

would not balance. There is always a certain amount of water allowed to go with your plunger, which acts as a lubricant, but this does not amount to much. It is not well to tighten up your glands too tight as it will slow up your engine.

Mr. Blanchflower,—

There is one question I would like to ask. Why is the area smaller on the discharge side than on the suction side? Has that always been your experience in high pressure pumping systems, Mr. Walsh?

Mr. Walsh,—

Yes. It is a very funny thing, but a great many do not know it. Take for instance a six million gallon pump we have out there. In one case we have 24" discharge. You can actually close that valve within 1" of the bottom and the pump will keep on running, which shows the great amount of water which will keep on running through a small opening. A 36" main reduced to the smallest point, does not reduce the pressure at all by passing the water through it. It is made in the shape of a syphon and the water passes down through the centre. It goes through very fast without reducing the pressure. I have often wondered whether it would not be good practice to cut down a lot of the large mains we are using, although there is no question but what they cut down a great deal of friction. Of course if you went any distance it would increase the friction largely.

Chairman,—

I was just thinking while Mr. Walsh was reading his paper about taking the builders' specifications and keeping a "wide open" specification. Is the average water works engineer competent to make out specifications? Presuming he has run six or even ten different makes of pumps, and that is considerable experience for the average man, is he sufficiently competent to make out a set of specifications? The builder on the other hand designs and sells pumps on their merits, and therefore should produce a good pump.

For instance here is a man who has possibly been a good mechanic and secures a position as engineer. Can he make out proper specifications? I question it very much. Now if he went to the committee—the tailor, blacksmith and storekeeper—and told them he required the assistance of an expert, he is placed in a rather difficult position. He claims to be an engineer, yet cannot make out the specifications. Realizing his position is at stake, perhaps suggests as a possible way out of it, to write the different builders and get their specifications, and that they be submitted to some good reput-