This transmission was erected and started up in June, 1886, and has been running constantly ever since, conveying the power, 25 HP., to drive a number six centrifugal pump, used for keeping the water out of the quarries. A one-half inch manilla rope, tallow-laid, is employed, travelling at a velocity of 3,600 FPM. The rope is in prime condition. As to the satisfaction given by this transmission, note the letter from the Messrs. Boecker & VanOven elsewhere in this issue.

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 a 25 HP. engine, making 300 RPM. Referring to the cut, A represents the driver, and is 48" diameter; B, the driven, and is 24" diameter, located 15 feet lower than the engine, and about 85 feet distant from the same. The pump shaft is perpendicular, hence the pulley runs horizontally, and causes the rope to make a quarter turn. This is easily accomplished by tipping the idlers or carriers DD, to get surface in contact with the driver; to get back on to the travelling carriage at F, the winder C is used. It will be noticed that the rope passes twice around the driven and leads the slack rope directly to the carriage, the slack being taken up at the driver end for convenience. The weight used is 100 lbs., just sufficient to carry up the slack of the rope. The driver, driven, and the two carriers, DD, have each two grooves; the winder C, and carriage pulley, E, have each one groove.

The device for taking care of the slack of the rope and giving proper tension, is the same as those illustrated in 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 up, from the above, the following mathematical summary:

Velocity of the rope, 3,600 FPM., transmits, as above, 25HP., (estimated). The tension on the rope is, therefore, $\frac{33000 \times 25}{3600} = 229$ lbs. + 50 lbs. (one-half the weight in the weight-box) = 279, which is the strain on the rope; but there being two wraps, the strain would be $\frac{279}{2} = 139$ lbs., and is about six per cent of the breaking strain; it being estimated as safe to use ten per cent. of the breaking strain of the rope, with this system. The breaking strain of a $\frac{1}{2}$" manilla rope is estimated at 2,250 pounds.—*Power and Transmission Journal.*

OFFICE OF BOECKER & VANOVEN STONE QUARRIES,
NAPERVILLE, ILL., OCT. 28, 1886

*Dodge Mfg. Co., Mishawaka, Ind.*

GENTLEMEN.—Yours of 27th inst. at hand. In answer would say, we use your patent system for transmitting power by manilla rope, to run a No. 6 centrifugal pump in our quarries. It does all you claim for it, and gives entire satisfaction.

You will remember that we had to apply the transmission in a rather difficult position, as the driven pulley is situated about 15 feet lower than the driver, and makes a quarter turn, as the pump shaft stands perpendicular. The distance of the latter from engine is about 85 feet. The $\frac{1}{2}$" rope used is a surprise to everybody that sees it doing so much work and so easily, without any jarring.

Yours truly,

BOECKER & VANOVEN

* Dodge Manufacturing Co., Mishawaka, Ind.