

Flour Bolt, Duster and Cooler.

The nature of this improvement consists in the application of a blast of air of the ordinary temperature of the atmosphere, or below it, to the exterior surface of the bolting cloth, for the purpose of keeping the meshes of the cloth dry and clean, and at the same time cooling and drying the flour. The engraving illustrates the device, which consists of a conical-shaped tube, A (Fig. 2), made of zinc, tin, sheet-iron or any light substance, having one or two lines of perforations, B, or slots, running its length, or the length of the bolt reel, C. The tube is applied by passing it through the length of the bolt chest, above the center of the bolt reel, with the line or lines of perforations or slots directed towards the cloth and the center of the reel, and in close proximity to the bolt cloth. Air introduced under pressure at the large end of the tube by a fan, bellows, or air pump, throws a strong, sharp and even blast of air through the perforations, B, in the tube, against the exterior surface of the cloth, covering its interior surface at each revolution of the bolt reel.

The advantages gained by this improvement are many, and will be readily suggested to the mind of every practical miller in the land. Some of its advantages are thus spoken of by Messrs. H. L. Bennett & Co., of Novelty Mills, Avon, Ill., who have one in use:—

“It keeps the meshes of the bolt cloth dry, clean and clear, thereby enabling a much finer bolt cloth to be used, and raising the grade of the flour. It greatly increases the bolting and grinding capacity. It also cools the meal directly after it is discharged into the bolt, thereby dispensing with other cooling apparatuses. The meal may be carried directly from the stones or grinding surfaces into the bolt, and the flour comes from it as cool as the air that is thrown into the bolt chest. In damp and warm weather, or in grinding damp grain, it produces a yield of from one to three pounds more of flour to the bushel. By keeping the bolt cloth dry, clean and cool, it adds to its durability. As the air that is thrown into the bolt chest can be of any desired temperature, the operation of grinding and bolting can be perfectly uniform at all seasons of the year and in all kinds of weather. Through the application of this cool dry air the moisture is driven out of the flour, and it is in a condition to be packed directly from the bolts, without danger of souring. A large amount of flour is annually lost by being packed too damp or in a heated condition. Flour by remaining for a length of time in a damp or heated state, if it does not actually sour, loses much of its value.”

This invention was patented Dec. 6, 1864. For further information address Chas. L. Stevens, Galesburg, Ill.

Pumping Machinery.

We take the following paragraphs from the report of Chief Engineer Birkinbine, of the Philadelphia Water Works:—

“The dam at Fairmount was constructed by Mr. Ariel Cooley; the first crib was sunk on the 19th of April, 1819, and water flowed over the dam January 25th, 1821. Mr. Cooley died a short time prior to its completion, from the effects of exposure while building it.

“The over-fall of the dam is 1204 feet long; the mound-dam 270 feet, and the head arches 104 feet; making its whole length, including the Western pier, 1600 feet. It backs the water up the river for six miles.”

Respecting the Fairmount dam he says:—“Wheels Nos. 4, 5, 6, 7 and 8 were made as heavy as possible, under the mistaken idea that the increased momentum of the rim would give efficiency to the wheel. On account of this weight they cannot be kept in repair.

It is necessary to be continually renewing the starts, buckets and soleing. The pumps connected with these wheels are, with the exception of that attached to No. 4, broken in some important parts.”

And of some water wheels:—“The hot water heating apparatus placed in the new mill house answers the purpose; maintaining it sufficiently warm to prevent frost, and making it comfortable to work in without the annoyance of dust and gas, as was the

and take moderate exercise, during recovery, whereby the general health is much benefited. No crutches are used and the wounded leg is undisturbed.

The body is supported entirely by metallic braces, as at A, in Fig. 1, and these braces are connected to a padded clamp, B, Fig. 2, which is strapped to the thigh. The main support, A, has a joint at the knee so that the limb can be bent for walking or sitting down, and the lower end of the main support is bent

under the foot, at right angles, so as to carry the foot and support the legs. Thus it will be seen that the body rests entirely upon this foot-piece and not upon the leg at all.

To prevent the leg from the possibility of coming in contact with the ground by slipping the pad, the body is further supported by another pad passing under the posterior portion of the frame, as at C, (Fig. 3), and there is an angle piece, D, at the bottom of the foot, which can be adjusted at any desired elevation so as to support the front part of it; a vulcanized rubber cushion, E, at the bottom of

the whole, makes this supporter noiseless when used on uncarpeted floors or pavements, and prevents the iron from injuring furniture in the house when laid against it. The full length figure, which is published with the supporter applied, and worn in a sitting posture, shows the position of the several parts when so used.

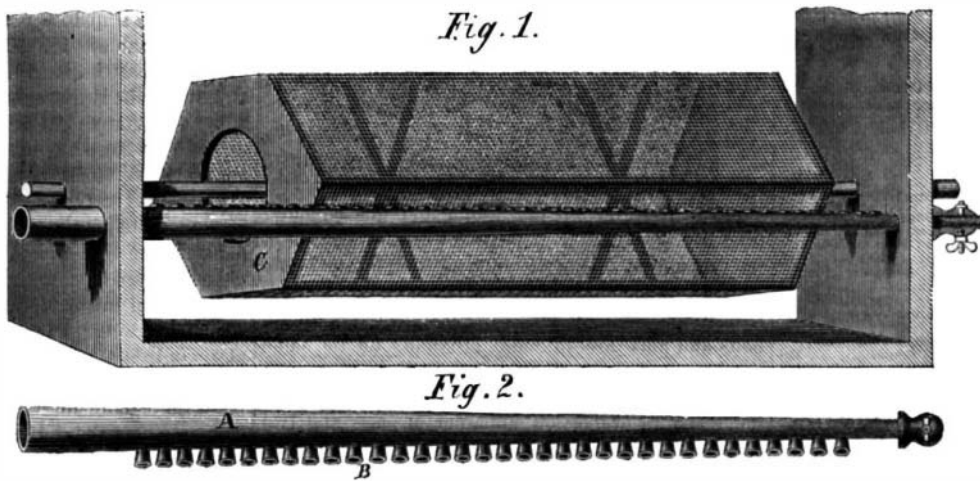
The exact length of the supporting bar is not of great consequence, as individuals can be fitted with the apparatus especially; limited adjustment is possible, however, by the nuts on the thigh clamp, B.

When the patient is to be seated for any length of time, the clamp, B, can be taken off by unscrewing the nuts, and the instrument can be worn inside or outside of the pantaloons as desired. This appliance will doubtless be found useful for wounded soldiers, persons with sprained limbs and others. It is noiseless, has no squeaking joints, and seems in all respects desirable. A patent was procured on it through the Scientific American Patent Agency, on the 4th of October, 1864, by D. H. B. Allen, of Chelsea, Vt. Town, county and State rights for sale. For further information address the inventor as above.

Tellurium.

The curious metal, or metalloid, which Klaproth named tellurium, has hitherto been one of the rarest of known substances, found only in a very few localities—chiefly in Hungary and Transylvania—and there only in such minute quantities that its selling price in England has never, we believe, fallen below 10s. per ounce. In a paper, however, on the mineralogy of South America which is contributed to the January number of the *Philosophical Magazine* by Mr. David Forbes, F.R.S., we are told of an ore of bismuth which contains not less than five per cent of tellurium. This ore occurs in Bolivia, about two-thirds up the mountain of Illcampu, which is the highest of all the peaks of the Andes, towering to nearly 25,000 feet above the level of the Pacific Ocean. It is thus far from being convenient of access; still, the demand for bismuth has sufficed to set men mining it—at an altitude of 15,000 feet, and only slightly under the line of perpetual snow—so that we may expect tellurium, as well as bismuth to be soon very much cheaper than hitherto.

PETROLEUM INVENTIONS.—More than thirty patents were issued in the last six months of 1864 for inventions relating to petroleum, such as drills for boring wells, devices for removing paraffine and other obstructions from the veins of the rock, pumping and raising oil, lining oil barrels, etc. Many more applications still remain in the Patent Office unexamined, and, judging from the number of new cases we are constantly sending forward, the present year will be still more prolific of successful inventions in this profitable field.



BOON & STEVENS'S FLOUR BOLT, DUSTER AND COOLER.

case with the old stoves. The heat is diffused throughout the whole building better than with stoves, and with a large saving of fuel.”

ALLEN'S SUPPORTER FOR FRACTURED LEGS.

The confinement consequent upon fracturing a leg is very tedious, and wears greatly upon the nervous

FIG. 3. FIG. 2. FIG. 1.



system of some patients. Some time must necessarily transpire before the bones are firmly knitted so as to sustain the weight of the body, and unless crutches are used, convalescence is sometimes as hard to be borne as the pain from the injury. The object of this invention is to allow the patient to walk about