first question be, "Are you happy?" With what breathless suspense shall we await the answer, and if it should be—as it is quite probable it might be—"NO!" how gratified we shall all feel that the benevolence of the Creator has not left this world alone in its misery. It would almost make this planet explode with envy should the reply be "Yes."

MACFIE THE IRREPRESSIBLE UPON PATENT LAW.

Even the London *Spectator*, which supports Mr. Macfie in his opposition to the patent laws, gives that irrepressible gentleman little credit for skill in argument, and acknowledges that very much of what he has said only tends to show defects in the present English system of patents, rather than any good reason for its abolition.

Not content with making absurd arguments and illogical speeches, Mr. Macfie has collected into a volume, speeches, papers, and expressions of opinion, which he no doubt considers as "*squelchers*," but which sensible, sober thinkers are prone to denominate as the most unmitigated bosh.

The only logical conclusion to which this gentleman's arguments tend, is one which he is too short-sighted himself to see, namely, the utter renunciation of individual rights to the possession of property, be the same patent rights, copyrights, or anything else that men are now able to procure for themselves by virtue of genius, tact, and industry.

In that Utopian state of society for which some long, and fewer hope, when every man shall live solely for the good of all men, when land, chattels, wives, and children shall become common property; when all selfishness shall be done away, and each shall prefer to see his neighbor enjoy, rather than to enjoy the fruit of his labor himself, Mr. Macfie would find the principles he advocates precisely the thing.

To suppose, however, that in the existing state of human society men will consent to relinquish their rights to property in thought, or the results of their mental toil, and allow a distinction to be made between these rights, and those by which they hold the results of physical toil, is to suppose them on the average, to be as incapable of drawing a logical conclusion as Mr. Macfie himself; a state of general imbecility we are unprepared to admit. Of course everybody would be free if there were no laws of any kind. We should then have free trade, free stealing, free murder, free starvation, and a host of other freedoms which men have thought it wise to resign for another kind of freedom, *i. e.*, freedom to go and come unmolested, to accumulate wealth, and to improve their bodily and moral condition.

In Mr. Macfie's code carried out logically to its conclusion, A may plant and cultivate a hill of potatoes, which, as soon as he has dug them, all the other letters of the alphabet may seize and appropriate, provided there is enough to go around. True, A is compensated for his loss by the right to invade the onion patch of any other letter, and devour turnips wherever he finds them growing. Thus we get back to the old original savage game of grab. It will not take long for B to find out that he is stronger than A or C; nor long for A and C to find that their chances for either potatoes, onions, or turnips, are small and slim when B is around

No man would get pay for anything he might do, but would live, if he lived at all, by stealing, unless, as we said above, each would work for all, and uniform distribution were secured, a thing which even the early Christians found difficult, as we learn from "Acts," the widows were neglected in the daily distribution.

We believe in neither Mr. Macfie nor his logic, and the logic of the *Spectator* is little better when it says:

"One of the most serious considerations with regard to the Patent Laws is that they are already being removed in other countries, and that the competition to which our manufacturers will thus be exposed must embarrass them in their business, while reducing the value of patented inventions. Mr. Macfie gives us a message from Count Bismarck to the North German Parliament, recommending the total abolition of patents throughout the new Confederation. The Second Chamber in the Netherlands passed a similar resolution by 49 ayes to 8 noes. It has already been found in some remarkable instances that countries restricted by patents cannot hold their own against others in which manufacture is unimpeded. M. Chevalier tells us that France cannot export Bessemer steel to Prussia, and that the French makers of velvet suffer in like manner from Prussian competition. The history of the aniline dyes discovered by Professor Hofman, but patented by others, teaches the same lesson. French manufacturers who had to pay £40 a kilogramme for what cost only £12 out of France, flocked by shoals from their own country and set up new factories in Switzerland and Belgium. The danger to every trade which is weighted by patent restrictions becomes the more formidable as those restrictions are removed in other States."

Let England adopt a wise protective system, and the policy of other European nations in regard to patents need not trouble her.

Uses of Mica.

Recently scales of mica have been used for spectacles and in optical instruments. The chief use in this country is in connection with stoves, and it is now quite an article of commerce, especially in New England. Many furnace doors are now supplied with small holes closed with mica, which serve as windows to enable the engineer to see the state of the fire without letting in a blast of cold air by opening the door. Many varieties of mica abound in curious markings, which have attracted the attention of microscopists as affording some clue to the true origin of this stone. Mica is one of the constituents of granite, and contains potash, and sometimes lithia and other alkalies. Stove dealers are the chief consumers of this article.

PATENT RIGHTS IN CONGRESS.

Our readers will probably recollect—as we noticed it at the time—that President Grant's first veto was that of a bill to extend the patent of Rollin White, the inventor of the Smith & Wesson revolver. We have never had a doubt that the veto was a righteous one.

In the House of Representatives on Wednesday, June 22, the bill was reconsidered, General Butler supporting its passage over the veto of the President; whereupon Mr. Farnsworth accused General Butler of having received $2,000 for his support of the measure. General Butler retorted that the charge was false, malicious, and infamous, and stated that the $2,000 received by him were counsel fees, received in a case tried before the Supreme Court, the brief in which cost him four weeks' work. He considered the money honestly earned, and doubtless so will the public.

The Joint Committee on Retrenchment lately directed to investigate settlements by the Navy Department of contracts made by Isherwood, Chief of the Bureau of Steam Engineering under the last administration, for steam machinery, held a meeting on the evening of the 22d June. No witnesses were examined, but the Hon. William E. Chandler was present by invitation, and in reply to a question he stated that he knew nothing personally of the settlements, but acted as the counsel of Henry W. Gardiner and others, in their efforts to defeat an extension of the Corliss patent and in the preparation of papers placed before the House Appropriation Committee, to defeat an appropriation to pay Corliss' certificate, given by G. W. King, the present head of the Steam Engineering Bureau, in settlement of contracts with the Corliss Steam Engine Company, of Providence, R. I. This Company had contracts unfinished when the present administration came into power. A settlement was made, by which engines began were left unfished, the Department agreeing to pay some $250,000.

USES OF FLUOR SPAR.

In an article on fluor spar as a flux, Vol. XXII., page 288, we stated that in the manufacture of iron, "the proper proportion is about 50 pounds to 100 pounds pig iron, or 40 pounds to 100 pounds spiegel iron." In both of these cases for 100 pounds read 100 *centners*—this makes the proper proportion 50 pounds fluor spar to 11,000 pounds pig iron, or 40 pounds to 11,000 pounds spiegel iron.

FLUOR SPAR IN GLASS MANUFACTURE.

E. Richters, in Waldenburg, Germany, states that the substitution of fluor spar for lime in the manufacture of glass allows of a great reduction in the amount of glauber salt, and greatly promotes the melting of the frit.

As the result of numerous experiments conducted on a large scale, he found that with the same consumption of fuel and similar length of time, the amount of glauber salt required could be diminished one half by substituting fluor spar which had previously been pulverized and calcined for the lime usually employed.

In countries where fluor spar can be had in abundance, its introduction into glass manufacture would appear to offer many important advantages. The following are the proportions taken:

	With fluor spar.		With lime.	
Sand	115·44	lbs.	116·40	lbs.
Fluor spar	27·69	"		
Lime			15·55	"
Glauber salts	4·90	"	8·00	"
Manganese	4·00	"	3·00	"
Charcoal	2·00	"	2·00	"
Glass frit	299·00	"	248·00	"

A Warning to Thieves.

The *Journal of Commerce* notices with astonishment that bank officers, who pay such large sums for safety vaults, burglar-proof locks, steel-lined chests, and all the other very proper protections against robbery, neglect to add one of Holmes' Electric Alarms. With this, well arranged, a gong might be set ringing on the first opening of the door or window of a banking house, making sufficient noise to waken a whole village. Mr. E. Holmes, whose office is at No. 7 Murray street, showed us recently a large gong that he had arranged especially for bank alarms. Some banks in this city are protected in this manner. It is well worth the attention of those interested, and we write solely for their benefit from our own knowledge and experience, without any solicitation from the owners of that invention.

A New Use for Oxygen.

We are informed by M. Widemann, who is connected with the works of the New York Oxygen Gas Company, that the use of oxygen in renewing and increasing the flow of oil in petroleum wells, has been so successful that a regular trade has sprung up in oxygen gas for this purpose. The gas is injected into the wells through tubes, and mingling with the hydrocarbon vapors, forms an explosive mixture which, when ignited, completely opens seams which have become clogged, and thus renews the flow.

COMPRESSED FISH OFFAL FOR MANURE.—In a recent article upon the uses of codfish the compressed offal was spoken highly of as a manure. Mr. W. F. Rickard, F. C. S., formerly of London, writes us from Leviathan Mine, Cal., that he is the inventor of the process therein described as French. He further writes that the compressed offal does not decompose by exposure to the air. Samples which had been lying about his London office four years have been found perfectly hard and sweet, proving thereby that the article may be exposed in bulk without the cost of packages.

COCKROACHES can be destroyed by using smooth-glazed china bowls, partially filled with molasses and water. Set the bowls against something by which the insects can get in; they will not be able to get out.

PATENT OFFICE AFFAIRS.

The business of the Patent Office is now in a flourishing condition, and the present is a favorable time to enter applications. Inventors will find the SCIENTIFIC AMERICAN PATENT AGENCY ready to attend to the prosecution of claims with the greatest dispatch. By reference to our register, we find that we have made upwards of twenty-four thousand preliminary examinations into the novelty of alleged new inventions. This great experience, together with the fact that a large proportion of all the business with the Patent Office, for the past twenty years, has been conducted through this Agency, suggests to inventors the surest and best means to secure their rights.

We give opinions free, and all we require is a rough sketch and description of the invention.

Inventions patented through this Agency receive notice in the SCIENTIFIC AMERICAN.

MODELS.—In order to apply for a patent the law requires that a model shall be furnished, not over a foot in any of its dimensions, neatly and substantially made. Send the model by express, prepaid, addressed to Munn & Co., 37 Park Row, New York, together with a description of the operation and merits of the invention.

CAVEATS.—Whenever an inventor is engaged in working out a new improvement, and is fearful that some other party may anticipate him in applying for a patent, it is desirable, under such circumstances, to file a caveat, which is good for one year, and, during that time, will operate to prevent the issue of a patent to other parties for the same invention. The nature of a caveat is fully explained in our pamphlet, which we mail free of charge.

EUROPEAN PATENTS.—Probably three-fourths of all the patents taken by American citizens in Europe have been secured through the SCIENTIFIC AMERICAN PATENT AGENCY. Inventors should be careful to put their cases in the hands of responsible agents, as in England, for example, the first introducer can take the patent, and the rightful inventor has no remedy. We have recently issued a new edition of our Synopsis of European Patent Laws.

All communications and inquiries addressed to Munn & Co., respecting patent business, are considered as strictly confidential.

THE REPORT OF COL. W. A. ROEBLING, CHIEF ENGINEER OF THE N. Y. BRIDGE CO.

The Superintendent and the Chief Engineer of the N. Y. Bridge Company, who have in charge the erection of the great suspension bridge over the East River between New York and Brooklyn, have made their reports. That of the Superintendent, Mr. W. C. Kingsley, pertaining chiefly to the financial matters, we shall pass without special notice. That of Col. Roebling, however, is so interesting and instructive, and the work is of such importance, that we make room for nearly the whole of his report, omitting only some introductory matter.

SURVEYS.

The general line, known as the Park route, had before been determined, but no actual line had ever been located upon the ground, the bridge line having been simply traced upon the largest and best maps procurable of both cities.

WORK WAS COMMENCED

in June, 1869. One single air line run through over the tops of the houses from the City Hall, in New York, to St. Ann's church, in Brooklyn, at once showed a discrepancy of more than fifteen feet between it and the line laid down on the maps. Several center lines were run on trial, each a little further to the east on the Brooklyn side and more to the west on the Chatham street, New York side, until one was found that was satisfactory.

In the location of bridges some attention is paid to the difficulties likely to be incurred in getting foundations for piers, in making approaches, etc., but here such consideration had to be ignored, and the towers and anchorages placed wherever the exigencies of the case brought them. The charter fixed the terminus on the Brooklyn side in the square on the corner of Sands and Fulton streets, etc., and on the New York side it was desirable to bring it as nearly as possible to the corner of Nassau and Chatham streets. The foundations of the Brooklyn tower threatened to encroach upon one of the main slips of the Fulton Ferry unless kept far enough to the east, but by doing so the New York tower unavoidably occupied one of the slips of the Roosevelt street ferry. Any further movement to the east would bring the approach over Prospect street to a point where no head room was left between the grade of the street and the bridge crossing it. The same was true in regard to North William street.

Other difficulties summed up showed that no change from a straight line was admissible. The center timbering established a minute and detailed survey. Since then the Brooklyn foundation has been placed in its proper position on this line, and any change is impossible.

In August, 1869, I was appointed Chief Engineer. At the first meeting of the Board of Directors, in September, 1869, the Executive Committee were empowered to proceed with the foundation of the Brooklyn Tower, and to complete the same up to high-water mark. Mr. Horatio Allen was appointed Consulting Engineer, and Mr. Wm. C. Kingsley, General Superintendent. To Messrs. Webb and Bell the contract to built the caisson was given.

THE BROOKLYN FOUNDATION.

In the meantime a boring made in 1867 showed gneiss rock at a depth of 96 feet below high water. The strata penetrated consisted in the first place of surface filling through alternate layers of hard pan and boulders of trap embedded in sand and clay. Below 50 and 60 feet depth the material was so compact that the bore hole stood without tubing for weeks. No necessity existed, therefore, for going down to rock; a depth of about 50 feet would suffice. But the great desideratum to be attained was a uniform character of the soil over the whole space of the foundation whatever the depth might be. It is well known that the drift formation of Long Island presents a great variety of strata in comparatively short diagonal distances Within a hundred or two feet on either side of this foundation, there is no bottom so to speak, and piles are driven a great depth into mud; whereas in the center of our foundation the depth of water was only a few feet