

and the machinery, except the rubbing surfaces, must therefore endure almost indefinitely.

The water, starting from the pump well, passes to, through and from the pumps to the force main, without change of direction, in straight lines, or gentle curves, with small changes of form of volume or direction, and therefore its resistance from these causes, is reduced to a minimum.

It is safe, therefore, to claim for this machine as effective a duty as can be obtained by any other pumping machine.

This machine is simple in construction, and the steam engine part corresponds with that in use in most of the large engines built for other purposes. Its cost is therefore reduced to a minimum. It can be built, or repaired at any good machine shop, and can be run with perfect safety by a moderately good mechanic, in fact by any one who can run an ordinary river steam boat.

There are no patents upon any portion of the machine.

My time has not allowed me to re-write and condense this report, and I, therefore, present a condensed summary of the results which have been arrived at in the preceding discussions.

### SYNOPSIS.

The following projects have been considered.

1.—The use of steam power, wholly, or as an adjunct to the works.

2.—The abandonment of the present works, and the construction of new ones in connection with the St. Louis Hydraulic Company.

3.—The enlargement of the present aqueduct.

4.—The Keefer plan. An extension of the present works by a Canal two miles long up the River, and a subsequent enlargement of the present aqueduct.

5.—The Shanly plan. An extension up the River