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### THE

# SCIENTIFIC AMERICAN,

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#### Pyroligneous Acid or Wood Vinegar.

When wood is subjected to destructive distillation or is greatly heated in close vessels, an acid liquor oozes over with the tar and gaseous products. This acid liquor is the pyroligneous acid. It is really an impure vinegar, from which acetic acid can be obtained, and the method employed is as follows: The pyroligneous acid freed from the tar, naptha, &c., is saturated with chalk or powdered slacked lime, filtered, and evaporated in suitable vessels. By this means an impure acetate of lime is obtained. This is gently heated to destroy the oily matter without injuring the acid, and then mixed with sulphate of soda or salt cake as the manufacturers call it; this affords a beautiful acetate of soda, in solution, which is then drawn off from the remaining sulphate of lime. The solution is heated, evaporated to dryness, re-dissolved and crystallized, and by these means the acetate of soda is procured in crystals. These crystals are then placed in a retort with oil of vitriol and heated, when acetic acid distils over, which being the active principle of vinegar, this useful acidifier can easily be made from it, and of the very best quality. The charcoal which remains in the retort in which the wood is distilled is excellent, and is largely used for the manufacture of gunpowder.

# Saw Teeth.

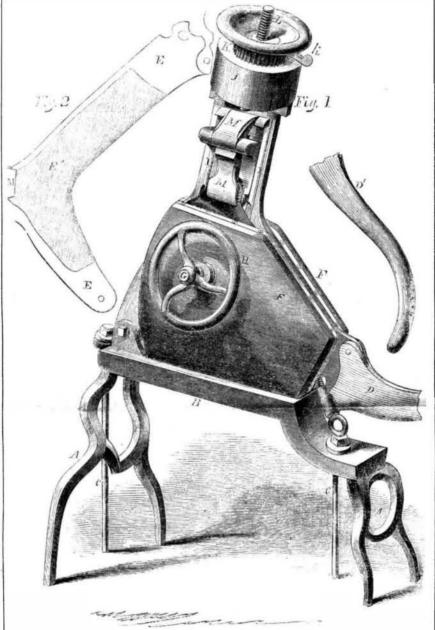
A Tennessee correspondent, after informing us that we are indebted to an article on this subject by Hoe & Co., in the second number of our present volume, for many subscribers in his locality, proceeds to give the following practical information :-

"As well as the number of teeth being proportioned to the hardness of the timber to be sawed, their number should also be proportioned to the power used. Each tooth of a saw can only cut advantageously a certain distance forward in passing through the log, which distance depends on the hardness of the wood; but if a saw has a great many teeth, and is driven by a weak power, each tooth will not cut so far forward as it should do, and there is a loss of power. If the power is great, and the number of teeth few, then each tooth will have to cut too far forward.'

#### Sorghum Molasses.

Dr. F. Stewart, of Philadelphia, has sent us a sample of molasses made from the Chinese sugar cane. The yield from which the sample was taken was equal to two hundred and forty gallons to the acre, and is very good, being quite as rich and sirupy as that from the ordinary cane. We are still of the opinion, however, that it is not capable of producing crystallizable sugar; but if any of our readers have succeeded in making it, we should like to see a specimen.

#### WILLMOTT'S "LITTLE GIANT" BOOT CRIMPING MACHINE.



This machine is intended for crimping or forming the fronts of boots. There are already several machines in the field for this purpose, while, to a great extent, "crimping" is performed by hand—that is, by stretching the leather over a wooden form, and rubbing it into shape, without the intervention of any machine. This process, however, is so tedious, that machines of some kind are fast coming into use, and the inventor of this crimper claims that it will not only accomplish more work, but that it performs the operation with greater perfection; all wrinkles are rubbed out, the corners are stretched, and the crimp is put into the boot with greater solidity and without injury to the leather; while the operation is performed with such rapidity that twenty pairs of boots can be crimped in an hour, and even this number has been exceeded by a skillful workman, hence its name-"The Little Giant."

Fig. 1 represents the whole machine, in which A A are the legs supporting the frame, B. C C are leg screws, by which means the machine is held firmly to the floor. D is the handle (broken in our engraving) attached to the "former," E, on which the leather is stretchel. This "former" is shown in Fig. 2. FF are two jaws, made of iron, lined with

wood, and faced with brass, fastened by sliding in a groove in the frame, B, and are separated at the bottom by screws (not seen in our engraving; the jaws are kept together, and the pressure upon the leather regulated by the hand wheel, H, which works a screw, G, passing through both jaws. The handle, D, is connected with E, and on the top of this are mounted two standards, I I, carrying on their top the drum, J, which contains a powerful coiled spring, by whose means the ratchet wheel, K, is turned upon the screw, L. M M are pincers, so arranged that when the ratchet wheel is turned in the proper direction, they are lowered, and open to receive the corners of the boot front; while, by the same movement the spring is wound up in the drum, J. This is held wound up by the pawl, k, until the leather is adjusted, when the pawl being tripped, the spring is left free to act.

Operation. - The leather being cut to shape, and wet in the usual manner, is laid over the jaws, F F, in a suitable position, the "former" being first thrown back, and the jaws graduated to the thickness of the leather to be crimped; the "former" is then brought down forcing the leather between the jaws for a short distance; the pincers are then lowered, and the corners secured within them. The

process is continued by working the handle, D, up and down, which rubs out the wrinkles, while the spring exerting its force upon the ratchet wheel, keeps a constant strain upon the corners drawing them out to the proper shape; when finished, the leather will appear on E, as seen at Fig. 2, E' being the leather without crease or wrinkle; all that now remains to be done is to loosen the pincers, remove the boot front, and tack it on a form to dry.

This machine is the invention of W. W. Willmott, and was patented Aug. 25, 1857. Further information and particulars may be obtained from the manufacturers and assignees, A. H. and C. H. Brainard, of 90 Utica street, Boston, Mass. A machine may be seen at the machinery warehouse of S. C. Hills, No. 12 Platt street, New York.

## Progress of the Age.

The great deeds done by men of old, and the accumulated discoveries of the ancient sages, have all been surpassed in the last half century. Before the year 1800, there was not a single steamboat in existence, and the application of steam to machinery was unknown. Fulton launched the first steamboat in 1807; now there are three thousand steamboats traversing the waters of America, and the time saved in travel is equal to seventy per cent, and every river in the world is a highway for their encroachments. In 1800 the word "railroad" had not been coined, and to travel forty miles an hour was an impossibility. In the United States there are now some twenty-five thousand miles of railroad, costing in the neighborhood of seven hundred and fifty millions of dollars, and about thirty-seven thousand miles of railroad in England and America. The locomotive will now travel in as many hours a distance which in 1800 required as many days to accomplish. In 1800 it took two weeks to convey intelligence between Philadelphia and New Orleans, now it can be accomplished in minutes by the electric telegraph, which only had its beginning in 1843.

#### Trinidad.

This small island is situated off the coast of South America, not far from the mouth of the river Orinoco. It has long been noted for the production of a superior kind of coffee, but is now about to enter the commercial world in a far more important way. Beds of coal, sulphur and good ochre have recently been found there. Asphaltum, petroleum, gypsum, good lime, a compact sandstone, and clay suitable for bricks have been known for some time, and all that was wanted was the coal, to aid in their productive development. There is also every reason to believe that gold is to be found in some of the northern streams. An American firm has recently established itself at the famous Pitch Lake, and crected works, now nearly completed (they make the crude oil already), for the extraction and refining of oil from the asphalt—the supply of which is, no doubt, practically inexhaustible. With regard to the coal, there are seams of eighteen to forty fect, and one measuring horizontally the enormous width of one hundred and twentytwo feet—a veritable quarry.

The Mining Chronicle gives the above information, and, should it be true, this discovery will be a most valuable acquisition to the maritime world. A coaling station has long been wanted in that locality, and it would seem that Trinidad will be able to fill the vacancy.





Issued from the United States Patent Office

FOR THE WEEK ENDING NOVEMBER 3, 1857.

[Reported officially for the Scientific American.]

LIME KILNS—A. G. Anderson, of Quincy, Ill.: I claim the combination of the perforated arch, C, and escape passages, f f, with the throats, b b, chambers, D D, dampers, F F, holes, g g, and supporting and removable bars, h h, the same being constructed and arranged for joint operation, substantially as and for the purpose set forth.

[A notice will be found on another page.]

FEED WATER PIPE IN THE BED OF A STEAM ENGINE Henry W. Bill, of Cuyahoga Falls, Ohio: I am aware nat steam and water passages have been made through he frame and bed of a steam enginc. This I do not lead.

Chaim.

But I claim making the bed of a steam engine hollow, and so as to form a steam chamber, and arranging the feed water pipes in or through said chamber, so that the exhaust steam in the chamber shall heat the feed water in the pipes, as set forth.

in the pipes, as set forth.

MAGHINE FOE MAKING BOLTS—Richard H. Cole, of St. Louis, Mo.: I claim pressing the head on the bolt in a moving die box or die, and against a yielding tool or support, as set forth, by the motion of the bolt instead of the tool, as described.

I also claim the combination of the spring, X, the crotch, a, and the jaws, s, so that the crotch, a, or its substitute in pressing the jaw, s, forward, shall act against a yielding medium, for the purpose specified.

I also claim the internal construction of the gripping tools, x, as shown at Z, whereby each of the said tools, in closing, shall form one-fourth of the point on the bolt, thus making half of the point when closed.

I also claim finishing the point on the bolt, that is, completing it by an off-set made on the side of the knife N, having a form int to correspond with the form in the end of the tools, x, the said off-set to be below the cutting edge of the knife a distance equal to the diameter of the point of the bolt when finished, so as to make the point of the bolt like the frustum of a cone.

Cueram Fixtuers—John W. Currier and James M.

CURTAIN FIXTURES—John W. Currier and James M. Thompson, of Holyoke, Mass.: We claim the combination of mechanism for rotating the curtain roller, for the purpose of either winding up or unwinding the curtain, the same consisting of the slider, F, the cords, H I, and the straight and helical grooves for the slider to work in, one of said grooves being stationary, and the whole being arranged and made to operate as described.

Rose for Door Knors—Samuel S. Day, of New York City: I make no claim to securing the shank of the rose in the door by means of a screw made upon the outside of it, as this has already been sone.

I claim combining the slotted finance, f, the screw threaded fiange, e, and the disk flange, d, in the construction of a rose for door knobs, as and for the purpose set forth.

REVERSING THE CHISEL IN MORTISING MACAINES—D. M. Cummings and P. C. Cambridge Jr., of North Enfield, N. H.: We claim rotating the chisel mandrel, D. from the auger mandrel, K. when desired, by means of the lever, I, with pressure roller, m, attached, and spur, I, in connection with the lever, T, operated by the upgate of the control o right, f. as described

[Full particulars of this invention will be found in another column.]

MIXING AND GRINDING OIL PAINTS—William H. Dolson, of New York City: I claim the combination of the mixer, A. and grinder F, with an intermediate endless belt, C, and scraper, G, the whole arranged as set forth.

UNLOADING VESSELS—Robert Ferguson, of New Orleans, La.: I claim the combination of swinging platform, c, arm, f, lever, l, and spring, m, with the body of the carriage, operating as and for the purposes set forth.

Hoisting Buckers—George Focht, of Reading, Pa.: I claim the catch lever, g, in combination with the lip or roller, b, and the staple, d, the whole being arranged as and for the purposes set forth.

CANDY-TWISTING MACHINE—John Gardner, of Philadelphia, Pa.: I claim the working and twisting of candy by means of a machine constructed substantially as set forth.

By the use of two conical rollers and a taper screw the candy is rolled and twisted at one operation, and much more expeditiously than by the methods now in

Bending Metal Plates—E. L. Gaylord, of Terry-ville, Conn.: I am aware that metal plates are bent or swaged in various forms, by means of what are known as drop presses, and I therefore do not claim the drop K. Nor do I claim, broadly, a drop press, nor any of the parts described separately.

But I claim the block, C. provided with the movable arms, a a., and cross piece, b, the block or bed piece, H, and adjustable stop, I arranged as shown, and used in connection with a drop, K, or its equivalent, for the purpose set forth.

(This machine bends metal plates at right angles. such as for the box of locks; it bends them perfectly and gives a good sharp angular edge.]

VIOLIN ATTACHMENT—Jackson Gorham, of Bairdstown, Ga.: I claim the lever, B, having its fulcrum, d, in a support, c c, which is movable on a board or piece, A, attached to the head of the violin, and having a screw, C, or its equivalent, applied to it, the whole operating as described.

[This is described on another page.]

(This is described on another page.)

PRINTING PRESSES—George P. Gordon, of New York City: I claim, first, the arrangement of a bed, with its form of types, between two distributing tables, so that the impression may be taken while one table is inking the rollers and distributing thein key passing to and fro upon the distributing table on one side, and at the alternate time, an impression may be taken while the rollers are passing over the opposite distributing table, thus allowing of the reversal of the rollers at the extreme ends of the two tables, meeting and inking the form in its transit from one extreme to the other, and allowing the impression to be taken at each inking of the form without waiting for the return of the rollers. Second, I claim the arrangement of the variable eccentric, or its equivalent, with the sheet guides or gauges, and friction feed rollers for the purpose of drawing in evenly the sheet or strip any required distance. And Iurther claim the arrangement of means described, for feeding, printing, cutting and counting the ards or sheets of paper with the means described, for the inking and alternately distributing the ink, as set forth.

WATER-COOLING PITCHEE—Alongo Hebbard, of New

WATER-COOLING PITCHER—Alonzo Hebbard, of New York City: I claim the use of the combination of the woolen cloth or felt covering as an elastic, non-conducting packing for a porcelain or glazed ware pitcher, with the said porcelain or glazed ware interior pitcher, and caternal metallic shell or pitcher, for the purpose of making a water-cooling pitcher, as set forth.

OPERATING SCROLL SAWS.—John L. Lawton, of Bal-timore. Md.: I claim the method of operating the saw by means of the belts and back levers, substantially as described.

IRON TRUSS FRAMES FOR BEIDGES, &c.—Francis C.
Lowthorp, of Trenton, N. J.: I do not wish to confine
myself to the precise form or size of the parts described.
I claim, first, arranging and constructing the vertical
posts of iron truss frame girders for bridges, and other
structures, in relation to the upper and lower chord,
substantially in the manner set forth, in order that the
said posts may be allowed to vibrate on the chords, for
the purpose specified.
Second, Allowing the end posts of truss frame bridges
to vibrate on the piers or foundation, for the purpose set
forth.

forth.

Chamfering and Crozing Barrels—James H. Mattison, of Scriba, N. Y.: I claim the cams, n n, in combination with the spring, p, and the chamfering and crozing tools, so constructed as to traverse them out gradually to cut the score and chamfer a barrel, and draw them in suddenly to remove the barrel, and save the time of the operator attending the machine.

I claim making the edges of the rims D and D', which hold the end of the barrel by making a rebate, or otherwise, so as to hold the barrel properly in the machine, without removing the truss hoops, substantially as described.

WATER CLOSETS—Francis McGhan, of Washington, D. C.: I claim the adjustable communication, d k, between the supply pipe, D, and the chamber, B, above the valve, b. in combination with the displacing diaphragm, f, or its equivalent, arranged and operating as set forth.

ROTARY EXCAVATOR—Gilbert H. Moore, of Rochester, N. Y.: I claim, first, the construction of the carriers or receivers, as described, viz., the support and hinging of the bodies upon the axle in such a manner that they may be damped by elevating the two extremities.

ties.
Second, The construction and mode of attaching the shield, F, by either of the methods substantially as described.
Third, The combination of the digging wheel, the carriers and the shield, for the purposes set forth.

CLEANING AND POLISHING COFFEE—William Newell, of Philadelphia, Pa.: I am aware that a cylinder with a surrounding steam jacket has been used for many purposes. I make no claim to the apparatus described, but merely represent it to better illustrate my process of treating green coffee, and which process constitutes the essence of my invention. Grains, flour and many other articles have been subjected to heat and motion and friction in a cylinder such as I represent. To this I lay no claim; nor to the treatment of anything but coffee; and I am not aware that coffee has ever been cleaned and polished in the way which I have discovered.

covered.

But I claim the cleaning and polishing of green coffee by subjecting it to the combined action of heat, friction and motion, as set forth.

Expanding Tires—Samuel Penberthy, of Chicago, Ill.: I do not confine myself to the precise construction of furnace as shown and described, for it is obvious that various modifications of the same may be successfully employed for the purpose, although the described apparatus or contrivance would, probably, be as convenient and as simple as any that could be devised for the purpose.

purpose.

I claim expanding the tires of locomotive and other heavy wheels while on their axles or shafts, and connected with their vehicles or locomotives, by means of a portable furnace, arranged as shown, or in any proper way, so that the same may be attached to the tire at any desired point, as set forth.

[For more information about the above we refer to a notice on another page.]

IRON SHUTTERS FOR DOORS, WINDOWS, &c.—M. C. Root, of Toledo, Ohio: I do not claim, broadly, the making of metallic slutters in such a manner that the slats shall fold and unfold in a self acting manner when raised or lowered. Examples of devices of this character may be seen in the rejected case of Richard Murdock, May, 1851, and in King's case, June 10, 1856.
I claim the construction of metallic shutters in the manner described.

[These shutters are much cheaper than the usual iron ones; they fold side by side as they descend, and shu up in a box or recess underneath the window-sill when

open.]

CANAL LOCK GATES—Samuel J. Seely, of New York City: I do not wish to be understood as limiting my claim of invention to the special form specified, but claim the privilege of modifying the same so long as I attain the same end by means substantially the same. I claim the method, substantially as specified, of connecting the upper journals of canal lock gates to the masonry of the lock, by means of adjustable boxes, and for the purpose specified.

I also claim suspending the outer or swing edges of the gate to the upper journal boxes by diagonal suspension braces, in the manner and for the purpose as specified.

I also claim connecting the top flaps of the gate with each other, so that the two shall move together by means of the joint link and arm, orother equivalent means, substantially as described, in combination with the connection with a capstan at the side of the lock by a jointed rack, or other equivalent means as described, and for the purpose set forth.

SMOOTHING IRON—James Goodin Jr., of Cincinnati.

SMOOTHING IRON—James Goodin Jr., of Cincinnati, Ohio: I am aware of gas having been used for heating purposes before, and that wire gauze has been employed for distributing the heat, all of which I disclaim when taken separately or together.

But I claim the arrangement of the perforated diaphragm, g g, with the air openings, 55 and 77, when said diaphragm and air openings are arranged with the gas pipe, B, and gauze, C, in the bottom of the iron, as specified, for the purpose of detaining and qually distributing the heat over the surface of the bottom of the iron, as, and for the purposes mentioned in the specification.

TIGHTENING TIRES ON CARRIAGE WHEELS—N. J. Skaggs, of Talladega, Ala.: I do not claim separately connecting the ends of the tire together by means of a screw, for this has been previously done.

But I claim forming the ends of the tire with the heads, a a recess, e, and projecting portion f, as shown, in connection with the screw rod, E, by which the ends are secured together, and the tire contracted as may be desired, and a continuous or perfect joint or connection obtained.

(This invention relates to that class of tires that are not in a continuous band, but are secured by a screw. The inventor causes the ends so to overlap that in any osition of the screw they form a good and perfect joint.]

joint.]
Pumps—Noah Sutton, of New York City: I am aware that two pistonshaving a variable movement, and fitted within one cylinder, have been previously used: therefore I do not claim giving a variable movement to the pistons, irrespective of the arrangement shown.
But I claim the peculiar means employed for operating the pistons, or giving them the variable movement as described, viz the pulleys, Q Q, R R, connected with the bars, I, of the pistons, F G, by means of the chains, S T, the pulleys, Q Q, R R, being placed loosely on their shafts, and connected alternately therewith, by means of the bars, f, connected with the spring, g, the projections, h, on the wheels, P, and the beveled projections, i, i, on the bars, V. the whole being arranged as described.

[By giving the pistons a variable motion—that is, causing them to descend with greater rapidity than they ascend, and connecting the cylinders by water passages, these pumps give a continuous stream of water which is equal in force in any position of the pistons.]

HAND PRINTING PRESS—Samuel J. Smith, of New York City: I do not claim any one of the parts sepa-

York City: I do not claim any one of the parts separately.

But I claim the manner described of adjusting the lever, I, and its inking roller, h, by the screw, 8, so that the inking takes correctly on to the edge of the printing surface, 2, as said surface moves in a curved line with and on the lever, d, as and for the purposes specified.

I also claim arranging the printing surface, 2, and inking table, g, on the lever, d, in such a manner relatively with the inking roller, h, and its lever, I, that said roller shall travel over the printing surface as the lever descends, and then pass up on to the inking table, g, for distributing the ink while the impression is being given, at the same time that the paper or other material being printed is kept from contact with the roller by the foot, 5, substantially as and for the purposes specified.

BAROMETER—T. R. Timby, of Medina, N. Y.: I claim the elastic tube between the stop cock and barometer tube as set forth.

I claim the mechanical arrangement for supporting the barometer tube within the suspension glass case, the same consisting of the bracing rods, t., passing through the glass and brass tubes, d and e, and the wood en block w, the inner cap. a 2, the blocks, w w', the lower cap, a 3, and the screw joint, S, all arranged and co-operating as set forth.

HARVESTERS—Hosea Willard and Robert Ross, of Vergennes, Vt.: We do not claim broadly attaching the finger bar to the machine by a joint, for this has been previously done.

But we claim the combination of the hinged finger bar, L, with the adjustable bar, I, lever, P, regulating set

1., Will the adjustable bar, I, lever, P, regulating set screw, f, and wheel, o; the whole being constructed and arranged in relation to the main frame for joint operation, in the manner and for the purpose set forth. We also claim lever P, and regulating set screws, f, in combination with bar, I, chain or cord, J', pulley, i, and clutch, Q, for the purpose of raising the hinged finger bar, L, as described.

[This improvement consists in forming the cutters, so that they can be raised to suit any inequality of the ground, or elevated bodily, when moved from place to

JOINTS OF CARRIAGE TOPS—Reuben W. Stone, of Solsville, N. Y.: I claim the bars, A. A., B. B., connected by the joints, a, and provided with loops or hooks, b, arranged substantially as and for the purpose set forth.

[This is a cheap and simple carriage top.]

[This is a cheap and simple carriage top.]

MACHINERY FOR BURRING WOOD. ON THE PELT—John
Waterhouse, of Little Falls, N. Y.: I claim, first, The
combination of the feeding apparatus, which holds and
controls the pelt, with a; cleaning cylinder arranged,
constructed and operating substantially as set forth.
Second, I claim the combination of the rollers, D. E,
one being elastic, and the other non-elastic, for holding
and presenting the pelt in a curved or bent form to the
action of the cleaning cylinder as described.
Third, I claim, in combination with the holding and
presenting rollers, the feeding rollers, F. F, one said
rollers, F, being elastic, and the other non-elastic, as
described and for the purpose set forth.
Fourth, I claim mounting one of the feed rolls F, and
one of the holding and presenting rolls on the main
frame, and their fellows upon a traveling carriage, for
the purpose of facilitating the introduction, turning and
removal of the pelt, as set forth.

FOLDING IRON BEDSTEADS—H. F. Vandenhove, of

Folding Iron Bedsteads—H. F. Vandenhove, of New York City: I do not claim broadly a bedstead con-nected by joints, so that when not in use the parts may be folded together, as such bedsteads are well known

and in quite common use.

Neither do I claim separately or in themselves considered the guards or fenders independent of the manner in which they are arranged or applied to the bed-

But I claim applying or attaching the guides or fen-But I claim applying or attaching the guides or fenders to the bedstead, as and for the purpose set forth. I further claim attaching the buttons, f, to the side pieces, b, and also attaching the pins or stops, f 2, to the side pieces, b, in connection with the grooves, f 2, in the inner sides of the posts, D, for the purpose specified.

[This improvement is described on another page.]

(This improvement is described on another page.)

Sewing Machines—C. H. Andrus, (assignor to Squire Lee) of Goshen, N. Y.: I am aware that in the sewing machine of A. B. Wilson, patented 1854, a tri-pronged spring pressure pad is employed. The central prong of this pad presses or holds the cloth against the periphery of the feed wheel. I disclaim the spring pressure pad, and also the holding of the cloth against the feed wheel by a spring. In the device of said Wilson, the pressure pad is stationary, the feeding of the cloth being accomplished by a serrated wheel.

I am also aware that in the device of E. H. Smith, 1857, the pressure pad is slotted, and has a separate spring within the slot which presses the cloth upon a horizontally moving dog. The cloth is fed by said dog which is below the table.

I do not claim the employment of two foot pieces or

which is below the table.

I do not claim the employment of two foot pieces or feeding plates in any other way than as described.

But 1 claim the employment of a supplementary serrated feeding plate, R, fitted within a slot in the principal feeding plate, and provided with shoulders, b, b, and being controlled entirely by springs, d d', applied between it and the principal feeding plate, so as to operate as described.

[This is a useful little improvement in the feed motion of sewing machines, and is applicable to any ma chine.]

chine.]

PRENTING PRESSE—Merwin Davis, of New York, N. Y., assignor to P. G. Bergen, of Brooklyn, N. Y.: I do not claim separately or in itself considered the reciprocating carriage, O, provided with fingers or nippers for feeding the blank sheets to the form, nor do I claim the "fly" separately or independent of its arrangement and connection with the parts as shown.

But I claim, first, The reciprocating rolling pressure segment, J, provided with a weight box, h, or any suitable or equivalent device by which the counterpoise of the segment may be varied or graduated to becommensuratewith the speed of the segment. I also claim the reciprocating rolling pressure segment, when arranged to operate as shown, irrespective of the variable counterpoise.

to operate as shown, irrespective of the variable counterpoise.

Second. I claim the reciprocating carriage, O, provided with the fingers or nippers, w. in combination with the segment, J, for feeding the sheets to the form. I also claim, in combination with said segment, J, the "fly" or device formed of the rods or shatts, S.T., e, arms d, d, j, J, and the hinged ledge or plate, d. 4. the above feeding and flying devices being arranged and operating conjointly with the segment, J, as described.

Third, I claim the rails, m. m. applied to the machine, and operated substantially as shown, or in any equivalent way so as to raise or elevate the face, k, of the segment above the form during one movement, and allowing it to descend and rest upon the bed during the other movement in order to give the impression to the sheets. And I also claim the bar, Z, when used in connection with the rails, m, and having the bar, j', connected with it as shown, whereby the segment may be raised at any time, and the sheets also prevented from being fed to the form.

Fourth, I claim operating the lateral vibrating ink rollers. W. X. by means of the T-shazed lever, Y, as de-

fed to the form.
Fourth, I claim operating the lateral vibrating ink rollers, W X, by means of the T-shaped lever, Y, as de-

[For information about this invention we refer to page 75.]

MACHINES FOR FOLDING PAPER—Cyrus Chambers, Jr., of Philadelphia, Pa.: I do not desire to confine myself to the precise form or method of operating the various moving parts of the machine, as they may be considerably modified without altering the result. I claim, first, Forcing the edges of the sheet between the folding rollers, in advance of the middle of the said sheet for the purpose specified. Second, Temporarily arresting the motion of the first pair of felding rollers, in the manner described, or any equivalent to the same.

Third, The register pins, q, in combination with the abes. p, when the same are arranged for joint operaton, substantially in the manner and for the purpose set

tion, substantially in the manner and for the purpose set forth.

Fourth, The combination of the first pair of folding rollers, N and N', with the register pins, q, when the latter operate between the former, in the manner described, or any equivalent to the same.

Fifth, Preventing the rebounding of the folded sheet uring its passage through the machine, previous to the descent of any of the folding blades, by means of the arresting rollers described, the same operating in combination with the tapes, in the manner set forth.

Sixth, Dividing the printed sheet into two halves by means of shears, arranged, actuated and constructed as set forth.

Seventh, Discharging free from the machine the strip cut from the folded edge of the sheet by means of a revolving disk, arranged and operating in the manner set forth.

Eighth, So constructing and arranging machines for folding sheets of paper, that the two halves of one sheet gaid sheets having been printed on both sides from the

forth.

Eighth, So constructing and arranging machines for folding sheets of paper, that the two halves of one sheet (said sheets having been printed on both sides from the same form) may be separated from each other, and folded in succession.

Ninth, Packing the folded sheets by means of a reciprocating plunger against a frictional plate in a trough, so that the backs and heads of the folded sheet coincide with each other.

Tenth, The employment of the devices described, or any equivalent to the same, whereby the operator can separate the imperfect from theperfect sheets.

Eleventh, Preventing the return of the packed sheets of paper, by means of the eathers situated above, and in the corner of the trough.

Twelfth, The combination and arrangement by which the operations described are performed simultaneously or in succession to each other in the same machine.

ROCK DRILLS—G. H. Wood, of Green Bay, Wis.; I claim the employment, in combination with a drill raised, turned, and operated as above described, of the supplementary spring, R, for the purpose of controlling the re-bounding of the drill, G, in the manner as set forth

[See notice of this improvement on another page.] Vane Governor for Steam Engines—C. Whittier, of Roxbury, Mass.: I claim suspending the fans or vanes D, on the crank (or its equivalent) attached to the spindle of the regulator valve, whereby the resistance of the atmosphere causes them to operate the valve in the manner as set forth.

RE-ISSUES.

CORDAGE MACHINEY—Henry Pearce, of Cincinnati, O. Patented May 22, 1855: I claim, first. The method described of equalizing the paying out of the strands from the bobbins for the purposes set forth.

Second, The arrangement of a friction or rubbing collar, m, operated by a plunger, o, passing upward within the supporting stem, b, and the weighted lever, p, as described, or equivalent devices for regulating the degree of facility of the rotation of the bobbin spindles.

MANUFACTURE OF IRON—Wm. Kelly, of Eddyville, Ky. Patented June 23, 1857: I do not wish to be understood as claiming broadly the act of blowing blasts of air into molten iron, as that has been done in processes dissimilar to mine.

But I claim blowing blasts of air, either hot or cold, up and through a mass of liquid iron (the oxygen in the air combining with the carbon in the iron, causing a greatly increased heat and ebullition in the fluid mass, and decarbonizing and refining said iron without the use of fuel.

ADDITIONAL IMPROVEMENT.

INKSTANDS—Kingston Goddard, of Philadelphia, Pa.

ADDITIONAL IMPROVEMENT.

INKSTANDS—Kingston Goddard, of Philadelphia, Pa.
Patented April 28, 1857: I claim as new and useful, the straight tube, d, in combination with a simple cup or receptacle, E, substantially as and for the purposes described.

STOVES-Wm. T, Coggeshall, of Fall River, Mass.

Note.—In the above list of claims we recognize FIFTEEN cases which were prepared at this office. Under the present efficient and liberal management of the Patent Office, there has never been in our opinion so good a time to present applications for patents as now. Cases are early taken up for examination, and a liberality is shown by the Examiners which is truly commendable. Mechanics who are out of employment cannot devote their time more profitably than to an cffort to invent something new, or make some improvement on machinery used in their respective trades.

#### Charcoal.

As the result of experiments with charcoal, an English chemist avers that for the reduction of metallic oxyds, the charcoal of the heavier woods (as that of oak and the beech) is preferable; and that, for common fuel, such charcoal gives the greatest heat, and requires the most plentiful supply of air to keep it burning, while those of the lighter woods preserve a glowing heat with much less draft of air; and that for purposes where it is desirable to have a steady and a still fire, charcoal should be employed which has been made from wood previously divested of its bark, since it is the cortical part which flies off in sparks during the combustion, while the coal of the wood itself seldom does.

#### Statistics of Consumption.

Medical statistics appear to prove that consumption, where prevalent, originates as often in summer as in winter, and the best authorities declare that it is more common in hot than in cold climates. There is more consumption in the Tropical Indies, both East and West, than in the almost arctic Canadas. The number of the British troops attacked with this disease in Jamaica is annually twelve in one thousand, while in Canada it is only about six. The British government have accordingly resolved upon sending their consumptive soldiers to a cold climate in preference to a warm one.

CHEAP CORN.—South of Springfield, Ill., on the railroads, some of the farmers are field; others at \$5 per acre.

