

**Improved Washing Machine.**

This machine is designed to imitate the action of hand-rubbing, without the use of the washboard, as nearly as can be done by a mechanical device. In fact it both squeezes and forces the water through the texture to be cleansed as gently or as forcibly as desired.

It consists of a water tub or case, A, Fig. 1, of rectangular or other form, within which is placed a revolving cylinder B, Fig. 2. Around this cylinder is placed a casing, C, Fig. 2, made in segmental sections, each so arranged as to be capable of motion to or from the cylinder, and being pressed toward the cylinder by a chain pulley and weight, as shown in Fig. 2.

One of the sections is hinged, as shown in Fig. 1, and may be opened to take out or put in the articles to be washed, and when closed may be fastened so as to act in conjunction with the other sections.

The external surface of the cylinder, A, and the internal surface of the segmental casing, are grooved as shown in Fig. 2, to facilitate the carrying of the clothes around between them, and to increase the squeezing and cleansing action.

The operation of the machine is as follows: The clothes being put in by opening the hinged segment—the interior of which is so constructed that the space narrows toward the cylinder—two turns of the crank brings them under and between the cylinder, and the segmental casing, where they are squeezed and cleansed by oscillating the crank. When sufficiently cleansed, the same number of turns brings them to the hinged segment again, and they are then taken out and wrung by a wringer attached to the machine in the usual manner.

The inventor claims that this machine is superior to any machine heretofore devised, because it imitates the action of hand washing so closely; a constant squeezing being kept up by the action of the grooved surfaces. The boiling is kept up by means of a steam pipe, which conveys steam to the machine from a kettle, range boiler, or any vessel generating steam, and the washing and boiling are thus done simultaneously, the use of the washboard being entirely superseded.

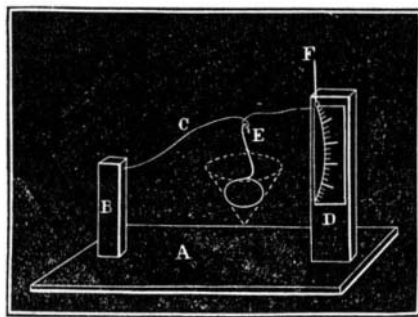
It is claimed that the finest goods can be washed without injury to the fabric, and that family machines will wash from four to six shirts, or two sheets, in from two to five minutes. The steam being confined does not cause annoyance by spreading through the house.

The mechanical arrangement and construction are simple and not liable to get out of order.

Patented, through the Scientific American Patent Agency, August 24, 1869, by Jerome B. King, who may be addressed for further information, corner Horatio and West streets, New York city. Machines may be seen in operation at 71 West Broadway.

**SPRING BALANCE FOR CHEMICALS.**

A contributor to the *Illustrated Photographer* writes: "On trying some chemical experiments lately, I found that my ordinary photo scales were very uncertain with



quantities less than one or two grains. So I constructed a spring balance, which I find so very delicate and useful that I think a description of it may be of service to fellow-subscribers.

"A is a deal stand 12 by 3 inches; B is a hard wood block, firmly attached to A; C is a spring; D is an index pillar; E is a scale-holder; F is a small bent pin, to hold the spring steady while changing the scale pan.

"The spring, C, should be very fine steel wire, bent over so as to form a loop or eye near the index for E to hook into. The index is a slip of card set out with a fine pen. The scale pan is of thin letter paper; circular, and folded something like a filter paper. Indicated by the dotted line.

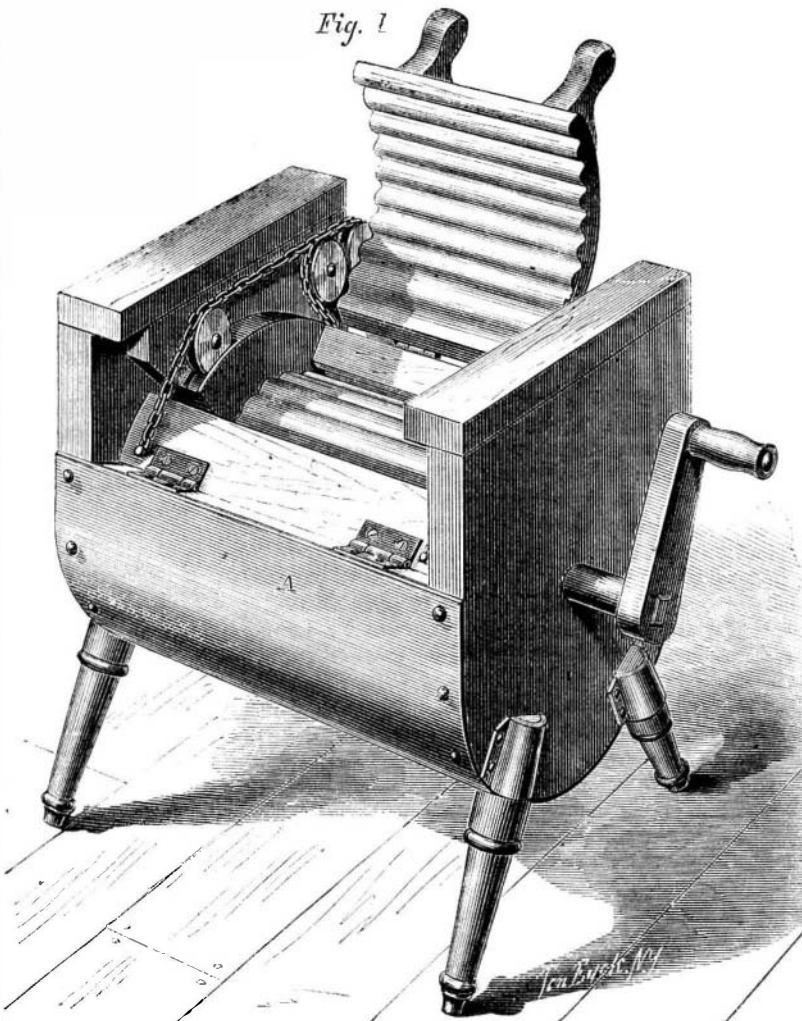
"I find that with it I can tell off, with the greatest accuracy, the minutest fragment of a grain.

"Or, by substituting a stouter wire, grains, on the index, read drachms or ounces."

**Improved Paddle Wheel.**

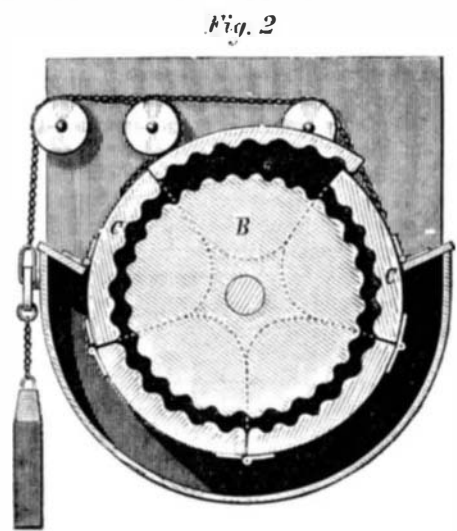
In very rough water the paddles are exposed alternately to the extremes of being too deeply immersed, or working al-

most or completely out of water. In all intermediate conditions the surface is inclined constantly in various directions, and the paddles arranged in the ordinary way, strike gently or gradually, commencing at one end or the middle, and the contact with the water progressing gradually along the length of each float. But when working in smooth water, which is or ought to be the best condition for favorable working, it is found that the percussive force with which the broad surface of a long paddle strikes against the water, is not only a serious annoyance but exerts a very destructive in-



Mr. James Mahoney, formerly the Chief Engineer of the Boston, Newport, and New York Steamboat Company, who attained a solution of the difficulty by very simple and apparently very obvious means. All paddle wheels are divided into two breadths by a central beam, that is, there are three rims or slender circles of iron, with three sets of arms extending out from the shaft thereto. The paddles are bolted to these arms. The Mahoney wheel has the buckets divided into two lengths, and placed so as to alternate in position, and each half length is placed a little oblique or inclined. It is found that the obliquity need not be very great to obviate all or nearly all the trembling. The steamer, *What Cheer*, running on Providence river and vicinity, was one in which the concussion was very severe. Her paddles were five feet eight inches long and twenty inches wide, and the wheels sixteen feet in diameter. The alteration of the paddles, according to Mr. Mahoney's plan, as is officially certified by the captain and engineer, obviated the jar, trembling, etc., fully one half, and increased the speed of the boat, giving a gain in this latter respect of five minutes in each hour with ten pounds less steam.

The steamer *Monahansett*, a larger steamer, running between New Bedford and Edgartown, with wheels twenty-six feet in diameter, paddles seven and a half feet long and twenty-two inches wide, were altered to the Mahoney plan with an entire removal of the jar or trembling and a marked increase in the speed. The average running time with the old wheels was two hours and fifty-five minutes; with the new wheels two hours and thirty-five minutes. Previous to



JEROME B. KING'S SELF-ADJUSTING DOUBLE WASHER.

fluence on the machinery by its continuous concussions. On some of the western rivers an approaching steamboat may be heard long before she is in sight by the rapidly-recurring blows of the paddles on the water.

Some machines, built apparently like others, have peculiarities, idiosyncracies, perhaps some college professor might say, a sort of personal peculiarity which it is rather difficult

to change the jar or trembling was unusually severe. In this case the same buckets were used, simply cut in two lengths obliquely and rebolted. On this boat the obliquity was eleven inches, that is, each bucket or half length was eleven inches further in at one end than the other. The wheel is now about being applied to the *Ironsides*, now lying at the Erie Basin, Brooklyn.

There has been an almost countless multitude of contorted and curious modifications of the paddle wheel. Some of them have approximated to this idea in various ways. Mr. Mahoney, however, whose invention is illustrated by the accompanying engraving, seems to have made a practical and successful improvement in this important adjunct of navigation. The paddles stand in their ordinary planes, and act on the water in other respects in the same manner as the long approved common paddles. They will, it is presumed, endure all the rough usage among floating lumber and ice of the ordinary wheel, and having demonstrated their efficiency as propelling means, the smoothness of their action, and their relieving the vessel and machinery from concussion, will go far to hasten their general and rapid introduction. Patented Nov. 9, 1869.

Further particulars, rights, or supervision in the application of this invention, may be had by addressing James Mahoney, Newport, R. I., P.O. Box 635, or William Burnett, Supervising Inspector of Steamboats, San Francisco, Cal.



THE MAHONEY PADDLE WHEEL.

to explain. A lot of locomotives made in the same shop, from the same pattern and by the same men, will not work exactly alike. Three Peck Slip ferry boats were once made in this city, as near alike throughout as skill could make them; and two steered well, and one nobody could steer with satisfaction. From the same unexplainable reasons, probably due to slight differences in materials or form, some steamers are peculiarly susceptible to the ague from the cause now referred to.

The matter attracted the attention of a practical engineer,

to make returns to the Revenue Office, the Company was assessed by Ralph P. Lathrop, United States Assessor for the Albany district, five per cent on the dividend, the tax amounting to \$1,152,000. This appears to us to be right. We see no reason why this dividend tax should not be collected the same as any other.

INCOMBUSTIBLE wicks for kerosene lamps are made in Vienna, Austria, of asbestos, which is boiled in wax. They last at least a year.