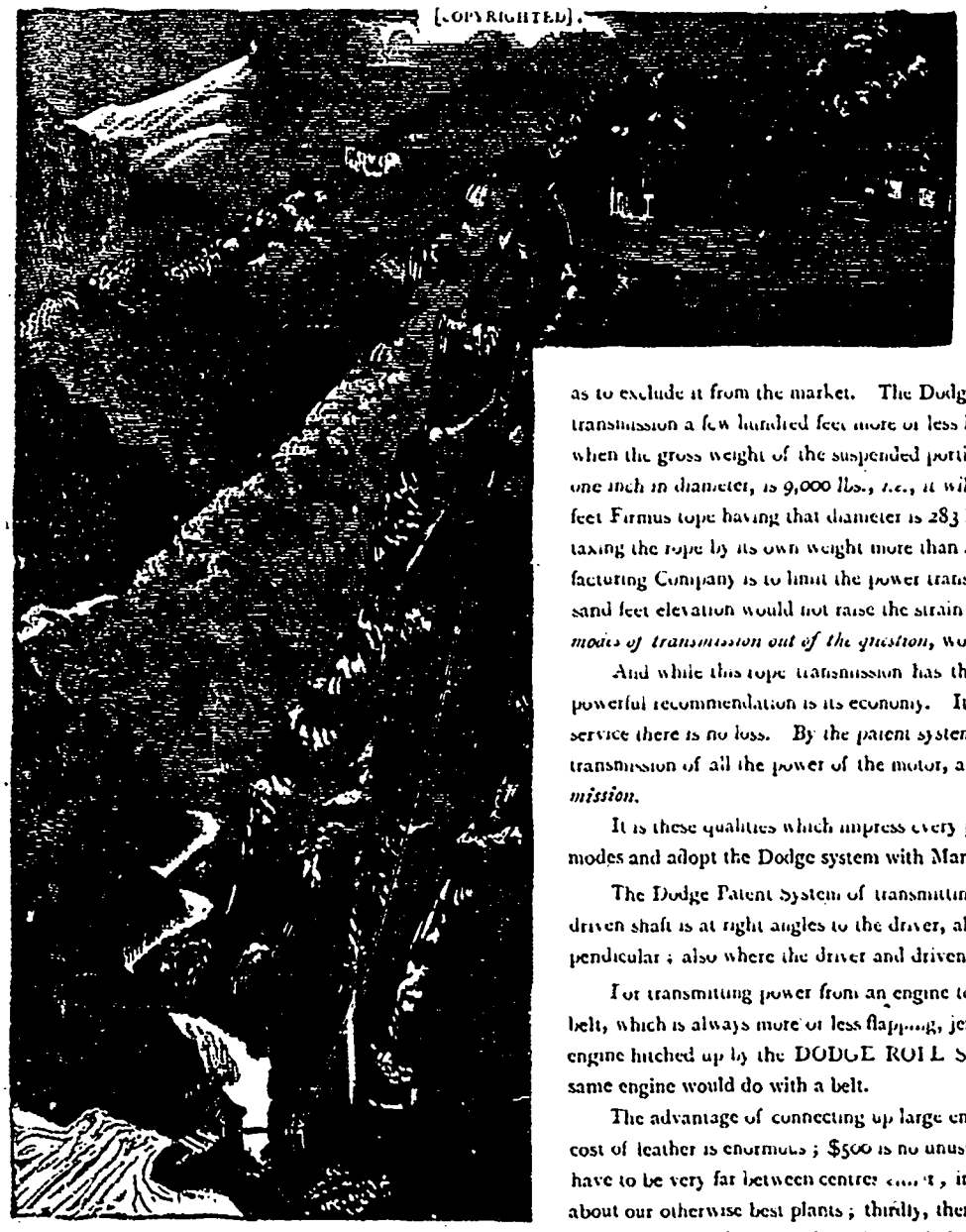
TRANSMITTING POWER
BY
ROPES GROOVED WOOD PULLEYS

The purpose of this cut is to illustrate the possibility of carrying power upwards to a great height by the

DODGE SYSTEM OF POWER TRANSMISSION BY MANILLA ROPES AND GROOVED WOOD PULLEYS

THIS SYSTEM WILL MAKE AVAILABLE MANY WATER POWERS NOW UNUTILIZED.



EVERY railroad which crosses a mountain divide avails itself of the precipitous sides of streams to find practicable grades to and from the summit levels. These streams often have considerable volume and rapid fall. The railroad is frequently at an elevation of several hundred feet above the water, with mountains behind, capable of furnishing inexhaustible supplies of raw material, mineral or vegetable.

Heretofore the utilization of such material near the place of supply has generally been impracticable, because of the impossibility to transmit the power of the stream up the mountain side to the neighborhood of the means for transportation. In such a case as that represented, however abundant may be the raw material, the cost of sending it down to the water level, and returning the manufactured article to the level of the railroad, might easily so handicap the product as to exclude it from the market. The Dodge system, however, renders it possible to laugh at difficulties such as this. To this transmission a few hundred feet more or less is of no moment. A rope suspended in the air will break near the upper support when the gross weight of the suspended portion exceeds the tensile strength of the rope. The tensile strength of Firmus rope, *one inch in diameter, is 9,000 lbs., i.e., it will break only when the suspended load amounts to 9,000 lbs. The weight of 1,000* feet Firmus tope having that diameter is 283 lbs., and therefore a vertical elevation of 1,000 feet might be overcome without taxing the rope by its own weight more than a trifle over 3 per cent. of its strength, and as the general practice of Dodge Manufacturing Company is to limit the power transmitted to about 5 per cent. of the breaking strain, it is evident that even a thousand feet elevation would not raise the strain to the vicinity of the danger limit, and an elevation which would put *all other modes of transmission out of the question*, would really not make a difference with *this* transmission worth noticing at all.

And while this rope transmission has the wonderful adaptibility shown in the illustrations heretofore published, another powerful recommendation is its economy. Its first cost is a tithe of the cost of any other Transmission, and after being put to service there is no loss. By the patent system of Dodge Manufacturing Company, *the rope runs without slip. This means a* transmission of all the power of the motor, and from 20 to 25 per cent. more than can be secured *by any other system of transmission.*

It is these qualities which impress every power user, and which has caused many large establishments to discard all other modes and adopt the Dodge system with Manilla Rope.

The Dodge Patent System of transmitting power by ropes is cheaper and superior to belts in many cases, such as where the driven shaft is at right angles to the driver, also where the drive is perpendicular, particularly when it is quarter twist and perpendicular; also where the driver and driven are close together; also for long drives, such as across a street or a stream, etc.

For transmitting power from an engine to the line shaft, this system is unequalled. steady all the time, not like a heavy belt, which is always more or less flapping, jerking and stretching, then slipping and losing power. It is safe to say that an engine hitched up by the DODGE ROPE SYSTEM will do 25 per cent. more work on the same consumption of fuel than the same engine would do with a belt.

The advantage of connecting up large engines in this manner cannot be too highly recommended. In the first place, the cost of leather is enormous; $500 is no unusual sum for an engine of three or four hundred horse power, and the pulleys do not have to be very far between centres apart, in the second place, the noise at high pressure is terrific, and is the worst feature about our otherwise best plants; thirdly, their weight is quite a factor; fourth, they require attention that a rope does not; fifth, it requires a man in the business to put one on right, and sometimes they don't always do it right; sixth, any deviation out of line of the shafting affects the belt, while it has no effect on a rope.

The above points, to say nothing of the first cost, which would be about one-thirtieth part of leather, are enough to banish the leather belt for main driving into everlasting oblivion, especially in the minds of those that have had experience with large leather belts.

The fact alone that by raising the tention wheel the engine can be turned round by hand for repair or adjustment is enough to endorse it in the minds of those who have had to do a little pulling on a fly-wheel with the entire shop hitched on.

For estimates of cost and all information relating to this system of transmitting power by ropes, apply to the undersigned, who also manufacture the best belt pulleys in the world.

THE DODGE WOOD SPLIT PULLEY COMPANY,
89 Adelaide Street West, Toronto, Ont.