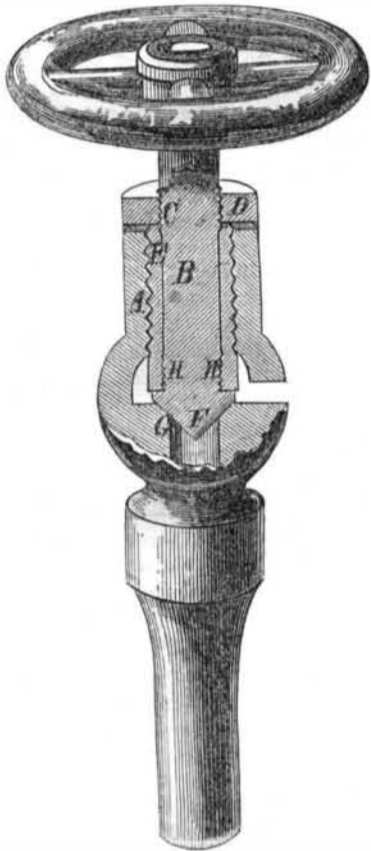


ceive the amount of pressure requisite to confine the valve to its seat. The valve being fitted steam tight to the cylinder causes the unnecessary pressure that would come upon it to be received by the head of the cylinder, and transmitted thereby to the wheels which roll upon the seat or ways. The movement of the valve is, in nearly all engines, attended with great friction, but by this improvement it is almost entirely destroyed.

**Improvement in Melodeons.**—By Josiah A. Rollins, of Buffalo, N. Y.—The principal object of this invention is to arrange within the instrument four sets of reeds, and to combine two sets of valves to be played by one set of keys, yet keeping all the reeds on one tube board. The construction of the instrument is thus rendered simpler than when the reeds are arranged in two banks, while at the same time the depth or width of the case of the four-reed instrument is not any greater than that of the ordinary melodeon. Instruments of this improved description possess, in effect, quadrupled musical powers.

**Improved Valve Gauge Cock.**—These cocks are used for steam boilers and many other uses where it is necessary that cocks should be tight when new, and capable of being easily re-ground when they become leaky.



Referring to the above engraving, the improvement consists in having an outer shell, E, shipped over the spindle, B, and fastened as shown, at the screw threads, H H, and further secured by a flat nut, D, screwed hard against the end of shell E, at the thread, C. By turning back the hand wheel, the valve, F, is opened, or run back from the seat, G, allowing the steam or water to pass out through the opening below; the part, I, should be six-sided.

To re-grind this gauge cock, it is only necessary to run the spindle and shell out of the body, A, and slack back the nut, D, unscrew the shell at H H, and the spindle and valve is free to revolve, can be ground with emery, &c.; after this, replace the parts again, and the cock is as good as new. This is a good improvement. Patented Jan. 15th, 1856, by McNab, Carr & Co., No. 133 Mercer st., New York City.

**Improvement in Window Frames.**—By John Casey, of New York City.—This invention consists in having a portion of one of the side pieces or stiles of the window casing movable, so that the sashes may be conveniently removed from the pane for washing or repair without detaching any portion of the beads or molding. The improvement may be applied to all windows.

**Washing Machine.**—By Solon Bishop, of Homer, N. Y.—Consists of a tub containing a round rubbing board, between which and the bottom of the tub the clothes to be cleaned are placed. A yoke or bar is placed upon the up-

per end of a central spindle, and arranged so that the rubbing disk will have a proper bearing at whatever height it may be varied within the tub or case.

**Improvement in Bench Retorts.**—By John G. Hock, of Newark, N. J.—In gas making it is common to heat five retorts with one fire.—Each set of five retorts thus arranged is called a "Bench." The present method of heating is defective, for the flame is suffered to curl around the retorts and strike with greater intensity upon their top parts. This soon burns through, and they are useless.

The above improvement consists in a novel arrangement of flues, whereby the flame and heated products of combustion are made to act on the retorts in such a manner as to heat them with a greater degree of uniformity than they can be by the common method. The durability of the retorts is thus increased, and a considerable saving in fuel also effected.

**Saw for Cutting Irregular Forms.**—By Henry S. Vrooman, of Logansport, Ind.—Consists in a peculiar manner of hanging the saw sashes, adjusting the same, and also a new method of arranging the saws in the sashes so that the saws may, by the aid of patterns, be made to cut all kinds of stuff, timber in curved or irregular forms, for various purposes.

#### The Press on the New Patent Bill.

The *Pen and Lever*, published at Washington, D. C., contains an able review of the new Patent Bill, in which exceptions are taken to nearly every section contained in it. We wish we were able to present the whole of this review, but we can only find room for a few extracts.

Respecting the enormous increase of new fees proposed, it says:—

"We do not see how any unprejudiced person can read the list of fees and avoid the conviction that it is calculated to make the Patent Office a commodious crib for feeding an enlarged herd of office-holders at the expense of inventive dupes, rather than to promote the useful arts, by encouraging inventors. Hitherto, by charging patentees thirty dollars, and rejected applicants ten dollars, the Office has been able, not only to pay its own expenses, but to accumulate a surplus of a few hundred thousand dollars. But this bill, without guaranteeing the inventor any superior advantages or privileges, will raise the official fees for every patent to a sum never less than \$130, and sometimes as high as four or five hundred dollars. For instance, last year, a patent was granted embracing sixteen claims. If that patent had been appealed, first to the Commissioner, and then from him, under this proposed system, the expense of the patent, in Office fees alone, would have been not less than \$425. Now what is the object in extorting so much money from the inventor? Certainly, if the Office is properly administered, but a small portion of such exorbitant fees can be required to pay its expenses."

Regarding the increased rate of fees for copying, it says:—

"Again, the fees for copying are proposed to be raised from ten to fifteen cents per hundred words. At the present rate, of ten cents a hundred words, an experienced copyist can earn from seventy-five cents to a dollar an hour, and cannot work the full number of official hours, lest his earnings would amount to more than a regular salary paid to clerks of a similar grade. For whose benefit, then, is this increased cost of copying intended? In addition to the succession of superfluous payments required to be wrung from the poor inventor, a pittance of twenty-five cents for each hundred words which the specification may contain more than one thousand words, is to be charged to the patentee for engrossing his patent."

On that wonderful feature of the bill to which we specially directed attention—the solemn confirming act—it is both sharp and severe. It says:—

"But the most important and objectionable section of the bill is that which requires the 'confirmation' of a patent within five years, or else the patent shall terminate. Instead of the term of fourteen years originally, and an extension of seven years, as the law now allows, the bill provides that the patent shall originally be granted for only five years. And

before the expiration of that period, if the inventor would extend the duration of his patent, he must make application to that effect, paying a fee of one hundred dollars.

"The objections to this plan are so numerous we can hardly enumerate them. It would be a complete death-blow to the inventive spirit of our country. Any one can in a moment see that none but the wealthy and the pirate would ever succeed in having a patent confirmed, if of any use or consequence. The poor inventors would be debarred at once from extending it, from their inability to raise and risk large fees. The consequence would be that they would never attempt to obtain the patent originally, for they would, of course, know that they could not sell an invention till after the patent should be confirmed, since not one patent in a hundred could be sold for any amount, in view of the uncertainty, delay, and expense of confirmation. Hence, the spirit of invention would almost entirely die away, unless the law should be promptly repealed. The applications for patents would soon dwindle down to the few which wealthy owners of inventions might think it worth their while to attempt to secure.

The delay consequent on this plan would debar most of the very few who would otherwise risk the poor chance of confirmation. For, as the first five years of the patent would be worse than useless—a perfect purgatory to the inventor, most inventors would give up the invention in despair.

In general, we dislike its whole plan and spirit—it requires heavy fees, for no earthly object, except to overburden the inventor, and oppose obstacles, instead of offering encouragement to improvement; it causes long delays, which are an oppressive burden even when protracted but a few months; it requires a succession of troublesome and complicated proceedings, which are a complete horror to inventors; it supposes the poor inventor always to have the poorest invention, for its professed object is to prevent the prevalence of useless or unused inventions, and it is generally the poverty of the inventor, and not the uselessness of his invention which prevents its coming into use, while the really worthless invention, more generally, has wealth to support it, for sinister purposes; in short, not content with the difficulties and obstacles with which the Patent Office takes such especial pains now to entangle the inventor, under the present law, and of which inventors are so loudly complaining, all over the country, it ingeniously weaves other webs to entrap the last innocent victim.

If we cannot have a better patent law, let us retain the present."

The *Kane County Republican*, published at Geneva, Ill., says, respecting the Bill, "From an examination of some of the amendments we are fully convinced that certain interested parties are at the bottom of the whole affair. We hope for the good of the country it will not pass."

The *Recorder of Amsterdam, N. Y.*, says: "It is the opinion of many who have carefully examined the Bill, that it contains some features which will assume an ugly appearance when brought out into practical light, and will open the door to fraud and oppression a hundred times wider than the present system. Two objectionable features are quite obvious. It greatly increases the difficulty with persons of small means in obtaining patents, and it increases the power and patronage of government."

The *Savannah, Ga., Morning News* says:—"Perhaps the strongest argument against any radical change may be found in the fact, that hitherto our patent system has been considered the most simple and perfect in the world, and has been a model for England and other nations."

The *Jefferson County News*, of Adams, N. Y., says: "The Bill seems to be most admirably designed to benefit other interests than what ostensibly appears on its face, and in one section authorizes the Commissioner to expend \$400 for printing copies of descriptions, specifications, &c., of every patent, which would amount to a million of dollars in a single year."

Since the Bill has been published in the *SCIENTIFIC AMERICAN* and our brethren of the

Press have had an opportunity of examining it for themselves, they have very unanimously condemned it.

#### Who first employed Anthracite Coal in Smelting Iron.

In a recent article in the *New York Tribune*, on the progress of iron manufacturing, it was stated that there was a dispute respecting who was the first to apply anthracite coal in the smelting of iron, and the names of George Crane, of England, and Rev. Dr. Geissenhainer, of New York, were mentioned in connection with the subject, and the credit given to the latter. In the *Tribune* of the 5th inst., F. W. Geissenhainer, Jr., claims the invention exclusively for the Rev. Dr. Geissenhainer, and states that he obtained a patent for melting iron ore with the hot blast, by anthracite coal, and obtained a patent in 1833, and that in 1835 a furnace was erected in Schuylkill Co., Pa., to carry out the invention. He says, "iron manufactured in that furnace being now in my possession—the first either in this or any other country, manufactured by the exclusive use of anthracite coal by means of a chemical combination and a hot blast." By the tone of the whole letter it would appear as if it were the intention of its author to convey the idea that Dr. Geissenhainer was the first person who applied anthracite coal, exclusively, to smelting iron. He also states that Mr. Crane, of London, afterwards applied for an American patent, which was opposed by Dr. G., but he paid the latter a thousand dollars for the use of his invention, and afterwards took out a patent. We will now quote the remainder of the letter:—

"Immediately after this purchase and the establishment of the validity and priority of the patent, the executors of Dr. Geissenhainer freely opened to the world the use of his patented discovery, and hence it is that all the iron furnaces in the State of Pennsylvania have been erected free of patent charges or fees."

Now, instead of Dr. Geissenhainer being the first who used and successfully smelted iron ore with anthracite coal, his patent dates five years later than Benjamin B. Howell's of Philadelphia, who had erected a furnace as early as November, 1828, and manufactured malleable iron from the ore by the exclusive use of anthracite coal for fuel. The Rev. Dr. Geissenhainer was neither the first to use anthracite coal in smelting iron ore; nor was he the inventor of the hot blast. It was very easy for his executors to be generous in giving his patent to the public. "Honor to whom honor is due," and the person who deserves credit for the first successful application of anthracite coal to the manufacture of iron, from the ore, is Benjamin B. Howell, of Philadelphia.

#### Curious Instinct of Plants.

Hoare, in his treatise on the vine, gives a striking exemplification of the instinct of plants. A bone was placed in the strong but dry clay of a vine border. The vine sent out a leading or tap-root, directly through the clay to the bone. In its passage through the clay the main root threw out no fibers; but when it reached the bone, it entirely covered it, by degrees, with the most delicate and minute fibers, like lace, each one sucking a pore in the bone. On this luscious morsel of a marrow bone would the vine continue to feed as long as any nutriment remained to be extracted.

#### American Steamboat Engines for the Danube.

Engines are now in the course of construction at the Morgan Works, this city, for two light steamboats designed to run on the lower Danube. They are to be sent to Austria to be put in boats building at Alt Afen, from designs by George Steers. These engines are being constructed under the supervision of Charles F. Looney, Esq., the efficient Austrian Consul General at this port. They are to be steam apostles of American progress.

#### Perpetual Almanac.

Mr. Wm. Hillhouse, of New Haven, Conn., has shown us a small cylindrical Almanac, of his own inventing, which, by slight changes, is made to exhibit the days and months of any year, past, present, or to come for a thousand years or more. It is a simple instrument.