

## New Inventions.

### Improved Journal Box.

Mr. Nelson W. Clarke, of Independence, Oakland Co., Michigan, has made a very valuable improvement on Journal Boxes, which must in time come into general use. He employs for the bearings of the journal, wood peculiarly prepared, fitted into recesses of two metallic blocks, which are confined into two outside casings, which are coupled together, forming the journal box. The bearing blocks are of such a form that they, with the outside casing, form an oil or lubricating reservoir, which conveys a plentiful and continuous supply of oil to every part of the journal. The journal box is packed like a stuffing box to make it oil tight, and there is a key or follower to adjust the tightness of the packing, thus making a self-adjusting-oil-tight-journal-box. Mr. Clarke has taken measures to secure a patent.

### Heal's Patent Process for Purifying Feathers.

We are indebted for the following article to our excellent exchange, the London Patent Journal, Barlow & Payne: "It will be of no small interest to many of our readers. At the present period when the prevailing epidemic is making such fearful ravages, that stringent precautions are absolutely necessary, it may not be ill-timed to draw the attention of the public to the fact, that nothing is more injurious to health than sleeping upon a bed of impure feathers, the ease with which this can be obviated, and the comparative inexpensiveness of the process, will, we trust, induce parties to avail themselves of the advantages of Messrs. Heal's process. The feathers are first placed in what is termed a *steam-cistern*, a chamber of iron, having its floor formed of perforated metal, through which a current of steam is made to enter with considerable force, to fill every portion of the cistern, and thoroughly saturate the mass which it contains. This continues for some time, the effect upon the feathers being analogous to that produced upon metallic substances when exposed to the red heat of a furnace. Every particle of animal matter they contain is fused and driven off being carried away by the steam as it rushes through the mass and escapes by an aperture for the purpose in the roof of the cistern. The feathers, now, of course in a damp state, are next placed in a large hollow cylinder of iron, into which by means of a blowing machine, is carried a rapid current of air, heated by a furnace to a temperature of 300 degrees. This, like the first cylinder, contains a revolving instrument of iron, but having arms, or bars, of iron; and these, driven at a great velocity, pass through and through the mass, thoroughly separate it, and keep the feathers constantly in motion: thus allowing the current of hot and drying air to permeate them freely, and effectually separating every fibre of them, while through a floor of wire-work passes away a large quantity of dust and refuse, which must be disengaged. Lastly, the feathers are placed in a hollow cylinder of perforated metal, in which revolves a "fan," composed of four plates of metal, fixed at equal distances from each other, into a horizontal bar. This is driven with immense velocity making about 900 revolutions in a minute, and carrying round the feathers, with it, the dust not already removed in the drying cylinder is separated by the powerful current of air which is driven through them, and, passing the perforations of the cylinder, is carried away by a drain beneath. By this means the feathers are rendered perfectly sweet, pure, and dry."

### New Algebraic Method.

We see it reported that Mr. Cauchy, the eminent French Mathematician, has explained to the Paris Academy of Sciences a new method for the solution of Algebraic equations of whatever degree.

We hope that this report will prove true. We have not so much doubt about it as we have of that wonderful report of the Academy about the men with tails. Give us Paris for discoveries yet.

### Improved Fire-arm.

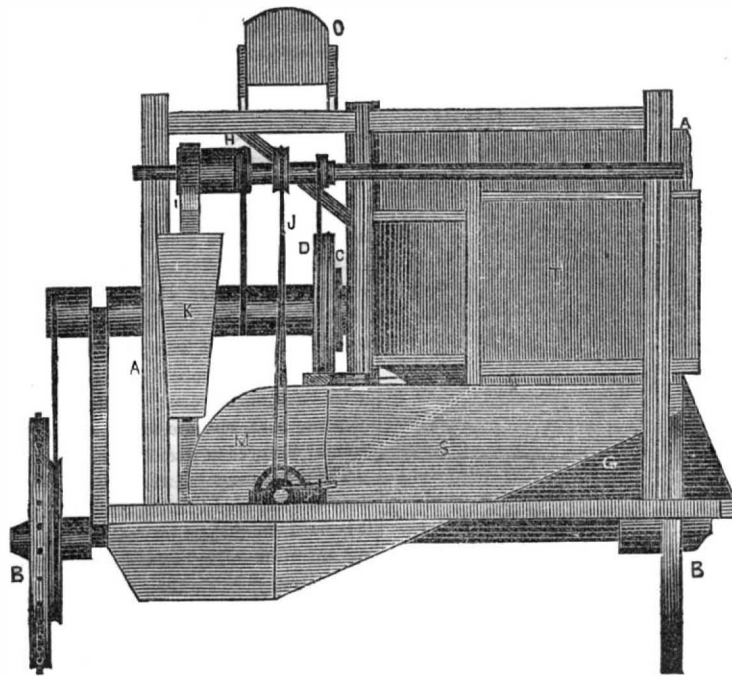
We have had our attention called to a new Gun, which is the invention of Mr. Milo M. Cass, of Utica, N. Y. This gun is loaded at the breech with ball cartridge, having chambers for twenty-six charges. It is also capped at the same time that it is charged. These twenty-six charges can be fired in about three minutes without using any particular haste. The cartridge is introduced into the barrel of the gun through the breech-pin, which is constructed something in the manner of a common faucet, being turned one quarter round by a small lever underneath the barrel, and thus admitting the charge, which is thrust forward from its chamber by a small ramrod operating from behind by means of another small lever.

This is a very ingenious contrivance, and we should think it admirably adapted to the battle field.

### New Paddle Wheel.

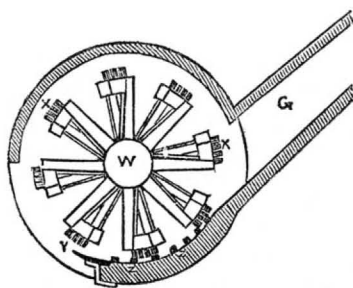
Mr. Abner Chapman, of Fairfax, Vermont, has invented a new paddle-wheel, for which he has taken measures to secure a patent, and which has been represented to be liable to none of the two evils—lift of water and slip in it. The wheel is divided, as it were, on the face, with two wheels exactly alike, with the paddles of a curved winding form, converging from the sides to the middle, forming, with a flange on their extreme edge, a bucket of a horse-shoe form, with a space between the two at the middle of the wheel, for the water to escape.

Figure 3.—Continued from First Page.



threshed stuff is driven to the separating chamber, T, fig. 2, which has a screen bottom, U; through this screen the grain falls down an incline, S, into a receiver, fig. 3. There is a blower, M, which winnows the grain from the chaff, &c., blowing it out at U, fig. 2. K is a spout, on the lower end of which is fastened a bag to receive the clean grain; V is a slide of this spout to shut up the lower opening at pleasure. The clean grain is received into a grainary or receiver below a set of revolving buckets on the broad band, I, fig. 3, the which

FIG. 4



buckets scoop up the cleaned grain, and deliver it into the spout, K. The back view will give a good idea of the manner this is accomplished. The screen in fig. 2 receives a reciprocating motion, like all such screens, by a small sliding arm, worked by a rocking beam, which is moved by cams on the pulley of the blower, indicated by the band, J, passing over

### New Way to Make Red Hot Shot.

The Glasgow Chronicle, (Scotch Paper) mentions a peculiar and apparently most valuable mode of obtaining red-hot shot for large guns, recently invented in that city by a Mr. Scouller. The invention consists in the filling the hollow shot with a highly combustible powder. Two or three fuse-holes are made in the shot, so that, when fired from the piece, ignition takes place, and the shot is made red-hot before it arrives at its destination. In that witnessed by the editor, the shot, which was about two inches and a half in diameter, was simply laid on the ground and the composition ignited by a light applied to the fuse-hole. Violent combustion immediately ensued, liquid fire appeared to stream from its three fuse-holes, and the metal

became quite red hot in a few seconds. The inventor states, that when fired from a gun a red heat will be attained in less than 20 seconds from its leaving its mouth. The composition will burn under water, and is said to be easily made.

### Patent Oat Flour.

The Aberdeen, Scottish, Journal says: Mr. Smith, factor, for Lord Douglass of Douglass, who attended the show at Aberdeen, exhibited to the members of the committee of the association, and others, specimens of various kinds of oat flour bread, manufactured by his important patented discovery. All parties expressed themselves highly pleased with the quality, flavor, and good color of the bread; and our

decided opinion is, that the invention is worthy of the immediate and earnest attention of landed proprietors and farmers, as well as those engaged in the baking trade, and all interested in the progress of British agriculture. The flour of oats has been analyzed by well known chemists, and is found to contain a much larger quantity of nutritious qualities than the wheaten flour, and is calculated to give a greater amount of nourishment and strength to the muscle, bone, and blood of man.—In carrying out this discovery, there will, we understand, be required but little alteration in the present system of grinding, an advantage that is evident, as the manufacture may immediately be entered upon by those engaged in the manufacture of flour from wheat. In point of price the benefit will be largely in favor of the consumer, while the invention will create a demand for oats which will be very acceptable to the growers of that grain in the present depressed state of the market.

[It is true, that oats contain more nourishment for the bones of man than wheat, but it is news to us to be told that they contain more nourishment for the muscles and blood. We know not what the above improvements may be, but we think they may be good, and we copy the above article to call the attention of some of our readers to the subject, who live in Canada, or in the northern mountainous districts of the Northern States, where oat meal is used as a part of their food.]

### The Great Rotary Engine.

A late number of the London Times gives an account of a wonderful rotary engine invented by Capt. Hon. W. E. Fitzmaurice, and a Mr. Hartford. It says, "the engine is very simple, merely consisting of two pieces so mathematically arranged that the interior part works in the outer with the greatest ease, being free from dead points and without the slightest vibration, however great the velocity. It has no springs or packing and the parts meet each other so harmoniously as only to give a humming noise like a spinning top, and it is not in the least liable to get out of order, the wear being perfectly uniform throughout. The entire motion being a rolling instead of a cutting one the engine will last long without repair, as the surfaces become case-hardened in a very short space of time. The trials took place in the presence of several scientific gentlemen and engineers of eminence, in their profession, in a frigate's pinnace, the engine being constructed for the Government."

It also states that it propelled a boat of 30 tons burden at the rate of 8 miles per hour, with a screw, and that an engine of 100 horse power, would only take up a space of 4 by 2 feet; we venture to say that the Hon. Fitzmaurice's rotary engine will soon be numbered with the things that were.

### Preparation of Sugar.

The London Standard of the 18th ult., thus comments on the use of the "lead material" in clarifying and refining sugar:

That the acetate or, as it is in the British patent described, the di-acetate of lead, "famously known to all as 'the sugar of lead' of the oilshops, is a deadly poison, must be known to every one. That it is chemically combined with sugar in the patented process (which we assert upon the best authority to be the process in use in Cuba and the Brazils,) is not denied. It may be that a skillful and very careful chemist can separate all the mortal poison from the sugar, with which it is chemically combined, although we have heard that a perfect separation has been found impracticable, four per cent of poison always remaining in the sugar; but be this as it may, the utmost skill and the greatest care are confessedly necessary to relieve the sugar of the oxide of lead.

In France a law passed shortly after the visitation of the cholera in 1832, and passed upon the suggestion of the best chemists of the country, prohibiting universally the employment of metallic oxides in the preparation of any article of food. This law has opposed the introduction of the Cuba and Brazil process into France.

[We believe that there should be a special law in every country against the employment of metallic oxides in the preparation of any article used as food.]