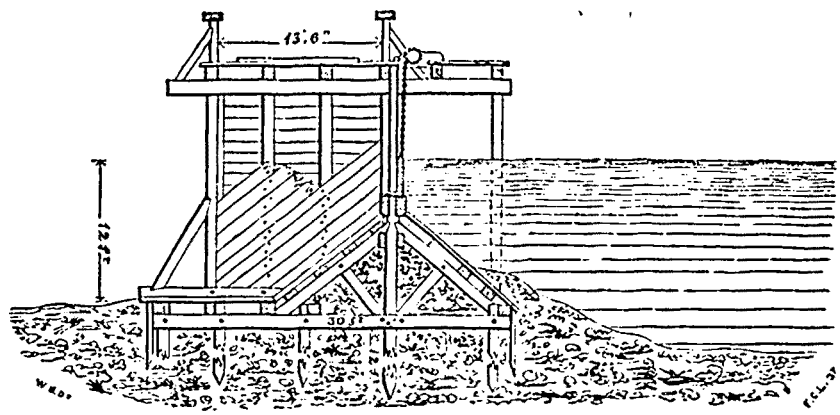
double and securely framed to them and braced, as shown to form the apron. Three inch sheet piling was then driven above and below the dam and securely spiked to the outside longitudinal timbers, and continued well into the bank so as to prevent the water penetrating and destroying the foundation; coarse gravel and clay was closely packed among the foundation timbers and well rammed. The whole apron was also filled with the same material, and covered with five-inch plank, secured with trenails and spikes. The piers being planked inside and out are—in the absence of stone, which could not be conveniently procured—filled to the top with coarse gravel intermixed with clay; cross ties being inserted at intervals, dovetailed upon the posts to prevent the sides from spreading. A puddle ditch was made about twenty feet into the banks on each side from the land piers, and being well puddled, secured the banks from destruction in the event of an extraordinary rise of water overflowing them.



The manner in which the Bridge is placed on the piers, is made sufficiently evident from the drawings, and the accompanying estimate of the quantity of material necessary to complete the structure, will afford sufficient data from which to estimate its cost. It was deemed advisable when building this dam to avoid using any but the most simple plan for hoisting the sluice boards; at the same time, it is evident, that should it at any time be desirable to introduce a more complete apparatus, any of the numerous contrivances for that purpose may be readily adapted.

It will be seen from the drawings that the outside planking of the piers was put on diagonally, in order to brace the framing, and thus save the necessity of framing braces in the work. The whole of the planks were put on with 1¾ inch oak trenails, the butts only being spiked.

In some cases where large stone can be conveniently obtained it may be cheaper to build a Dam of this kind without piling. Where this occurs the piles may be dispensed with, and the timber merely bedded in the bottom of the creek; the piers and apron being well packed with stone will serve to keep the dam firm: there should then, however, be a pier in the middle of the length of the dam, instead of the framing shown in the drawing, in order to keep down that part of the foundation. Since in creeks liable to heavy freshets, and where the water sometimes *backs up* below the dam to a considerable height, the whole structure being timber, becomes so buoyant that it is in danger of floating away, hence the object of the piling was more to prevent the foundation from rising than to support the weight of the superstructure, which object would of course be effected by the addition of sufficient stone as before stated.

The following is the estimate of material for the Dam and Bridge:—

Round piles of hardwood 12 inches diameter, lineal feet,	1680
Square do. pinewood 12 do. do. do.	560
3 inch sheet piling, board measure, superficial feet, - -	5250
Oak and elm squared timber, cubic feet, - - - - -	3500
Pine do. do. do. do. - - - - - -	3450
3 inch pine plank, board measure, superficial feet - -	42300
5 inch oak and elm do. do. - - -	12000
Wrought iron, in lbs., - - - - - - - - - -	1740
Wrought spikes, in lbs., - - - - - - - - - -	500

Applications of Centrifugal Action to Manfacturing purposes.—It is well known that a centrifugal machine has been hitherto employed with much advantage for the drying of textile fabrics and for clarifying sugar; but these are not the only purposes to which it is adapted; for every day new applications of this apparatus suggest themselves, and important problems are solved by its means. We now learn that one of the most important operations of brewing may be wonderfully simplified by the use of a centrifugal apparatus. It has been hitherto considered extremely difficult to reduce the temperature of beer to the degree of coolness requisite; it has been necessary to make use of refrigerators for this purpose, and, notwithstanding all precautions, mistakes not unfrequently happen. It occurred to some English brewers that this difficult cooling process might be effected by means of a centrifugal machine. This idea has been put in practice with complete success. The beer was reduced to the desired temperature by merely passing it through the machine; and this was effected not only with great rapidity, but also with considerable economy. Some time back, M. Touche, of Paris, endeavoured to produce ice by means of a hydrofugal apparatus. He did not succeed in reducing water to the freezing point, but he cooled it to a degree far below that required in brewing beer. It would be superfluous to explain these results, for every one is acquainted with the effects of a very rapid ventilation, and the centrifugal machines are made to rotate at the rate of 3000 revolutions per minute, and even quicker. We are further informed that in certain manufactories in Alsace a hydrofugal machine is used for making starch. When the flour is stirred about in water, the different substances range themselves according to their specific gravities, unless prevented by some peculiar circumstances. Now, this is precisely the result obtained by the centrifugal machine; starch, being the heaviest substance, separates itself from the others, and is first precipitated. The centrifugal machine may also be advantageously applied for classifying grain, seed or ores, according to their respective densities, whether liquid or solid, provided they are not of a cohesive nature, or that whatever cohesiveness they possess may be easily removed. In fact, the centrifugal apparatus may be applied to so many different manufactures, that it may be justly looked upon as one of the most fortunate and fruitful inventions of modern times.—*Moniteur Industriel.*

Syphon Filter.—The Syphon Filter is, perhaps, the most convenient kind for general purposes, as it may be readily carried about and used by any ordinarily available pressure. The shape of the filter is that of an elongated bell. It is made of white metal; and, at the top of the bell-shaped vase, there is inserted an inflexible metal tube, furnished with a stop-cock near the end. The vase is filled with powdered quartz, of various degrees of fineness, and the mouth of it is closed with a perforated cover. When required to be used, the vase is inverted in the water to be filtered, and the tube is allowed to hang below it. When the air