can be unwound for being shown, etc.

HOSE GUARD.—David P. Lewis, Huntsville, Ala.—The present invention relates to a guard for the hose of fire engines when laid across a street having railroad tracks, in cases of fires, the object of which is to allow the running of the cars and at the same time afford no obstruction to the free passage of the water through the hose.

CHIMNEY.—Jos. F. Stafford, North Granville, N. Y.—The object of this invention is to prevent buildings being set on fire from burning out of the chimney. The invention consists in the employment of a damper located in the chimney near the top, and operated by means of a lever attached thereto, which is readily operated by a mere child.

STEP LADDER.—M. E. Abbott, Bethlehem, Pa.—This invention relates to a new and improved method of constructing step ladders, whereby they are rendered adjustable and so formed that the braces may be folded up in a small space.

BOW INSTRUMENTS.—George Gemünder, New York city.—This invention relates to a new manner of arranging the sound posts in violins, violincellos, base violins, tenor violins, or other bow instruments, so that a greater equality of sounds may be produced, and so that the tones may be propagated with more clearness, power, and distinctness than they could on instruments in which the ordinary sound posts are used.

ROTARY SWING.—J. N. Forrester, Bridgeport, Conn.—This invention relates to a new rotary swing, which is so arranged that the seats revolve both around a horizontal and a vertical axle; whereby a very ageeable motion is obtained, and whereby all sense of giddiness, generally created by the simple revolution around a horizontal axis is completely overcome or avoided.

HEAD BLOCK FOR SAW MILLS.—Charles H. Brookbank, Connersville, Ind.—This invention consists in the construction and arrangement of the parts by which the screw-shafts on which the head blocks slide, are operated, so that they are only revolved in one drection while the log is to be fed, the same being headed by a vertical lever, the lower end of which is pivoted to the carriage while its upper portion is connected with a horizontal sliding bar.

PUMP FOR COMPRESSING AIR.—Onofrio Abruzzo.—Harlem, N. Y.—This invention relates to a new arrangement for compressing air, in such a manner that the air can be compressed to an indefinite degree by hand or by any small power.

WASHING MACHINE.—W. W. Cox, Carbondale, Ill.—This invention consists in the manner of hanging one of the rollers around which the apron passes, said roller being arranged nearly under the corrugated roller, and is hung in dovetail blocks, which slide in corresponding grooves that are provided in the sideboards of the suds box.

CAR STARTER AND BRAKE.—John Wiley, 2d, South Reading Mass.—This invention has for its object to improve the construction of the improved car starter and brake patented by the same inventor, March 12, 1867, and numbered 62,911.

STEAM BRAKE.—Eugene Bourson, Brussels, Belgium.—This invention relates to a new apparatus for using the steam from the boilers without loss, in order to regulate the motion of the piston, and the speed of trains on deep grades, and to slacken or stop the progress of a train without resorting to the ordinary brakes. The invention consists in conducting steam directly from the boiler to both ends of the cylinders, so as to form a steam cushion on each side of the piston.

CORSET.—A. W. Webster. Ansonia, Conn.—The present invention relates more particularly to the clasps for corsets, and it consists in making the hook portion or part of such clasps of wire, bent into the proper shape therefor, whereby rivets are dispensed with, and a stronger and more reliable, as well as cheaper clasp, produced.

BRANDING IRON.—Charles Rundquist, Mankato, Minn.—The present invention consists, among other features, in a novel construction of the holder for the types, also in the form of the shanks of the types, and in the means employed for securing them in the holder.

MEAT SPIT.—Paul Fisher, Williamsburgh, N. Y.—This invention has for its object to furnish an improved spit so constructed and arranged as to be more convenient and satisfactory in use than when constructed in the ordinary manner.

CHIMNEY.—Bennett J. Goodsell, Pent Water, Mich.—This invention has for its object to furnish an improved chimney so constructed and arranged as to ventilate the room or rooms of the house, act as a spark arrester, and at the same time prevent the wind from blowing or driving the smoke down the chimney.

RUBBER SHOE.—J. Weidenman, Hartford, Conn.—This invention has for its object to furnish an improved device for attachment to rubber overshoes, to keep them from slipping down upon or working under the heel of the inner shoe.

PLOW.—Jonathan R. Davis, McKay, Ohio.—This invention has for its object to furnish an improved plow so constructed and arranged as to adapt itself to uneven ground, and so as to enable it to work close up to the upper row of plants, upon side hills, and which may be readily adjusted for use as a rigid plow or as a single plow.

MILL GEARING.—Joshua C. Cunningham, Oglethorpe, Ga.—This invention relates to the combination and arrangement of the stationary base wheel, the gear or pinion wheels, and the arms upon which they revolve, and the crown wheel, with each other, and with the main or driving shaft.

COTTON AND HAY PRESS.—Barnabas B. Alfred, La Grange, Ga.—In this invention a double-acting screw operates in combination with two slotted levers, working the follow-block with great power and velocity.

CONSTRUCTION OF STOVES OR OTHER HEATING APPARATUS FOR WARMING AND VENTILATING BUILDINGS.—Thomas Whitaker, and Joseph Constantine, Manchester, England.—The object of this invention is to obtain an heating apparatus for air or liquids, which, though comparatively occupying but a small space, presents not only a very large surface to the medium which is to be heated, but exposes also a large surface to the fire and the hot gases, which are compelled to come into contact with all the available heating surface in such a manner that nearly all the heat obtained from the combustion of the fuel is given off to the apparatus, and produces useful effect, instead of escaping for the most part through the chimney, as is usually the case.

MANUFACTURE OF TRUNKS, VALISES, ETC.—Samuel S. Ritter, Philadelphia, Pa.—The object of this invention is to manufacture a substantial leather trunk, which shall have no seams at the edges, and which may be made entirely without stitching, for the purpose of economy, strength, and durability.

SEWING MACHINE.—Caleb Cadwell, Waukegan, Ill.—This invention is designed to effect improvements in the mechanism for feeding and guiding the cloth, regulating the tension, taking up the slack thread, and winding the thread upon the spools; and in the method of retaining the spools upon their axes, and operating the shuttle.

COOLING GLASS MOLDS.—J. H. Reighard, Wheeling, West. Va.—In this invention the plunger is made hollow, and connected with a hollow piston rod, and is cooled by water injected through the piston rod. The mold is formed of two parts, between which is a narrow apace. Into this space water is injected from a reservoir, when the instrument is in use, for the purpose of cooling it.

Answers to Correspondents.

CORRESPONDENTS who expect to receive answers to their letters must, in all cases, sign their names. We have a right to know those who seek information from us; besides, as sometimes happens, we may prefer to address the correspondent by mail.

SPECIAL NOTE.—This column is designed for the general interest and instruction of our readers, not for gratuitous replies to questions of a purely business or personal nature. We will publish such inquiries, however, when paid for as advertisements at 50 cents a line, under the head of "Business and Personal."

☞ *All reference to back numbers should be by volume and page.*

G. H. S., of Mich.—A good way to learn to draw sketches of machinery is to copy the engravings published in the SCIENTIFIC AMERICAN. Begin with the simplest ones.

S. W. P., asks, "Can you supply me with a recipe for making a paste that will be water-proof?" No, We wish we could. Here is a chance for inventors.

E. H., of Ohio., asks if it is necessary to extend his exhaust pipe far up the smoke stack to aid his draft. We think it only necessary to introduce the exhaust pipe into the up-take and turn the end upward to produce the desired result.

J. H. G., of Ky., inquires as to the proportions of sand and hydraulic lime to make a cement to harden under water for a foundation on gravel. We can only refer him to Gillmore's "Treatise on Hydraulic Cements" published by D. Van Nostrand, 192 Broadway, New York city, as the qualities of the cements sold in the market, and the sands found in different localities vary greatly.

J. B. P., of Vt., says he has used one of "Douglas' pitcher spout pumps No. 1, the barrel being two-and-a-half inches and length of stroke four-and-a-half inches. The leading pipe is fifty-six feet in length, the hight of the pump from the water in the well twenty-five feet perpendicular. It will not work; neither will a larger size, which I tried. What is the difficulty. Will a smaller pump or larger pipe do the business?" Knowing that the Douglas pump is a good one, we can only surmise that there must have been some trouble in the connections, or that the pump, itself, needed some doctoring. Certainly any properly constructed pump the connections of which are perfect ought to lift water twenty-five feet.

B. G. K., of Md., asks for the components of the well-known Babbitt metal. Although there are superior compositions in the market, yet many of our readers may desire information on this subject. To four pounds of pure copper melted, twelve pounds of best tin (Banca is considered as pure as any) are gradually added; then eight pounds of antimony (regulus). After melting, twelve pounds more of tin are added. Powdered charcoal sprinkled over the surface of the metal in the crucible will prevent oxidation. When to be used for lining boxes one pound is sometimes melted with two pounds of tin.

A. A. W., of N. Y.—"Which is the strongest, a solid cast-iron shaft, or one with a small hole or of a larger size through the center from end to end, and would the same answer to this question be applicable to a shaft of wrought iron or steel?" In casting iron, or even steel, the outside cools and contracts more rapidly than the interior; consequently a hollow shaft of equal or the same weight is stronger than a solid shaft. Forged shafts of wrought iron and steel are not sublect to the same law in the same degree.

Business and Personal.

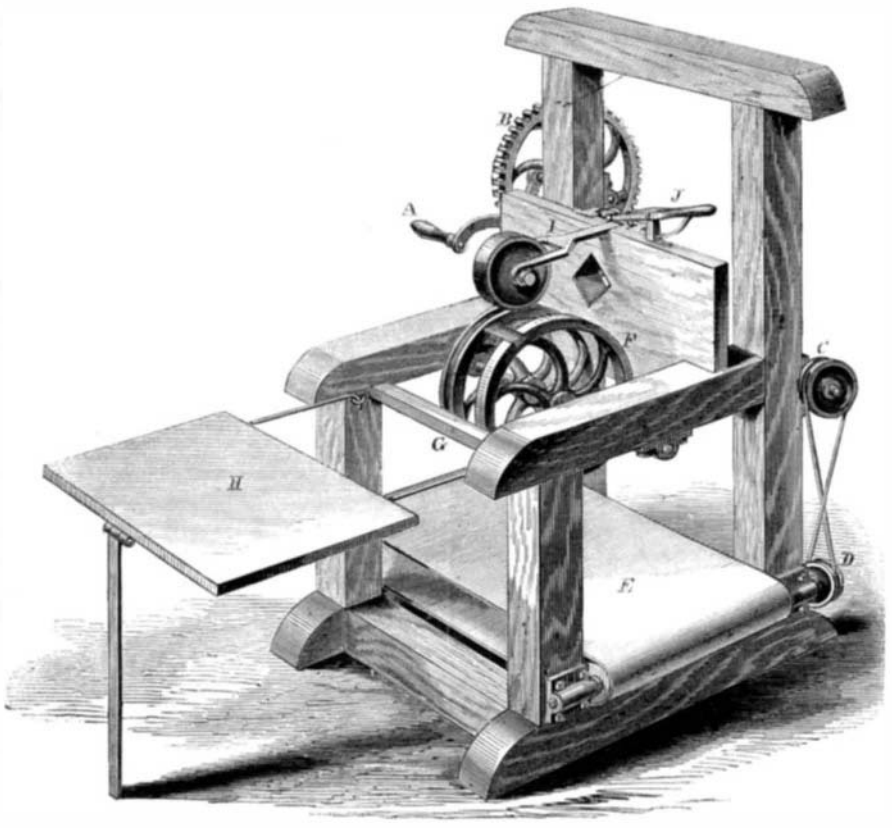
The charge for insertion under this head is 50 cents a line.

Machine for Topping and Stripping Sorghum and Sugar Cane.

Every additional facility for the extraction of the saccharine matter from cane or other sugar-yielding plants is of general importance, as the use of sugar is now almost universal and the demand for it constantly increasing. Sorghum, as well as sugar cane, must be stripped of its leaves before going to the crushing mill, and this work, if performed by hand labor, is slow and quite laborious. The engraving presents a view of a machine which performs this work rapidly and effectually.

The machinery is mounted on a suitable frame and is simple and easily managed. The power is applied, either by hand, through the crank, A, or by power, to the gear wheel, B, which drives the pulley, C, connecting by a belt with D, to give motion to the endless apron, E. The same shaft on which is the pulley, C, drives the shaft seen in the front part of the machine. On this shaft is a cutter wheel, F, and a grooved wheel for receiving the stalks and presenting them to the stripping knives. The topping wheel, F, has one or more knives seated in its periphery which in their swift revolution pass in immediate contiguity with a fixed curved blade on the bar, G. This device is for topping the cane, the tops falling on the apron, E, which carries them out of the machine and deposits them on one side.

The cane is laid on the table, H, between which and the frame the operator stands. After topping the cane each stalk is passed between the peripheries of the grooved wheel and the smaller one above it, which is held in connection with the former by the spring arm, I; the lower or grooved wheel being faced with rubber to insure the necessary adhesion and the upper one being either grooved or plain, this, however, being immaterial. In an upright, back of these feed wheels, is a V-shaped knife fixed, with which engages a similar one that may be elevated or depressed by the lever, J, the knife working in upright slides. This lever may be operated with a spring with sufficient tension to hold the two V-shaped knives close to the stalk. The leaves fall upon the endless apron and are carried, like the toppings, off to the side of the machine. The edges of the V-shaped knives are so beveled as to offer no opportunity of becoming clogged. The machine may be extended to any required length, as the machinery is very light and easily driven, requiring but little power.

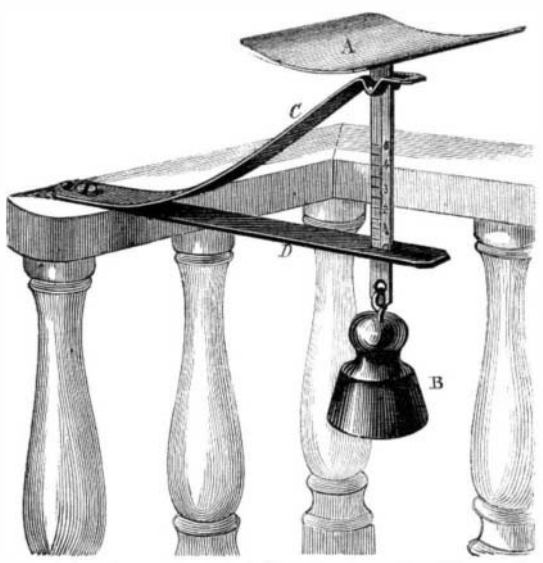


CAMPBELL'S IMPROVED CANE STRIPPER.

This machine was patented through the Scientific American Patent Agency, May 21, 1867, by James A. Campbell, who may be addressed for the purchase of State rights or the entire patent at Kent, Portage county, Ohio.

SCALE FOR WEIGHING LETTERS, PAPERS, ETC.

The engraving presents a view of a scale intended for determining the weight and therefore the postage of mailable matter, as letters, papers, pamphlets, etc. Something similar



is needed, not only in mercantile concerns and offices where the correspondence is voluminous, but also in private families, as it saves annoyance and trouble to the writers of letters, as well as to post office clerks. The device shown is intended to furnish a very cheap apparatus, which can be used at all times and under all circumstances. It can be easily described.

The scale, or receiver, A, has attached to its bottom a slip of metal graduated to ounces and their parts, and held steadily in position by a weight, B. At the upper end of this slip is a spring, C, which engages with knife edges on the upright slip, and is riveted at its other end to a support, D, through the outer end of which is a longitudinal slot allowing for the vibrating or swinging movement of the upright, which passes through it. The arrangement may be permanently secured to a desk, or railing, as seen in the engraving, or may be temporarily held when the letter is placed on the scale, A. The spring, C, is made of tempered steel, or of hard rolled brass, tested to its tension so as always to give the same results. The whole concern in itself weighs but a few ounces, and cannot, on account of its simplicity, get out of order. Patented through the Agency of the Scientific American, October 15, 1867. Agents are wanted in every city and town. Communications may be addressed to Cox & Latham, 299 State street, New Haven, Conn.

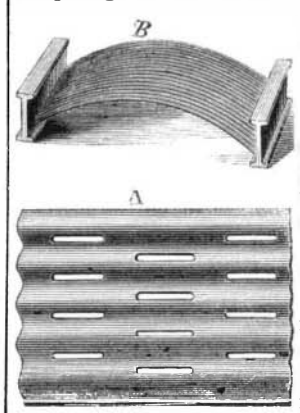
Luxurious Chair.

One of the most simple and useful improvements in household furniture that has recently come to our knowledge, is a new chair, a substitute for the rocking-chair, patented by D Witt, of Hubbardstown, Mass., on the 20th of last August, and made and sold by Dexter Howe, 169 Canal street, New York. The frame of the chair-seat rests upon two upright iron bearings, firmly screwed to the frame, the lower end resting in a socket which allows the upper portion of the chair to rock back and forth. Near the center of the bottom of the chair two coil springs are so arranged that they perform the office of rockers in an ordinary rocking chair, the bearings supporting the weight of the occupant, and admitting only the back and forward movement, which the springs assist the sitter in making. This chair possesses all the good features of a rocking chair, and is free from the objectionable features of an ordinary rocker.

ROYS' APPLICATION OF CORRUGATED IRON.

The enormous increase of strength, or resistance to strain and pressure, gained by corrugating thin iron, otherwise too weak for the purpose intended, is well known to mechanics generally; but the varied uses which iron thus treated may be made to subserve may not be so well understood. In the construction of buildings and boats it has for many years been employed, and also for roofing purposes. The engraving, however, represents its application for laths to support mortar or plaster, as well as its use for arched connections between flooring beams.

For the former purpose the ordinary thin sheet iron is employed, having holes punched through it at intervals, to allow the passage of the mortar for "clinching," as seen at A. The sections may be made of any length or width required, and may be held to the ceiling or walls by nails or screws. For he latter, where strength is required, thicker iron may be employed in combination with iron flooring beams, as seen at B. It can be used for clapboarding, lining, siding, or roofing, as may be required, rendering the building absolutely fire proof, and immensely stronger than any brick or wooden structure. These do not exhaust the uses of this method of preparing iron, as the intelligent reader may easily see.



For these applications of corrugated iron a patent is now pending through the Scientific American Patent Agency. Communications may be addressed to F. Roys, Hoyt & Co., East Berlin, Conn., for further information.

Artificial Production of Ice.

It is not necessary for the production of ice that the temperature of the air should fall to the freezing point. Ice may be produced abundantly in all latitudes where the thermometer falls to 40° F., if proper appliances are employed; and as this temperature is reached at some period of the winter days in nearly all of our Southern States, there is no reason why the inhabitants should not provide themselves with ice houses and store up their supplies just as we do here at the North. Large quantities of ice are made in the night time, in India, in the months of December, January, and part of February, the thermometer standing at from 35 to 40. The following description of the method employed near Benares, and equally applicable to this country, we find in the *Repertory of Arts*:—

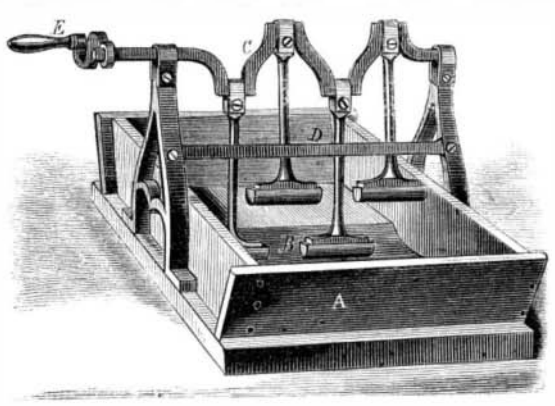
"A space of ground of about four acres, nearly level, is divided into square plats, from four to five feet wide. The borders are raised, by earth taken from the surface of the plats, to about four inches; the cavities are filled up with dry straw, or sugar-cane haum, laid smooth, on which are placed as many broad, shallow pans, of unglazed earth, as the spaces will hold. These pans are so extremely porous that their outsides become moist the instant water is put in them: they are smeared with butter on the inside, to prevent the ice from adhering to them; and this it is necessary to repeat every three or four days; it would otherwise be impossible to remove the ice, without either breaking the vessel, or spending more time in effecting it than could be afforded, where so much is to be done in so short a time. In the afternoon, these pans are all filled with water, by persons who walk along the borders or ridges. About five in the morning they begin to remove the ice from the pans, which is done by striking an iron hook into the center of it, and by that means breaking it into several pieces. If the pans have been many days without smearing, and it happens that the whole of the water is frozen, it is almost impossible to extract the ice without breaking the pan. The number of pans exposed at one time is computed at about 100,000; and there are employed in filling them with water in the evenings, and taking out the ice in the mornings, about 300 men, women, and children: the water is taken from a well, contiguous to the spot. New vessels, being most porous, answer best.

"It is necessary that the straw be dry; when it becomes wet, as it frequently does by accident, it is removed and replaced. I have wetted the straw of some of the plats, and always found it prevented the formation of ice. The air is generally very still when much ice is formed; a gentle air usually prevails from the south westward about daylight. I had a thermometer among the ice pans, during the season of making ice, with its bulb placed on the straw, and another hung on a pole, five feet and a half above the ground; and commonly observed that when ice was formed, and the thermometer on the straw was from 37 to 42°, that on the pole would stand about four degrees higher; but if there was any wind, so as to prevent freezing, both the thermometers would agree."

MORRISON'S MACHINE FOR KNEADING DOUGH.

The device in the annexed engraving is intended to supercede the direct application of muscular power rarely employed in kneading dough for bread, much less labor being required by the use of the machine and the work being more rapidly and neatly performed.

A is a box or dough receiver, having a concavity, B, extending transversely across it. On suitable uprights is hung the crank shaft, C, directly over the concavity. To each of these cranks are attached arms carrying shoes of wood at the lower end, which work in the concavity, B. They are guided by the horizontal bar, D, which forms a fulcrum for the arms,



and, in combination with the cranks, gives the shoes a curvilinear motion, by which the dough is carried under them through the box in a direction corresponding with the direction in which the shaft is turned by the handle, E.

The operation of the machine is very simple; the bottom of the box and the wooden plungers are to be covered with flour to prevent the dough from adhering, and by working the crank, the dough is compressed and carried gradually under the shoes as may be desired. It can be worked by hand or steam power, is simple, and not liable to get out of order, and can be used for working butter as well as kneading dough. Letters Patent were granted through the Scientific American Patent Agency, Oct. 1, 1867, to W. B. Morrison. For the purchase of rights or machines application should be made to Morrison & Baker, Muskegon, Mich.

THE DAY LINE—CORRECTION.—The correspondent whose diagram on the above subject we published on page 324, current volume, thinks the line is placed ten degrees too far to the east. Those of our readers interested in this subject will please notice. We merely followed the draft sent.