

first conceived the idea of a machine gun, which has been ever since the great controlling idea of my life; and it certainly cannot be regarded as egotism when I express the belief that I am the originator of the first successful weapon of the kind ever invented. A brief history of this arm may establish the fact, and cannot fail to engage the attention of all who take an interest in fire-arms.

I completed my first "battery," or "machine gun," in the city of Indianapolis, State of Indiana, my place of residence, in the early part of the year 1862, and my first American patent bears date November 4th, of the same year. The gun was fired repeatedly during that year, in Indianapolis, in the presence of hundreds and thousands of persons, over two hundred times a minute, and the result published to the world.

In the autumn of 1862, I went to the city of Cincinnati, in the State of Ohio, and in the well-known establishment of Miles H. Greenwood & Co., I had six of my guns constructed; but about the time they were completed the establishment was destroyed by fire, together with the guns, patterns, and drawings, subjecting me to a very heavy pecuniary loss. Shortly afterwards, I had twelve of my batteries manufactured at another establishment in the same city. In the meantime, I continued to fire my gun, made at Indianapolis, before the citizens of Cincinnati, and in the presence of many Army Officers of rank and distinction, all of whom were highly pleased at the result of its performance. The American press of 1862 and 1863 teemed with accounts of these trials, and during all this period no notice of a similar weapon, at least none equaling or approaching the "Gatling battery," in the rapidity of its firing, appeared in any of the papers published in America or Europe.

I made no effort to keep my invention a secret, but, on the contrary, published full descriptions of the gun, with cuts and diagrams, and sent the same to all parts of the civilized world.

In these descriptions that my invention consisted of a "series of barrels," parallel to each other, arranged around a central shaft, and that "each of the barrels was furnished with its own appropriate lock, or firing mechanism;" I also described it as a "compound machine gun," that is, many guns in one. At the time I made these publications, that "mysterious" French mitrailleuse, of which we have since heard so much, was not invented, and, in my opinion, not even thought of. It is well known that the French and Montigny mitrailleuses are composed of a number of barrels, and have a lock or firing device for each barrel, and, for reasons submitted hereafter, I have no hesitation in saying, that this feature of a gun, formed of many barrels and many locks, is copied from my invention.

I continued to make my guns in Cincinnati during the years 1863 and 1864, and in the autumn of the latter year, I made additional improvements to my battery—in the locks and rear cam—but without, however, changing its main features, for which I secured a second patent of the United States, bearing date May 9th, 1865.

In the years 1865 and 1866, these improved guns were manufactured at Cooper's Fire Arms Manufactory, in the city of Philadelphia, but since that time they have been constructed in large numbers, at Colt's Armory, in the city of Hartford, where machinery has been fitted up at great expense, to build the guns in the highest style of perfection.

This gun is now on exhibition at the Fair of the American Institute in this city.

COMPARATIVE ACCURACY OF MERCURIAL AND ANEROID BAROMETERS.

During the progress of the recent official surveys for the ship canal across the Isthmus of Darien, the level lines were ascertained by spirit levels, and also by barometric observations. The mercurial and the aneroid barometers were employed, and their indications were, from point to point, compared with those of the spirit levels. The result showed that the aneroid barometer was very unreliable, as its indications of level were frequently in error to the extent of one hundred feet, while the average deviation of the mercurial barometer from the spirit level, did not exceed twelve feet.

Our readers are, of course, familiar with the construction of the mercurial barometer, in which a column of quicksilver, 30 inches high, counterbalances the weight of a column of the air, of the same diameter, and 100 miles, more or less, high. When we rise above the sea, the weight of the air diminishes, and at an altitude of 5,000 feet the mercury column stands at 24.77 inches, instead of 30 in. as at the sea level. The height of hills and mountains may therefore be measured by placing the barometer at the highest point of elevation, and observing the position of the mercury.

The mercurial barometer was invented in 1643, by Torricelli, an Italian, a disciple of the famous Galileo. The term barometer is derived from Greek words signifying "weight-measurer."

The aneroid barometer is a more recent invention. It is made wholly of metal, and consists of an air-tight box, which may be described as somewhat resembling a common tin blacking-box, except that the edges of the barometer box are creased so that the flat faces may spring towards or from each other, when pressure is applied to them. One of the faces is connected with a delicate wheel mechanism and a pointer by which the slightest movement of the box face is indicated to the eye. The interior of the box is charged with hydrogen gas, and the faces are so set that at the sea level the pointer will stand at a given degree, say 30. Any variation in the pressure of the air will alter the position of the faces of the box in respect to each other, and the change will be indicated by the pointer.

The aneroid barometer has come into very extensive use, and has heretofore been considered a reliable and excellent instrument. During a voyage across the Atlantic, we once compared the relative merits of the mercurial and the aneroid barometers. The ordinary indications were the same with both instruments; but the aneroid was considered preferable by the officers of the vessel as it was more sensitive to atmospheric changes than the mercurial. The aneroid always indicated the approach of bad weather, or the change to fair, in advance of the mercurial instrument.

It may be that the aneroids used on the Darien expedition were in some manner defective.

The aneroid barometer is a very neat and compact instru-

ment, not easily broken, readily transported, and very serviceable. It was invented about twenty-two years ago by M. Vidi, of France.

The term aneroid is from Greek words, which signify "without fluid;" no mercury being employed in the aneroid barometer.

FAIR OF THE AMERICAN INSTITUTE.

We have noticed in order certain departments of this Fair, and for the future shall select for notice from the other departments such things as may seem of interest, without regard to strict classification.

Among these we find a patent machine for "spreading" flax, hemp, etc., which takes the material from the bale, and lays its fibers all parallel, turning them out in a continuous sliver in a very expeditious and beautiful manner. The hemp or other similar material, in the condition in which it is ordinarily taken from the bale, is placed upon the feed-board, and gradually brought to feed-rollers, which convey it at the requisite speed to and upon an endless chain apron covered with heckling pins, which measurably straighten and comb its fibers. From this it passes to another endless chain, running at higher speed, the pins of which complete the heckling operation. The hemp is thus combed and drawn out by the pins of the two endless chains, while the fibers are free at one end to accommodate themselves to such action. The hemp then passes therefrom to pressing and drawing rollers, which, having performed their function, the material passes through condensing tubes in the form of a sliver. To any who delight in examining the workings of well devised machinery, the operations of this machine will prove gratifying. The machine is exhibited by John Good, of Brooklyn, E. D., N. Y.

A cotton seed hulling machine is shown by T. M. Jewell, 93 Liberty street, New York. It is designed for plantation use and can be run separately from the gin, or attached to the gin and driven by the same power. When run by itself it is driven by the power of two mules. It is claimed to remove the hull and lint entirely from the seed and to leave the kernel unbroken. At the same time the kernels are dried and cleaned by an air blast, and, it is claimed, rendered fit for shipment to any distance. Our readers who have perused the valuable article on "Cotton Seed" and "Cotton-Seed Oil," published in our last volume, will be prepared to appreciate the value of a machine that will do what is claimed for this one.

A line of power and foot punching presses shown by N. C. Stiles, Middleton, Conn., is worthy of notice. Those interested in this class of machines, and who visit the Fair, will do well to look at them.

Shaw's Patent Gunpowder Pile Driver, exhibited by the Gunpowder Pile Driver Co., 505 Minor street, Philadelphia, attracts much attention. This novel and ingenious device was fully described and illustrated on page 97, Vol. XXI., of SCIENTIFIC AMERICAN. For the short time this invention has been before the engineering public it has made a brilliant record.

A flax scutching machine, shown by William McBride, Somerville, N. J., is also a very ingenious device. The flax is fed in under an endless belt, the belt pressing upon the middle of the fiber, and holding it firmly while it passes and is acted upon by a series of revolving scutching blades which dress one end of the mass. Then the machine turns the other end of the flax fiber, so that it in turn passes another series of scutching blades, and finally delivers it well dressed for future operations.

FIRE-ARMS.

Under the superintendence of Col. Geo. Woodward, 304 West street, New York, this department has been made a most attractive feature of the Fair.

Col. Woodward represents nearly or all the first class manufacturers of fire-arms in the United States, and his politeness and affability, his intimate knowledge of the arms exhibited, and his readiness to explain to the curious the peculiarities of the weapons shown, render this department a rare opportunity for any who wish to post themselves on the subject of modern fire-arms. Most of the guns shown are breech-loaders, and are made in the very highest style of the art.

A prominent object in this connection is the Gatling battery gun, quite recently described and illustrated in this journal, exhibited by Chas. H. Pond, 179 Broadway, Agency, Winchester Arms Company and Gatling Gun Company. We need not here repeat any details of this remarkable arm, which as a destructive weapon is probably unexcelled by any similar piece ever constructed. The same exhibitor shows a case of the Winchester repeating arms.

The Winchester rifle differs from the Henry rifle only in the mechanism by which the cartridge is extracted. It is claimed for this gun that it can not only be fired thirty times a minute continuously as a repeater, but it can be used as a single loader without any attachment to be changed for the purpose, retaining the magazine full of cartridges to be used in any emergency, when the whole fifteen charges can be fired in fifteen seconds, or at the rate of sixty shots a minute, or in double-quick time, in seven and a half seconds, or at the rate of 120 shots per minute, or two shots per second, loading from the magazine.

The Providence Tool Co., Armory, Providence, R. I., exhibit a case of the Peabody breech-loading fire-arms. In these arms no movement of the barrel or any other parts, except those immediately connected with the breech block, is required in the performance of any of the operations. The mechanism is designed to prevent any possibility of obstruction from the effects of friction, rust, or exposure to dust, rain, and continued service. The condition of the breech block, when

the guard is drawn down, is such as to form an inclined plane, sloping towards the breech of the barrel, and the groove on its upper surface corresponding precisely with the bore of the gun, facilitates the entrance of the cartridge, so that it slides directly into its proper position without the necessity of looking to see that it is properly inserted. The removal of the empty cartridge is effected by the action of an elbow lever, which throws it out the instant the guard is lowered. This lever derives its power from the action of the breech block itself, and is not dependent upon any spring and is of such strength as to seemingly prevent the possibility of breakage or derangement by any service to which it can be exposed.

Ward & Co., 57 Wall street, New York, show a case of the Ward-Burton breech-loading rifles. The Ward-Burton gun is constructed on the bolt or needle gun system, and is operated by holding the piece in the left hand below the lower band, in the position known in the manual for muzzle-loading arms as "prime," and seizing the handle of the breech with the right hand, nails uppermost. The breech is then opened by turning the handle up and withdrawing it to its full extent of motion, a cartridge taken from the pouch with the right hand and dropped bullet end to the front in the now open receiver, and the breech closed by reversing the motions required to open it. By the motion of opening the breech to reload, the empty cartridge shell will be ejected. The breech, however, may be closed during the act of raising the gun to the position of aim. A manual to load and fire by command in six motions may thus be readily devised. Practically, to load and to fire require but four motions.

S. Remington & Sons, of Ilion, N. Y., show a collection of the various arms manufactured by them. These arms are too well known to need any special description here. The exhibitors are now supplying arms to Egypt, Italy, France, Austria, and Denmark; France at present taking all the available stock. The details of the guns thus furnished to foreign governments vary in nothing except the form of the bayonets. The bayonets on the Egyptian guns are sabers, with hilt and guard; the others are triangular.

Isaiah Woodbury, 39 Broadway, New York, exhibits specimens of the "Roberts" Breech-loading Musket. This arm is constructed strictly on the lever plan, having lever strength for its entire operation. The breech plug is a lever, the extractor is a lever, and the "catch" that holds the breech plug in place for firing is a lever. These are the principal pieces that take the wear and tear of fire-arms; they are all of great strength, and so mechanically combined as to receive the recoil shock of the charges without cross strain or disposition to displacement.

The Sharp's Arms Co., of Hartford, Conn., exhibit their infantry carbines and repeating rifles. These celebrated arms are fine specimens of mechanical art, and have a reputation so widely extended that we need not dwell upon the prominent features of their construction.

M. W. Robinson, of 79 Chambers street, shows a fine group of the Wesson sporting rifle pistols, and a case of Smith & Wesson's well-known revolvers.

J. W. Storrs, 252 Broadway, New York, shows specimens of the "Central Fire" breech-loading shot guns manufactured by the Wesson Fire-arms Company, Springfield, Mass. These guns are beautiful pieces of workmanship, and will be admired by all sportsmen who examine them. The same exhibitor shows specimens of J. Stevens and Co.'s breech-loading pocket rifles, each of which weighs only eleven ounces, yet shoots with great accuracy and power from thirty to one hundred yards or more; can be loaded and fired five times a minute, can be carried in a side pocket while working in the fields, ready to bring down game at short notice.

Isaiah Woodbury, 39 Broadway, New York, shows some electric batteries and battery fuses for blasting purposes, in which the spark which ignites the powder is generated by frictional electricity. We regret that we could not obtain any information in regard to the details of the internal construction of his device.

Near the collection of fire-arms in one of the alcoves may be seen the screw steering apparatus illustrated and described on page 111. It is exhibited by the manufacturers, James L. Jackson & Bros., 315 East Twenty-eighth street, New York.

We noticed, also, near the entrance to the Machinery Department, a novel and ingenious printing press, called the "Chromatic" press, which prints in three colors with a single impression, and does its work as rapidly as any platen press can print in single color. The surface of the inking cylinder is divided into three equal parts, which are supplied with adjustable sectors (or color strips) of various sizes, to correspond in width with any line or part of line of type. Each part is supplied with a color from one of the distributing rollers. The cylinder has lines struck on its surface which are numbered to correspond with lines and numbers on the chase, making simple work for the pressman to set his sectors to correspond to the lines of the type which he may wish to print in colors. Thus, having the sectors arranged, they receive their proper colors and transfer them to the type rollers, corresponding in width and position with the lines of the type to be printed. Within one minute the press may be changed from two or three colors to one, by means of throwing two polished shells or half cylinders over the color arrangements, which enables the pressman, if he desires, to use three times the amount of distribution and inking surface that he now has in any one-color job press.

Those interested in ice manufacture and ice machines will soon have the opportunity to see the celebrated Carre apparatus at work in a special room assigned to it at the rear of the building. A skating ring 24x10 feet, and laid with ice eight inches thick is promised as soon as the machine gets under way. This will be a most interesting feature of the

Fair. The machine is exhibited by M. J. Bujac, 17 Broad street, New York.

In the sewing machine alcove there is little that is new. An automatic bobbin winder, shown by Pratt, Palmer & Co., 384 Broome street, New York, is a neat device and does its work in a very complete manner. It is much noticed by the lady visitors to the Fair.

Leyburn's motive power for sewing machines also attracts much attention. This motive power, which may be attached to any of the machines, enables a rocking motion of the upper part of the body to be substituted for that of the lower extremities at the will of the operator. This motor accords entirely with suggestions editorially made in this journal June 12, 1869, and we believe it to be a good and health-saving device. Exhibited by Ed. J. Leyburn, 119 Fourth avenue, New York.

The Carpenter Sewing Machine Needle Company, 95 and 97 Liberty street, New York, exhibit the self-setting and self-threading sewing-machine needle illustrated, and described on page 164, current volume, which is attracting much attention, and eliciting much commendation from the experts who pass among these machines in search of novelties. Specimens of its work show that the needle is strong as well as convenient.

The Carpenter self-heating fluting machine is an invention of the same lady to whose genius the self-threading needle is due. The fluting rollers are heated by the conduction of heat through arbors, upon which they work, the heat being supplied by a gas jet. It is an ingenious and pretty little machine.

A neat little model of a horse-stall, described and illustrated on page 279, last volume, of the SCIENTIFIC AMERICAN, will also be found worth looking at. It is shown by William Bleakley, of Verplanck, New York.

We also noticed a railroad candle and burner invented and exhibited by Henry Ryder, of New Bedford, Mass., which seems to remove the defects existing in the lights now commonly used. The candle has two self-snuffing wicks, and the draft is very much improved. The light given by this apparatus is much superior to that usually supplied in railway cars.

WHAT A CONTRAST.

We call attention to the letter of the veteran inventor, Pells Manny of Freeport, Ill., published elsewhere, and from which it appears that Mr. Manny has not only gained a competence as the just reward of his patent ingenuity; but like the venerable Rip Van Winkle "he is thankful that he has had enough." What a beautiful picture is here presented! An inventor retiring upon his well earned honors and emoluments, to engage in the healthful and primitive occupation of a vine-dresser. In reading this complaisant note of Mr. Manny, we could not fail to notice his magnanimity in contrast with some other greedy patentees, who, having got rich out of their patents by the full enjoyment of all the protection afforded by the law, are still clamorous for more, and misdemean themselves by lobbying around the halls of Congress, coaxing members to favor their schemes of patent extension over luscious Chesapeake Bay ducks, and sparkling Jersey champaign. We can scarcely realize so much self-abnegation as Mr. Manny displays; but it is a green spot in the desert of human selfishness.

Trial of the United States Chemical Fire Engine.

This machine, which employs a solution of sulphite of soda, instead of pure water, for extinguishing fires, was publicly tested on the 4th inst., in this city on a vacant lot situated between 3rd and 4th avenues, just above 67th street. Two two-story buildings were erected, and in each were placed a large number of tar barrels. The floors and other parts of the building were drenched with gasoline in such a manner that when the buildings were fired the flames rose to a great height, and the heat was intense. One of the structures was played upon in small streams by the sulphite of soda solution, and the other by water, pure and simple, to test the relative merits of the two systems.

The result, however, was not so satisfactory as could be desired. The frames of the buildings were too weak to sustain them after they had been slightly damaged by the flames, and each fell into a heap of ruins very shortly after the fire became general. It was evident that the sulphite of soda solution is an agent of great power in extinguishing fire, and we opine that should the experiment be repeated with buildings of stronger frames, the test would prove much more satisfactory. The sulphite of soda, when it comes in contact with the burning surfaces, is decomposed, yielding sulphurous acid gas, in which no flame can live. At the same time the effect of this gas upon the firemen, who may at times inhale it, is not so much to be dreaded as that of carbonic acid gas, which has been used in aqueous solution for the same purpose. We trust the experiment may be repeated under more favorable circumstances.

IT PAYS TO ADVERTISE.—Messrs. Wetherby, Rugg & Richardson, of Worcester, Mass., manufacturers of Woodworth's planers and wood-working machinery, in a recent letter to us say: "You will please continue our advertisement until orders to the contrary are received, and send your bill for settlement as heretofore. We cannot do without your paper as a medium between ourselves and our customers."

THE GIANT COUPLING.—It was intended to be stated in our notice of this unique and very useful invention, illustrated on page 207, that George Place & Co., 126 Chambers st., New York city, Miles Greenwood, of Cincinnati, and the Howard Iron Works, Buffalo, N. Y., were also agents for the sale of the coupling.

[Our Special Correspondence.]
LETTERS FROM THE SOUTH, ETC.

New Orleans, its Sewerage and Water-Works—Cotton, Cotton Factories, Cotton-Seed-Oil Mills—New Orleans as a Manufacturing Place and as Commercial Center—Ice Making and Pneumatic Car—Salt and Sulphur deposits—Sugar Crop—Railroads.

MOBILE, ALA., Sept. 17, 1870.

Instead of being to-day two or three hundred miles west of New Orleans, and in the limits of the Empire of Texas, I am that distance east—yellow fever panic is the cause thereof. The first idea that occurred to me on looking around New Orleans was why some shrewd person did not contrive a way of cleaning and sewerage the streets. The city is as level as a floor, and all the sewerage runs in open gutters along the streets. Garbage is, however, not allowed to be thrown in the streets.

The city is supplied with water from the river, pumped up into a large reservoir, thence flowing into pipes. Being built on entirely made ground, and located in the bend of the river, a slight incline is had from one side to the other, thus keeping up a current in the side ditches.

From Memphis I came through the length of the great cotton State, Mississippi. The railroad, one of the best in the South, goes through a rather poor section, but there are along its route many thriving villages. One little place, consisting of a depot, half a dozen stores, and a few dwellings, sends off 20,000 bales of cotton per year. The exclusive growth of cotton is the curse of the State.

J. L. Power, Esq., of the Agricultural Association, hopes to infuse some new ideas and new life into the people, and if anyone can do anything he may succeed. It is hard to make Mississippians believe that there is any crop but cotton worth growing. There are two cotton factories in the State, one at Columbus, the other at Wesson, on the Great Northern Railroad. The last is the largest, and runs about 4,000 spindles. Steam power is used, and wood for fuel.

At Vicksburg there are three cotton-seed-oil mills, which made last year about 160,000 gallons of oil, and about 4,000 tons of cake. The owners claim that the business is overdone; that at present the supply is greater than the demand. My opinion is that as the price goes down, new uses will be found for it. The various mills I have visited pay from \$6 to \$12 a ton for seed. A ton of seed yields 1,000 pounds of kernel, this 750 pounds of cake, from 35 to 40 gallons of oil, and 40 to 50 pounds of lint. This is of course a rough estimate, but nearly, and in some cases, perfectly accurate.

In New Orleans there are five mills. The largest, the "Orleans," does not hull its seed, hence it makes from a ton about 1,500 pounds of cake, not so valuable for feed. It uses 10,000 tons of seed per year. The other four use 18,000 tons of seed, and hull as at Vicksburg and Memphis. In Mobile there is also a mill which uses about 4,000 tons of seed. This last is manufacturing a fertilizer from its cake and other materials, as does the Panola Company, in Memphis. It can thus be seen that this is really becoming a large and valuable manufacturing interest. As, for instance, at the average price of \$10 per ton, the New Orleans' mills alone pay out \$280,000 to the planter. It must be borne in mind that the planter receives this price at his gin-house or landing. I have thus particularly alluded to this manufacture, as it is already a great, and will continue to be a growing industry of the South.

New Orleans is not a great manufacturing place. There are a number of sugar refineries, and great efforts are being made to bring the grain of the West through the city. Two obstacles will ever prevent its being a great grain market: the warm climate, and the constant liability to yellow fever at the very time of the year when the grain should be moving. The river trade of the city has been injured by Memphis, and the railroads carry eastward much cotton which once went only through its harbor. There is considerable talk of the benefits to be derived from the Ship Canal to Ship Island Sound, but as yet the plans are too limited in their details to effect any good to the city. So far a depth of only 10 feet is proposed.

The only special objects of interest about New Orleans are the shell road, the cemeteries, and water-works, and I may add, just at this time, the ice machine, and the pneumatic car motor. The former is a great success; the latter, unfortunately is not yet perfect, but the owners have great hopes. The ice machine men claim that they can make ice at a cost of 1/4 cent per pound. They get up—or down—their cold by the decomposition of ammonia salt. It is a French machine, and very costly.

We were shown immense blocks of rock salt from the mines in Southwest Louisiana. This deposit of salt lies 16 feet under the ground, has been worked to a depth of 80 feet without any signs of failure, and from the main shaft tunnels have been driven 180 feet each way. The salt is mixed and delivered at Broshar City at \$13 per ton. The soil above is a sugar plantation, and will this year produce 300 hogs-heads of sugar. Farther west and south is the great sulphur deposit, which unfortunately is in the hands of the lawyers, and hence its value is not likely to be developed for years. I was told that 100,000 sacks of salt were taken from the mine in six months, that the supply is limited only by demand, and that it may be afforded at very cheap rates.

The sugar season has not yet commenced, but the crop is said to be fully 25 per cent larger than last year. Mr. Lawrence has made his steam plow a perfect success.

Three new railroads are finding their way into New Orleans; one from Mobile, the others from Selma and Meridian, thence northwards to Chattanooga. The first and last of these lines are under the control of the Alabama & Chattanooga R. R.

Co., which is really the old Union Pacific R. R. Ring. They are much abused by some of the people here, but are doing the country a great deal of good. I shall allude more particularly to them in connection with Alabama.

Stirred up by this new and rival interest, Chas. Morgan is rapidly pushing his Texas Railroad, while parallel with him the Alabama & Chattanooga men will run another line.

These rival interests bring good to the people, or rather to the country, for most of the people had rather plod along in the old way. Their places will be taken by other and more energetic men in time. The climate, however, is enervating yet. I can never believe that Heaven intended all this vast area of immensely rich soil to remain an uncultivated wild. The solution of the problem has commenced, the end is not so sure. The Chinaman and the steam plow may settle it.

H. E. C.

Immigration.

The following synoptical table exhibits the total number of immigrants that arrived in the United States during the fiscal year ending June 30th, 1870, and their nationalities:

COUNTRIES.	IMMIGRANTS ARRIVED IN 1869-'70		
	Males.	Females.	Total.
Great Britain.....	63,369	40,316	103,685
Ireland.....	31,414	25,582	56,996
German States.....	73,027	44,621	117,648
Sweden and Norway.....	16,309	10,330	26,639
Denmark.....	2,519	1,584	4,103
Holland.....	863	483	1,346
Belgium.....	718	284	1,002
Switzerland.....	2,412	1,013	3,425
France.....	2,689	1,316	4,005
Spain and Portugal.....	655	286	941
Mexico.....	2,132	759	2,891
Russia and Poland.....	680	440	1,120
Other countries of Europe.....	28	2	30
China.....	14,624	1,116	15,740
Africa.....	26	5	31
British North American Possessions.....	22,720	17,683	40,403
Mexico.....	532	101	633
South America.....	59	10	69
Cuba.....	316	357	673
West Indies.....	315	98	413
Azores.....	275	167	442
All other countries not stated.....	139	423	562
Total.....	235,551	151,546	387,097

Fair of the Central Agricultural and Mechanical Association, Selma, Alabama.

The Second Annual Fair of this association, will be held at Selma, Alabama, in November next, commencing on Tuesday the 8th, and continuing four days. The directors are making ample preparation for the display of all articles which may be brought for exhibition, in all the departments. The unexpected success of the First Annual Fair, and the encouragement received from every direction, induced them to double the area of the grounds of the Association, to erect large and commodious buildings, provide artesian wells and beautify the grounds to an extent that will make their location at once the most convenient and attractive place of resort in the South. The corresponding secretary is Mr. Wm. M. Byrd, Jr.

Trial of the Aveling & Porter Steam Road Roller at Orange, N. J.

This machine, purchased by Daniel Brennan, Jr., in England, for use in this country in the construction of broken stone pavements on the Telford and Macadam systems, was tested for the first time, on the 29th of September, on Main street, East Orange, N. J., in the presence of a large number of invited guests. The section of road on which the trial took place was a Macadam surface, and the test gave general satisfaction. Mr. Brennan imported the machine at an expense of \$5,000. It weighs 36,000 pounds. Much interest is felt in the success of Mr. Brennan, a young man of great enterprise, and to whom has been awarded contracts for a number of miles of Macadam pavement in the young city of Orange.

Trade-Mark Decisions.

Two English decisions are recently reported.
1. *Title: acquiescence.*—When a man has learned a trade secret from his employer and practiced it after the employer's death, selling the article under the old name, he will not acquire such a right to the exclusive use of the name as a trade-mark as will be protected in a court of equity.
2. *Semble.*—Where a trader acquiesces in a particular infringement of his trade-mark for a considerable period during his life, his representatives will be unable to restrain it after his death.

In looking over the portfolios of the Patent Office we are always reminded of the want of care and skill displayed by some solicitors in the preparation of drawings accompanying their applications for patents. Poor, scratchy drawings are the rule; good ones the exception. Some solicitors seem to be anxious only to crowd in their cases. No matter about the character of the drawings. The Commissioner ought to insist upon a decided reform in this respect.

MR. PHILIP STRICKLER, of Timberville, Va., whose communication on balancing cylinders and runner millstones will be found on another page, states that he has a number of good inventions in mills and fire-arms for which he would like assistance to secure patents. He offers to make liberal terms with capitalists who would contract to take out patents for these inventions.

SURVEYS OF THE ISTHMUS OF DARIEN.—The results of the recent surveys of the Isthmus, undertaken by the United States Government, with a view to the construction of a ship canal between the Atlantic and Pacific, show that a tunnel ten miles long, and high enough to accommodate the mass of ships, would be required. The expense is regarded as too great to warrant the undertaking. Further surveys towards the south are yet to be made.