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THE USE OF FUEL .-- MANAGEMENT OF BITU MINOUS COAL.

In our last issue we published a few practical suggestions in relation to the management of fires of anthracite coal. We made the general statement that mineral coal was a condensed form of carbon. requiring a large amount of oxygen to produce perfect combustion.

Bituminous coal contains more of the resinous qualities of the vegetable matter from which all coal is derived, than anthracite. It is largely used for the production of illuminating gas, and, where it is employed for heating purposes, supersedes, in some measure, the use of other artificial lights in dwellings. In our own experience we have read, many an evening, by the light of a generously large grate filled with glowing coal. When a lump was placed upon the fire, for a time a volume of dense, black smoke would rush up the chimney, until the heart of the block was warmed by the persistency of the fiery mass below, when it would crack open, sometimes with a report, and send up blue and then bright yellow flames, illuminating the whole room One thing was noticeable, and that was, that when such a fire was first kindled it would give out no appreciable heat. The energy of the fire seemed to be directed to overcoming the resistance of the fuel. The blue, gaseous flame was somewhat like the popular idea of the moon's light, without heat, vet this blue flame was a highly combustible gas, if it could have been retained long enough in contact with the heat to have mixed with sufficient oxygen. Its value as a fuel was lost by being forced up the chimney to the outer atmosphere.

In the burning of bituminous coal in open fires there should be first a proper grate. Almost all the grates used for this purpose, in dwellings and other buildings, for warming purposes, are too coarse. They allow the finer particles of coal to pass through and get lost in the ashes; or, these particles induce another fire below the grate and tend to melt it down rapidly. When bituminous coal is used in large lumps, much of its valuable carbon is wasted in the form of gas or black smoke. before it can be ignited and give out any heat. The coal should be fine enough to be easily heated and ignited. The sooner this is done the quicker is the fire, and the more the carbon of the coal is utilized. For this reason a finer grate than is generally loosening the rivers, the water works through, and,

upon the fire is an economical method of utilizing the way for a rupture. The careless use of the calkthe greater portion of the carbon. The grates now in use can be readily changed to effect this saving by placing a sheet of iron, closely perforated with small holes, upon the inside of the grate bars. We have tried this plan with excellent results.

These remarks are not of universal application; for there are several varieties of bituminous coal, some so nearly approaching pure bitumen as to melt in mass and cake, refusing to be separated permanently until well coked. This sort would require a more open grate or an admixture of coke to make it burn freely. Coke is the residuum of bituminous coals, from which the volatile portions have been driven off, in the form of gas, by heat. It is measurably pure carbon, and of so porous a structure as to readily admit the passage of the atmospheric air through the mass.

The philosophy of blowing a fire is simply forcing a larger relative amount of oxygen into connection with the carbon than the ordinary draft would furnish. It acts, also, in a mechanical way, by driving off the products of combustion, the principal of which, carbonic acid gas, is as inimical to a clear fire as to animal life.

The proper management of a fire then, consists in furnishing oxygen in quantities sufficient to burn all the carbon. A good draft is necessary, and the coal should be fed upon the fire in small quantities. If a dense, black smoke is the result of replenishing the fire, some of the most valuable parts of the carbon are carried, unconsumed, up the chimney and entirely lost. The fire should be kept always bright and it will, to a great extent, consume its own gases before they can escape. As in anthracite, so in bituminous coal, the remains of the fire are valuable. The unconsumed coal is more or less coked and will more readily ignite than the green coal. None of this should be wasted.

A little attention to the management of fires in our dwellings, by those who understand the philosophy of combustion, would result in a large annual saving. Even the most ignorant servant can be readily taught how to regulate the supply of fuel and air by a few simple directions, whether the science of fire and fuel is understood or not. It should always be remembered that the pure white or yellow flame is that which yields the heat. Dark smoke and blue gases are not the results sought for in burning fuel.

BOILER EXPLOSIONS NOT ALWAYS MYSTERIOUS.

At intervals, recurring with terrible frequency, the readers of our public journals are startled and shocked—if familiarity has not induced callousness -by accounts of steam boiler explosions, attended always with loss of property, and often with loss of life or limb.

To no other subject is the old adage, "in too much discussion the truth is lost," more applicable than to that of boiler explosions. The cause of these catastrophes has been so muddled by wordy dissertations, mysterious theories, and senseless conjectures, that few think of looking directly at the facts of each individual case and deciding each on its own evidence. Mysterious agencies, under the names of "contraction," "expansion," "electricity," "development of explosive gases," and others, figure conspicuously in the reports of committees of inquiry. The causes which are most obvious, or could be most easily ascertained, are overlooked, and the investigators go prowling about among unknown or not understood forces, to find that which frequently is before their Braces originally too weak, corroded, or improperly located; plates running longitudinally instead of circumferentially; defective riveting; plates weakened by large holes not filled with the rivets; deficiency in the thickness of plate; poor iron, and carelessness in calking, are overlooked, to say nothing of corrosion from impure water, hard firing, or neglected water feed, and incompetent attendants.

Sometimes, in riveting, the holes in the plates diverge half their diameter, and they are reamed to a circular form, or enough to admit the ordinary rivet, which cannot fill the space, and depends for its security wholly on the juxtaposition of the heads with the surface of the plates. Heat expands the iron,

used, and smaller coal than that commonly placed if containing salts, rapidly oxidizes the iron, opening ing chisel sometimes cuts into the plate one-third or one-fourth of its thickness, so that when an explosion occurs the line of the fracture follows the channel thus made, as the breaking of glass follows the diamond scratch.

In connection with these remarks we cannot help referring to an accident on a fine steamer only a few months ago, by which a number of persons lost their lives. An investigation was had before the coroner's jury, which resulted in a perfect mystification. Yet the cause or causes should have been apparent in several facts which were ascertained. First, that part of the boiler that gave way was so deficient in substance that, at the maximum working pressure, the iron was strained to nearly its rupturing limit; the factor of safety, instead of being 5 or 6, being hardly above 0. Second, the sheets, instead of being placed circumferentially so that the joints would not be so long in the direction of the length of the cylinder, and so that each would support the adjacent ones, were placed with the long diameter running lengthwise. Third, the calking iron had injured the iron along the seams nearly 20 per cent, and the braces were placed in an improper manner.

It can scarcely be contended that this was an exceptional case. It is to be feared that many of our boilers would not stand a thorough scrutiny on these points. Mr. Edward B. Martin, an eminent engineer of Stourbridge, England, recently read before the Institution of Mechanical Engineers a paper which exhibited the following facts:-During the present century there have been 1,045 boiler explosions in England, causing the death of 4,076 persons and injuries to 2,903. Of the 1,045 explosions, 397 were "uncertain" as to cause; 137 were from over-pressure, from the wedging or over-weighting of safety valves, or from other acts of carelessness: 119 from collapse of internal flues: 114 from shortness of water, or from incrustations, and 9 from extraneous causes not immediately connected with the boiler. From these facts Mr. Martin expressed himself as opposed to all ideas of internal detonation, spontaneous generation of explosive games, or other mysteries.

If this is approximately a correct exhibit of the causes of boiler explosions in England, need we look for some mysterious and unknown agency to account for similar occurrences here? It is well known that English mechanics and engineers are held to strict accountability by the laws, much more so than in this country. It may be claimed that the tenacity of American boiler plate is superior, and such extreme caution as is enforced in England is unnecessary here; but in this matter as in others it is "better to be foolishly careful than foolishly care-

We believe that a rigid examination of boilers and a thorough oversight and testing during the process of manufacture, as well as after completion, enforced by legislative penalties, would prevent some, at least, of the destructive explosions we are too often called upon to deplore.

A Uniform Money Standard.

France, Italy, Switzerland, and Belgium have recently entered into a convention to regulate the currency of their respective governments, and bring it to a uniform standard of weight, value, and form, They agree not to coin, nor allow to be coined, bearing their impressions and designs, gold money in any other forms than those of gold pieces of 100f. 50f, 20f., 10f., and 5f., fixed as to weight, values, allowances for loss, and diameter according to a certain scale. A fixed regulation allows for wear and loss. The convention also fixes the denominations, values, sizes, etc., of silver coins, and also restricts the amount to be coined by each country to a certain proportion to their respective populations.

This may be regarded as a step of very great im portance in commerce. Its effect on the social improvement of the people and civilization generally will be very marked. To make the change more effective, the United States and England should join the convention, which would ultimately compel the co-operation of every European nation. The distinctive legends of each nation will, of course, be retained on their coins, but the values of the coins would be identical with those of similar denominations belonging to other countries. The annoyances of small exchanges would be reduced, if not entirely removed, and the loss by brokerage be avoided.

NEW PUBLICATIONS.

THE AMERICAN HOUSE CARPENTERS' AND JOINERS' ASSISTANT. By Lucius D. Gould, Architect

This is the title of a large quarto volume, in which the science and practice of building wooden structures is fully treated. It is illustrated with forty-four lithographic plates, and gives directions not only about doing work, but upon the use of mathematical and drafting instruments. Valuable tables of the relative strength and other properties of materials, and other useful information make this a valuable vade mecum for the practical work-

ATLANTIC MONTHLY.

The number for November is very excellent in every respect, The Publishers announce, for 1867, a Serial from Dr. O. W. Holmes, a series of articles from James Parton, and frequent papers from James Russell Lowell, in addition to their regular contributors Ticknor & Fields, Boston.

Address on Presenting to John Ericsson the RUMFORD MEDAL OF THE AMERICAN ACADEMY. By E. N. Hosford, late Rumford Professor in Harvard University.

We have received from the author a copy of this pamphlet which is valuable as giving a resume of the inventions and valuable discoveries of this distinguished engineer. It states that Friesson built the first successful propeller having all its machine ry below the water line—the Francis B. Oyden—which was reject et by the Lords of the Admiralty of England, on the ground that "it would be impossible to steer a vessel where the propelling power was so near the rudder." Mr. Ericsson came to this country, bringing the machinery of the Robert F. Stockton, and shortly after built for the Government the screw steamer *Princeton*. The idea of the monitor class of war vessels was conceived by Ericsson in 1854, when he submitted to the Emperor Napoleon a plan for such ships. Capt. Coles, of the English navy, dates his first idea in 1860. Capt. Ericsson is well known for his hot air engines, but his crowning glory is the total change in war ships, inaugurated by his celebrated Minitor. The pamphlet is published by Hurd & Houghton, Boston, Mass.

REPORT OF THE SECRETARY OF THE SMITHSONIAN INSTITUTION, January, 1866.

This Report we shall take occasion to employ hereafter in the

elucidation of several subjects upon which it briefly treats. In the meantime we may state that it contains information of general interest on many matters of importance.

Hussey, Wells & Co., of Pittsburgh, Pa.

In reply to the ninth question of the U.S. Revenue Commission have published a pamphlet consisting mainly of the certificates in favor of their cast steel. These are unanimous in praise of its evenness and excellent qualities.

LECTURES ON AGRICULTURAL CHEMISTRY. By Prof. S. W. Johnson, Yale College.

A series of four lectures, illustrated with cuts, and the facts exemplified and made practical by experiments. The subject of chemistry as applied to the tilling of the soil is treated in this pamphlet in Prof. Johnson's usual lucid and practical style. He has already done good service to the agriculturists of the country by his lectures, occasional addresses, and publications on this sub

CURIOUS QUESTIONS. By Rev. Henry A. Brann,

This is a work on mental and moral philosophy, valuable to the mechanician and the natural philosopher merely, or, at least. mainly, because it refers incidentally to the operation of natural

WOODWARD'S ARCHITECTURE.

This neat volume is issued by Geo. E., and F. W. Woodward, at the office of the Horticulturist, 37 Park Row, New York. Many of our readers will recollect "Woodward's Country Homes," a valuable volume as a guide to the erection of rural homes. The present volume is the first of the property of the prop present volume is the first of an annual series, intended to aid in the building of farm houses, villas, barns, ice houses, and other structures pertaining to country life, as well as to direct in laying out grounds in gardens, orchards, walks, drives, etc. It is profusely llustrated with plans and designs, and forms an attractive and readable volume to those who do not intend to follow it; directions as well as a valuable manual to all who make the country their home.

Inventions Patented in England by Americans.

Condensed from the "Journal of the Commissioners of Patents, PROVISIONAL PROTECTION FOR SIX MONTHS.

2,296.—SLIDE VALVE FOR STEAM ENGINE.—William B. Robinson Detroit, Mich., and Zoheth S. Durfee, Philadelphia, Pa. Sept. 7, 1866.

2,298.-BEER AND ALE.-John Schneider, Williamsburgh, N. Y Sept. 7, 1866.

2,306.—WATER-POWER ENGINE.—William Lonsdale and William Peete, New York City. Sept. 8, 1866.

2.316.—MANUFACTURING LEATHER.—George V. Sheffield and James F. Coburn, Hopkinton, Mass. Sept. 8, 1866.
2.319.—Seamless Metallic Tube.—William F. Brooks, New York City. Sept. 10, 1866. York City. Sept. 10, 1866. 2,329.—ELECTRIC TELEGRAPH CONDUCTOR.—John M. Batchelder, Cambridge, Mass. Sept. 10, 1866. 2,388.—HORBE RAKE.—Daniel G. Adelsberger, Emmittsburg, Md. and Richard R. Riches, and Charles J. Watts, both of Norwich county of Norfolk, England. Sept. 14, 1866.

2,369.—Braiding Machine and Warp Regulator.—William Tunstill, Paterson, N. J. Sept. 14, 1866.

2.4(3.—PRINTING MACHINE.—George Gordon, New York City-Sept. 19, 1866.

2.484.—BRONZING MACHINE.—John K. Lowe, Cleveland, Ohio. Sept. 26, 1866.
2.490.—CUTTING FILES.—Albert F. Johnson, Boston, Mass. Sept. 5, 1866.

With or

ISSUED FROM THE U.S. PATENT OFFICE

FOR THE WEEK ENDING OCT. 23, 1866.

Reported Officially for the Scientific American.

The Pamphlets containing the Patent Laws and full particulars of the mode of applying for Letters Patent, specifying size of model required, and much other information useful to inventors, may be had gratis by addressing MUNN & Co., Publishers of the Scienvier America, New York.

58,964.—SCREW.—John Absterdam, New York City. I claim the above-described wood screw, with the plain cylindrical polition between the point and the threaded portion, substantially as and for the purposes set forth.

58,965.—GATE.—Henry Adams, Seattle, Washing-

ton Ter.
Iclaim a gate hung to its post by means of a hinge, E, sases through a vertical slot, I, and is held to the gate by substantially as herein described and for the purpose spe 58,966.—Hoe.—Sherman W. Adams, Wethersfield,

Conn.

First, I claim the combination of the blade, a, and handle, b, when constructed and operating substantially as herein shown and described.

Second, The hoe as above described and set forth as a new article of manufacture.

58,967.—FEED CUTTER. — William F. Altfather,

Johnstown, Pa.

First, I claim the combination of the inclined or diamond shaped knife sash, connecting rod or bar, I, and eccentric, F, with each other, and with the driving haft, C, cutter frame, B, and box, A, substantially as herein shown and described.

Second, The combination of the jaws, P and S, bent levers, O and R, and pivoted cam lever. N, with each other, and with the cutter box, A, support, M, and eccentric, F, substantially as herein shown and described, and for the purpose setforth.

58,968.—Mechanism for Operating the Har-ness of Looms.—William R. Andrews, Mystic

RESS OF LOOMS.—WIHIM R. Andrews, Mystic River, Conn.

I claim the above specified new and useful harness-operating mechanism or combination, consisting of the tri-anned lever, D, the two cams, EF, the gears, c, and racks, GH, the spring, I, and the rack-elevating mechanism, the whole being arranged to gether, and with a pattern chain and its actuating mechanism, substantially in manner and so asto operate as explained.

58,969. — INSTRUMENT FOR EXTRACTING CORKS FROM BOTTLES.—J. T. Ashley, Brooklyn, N. Y. Iclain the slide, F, in combination with the tongs, A, when arranged thereon, so as to operate substantially in the manner and for the purpose described.

58,970.—APPARATUS FOR MOVING BUILDINGS.— Egbert H. Avery, Belvidere, Ill. I claim the guide keys, D, in combination with the trucks, C C B, substantially asset forth.

58,971.—BUTTER WORKER AND PACKER.—Charles F. Barager, Candor, N. Y.
I claim the arrangement of the bowl, B, vessel, I, and slotted lever, D, with the universal joint, E F, and stop pins, d'e, said lever, D, being adapted to admit of the attachment of the ladle, G, and packer, J, and the whole operating substantially as described.

scribed.

58,972.—PUMP.—A. B. Barlow, Ripon, Wis.
I claim the method substantially as above described of packing the lower joints of the cylinder and said chamber by means of a bottom piece, I, and annular flange or cap, N, and the packing material, a a, secured by them by the aid of a surrounding flange, N, substantially as described.

58,973.—Corn Plow.—Peter Barnhart, Chillicothe,

UIIIO.

I claim the adjustable fender, F, and beam, A, in combination with the standards, BB, for the purposes and substantially as described.

58,974.—STRAW CUTTER.—John W. Bartlett, Har-

58,974.—STRAW CUTTER.—JOHN W. Bartlett, Harmar, Ohio. Antedated October 12, 1866.

First, I claim the arrangement of the fly wheel, fly wheel shaft with two cranks, knife, c, oscillating arm, D, and standard and guide, F, substantially as set forth.

Second, I claim the combination of the crank, g, attached to the end of the fly wheel shaft, the lever, P, and the bent pawllever, H, with the ratchet wheel and feed rollers, substantially as set forth.

forth.

Third, I claim the pawl holder and guide, I, constructed and connected together as set forth.

Fourth, I claim the hinged board, O', with its shaft, P', in combination with the bent spring, S', substantially as and for the purpose set forth.

-Composition for Roofing.—F. Bearse

and G. E. Hopkins, Barnstable, Mass.
We claim therefor the composition as made of the acid and other ingredients, substantially as hereisbefore set forth.

58,976.—CHURN.—M. Bratt, Maysville, Ky.
First, I claim the combination of the hollow tube, E, having the valve, c', at its upper end, and with the hollow dasher handle, D, having a valve, d', at its upper end, and with the bottom, a', of the courn, A, substantially as here'n described and for the purpose

set forth. Second, The combination of the guide rod or plunger, F, with the hollow dasher handle, D, having a valve, d', at its upper end, and with the bottom, a', of the churn, A, substantially as herein described and for the purpose setforth.

-Grinding Milli.-Charles P. Benoit, De-

troit, Mich.

Iclain the machine for crushing grain consisting of the longitudinally grooved roller, B, and the transversely grooved cylinder, C, arranged to operate substantially as described for the purpose specified.

58,978.—CREARING, SLICKING, AND SKIVING LEATH-ER.—C. C. Bellows, New Ipswich, N. H.
I claim, First, The combination of the slotted standards, B, slotted triple-armed lever, E, springs, I, and rod, G, arranged to operate with the roller, D, when constructed and applied in the manner and for the purpose specified.

Second, The plate, J, having skiving knives, d, attached to or formed on it, and applied to the upper roller, C, by means of the bars or clamp frame, substantially as and for the purpose described.

bals or criced.

Third, The laterally adjustable creasing wheel, F, on the upper roller shart, operating with the flanged roller, G, substantially as described for the purpose specified.

58,979.—PIANO STOOL.—Joshua Briggs, Peterboro, N. H.
I claim combining with the pillar, c. the spinche and when

made with a wood screw cut upon its outersurface for securing it permanently to the pillar, substantially as described.

I also claim the combination of the pillar, c, base, a, and bolt, i, when the pillar is constructed to receive the bolt through the tube in which the screw spincile plays, and with a seat for the head of the bolt at the bottom of said tube, substantially asset forth.

58,980.—STEAM-ENGINE SLIDE VALVE.—Richard

C. Bristol, St. Clair, Mich.

I claim, in connection with a slide valve, the within-described arrangement of rollers, C, mounted concentrically upon the cross bars, C, and between the longitudinal bars, C2 C2, and arranged to operate relatively to the valve, and to the cylinder face, and to the steam chest, substantially as and for the purposes herein specified.

specined.

58,981.—AMALGAMATOR.—Edmund Brown, Chicago, III.

I claim, First. The revolving and stationary shaft, with apertures and finance for crowding the quartz out into the lead.

Second, The series of combs attached to the revolving shaftand sides of the kettle, the whole combined and arrange of the purpose specified. 58,982.—Window Screen.—Edward Bucklin, Jr.,

and Sedgwick A. Sutton, North Providence, R. I.

R. 1.

We claim attaching the screen directly to two supporting rails, D and D', in such manner that the width of the screen may be increased or diminished in the same proportion as the lengths of the rails, as and for the purpose described.

58,983.—FARM GATE.—John A. Cheatham, Nash-

58,983.—FARM GATE.—John A. Cheatham, Nash-ville, Tenn.
I claim, First, The combination of the lever or levers, A.A., with the vertical spindle, E. controlling the gare and its latch, with the cam-shaped piece, O, or its equivalent, substantially as and for the purposes set forth.
Second, The combination of the lever or levers, A.A., and the spindle, E., with the upper disk, L., the trigger, K. and latch, J., substantially as and for the purpose described.

58,984.—LADDER.— Ckertizza, New York City. I claim the combination of sides so sloping that the narrow end of one sectional ladder fits within the wider end of any other, with the slots, d d'and c c', and the bars, b b and b', substantially as described and for the purpose setforth.

58,985.—FAN BLOWER.—Patrick Clark, Rahway, N. J.

N. J.
I claim, First, The diaphragms, C C, when used in combination with a compound fan blower.
Second, The fan wheel, F F, when constructed with fans or vanes of the form and arrangement with respect to each other as described.
Third, Attaching each fan or vane at its ends to two adjacent arms, as described.
Fourth, The leather packing, D D, when combined with the diaphragms, C C, as described.

58,986.—CORN SHELLER.—William Colwell, Chilli-

Cothe, Ill.

I claim, in combination with the cone, B, shaft, C, and hopper, F, the fan, N, and elevator, U, for the purposes and substantially as herein set forth.

as herein set forth.

58,987.—SAFETY VALVE.—D. G. Coppin and G. H. Clemens, Cincinnati, Ohio.

We claim, First, The valve, C. and tube, m, constructed as above described and for the purpose set forth.

Second, The valve, C, levers, l, weights, D and D', arranged as above described and for the purpose set forth.

Third, The valve, C, levers, l, weights, D and D', tube, m, in combination with annular ring, f, casing, B, sleeve, n, and cap, o for the purpose above described and set forth.

58,988.—Corn Planter.—W. H. Cox, Virden, Ill.

Birst, Leight the neaforated horizontal revolving plates, m, m.

JOS, 900.—CORN FLANTER.—W. H. COX, VITCEH, III.

First, I claim the perforated, horizontal, revolving plates, m m, in the hoppers, D D, for feeding and dropping the grains of corn evenly in combination therewith, and with the bevel gear wheels, h; and the pulleys, b d, connected with and deriving their motion from one of the driving wheels, C, constructed and arranged substantially as and for the purposes herein described.

Second, I claim the thimble, a, within the hub of the driving

Second, I claim the thimble, a, within the hub of the driving wheel, C, forcarrying the pulley, b, in combination therewith, and with the stationary axle, B, constructed and operating substantially as and for the purposes herein specified.

Thrd, I claim the arrangement of the side pieces, ff, hung upon the axle, B, for supporting the hoppers, D D, and raising and lowering at pleasure with the lever, F, substantially as herein described.

Fourth, I claim the slide piece, G, with the push and pull pawl, O', for working the seed dropping apparatus by hand when adjusted for planting corn in hills, in combination with the revolving perforated places, m m, to which they impart an intermittent motion, arranged and operating substantially as herein described.

58,989.—Machine for Stripping the Top Flats

or Carding Engines.—S. L. Crockett and Benjamin S. Mills, Lowell, Mass.

We claim the employment of the lifting and replacing cam formed substantially as herein set forth and shown, and arranged to operate in the manner and for the purpose specified.

And in combination with the lifting and replacing cam, formed and made to operate as herein set forth, the two pins, 1 and 2, in the slide, h, acted upon by the cam, in the manner and for the purpose specified.

58,990.—HARDENING SPRINGS.—George G. Crowell,

Lime Rock, Conn.
I claim the employment of glue, or equivalent glutinous animal matter, either alone or in combination with other material, as a hardening compound, when employed substantially in the manner and for the purpose herein set forth.

58,991.—TABLE AND HOLDER FOR SHEARING SHEEP.

—A. M. Culver, Bedford, Ohio.
I claim the table, B, arms, C C', pawl and ratchet, a b, and sbackle, D, constructed and arranged as and for the purpose specified.

58,992.—KNIFE CARRIER.—Porter E. Cummings, Sanford, Me.
I claim the improved knife carrier, made substantially as described, viz; with the knife-shank socket, and the rebate arranged in it, as set forth, the said carrier being provided with a set screw, or equivalent means of fixing the knife shank in the socket.

58,993.—HAND SEED SOWER.—Obed Dann, Janes-

58,993.—HAND SEED SOWER.—One Clann, Janes-ville, Wis.
I claim, First, The combination of the box, A, and side, E, when constructed, arranged, and used substantially as and for the purpose set forth.

Second, The combination of the box, A, cap, B, and handle, C, when constructed, arranged, and used substantially as and for the purpose set forth.

when constructed, arranged, and used substantially as and for the purpose set forth.

Third, The combination of the box, A, slide, E, e, ..., B, and handle, C, when constructed, arranged, and used substantially as and for the purpose set forth.

58,994.—BED BOTTOM.—Garret B. Davis and Chas. B. Davis, Freeport, Ill.
We claim the strengthening ross or girders, E.E., in combination with the bow-shaped cross pieces, C.C., and elastic bands, D, substantially as specified.

S8,995.—TABLE.—Ernest Dinter, Boston, Mass.

I'claim the improved table stand as having two perts, a b, constructed with receiving slots, arranged in them so as to enable them to be applied together, substantially as set forth.

them to be applied together, substantially as set forth, 58,996.—STEAM-ENGINE GOVERNOR.—E. C. Edmonds, Buffa lo, N. Y.
I claim the combination of the adjustable clutches, t t', with the slip shaft, G, loose pinions, h h', bevel wheel, K, and spinile, C, for producing an intermittent motion to the valve-operating mechanism, substantially in the manner set forth.

| also claim, in combination with the above, the serew valve