

THE OLSEN TESTING MACHINES.

The exhibit of Tinius Olsen & Co. at the World's Fair, in Machinery Hall, includes a new autographic and automatic testing machine which registers up to 100,000 pounds; a new torsional testing machine which will test bars up to two inches in diameter and sixteen feet long; a cross section testing machine for cast iron; a wire and band iron testing machine, which was largely used in testing wire for the electrical department; a cement-testing machine, etc. Mr. Olsen has invented and patented a great number of improvements in testing machines and instruments, and in 1890 the Olsen testing machine received the Elliott Cresson medal and was the subject of a highly commendatory report of the Committee on Science and the Arts of the Franklin Institute. In this report was noted the great ingenuity of the inventor, especially in providing "the mechanism which produces a graphic record of the test, similar to the indicator of a steam engine, and thus brings to perception at a single glance the variation in the strain of a number of specimens as well as the work required to break them." The Olsen Little Giant testing machine, in which tensile, crushing and transverse tests are made with great facility, has long been a great favorite. The firm also make instruments for indicating the point of elastic limit, a duplex micrometer measuring instrument, spring testing machines, cloth, paper and lubricant testers, etc. Their machines are used by some of the largest industrial establishments of the country, as the Baldwin Locomotive Works, the Homestead Steel Works, the Cramp Shipbuilding Company, the Pennsylvania Railroad, etc. The office and works of the company are at No. 500 North Twelfth Street, Philadelphia, Pa.

A MONSTER PLANING MACHINE.

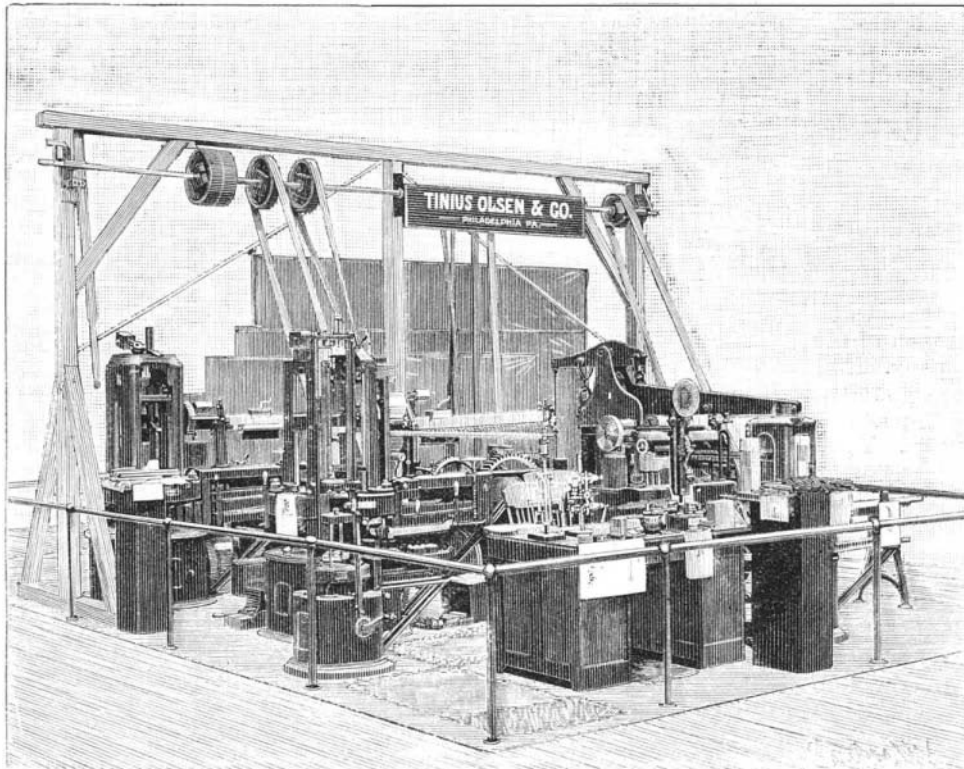
The machine which we illustrate in perspective elevation herewith is believed by the makers, says *The Engineer*, to be the largest and most comprehensive "table" planing machine in England. It is

capable of planing a block 30 feet long, 12 feet wide, and 10 feet high over five out of its six sides at one setting. It would plane the top and sides of the block simultaneously with four cutting tools, two being carried by tool boxes on the cross slide and the other two being carried by tool boxes on each upright. These three sides would, therefore, be planed by the

flanges of engine crank shaft bearings, or any other surfaces lying in vertical planes at right angles to each other, or in horizontal planes between snugs at right angles to each other, can be planed at one setting. To express the capacity of the machine, in other words, while still referring it to the five sides of a cube, it may be said that the machine will plane a total surface at one setting of 1,200 square feet. Of course, in ordinary work the capacity of the machine is useful, not for actually planing the whole of these five surfaces, but for covering the whole of their length and breadth, so as to be able to plane a surface here and a surface there on the sides, ends, or top of a large casting at one setting, thus insuring the true parallelism or squareness of all the tooled parts.

Messrs. Buckton's own experience has proved to them the great advantage of having a planing machine of sufficient width between the uprights and sufficient height under the cross slide to take in as large a piece of work as can be carried by the railway companies. The largest cross section that will travel on the principal English railways may not exceed 12 feet by 9 feet, so that this seems to give a certain degree of finality to the maximum useful dimensions of a planing machine. For many engineering purposes also large surfaces require to be truly planed all over, and by ordinary methods one of the difficulties in doing this satisfactorily arises from the inevitable wear of the tool steel itself between the first cut and the last over a large surface. In the machine under

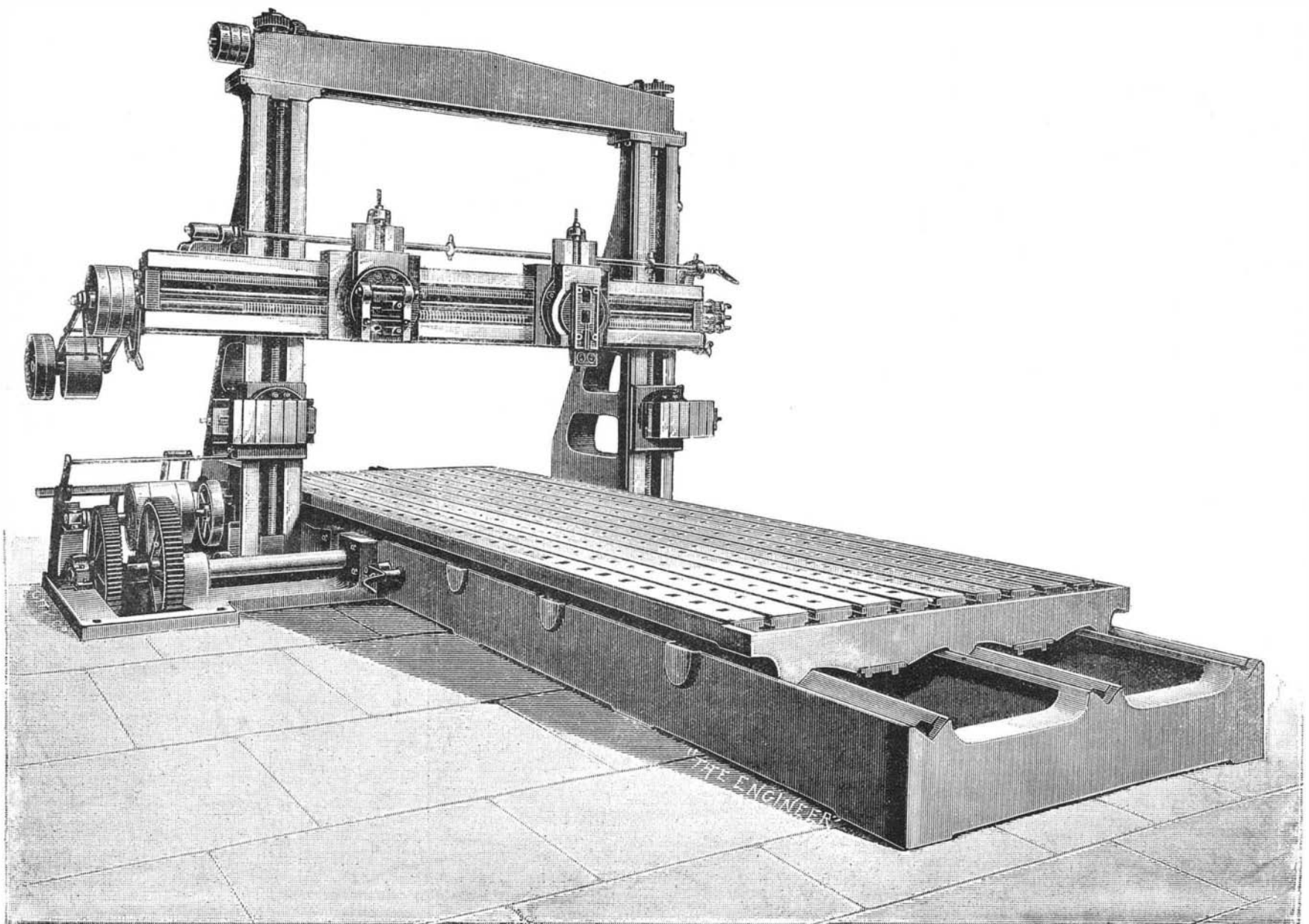
notice this difficulty is met by the application of the patent double-cutting tool holder which has been successfully introduced by Messrs. Buckton. One of these tool holders is shown in the perspective view, in position for transverse cutting. When this tool box is in use there is no time lost in an idle return stroke, the planing goes on equally on both strokes of the machine, and the self-acting feed is made to advance the tool boxes for a fresh cut at each end of the stroke; so that, supposing the feed to be at the rate of twelve cuts to the inch, the tool box would



THE WORLD'S COLUMBIAN EXPOSITION—TESTING MACHINES SHOWN BY TINIUS OLSEN & CO.

ordinary longitudinal motion of the table and the ordinary self-acting traverses of the tool boxes. For planing the ends of the block the ordinary arrangements would not apply, but on this machine there is in addition a cross planing motion to one of the tool boxes on the cross slide. When this is in action it gives a transverse cut up to 12 feet long across the table of the machine, and the tool box will feed vertically down the work, or the table of the machine may be advanced by a self-acting longitudinal feed motion. Thus the seats for the bushes and the facings for the

notice this difficulty is met by the application of the patent double-cutting tool holder which has been successfully introduced by Messrs. Buckton. One of these tool holders is shown in the perspective view, in position for transverse cutting. When this tool box is in use there is no time lost in an idle return stroke, the planing goes on equally on both strokes of the machine, and the self-acting feed is made to advance the tool boxes for a fresh cut at each end of the stroke; so that, supposing the feed to be at the rate of twelve cuts to the inch, the tool box would



PLANING MACHINE FOR THE HASLAM FOUNDRY CO., DERBY.

have taken two such feeds for each double stroke of the machine, and at the return of the table to its first starting position $\frac{1}{2}$ inch wide would be planed. By this double rate of progress divided between two cutting edges it results that there is theoretically only half the wear, but practically much less than half the wear, on the cutting edges between the first cut and the last over a large surface.

The advantages of the double cutting principle become more and more important, as the size of the surfaces and the weight of the articles become greater. The two-fold feed motion is effected by means of double ratchet wheels, which gives the power of feeding any of the boxes in any direction, as from left to right, or from right to left, or up or down, and to take that feed at each or either end of the stroke, so that the double feed arrangement gives advantages even upon work to which the double-cutting tool boxes may not be applied. The feed motions take place in ad-

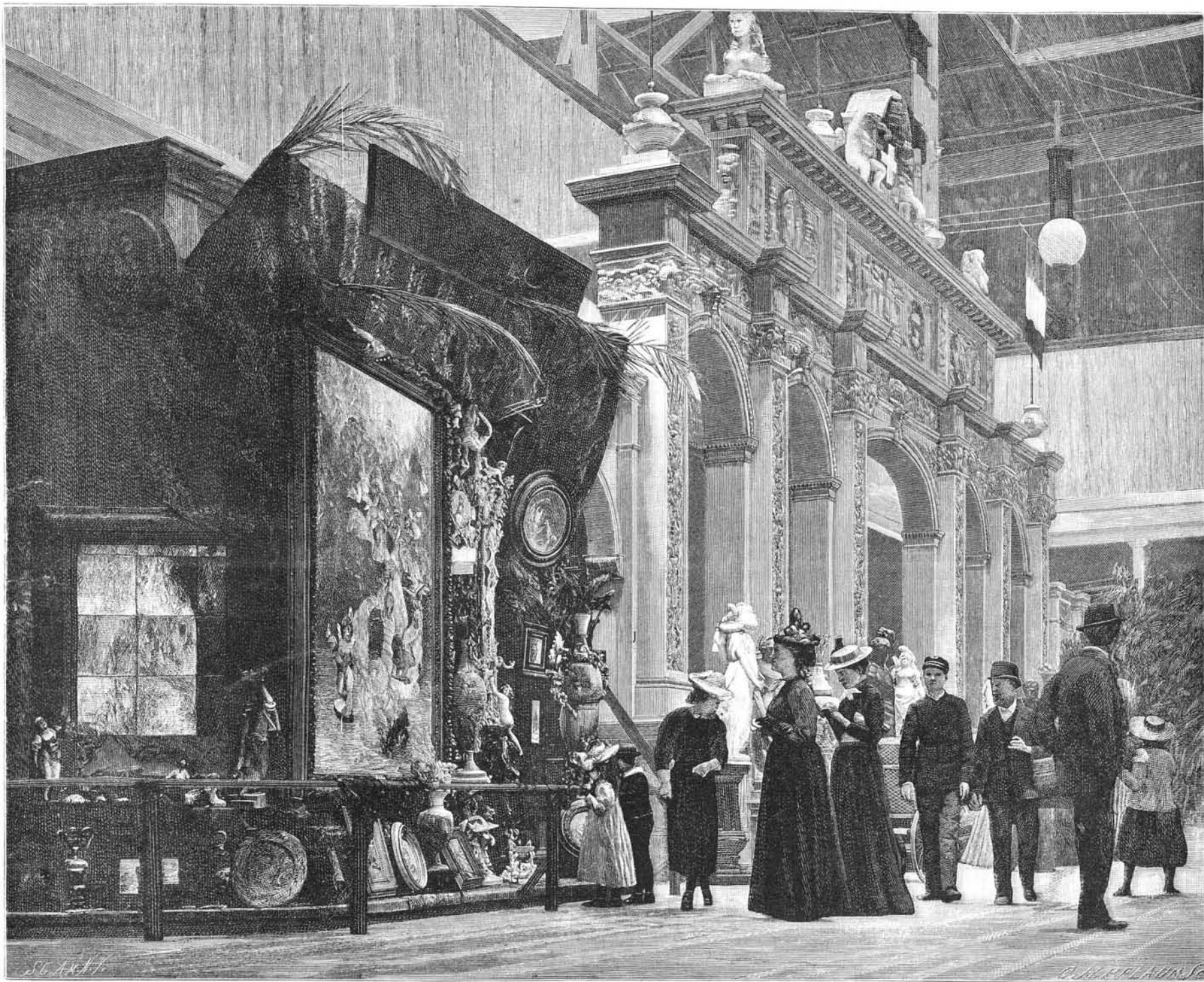
erecting work upon. The transverse cut on the cross slide is driven by cross and open belts, with belt-throwing and feed motion similar in principle to those of the table.

The countershaft for driving this motion is attached to the cross slide by radius bars, so that the belts are of uniform length and tightness whatever be the position of the cross slide. The cross slide can be raised and lowered on the uprights by belt power and reversing gear. Machines of equal width to this, and in most respects similar, have been made by Messrs. Buckton for Messrs. John Brown & Co., of Sheffield, for planing armor plates, but the traveling table of those machines was 20 feet long, and this is the first machine on record that the makers know of having a 30 foot long table which will also admit of 12 feet between the uprights and 10 feet under the cross slide. Its capacity to use eight cutting tools, *i. e.*, four on each stroke, and to cut transversely in both

merits being that not only does one obtain the richest cream, but it will keep for two or three days without becoming sour. Why this English dainty is not used in this country to the same extent as in England is to be wondered at, but our dairy folk seem to know nothing about it.

THE WORLD'S COLUMBIAN EXPOSITION—THE ITALIAN EXHIBIT.

The kingdom of Italy has made a very creditable exhibit in the Palace of Manufactures and Liberal Arts. The exhibit is not large, but the wares placed on view show conclusively that the people of modern Italy have inherited a share, at least, of artistic ability from the glorious old masters. In fine mosaic, glass and lace work Italy excels, and her marbles, which are in many cases made by unknown artists, might well grace the home of the millionaire. Bronzes, tapestries



THE WORLD'S COLUMBIAN EXPOSITION—ITALIAN EXHIBITS—PALACE OF MANUFACTURES AND LIBERAL ARTS.

vance of the belt-throwing motion, and the feed knocker fork is independent of the belt knocker fork; it follows that the machine may be stopped and started at any moment without disturbing the feed pawls and without marking the work. There is a belt-throwing handle at each side of the machine, and there are two bars on the American plan to throw a cross and open belt, one at a time, and to throw each one the complete width of the pulley face, neither more nor less, with a positive and invariable action. The bed of the machine is 45 feet long. The uprights and gearing plates are bolted to it, so that the machine is entirely self-contained. The bed has three parallel V guides for the table to slide in, and the V's have oil pockets at 5 feet pitch apart, fitted with miter disks supported on springs which roll the oil on to the V's of the table as it passes over them. The table is driven by two parallel steel racks with straight teeth, through double purchase steel gearing.

The table is made in two pieces with a single transverse joint, so that when a continuance of work is in hand, not requiring more than a 15 foot stroke, one half of the table may remain stationary at one end of the bed, and may be used as a setting-out plate or for

vertical and horizontal planes, makes it still more unique.

Devonshire Cream.

Persons on their return from their travels abroad express surprise that they can never get at home such delicious cream as they have in England and Scotland. It is known as Devonshire cream, and not many people, in this country especially, know what it is, but suppose it to be the particularly rich cream of the county in question, whereas every American housekeeper may have Devonshire cream on her own table if she will take the trouble to prepare it. Rich new milk is put in a very shallow vessel with an extended surface, and is then set on the range, where the milk will be warmed, but on no account must it boil or even scald. The heat will cause all the cream to rise to the surface in a very short time, and the pan is then taken off and placed in the ice box or in a cool place. When thoroughly chilled the cream may be taken off and will be nearly of the consistency of newly made butter. This is put in jars, and at breakfast is helped with a spoon and is delicious with oatmeal, jams, berries—everything in fact that ordinary cream is used for, its

and silken fabrics are largely made in Italy. Our view represents the entrance to the main exhibit of Italy from Columbia Avenue, as the central aisle of the Manufactures building is termed. Italy has also an annex at quite a distance from the main exhibit. The large picture at the left is really made of painted tiles of the usual size, the colors being fired in. The exhibit of lace made by a Venetian house is very fine and was much admired by the Duke of Veragua. There are several exhibitors of the curious ragged terra cotta figures called *lazzaroni*. The Italians excel in wood carving and fine cabinet making. Some of the examples exhibited are superb. It is really surprising to see how moderate some of the pieces of statuary are in price. Skilled labor can certainly be obtained at low rates in Italy.

The names of the exhibitors show their nationality, as Roccheggiani, Pasqualetti and Trilli. The exhibit of jewelry and small *objets d'art* is very fine and may be favorably compared with the larger exhibit in the same line made by France. The position of the Italian exhibit, being at the extreme south end, is rather unfavorable, as a portion of the exhibit is under the gallery and is, therefore, badly lighted.