

IMPROVED FAN GOVERNOR.

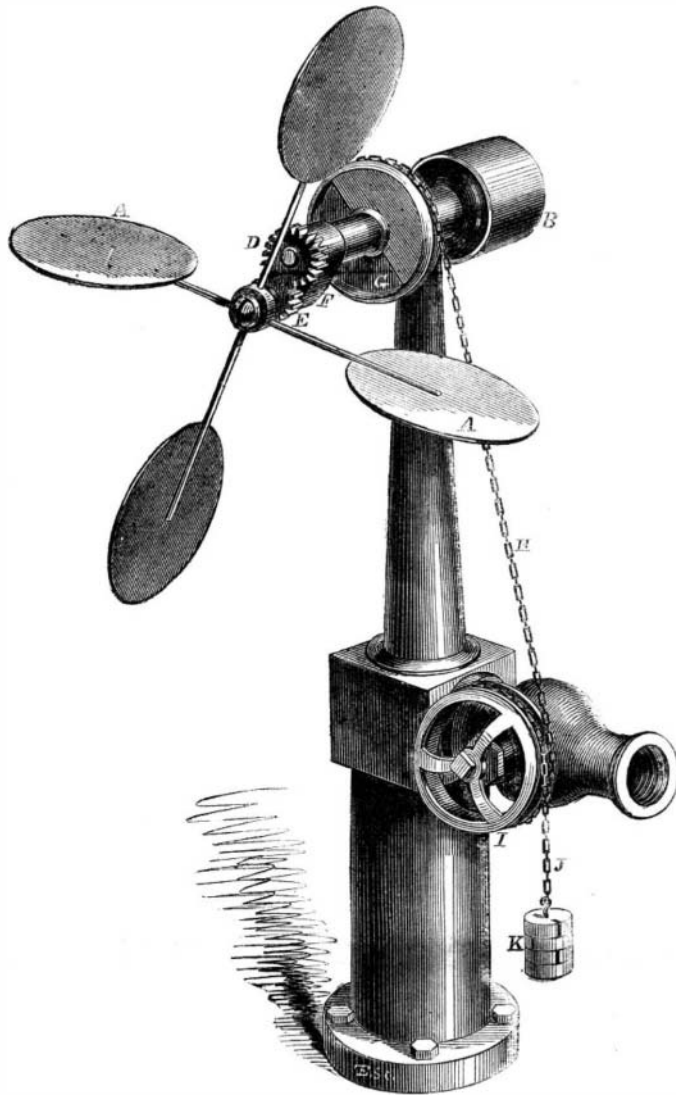
The accompanying engraving represents a form and arrangement of the fan governor for steam-engines which was invented as long ago as 1842, by S. E. Chubbuck, of the late firm of Chubbuck & Campbell, by whom it was applied to nearly all the engines which they made during the last 10 years of their partnership. It is very unusual for us to illustrate an invention in the SCIENTIFIC AMERICAN which has been so long made but, from evidence before us, we have reason to believe this governor a good one, and that, if better known, it will come into more general use. It is based on the principle that the resistance of the air to a revolving fan increases with the increase in the velocity of the revolution.

The power from the engine is applied to the governor by a belt upon the pulley, B, the axle of which pulley passes through the hollow shaft or sleeve, C, and carries upon its end the pinion, D. This pinion, D, gears into the pinion, E, which turns upon an axle firmly secured to the crank, F, of the sleeve, C. The fan, A, is firmly fastened to the pinion, E, and, of course, turns upon the same shaft. It will be seen that, if the fan is prevented from revolving on its own axis, it will be carried by the pinion, D, around its axis; and if the freedom of the revolution of the fan is obstructed by the resistance of the air, it will be carried partly around by the pinion, D. It would, indeed, be carried entirely around this axis, in the case of very slight obstruction to its revolutions, were there nothing to resist its being thus carried around.

The mode in which the variations in the position of the crank, F, are made to open and close the valve, will be readily understood by a brief inspection of the engraving. Upon the sleeve, C, is firmly fastened the wheel, G, which has the chain, H, wrapped partly around its periphery, to which it is secured by a staple; its other end passing down and partly around the wheel, I, to which it is fastened. The wheel, I, is keyed upon the axle of the throttle-valve. Another chain, J, is also fastened by a staple to the wheel, I, and, passing over the upper portion of the wheel, supports a weight, K, at each end. The weight, K, tends to turn the wheel, I, so as to open the valve; while an upward strain upon the chain, H, tends to close the valve. When the speed is properly adjusted, if some of the machinery is thrown out of gear, the increased velocity in the revolutions of the fan, creating greater resistance by the air to these revolutions, causes the crank, F, to be carried further around the pinion, D, thus turning the wheel, G, which, by means of the chain, H, also turns the wheel, I, and partly closes the valve and adapts the flow of the steam to the diminished resistance. If, on the other hand, additional machinery is thrown into gear, a reversed operation takes place, and the valve is opened more widely. By adding to the weight, the opening of the valve and the speed of the machinery is increased; and thus the number of strokes of the engine per minute may be adjusted at pleasure, with the greatest possible facility.

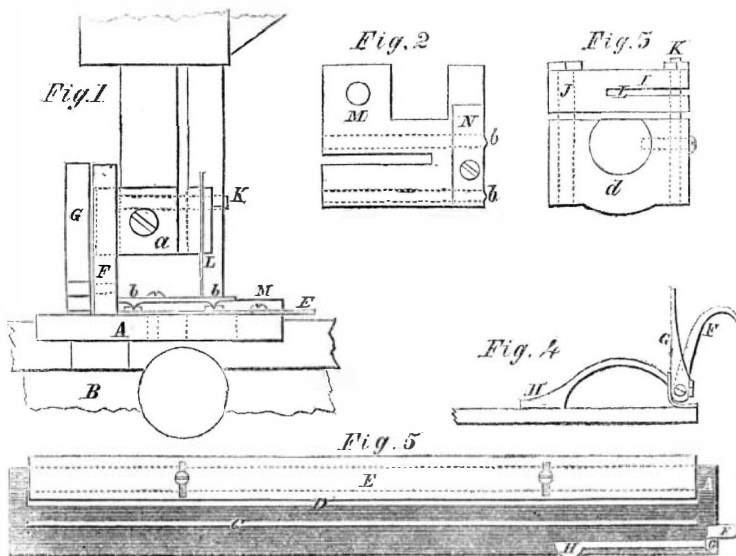
This light and simple governor is manufactured and sold by S. E. Chubbuck & Son, Tremont-street, Roxbury, Mass., to whom all inquiries in relation to it may be addressed.

CHUBBUCK'S FAN GOVERNOR.



SEWING-MACHINE GUIDE.

The sewing-machine is doubtless destined to receive many improvements before our inventors will consent to call it perfect. In fact scarcely a day passes but from one to three new devices are submitted for our inspection



MARSH'S SEWING-MACHINE GUIDE.

and opinion in this line of invention. The annexed cuts represent a guide and trimming knife, intended principally for boots and shoes, which was patented by John W. Marsh, of Oxford, Mass., Oct. 27, 1859. It consists of a straight metallic slide, a foot or more in length, to which the cloth or leather is attached, having

a long slot through which the needle passes, and a parallel slot for a knife to pass through and trim the work as it moves along. Fig. 1 represents that part of an ordinary sewing-machine at which the work is done, showing also an end view of the slide, of which the other figures represent different portions. Fig. 5 is a view of the slide as seen from above; E, being the plate against which the edge of the cloth is placed, C, the slot for the needle, and, D, the slot for the knife. II, Figs. 4 and 5 is a pad for holding the cloth at one end of the slide which is pressed down by the spring, G; and F, is a handle for drawing the slide back after it has been fed in to the end. Fig. 2 shows the foot piece, M, with its guide, N, and spaces necessary for the needle and knife to work through. It has on its under side two grooves to allow the stitches of the first row to pass on either side of the needle without being flattened while sewing the second; the slide having two points, b b, by which to guide the work, in order to make the seams parallel.

The knife, L, is fastened into the needle carrier and at each motion of the needle passes through the slot, D, and trims the edge of the cloth. In sewing lap seams the knife is removed, and the edge of the lower piece of cloth is brought against the edge of the guide, E, which is set back from the slot, D, a proper distance and thus the cloth is held and the seam made parallel with the edge of the cloth without difficulty. The slide A, has a rack on its under side for the feed wheel when the slide is attached to machines having such feed; it being of course unnecessary in machines using the awl or needle feed.

Persons desiring further information in regard to this invention may address the inventor as above.

SOUTHERN CROPS.—The New Orleans *Picayune* has received accounts of the progress of the sugar and cotton crops. In the Lafayette parish of this State the sugar cane is yielding well. Cotton in the same parish opens fast and yields largely. In the parish of Feliciana the picking of cotton is progressing rapidly, and the yield is represented as quite large. In the parish of St. Mary's the sugar yield will be very short, as the seed cane commenced spoiling at an early period of the season. The accounts from upper Tennessee report the cotton plant as small, but quite thickly stocked and early opened. In South Tennessee and North Mississippi the average is better than usual, the yield being full and the quality of the staple tolerably good. Late Texas advices describe heavy rains as having occurred in the western part of the State, which have injured the growing cotton very considerably. The New York *Journal of Commerce* blames the cotton-planters for not being so careful as they were some years ago in cleaning their cotton, and asserts that they are to blame for the great quantity of sand now found in it.

THE ROTTEN FRIGATE.—The steam frigate *Minnesota*, which was found to be rotten, and is now undergoing repairs at the Charlestown navy-yard, is only five years old, and has made but one cruise. All her outside planking, from the water-line to the plank-sheer, is decayed. Many of her knees are also unsound, so that she will have to be almost rebuilt to fit her for service. All the decayed timber is white oak; and some of the yellow pine, with which the oak came in contact, is also rotten. Yellow pine is considered rot-proof, in consequence of the great amount of rosin which it contains; but the presence of the decaying white oak produced eremacansin in the pine in this case, in the same manner that a little leaven promotes fermentation among a large quantity of matter. The live oak in the *Minnesota* has not been the least affected with the rot; it is as fresh as when put in. These are important facts for ship-builders.

OUR THANKS are due, and are hereby tendered to all those friends of the SCIENTIFIC AMERICAN who have responded to the call we made in No. 17 of the present volume, for an increase of our subscription list. Several have responded nobly, and we are truly grateful to them for it. Now that the long winter evenings are approaching—the time for reading and thinking, we feel assured that this journal will supply food to thousands of minds, and we renew our application to its friends to aid in the increase of its circulation. We mean to labor hard to make it a welcome guest at the fireside; and all we ask is, that its readers will give us an appreciative response by sending new subscribers. Who will respond to our call?