

THE
Scientific American.

MUNN & COMPANY, Editors & Proprietors.

PUBLISHED WEEKLY AT

NO. 37 PARK ROW (PARK BUILDING), NEW YORK.

O. D. MUNN, S. H. WALES, A. E. BEACH.

VOL. X. NO. 11. [NEW SERIES.].....*Tricentietth* Year.

NEW YORK, SATURDAY, MARCH 12, 1864.

Contents:

(Illustrations are indicated by an Asterisk.)

*Price's Baling Press.....161	A Mountain of Salt in Louisiana.....166
Colt's Armory.....161	na.....166
Manufacturing Items.....162	The Call for a Horseshoe.....166
Farmers' Club.....162	What is Sound?.....166
Miscellaneous Summary.....162	Seam on the Tow-path.....166
Designs for Textile Fabrics.....163	Packing Steam Pistons.....167
The Great Labor of Simple Work.....163	Breach-sights for Field Guns.....167
The Colorado Gold Mines.....163	Photographic Items.....167
A Broadside from the <i>Ironides</i>163	*Mitchell's Cultivator.....168
A Charlatan Unmasked.....163	*A New Knife-cleaner.....168
Loss of the <i>Bohemian</i>163	A Hint worth remembering.....168
Spherical Steel Shot.....164	AN ew Palace.....168
The Production of Cast Steel directly from Pig Iron.....164	How to insure Defeat.....168
Economy is Wealth.....164	The India-rubber Extension Case.....169
Permanent Commission of the Navy Department.....165	Air-pumps and Condensers.....169
The Way Boiler Scale is deposited.....165	A Most Noble Project.....169
The Drill and its Office.....165	Breach-loading Rifles for the Army.....170
Destruction of a U. S. Steamer by a Torpedo.....165	How the Sterns of Screw Ships are bored.....170
Delay in raising the Monitor.....165	Revival of the Cotton Manufacture.....170
*\$13,000 for a Substitute for Ivory.....165	Recent American Patents.....170
Improvements in makin Steel.....166	Patent Claims.....171, 172, 173
	Notes and Queries.....174
	*Davis's Window-sash Stop.....175
	Improvement in Engraving.....176

THE INDIA-RUBBER EXTENSION CASE.

On page 152, present volume of the SCIENTIFIC AMERICAN, we alluded to the fact that an application was now pending before Congress for the extension of the Goodyear india-rubber patents. We stated also that we intended to oppose the extension. To those of our readers who are familiar with the position taken by the SCIENTIFIC AMERICAN in the famous extension case of the Woodworth planing machine patent, it is scarcely necessary for us to explain the reasons why we are opposed to such special legislation on the part of Congress in regard to patents; but for the information of those who are not so familiar with our views on this subject, we will briefly explain the theory upon which we ground our opposition.

It is generally admitted that the United States patent system is well modeled to afford all just and reasonable protection to inventors. Under the amended law of 1836 a patent was allowed for a term of fourteen years, with the privilege of renewal for another term of seven years, making in all twenty-one years. To those who look at the matter in respect to the interests of the inventor and the public—always recognizing that the two interests are interwoven and cannot be separated—it is believed that the general law provides adequate protection for both; and after enjoying the rights guaranteed to the patentee by law, it is no more than just and reasonable that the public should then be permitted to avail itself freely of the use of the invention.

We contend that Congress, having in its wisdom devised a most excellent code of laws for the protection of the rights of inventors, ought not, by special legislation, to over-ride those laws by the bestowment of special rights, unless in case of extreme hardship, which cannot possibly apply to the Goodyear extension case. If one patentee is to hold on to his rights in perpetuity, to the exclusion of all others who may wish to make additional improvements, then the door is effectually closed against all progress. There must necessarily be a limit to the term of all patents, else the field of invention is completely hedged about. In respect to the patents of Goodyear, now pending before Congress for extension, the facts are somewhat peculiar; and if there ever were any cases which deserved to be "turned out of doors," this is one of them. It has less merit, if possible, than the famous Woodworth planing machine.

We freely and fully accord to Mr. Charles Goodyear the originality of his inventions. The public has

generally acquiesced in this opinion, and we do not propose to dispute this point; it is not at all necessary for our present purpose. The Goodyear patents—one being for an improvement in processes for the manufacture of india-rubber, and the other being for an improvement in felting india-rubber with cotton—were originally granted on June 15th, 1844; re-issued on Dec. 25th, 1849; extended for a term of seven years from and after June 15th, 1858; subsequently re-issued Nov. 20th, 1860; and will expire on June 15th, 1865. Then, unless Congress can be coaxed and cajoled to favor a further extension, the invention will belong to the public on and forever after the last-named date. Like all other valuable patents, they have been made the subject of extended litigation; indeed, no other patents ever granted in this country have so often appeared in our Federal courts. Daniel Webster and nearly all the great legal "lights of the day" have had a strong "pull" at the india-rubber patents; and, if we mistake not, the present able Chairman of the House Committee on Patents—Hon. Thomas A. Jenckes—has employed a large amount of forensic power in defence of Day and others who have been caught in this legal elastic web, as infringers of the rights of Goodyear. At the time the application was made for the first extension of the patent, a powerful opposition was brought against it; and a dray-load of testimony—*pro* and *con*—was brought before Commissioner Holt, who decided, after a patient examination of the case, to allow the extension. His opinion was strictly a judicial act; parties opposed were patiently heard, and there was no reasonable ground of complaint. We then thought, and still think, that the Commissioner did right in allowing the extension, and if any of our readers have a curiosity to read the Commissioner's opinion, they will find it on page 350, Vol. XIII. (old series) of the SCIENTIFIC AMERICAN.

The question now presents itself—what possible interest has the public in opposing the further extension of these patents? We answer, most decidedly, that not only the Government, but also the great public generally, have a very large pecuniary interest to prevent the consummation of this extension scheme. A few facts will clearly demonstrate the soundness of our position. The business of manufacturing india-rubber goods is now immense. Under the protection afforded by the Goodyear patents, the business is divided and sub-divided into various branches, all of which are under contribution to the owners of the patents. In addition to the royalty paid to these owners, the public are compelled to pay a large manufacturer's profit, amounting in the aggregate to millions of dollars annually. Now if these patents are extended beyond the year 1865, millions more will be drawn out of the pockets of the people to support these gigantic monopolists, not one dollar of which can possibly benefit Charles Goodyear, the original inventor and patentee. Goodyear is dead; and the benefit of the extended term of the patent, though ostensibly for his heirs, will result in enriching, at the public's expense, those immense manufacturing concerns, not one of which had anything to do with originating the invention. Whenever the patent ceases to protect them in the exclusive manufacture of india-rubber goods, they will still be able, in a great degree, to control the business. Their large and well-ordered establishments—with the market under their control—can successfully contend against opposition at fair remunerative profits, beyond which they could not presume, without danger of bringing competitors into the field.

That the people may more clearly see the magnitude of the case as applied to their interests, we enumerate some of the many articles which are now controlled by the Goodyear patents, namely—boots, shoes, leggins, buttons, combs, pencils, knife and razor handles, watch-chains, all kinds of jewelry in imitation of jet, canes, balls, dolls, cups, straps for bills, washing-machine rollers, horse and carriage covers, car springs, hose, steam engine and other packings, belting, all kinds of clothing, &c. Now here is a chance for the people to save themselves from at least one form of taxation. Let all feel it to be their interest to oppose this patent extension. Write protests to your Representatives and Senators—circulate petitions—get local newspapers to write against it; and then, in the face of a strong public opinion, Congress will assuredly reject the claims.

AIR-PUMPS AND CONDENSERS.

The greatest confusion of ideas concerning the functions of air-pumps and condensers exists in the minds of machinists and engineers unfamiliar with the construction of low-pressure engines. Very many individuals of this trade have worked all their lives in places remote from seaports, or large manufacturing establishments, and have never seen a condensing engine, or even so much as an engraving of one. To such persons the following details may be of some value.

The business of the air-pump is first to remove the air from the condenser so that the injection water for condensing steam can enter, and ultimately remove the water of condensation from the condenser, also vapor and air which leak through the joints, or enter with the injection water. Between the air-pump and the condenser there is a channel-way or passage in the bed-plate on which the machinery sets, and in this channel-way there is a valve opening toward the air-pump. This is called the "foot" valve, presumably because it lies at the foot of everything, there is no other propriety in the name. At one time this valve was made of brass, it is now, in nearly every case, supplanted by square sheets of india-rubber about an inch and one-fourth thick, resting on perforated brass seats; these valves work without noise and are much better otherwise. For marine use the air-pump is cast-iron lined with brass, but when fresh water is employed for condensation, the brass lining is generally omitted. Condensers are of two kinds; the jet and the surface; the jet condenser is most usually employed, and is merely a cast-iron vessel of any desired shape, being made to conform to circumstances, sometimes forming a portion of the engine frame; at others entirely independent of the engine and placed on one side. For beam engines it is round, and of the same diameter as the cylinder which sets on top of it and a little larger in capacity than the air-pump; near the top of the jet condenser there is a large thin plate full of holes about half an inch in diameter, this plate has a rose-headed pipe running up through the center like a piston-rod; it is bent to an elbow about two or three feet below the plate and then runs through the condenser to the outside where there is a valve to regulate the admission of water to the condenser; this valve is called the injection valve, and is controlled by a wheel in the engine room. This is the simplest form of condenser and the one most used, although the surface condenser is gradually coming into favor. The surface condenser consists in exposing a large amount of cooling surface in the shape of tubes, to the action of the injection water. The water does not come directly in contact with the steam to be condensed, but the latter exhausts into the tubes and is condensed by water circulating through the condenser outside of the tubes. In this manner the boilers are always supplied, or supposed to be, with fresh water, for as the steam is condensed to a liquid form again, it is fed back to the boiler and thus used over and over again; in this way salt water raised into steam and then condensed becomes fit for drinking purposes after filtering.

These details and principles are well-known to marine engineers, but to others at a distance from seaports the information will no doubt be acceptable.

A MOST NOBLE PROJECT.

Everything relating to the improvement of mechanics, both socially and intellectually, is of the greatest interest and importance. The welfare of the whole community is most sensibly affected by the degree of cultivation the working classes possess. During the recent disturbance among the machinists' trade in this city, the proprietors of the principal works of this kind came together for mutual protection, feeling that the course adopted by the workmen to secure an advanced rate of pay was not the proper one. This convocation was styled the "Mechanics' Association," and the liberal sum of \$100 was charged each member as an initiation fee. So soon as the men returned to work, these employers set about raising the wages of the deserving men; showing by this course that their action towards them was not dictated by parsimony, but wholly from principle. This is not all that was done. Mr. J. S. Underhill and Mr. George W. Quintard, both