greatest transmission capacity for the belt treated with Cling-Surface was found when there was the least possible tension on the belt and when the belt was running so slack that the sides very nearly touched. It will be noted also that the slip of a treated belt is much less, and the arc of contact greater for a given total tension than with the untreated belt.

The falling off in carrying capacity with increase of belt tension for the treated belt is doubtless due to the rapid change in the arc of contact, which diminishes with increase of tension. This causes a diminution in the transmitting power which is greater than that produced by the increase of pressure due to the increased tension on the belt. With the untreated belt such change is very slight, and consequently a falling off in carrying capacity for light tension takes place.

In regard to the questions raised as to the preservative qualities of Cling-Surface and to the permanency of the effect produced by its application, the writer would say that our tests have of necessity been of too short duration to give conclusive answers. The general effect of the Cling-Surface is to soften the belt and put it apparently in the best condition for transmitting power and retaining its good qualities. The surface produced by the Cling-Surface remains apparently unchanged after several weeks of use, and the inference to be drawn is that the material has an effect which continues permanent for some time at least.

The foregoing report was written in April last. Since when in October, Prof. Carpenter again writes to the Cling-Surface Mfg. Co. :—

Later tests of the use of Cling-Surface on belting substantiate in every particular the statements made in my report of April 17th. They also indicate higher efficiency of transmission and less loss of power than in the case of belts treated with Cling-Surface than in the case of belts not so treated, when working under the conditions prevailing at the time of the earlier test. This is due to the fact that the slipping of a belt causes considerable loss of power, the power so lost passing off in heat. The use of Cling-Surface reduces the slipping and consequently reduces the loss of power occasioned by the use of belts that slip.

During the past six months I have had occasion to observe the practical use of Cling-Surface in a number of instances. In all such cases Cling-Surface has improved the belts by softening them, and as far as I can determine in the limited time (seven months) tends to preserve the leather of which they are constructed.

THE LITCHFIELD CAN FAUCET.

The Can Faucet shown in the accompanying illustration is being marketed by J. M. Litchfield, 105 Beekman-street, New York. The special claim made for this faucet is its