

IMPROVEMENTS IN FIRE-WORKS WANTED.

Our national anniversary was celebrated this year in the time-honored way, by grandiloquent speeches, feasting and gunpowder; and there were the usual incidents of accident and crime, furnishing the newspapers, for a week after, with frequent items of conflagrations, explosions, maimings and deaths. So another year has verified the prediction of John Adams.

It is the juvenile portion of the community who chiefly make the Fourth of July noisy and brilliant with bonfires and illuminations; older people are quite tired of ear-piercing sounds and sulphurous smoke. As we reach that age when "the grasshopper becomes a burthen," how intolerable must be the din of guns and fire-crackers! It is cruel, perhaps, to deny the boys their sport, but it is proper to see that it shall not be attended with so much danger and nuisance.

Old Friar Bacon might well have hesitated to give his invention of gunpowder to the world, had he foreseen the destruction of life and property it was fated to bring. What a mis-use of powder is the propelling of a bullet into the human head or heart! There is not a pound of powder in a million that is burned in a way that advances the cause of humanity. The *pyrotechnic art*, however, has always been popular, and, perhaps, is worthy of encouragement among enlightened people. But, if so, why should it not be progressive, like all other arts—why should not the most enterprising people practice it with greatest success? This art, in Europe and America, is almost where it was 50 years ago; we still depend upon China for the universal fire-cracker. Yet those concerned are beginning to find out that something new is required, and the inventor must take possession of the field. Mr. Hadfield, of this city, lately applied electricity as a means of firing, simultaneously, all the parts of a large exhibition; and he has contrived a rocket which explodes its stick in the air. Mr. Edge has invented a curious torch to be used in processions. These are only humble beginnings of what we have a right to expect from the science and genius of the age. Some use must be made of the electric light, the lime light, and even of common gas. It is, we believe, practicable—by a proper use of materials and easily contrived mechanical movements—to produce most of the desirable mechanical effects of gunpowder, without its danger and nuisance of stench and smoke.

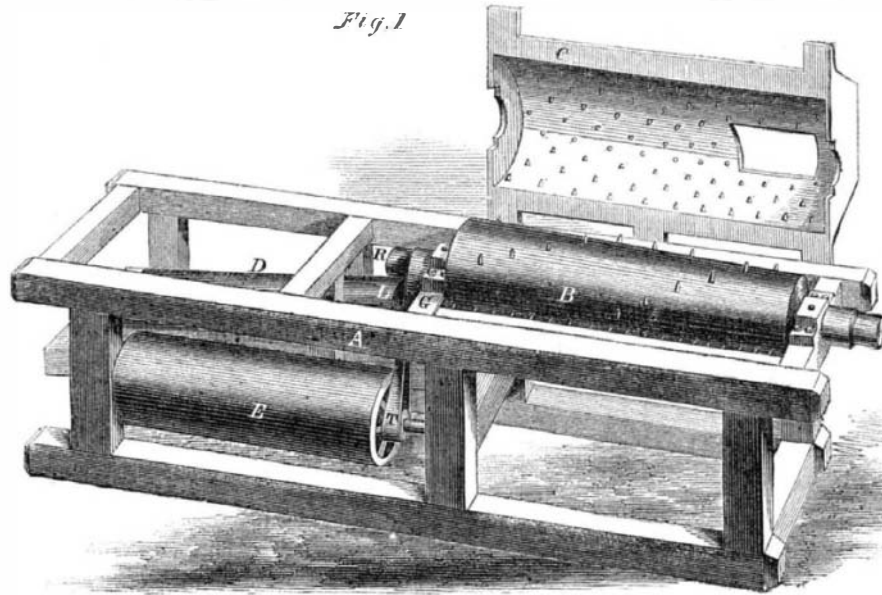
THE INVENTOR AND HIS TRAPS.

We referred, in our last number, to Senator Davis's law prohibiting the War and Navy Departments to purchase any patented article. This, it appears, embarrasses both departments just now, as revolvers and other arms are much needed for the Indian country and for shipboard; but none can be purchased, and the government cannot make them. Congress appropriated, in the naval bill, \$338,000 for the purchase of ordnance and small arms, and then sneaked a law through, by means which no member of Congress yet heard from can explain, preventing Secretary Toucey from making the purchase. The daily papers have given this subject unusual prominence, and have spoken strongly against this species of prohibitory legislation. It appears, after all, that one of the most important personages in connection with the government is the inventor; the utility of his "patent traps" are thus made singularly manifest.

NUMBER OF LOCOMOTIVES USED BY 12 RAILROAD COMPANIES.—The following table, compiled from the latest returns, shows the number of engines in use by 12 of the prominent railroads of this country:—Baltimore and Ohio, 235; New York and Erie, 219; Pennsylvania, 213; New York Central, 211; Grand Trunk, 203; Philadelphia and Reading (coal road), 149; Illinois Central, 113; Michigan Central, 98; Pittsburgh, Fort Wayne and Chicago, 96; Michigan Southern, 91; Great Western (Canada), 87; Western (Massachusetts), 72. Total, 1,787.

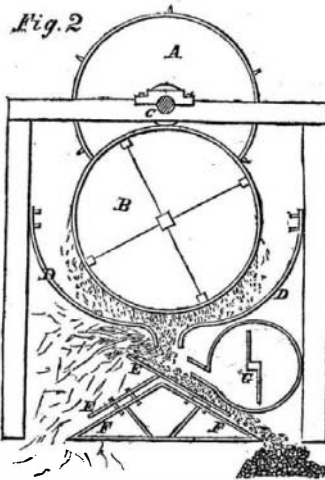
IMPROVED RICE AND CLOVER HULLER.

The price of seeds and grain in the market is governed, in a superlative manner, by the action of the machines employed for cleaning them. If the machine breaks the grain or seed, and is not effectual in removing all the dirt and hulls, of course, the prices which the products bring will be much lower than if they were perfectly cleaned and uninjured. A simple and effective hulling machine, therefore, is of great consequence.



BURROWS' RICE AND CLOVER HULLER.

The accompanying engravings represent an improved huller for rice and clover, for which a patent was granted on the 8th of May last; Fig. 1 being an open perspective, and Fig. 2 a vertical section of the machine. We will describe the two figures separately. A (Fig. 1) is the frame, B is the threshing cylinder with projections upon its outer surface, and C is the concave, with projections on its interior surface for covering the threshing cylinder. D is the rotating bolt, and E is the fan. The rubbing cylinder, B, is conical, and the concave cover is made to correspond with it. The teeth are set spirally around the cylinder, but the spiral decreases as it approaches the discharging end in proportion as the cylinder enlarges. The effect of this arrangement of teeth is to retard the rate at which the chaff and grain approach the end of the cylinder at which it is discharged, while its rotary motion (owing to the increased circumference of the cone) is greatly accelerated. At the same time, a very equal motion is preserved



throughout, and the grain is thus very thoroughly and speedily separated from the chaff, &c.

Fig. 2 shows the interior of the machine, and the operation whereby the chaff is carried forward and the grain separated from the hulls, &c. A is the threshing and B the bolting cylinder; C is a bearing of the cylinder; D D are zinc plates to catch and direct the grain and chaff after leaving the bolting cylinder; E E are adjustable plates to direct the discharge of the seed to either side of the machine; F F are supports for the adjustable plates. The fan, G, is so arranged as to be reversible to the other side of the machine if this is required.

The grain and chaff are fed in by the opening in the top of the concave, C, and are carried forward by the in-

creasing pitch of the cone, and discharged by a trough into the rotary bolt, D, which is hung on a swing frame. The bolt cylinder, which consists of a wire cloth stretched over a frame and is open at both ends, receives its rotary motion from the shaft of the threshing cylinder by means of a friction pulley, L, on its upper end, which is held in contact with a friction roller, R, upon the shaft of the cylinder, B, by a spiral spring (not shown), which keeps the friction surfaces in contact. A cross belt, T, passes from a pulley on the cylinder shaft over on the fan shaft to give the latter motion. The pins and teeth in the concave and cylinder gradually diminish in length. The grain is effectually rubbed between the rough concave and convex surfaces of the cylinder, B, and its cover, C; then it is effectually bolted in D, and winnowed at the same time by the fan. The machine is compact, considering the comprehensive acting surfaces which it contains, and its movements are secured in a very simple manner, as the main cylinder is driven by a belt from any power, and this gives motion to all the other parts.

Further information may be obtained regarding this invention by letter addressed to the patentees, Stephen Burrows & Co.,

who reside at Whitewater, Wis.

GINGER LEMONADE.—Boil twelve pounds and a half of lump sugar for twenty minutes in ten gallons of water; clear it with the whites of six eggs. Bruise half a pound of common ginger, boil with the liquor, and then pour it upon ten lemons pared. When quite cold, put it in a cask, with two tablespoonfuls of yeast, the lemons sliced, and half an ounce of isinglass. Bung up the cask the next day; it will be ready in two weeks.

NEW PROSPECTUS (OF THE) Scientific American.

SIXTEENTH YEAR!

VOLUME III. NEW SERIES.

On the 1st of July commenced a new volume of this widely-circulated and popular journal.

Each number contains 16 pages of useful information, and from five to ten fine original engravings of new inventions and discoveries, all of which are prepared expressly for its columns.

The SCIENTIFIC AMERICAN is devoted to the interests of Popular Science, the Mechanic Arts, Manufactures, Inventions, Agriculture, Commerce and the Industrial Pursuits generally, and is valuable and instructive not only in the Workshop and Manufactory, but also in the Household, the Library and the Reading Room, as all articles, discussions and correspondence which appear in its columns are written in a popular manner.

To the Inventor and Patentee it is invaluable as the only reliable record of the progress of invention, at home and abroad, and of the weekly issues of American Patents. No person interested in these matters, or who is engaged in mechanical pursuits should think of "getting along" without the weekly visits of this journal. The publishers invite attention to the extraordinarily low price at which it is furnished, making altogether the most valuable as well as the cheapest paper of the kind in the world.

Terms.

To mail subscribers: Two Dollars a Year, or One Dollar for Six Months. One Dollar pays for one complete volume of 416 pages; two volumes comprise one year. The volumes commence on the first of JANUARY and JULY.

Club Rates.

Five Copies, for Six Months.....	\$4
Ten Copies, for Six Months.....	\$8
Ten Copies, for Twelve Months.....	\$15
Fifteen Copies, for Twelve Months.....	\$22
Twenty Copies, for Twelve Months.....	\$28

For all clubs of Twenty and over, the yearly subscription is only \$1 40. Names can be sent in at different times and from different Post-offices. Specimen copies will be sent gratis to any part of the country.

MUNN & CO.
Publishers, No. 37 Park-row, New York.