thick. The ring or face of the

gate, which abuts against the com-

position seat within the valve, is

The gate is moved by a stem, $3\frac{1}{2}$

inches in diameter, passing through

a stuffing box and provided with

an external screw. This is attached

by a transverse steel pin, 2½ inches

in diameter, to a pair of lugs on the gate. This allows a consider-

able amount of play to the gate,

and avoids straining the stem.

The nut which operates the screw

is of composition. For the packing box, hemp packing is used.

The cut shows the arrangement of

The valve was tested as to its

tightness by a hydraulic pressure

or head of two hundred pounds to

It weighs between eleven and

twelve tons, and required a truck

with three teams of horses to movit across the city from the river

front, where it had been delivered

Fair Logs.

berman, the tug Rip Van Winkle

towed down from Port Blakely to

Tacoma the ten largest logs ever

cut on Puget Sound for shipment in one consignment. The logs are

to form part of the foundation of

the State of Washington's World's Fair Building. All the logs are

Recently, says the Pacific Lum-

gearing used to turn the nut.

the square inch.

by lighter.

also made of composition.

THE PROBABLY BEST AUTHENTICATED PICTURE OF COLUMBUS.

So many widely differing pictures of Columbus are now being published and painted upon banners for

ham, the English geographer, submits some important particulars. In a most interesting and carefully prepared paper upon Columbus, which is reproduced in the September number of the Proceedings of the Royal Geographical Society, Mr. Markham amplifies the story of Columbus' life through the exhaustive local researches he has made in Italy and Spain. He found the portrait of which this is a copy in a private house at Como, where it has been carefully treasured ever since it was placed there by Paulus Jovius [Giovio], a contemporary of the great Genoese admiral. Mr. Markham says:

"We gather some idea of the admiral's personal appearance from the descriptions of Las Casas and Oviedo. He was a man of middle height, with courteous manners and noble bearing. His face was oval, with a pleasing expression, the nose aquiline, the eyes blue, and the complexion fair and inclined to ruddiness. The hair was red, though it became gray soon after he was thirty. Only one authentic portrait of Columbus is known to have been painted. The Italian historian. Paulus Jovius. who was his contemporary, collected a gallery of portraits of worthies of his time at his villa on the Lake of Como. Among them was a portrait of the admiral. There is an early engraving from it and very indifferent copies in the Uffizi at Florence and at Madrid. But until quite recently I do not think that the original was known to exist.

"It, however, never left the family, and when the last Giovio died it was inherited by her grandson, who is the present possessor. I was so fortunate as to city. This valve was built in Coxsackie, N. Y., by the Kennedy Valve Mfg. Co.

The valve comprises a cast iron shell, within which the gate moves up and down or horizontally, accorddisplay that we republish a portrait of the great navi- ing to the way the valve is set. In the case illustrated, thick. These dimensions refer to its outer ring or zone. gator which appeared in the SCIENTIFIC AMERICAN of the movement is horizontal. The shell is in sections, The inner portions are hollowed or cored out, so that May 9, 1891, in regard to which Mr. Clement R. Mark- with faced joints, and the parts are fastened with the center portion is only two and one-half inches

eral terms a disk, somewhat wedge-shaped, so as to fit between the valve faces. At its upper end, assuming the valve to be set upright, the gate is eight inches thick. At its lower end it is four and one-half inches

OLOMB ORBIS

PORTRAIT OF COLUMBUS, BY SEBASTIAN DEL PIOMBO, RECENTLY DISCOVERED AT COMO.

see it when I was at Como, and also to obtain a bolts. Lead gaskets are introduced between the faces photograph of it. Here we have the head of a of the joint to supply packing. venerable man, with thin gray hair, the forehead Within the shell are the valve seats. These are high, the eyes pensive and rather melancholy. It made of the best quality of composition metal, and was thus that he doubtless appeared during the period | slope toward each other like a reversed wedge. that he was in Spain after his return in chains or dur- The gate which closes the valve opening is in gen- ten of them are being fitted with "bunks," or cross

ing the last years of his life."

A FOUR-FOOT WATER VALVE.

On January 1, 1893, the system of water supply and distribution within the limits of the city of New York will comprise over 710 miles of water mains. These are of cast iron with calked lead joints. They vary in internal diameter from 6 inches up to 48 inches, the latter being the largest size of distribution main.



122 feet long. The largest one is 42 inches square at the large end, the others being slightlysmaller. This largest log contains about 1,500 cubic feet of timber, and weighs, computing at 48 pounds per cubic foot, something over thirty tons. The

One of the most interesting things about the timbers is the manner in which they will be shipped to Chicago.

It will require a train of thirty-five cars to ship them across the continent, and only air brake cars will be

used. The thirty-five are at the Edison shops, where

pieces, on which the ends of the timbers will rest. It will take seven cars to carry each two logs, whose weight will be borne entirely by the first and last of the seven.

This arrangement is necessary to allow the middle five cars to swing out from under the timbers when rounding curves, their only use being to connect the end cars.

To load the timber on the cars a strong chute has been con-

aggregate weight of the ten timbers is nearly three hundred tons.

In the year 1893 it is proposed to greatly extend this service and to lay twentyfive additional miles of pipe. Part of this amount represents the substitution of new for old pipe; a part represents entirely new lines.

In the present system there are over 9,000 fire hydrants and 7,300 stop cocks or valves. We illustrate one of the latter, taking as typical a valve inserted in a 48 inch main in the upper part of the

structed at the end of the ocean dock. They will be hauled up out of the water by a Northern Pacific locomotive, and kept straight in the chute during the operation by means of a pile driver, to which their water ends will be attached with chains.

In all 174 logs will be shipped for the foundation, and the other construction material will include between 500,000 and 600.000 feet of lumber.