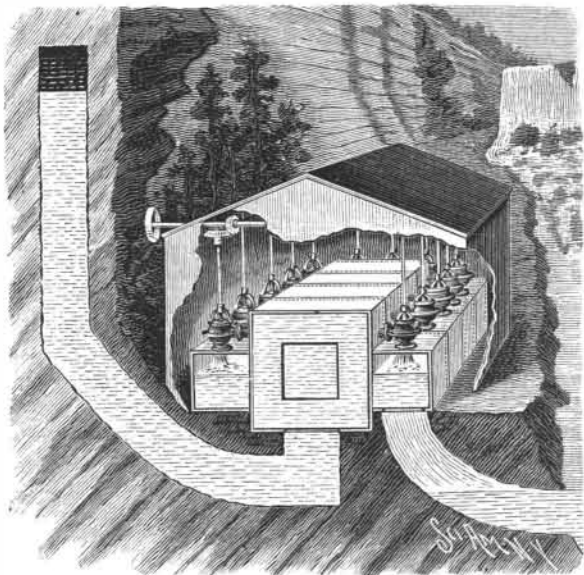


THE UTILIZATION OF WATER POWER.

The illustration represents a method of utilizing water power which has been patented by Mr. Patrick J. Dalton, of No. 341 East Ninth Street, New York City. The flume or conduit supplying the main fluid reservoir may bring the water from any practical distance, taking advantage of any available head, and this reservoir is preferably divided to form separate cubical tanks or chambers, connected with each other by central open-

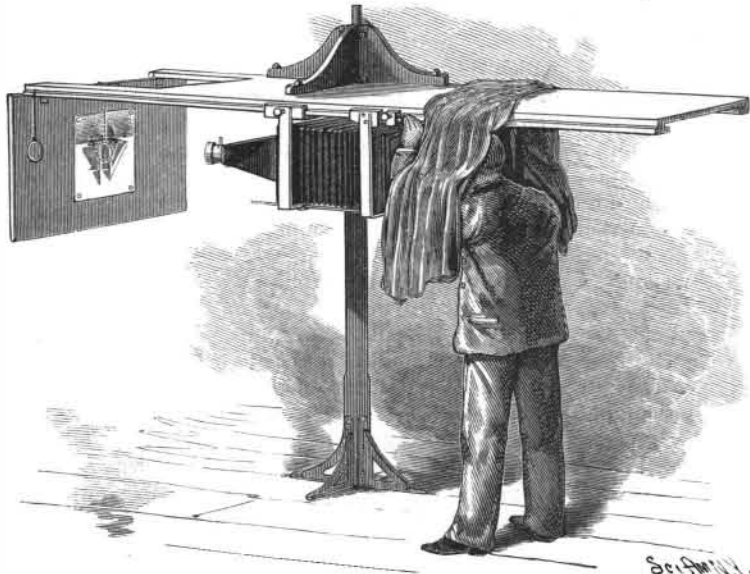


DALTON'S WATER POWER CONSTRUCTION.

ings. These tanks have their abutting walls bolted together, and their bottoms are sunk below the ground surface, while the exhaust receiving chamber is built a little higher, to surround and brace the outside walls of the reservoir. The exhaust chamber also forms a support for a series of wheels supplied from the main tank, and adapted to be geared to power-transmitting shafts, to give motion to any connected machinery. This inventor entered in the competition for the best method of utilizing the water power at Niagara Falls, with the design of having the flume consist of a tunnel from the upper rapids to the water level below the falls, after the manner shown in the view.

COPYING CAMERA HOLDER.

The accompanying illustration represents a new device for sustaining a copying camera. It was devised by a member of the staff of artists of the SCIENTIFIC AMERICAN, Mr. A. F. Bishop. It is particularly adapted for the use of photo-engravers, whose work in focusing copying cameras is very laborious and consumes much valuable time. The arrangement permits of focusing without fatigue, in the least possible time, and allows of an erect position being maintained. A wooden post three to five inches square is firmly secured to the floor with the aid of ordinary cast iron shelf brackets. The upper portion of the post terminates in an iron rod which penetrates the post sufficiently to give a firm hold. To this rod the board which supports the camera is fastened by means of strong wooden brackets. The camera board is made of well seasoned wood, preferably pine, and provided with battens upon the top to prevent warping. At the left side a T-piece is fastened, while to the right a grooved piece is attached. On this T-piece run two camera guides, one for the back and one for the front of the camera, each being provided with binding screws to hold the camera in any desired position. Guides also run in the groove at the right. The camera may be held either by pieces of wood fastened to the hangers and the front and back of the camera box or the camera may be suspended by U-shaped pieces of wood which allow the original bed of the camera to be used. The first method is illustrated, the front and back being connected by a movable brass rod in place



COPYING CAMERA HOLDER.

of the bed. As the cameras used for photo-engraving are all of the wet plate type, space should be left between the top of the camera and the board to allow of the plate holder being worked with ease. The board makes an excellent holder for the focusing cloth, and by affording ventilation dispenses with much of the heat—a good feature on a warm day. At the extremity of the camera board is suspended the copy board, which is made so that it can be removed to mount the copy, but capable of being rigidly fixed at right angles to the camera board. The end of the camera board is cut out so as to allow light to fall unobstructedly on the copy board.

The ring shown upon the copy board, in dotted lines, is used to center the copy. After using it, it is thrown back to the side as represented. The camera can instantly be moved to any position on the pivot, depending upon the light. As the copy holder and camera are fastened to the same support, any vibration will be shared equally by each. The length of the board must be made according to the size of the camera. For 10 × 12 camera the length of bed should be 9 feet, while a 17 × 20 camera will require a bed 15 feet long.

Fast Trains.

The Empire State express breaks its own record so often that close attention is required to keep track of it, so says the *Railroad Gazette*. On July 4 it ran from Syracuse to Rochester, 81 miles, in 74 minutes, equal to 65½ miles an hour. Thirty-three minutes' lost time was made up between Syracuse and Buffalo.

One of the regular passenger trains of the Philadelphia & Reading now runs between Kaighn's Point, opposite Philadelphia, and Atlantic City, N. J., 55½ miles, in one hour. The train has made this time regularly of late with eight cars.

AN IMPROVED HANGER.

The accompanying illustration represents three styles of an adjustable hanger, recently patented by Mr. James G. Duke, superintendent of the Memphis Machine Works, Memphis, Tenn., where the hanger is now manufactured. As will be seen, the hanger is capable of attachment to an overhead or vertical support, or to a floor stand. The box is so supported that it may be readily adjusted either vertically or laterally. The box may also be used without the hanger, being secured to any suitable available support.

A Famous Inventor and His Patents.

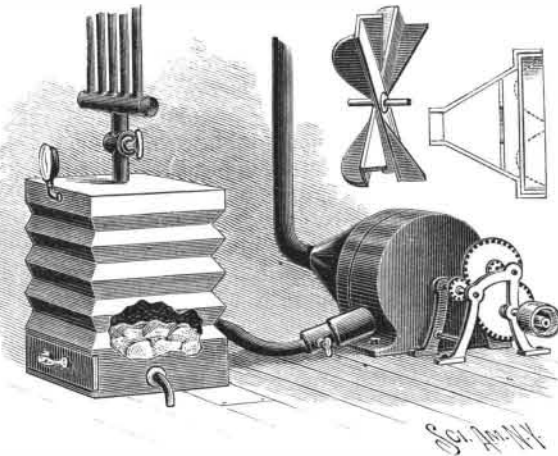
Mr. S. C. Lister the famous "silk king" of Bradford, England, and who also has silk mills at St. Denis, Rheims, and Croix, in France, has been a notable inventor, and is earnest in mechanical progress. In talking on the subject he once said, "I stand alone. Where is the man in England, or in the world, who can say, as I can say, that he has spent \$3,000,000 in working out new ideas? My business life now is almost completed, and in all likelihood I shall never take out another patent, but some time ago I sent to my agent for my patent list, which I had not seen for many years. How many patents do you think were on it? A hundred and seven! All for inventions in the silk and wool manufacture! I don't suppose that is a record that can be beaten by any one. I have never gone in for anything less than \$250,000 a year. I have never applied myself to any invention which before taking up I did not see was worth \$250,000 a year.

And I have won four! To give an illustration of what I have had to go through: When Mr. Burnley was bringing out the second edition of his book, 'Fortunes Made in Business,' I had the curiosity to make inquiries how many years I lost money in making my velvet loom a success. How many years do you think? For seven years in succession I lost heavily. All the time I had lots of people working on the loom for me. Take my wool combing patents again. I was warned repeatedly by my friends not to go in for a wool-combing machine, because everybody who attempted the task before me had been ruined, and that fate was predicted for myself. But I saw the \$250,000 a year there, and in the end I won it. My silk-combing machine cost me the most, however, and I thought at one time it would be my ruin. My last partner left me, believing that it would. As you know,

my idea was to work up the waste silk of India, which had never been made use of before, and could be bought in London for a halfpenny a pound. I succeeded with my inventions in the end, and have since reaped the benefit. My success, you see, is all owing to original inventions."

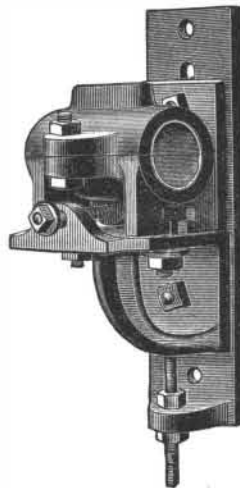
HAMILTON'S VENTILATING BLOWER.

An apparatus principally designed to facilitate the ventilating and cooling of different rooms in a building is shown in the accompanying illustration, and has

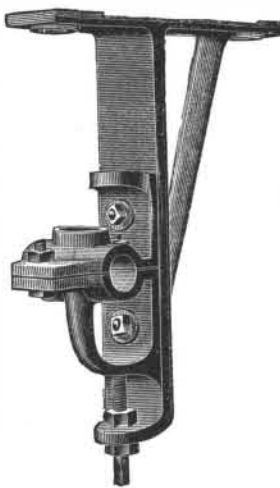


HAMILTON'S ROTARY BLOWER.

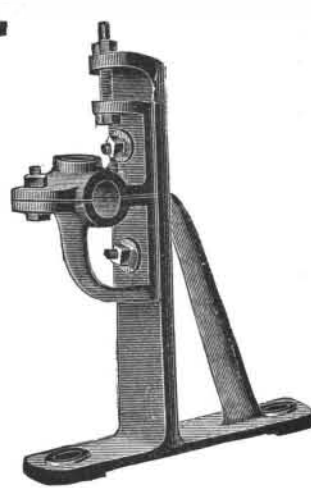
been patented by Mr. John Hamilton, of No. 36 Hastings Street, Cambridgeport, Mass. The fan casing, shown in section in the small view, has a tapering outer portion connected with an inlet pipe, through which air may be taken from an elevation, to insure its purity. The casing is telescopic, so that the volume of air upon which the fan acts may be regulated, thus increasing or diminishing the force of the blast. The fan has blades of novel form, as shown in one of the views, each blade being composed of three parts, two of which are in different but parallel radial planes.



POST HANGER.



DROP HANGER.



FLOOR STAND.

THE DUKE ADJUSTABLE HANGER.

The fan shaft is rotated by a gear mechanism, operated by a crank handle or a driving belt, to give a rapid rotary movement. There is a cut-off valve between the fan casing and the receiver, for regulating the flow of air, and the receiver is preferably built after the manner of a bellows, so that it may expand as the air is forced into it, a pressure gauge being also provided to indicate the air pressure within the receiver. The outlet pipe from the top of the receiver connects with ventilating pipes leading to the different rooms, and in the bottom of the receiver is an icebox, over which the air passes to be cooled as it enters. The entire apparatus is portable and may be readily set up wherever desired.

Fighting Mice with a Bacillus.

Professor Loeffler's bacillary crusade against the field mice of the Thessalian plain has ended in victory. The latest reports announce that the fields are strewn with the corpses of mice. It will be remembered that Professor Loeffler discovered some time ago a new bacillus, the "bacillus typhi murium," which has the power of producing a certain disease in mice, and in mice alone. A plague of field mice, threatening to destroy the harvest, having appeared in Thessaly, he was appealed to by the Greek government, and immediately started for Athens. He began his experiments by treating field mice in the laboratory with injections of his bacillus cultivation, and when these experiments showed his method to be undoubtedly the right one, he started for Thessaly with a staff of Greek doctors. Bread crumbs, saturated with the bacillary substance, were strewn broadcast over certain fields, and as early as a week later the results were visible. Success being now assured, Professor Loeffler will return to Germany, and the bacillus cultivation will be carried on at the seat of war itself.