

ceeding step with the opposite foot. The limb is shown in figure 1, making this movement—the ankle is the first joint where any movement is made, and the bend which there takes place, moves the rod, D, and its roller, e, upwards from the position where they hold the knee stiff. As the heel is raised preparatory to lifting the whole foot, the ankle is still further bent, and the rod further raised, and there is a tendency to bend at the knee; this tendency is allowed to operate, and the roller, e, moves up the rounded curve, h, of the curved bar, until it reaches a position where it will rest, which will be about the position indicated by dotted circles in figure 1. By stopping in that position, the roller and rod keep the toe raised and the knee slightly bent during the early portion of the next step, but as the foot reaches the end of its forward movement the lower part of the limb, acquires such momentum that when the forward movement from the thigh ceases, the knee is straightened by its continued motion, and the roller, e, descending the curve, h, throws down the toe and arrives at the hollow curve, i, where it again locks the knee stiff with the foot in position to be brought flat or nearly so upon the ground.

To bend the knee for sitting down, the weight requires to be thrown upon the front of the foot, and the ankle bent enough to raise the roller, e, high enough to run over the rounded curve, h, when no further obstacle to the bending is encountered, until it is bent as far as necessary, when the back stops, j, j, of the leg and thigh meet; the roller following the hollow curve, g, and thereby descending far enough to allow the foot to come down flat. No obstacle is offered to the straightening of the leg again, but that of the spring, d, during the early part of the movement, which will be easily overcome by placing the foot flat on the ground and raising the body.

In the Crystal Palace the only two artificial legs on exhibition at present are Selpho's Anglesey Leg, and the famous one of Palmer, manufactured in Springfield, Mass. This latter leg was awarded a Council Medal at the World's Fair in 1851, and no less than fifteen bronze, silver, and gold medals have been awarded to it at various times, by different institutions. More information about the above illustrated leg may be obtained by letter addressed to D. B. Marks, care of A. A. Marks, 198 West 37th st., this city.

THE CRYSTAL PALACE

GENERAL REMARKS.—During the past week many additions of an attractive and useful character have been made to both the building and its contents. A ship from Leghorn came into this port on last Tuesday, with no less than 172 cases for exhibition, and many more from other parts of the world, are yet to arrive. We must give our French cousins the greatest credit for having their department arranged in the neatest manner, and in the most advanced state. Our English cousins are the farthest behind in arrangement and decoration, indeed, Uncle John must get up some *high pressure* before he can *steam up* to be alongside of any department in the building. As it regards neatness, the British department does not at all compare yet with any other—a radical reform is wanted, and we hope the British Commissioners will push matters along with more spirit, and taste, next week. The Belgian Department is very good, and in many manufactures, such as *velvets*, we have been delightfully surprised; there is a display nearly rivaling that of the French Department. Austria, "this patch on the surface of the earth," has shown herself in every branch of the fine and useful arts, to have attained a high position in producing something more than *patch work*.

The American Department has advanced nobly during the past week. In both the useful and ornamental arts, our countrymen are going to do more than we expected. Our brethren from other lands, we are confident, will go away with a very high opinion of the taste, genius, and skill of the people within the borders of our land. That eminent chemist, Justus Liebig, in his "Letters on Chemistry" page 130, says, "the quantity of soap

consumed by a nation would be no inaccurate measure whereby to estimate its wealth and civilization." By this measure we justly could claim, we believe, for the United States, the title of the most wealthy and civilized nation in the world. Pillars of soap, busts of soap, windows of soap, soap of all colors, in all shapes, in all sizes, and of all smells, mark the vast extent of our soap manufacture. We are no doubt the best washed people in all creation. Some people may think we are somewhat quizzical in our remarks, owing to the equivocal use of the word soap, such as *soft-soaping*, for flattery, &c., but we assure them we are sincere and mean to be understood as having assumed for our standard of civilization and wealth, the quantity of soap consumed by the people.

FIRE ARMS.—In the United States Department the array of fire-arms is extensive and brilliant, and supports the high character for which our countrymen have long been distinguished in this branch of the mechanic arts. There are arms from the United States arsenals, which are no discredit to the gunneries of these establishments. Visitors will find them on the right-hand side of the North nave next to the aisle. Porter's rifle, Jennings's, Marston's, Sharp's, &c., are all on display. Of Colt's revolvers there is a fine case, and there is also a fine case of Whitney's revolvers. Close to the Amazon Group, of Kiss, in the British Department, there is a curious display of old fire-arms, arranged on one of the pillars, and very conspicuous. Those who are interested in fire-arms, and who would desire to study the progress made in their manufacture, would do well to examine this collection first, then some cases, behind them, from London, then the Belgian collection on the West side of the South aisle, and afterwards cross over and examine the American collection. The great improvements which have been made, are due to superior mechanical skill, excepting the application of detonating powder and the percussion lock, as superior substitutes for the old match and flint locks. There are old muskets and pistols from the Tower of London, with a stack of barrels and charge-chamber to match,—an invention supposed to be quite new in our country a few years ago, and respecting which Uncle Sam, at one time, was made the subject of an adroit swindle. We cannot tell at present how much money the government paid at one time for a lot of *stack* or many-barrelled muskets, but we know the sum was not small, something over \$100,000. We saw some stacks of these fire-arms sold for old iron, in 1849. It was always supposed by us, and the majority of our countrymen, that a pistol, with a revolving charge-chamber, like Colt's, was an invention of only a few years old, but this is not so. There is a pistol from the same quarter as the *stack* barrelled musket, as old as 1617, with a revolving chamber containing six charge recesses. This is the pistol which was obtained from the British Government by Col. Colt, to explain the difference between his invention and it, before the Society of Civil Engineers. The charge-chamber of Colt's revolver, is moved by the trigger, this old-fashioned one is turned on an axis by hand, and held by a catch for each shot to be discharged.

There are some of the drollest kinds of arms in this old curiosity-shop. The butts of some of the old muskets look like the hubs of the wheels of a donkey cart. There are old double-handed swords, like that of "Cœur de Leon," single rapiers, halberds; bill-hooks of the old English Archer days, and many other quaint pieces of armor, all worth attention.

MACHINE ROOM.—When this room is complete, and all the machines to be exhibited are whirling along in all the graceful attitudes so captivating to the enthusiastic mechanician we shall see something worth being proud of, and pleased with. There will be a single line of shafting 450 feet long, and straight as an arrow. The largest metal cutting shears in the world are now being fitted up; two large horizontal engines from Lawrence, Mass., working on one shaft, are now being put up for driving the machinery; a large beam engine from Providence R. I., will soon be put up for a driving engine also.—

The boilers to supply the driving engines, are erected on the other side of the street, north of the building, and entirely separate from it. No less than five large steam boilers have been provided, and the steam is conveyed under ground across the street. Plenty of steam power is thus provided for all the machines large and small, which will be exhibited.— We also expect to see some fine locomotives on exhibition and trial for a short period; this will afford us much gratification. It will be the month of September, we believe, before the machinery will be all in operation; the work to be done cannot and will not be slighted. The Superintendent, Mr. Holmes, is pushing matters as fast, as discreetly, and effectively as he can.

Paying Dear for a Puff.

"Putnam's Magazine," for August, has a laudatory notice of the New York Crystal Palace, which is certainly well written and very interesting, to say the least. We have no time to allude to it farther than to declare that we understand three hundred dollars was paid for the insertion of this notice.— Such a curious proceeding may be all right, for aught we know; but it certainly smacks of a fearful doubt, on the part of the management, of the ultimate popularity of the exhibition. We do not like these paid puffs, at all. The exhibition itself, when it is ready, will be a handsome one, and creditable to the country, though it will, doubtless, be a dear show for the poor stockholders. It is nonsense, then, to expect eclat by paying magazine publishers for fulsome notices.

[The above we copy from the "Brother Jonathan" newspaper, of August 6th. We can scarcely believe that the Treasurer of the Crystal Palace Association would dare pay such an enormous bill for puffing, even if the bill came to him properly audited by the directors. In addition to special privileges already granted to Mr. Putnam by the Association, he is permitted to draw \$300 a month for "puffs" inserted in his Magazine, we think he will be likely to make more out of the concern than the stock-jobbers—the Wall-street clique.

It seems to us that considerable strife must exist between Putnam and the stockholders, and that Putnam has the best of it—for while Putnam's "puffs" have gone sensibly up, the price of shares has gone sensibly down. Since the Crystal Palace was inaugurated the stock has depreciated, in this market, twenty-eight per cent.; but the falling off cannot be owing to the Exhibition not being as good as was anticipated, for we believe the display of contributions far exceeds the expectation of those whose interests and hopes were the greatest; and the number of visitors are as many as could have been expected at this season of the year, therefore we infer that too much must be paid for "puffs" and advertisements, or else there is a greater leak out of the receipts to liquidate other expenses than was anticipated. The Exhibition is creditable to the exhibitors, but the direction has been miserably conducted from the first.

Curves on Railroads.

What is the reason that so many of our railroads are constructed with such a quantity of curves—short and long—the short ones being the most numerous? In looking along the tracks of many of our railroads, they appear to have been constructed on the lines which a greyhound describes in chasing a rabbit,—there is such a doubling and tripling of curves to be seen, that a person, if ignorant of engineering must form but a very sorry opinion of the abilities of those who laid out the tracks. Numerous curves increase the liability to accidents, and certain expense in every sense of the term. We have noticed curves on some roads as if they were made for the very purpose of obviating a straight, safe, and cheap line. This should not be; all our railroads should be constructed, when possible, on a bee-line.

Interesting to Glove Manufacturers and Dealers

A Paris letter of July 5th, says: A complete revolution is about taking place in the manufacture of gloves. Two inhabitants of Grenoble invented about the same time a machine for sewing gloves, but instead of competing with each other, they agreed to unite the

advantages of each invention. One found means to sew mechanically the fingers of gloves, while the other, after sewing the remainder of the glove, was compelled to employ operatives to sew the fingers. The inventors, by combining the two machines, have produced one which sews gloves perfectly. This discovery has produced a great sensation at Grenoble, where the manufacturers were not able to supply the demand for want of a sufficient number of operatives.—[Ex.

[Our American Sewing Machines can sew gloves as well as other articles.

Events of the Week.

WAR AND ITS EFFECTS ON TRADE.—We have seen it stated in a number of our exchanges, that if a war was to break out in Europe, it would prove disastrous to the American trade. We quote the following from one of our dailies:—

"An European war would be accompanied by injuries to our trade, of a general and lasting nature. In the first place, cotton would receive a severe blow; and all those concerned in the growth or traffic of the staple would suffer heavy loss. Our Mediterranean trade would be crippled. The panic which would reign on the London 'Change and the Paris Bourse, would react upon us. Money would rise in price, and financial operations would be straightened. English and French merchants, compelled to curtail their dealings, would buy less of us than they now do. Increased taxation—the necessary accompaniments of war—would have a very injurious effect on the manufacturing districts, and we should be compelled to pay more for the manufactured articles which we now import from England."

How could any man of common information come to such conclusions? How could cotton receive a severe blow by war. England could manufacture as much as ever; the Mediterranean would still be open to her ships. There might be some confusion for a little time, but the fact is, that a war in Europe would compel both French and English, unless they were opposed to one another, to buy more of us than they now do.

English and American Clipper Ships.

The English clipper-ship "Australia," recently returned to Liverpool after a quick run, and in portions of her log, which were published, the statement was made that the "Australia" had passed at different periods of her voyage the American clippers "Flying Cloud," "White Squall," and "Atalanta." Lieutenant Maury, whose attention was called to this statement, examined into the matter, and from a comparison of the logs of these vessels conclusively shows that at the time the "Australia" is said to have passed the "White Squall," that vessel was one hundred miles distant, laying to, for the repair of damages to spare, and that at the time the "Flying Cloud" is said to have been passed she was two thousand miles distant from the "Australia." He therefore concludes that it was some other ships, and not the two American clippers, that the "Australia" "passed with ease." In regard to the "Atalanta," Lieut. Maury could say nothing, as he was not furnished with an abstract of her log.

Porter's Rifle.

Some of the southern papers state that Col. Porter, the inventor of the Porter fire-arm, has sold one-half of his patent to Governor J. C. Jones, of Tennessee, for \$70,000. This falls just \$100,000 short of the truth—he sold one-half for \$170,000.—[Washington Union.

Col. Porter may consider himself a fortunate man. Inventors sometimes do strike a gold vein, a large number of them to our knowledge have become quite wealthy. There are good prospects yet in store for inventors, we believe.

Chief Engineer.

We understand that Charles W. Copeland, of this city, was offered the office of Chief Engineer, U. S. N., but was obliged to decline on account of other pressing engagements.— He would have filled the situation with distinguished ability.

The body of one of the men who went over the Niagara Falls has been recovered; it was tearfully mangled.