

lengths of the beams here being seven feet, as in experiment 24, the deflections are about one-seventh higher than .71, the quantity which we have just found they should have been, if the deflections had been as the lengths. Comparing likewise the length and deflection in experiment 28 or 31 with those in experiment 32, where the depth was the same, we find that double the length gave there more than three times the deflection.

“From these different experiments we find that the ultimate deflections are in a higher ratio than as the lengths, but are not as the square of the lengths, as is generally assumed.

“3d. The ultimate deflections, we see, are in a ratio somewhat higher than as the lengths; and comparing those in experiments 30 and 33, with that in experiment 32, they appear sometimes to increase faster than the depths decrease. If, however, the ultimate deflections were directly as the length and inversely as the depth, or were higher than in both of these ratios in an equal degree, we should conclude that a beam of double the length and depth of a given one would ultimately be deflected the same quantity as it. To see how this accords with the experiments, we will take the short beams, in experiments 28 and 31, and compare their deflections with those from the beams of double their length and depth in experiments 30 and 33; the ultimate deflections from the small beams were .56 and .59 inch respectively, and those from the large ones were .64 and .63 inch. Whence it appears, that the deflections were nearly, but not precisely, equal; there being, in both cases, a deflection somewhat greater in the larger beam.”

Further experiments seem to be wanting to establish this point.

B.

AMERICAN PATENTS.

LIST OF AMERICAN PATENTS WHICH ISSUED IN JANUARY, 1832.

With Remarks and Exemplifications, by the Editor.

1. For a *Cement for Wood, Brick, Stone, and Iron Work*; Richard Walsh, Boston, Massachusetts, January 5.

This cement is to be made by mixing together one quart of ground lime, two of calcined plaster, and three of Roman cement. To these are to be added two pounds of black lead, one quarter of a pound of red lead, and the same quantities of copperas and of litharge.

These ingredients are to be incorporated in boiled linseed oil and spirits of turpentine, in the proportions of one part of the former to two of the latter; and it is said that when brought to a proper consistence for spreading, this preparation will afford a slate coloured cement, calculated to defend the material upon which it is laid from the action of the weather. The colour may be varied by mixing with the other materials any suitable colouring ingredient.

When we read the title of this patent, we expected to meet with a cement for uniting substances together, and not with a mere paint for spreading over surfaces in the ordinary way. As a paint, the

composition is rather heterogeneous; some of the substances named may be left out without any disadvantage, or others may be added without abstracting from the good qualities of the mixture. The patent, however, is taken for the precise compound, and such as it is, those who use it, must purchase a right, or invade the claims of the patentee.

2. For an improvement in the *Mill Stone for grinding grain*; David Stem, Mechanicsville, Vanderburgh county, Indiana, January 5.

This grist mill is to act upon the well known principle of many paint mills. The runner is to be a cylinder, revolving horizontally, and the bed stone a hollow segment in which it fits, the stones being furrowed in a suitable manner. The bed stone is to be borne up against the cylinder laterally, and the feeding regulated by their greater or less distance apart. There is no claim made, nor is there much room for one.

3. For an improvement in the *Fanning Mill*; Samuel Fitch, Otsego county, New York, January 6.

The *improvement* here offered consists in putting an eccentric wheel upon each end of the shaft of the revolving fan, which wheels act upon levers, giving motion to the shoe, "which motion is necessary to the cleaning of grain." No more.

4. For an improved machine for *Breaking and Dressing Hemp and Flax*; Ebenezer C. Chase, Jay, Oxford county, Maine, January 6.

A cylinder four feet in diameter, and two feet long, is to be fluted from end to end, all round, so as to form it into teeth. A block of wood is to be placed above this: this block is to be a cube of two feet on each side, excepting that the bottom is to be hollowed to suit the cylinder, and it is also to be fluted in such a way that its projecting angles, or teeth, may fit into the spaces between those on the roller. The cylinder is to be made to revolve, and to act upon lifters which raise the block, in order to its falling upon the hemp or flax which is to pass between it and the roller. There is a feeding apron upon which the flax or hemp is to be laid, and a delivering apron to conduct it off after it has been operated upon. There is no claim made.

This machine very much resembles the ordinary Dutch brake in its mode of operation, although it differs much from it in form; we do not perceive how it is calculated to do the work better, or with greater facility than many other machines which have been made.

5. For an improvement in the *Tin Bake Oven*; William Lewis, Franklin, Delaware county, New York, January 6.

The top and bottom parts of this tin oven are to be formed into regular flutes from front to back, in order to reflect the more heat upon

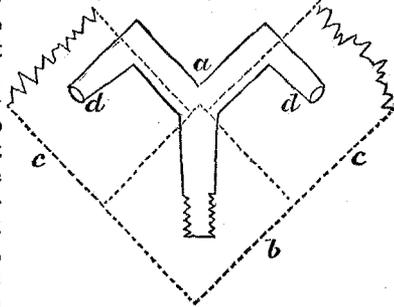
the substance to be cooked; there is also to be a reflecting piece along the front. The sides are to flare out a little, like a Rumford's fire place; the dripping pan is to rest upon three wires crossing the oven, and upon each of its ends there is to be a handle; the whole, so made, constitutes the patent oven.

6. For an improved *Machine for Cutting Books*; Archibald O. Douglass, city of Philadelphia, January 6.

This cutting press is intended to accomplish the same purpose with that described at page 234 of the last volume; that is, the book is to be supported upon a platform which is capable of being raised or lowered at pleasure, to suit the length and width of the volume; the means of adjusting, as well as many other things in this press, differs however, from that alluded to, as well as from the common cutting press. The patentee calls this a box press, which name it receives from there being side and end pieces strongly framed together, and consisting of thick plank like that used for the cheeks in other cutting presses. Through one of these sides, work the wooden screws which force up a sliding cheek to hold the books; and round the heads of the screws a strap passes which is to operate as a band to cause one of them to turn by turning the other. Whatever may be the general good properties of the press, we are confident that this band will not accomplish the object for which it is intended; this, however, is a point of little importance. The manner of fixing the plough, and of adjusting the various parts, we cannot attempt to describe without a drawing.

7. For an improvement in *Bedsteads*; Cornelius Vannoy, Lexington, Fayette county, Kentucky, January 10.

Two improvements are here proposed; one of them, in the mode of fastening the rails to the posts, the other in the mode of tightening the sacking bottom. One of the methods proposed for fastening the rails, is similar to such as have been long in use, consisting of a piece on the end of the rail, which passes into an opening on the post, so that by turning the rail they are fixed together by the wedging of the pieces. There is another method stated, which appears to be new. A cast iron hold-fast is to be made in the form of *p*, which is to have its shank fastened into the post *b*. The two hooks, which stand nearly at right angles with each other, are to fit into holes bored in the insides of the rails *c c*. The hook parts *d d* stand a little wedging, and when the rails are driven on to them, their ends, which are worked off square and smooth, are drawn up against the post.



Although this plan is new, we do not think it superior to others previously in use; indeed, we believe that a well made bedstead, with good screws, fitting indiscriminately, is to be preferred to most of the patented fastenings.

The modes of cording the sacking bottoms do not offer any thing particularly worthy of attention, not being better than former plans.

8. For a mode of *Restoring sour, stale, or musty Ale, Beer, or Porter*, to their original flavour and purity, by the operation of re-brewing; Moses Granger, Louisville, Louis county, New York, January 11.

A mash is to be prepared in the usual way, and the wort drawn off from it. To the malt grains which remain, the sour ale, or beer, is to be added, say to the amount of sixty gallons to forty bushels of grains, and drawn off. This liquor is to be boiled with hops, in the proportion of half a pound to a barrel, after which it is to be put into a clean vessel, and kept for mashing at a subsequent brewing, which, we are told, will restore the liquor to its former state of sweetness and purity.

9. For an improvement in *Locks*; James Meneely, Watervleit, Albany county, New York, January 12.

All that is claimed by the present patentee is the making the box of the lock, and all the necessary upright pieces within it, of cast iron; the staple or catch, with the necessary screw holes, are also to be cast, as are the bolt, the screw, the key holes, and the wards. For the doing of this, an exclusive privilege is demanded; the claim to *novelty* and *invention*, rests insecurely on such a basis, or we are mistaken in our views of the patent law.

10. For an *Ice Steam-boat*, for clearing harbours, &c. of ice; Robert Irvine, city of Baltimore, January 12.

Many trials have been made with differently constructed ice breakers, to be worked by steam, but it has been found more difficult to accomplish the object practically, in a harbour or river, than had been anticipated in the parlour. In the plan now proposed we do not see any thing likely to remove the difficulties.

When ice has acquired a considerable thickness, to break and get it out of the way of the boat and paddle wheels, is a very slow process; and to construct and keep a machine in readiness for this purpose alone, requires more remuneration than the few occasions for its employment would be likely to afford.

In the plan before us there is to be a gang of saws in front of the boat, thirteen saws being represented in the drawing. Shanks rise from the upper ends of these saws, by which they are attached to a vibrating frame, as from the nature of the work which they have to perform they must be made sufficiently stiff not to require straining below. The shanks, we are told, should be of round iron, eight feet

long, and six inches thick; the saws three feet six inches long, and an inch and a quarter thick, on their front edges.

An ice breaker, consisting of a plate of iron two inches thick, and extending the whole width of the gang of saws, is placed behind them, and the whole are to be made to vibrate by a crank shaft, acted upon by the steam engine. The saws are to make 100 strokes per minute.

Until this machine is put into operation, and has established its character by success, we deem it needless to say any thing further respecting it, excepting to promise that when this period arrives, we will repair forthwith to the scene of action and report the facts.

11. For an improvement in *Manufacturing Hats*; Joel Taylor and Charles Brown, Danbury, Fairfield county, Connecticut, January 13.

Rabbit's, or other similar fur and cotton, are to be mixed together, in equal, or other, proportions, and bowed in the usual manner of bowing fur. The bats, or flakes, are then to be wrought by rolling and planking in the usual manner; the dyeing, stiffening, napping, or covering, are also to be effected in the ordinary way.

The claim is to the mixing of cotton and fur, in the manufacture of hat bodies.

12. For a machine for *Dressing Mill, and other Stones*; John Keeper, Williamsport, Lycoming county, Pennsylvania, January 13.

A chisel, or cutter, for dressing the stone is fixed on to the end of a handle, which is to be raised by machinery. There is a frame which stands horizontally, and the handle, carrying the chisel, is attached to a shaft crossing this frame at about its middle, and working on gudgeons within it. A cylinder, with cams, or wipers on it, is turned by a crank, the cams acting upon the far end of the handle, lifts it like a tilt hammer, and a steel spring bearing upon the handle near the chisel, or cutter, increases its force in descending. The frame is fixed upon a sliding carriage, allowing it to move backward, forward, or laterally; and a regulating bar across the frame is made adjustable by screws, to determine the depth of the furrows.

When the stone is to be dressed it is secured in a proper position, and the machine adjusted to it. The crank handle is then to be turned, and the proper sliding motion given to the frame. The claims are to "the regulating screws, the regulating bar, and the slides."

13. For an improvement in the *Plough*; Thomas A. Whities, Bellfontaine, Logan county, Ohio, January 14.

The principal part of the specification of this plough is occupied with the admeasurement of its respective parts; and we are told that "it is composed of wood and wrought or cast iron, and steel." The manner of bracing and putting it together are particularly described; the inventor "believes that it will run much lighter than any now in use, turning over an equally large, if not a larger, furrow, and it may

be used in the foulest land without choking." To what part it is indebted for those properties which are its recommendation we are not informed, as there is no claim made, or any thing else to indicate the points of novelty.

14. For a *Machine for bending Felloes for carriage wheels*; Tristram Kimball, Salem, Rockingham county, New Hampshire, January 16.

Pieces for felloes are to be split out, and reduced to a proper size for bending, which is to be effected by the machine. A long ground sill is laid upon cross pieces, and to one end of this a lever is attached by a joint. Upon the sill, near the joint, a shaping block is to be placed; this consists of a piece of wood, the upper side of which is a curve adapted to the inside of the felloe to be formed, and above it, on the under side of the lever, is a follower, concave below, to force the felloe on to the shaping block. The lever is of considerable length, and may be loaded at its extreme end, so that its weight shall suffice to bend the felloe. On the ends of the shaping blocks there are ears, with mortices through them to receive pins, or bolts, which are to confine the felloe upon it after it is bent, allowing one shaping block to be removed, and another substituted in its place as the felloes are bent. A windlass with a rope and pulley, is attached to the lever, for the purpose of raising it. There are various props, braces, &c. which are figured and described, but which we need not notice.

The claim is to "the before described machine for bending felloes for carriage wheels."

The patentee says that the wheels made of felloes so bent, besides being cheaper, are stronger and better than any wheel heretofore constructed. Allowing this to be the case, the patent has nothing to do with wheels thus made, but merely with the machine for bending the felloes; and this may be done as readily by other methods, not interfering at all with "the before described machine."

15. For an improvement in the *Throstle Frame* for spinning cotton: Seth Simmons, Providence, Rhode Island, January 16.

We have not been able to obtain a clear idea of the details of this throstle frame, although its general structure is sufficiently apparent. There is a drawing, in perspective, very well executed as a picture, but defective in consequence of its not showing distinctly those parts upon which the merits of the invention depend.

We are told in the specification that the improvement consists in taking the thread from the roller in the centre of the balance flyer, running it thence through the gudgeon and pulley, and then through two holes in the balance flyer, &c. &c. The spindles, instead of being placed vertically, form an angle of forty-five degrees with the horizon; they are denominated independent spindles, being so constructed as to move round either slowly or rapidly in filling the bobbin. This, if we understand the specification, is to be effected by springs of wood, which, by means of thumb screws, may be made to bear

with greater or less force against each spindle. The principle claimed as original is "the method of bearing against the spindle."

If we have communicated a clear idea of this invention, the merit will belong exclusively to the reader, as our own conceptions of it are altogether confused.

16. For an improved *Surveying Compass*; William J. Young, city of Philadelphia, January 17.

The improvements in the compass, or circumferenter, here patented, are two. The first consists in making the compass plate double, the plates of which it consists turning round upon each other. The circle of the compass is divided in the usual manner; the lower plate is also divided into degrees and parts of degrees, which are hidden excepting at one point, where an opening through the edge of the upper plate exposes them. In this opening there is a vernier, graduated so as to divide the divisions on the lower plate into any required part of a degree. The lower plate is capable of being rendered stationary by means of a screw; and when this is done, angles may be laid off by means of the sights, which may be moved round with the upper plate, without employing the needle for that purpose; thereby avoiding the uncertainty, or the difficulty, attending the process.

The second improvement consists in colouring the surface of the compass plate green, or bronzing it, instead of silvering it in the usual way, thereby relieving the eye from the unpleasant and injurious effects of the white plate. A narrow silvered rim surrounds the bronzed surface, giving a distinct view of the needle point.

Those who are aware of the excellence of the instruments made by Mr. Young, will be prepared to believe that what he denominates improvements are really such, and the result in the present instance will certainly justify the anticipation.

17. For a *Universal Mill*, for grinding paints, drugs, dye stuffs, corn, rye, wheat, barley, oats, and various other substances; James Bogardus, city of New York, January 18.

In this mill, both the stones are made to revolve, but the upper one receives its motion from that of the lower, in a way to be presently described.

The lower stone is fixed firmly upon a vertical shaft which is made to revolve by the application of any suitable power, and with any required speed. The upper stone is made smaller than the lower, say one-fifth less in diameter, and it is placed so as not to be concentric with it; it may, for example, be so situated that the peripheries of the two stones will coincide on one side, whilst on the opposite side one-fifth of the diameter of the lower stone will be exposed.

The upper stone is kept in its place and its pressure regulated by means of a screw passing through a beam above it, the point of which bears upon a bridge piece in the middle of the eye. It will be at once evident that the revolution of the lower stone will give a slower and peculiar revolution to the upper. A hopper is to rise above the eye of the upper stone, and other requisite appendages are employed.

The claim is to "the manner of placing the upper stone off the centre of the shaft of the lower stone."

Metal, it is mentioned, may, in some cases, be employed instead of the stones for grinding.

18. For *Sliding Valves for Steam Engines*; Thomas Halloway, Northern Liberties, Philadelphia county, Pennsylvania, January 18.

Side pipes are cast on the cylinder as usual, but so arranged as to adapt them to the particular construction of the slide valves. At each end of the cylinder, over the side pipes, a flat plate is cast, which has three openings in it, arranged lengthwise of the cylinder. They are equi-distant from each other, and the space between them is to be a little greater than the width of the opening. The faces of these plates must be ground perfectly true. The sliding valves which cover them are cast in one piece, being connected together by a stem extending from one to the other. There is an excavation on each of the sliding faces, which embraces two of the openings, and the space between these, forming a steam way from one to the other. Of the three openings at each end of the cylinder, the middle one communicates with the boiler, the inner one with the cylinder, and the one nearest the ends are for escape steam. The excavation in the valve as it slides, covers alternately the centre and inner, and the centre and outer openings. Those acquainted with the action of the engine will at once understand the operation of this valve.

It will be seen that this, like most of the patents taken for steam engines, is a mere point of modification or arrangement; it is, however, more simple than some of the slide valves in use.

19. For a *Valve for the Vibratory Steam Engine*; Thomas Halloway, Northern Liberties, Philadelphia county, Pennsylvania, January 18.

(See specification.)

20. For a *Wing Gudgeon Valve for Steam Engines*; Thomas Halloway, Northern Liberties, Philadelphia county, Pennsylvania, January 18.

(See specification.)

21. For a *Machine for cleansing Paper Pulp*, called the "Piston Pulp Strainer;" James Sawyer, Newbury, Orange county, Vermont, January 21.

This pulp strainer differs entirely in its mode of action from that patented by Thomas L. Woodcock, p. 301, vol. vi. The pulp is put into a mixing tub, within which an agitator is kept in motion; attached to the mixing tub, is another, which the patentee calls the cellar, and between the two there is a part partitioned off, having a piston working up and down in it, which operates as a forcing pump. This piston is to make about fifty strokes in a minute; as it is raised

it admits a portion of the pulp from the mixing tub into the chamber, and as it is depressed, it forces this pulp into the lower part of the second tub, or cellar. Near the upper part of the cellar there is a metallic strainer covering its whole surface, through which the pulp is forced, and from which it runs through a spout into the vat. For an ordinary cylinder machine this strainer may contain about two and a half square feet of surface.

The chamber and piston are so constructed that the latter in raising, during about one-fourth of the stroke, tends to exhaust the cellar, and this draws a portion of the pulp back through the strainer, serving thus to free it from the knots and coarse stuff which would otherwise obstruct it.

The claim is "to the principle of cleaning paper stuff, or pulp, in the way and manner above described; that is, the application of a vacuum formed within or under the sieve or strainer, thereby causing a reaction of water back through the apertures of the sieve or strainer, about one-fourth part of the time, which serves to admit the stuff, or pulp, to flow freely through."

22. For an improvement in *Cards for Carding Machines*; Edward Faber, Pittsburgh, Allegheny county, Pennsylvania, January 24.

A thin piece of sheet lead, or other metal, is to be laid on one or both sides of the card leather, which is then to be pritched for setting the teeth. The metal, or other material used, may be attached to the leather by glue, cement, or otherwise.

The object of doing this is to render the teeth more stable than when set into leather alone.

23. For a combined *Clover Shelling, and Thrashing Machine, with a Grist Mill*; Daniel Mullier, Wooster, Wayne county, Ohio, January 24.

Each of these machines has its separate archetypes in the patent office, and elsewhere. The clover machine is a cylinder rubbing against a concave bed; the shelling and the thrashing machines are also cylinders with suitable beaters and teeth, with corresponding concaves; the grist mill consists of iron disks, one foot in diameter, placed vertically, and the whole are fixed on one frame, and driven by bands and whirls. The claim made is to the combination of the several machines named.

With regard to the separate machines, we apprehend that they are all of sufficient age to have entered into public life, and their fathers are probably long since dead. What exclusive right the mere placing them upon the same frame can give to the patentee, we cannot perceive; to us it appears something like a patent for putting each of them into the same barn. New machines, it is true, are generally but new combinations of parts, or instruments, before known: levers, wheels, pinions, axles, cams, weights, and springs, have been long known and used; but they are still capable of new combinations, producing new machines, with new results; and it is this kind of

combination of old things which constitutes the subject matter of a patent. Should I make a machine like that described, but leave out the least valuable part of it, the grist mill, would the patentee still claim it as his combination? we trow not, as this would include the claiming of all the individual machines of which his combined machine is composed.

24. For a *Machine for making Wrought Nails*; James W. Harvey, Jamestown, Chautauqua county, New York, January 24.

The nail rods are to be heated and passed down perpendicularly through a tube, or guide, between two swedging wheels, or rollers, which have indentations on them to form the edges and heads of the nails, and furnished also with chisels which cut them off of proper lengths. These rollers are made of steel, are ten inches in diameter, and of such thickness as the size of the nail may render necessary. On their lower sides they dip into boxes containing water, to preserve them from being too highly heated. The sides of the nails are to be formed by two other iron rollers, or wheels, which revolve at right angles with the swedging rollers. These are to be four feet in diameter, and are to approach each other sufficiently near to determine the thickness of the nail. All these rollers revolve in a vertical position. We shall not now attempt to describe the accessory apparatus for giving motion to the respective parts, as we deem this unnecessary. The claim is to the large rollers or wheels, for forming the sides of the nails; the swedging rollers, or die plates, not being considered as new.

25. For an improvement in the mode of *Manufacturing Buck Shot*; John Snyder, city of New York, January 26.

A mould is to be made very similar to those heretofore employed for casting buck shot, or bullets in rows. In the one described, two rows are to be cast at once, there being three bars of brass hinged together at one end. The hemispherical excavations for receiving the lead are made close to the upper edge of the mould, so that the shot may be cast without any neck to it, the opening forming the apex of the shot, as it stands when cast. On the sides, and at one end of the mould, ledges rise to prevent the running off of the lead in casting. The mould being closed it is to be held with its handle end a little elevated, the lead poured on, and allowed to run down towards the hinged end, filling the cavities in its passage: before the metal has set, the lead is to be scraped off the top of the mould with a chisel, leaving the shot separate, and ready to be delivered from it. It is to this last feature that the claim is confined.

26. For an improvement in the *Self-sharpening Plough*; Bancroft Woodcock, Mount Pleasant, Westmoreland county, Pennsylvania, January 26.

(See specification.)

27. For a composition of matter to be used in the *Manufac-*

ture of Spruce Beer; George Jones, Boston, Massachusetts, January 27.

From the twigs, boughs, and leaves, of the double white spruce, a material is to be extracted, without boiling or distillation, which the patentee calls "the superior improved oil of spruce, for the making of spruce beer." To form it, two pounds of the leaves, &c. are to be bruised, and soaked for three or four days in alcohol, *of a very high proof*. To every gallon of this, when filtered, three pounds of the essential oil of spruce are to be added: this is the composition for which the patent is taken.

The superiority of this composition over all others, its various uses and great virtues, are enumerated and insisted upon with considerable amplification. To make beer, one ounce of the composition, and one gallon of molasses are to be well mixed together, and two gallons of boiling water are then added; a half barrel is to be used to contain the mixture, and is to be filled up with cold water, when its contents are allowed to ferment.

The process of soaking the boughs, twigs, and leaves in alcohol, and then mixing the infusion with oil of spruce, are the things claimed.

28. For an improvement in the *Grist Mill*; Gideon Hutchkin, Windsor, Broome county, New York, January 27.

The object aimed at by the patentee, he informs us, is to grind rapidly with small stones without heating the flour; and consequently to lessen the expense of erecting, and the power required for driving such a mill.

A quadrangular frame is to be made in the usual way; on the lower end of the spindle there is to be a projecting rim, or flanch, just above its step, or point; a clutch box, catching above this projection, prevents the spindle from rising. The upper stone is to be the runner, which rests, by means of a balance rine, upon the upper end of the spindle; this being formed hemispherical, and the rine hollowed to suit it. Above the balance rine is a collet and nut, which secure the stone from rising.

The balance rine and driver are to be so formed as to blow wind into the eye of the stone, by their revolution, and channels, or tubes, are to be made to cause currents of air to pass between the stones. By loading the bridge tree, the stone may be forced down, or the top of the spindle may be weighted for the same purpose.

The claims are to increasing the gravity of the runner in either of the ways above named; the inserting wings, or flights; the form given to the driver and balance rine, and the pipes, or channels, for passing currents of air, &c. &c.

The particular forms of some of the parts described in the specification, are no doubt new; in other points, however, the present patentee has trenched upon preoccupied ground. The flanch, or button, at the lower end of the spindle, was particularly described in a patent noticed by us sometime since. Stones also have been loaded

at top, both by direct weights and by levers; and air holes have been made for the purpose of cooling the flour. The claim, therefore, if good, must rest upon the precise manner adopted by the patentee.

29. For a *Machine for Washing Hats*; Samuel Drinkhouse, Easton, Northampton county, Pennsylvania, January 30.

A wheel six feet in diameter is to be hung by its axle over a trough containing water. Upon each side of the rim of the wheel there are to be pins upon which to place hats, and catches to secure them. A dozen may be placed on each side of such a wheel, and on turning a crank they will be rapidly washed. The whole machine is considered as new, no claim being made.

30. For a *Piston Safety Valve* for steam engine boilers; John C. Douglass, city of New York, January 30.

The contrivance here proposed is to raise the ordinary safety valve when the steam arrives at a certain pressure, although, from expansion, or any other cause, it may adhere to its seat. The lever of the safety valve is to extend out beyond its prop, or support, on the side opposite to the arm carrying the weight valve, converting it, in this case, into a lever of the first kind: if the extreme end be depressed, the valve, therefore, will be raised. Near this end of the lever, a small cylinder, with a piston working in it, is inserted into the top of the boiler. The piston rod is held down with the required force by a spring steelyard, or by any other measured weight. From the top of the piston rod, a rope, or chain, descends, passes under a pulley, and up to the end of the lever, to which it is attached. When the force of the steam suffices to raise the piston, the end of the lever is, consequently, drawn down, and the opposite end, carrying the safety valve, is raised.

It is much to be doubted whether such an apparatus would generally accomplish the end proposed. The force by which the piston is held down must in but a small degree, exceed that at which the safety valve ought to rise, as it must act as soon as the valve itself ought to operate. When a valve adheres, as it sometimes does, with very great force, the extra elasticity which will enable the patented apparatus to overcome this adhesion, is replete with danger to the boiler, upon the whole interior of which its power is operating. It is to be borne in mind also, that although explosions do no doubt sometimes take place from the adhesion of the safety valve, this is not the only, nor indeed the most frequent, cause. Admitting, therefore, that the apparatus in question would always answer the purpose of its construction, it still must not be depended upon as affording any thing like perfect security. There is another circumstance which will militate against this apparatus, and which is inherent in the use of a steam-tight piston. The amount of friction to which it is subjected in its cylinder is perpetually varying, and the force necessary to raise it will consequently differ at different times; upon

the whole, therefore, we are led to the conclusion that this contrivance will not effect the object for which it was made.

31. For an improvement in the *Truss for Vessels*; Jonathan T. Quimby, Belfast, Waldo county, Maine, January 30.

So far as we are judges of nautical affairs, this truss appears to present advantages over those of the common construction. We cannot describe it without a cut, but the claim will show the nature of the improvements which the inventor believes that he has made. The hoop which encircles the mast is connected to the yard hoop by means of what is called a truss-bow, attached to wings or ears on the former. The yard hoop swivels on this bow by means of a socket joint. The claim is to the truss-bow, which is so constructed that it will not, in any position of the yard, interfere with the launching, sending up, or housing, of the top-mast. "The connexion of the hinge and swivel joints, which, as constructed, brings the centre of motion within two inches of the yard, so that when the yard is braced sharp to the wind it is not carried to the leeward any more than a distance equal to half its diameter, and consequently may be much more easily and quickly squared."

32. For a *Machine for Thrashing Rice and other Grain*; Orlando Hurd, Bridgeport, Fairfield county, Connecticut, January 31.

The cylinder and concave of this thrashing machine are to be covered with plates of cast iron, having spurs, or teeth, cast on them, to operate in the usual way. In its form and construction it is like the greater number of its elder brethren, some of which also have had teeth of cast iron. The patentee does not make claim to any thing new in it.

33. For an improved *Method of Generating power by High Steam*; Benjamin Phillips, city of Philadelphia, January 31.

Should it appear that the patentee of this improvement has really accomplished what he professes, his steam engine will be invaluable, as he informs us that he has invented a "method of generating power by high steam with perfect safety, and without danger of human or animal life, and without risk or possibility of explosion either of the boiler or generators." This he proposes to accomplish by a new and original plan of applying the fire; a new plan of constructing furnaces and generators, and other points of novelty.

The specification does not very distinctly explain the particular construction of some parts of the apparatus, nor do the references to the drawings supply the deficiency. There are in fact several figures in the drawings to which no reference whatever is made, and, although not entirely ignorant upon the subject of steam engines, we are not able to divine their use; these, therefore, we must pass over.

The cylinder is to have the usual shape, and the ordinary slide valves; and the improvement of this part consists in using strong cast,

or wrought iron heads, "with spherical surfaces inwards;" meaning, we suppose, that they are to be convex inwards. Coal furnaces are to be used to heat these heads *red hot*, which furnaces may be removed at pleasure. This, we think, is a bad beginning where perfect safety is a main object. There are to be vessels, which the patentee calls *generators*, but which are rather a species of steam chest, as they do not generate steam, but receive it from a boiler. They are to be of the same size with the cylinder, in order that they may contain steam enough to fill it. There must be two of them to supply steam on each side of the piston alternately. The boiler is to be of the low pressure kind, the steam is to pass from it into the generators, which are also to be heated by a coal furnace. It appears, therefore, that low steam is to be generated in the boiler; and that from this it is to pass into the generators, which being highly heated by their appropriate furnaces, are to convert it into high steam; from the generators it is to pass into the *red hot headed* cylinder, where it gets higher still, and is to act upon the piston with great force, and then to escape.

What the piston is to be packed with, and whether its rod is to pass through the red hot heads, we cannot tell, as neither the description nor the drawings enlighten us upon this point.

Another, or, we suppose, a modification of the same engine, is next noticed, but our picture of it would be less distinct than that just given, we therefore decline even to sketch it.

The machine already described, contravenes all our notions respecting the nature of steam, and the correct mode of applying it. This perhaps arises from an obtunded understanding, as the patentee avers that he has "described the foregoing inventions, improvements and discoveries in a true and correct manner, and in as clear a manner, and in as few words as possible to include all the sense and meaning, exact construction, and operation of the machine."

We think unfavourably of heads convex inwards, made red hot, to bear the pressure of high steam; we think unfavourably of the attempt to convert common into high steam, by heated generators, and heated cylinder heads, where no water is present to give the steam greater density; and we think unfavourably of the perfect security of generators which have, or which require, safety valves; because we believe that wherever safety valves are used, the idea of danger is admitted, and that where they are needed, danger does really exist. In fine, the whole of this contrivance appears to us under an aspect so unfavourable, that we should occupy too much space by arraigning its parts individually, whilst we should afford but little satisfaction to any one; we therefore leave it to the test of time and experience, wishing, though not hoping, that all the fond anticipations of its projector may be realized.