ROPE TRANSMISSION—Fig. 13, continued

This transmission was erected and started up in September 1886, and has been running constantly ever since, conveying the power, (50 H. P.) to drive a line shaft on the opposite side of a street. This shaft is on a parallel line with the main line or power end. It became necessary to prevent obstruction in the street to go back from the power end and up through the upper stories of the main building over idlers, then across the street into the upper story of the building where power is to be used, then down again into the lower story where is located the driven shaft.

Now that this is desirable will be seen at a glance. The transmission is a very simple one and consists of a series of wood split pulleys and an ordinary manilla tallow laid rope.

The power is taken from the main line, making 280 RPM. Referring to the cut, A represents the driver and is 54″ diameter, with two grooves. B the driven is 61½ inches diameter, with two grooves located as stated in a building on the opposite side of the street, about 125 feet from the driving end. The idlers D are each 40″ diameter and each has two grooves and the carriage pulley is 36″ diameter with one groove.

It will be noticed that the rope passes twice around the driver and leads the slack rope up over the carriers and directly unto the carriage pulley, the slack being taken up at the driving end for greater convenience; will say however, that the slack could be cared for from the driven end as well. The weight used is 200 pounds, just sufficient to carry up the slack of the rope. The device for taking care of the slack of the rope and giving proper tension is the same as those illustrated in former issues of *Power and Transmission*, and is shown at F, and takes in and pays out slack as it occurs from the stretch of the rope caused by atmospheric changes. It also acts by changing the weight to increase or diminish the power as required.

We make the following mathematical summary:

Velocity of the rope, 4,000 FPM., transmits 50 HP., (estimated). The tension on the rope is therefore $\frac{33000 \times 50}{4000} = 412 + 100$ lbs. (one-half the weight in the weight box) $= 512$ lbs., which is the strain on the rope; but there being two wraps, the strain would be $\frac{512}{2} = 256$ lbs. and is about six per cent. of the breaking strain; it being estimated as safe to use 10 per cent. of the breaking strain of the rope with this system. The breaking strain of a 5/8″ manilla rope is estimated at 4,000 pounds.—*Power and Transmission Journal.*

As to the satisfactory performance of the above transmission the following letter from the purchasers will prove:

COLUMBUS, O., Nov. 20th, 1886.

Dodge Mfg. Co., Mishawaka, Ind.

GENTLEMEN,—Yours of 18th inst. at hand. In answer would say we have nothing around our factory that is more satisfactory than the Dodge Manilla Rope Transmission. I see no reason why it is not a great success. It is the wonder of all who see it.

Yours truly,

THE J. W. DANN MFG. CO.