

Scientific Museum.

The Progress of Discovery.

No man can tell where improvements in the arts will stop, or what discoveries are yet to be evolved from the still wide and unbounded unknown. When we think of what was a century ago, and what is now; when we review the inventions which have been made during that period, and pass them before the mind, they almost seem too numerous and great for our belief. In 1805 there were only four steam engines in the United States; not a steambot, not a railroad, not a locomotive. Few machines of any kind were made then, and scarcely any kind of manufacturing operations conducted. In 1840, there was not an established line of telegraph in our country; now we have no less than twenty-three or four thousand miles of wires. The Daguerreotype is but a few years of age, and the vulcanization of India rubber no older. In the manufacture and improvement of various tools, vast progress has been made in a very few years. The printing press, from the slow hand machine, printing a few hundred copies in an hour, has been yoked to the steam engine, and now throws off thousands of copies in the same time. It is impossible for us to enumerate a title of all the inventions and discoveries which have been made during the past century; they are almost beyond computation. Our object is to present the subject for reflection to the numerous ingenious men in our country. The field before them is still a comprehensive one. Some new discovery may yet be made whereby the air above may be as safely and economically navigated as the waters beneath. In agriculture, in machinery and in chemistry, what stores of new wonders may be developed. Every man who makes a new improvement or discovery is a public benefactor. His labors vibrate far beyond the boundaries of his own existence, even to distant generations.

Mont Blanc on Fire.

In a letter from Chamounix, given in the *Savoy Gazette*, we read: "A new ascent of Mont Blanc has just taken place, having been accomplished by Mr. Blackwell, a young Englishman, twenty-two years of age. During the ascent, Mr. Blackwell observed a rather singular phenomenon. In the night of the 10th Aug., at 11 o'clock, a guide having come out from the cabin of the Grand Mulets, saw the ridges of the mountain cluster all on fire. He immediately communicated what he had observed to his companions, who all wished to assure themselves of the fact, and they then saw that through the electricity generated by the tempest, all the rocks of the Grand Mulets were illuminated. They found the same phenomenon on their own persons.—When they raised their arms their fingers became phosphorescent."

Curiosities of Science.

WALKING ON RED-HOT IRON PLATES.—Prof. Pepper, recently delivered a lecture in the Polytechnic Institute, London, before a large audience of mechanics, in which he remarked that the setting of the Thames on fire was no longer a joke, but a reality. By dashing a small bottle of sulphuric ether with a few particles of metal potassium into a flat cistern, a bright flame was produced, which illuminated the whole place. He then laid down four plates of red hot iron on four bricks, and one of his attendants walked over them barefoot, without any injury. By wetting his fingers in ammonia, the Professor dipped them into a crucible of melted lead, and let the metal run off in the shape of bullets into a shallow cistern of water.

The Sun.

Sir David Brewster makes the following remarks relative to the structure of the sun: "So strong has been the belief that the sun cannot be a habitable world, that a scientific gentleman was pronounced by his medical attendant to be insane because he had sent a paper to the Royal Society, in which he maintained that the light of the sun proceeds from a dense and universal aurora which may afford ample light to the inhabitants of the

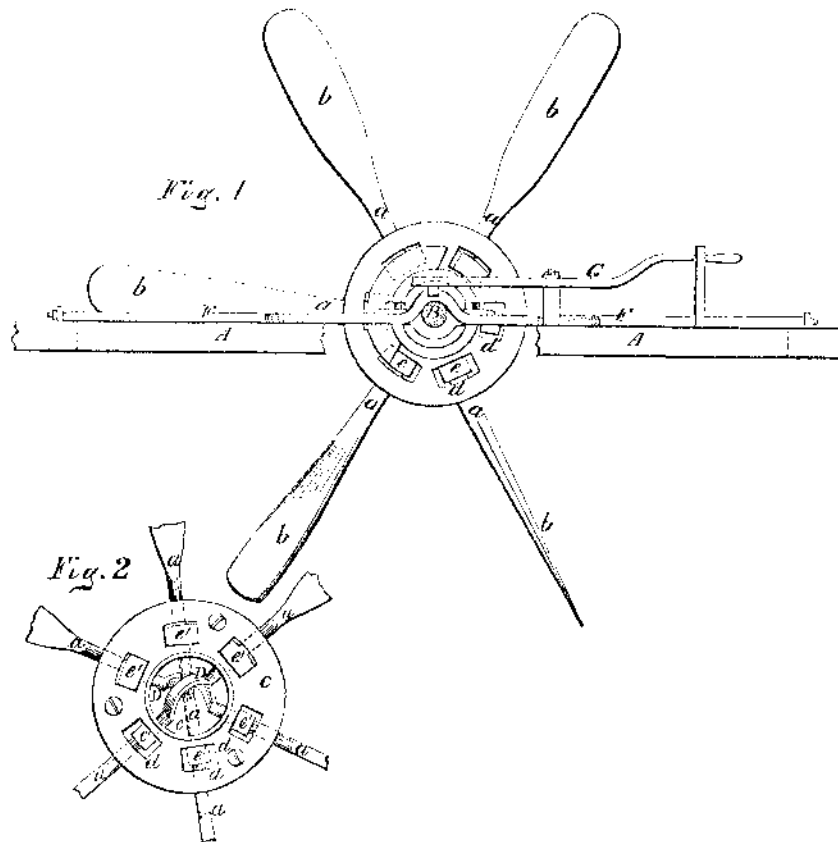
surface beneath, and yet be at such a distance aloft as not to annoy them; that 'there may be water and dry land there, hills and dales, rain and fair weather,' and 'that, as the light and the seasons must be eternal,' the 'sun may easily be conceived to be by far the most blissful habitation of the whole system.' In less than ten years after this apparently extravagant notion was considered a proof of insanity, it was maintained by Sir William Herschell as a rational and probable opinion, which might be deduced from his own observations on the structure of the sun."

Picking for Coal.

The Ohio river has been so low this season, especially on the bars opposite Cincinnati, exposing many coal boulders which had been quarried out and carried down by the floods in ages past and gone.

The *Gazette* says the bars that are now yielding so well have for years been covered with sand until this season. The floods of last winter have bared the treasure. Men are said to be making \$10 per day taking out the boulders, quite as much as is made on the California placers.

FEATHERING PADDLE WHEELS.



On the 6th of last June, a patent was granted to Thomas and Samuel Champion, of the City of Washington, D. C., for an improvement in the construction of paddle wheels, represented in the accompanying engravings, of which fig. 1 is an elevation of the paddle wheel, and fig. 2 an elevation of the hub of the wheel, showing the construction of the shanks of the paddles, whereby they are arranged in the same transverse line and passed through the hub. Similar letters on both figures refer to like parts.

The nature of the invention, as stated in the patent, consists in the bowing or arching of the shanks within the interior of the hub, or so many of them as may be necessary, so as to secure the advantages of the solid or connected shanks through the hub, with the double blades standing at right angles with each other, and at the same time allow them to turn, to feather the blades, in connection with the compactness and utility of having the paddles all arranged in the same transverse line in the hub or socket flanges. It also consists in a guide for reversing the feathering of the paddles whenever the motion of the wheel is reversed by a very small movement in the direction of the shaft, instead of by turning the frame of the guides, (as has been done heretofore) around the wheel beyond the extremities of the blades. The object of arching the shanks of the paddles, is to enable them to be passed entirely through the hub and in the same transverse line, thereby greatly reducing the amount of turning and friction in feathering the blades, for when two blades are connected to the opposite extremity of the same shank at right angles, as represented, the motion and amount of friction in feathering the paddles, is one half less than when the paddles are arranged and connected to separate shanks which do not pass through the hub."

A represents the guard of the vessel on which the wheel is supported; B is the shaft of the wheel; C is the hub or socket flanges in which the shanks, a, of the blades, b, are confined. This hub has an opening, e, in its center for the purpose of receiving the bows

of the shanks and allow them to vibrate within it, and other openings between the center and periphery to receive the projections, e', on the shanks, and to turn in as they successively strike the shifting guide. This hub, C, is composed of two disks bolted together and mounted upon the end of the shaft, so that the shaft does not pass through the hub to interfere with the shanks of the blades; but in case it is found necessary, each of the disks may be mounted on the end of a separate shaft so as to leave the space in the center of the hub free to receive the shanks and allow the cranks to turn therein. In thus arranging the shanks through the hub, one of them must be straight and the others arched on opposite sides of the straight shank, as represented. D is the arched, bowed, or cranked part of the shank, whereby the shanks can pass through the hub, and embrace a straight shank, and turn on their axis without interfering with each other during the feathering of the paddles. There are guides for reversing the motion of the paddles when it is desirable to turn the wheel in an opposite direction by a short and convenient side motion of the guides; they are arranged on each side of the hub, C. F is the frame of the guides, extending from the guides beyond the circumference of the wheel and connected by bars at the ends beyond the paddles, so that when one is thrown in gear the other is thrown out, and vice versa. G is the lever for throwing the guides in or out of gear, to shift the paddles according to the direction of the turning of the wheel.

The patentees do not limit themselves to the precise arrangement of parts exhibited; their claims embrace two features in the construction of feathering paddle wheels, viz., the arching of one or more of the shanks of the paddles; and the method of shifting the guides by a side motion for the purpose mentioned.

More information may be obtained by letters addressed to Messrs. Champion, at Washington.

The Mirage in California.

Mr. C. D. Gibbons, writing from Tulare

Lake to the *San Joaquin Republican*, says. We had frequent opportunities of observing the phenomenon in nature called mirage; when at eighteen miles distant, the lake would appear to be almost within a stone-throw, and had we not known the distance, might have been induced, during the exceedingly hot weather in the early part of July, to travel toward it to slake our burning thirst. Trees fifteen miles off would loom up so that they could be seen distinctly in their natural size and state, and immediately under, other trees but in an inverted position. We also observed horses walking along naturally and inverted.

LITERARY NOTICES.

OFF-HAND TALKINGS; or Crayon Sketches of the most notable men of our age. By Geo. W. Bungay. Messrs. Dewitt & Devenport, 160 Nassau street, N. Y., have just issued a handsome volume bearing the above title; it is embellished with twenty portraits beautifully done on steel, among the conspicuous being those of Edward Everett, Sam Houston, John P. Hale, John Van Buren, R. H. Chapin, P. T. Barnum, Horace Greeley, S. A. Douglas, Thos. H. Benton, Ogden Hoffman, etc. The author gives his impressions of the "most noticeable men," without any regard to what others think of them. In this respect he exercises a right claimed by all writers, and that our readers may know his general preferences, we will state that he admires Horace Greeley and dislikes Stephen Arnold Douglas.

HUNTER ON THE DISEASES OF THE THROAT AND LUNGS. This treatise enters very minutely into the discussion of lung diseases and of their treatment by inhaling medicated vapors, a system of practice successfully pursued by Dr. James Hunter, 528 Broadway. It is ably written and conveys with clearness a knowledge of this important subject. Of the peculiar system of practice which it introduces we cannot speak. It seems reasonable, however, that the inhalation of heating medicated vapors into the lungs must have a good effect, especially in asthmatical and bronchial difficulties. Stringer & Townsend, publishers, 222 Broadway.

HALL'S JOURNAL OF HEALTH.—For September, is another excellent number, and contains some able "Observations on Cholera." This Journal is published monthly by Dr. Hall, at 37 Irving Place, N. Y. Terms, \$1.

The Doctor is an able and very judicious writer upon all questions concerning his profession.

NORTH BRITISH REVIEW.—The August number of this able Review has been promptly issued by its American publishers, Leonard Scott & Co., No. 79 Fulton street, this city. It contains nine original articles of great interest. There is one on Sir R. Murcheson's *Siberia*, which possesses a deep interest for geologists. The concluding is a solid article on the "Past and present political morality of British Statesmen."

LITTELL'S LIVING AGE.—No. 537 of this excellent weekly periodical is filled with a choice selection of articles from the ablest foreign magazines and reviews. The first, on "Queen Elizabeth and her Favorites," is deeply interesting. Every number of this periodical contains a beautiful steel plate; this one is ornamented with "The Last Rose of Summer,"—a fine picture. The office is 343 Broadway, this city.



Inventors, and Manufacturers

The Tenth Volume of the *SCIENTIFIC AMERICAN* commenced on the 16th of September. It is an ILLUSTRATED PERIODICAL, devoted chiefly to the promulgation of information relating to the various Mechanic and Chemist Arts, Industrial Manufactures, Agriculture, Patents, Inventions, Engineering, Millwork, and all interests which the light of PRACTICAL SCIENCE is calculated to advance.

Its general contents embrace notices of the LATEST AND BEST SCIENTIFIC, MECHANICAL, CHEMICAL, AND AGRICULTURAL DISCOVERIES,—with Editorial comments explaining their application notices of NEW PROCESSES in all branches of Manufactures; PRACTICAL HINTS on Machinery; information as to STEAM, and all processes to which it is applicable; also Mining, Millwrighting, Dyeing, and all arts involving CHEMICAL SCIENCE; Engineering, Architecture; comprehensive SCIENTIFIC MEMORANDA: Proceedings of Scientific Bodies; Accounts of Exhibitions,—together with news and information upon THOUSANDS OF OTHER SUBJECTS.

Reports of U. S. PATENTS granted are also published every week, including OFFICIAL COPIES of all the PATENT CLAIMS; these Claims are published in the *Scientific American* IN ADVANCE OF ALL OTHER PAPERS.

The CONTRIBUTORS to the *Scientific American* are among the MOST EMINENT scientific and practical men of the times. The Editorial Department is universally acknowledged to be conducted with GREAT ABILITY, and to be distinguished, not only for the excellence and truthfulness of its discussions, but for the fearlessness with which error is combated and false theories are exploded.

Mechanics, Inventors, Engineers, Chemists, Manufacturers, Agriculturists, and PEOPLE IN EVERY PROFESSION IN LIFE, will find the *SCIENTIFIC AMERICAN* to be of great value in their respective callings. Its counsels and suggestions will save them HUNDREDS OF DOLLARS annually, besides affording them a continual source of knowledge, the experience of which is beyond pecuniary estimate.

The *SCIENTIFIC AMERICAN* is published once a week; every number contains eight large quarto pages, forming annually a complete and splendid volume, illustrated with SEVERAL HUNDRED ORIGINAL ENGRAVINGS.

TERMS! TERMS!! TERMS!!!

One Copy, for One Year	\$3
" Six Months	\$1
Five Copies, for Six Months	\$4
Ten Copies for Six Months,	\$8
Ten Copies, for Twelve Months	\$15
Fifteen Copies for Twelve Months	\$22
Twenty Copies for Twelve Months	\$28

Southern and Western Money taken at par for Subscriptions, or Post Office Stamps taken at their par value. Letters should be directed (post-paid) to
MUNN & CO.
128 Fulton street, New York.

For LIST OF PRIZES see Editorial page.