



OF THE  
**SCIENTIFIC AMERICAN.**  
VOLUME THIRTEEN.

To Mechanics, Manufacturers,  
Inventors, and Farmers.

In announcing the Thirteenth Annual Volume of the *SCIENTIFIC AMERICAN*, which commences on the 12th of September, the Editors and Publishers embrace this opportunity to thank their numerous friends and subscribers for the encouraging and very liberal support heretofore extended to their journal, and they would again re-assure their patrons of the determination to render the *SCIENTIFIC AMERICAN* more and more useful, and more and more worthy of their continued confidence and good will. The undersigned point to the past as a guarantee of their disposition to always deal justly and discriminatingly with all subjects of a Scientific and Mechanical character which come within their legitimate purview.

Having entirely discarded the system of employing itinerant agents to obtain subscribers, the Publishers of the *SCIENTIFIC AMERICAN* propose to offer

ONE THOUSAND FIVE HUNDRED DOLLARS IN CASH PREMIUMS

for the fifteen largest lists of subscribers sent in by the 1st of January, 1858; said premiums to be distributed as follows:—

For the largest List	\$300
For the 2nd largest List	260
For the 3rd largest List	200
For the 4th largest List	150
For the 5th largest List	100
For the 6th largest List	90
For the 7th largest List	80
For the 8th largest List	70
For the 9th largest List	60
For the 10th largest List	50
For the 11th largest List	40
For the 12th largest List	35
For the 13th largest List	30
For the 14th largest List	25
For the 15th largest List	20

Names of subscribers can be sent in at different times and from different Post Offices. The cash will be paid to the orders of the successful competitors, immediately after the 1st of January, 1858.

Southern, Western, and Canada money will be taken for subscriptions. Canadian subscribers will please to remit Twenty-six cents extra on each year's subscription to pre-pay postage.

**TERMS OF SUBSCRIPTION.**—Two Dollars a Year, or One Dollar for Six Months.

**CLUB RATES.**—Five Copies, for Six Months, \$4; Five Copies, for Twelve Months, \$8; Ten Copies, for Six Months, \$8; Ten Copies, for Twelve Months, \$15; Twenty Copies, for Twelve Months, \$28.

For all Clubs of Twenty and over, the yearly subscription is only \$1.40.

The new volume will be printed upon fine paper with new type.

The general character of the *SCIENTIFIC AMERICAN* is well known, and, as heretofore, it will be chiefly devoted to the promulgation of information relating to the various *Mechanical and Chemical Arts, Manufactures, Agriculture, Patents, Inventions, Engineering, Mill Work*, and all interests which the light of *Practical Science* is calculated to advance. It is issued weekly, in form for binding; it contains annually from 500 to 600 finely executed Engravings, and Notices of American and European Improvements, together with an Official List of American Patent Claims published weekly in advance of all other papers.

It is the aim of the Editors of the *SCIENTIFIC AMERICAN* to present all subjects discussed in its columns in a practical and popular form. They will also endeavor to maintain a candid fearlessness in combating and exposing false theories and practices in Scientific and Mechanical matters, and thus preserve the character of the *SCIENTIFIC AMERICAN* as a reliable Encyclopædia of Useful and Entertaining Knowledge.

Sampson Low, Son & Co., the American Booksellers, 47 Ludgate Hill, London, Eng., are the English Agents to receive subscriptions for the *SCIENTIFIC AMERICAN*.

Single copies of the paper are on sale at the office of publication and at all the periodical stores in this city, Brooklyn, and Jersey City.

Responsible Agents may also be found in all the principal cities and towns in the United States.

Specimen copies will be sent gratis to any part of the country.

MUNN & CO., Publishers and Patent Agents,  
No. 123 Fulton street, New York.

**WALTON & EDGARTON'S LATHE.**

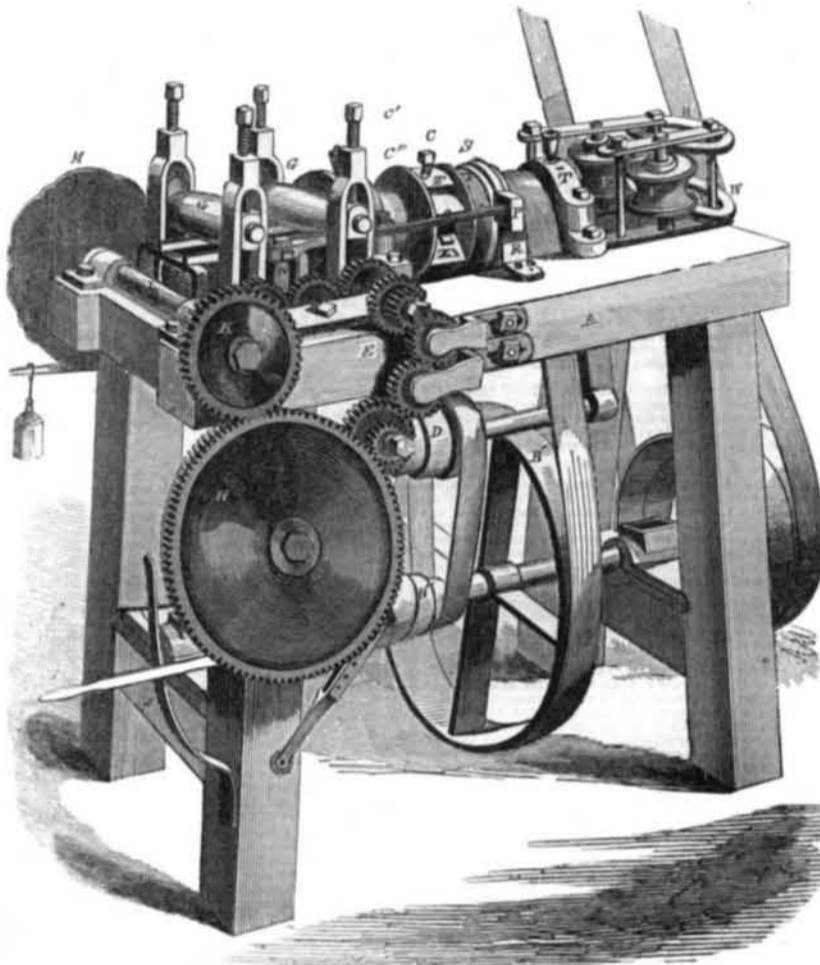
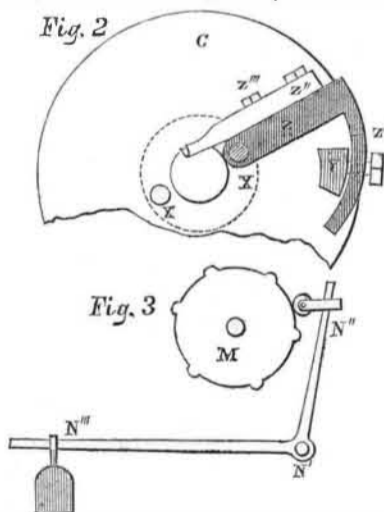


Fig. 1 is a perspective view of an ingenious and compact automatic lathe, for the production of beaded work of any kind, invented by G. W. Walton and H. Edgerton, of Wilmington, Del., and patented on July 7, 1857. The cutter head is hollow, and the cutters are mounted in such manner that, by a very simple movement, the edges are removed from, or brought nearer to, the axis of motion, the movement being governed by a cam outside. This cam may be made in any required form, and the configuration and disposition of the beads are thereby under complete control. Fig. 2 is a transverse section of the cutter head, and Fig. 3 a diagram of the cam or pattern, with the lever which controls the movement of the cutters being kept in contact with its periphery by a weight.

A is the frame of the machine, B the pulley which receives the motion from a belt, B' a larger pulley, which transfers the motion of the first shaft to the hollow cutter head, and B'' cone pulleys, which give the feed motion. C C represent the cutter head, the acting portion of which is embraced between the two disks shown. D represents cone pulleys to receive the feed motion from B'' by a belt, and E represents a train of gearing which conveys the motion of D to grooved feed wheels denoted by F. G G are smooth rollers mounted above the feed wheels, and pressed down by rubber springs, which are fixed in the housings represented. H is a movable gear wheel, which may be thrown into or out of gear, by properly manipulating the lever or handle, I. J is a spring, with notches to hold I in or out of gear, at pleasure. The object of this movable wheel is to start and release the pattern wheel at pleasure. K is a gear wheel mounted on one extremity of the shaft, L. M is the pattern wheel or cam. N represents one of two levers, mounted on the rock shaft, N', seen in Fig. 3; and on the extremity of this rock shaft is the longer lever, N'', Fig. 3. N'' carries a small friction wheel,

which is held in contact with the periphery of N, by the gravity of the weight, N''', suspended on an additional arm. These parts, although very important, are necessarily shown but imperfectly in the perspective view, but may be readily understood by comparing the latter with Fig. 3. O'' represents one of the horizontal rods which extend from N N to lugs, P, one of which is fixed on each side of the movable collar, S, which surrounds the hollow axis of the cutter wheels. R is a slide, on which P is supported, and T T are



bearings, which support C C. V V represent small guide rollers, which aid in supporting the work as it issues from the lathe. W W are india rubber springs, which hold V V in contact with the work. The material is supplied to the machine by inserting pieces previously split or sawed in suitable size, between the feed wheel, F, and the smooth rollers, G. By these rollers it is fed forward into the hollow axis of C C, subjected to the action of the cutters, and escapes at the other extremity, between the guide rollers, V V. The irregular form of the pattern wheel, M, by the

device described results in giving a more or less regular longitudinal motion to the collar, S, which motion moves the cutters outward and inward, by means which will now be described:—

From the front side of the collar, S, project two short rods, S' S', into which are inserted screws, S''. The cutters, two in number, are shaped like the ordinary gouge employed in turning, and are mounted on pivots or centers, X X, Fig. 2. Z represents the tool and tool holder, which are free to rotate around X. Z' represents a curved projection extending from the outer extremity of Z, which is perforated by a slot which extends obliquely through it. The screw, Y', which is fast in Y, stands in this oblique slot, and as the collar, S, is moved, compels the tool holder and tool, Z, to swivel round on the centers, thus bringing the cutting edge closer to the axis of motion, or removing it further therefrom, according as S is moved. The effect of the whole is to make the position of the cutters dependent entirely upon the position of the rock shaft, N', and this latter being entirely dependent upon the form of the pattern wheel, M, it follows that any number or form of bead desired may be produced.

We have seen the lathe in operation in this city, executing plain cylindrical and beaded work, as broom handles, &c., with great rapidity, and presenting, of course, absolute uniformity in the product.

For further particulars address Henry Edgerton, Baltimore, Md., or George W. Walton, Crook's Hotel, 80 Chatham st., New York.

**Hæmatinone.**

Under the name of hæmatinone, a kind of glass was in use among the ancients, for the purpose of making ornamental vessels, mosaics, &c. It has been found very abundantly in the excavation at Pompeii. This glass is distinguished by its beautiful red color. It is opaque, harder than ordinary glass, susceptible of a fine polish, of conchoidal fracture, and its specific gravity is 3.5. By fusion it loses its red color, which cannot be restored. Hæmatinone contains no tin, or any other coloring matter, besides sub-oxid of copper. All attempts of the moderns to imitate it had entirely failed, until the successful result of experiments made by M. Pettenkoffer, who not long ago brought forward a method of producing the material in large quantities, so that with requisite precautions, it was alleged the material might be cast into plates of any size, and worked into articles of every description. It was generally anticipated that this discovery would furnish a clue to many of the processes of the ancients in the manufacture of colored glass, but the anticipation does not appear to have been realized.—*Exchange.*

**Oil vs. Hydropathy.**

We have on several occasions invited attention to the ancient practice of anointing with oil, and to the fact that oil makers and oil porters, whose clothing is presumed to be more or less oily, are often singularly free from contagious diseases which sweep off others. An exchange takes up the same subject, and remarks that in the East Indies, children are rarely washed with water, but they are oiled every day. A child's head can be kept much cleaner if oiled, than without it; and many young people with hectic cheeks would probably never know the last days of consumption, if their parents would insist on having their cheeks, back, and limbs anointed with sweet oil two or three times a week. The Hebrew physicians seemed to have considered oil as more efficacious than any other remedy. The sick were always anointed with oil, as the most powerful means that was known of checking disease.



LIST OF PATENT CLAIMS FOR THE WEEK ENDING AUGUST 25, 1857.

Filter—Wm. W. Ayres, of Worcester, Mass.: I claim the combination of cylinders, B and C, with the spindle, S, when constructed with reception and discharge cavities, d, f, openings, e, g, and channels, m n m' n', arranged and operating substantially as and for the purposes set forth.

Pin Sticking Machine—Thaddeus Fowler, of Waterbury, Conn.: I claim first, The endless chain with its racks, in combination with the flanged cylinder, (whether with or without the revolving hopper) when constructed, arranged and made to produce the result, substantially as described.

Looms—Edwin A. Scholfield, of Westley, R. I.: I am aware that the star gears under a modified form have been used for changing the position of the shuttle box, and also the pattern chain which governs the order of succession of the harness, as in the patents of Samuel Eccles, of March, 1850, and Samuel and James Eccles, of August, 1852; but these are for totally different objects from that contemplated in this.

The combination of the cam wheel, L, with lever H', pinion g', shaft g', drum G, cords c c', and blade C for purposes shown.

RE-ISSUES.

DESIGNS.

An Interesting Patent Decision.

The Hoosic Tunnel.

Franklin Institute.