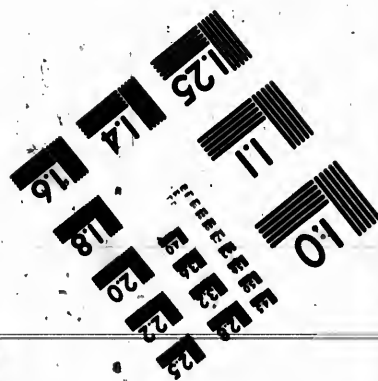
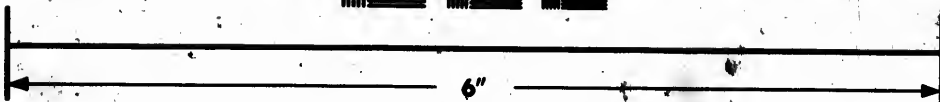


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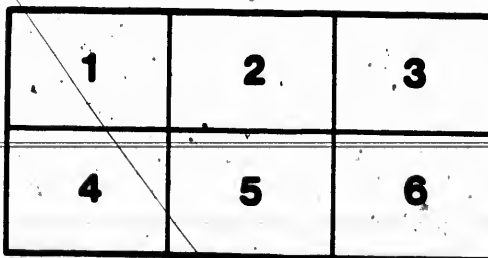
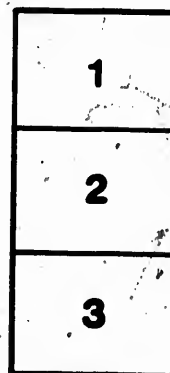
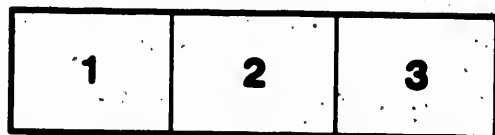
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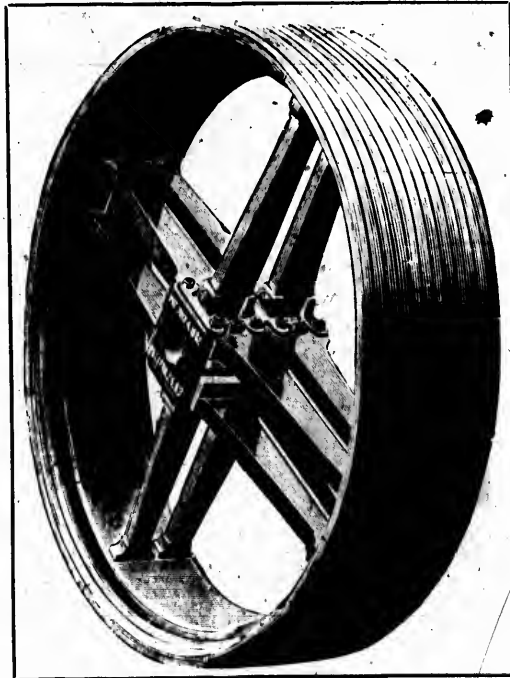
••1891••



THE DODGE PATENT
WOOD: SPLIT: PULLEYS

WITH PATENT BUSHING SYSTEM

GUARANTEED TO SAVE 30 TO 60 PER
CENT. OF POWER



GUARANTEED 40 TO 70 PER CENT.
LIGHTER THAN IRON

OUR FOUR ARM PULLEY

SOLE MANUFACTURERS

DODGE WOOD SPLIT PULLEY CO.

TORONTO, ONTARIO

NOTICE.

We challenge the World upon our Patent
WOOD SPLIT PULLEY, with Patent Bushing
System, on the following points of merit

Perfect balance.

Best Shaft Fastening in the World.

The lightest Pulley ever made.

The strongest Pulley ever made.

Best Belt surface.

Most convenient.

70 per cent. lighter than cast iron.

40 per cent. lighter than wrought iron or steel.

*25 to 60 per cent. advantage, with same Belt, over
any iron Pulley made.*

We do not mean buncombe, but do mean
business. See our special guarantee on page 9.

Investigate carefully our claims for superior-
ity over any other Pulley ever presented to your
notice. See page 18.

THE DODGE WOOD SPLIT PULLEY CO.

ESTABLISHED IN CANADA 1886.



REVISED

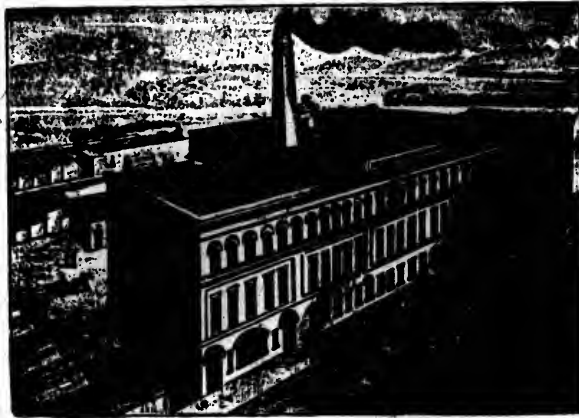
Illustrated Catalogue and Price List,

1891

OF

THE DODGE WOOD SPLIT PULLEY CO.

SAMUEL MAY, President.



(WORKS AT WEST TORONTO JUNCTION.)

MANUFACTURERS OF

THE DODGE "PATENT"

WOOD SPLIT PULLEYS,

Telephone, 2080.

TORONTO, ONT. CITY OFFICE:
83 KING STREET WEST

N. 5.

THE FRANKLIN INSTITUTE
OF THE STATE OF PENNSYLVANIA
FOR THE PROMOTION OF THE MECHANIC ARTS

Awards to the Dodge Manufacturing Co. this
— CERTIFICATE OF MERIT. —
For their Wooden Split Pulley

This award is made pursuant to the recommendation
of the Committee on Science and the Arts.
Report No. 1253. Approved February 5th 1885.

Alfred
Chairman Committee on Science and the Arts.

Chaas M. Davis
President

Wm. H. Meek
Secretary

NOTICE TO THE TRADE.

In presenting this new edition of our Illustrated Catalogue and Price List, we take pleasure in announcing that since our Establishment in Canada for the manufacture of this now "CELEBRATED" Pulley, under letters patent of the Dominion of Canada, we have had the satisfaction of experiencing a steady increase in our business, and to keep pace with the demand found it necessary to greatly increase our capacity. On title page we present a cut of our New Works at West Toronto Junction, which were erected and completed in Spring of 1889. We are now equipped with the finest Machinery, made expressly for us and adapted to our work.

With our Patent Bushing system for Pulleys, and great capacity, we possess the best facilities for executing orders promptly and will here say that we can fill a large order for Pulleys with greater dispatch than any manufacturer in the country.

NOTICE!

TERMS CASH.

All Price Lists issued by us previous to this are hereby made NULL and VOID. Write for Discounts.

We cannot agree to keep our Customers informed of the numerous changes that may occur in our prices, but all orders sent to us will be filled promptly to the extent of our stock on hand, at current rates, and the remainder as soon as manufactured, at

Our Lowest Prices Ruling On the Day of Shipment.

ALL GOODS AT RISK OF PURCHASER AFTER SHIPMENT.

Soliciting your commands, we are,

Yours Very Truly,

DODGE WOOD SPLIT PULLEY CO.

REFERENCES

As evidence of the popularity of our Wood Split Pulley, we call attention to our Canadian indorsements, and to a few of the prominent and well-known manufacturers who are using them:

Rice, Lewis & Son,	Toronto, Ont.	E. & F. Schmidlin,	Brantford, Ont.
Brush & Co.,	" "	A. Harris, Son & Co.,	" "
A. Millichamp, Sons & Co.,	" "	Buckingham Pulp Co.,	Buckingham, Que.
Cobban Mfg. Co.,	" "	D. Hibner & Co.,	Berlin, Ont.
The Globe Printing Co.,	" "	Louis Breithaupt & Co.,	" "
W. W. Park & Co.,	" "	Taylor & Challen,	Birmingham, Eng.
Keith & Fitzsimmons,	" "	Timothy Greening & Son,	Dundas, Ont.
Toronto Syrup Co.,	" "	Danville Slate Co.,	Danville, Que.
Gale Manufacturing Co.,	" "	Joyner & Elkington, Fort Qu'Appelle,	Man.
Kerr & Co.,	" "	Hurr Bros.,	Guelph, Ont.
National Electro. & Stereo. Co.,	" "	Geo. Sleeman,	" "
Polson Iron Works Co.,	" "	J. & A. Armstrong & Co.,	" "
Kemp Mfg. Co.,	" "	W. Bell & Co.,	" "
George T. Penderith,	" "	Galt Electric Light Co.,	Galt, Ont.
F. J. Weston & Sons,	" "	Hamilton Cotton Co.,	Hamilton, Ont.
Alexander & Cable,	" "	E. & C. Gurney Co.,	" "
A. R. Williams,	" "	Ontario Cotton Mills Co.,	" "
P. W. Ellis & Co.,	" "	Leitch & Turnbull,	" "
James Robertson & Co.,	" "	Laudlaw Mfg. Co.,	" "
J. B. McKay & Co.,	" "	J. Zingsheim,	" "
American Watch Case Co.,	" "	Hamilton Brush Co.,	" "
W. B. Hamilton, Son & Co.,	" "	The D. Moore Co.,	" "
Central Prison Industries,	" "	Burrow, Stewart & Milne,	" "
Hunter, Rose & Co.,	" "	Hart Emery Wheel Co.,	" "
D. W. Thompson & Co.,	" "	James Wallace,	Hillsdale, Ont.
Toronto Brewing & Malting Co.,	" "	Starr Mfg. Co.,	Halifax, N. S.
Crompton Corset Co.,	" "	Charles Kreutziger,	Heidelberg, Ont.
Troy Laundry Machine Co.,	" "	R. Forbes & Co.,	Hespeler, Ont.
Cosgrave Brewing & Malting Co.,	" "	Hoy & Bussman,	Hamburg, Germany.
James Morrison,	" "	Buchanan, M. T.,	Ingersoll, Ont.
The Toronto Electric Light Co.,	" "	Kingston Hosiery Co.,	Kingston, Ont.
The Barber & Ellis Co.,	" "	D. S. Perrin & Co.,	London, Ont.
Lansdowne Piano Co.,	" "	Wm. Hinton,	" "
Bryce Bros.,	" "	West of Engl. Leather Belt Co.,	London, Eng.
Wm. Davis & Co.,	" "	Newman Bros., 28 A Basinghall,	London, "
Elliott & Co.,	" "	Lybester Cotton Mfg. Co.,	Merritt, Ont.
W. H. Banfield,	" "	Machinery Supply Ass'n,	Montreal, Que.
The Ball Electric Light Co.,	" "	Canada Rule & Level Co.,	Montreal, Que.
Firstbrook Bros.,	" "	Canada Bank Note Co.,	" "
Standard Woolen Mills Co.,	" "	R. H. Buchanan & Co.,	" "
Morse Soap Works,	" "	Rubenstein Bros.,	" "
A. R. Clarke & Co.,	" "	Frothingham & Workman,	" "
Kilgour Bros.,	" "	Pillow & Hersey Mfg. Co.,	" "
Wilson & Cousins,	" "	The Wm. Hamilton Mfg. Co.,	Peterboro, Ont.
John Doty Engine Co.,	" "	Duclos & Payan,	St. Hyacinthe, Que.
The Mall Printing Co.,	" "	Rolland Paper Co.,	St. Jerome, Qu.
E. & C. Gurney Co.,	" "	J. B. F. Dorion,	St. Eustache, Que.
Noah Wenger & Bro.,	Ayton, Ont.	Vroom Bros.,	St. Stephen, N. B.

NOTE—All our Wood Split Pulleys are sufficiently strong for both single and Double Belts, thus making them the cheapest Pulley in the World.

We make no extra price for Pulley to carry Double Belts. They are all ADAPTED TO ANY POWER REQUIRED.

[As evidence of the great merit of the DODGE PATENT WOOD SPLIT PULLEY, we publish the following letter from Robert Grimshaw's Expert Offices:]

ROBERT GRIMSHAW,
ENGINEERING AND EXPERT OFFICES,

420 WALNUT STREET,

PHILADELPHIA, 3d Mo., 26, 1883.

DODGE MAN'FG. CO., Mishawaka, Ind.

DEAR SIRS:—The Pulley is panning out so well that we are *getting interested in it*, and think you will too. I should like to work the matter up more thoroughly and make it public, and my proposition is about as follows: To work the tests up in a wider range of tensions, with a view of knowing how *much slacker* a belt can be run on your WOOD SPLIT PULLEY than on an Iron one to get the same grip and drive.

This is what all seem to be working at, and is of special interest to all users of machinery; as, if they could get the same drive out of a 20x20 with a Wooden Pulley on, and *no Binder*, as they now can get only by binding everything up until the lacings are endangered or belt ends frayed out. The work concluded, I shall take pleasure in bringing your Pulley before the Franklin Institute for notice, and will have your application put in before the "Committee of Science and the Arts" of that body for examination and award. In fact, I consider it a pleasure to foster any invention which my own tests have shown worthy of public confidence and scientific endorsement.

Your early reply will oblige,

Yours Truly,

ROBERT GRIMSHAW.

We will furnish a Pulley for any service for *thirty days* free of charge, if it does not meet our guarantee, on page 9.

[COPY.]

ROBERT GRIMSHAW'S
ENGINEERING AND EXPERT OFFICES,
430 Walnut Street,
Philadelphia, 5th Mo., 2, 1883.

To DODGE MANUFACTURING CO., Mishawaka, Ind.

GENTLEMEN:—I inclose you report on tests of your Wood Split Pulley Poplar face, which I must say, surprised us. We have carefully tested your Wood Split Pulley against Turned Cast Iron, Wrought Iron, &c., and the following figures show the actual and relative driving powers of each under the various tensions on the slack side, stated in each case. It is understood that the driving power or "grip" of a belt is in direct proportion to the difference between the tension on the slack side and on the taut or driving side, and the horse power is equal to that difference in pounds divided by 33,000 and multiplied by the speed of the belt in feet per minute.

The tests were made with 36-inch Pulleys, and in all cases the arc of contact was 180° or half the periphery of the Pulley:

SIX-INCH DOUBLE OIL-TANNED LEATHER BELTING. ON POPLAR PULLEY.			SIX-INCH DOUBLE OIL-TANNED BELTING. ON IRON PULLEY.		
TENSION SLACK SIDE IN LBS.	TENSION TAUT SIDE IN LBS.	Horse Power at 1,000 ft. per min.	TENSION SLACK SIDE IN LBS.	TENSION TAUT SIDE IN LBS.	Horse Power at 1,000 ft. per min.
100	520½	12.75	100	173¼	2.22
150	823½	20.7	150	256½	3.23
200	1,123½	28.3	200	340½	4.44

The gripping or driving qualities of the Poplar face Pulley are REMARKABLE, and I take the liberty of detaining the specimen to show at our *Franklin Institute Meeting*, May 16th.

Very truly yours,

ROBERT GRIMSHAW, Director.

AMERICAN JOURNAL OF RAILWAY APPLIANCES.

BELT TESTS.—III.

The first two articles of this series went to contrast the driving power of the hair and flesh sides of an oil dressed belt, on a turned Cast Iron Pulley, under various degrees of tension. The same belt was also tried, hair side to, on a new 36 inch Poplar faced Pulley; made by Dodge Bros., Mishawaka, Ind.; and as the driving power of wooden pulleys is as a rule greater than that of those with iron rim, the tests were commenced with a very light tension—only 25 lbs., at the slack ends. The results were as follows:

Weight in Lbs. on Slack End: (T ²).	Weight Needed to cause Slip. (T ¹).	Net Grip in Lbs. (T ¹ —T ²).	H. P. at 1,000 ft. Belt Speed, per Min.
25	116¼	91¼	2.78
50	200½	240½	7.3
100	760	660	20.
125	865½	761½	23.06
150	1020.	870	26.36
200	1186.7	986.7	29.59
250.	1493	1243.	37.66

We believe these figures to be unparalleled in the history of belt transmission. Comparing the grip at 100 lbs. slack tension, with that at 200 lbs., we find it increased 33%—practically 45 per cent.; but comparing the grip at 100 lbs. slack tension with that of the same side of the same belt on the turned cast iron pulley, we find them as 20 to 4.24, or practically as 100 to 17, or about 6 to 1 in favor of the Poplar Pulley.

A FINE MEGHANIG SAYS

He once put up a long line of shafting with iron pulleys which were made fast to shaft by means of keys and set screws. The shaft had been put in perfect line, pulleys all in perfect balance, in fact, great pains had been taken to have a true running job; but to his disgust, on starting up, everything seemed out of line and balance and upon investigation he found he had (not intentionally) tightened up a lot of set-screws (in the pulleys) from one side, which had actually made a "rainbow" of the shaft. To remedy this (all time bad job) he set about and gave every other pulley one half turn and made set-screws tight from the opposite side. This had the effect of making it a fairly decent running line of shafting.

OUR COMPRESSION FASTENING of wood on iron, with patent Bushing System, effectually overcomes these annoyances. See our special guarantee on page 9. Every pulley a **SPLIT PULLEY**, and in **PERFECT BALANCE**.

THE MORAL of the foregoing is to cautiously avoid any pulley with a set screw fastening for shaft; also a key, unless the pulley is compressed on it. You will thus do away with the nuisance of throwing your shaft out of line and losing from 20 to 25 per cent. of your power in friction.

THE CAPABILITY OF A BELT to transmit power is determined by the extent of its adhesion to the surface of pulleys.

A BELT, after having served for a length of time and withstood more or less tension, becomes greatly impaired by stretching and narrowing. The width of a belt diminishes in proportion to the strain upon it. Experience shows that on the first day a belt is used, it suffers an elongation of one per cent. This action continues to diminish until the third day, after which the belt works on without much change in its dimensions.

To overcome this serious trouble, use the **DODGE PATENT WOOD SPLIT PULLEY**, on which you can run your belts with less tension and get same power.

Note our special guarantee, on page 9.

See report of test made by Robert Grimshaw on page 7.

See directions for ordering pulleys on page 19.

SPEED OF SAWS.

To ascertain the proper number of revolutions per minute of any size saw, divide 86,000 by diameter of the saw in inches, thus:—86,000 divided by 60 equals 600, the number of revolutions a 60-inch saw should make.

To Find Length of a Belt.

Add the diameter of two pulleys together, multiply by $3\frac{1}{4}$, divide the product by 2, add to the quotient twice the distance between the centre of the shafts, and the product will be the required length.

OUR SPECIAL GUARANTEE.



- We Guarantee every Pulley made by us shall be, in every respect, as represented.*
- We Guarantee the Poplar Face Pulley in every case, to transmit from 25 to 60 per cent. more power with the same belt, than any Iron Pulley made, with like tension of Belt.*
- We Guarantee the Compression Fastening in every case to be perfect, and to hold firmly upon the shaft.*
- We Guarantee the Compression of Wood on Iron to hold stronger than set screws in any case, and to be the most perfect fastening ever invented.*

To summarize: *We Guarantee satisfaction entire.*

Any Pulley found defective and not as represented, may be returned at our expense. We will allow any party who is skeptical as to the merits of our Wood Split Pulley, and who means business, a trial of 90 days; and if not satisfactory, to be returned at our expense.

We solicit your orders, knowing we have the best and handiest Pulley ever made.

THE DODGE WOOD SPLIT PULLEY CO.,

TORONTO, CANADA.



We will furnish a Pulley for any service for 30 days free of charge, if it does not meet the warranty. Prices as low as any other good Pulley.

The Dodge Patent Bushing System

Consists of a simple method of bushing pulleys that they may be utilized on shafts of various sizes. This system is new and original with us, and is patented both in the United States and Canada; the patents are owned and controlled by us exclusively.

DESCRIPTION.—For stock, we make all pulleys in size from 24 inch diameter and upwards, with bore for $8\frac{1}{2}$ inch shaft, and all pulleys below 24 inch in diameter for 8 inch shaft (excepting cases where larger bore is required). Each pulley is furnished with one wood bushing to fit any size of shaft wanted, thus enabling manufacturers to make changes from one line of shafting to another of different size, and utilize pulleys on hand; also enabling dealers (ourselves as well) to fill orders promptly by simply carrying in stock a full assortment of bushings. Can make any one pulley fit 23 or more sizes of shafting. Thus, with a moderate stock of pulleys, can fill orders at once and without delay, which frequently costs 5 times more than the pulleys themselves. This system enables a dealer (with, say one twentieth of the stock of the ordinary pulleys bored to fit one size of shaft) to fill more orders and with greater dispatch, thereby saving a large investment in pulleys and a large amount of storage room.

NOTE.—This system is also subject to our special guarantee on page 9.

METHOD OF MANUFACTURING.—Each bushing is made of hardwood, thoroughly air dried, then bored and kiln dried; thus drying from both inside and out. After this process each bush is counter-bored to exact size of shaft, then carefully turned in a lathe especially constructed for the purpose to fit the bore of the pulley. They are then cut transversely in halves, making the pulley separable as heretofore. The above system is perfect and in any case if not perfectly satisfactory they may be returned to us at our expense.

STOCK PULLEYS.

You will notice with the Dodge system of bushing pulleys to fit shafts of various sizes, that it makes the "Independence" the only pulley in the world, with which it is practical to carry a stock of pulleys, and under this system it makes changes from one shaft to another, simple and practical. Please examine carefully the following pages in this Catalogue: 6, 7, 9, 13, 17 and 25.

THE DODGE WOOD SPLIT PULLEY CO.

WOOD BUSHINGS.



PRICE LIST OF EXTRA BUSHINGS.

Length of Bush.	Outside Diameter.	Price
6 to 8 inch.....	3 inch, each, 25c.	3 1/4 inch..... 30c.
10 to 12 inch.....	3 inch, each, 30c.	3 1/2 inch..... 35c.
14 to 16 inch.....	3 inch, each, 35c.	3 3/4 inch..... 40c.

Subject to same Discount as Pulleys.

PRICE LIST OF IRON SLEEVES FOR LOOSE PULLEYS.

FACE OF PULLEY.	BORH.	PRICE.	FACE OF PULLEY.	BORH.	PRICE.
3 inches.....	1 1/2 in.....	\$0 75	5 inches.....	1 1/2 in.....	\$1 25
3 ".....	1 3/4 in.....	80	5 ".....	2 1/4 in.....	1 40
3 ".....	1 1/2 in.....	90	6 ".....	1 1/2 in.....	1 20
3 ".....	1 3/4 in.....	95	6 ".....	1 3/4 in.....	1 35
4 ".....	1 1/2 in.....	90	6 ".....	1 1/2 in.....	1 50
4 ".....	1 3/4 in.....	95	6 ".....	2 1/4 in.....	1 75
4 ".....	1 1/2 in.....	1 00	8 ".....	1 1/2 in.....	1 50
4 ".....	1 3/4 in.....	1 05	8 ".....	1 3/4 in.....	1 75
5 ".....	1 1/2 in.....	1 00	8 ".....	1 1/2 in.....	2 00
5 ".....	1 3/4 in.....	1 05	8 ".....	2 1/4 in.....	2 25
5 ".....	1 1/2 in.....	1 10			

Above prices are for iron sleeves 1 inch longer than the face of pulley, AND ARE NET NOT SUBJECT TO DISCOUNT.

IMPROPER CONDITIONS IN LINE SHAFTING.

An expert states that the loss of power due to improper conditions in the line shafting amounts to 50 per cent. of the engine power employed, and that the defects most commonly found are as follows: Shafting too light for duty, crooked shafting, hangers too far apart, hanger-bearings too short, pulleys too heavy and not properly balanced, hangers which are not adjustable, and improper proportions between two pulleys connected by the same belt. Of course, the loss of power arising from these defects must be compensated for by increasing the power, and thus a direct pecuniary loss is inflicted on the operators of the establishment in which such improper conditions are found. This is a subject to which too little attention has been paid by manufacturers, although all are aware that it is the bill for fuel that absorbs so much of the profits of the business.



PLEASE NOTICE.

Our List of Prices for the DODGE PATENT WOOD SPLIT-PULLEYS is for ALL SPLIT-PULLEYS.

We beg you will note this fact, when comparing our List with others which are for SOLID RIM, and NOT for Pulleys in HALVES.

Also notice we do not make any ADVANCE on our Standard List for DOUBLE BELT PULLEYS.

Our Four Arm Pulley.

The above cut shows our method of constructing pulleys above 48 inch diameter; they are 70% lighter than iron and very much stronger; will stand up under any load.

ALL OF OUR WOOD SPLIT PULLEYS are put up with INSOLUBLE GLUE, and may be run with safety in very damp places. SEE LETTER SINGER MANUFACTURING Co., SEWING MACHINES, inside Back Cover.

Order a Sample Pulley to replace some Iron Pulley now giving you trouble by slipping belts.

Read carefully our claims for superiority and note our price list is lower than most others published.

TESTIMONIALS.

Messrs. LEITCH & TURNBULL, Machinists, Hamilton, Ont., in their latest Catalogue, say:

Although skeptical at first, to the many advantages claimed for this pulley when introduced, we, after repeated tests, driving our elevators and seeing them at work in the various factories throughout the country, and in many unfavorable situations, such as soap factories and tanneries, have come to the conclusion that, apart from their lightness and cheapness, their advantages over the old iron pulley are many. Its ease to take on or off shafting, its non-liability to injure the shaft by keys or set-screws, while holding just as well, the cheapness by which it can be changed from one size to another, and in giving 30 to 60 per cent. more power with same belt, with less tension. With all these advantages we have not only concluded to recommend it unsolicited, but intend to keep them in stock, and supply them to our regular customers and the public in general. For prices and other information please inquire.

To Dodge Wood Split Pulley Co., Toronto, Ont.

ST. STEPHEN, N. B. Dec. 6th, 1886.

Dear Sirs:—We have this season put in sixteen of your pulleys, varying in diameter from nine to sixty inches, and used for a variety of purposes; and so far as we are now able to judge, the result is very satisfactory. The pulleys are certainly light, yet strong; are easily put on the shaft, and belts do not slip on them, nor, so far as we have seen, do they slip on the shaft. Where we can do so we will use your pulleys in future.

Yours truly,

E. BROAD & SONS,

Manufacturers of Axes, Edge-Tools, Hammers, &c.

To Dodge Wood Split Pulley Co.

ST. STEPHEN, N. B. Nov. 13th, 1886.

Gentlemen:—We are now convinced of the merits of the Dodge Pulley. One slipped—we took it off, cleaned the shaft with muriatic acid, removed the glaze from inside of bushing with fine sand paper and damped the surface with a solution of nutgalls, then after drying thoroughly set up the pulley in its place, and after two days screwed it up again and have had no further trouble from it. Tomorrow when we see three or four men struggling with the line shaft, taking off pulleys, lifting shaft clear of hangers and shoving a cast iron pulley over the end of the shaft, we will wish we had a split pulley instead. In this case however, we had not time to order one.

Yours truly,

VROOM BROS., Cabinet Makers and Upholsterers.

To Dodge Wood Split Pulley Co., Toronto.

WEST FLAMBORO, Dec. 8th, 1886.

Please find Four Dollars in payment of account. Your pulley works very well; it is very light to handle, and easily put on the shaft, and much cheaper than iron pulleys.

Yours truly,

WM. CLARK,

Manufacturer of Tweeds, Flannels, and Paper Makers' Felts.

To Dodge Wood Split Pulley Co. City.

Toronto, Dec. 8th, 1886.

Dear Sirs:—In reply to your inquiry of the 1st inst. would say: We have much pleasure in stating that the Dodge Wood Split Pulleys which we have been using for the last eight or nine months have given entire satisfaction, and we can confidently recommend them to any one contemplating using pulleys.

Yours respectfully,

THE E. & C. GURNEY CO., Stove Manufacturing Co.

To the Dodge Wood Split Pulley Co., Toronto.

ATRON, Dec. 2nd, 1886.

Dear Sirs:—Your favor of the 1st inst. is received. In June we bought the first pulley from you, and although we have bought about a dozen pulleys since then we have bought them all from you. So you will easily see what we think of them.

Yours truly,

N. WENGER & BROS.,

Millers, Ayrton, Ont.

To the Dodge Wood Split Pulley Co., Toronto.

Toronto, Dec. 10th, 1886.

Dear Sirs:—We are pleased to say that the Wood Split Pulleys we have been using of your manufacture for some four months now, have given us every satisfaction, and we can heartily recommend them for their convenience in applying to the shaft, and for their best service.

Yours truly,

KILGOUR BROS., Manufacturers and Printers.

To the Dodge Wood Split Pulley Co., Adelaide St., City.

Toronto, Dec. 6th, 1886.

Dear Sirs:—In reply to your favor asking how we like your split pulley, we would say: We are very much pleased with them. We are using about seventy of them from 23 in. face by 43 in. diam. down to 9 in. diam., every one of which is giving satisfaction. We don't have to take down our shafting to change a pulley or put on a new one. We are not troubled with set screws breaking or slipping; for these and various other reasons we prefer your pulley to any other we know of.

Yours truly,

FIRSTBROOK BROS.,

Toronto Packing Case Factory and Planing Mill.

To the Dodge Wood Split Pulley Co., St. Adelaide St., W., City.

Toronto, Dec. 6th, 1886.

Gentle:—The Wood Split Pulleys we purchased from you have given us perfect satisfaction. We have much pleasure in stating that we have found them to be everything you claimed for them, and much superior to the old kind. We remain

Yours truly,

MCDONALD, KEMP & CO.

Domihlon Tin Stamping Works

FOR DOUBLE BELT PULLEYS.

TESTIMONIALS.—Continued.

To the Dodge Wood Split Pulley Co., Toronto, Ont.

Dec. 4th, 1886.

Dear Sirs:—We are now using some fifty of your pulleys, which are giving us perfect satisfaction, and can safely recommend them to users of pulleys.

Yours truly,

JAMES ROBERTSON & CO.,

Dominion Saw and Lead Works.

To the Dodge Wood Split Pulley Co., Toronto.

HALIFAX, June 14th, 1886.

Dear Sirs:—We received your circular this day. Up to "within two years ago" the writer has been engaged in Milling and in working in and among light and heavy Machinery, and never before thought of such a thing as a split pulley: and he wishes to say that he believes your pulleys to be the very best and most complete ones placed before the public, and also thinks he can cheerfully endorse everything you claim for them.

EDWARD MURRAY, OF HART & MURRAY.

To the Dodge Wood Split Pulley Co., City.

TORONTO, Dec. 4th, 1886.

Dear Sirs:—Your Split Pulleys are apparently giving my customers very good satisfaction, and I am having, as you know a very liberal sale of them. I have no complaints, and this I take as a very excellent indication in connection with any line of goods. As a rule I find customers ready to report any imperfections. I have had quite a number of my customers speak in favor of your pulleys and say that they were pleased with them, both on account of their lightness and the facility with which they can be put on the shaft, and the excellent grip of the belt which they take. I think it would be better for all parties concerned if more of them were used.

Yours truly,

A. R. WILLIAMS,

Machinery Broker and dealer in Engines, Bollers, Machinery and General Supplies.

To the Dodge Wood Split Pulley Co., Toronto.

HESPELER, Dec. 4th, 1886.

Gentlemen:—In reply to yours of the 1st inst. we would say: that so far we have found your pulleys very satisfactory, and consider that they have many advantages over the iron pulleys, and can heartily recommend them. We are

Yours very sincerely,

R. FORBES & CO.,

Woolen Mills, Hespeler, Ont.

To the Dodge Wood Split Pulley Co., 81 Adelaide St., West, City.

TORONTO, Dec. 3rd, 1886.

Gentlemen:—We have much pleasure in testifying to the satisfaction we have had in using your Patent Wood Split Pulleys; we have a number of various sizes in use both in dry and damp atmospheres and all are doing their work admirably.

Yours truly,

WM. DAVIES & CO.,

Packers and Lard Refiners, Provision Merchants, &c.

To Dodge Wood Split Pulley Co., Toronto.

Dec. 10th, 1886.

Gentlemen:—We have given the Wood Split Pulley a thorough test in our works and we are well pleased with their working, and can recommend them to our customers and others requiring pulleys.

Yours truly,

JOHN DOTY ENGINE CO.

F. W. DOTY.

To the Dodge Wood Split Pulley Co., Toronto.

Dec. 10th, 1886.

Dear Sirs:—In reply to your inquiry we wish to state that after having given a number of your pulleys a fair trial, they have given us every satisfaction. We have no trouble whatever since placing them in our factory. We can recommend them. Yours truly,

For STANDARD WOOLEN MILLS CO.

R. E. CHAPMAN, Sec.

To the Dodge Wood Split Pulley Co., Toronto.

Dec. 10th, 1886.

Dear Sirs:—We consider your Wood Split Pulleys to be the best in the market to-day. We have removed all the old style iron pulleys in our factory and are using nothing else at present. We shall recommend them to our friends at every opportunity. Yours truly,

GEO. EDWARDS, Sec.

THE ATLAS WOOLEN CO.

To the Dodge Wood Split Pulley Co., Toronto, Ont.

Rockwood, Dec. 14th, 1886.

Gents: In handing you another order, I beg to express my entire satisfaction with your Split Pulleys. They fill a long felt want with the Machinery user and Millwright. I am driving my sample 3 high 6x18 Monitor Roller Mill here with your pulleys and have ordinary cast iron pulley on power shaft. The belt will slip on iron and come off; but on your pulley it does not slip or come off either; in short, it sticks right there. This I take to be conclusive evidence that machinery can be driven with much slack belts and consequently a great saving of power.

W. B. BRAGG,

Millwright, &c., Rockwood, Ont.

Why our Patent Independence Wooden Pulleys are better than any Other.

A **WOODEN PULLEY** of our make is better than an Iron one from the fact that it can be made lighter and thus save weight on the line shaft and bearings, thereby saving in expense from a saving in friction.

THE ADVANTAGES of the separable pulley are very apparent. By its use the necessity of taking down shafting already up, for the purpose of putting on additional pulleys when needed, or to be changed, is avoided, thus saving time, trouble and expense, while their first cost is much less than any other pulley made not having these advantages.

THE ADVANTAGE OF A SPLIT PULLEY saves frequently ten times the cost of the Pulleys. We use only carefully selected timber thoroughly seasoned, then kiln-dried and tempered.

THE RIM is constructed by building up a series of rings of segments being glued with *insoluble glue*, nailed and doweled together. This ring forms the central part of the pulley, and after being turned it is cut in halves transversely. The spoke or hub bars are fitted together and band sawed. These parts are secured at their ends to the ends of the ring segments, by means of a dovetail, as shown in cut, the parts of the bar are so placed in the ring segments that they will not touch each other at the axis or hub of the wheel when the ring segments are placed in position, thus when bolted or made fast to the shafts is a much stronger adhesion than is possible where the area of the contact is confined to the *point of a set screw on one side and a small segment of the hub on the opposite side*, thus it will be readily seen that our pulley has the most *perfect fastening ever made*.

Being made as above described they will not wear out of round, as wood does not shrink or swell perceptibly in the line of the length of the grain, it is *impossible to get out of shape*.

THESE PULLEYS AVERAGE NOT OVER 30 PER CENT. of the weight of Iron Pulleys of similar dimensions.

THEY ARE TURNED over their entire surface in lathes specially constructed for the purpose, and are in more perfect balance than is possible for any Iron Pulley to be made.

AFTER BEING TURNED PERFECTLY true and smooth over the whole surface, they are filled with a hard, electric filler, ground in oil and applied hot. The belt surface is then coated with several coats of the best shellac varnish, and body of the pulley is painted with two coats of fire and water-proof paint, blue-black color, completely protecting the wood when exposed to high temperature or moisture arising from steam, or in damp localities, this protection makes it advisable to use these pulleys wherever the locality will admit of the use of a leather belt.

COMBINING MORE ADVANTAGES AT A LESS COST THAN ANY PULLEY IN THE WORLD. BEST BELT SURFACE, BEST FASTENING, ETC.

Regular Pulleys are all guaranteed strong enough for Double Belts, hence no extra charge for Pulleys to run Double Belts.

NO MANUFACTURING ESTABLISHMENT IN THE WORLD in which the faults of the Pulleys heretofore in use have not been a fruitful source of annoyance. These faults have been both of the pulleys themselves and in the method of securing the same to the shaft.

IN OUR PULLEY we have entirely overcome these defects and are prepared to furnish *perfect Pulleys in halves*. To substantiate our statement and our assurance of this fact, we make the following offer and guarantee:

WE GUARANTEE EVERY PULLEY made by us shall be as *represented* and perfectly satisfactory. If found otherwise, may be returned at our expense. We also guarantee our Pulley to transmit *25 to 60 per cent. more power* with the *same belt* than any Iron Pulley made with like tension of belt. See page 9.

ANY WOODEN PULLEY IS BETTER than an Iron Pulley, from the fact that it holds a belt much better. Most good mechanics are aware of this fact, but it may not be generally known *how great is the difference*, and as some manufacturers of Iron Pulleys have the temerity to maintain the contrary, we offer a few figures from acknowledged authorities:

Portion of Circumference embraced by Belt.	Rel. Value of Leather Belt.		Portion of Circumference embraced by Belt.	Rel. Value of Leather Belt.	
	On Wooden Pulleys.	On Iron Pulleys.		On Wooden Pulleys.	On Iron Pulleys.
.20	1.80	1.42	.20	1.90	1.40
.30	2.43	1.69	.30	2.40	1.70
.40	3.26	2.02	.40	3.30	2.00
.50	4.33	2.41	.50	4.40	2.40
.60	5.68	2.87	.60	5.90	2.90
.70	7.90	3.43	.70	7.90	3.40

Worin.—Appleton's Encyclopedia of Mechanical Arts.

Harwell.—Engineers' and Mechanics' Pocket Book.

HASWELL, THE ACKNOWLEDGED AUTHORITY and most quoted by American Mechanics, summarizes thus: The ratio of friction to pressure for leather belts, when worn over *Wooden Pulleys*, is 47; over *turned Cast Iron Pulleys*, 24. Thus showing the average advantage of a Wood Pulley over Iron to be 80 per cent.

THE COMPRESSION FASTENING, whether used with Keys in Iron Center or compression alone, keeps the *Pulley always in balance* as the compression on the shaft and key is always towards the center.

THE MOST PERFECT balanced Iron Pulley fastened with set screws or key, is *invariably out of balance* by being thrown from the center. This fact is obvious to all mechanics.

WHEN THE SHAFT IS VERY SMALL and a large amount of power is required and the *area of surface in contact is not sufficient*, we make the pulley with an *iron center* to gain surface in contact and key the pulley to the shaft, and then by *compression on the key and shaft*, it is not thrown out of balance as by the use of set screws and keys as commonly fitted.

WE GUARANTEE THE COMPRESSION OF WOOD ON IRON to hold stronger than *steel set screws in any case*, and on shafts above $2\frac{1}{4}$ inches in diameter, stronger than keys as ordinarily fitted.

IT DOES AWAY WITH THE ANNOYANCE of taking down shafting to shift or put on new pulleys, and in fact is a perfect pulley.

THE METHOD OF FASTENING does not mar or injure the shafting in the slightest degree: *No weakening of shafts as from key ways or bars, or rings on small shafting*, as in the use of set screws. *No delays from broken set screws or rusted keys*, or taking down of shafting to change a pulley. This advantage alone frequently saves more than *ten times the cost of a pulley*.

THE ADVANTAGES OF OUR MODE OF FASTENING over any other are: **FIRST:** It is the only absolutely *true Fastening for a Pulley*. A Pulley once properly balanced *cannot be thrown out of balance* in securing with this fastening. A pulley fastened with key or set screw in the ordinary way, *cannot be screwed without lifting* the pulley from the shaft at that point where key or set screw is placed, thus throwing the pulley out of balance.

IT IS A MORE SECURE FASTENING than a *set screw* in any case, and *more so than an ordinary key* as usually fitted.

THE SHAFT WHERE THE PULLEY is to be fastened should be cleaned or wiped off with shavings or waste.

ALL PULLEYS SHOULD BE EXAMINED after running a day or two and *set up tighter* if possible and should you wish to use a Pulley you have on hand of our make, that is bored for a size or two larger shafting it may be *bushed successfully* with paper or leather and drawn up perfectly tight, and used successfully on smaller shafting, until you order a new Bushing thus not delaying you for want of a proper size Bushing.

NOTE CAREFULLY OUR BUSHING SYSTEM.

It is cheaper to buy a new Split Pulley any time than to take down a line of shafting and shift pulleys.

WASTE OF POWER.

ACCORDING TO THE BEST SCIENTIFIC AUTHORITY it costs one Horse Power to keep in motion one ton of metal or weight; thus for every unnecessary 2000 pounds weight on your line shaft, cost you One Horse power. To maintain a Horse Power costs from \$35 to \$125 per year. Any manufacturer who will take the pains to investigate the unnecessary weight by Heavy Iron Pulleys, *too tight belts* etc., will be surprised to find the *enormous waste of power* consumed in this manner. Note weights of our Wood Split Pulley on page 25. See our special guarantee on page 9 as to difference in belt strain, perfect balance, etc.

Order one Pulley to replace some Iron Pulley giving you trouble by slipping belts.

FLANGE PULLEYS.

Flange Pulleys made with either *One, two or three* Flanges as desired.

For price of one Flange add 15 per cent. to List price. Two Flanges add 20 per cent. Three Flanges add 25 per cent. to List of prices, and Discount same as regular pulleys.

CENTRIFUGAL FORCE.

From DANIEL HUSSEY, Lowell, Mass., in
 "Proceedings of N. E. Cotton Manufacturers'
 Association, No. 10, April 19th, 1871."

PULLEYS.

"One of the greatest objections to the fast running of shafting and belts is the want of pulleys properly constructed. My experience leads me to the conclusion that it is not safe to run an iron pulley 4 feet diameter 400 R. P. M., owing to the unequal shrinkage of castings in cooling and other imperfections. Running slow, the centrifugal force has but little effect; but, as the centrifugal force is as the square of the velocity it is not so easily overcome in rapid motions. If you make the rim of the pulley thicker, the centrifugal force increases with the thickness, and consequently nothing is gained by the extra iron. I have, therefore, substituted white pine felloes (made of about one inch boards, breaking joints) for the rim. The centrifugal force of material is as the specific gravity, and as the specific gravity of cast iron is 13 times that of pine, hence the centrifugal force must be 13 times greater, but the tensile strength of cast iron is only two to one of that of pine, therefore the rim of a pulley made of white pine felloes will sustain from four to six times the centrifugal force of a rim made of cast iron. That is, the same diameter with white pine felloes will run more than double the velocity without being torn asunder. It is less likely to be broken by jar or blow, and less than one-half the weight, and of course takes less power to run it. I have run a pulley made in this way, 16 feet diameter, 4 feet wide, 90 R. P. M. for 18 months. It is working well. I am fully convinced with quick shafting WOOD MUST TAKE THE PLACE OF IRON PULLEYS.

No. 2 Section of Lawrence Manufacturing Co. has been running shafting, pulleys and belts conforming as nearly as possible to the above rule, (Wood Pulleys) and is driving the shafting for 38,000 spindles (Throstle ring and mule) with the same amount of power as it formerly required for 19,000 spindles."

READ THE ABOVE CAREFULLY.

MINNEAPOLIS, MINN., June 6th, 1886.

We have sold these pulleys for more than two years, and they have been put to every kind of service, and their popularity is wonderful. We refer to the following users for proof of the above statements: Pillsbury & Hulbert Elevator Co., Minneapolis; R. A. Hart & Co., Elevators; Northern Pacific Elevator Co.; The Pacific Elevator Co.; Minneapolis Harvester Works; Minneapolis School Furniture Co.; M. & St. L. R. R. Co.; Willford & Northway; Washburn, Crosby & Co.; St. Paul Electric Light Co.; St. Paul Roller Mill Co.; Minneapolis Brick Co.; N. W. Mfg. & Car Co., Stillwater, Minn., and very many others.

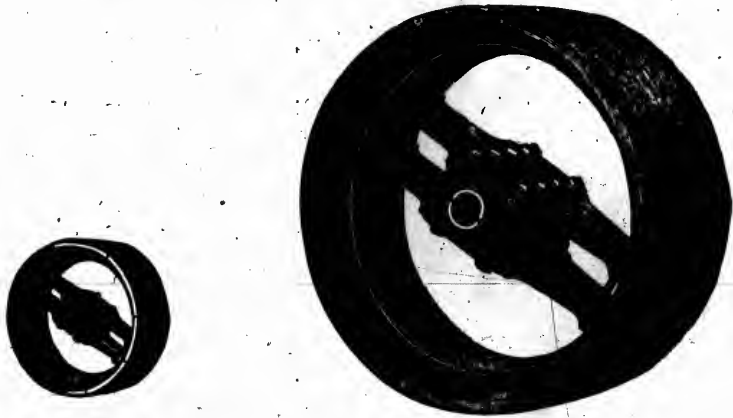
SHATTO & DENNIS, MINNEAPOLIS, MINN.



➤ EVERY PULLEY A SPLIT PULLEY. ◀

In Comparing Prices on Pulleys, Please note Carefully the Following:

- | | |
|--|---|
| <p>1st. Our list is lower than most others.</p> <p>2d. Every Pulley is a Split Pulley.</p> <p>3d. Every Pulley is guaranteed to transmit from 25 to 60 per cent. more power than Iron, with same tension of belt.</p> <p>4th. They are 70 per cent. lighter than Iron Pulleys. See page 24.</p> <p>5th. The fastening does not mar the shaft.</p> <p>6th. Can be used on different sizes of Shaft.</p> | <p>7th. They are in Perfect Balance.</p> <p>8th. They are the most thoroughly made Wood Pulley in the world.</p> <p>9th. Are the Handsomest Pulley on the Shaft ever made.</p> <p>10th. No Chances to take, every Pulley guaranteed as represented or no sale. Order a Sample Pulley, after which you will have no other.</p> |
|--|---|
- ☞ All of our Wood Split Pulleys are sufficiently strong for the heaviest double leather belts made.
 ☞ Please refer to our *special guarantee*, page 9, upon which every Pulley is sold.
 ☞ If what we claim is true no manufacturer can afford to use any other Pulley.
 ☞ No Dealer can afford to carry a stock of Pulleys such as is required by any other system. As with the *Bushing System* with one twentieth the stock, more orders can be filled and with greater dispatch, thus a saving of time, money and warehouse.



HOW TO ORDER PULLEYS.

Give diameter of Pulley.

Do not order a certain face, but give width of belt to be used, and state whether it is to be a shifting or a non-shifting belt.

Give exact bore, and if it is not in odd sixteenths of an inch, state it to be net.

Do not write 2 inches if $1\frac{1}{8}$ is meant, and do not order it "full" or "scant". If it is to be over or under standard send a nail or a piece of wire filed to the exact size.

EXAMPLE OF ORDER.

One 36 in. pulley for 6 in. shifting belt, $2\frac{1}{8}$ bore.

One 36 in. pulley for 6 in. non-shifting belt, $2\frac{1}{2}$ in. bore, net, or say crown or straight.

When ordered as above we will furnish for a non-shifting belt a round faced pulley from $\frac{1}{4}$ to $\frac{3}{4}$ of an inch wider than the belt, or for a shifting belt a flat faced pulley from $\frac{1}{4}$ to $\frac{3}{4}$ of an inch wider than double the width of the belt.

If instead of ordering by the belt a certain face is called for, it will probably necessitate cutting a wider face down to the size ordered in which case the wider face will be charged for.

If any bore not in odd sixteenths of an inch is ordered, and it is not stated to be net or for cold rolled shafting, we shall have to write for further particulars before finishing the work.

The Dodge Independence Wood Split Pulley is Patented—Great Britain and Canada. Patented in the United States, July 4th, 1882; April 24th, 1883 and Patents Pending.

PACKAGE

Our Wood Split Pulleys are all nicely wrapped with thin lumber sawed for the purpose, which protects the face perfectly. We make no charge for package unless boxed and then we charge package at cost to us.

FREIGHTS

We always contract for lowest rate possible, and you will notice the weights on page 24. In shipping by express the expressage is less than one half that on any other pulley, freight likewise, as weights average 70% less than Iron.

THE DODGE WOOD SPLIT PULLEY CO.,

TORONTO, ONT.

- PRICE LIST -
OF OUR
Patent "Wedge" Split Pulleys

PATENTED OCTOBER 22ND, 1890

THE MOST PERFECT SMALL SPLIT PULLEY MADE

DIAM. INCHES	FACE INCHES	PRICE	DIAM. INCHES	FACE INCHES	PRICE	DIAM. INCHES	FACE INCHES	PRICE
3	2	2 00	4	2	2 00	5	2	2 10
	3	2 20		3	2 25		3	2 35
	4	2 40		4	2 50		4	2 65
	5	2 60		5	2 75		5	3 00
	6	2 80		6	3 00		6	3 25
	7	3 00		7	3 25		7	3 60
	8	3 25		8	3 60		8	3 85
	9	3 50		9	3 90		9	4 15
	10	3 75		10	4 25		10	4 40
	11	4 00		11	4 50		11	4 70
	12	4 35		12	4 80		12	5 10
	13	4 70		13	5 10		13	5 50
	14	5 00		14	5 50		14	6 00
	6	2		2 20	7		2	2 30	8	2	2 40
3		2 50	3	2 60		3	2 70	
4		2 85	4	2 90		4	3 00	
5		3 20	5	3 30		5	3 40	
6		3 55	6	3 70		6	3 90	
7		3 90	7	4 20		7	4 40	
8		4 25	8	4 70		8	4 95	
9		4 60	9	5 25		9	5 50	
10		5 00	10	5 75		10	6 00	
11		5 40	11	6 25		11	6 60	
12		5 80	12	6 90		12	7 25	
13		6 20	13	7 20		13	7 75	
14		7 00	14	7 75		14	8 30	

Above pulleys are all bored 2-7-16 inches for stock, excepting 3 in. pulleys, which have 2 in. bore. These pulleys can be furnished for any size shaft up to within one inch of the Diameter of Pulley, and can be used with our patent bushing system.

Follow closely instructions printed on each pulley in adjusting them to shafting.

SUBJECT TO USUAL DISCOUNTS

PRICE LIST
OF

THE DODGE WOOD SPLIT PULLEY CO.

The following Prices will be found lower than any other published.

Diam. Inches	Face Inches	Price.	Diam. Inches	Face Inches	Price.	Diam. Inches	Face Inches	Price.	Diam. Inches	Face Inches	Price.
9	3	\$2 50	14	6	\$4 10	18	3	\$3 70	21	4	\$4 70
	4	2 65		7	4 40		4	4 05		5	5 00
	5	2 90		8	4 70		5	4 55		6	5 40
	6	3 15		9	5 02		6	5 10		7	6 05
	7	3 28		10	5 35		7	5 65		8	7 50
	8	3 40		11	5 68		8	6 20		9	8 10
				12	6 00		9	6 65		10	8 65
10	3	2 60		13	6 30		10	7 10		11	9 55
	4	2 75		14	6 60		11	7 55		12	10 40
	5	3 00					12	8 00		13	11 20
	6	3 25	15	8	3 10		13	8 50		14	12 00
	7	3 40		4	3 45		14	9 00		15	12 85
	8	3 55		5	3 85		15	9 80		16	13 70
	9	3 72		6	4 35		16	10 70		17	14 70
	10	3 90		7	4 75		17	11 75		18	15 80
				8	5 10		18	13 00			
				9	5 48						
11	3	2 70		10	5 85	19	4	4 25	22	4	4 95
	4	2 85		11	6 18		5	4 80		5	5 90
	5	3 10		12	6 50		6	5 50		6	6 85
	6	3 35		13	6 85		7	6 13		7	7 45
	7	3 53		14	7 20		8	6 75		8	8 00
	8	3 70					9	7 15		9	8 70
	9	3 90					10	7 50		10	9 40
	10	4 10	16	3	3 30		11	8 05		11	10 30
				4	3 65		12	8 60		12	11 20
12	3	2 80		5	4 05		13	9 20		13	12 10
	4	2 95		6	4 60		14	9 80		14	13 00
	5	3 20		7	5 05		15	10 70		15	13 60
	6	3 55		8	5 50		16	11 70		16	14 20
	7	3 70		9	5 90		17	12 75		17	15 60
	8	3 85		10	6 30		18	13 80		18	17 00
	9	4 08		11	6 65						
	10	4 30		12	7 00						
	11	4 70		13	7 35	20	4	4 45			
	12	4 90		14	7 70		5	5 20	23	4	5 20
	13	5 10		15	8 05		6	6 00		5	6 15
							7	6 60		6	7 05
13	3	2 90					8	7 15		7	7 70
	4	3 10	17	3	3 50		9	7 60		8	8 40
	5	3 40		4	3 85		10	8 00		9	9 20
	6	3 75		5	4 25		11	8 75		10	9 95
	7	4 00		6	4 65		12	9 50		11	11 05
	8	4 25		7	5 35		13	10 25		12	12 05
	9	4 53		8	5 85		14	11 00		13	13 00
	10	4 80		9	6 30		15	11 80		14	14 00
	11	5 20		10	6 70		16	12 60		15	15 10
	12	5 60		11	7 10		17	13 60		16	16 20
				12	7 50		18	14 70		17	17 00
14	3	3 00		13	7 88					18	18 50
	4	3 25		14	8 25						
	5	3 65		15	9 05						

SEE PAGE 19 FOR ORDERING.

NOTE OUR LIST OF PRICES IS FOR ALL SPLIT PULLEYS.

Account 50% off Rest

THE DODGE WOOD SPLIT PULLEY CO., TORONTO.

Diam. Inches.	Face. Inches.	Price.	Diam. In. bet.	Face. Inches.	Price.	Diam. Inches.	Face. Inches.	Price.	Diam. Inches.	Face. Inches.	Price.	
24	4	\$5.40	20	23	\$35.50	29	16	\$24.20	33	11'	\$16.45	
	5	6.85		23	37.50		17	26.52		12	17.90	
	6	7.80		24	40.00		18	28.45		13	20.80	
	7	8.05		25	43.50		20	33.75		14	22.75	
	8	8.80					21	35.62		15	25.25	
	9	9.65	27	4	6.78		22	37.62		16	27.75	
	10	10.45		5	7.40		23	39.62		17	30.00	
	11	11.55		6	8.27		24	41.87		18	33.25	
	12	12.70		7	9.12		25	45.00		20	36.25	
	13	13.90		8	9.95					21	38.25	
	14	15.10		9	10.63	30	4	8.00		22	40.25	
	15	16.80		10	11.75		5	8.60		23	42.25	
	16	17.60		11	13.25		6	9.40		24	44.25	
	17	18.75		12	14.72		7	10.45		25	46.50	
	18	20.00		13	16.47		8	11.50				
	20	28.50		14	18.25		9	12.40				
	21	30.10		15	20.17		10	13.25		33	4	9.20
	22	32.50		16	21.00		11	14.90		5	9.95	
	23	35.00		17	23.70		12	16.50		6	10.90	
	24	37.50		18	25.50		13	18.75		7	12.80	
	25	41.00		20	32.25		14	21.00		8	13.70	
				21	34.25		15	23.20		9	14.85	
25	4	5.80		22	36.25		16	25.40		10	16.00	
	5	6.65		23	38.25		17	27.70		11	17.47	
	6	7.60		24	40.75		18	30.00		12	18.95	
	7	8.40		25	44.60		20	34.50		13	18.95	
	8	9.20					21	36.25		14	21.45	
	9	9.85	29	4	7.20		22	38.25		15	23.62	
	10	10.90		5	7.80		23	40.25		16	26.25	
	11	12.15		6	8.60		24	42.25		17	28.87	
	12	13.40		7	9.45		25	45.50		18	31.12	
	13	14.60		8	10.80					20	33.87	
	14	16.25		9	11.20	31	4	8.40		21	36.00	
	15	17.70		10	12.10		5	9.00		22	39.50	
	16	19.10		11	13.70		6	9.85		23	41.50	
	17	20.55		12	15.25		7	11.02		24	43.50	
	18	22.00		13	17.10		8	12.20		25	45.50	
	20	30.00		14	19.00		9	13.20			47.75	
	21	32.00		15	21.00		10	14.18				
	22	34.00		16	23.00		11	15.68		34	4	9.60
	23	36.50		17	24.95		12	17.20		5	10.50	
	24	39.50		18	26.90		13	19.52		6	11.60	
	25	42.50		20	33.00		14	21.87		7	13.00	
				21	35.00		15	24.22		8	14.50	
				22	37.00		16	26.57		9	15.75	
				23	39.00		17	28.85		10	17.00	
				24	41.50		18	31.12		11	18.50	
				25	44.50		20	35.37		12	20.00	
							21	37.25		13	22.50	
			29	4	7.60		22	39.25		14	24.50	
				5	8.20		23	41.25		15	27.25	
				6	9.00		24	43.25		16	30.00	
				7	9.95		25	46.00		17	32.25	
				8	10.80					18	34.50	
				9	11.80	32	4	8.80		20	38.75	
				10	12.67		5	9.40		21	40.75	
				11	14.20		6	10.80		22	43.75	
				12	15.87		7	11.60		23	44.75	
				13	17.92		8	13.00		24	46.75	
				14	20.00		9	13.95		25	49.00	
				15	22.10		10	15.00				

Also notice we do not make any ADVANCE on our Standard List for Double Belt Pulleys.

THE DODGE WOOD SPLIT PULLEY CO., TORONTO.

Price.
16 45
17 90
20 80
23 75
25 25
27 75
30 00
32 25
36 25
38 25
40 25
42 25
44 25
46 50
9 20
9 95
0 90
2 30
3 70
4 85
6 00
7 47
9 95
1 45
3 62
3 25
3 87
1 12
1 37
7 00
9 50
7 50
50
50
50
50
75
00
50
50
00
50
50
25
25
50
75
75
75
75
75
90

Diam. Inches.	Face. Inches.	Price.	Diam. Inches.	Face. Inches.	Price.	Diam. Inches.	Face. Inches.	Price.	Diam. Inches.	Face. Inches.	Price.
35	4	\$10 10	38	24	\$54 00	44	23	\$63 00	50	23	\$79 50
	5	11 20		25	58 00		24	67 00		24	85 50
	6	12 25					25	73 00		25	90 00
	7	13 75	40	6	16 00				53	8	84 00
	8	15 25		7	17 50		6	22 00		9	86 00
	9	16 65		8	19 00	46	7	24 00		10	88 00
	10	18 05		9	20 75		8	26 00		11	40 00
	11	19 63		10	22 50		9	28 00		12	43 00
	12	21 25		11	24 65		10	30 00		13	44 00
	13	23 50		12	26 75		11	31 75		14	46 00
	14	25 50		13	28 85		12	33 50		15	49 50
	15	28 25		14	31 00		13	36 00		16	52 50
	16	31 20		15	33 65		14	38 50		17	56 50
	17	33 47		16	36 25		15	40 75		18	60 00
	18	35 75		17	38 85		16	43 00		19	68 00
	20	40 12		18	41 50		17	45 50		20	72 50
	21	42 12		20	48 00		18	48 00		21	77 00
	23	44 12		21	50 50		19	58 00		22	81 50
	23	46 12		22	52 50		20	64 00		23	86 25
	24	48 12		23	55 00		21	68 00		24	93 00
	25	51 00		24	58 00		22	72 00		25	
				25	63 00		23	78 00			
36	4	10 60				48	6	24 50	54	8	37 50
	5	11 90	42	6	17 50		7	26 25		9	39 25
	6	13 00		7	19 50		8	28 00		10	41 00
	7	14 50		8	21 50		9	30 50		11	43 00
	8	16 00		9	23 25		10	32 50		12	45 00
	9	17 55		10	25 00		11	34 25		13	47 25
	10	19 10		11	27 00		12	36 00		14	49 50
	11	20 80		12	29 00		13	38 50		15	52 50
	12	23 50		13	31 25		14	41 00		16	55 50
	13	24 50		14	33 50		15	43 00		17	60 00
	14	26 50		15	36 00		16	45 00		18	64 50
	15	29 45		16	38 50		17	47 50		19	73 50
	16	32 40		17	41 10		18	50 00		20	78 25
	17	34 70		18	43 75		19	53 50		21	83 00
	18	37 00		20	51 00		20	56 00		22	87 75
	20	41 50		21	53 50		21	66 75		23	92 50
	21	43 50		22	56 00		22	71 50		24	98 00
	22	45 50		23	59 00		23	76 00		25	
	23	47 50		24	63 00		24	80 00	56	8	40 50
	24	49 50		25	68 00		25	84 00		9	42 50
	25	53 00								10	44 50
38	6	14 50	44	6	19 50	50	8	31 50		11	46 50
	7	16 05		7	21 65		9	33 50		12	48 50
	8	17 60		8	23 75		10	35 50		13	51 00
	9	19 15		9	25 85		11	37 25		14	53 50
	10	20 70		10	27 50		12	39 00		15	56 75
	11	22 70		11	29 50		13	41 50		16	60 00
	12	24 75		12	31 50		14	44 00		17	63 75
	13	26 60		13	33 75		15	47 00		18	69 50
	14	28 50		14	36 00		16	50 00		19	84 00
	15	31 50		15	38 40		17	53 00		20	88 50
	16	34 50		16	40 75		18	56 00		21	93 25
	17	36 90		17	43 35		19	59 00		22	98 00
	18	39 25		18	46 00		20	65 00		23	102 50
	20	45 00		20	51 00		21	69 75		24	106 00
	21	47 00		21	54 50		22	74 50		25	
	22	49 00		22	59 00						
	23	51 50									

SEE PAGE 19 FOR ORDERING.

See page 80 for Pulley Speeds.

THE DODGE WOOD SPLIT PULLEY CO., TORONTO.

Diam. Inches.	Face. Inches.	Price.	Diam. Inches.	Face. Inches.	Price.	Diam. Inches.	Face. Inches.	Price.	Diam. Inches.	Face. Inches.	Price.
58	8	\$48 50	72	10	\$64 00	90	12	\$125 00	108	8	\$144 00
	9	48 00		11	67 50		13	129 00		9	154 00
	10	47 50		12	71 50		14	134 00		10	165 00
	11	50 00		13	75 50		15	139 00		11	176 00
	12	52 25		14	80 00		16	144 00		12	187 00
	13	55 00		15	85 00		17	149 00		13	198 00
	14	57 75		16	90 00		18	154 00		14	209 00
	15	61 00		17	95 00		19	174 09		15	222 00
	16	64 25		18	100 00		20	183 00		16	235 00
	17	68 50		19	115 00		21	192 00		17	248 00
	18	73 75		20	127 00		22	204 00		18	262 00
	20	87 50		21	131 00		23	217 00		19	277 00
	21	90 50		22	136 00		24	230 00		20	292 00
	22	95 25		23	145 00		25			21	308 00
	23	100 00		24						22	325 00
	24	104 50		25	155 00					23	342 00
	25	110 00								24	360 00
60	8	47 00	78	13	95 00	96	12	140 00	114	8	159 00
	9	49 25		14	99 00		13	145 00		9	170 00
	10	51 50		15	104 00		14	150 00		10	182 00
	11	53 75		16	109 00		15	155 00		11	193 00
	12	56 00		17	114 00		16	160 00		12	205 00
	13	59 00		18	119 00		17	165 00		13	218 00
	14	62 00		19	124 00		18	170 00		14	232 00
	15	65 25		20	134 00		19	175 00		15	246 00
	16	68 50		21	140 00		20	180 00		16	262 00
	17	73 25		22	146 00		21	185 00		17	277 00
	18	78 00		23	156 00		22	190 00		18	292 00
	20	91 00		24	168 00		23	195 00		19	308 00
	21	96 00		25	180 00		24	200 00		20	325 00
	22	101 00					25	205 00		21	342 00
	23	106 00								22	360 00
	24	111 00								23	378 00
	25	116 00								24	396 00
66	10	57 00	84	13	110 00	102	8	130 00	120	8	172 00
	11	60 00		14	114 00		9	140 00		9	184 00
	12	63 50		15	119 00		10	150 00		10	196 00
	13	67 50		16	124 00		11	160 00		11	208 00
	14	71 50		17	129 00		12	170 00		12	221 00
	15	75 50		18	134 00		13	175 00		13	235 00
	16	80 00		19	139 00		14	180 00		14	248 00
	17	84 50		20	144 00		15	185 00		15	262 00
	18	89 00		21	154 00		16	190 00		16	277 00
	20	103 00		22	162 00		17	195 00		17	292 00
	21	109 00		23	170 00		18	200 00		18	308 00
	22	115 00		24	181 00		19	205 00		19	325 00
	23	122 50		25	193 00		20	210 00		20	342 00
	24	130 00					21	215 00		21	360 00
	25	137 50					22	220 00		22	378 00

Order a Sample Pulley to replace some Pulley giving you trouble by slipping belt.

Pulleys built for any power within the limits of belt speed and capacity of shaft.

— AVERAGE WEIGHTS OF THE —
→ Dodge Patent Wood Split Pulleys ←

The weights of our Pulleys range about as follows:

Diam.	Face.	Wght.	Diam.	Face.	Wght.	Diam.	Face.	Wght.	Diam.	Face.	Wght.	Diam.	Face.	Wght.
12	8	7	24	4	19	40	6	59	42	8	68			
	4	8		6	27		8	67						
	5	9		8	36		10	71						
	7	13					12	94						
	8	14		10	44	44	18	117						
	12	19		12	54									
14	3	8	26	5	29	46	7	63						
	4	10		9	40		10	73						
	6	13		12	55		12	97						
	9	17		14	60		8	71						
	10	22												
15	4	11	28	5	25	48	6	72						
	5	12		6	34		8	94						
	6	15		8	43		10	109						
	8	17		10	50		12	173						
				12	57		14	185						
							18	205						
16	4	12	30	4	23	52	10	113						
	5	14		5	29		12	152						
	6	18		6	35		16	198						
	9	23		8	44		20	251						
				9	50									
				10	58									
18	4	14	32	6	42	54	10	127						
	5	17		8	51		12	139						
	6	19		10	64		16	197						
	9	25		12	71		18	273						
							21	305						
20	8	11	34	6	46	60	10	147						
	4	13		8	53		12	157						
	6	21		10	69		18	290						
	8	28		12	73		24	354						
	10	35												
	12	41	36	6	42									
22	4	17		8	60	72	10	206						
	5	21		10	71		12	271						
	6	24		12	83									
	8	28		18	101		16	332						
	11	44					18	354						
			38	6	44									

From any diameter up we increase size by any part of an inch in diameter or width of face and make any size up to 20 feet diameter.

Price

\$144 00
 154 00
 165 00
 176 00
 187 00
 209 00
 232 00
 256 00
 280 00
 304 00
 329 00
 353 00
 377 00
 402 00
 427 00
 451 00
 476 00
 500 00
 525 00
 159 00
 170 00
 182 00
 196 00
 205 00
 228 00
 252 00
 277 00
 303 00
 329 00
 356 00
 382 00
 408 00
 435 00
 462 00
 488 00
 515 00
 541 00
 568 00
 172 00
 184 00
 196 00
 208 00
 221 00
 246 00
 271 00
 298 00
 325 00
 353 00
 382 00
 410 00
 439 00
 467 00
 496 00
 524 00
 552 00
 581 00
 609 00

double

FRANKLIN INSTITUTE.

AWARD OF MERIT AND CERTIFICATE OF SUPERIORITY.

HALL OF THE FRANKLIN INSTITUTE, PHILADELPHIA, *January 5, 1885.*

The sub-committee of the Committee on Science and the Arts, constituted by the Franklin Institute, of the State of Pennsylvania, to whom was referred for examination **The Dodge Patent Wood Split Pulley, with Patent Bushings**, report: that they have examined the above, and find that the compression fastening of wood on iron, with wooden bushings, will hold it firmly upon the shaft, and is, in a majority of cases, better than an **IRON PULLEY**; from the fact that it can be made lighter, and thus save weight on the line shaft and bearings, thereby reducing friction.

It is a well-known fact that a **Wooden Pulley** is better than an **Iron Pulley**, from the fact that it holds a belt much better. From the best authority, this latter amounts to at least **THIRTY-THREE (33) PER CENT.**

The manner of fastening the Pulley to the shaft does not mar nor injure the shafting in the slightest degree, and therefore does not tend to throw the Pulley out of balance, as the tendency is with Pulleys secured by keys and set screws.

The Pulley is built of wooden segments, the face being made of poplar. The two halves of the Pulleys are secured to the shaft with eight bolts. The bushings to fit different sized shafts are made of hard wood, thoroughly air-dried, then bored and kiln-dried; then each bush is counter-bored to exact size of shaft, then carefully turned on the outside to fit the bore of the Pulley. They are then cut transversely in halves.

In view of the above advantages, your Committee would therefore recommend the award of a certificate of merit for the improvements in **Wooden Pulleys.**

(Signed,)

W. BARNET LE VAN, *Chairman.*
C. CHABOT.

Adopted February 5, 1885.

(Signed,)

H. R. HEYL, *Chairman.*

I certify that the above is
a true copy from the records.

WILLIAM H. WAHL, *Secretary.*

[SEAL.]

— **GOLD MÉDAL.** —

THE DODGE PATENT 'INDEPENDENCE' WOOD SPLIT PULLEY

RECEIVED THE HIGHEST AWARD, A GOLD MEDAL, AT THE WORLD'S EXPOSITION, AT NEW ORLEANS, LA., AWARDED BY AN EXPERIENCED AND PRACTICAL COMMITTEE.

The following are Letters of Endorsement from a few of the Representative Industries of the Dominion, and speak for themselves:

Office of A. HARRIS, SON & CO., Limited, Labor-Saving Harvesting Machinery, BRANTFORD, ONT., March 21st, 1891.

The Dodge Wood Split Pulley Co., Toronto, Ont.
GENTLEMEN.—In reply to your enquiry of the 19th inst., as to how we are pleased with your wood split pulleys, would say, that so far they have given us perfect satisfaction. Our wood department is fitted up with your pulleys, and some of them have undergone very severe strain, which they have stood for the last two and a half years without showing any signs of weakness. The mode of fastening to the shaft is all that could be desired, and if they are gone over and tightened up in about a week after they are first put up on the shaft they will never slip nor give any trouble thereafter. The 60 x 32 pulley we purchased from you last October is doing all we could expect of it.
We are, yours truly,

A. HARRIS, SON & CO., Limited. By F. GROBE, Supt.

BRANTFORD CARRIAGE CO.

BRANTFORD, ONT., February 24th, 1891.

Messrs. Dodge Wood Split Pulley Co., Toronto, Ont.
GENTLEMEN.—Your favor of 20th received, and we are only too happy to give you our experience of the merits of your pulleys. We use nothing else in the factory, and we cannot speak too highly of them in every way. We have yet the first complaint to receive from any of our departments, and our Superintendent thinks that they are far ahead of any pulley known of. We shall be glad at any time to recommend them to anyone wanting good serviceable pulleys. We wish you every success.
Yours truly,

THE BRANTFORD CARRIAGE CO.

GEORGE GILLIES, Manufacturer of Fish Wheels, Clips, Chip King Bolts, Steps, Shaft Couplings.

The Dodge Wood Split Pulley Co., Toronto. GANANOQUE, February 17th, 1891.

GENTLEMEN.—I have used your Wood Split Pulleys now for a number of years, and have found them give good satisfaction. I have put up during the past year over 30 of them, fitting out my Bolt and Nut Works, and in fact use no other kind, when I require a pulley. For lightness, convenience and general utility, I do not think they can be surpassed.
Yours truly,

(Sgd.) GEO. GILLIES, Manufacturer of Carriage Forgings, Bolts, Nuts, etc.

WM. GRAY & SONS, Manufacturers of Fine Carriages, Buggies, Wagons, Cutters, etc. CHATHAM, ONT., February, 1891.

To The Dodge Wood Split Pulley Co., Toronto.
DEAR SIR.—We have very much pleasure in testifying to the merits of your Patent Wood Split Pulleys. We have a number of them in use throughout our factory, and in every instance they have given entire satisfaction. We could heartily recommend them to those in need of such an article.
Yours truly,

WM. GRAY & SONS.

S. R. FOSTER & SON, Manufacturers of Nails, Shoe Nails, Tacks, Spades, etc.

The Dodge Wood Split Pulley Co., Toronto. ST. JOHN, N.B., February 24th, 1891.

GENTLEMEN.—We have pleasure in replying to your letter, that your Patent Pulleys are giving us entire satisfaction. We commenced using them a little over two years ago, and have now 30 or 40 in use, or shortly to be put in use. We find them all you claim for them, viz.: best belt surface, best shaft fastening, 70 per cent. more power with same belt with less tension, while for adding to machinery, without the necessity of taking down the shafting, they are admirable, as they can be put on in halves and quickly fastened, causing no delay and little expense.
We remain, dear sir, yours truly, S. R. FOSTER & SON.

GLOBE FILE MANUFACTURING CO., Manufacturers of Files and Rasps.

The Dodge Wood Split Pulley Co., Toronto. FORT HOPE, ONT., February 18th, 1891.

DEAR SIR.—In reply to yours beg to say, that we have been using your pulleys for some years, having at present 30 pulleys running, from 6 inches to 36 inches, all of which are a perfect success. We regard their principal features, as sure grip on shaft, no belt slipping, and lightness.
Yours truly,

GLOBE FILE MANUFACTURING CO.

Office of ALEX. FLECK, JR., Manufacturer of every description of Mill Machinery, Water Wheels, Steam Engines and Boilers, Derricks, Steam Pumps and Mining Machinery, 423 Wellington Street.

The Dodge Wood Split Pulley Co., Toronto. OTTAWA, March 23rd, 1891.

GENTLEMEN.—In answer to your inquiries about The Dodge Wood Split Pulley, I must say that they have given entire satisfaction wherever I have used them. They have many advantages, being light, easy put on a shaft, and the belt has a great adherence to them. Wishing you every success with them,
I remain, yours truly,

ALEX. FLECK, JR.

THE CANADIAN RAND DRILL COMPANY.

The Dodge Wood Split Pulley Co., Toronto, Ont. SHERBROOKE, P.Q., February 19th, 1891.

DEAR SIR.—We have found your pulleys exceedingly convenient. Being in halves enables them to be put in place and changed about with but trifling loss of time. The bushing feature enables any pulley to be put on any size of shaft, and this enables a full assortment of sizes to be carried without difficulty, and often obviates the delay incident to having an iron pulley made to order.
Yours very truly,

CANADIAN RAND DRILL COMPANY. (Sgd.) F. A. HALSEY, Mgr. and Treas.

WM. MALLOCH & CO., Machinists; Manufacturers of Elevators, etc. 114 Pallant Street.

The Dodge Wood Split Pulley Co., Toronto. LONDON, ONT., February 27th, 1891.

DEAR SIR.—We are using your pulleys in our factory, and have sold a great many of them to our customers. They have given entire satisfaction in every place we have placed them, and we have no hesitation in heartily recommending them.
Yours truly,

WM. MALLOCH & CO.

D. HIBNER & CO., Manufacturers of Parlor Frames and Hall Stands, Fancy Tables, Etc. The Dodge Wood Split Pulley Co., Toronto.

GENTLEMEN.—We have much pleasure in testifying to the satisfaction we have had in using your Patent Split Pulleys. We consider that they have many advantages over the iron pulleys, and can truthfully recommend them as the best in the market. Respectfully yours,
D. HIBNER & CO.

MILLER BROS. & TOMS, Machinists, Millwrights and Engineers.

Dodge Wood Split Pulley Co., Toronto, Ont. **MONTREAL, January 22nd, 1891.**
GENTLEMEN.—In answer to your inquiry of the 21st inst., we would say we are constantly supplying our customers with the "Dodge" Wood Split Pulley, and in every case they have proved entirely satisfactory.

Yours respectfully,
MILLER BROS. & TOMS. (Sgd.) J. D. MILLER.

THE SHANTZ BUTTON MFG. CO., Manufacturers of Buttons.

The Dodge Wood Split Pulley Co., Toronto, Ont. **BERLIN, ONT., February 23rd, 1891.**
GENTLEMEN.—We have quite a number of your Pulleys in use, and prefer them to the Iron Pulleys for several reasons. They are lighter on the shaft, can be put on any part of shaft without uncoupling same, can get more power from the same belt running over your Pulley than we can when running on an Iron Pulley. Besides, they are cheaper, and can be had on short notice. Would not have any other, wherever it is practicable to use them.

THE SHANTZ BUTTON MFG. CO., Berlin.

Queen City Galvanizing Works, THOMAS McDONALD & CO., Manufacturers of Galvanized Ware, 69 to 75 Sherbourne Street,

The Dodge Wood Split Pulley Co., Toronto. **TORONTO, February 25th, 1891.**
DEAR SIRS.—We have been using your Dodge Wood Split Pulley for several years, and are highly pleased with them. We can recommend them to any one in want of Pulleys. The facility with which they can be taken off and put on the shafting has effected a great saving of time and labor to us during our removal to our new factories at Mimico. Yours truly,

THOMAS McDONALD & CO.

McKINNON DASH & HARDWARE CO.

The Dodge Wood Split Pulley Co., Toronto, Ont. **ST. CATHARINES, ONT., February 24th, 1891.**

GENTS.—Yours of the 21st to hand, and noted. All Pulleys on our shafting are the "Dodge Wood Split Pulley," and they have given us entire satisfaction in every particular. We are, yours,
MCKINNON DASH & HARDWARE CO.
(Sgd.) GEO. J. ARMSTRONG, Local Manager.

Berlin Tannery, R. LANG & SON, Harness Leather Tanners.

Dodge Wood Split Pulley Co., Toronto. **BERLIN, ONT., February 10th, 1891.**
GENTLEMEN.—We have used your Wood Split Pulleys for some time, and during last year replaced nearly all of the old iron ones with yours, which give us entire satisfaction, and from this out we have no use for others. Yours truly,
R. LANG & SON.

KEMP MANUFACTURING CO., Cor. Gerrard and River Sts.

Dodge Wood Split Pulley Co., City. **TORONTO, ONT., February 18th, 1891.**
GENTLEMEN.—Regarding your Wood Split Pulleys would say that we have now had them in use for several years, and we are satisfied in every respect with them. They are much more convenient to put on the shafting than the ordinary Cast-Iron Pulley, and being lighter are a great advantage in this respect.

We have no desire to go back to the old-style Pulleys after having used these successfully. We remain, yours truly,

KEMP MANUFACTURING CO. (Sgd.) A. E. KEMP.

COCKSHUTT FLOW CO. (Ltd.), Manufacturers of Riding and Walking Plows.

Messrs. Dodge Wood Split Pulley Co., Toronto. **BRANTFORD, March 23rd, 1891.**
GENTLEMEN.—In regard to the pulleys we have had from you, we would say that they are proving most satisfactory and are giving us the very best of satisfaction, and they all appear to be in as good shape as when we first started to use them. We remain, yours truly,
(Dictated) **COCKSHUTT FLOW CO., LTD.** W. F. COCKSHUTT, Pres.

BURR BROTHERS.

Dodge Wood Split Pulley Co., Toronto, Ont. **GUELPH, ONT., March 24th, 1891.**
GENTLEMEN.—We have no hesitation in saying, after using the Wood Split Pulleys for several years, that they are far superior to the Iron Pulleys in many ways. They are cheaper, lighter, just as durable, and easily shifted, put on or taken off without disturbing the shafting. If we were going to build another factory we would use nothing but the Wood Split Pulleys.

Yours respectfully,
Burr Bros.
P.S.—We give you on the other side what we think about W. S. P., and you can use it in shape of a testimonial if you wish, or those are ideas and you can shape them to suit yourselves.
Yours, etc.,
B. B.

THE WILKINSON PLOUGH CO., Limited.

Messrs. Dodge Wood Split Pulley Co., 85 King Street West, Toronto. **WEST TORONTO, March 24th, 1891.**
DEAR SIRS.—Yours received. We have much pleasure in stating that your pulleys have given us very great satisfaction. In fitting up our new works a little over a year ago, we put in nearly a hundred of your pulleys, and in our opinion they are better than any others. Lately we got from you our main driving pulley, and so far it has done perfect work, and we might say that this pulley does not need keying to the shaft, which is a great advantage. We cannot speak too strongly in favor of your pulleys, and would highly recommend them to any one fitting up a new factory, etc. Yours truly,

WILKINSON PLOUGH CO. W. H. PERRAM, Manager

A FURTHER LIST OF OUR CANADIAN PATRONS

LIST

Beardmore & Co.	Acton, Ont.	W. B. Bragg	Rockwood, Ont.
W. H. Story & Son	Aliston, Ont.	E. F. Mosely & Co.	St. Hyacinthe, Que.
Walker & Co.	Almoria, Ont.	Patterson & Corbin	St. Catharines, Ont.
Almonte Knitting Co.	Arnprior, Ont.	Woodburn Sarven Wheel Co.	
Dontigny & Hughton	Aylmer, Ont.	Ontario Bolt Co.	Swansea, Ont.
Aylmer Canning Co.	Ayr, Ont.	Cumberland Ry. and Coal Co.	Springfield, N.S.
David Goldis	Amherst, N.S.	Canadian Edison Mfg. Co.	Sherbrooke, Que.
Rhodes, Curry & Co.	Barrie, Ont.	Alexander Wood	Sydney, Australia.
Geo. Ball	Belleville, Ont.	Shanghai Arsenal	Shanghai, China.
James Wallace	Berlin, Ont.	John Heard & Co.	St. Thomas, Ont.
J. Y. Schantz & Son	Bowmanville, Ont.	J. R. Wissler	Salem, Ont.
Dominion Organ & Piano Co.	Brantford, Ont.	E. Broad & Sons	St. Stephen, N.B.
Brantford Carriage Co.		Broacloot & Box	Seaforth, Ont.
Brantford Cordage Co.		Lowrie Works	Sarnia, Ont.
H. W. Petrie	Bridgeport, Ont.	Brook Woolen Co.	Simcoe, Ont.
Shirk & Snider	Brockville, Ont.	Bowman & Zinkan	Southampton, Ont.
W. R. Gardner	Chatham, Ont.	W. J. Levy	Stayner, Ont.
Manson Campbell	Cobourg, Ont.	Hodd & Cullen	Stratford, Ont.
Cobourg Woolen Mills	Consecon, Ont.	Streetsville Woolen Co.	Streetsville, Ont.
Saylor & Ward	Costook, Ont.	Standard Drain Pipe Co.	St. Johns, Que.
Costook Knitting Co.	Corwall, Ont.	T. McAvity & Sons	St. Johns, N.B.
Storimont Cotton Mfg. Co.	Deseronto, Ont.	Geo. H. Evans	
The Rathbun Co.	Dundas, Ont.	S. R. Foster & Son	
John Bertram & Sons	Elora, Ont.	Josiah Fowler	
Force & Dickinson	Essex Centre, Ont.	James Jones & Son	Thorold, Ont.
Ontario Worsted Co.	Exeter, Ont.	Can. Lumb's Cutting Machine Co.	Tronton, Ont.
Essex Centre Mfg. Co.	Gait, Ont.	John Abell	Toronto, Ont.
Ross & Taylor	Gananoque, Ont.	Adamant Mfg. Co.	
McGregor, Gouiray & Co.	Georgetown, Ont.	American Rattan Co.	
James Warnock	Glen Fay, Ont.	Acme Silver Co.	
Cowan & Britton	Glen Williams, Ont.	Alkenhead & Crombie	
Wm. Barber & Bros.	Goderich, Ont.	Alleh Mfg. Co.	
Moorhouse, Dadds & Co.	Guelph, Ont.	J. R. Armstrong & Co.	
Sykes & Ainley	Hamilton, Ont.	A. A. Barthelmes & Co.	
Goderich Organ Co.		Bertram & Co.	
Chas. Raymond	Hespeler, Ont.	Chas. Boeckh & Sons	
Sawyer & Massey Co.	Hallfax, N.S.	Booth & Son	
B. Greening Wire Co.	Kingston, Ont.	Brown & Love	
Wood, Vallance & Co.	Listowel, Ont.	Canada Printing Ink Co.	
The R. Forbes Co.	London, Ont.	Christie, Brown & Co.	
Dartmouth Rope Work Co.	Merriton, Ont.	Citizens' Milling Co.	
Macdonald & Co.	Mohrbeal, Que.	John Fletcher	
Kingston Electric Light Co.		Gendron Mfg. Co.	
Essex Bros. & Co.		Gutta Percha Rubber Mfg. Co.	
Wm. Malloch & Co.		Kennedy & Co.	
Stevens & Burns		A. Laidlaw & Co.	
Lincoln Paper Mills Co.		Massey Mfg. Co.	
British Am. Bank Note Co.		A. Newell & Co.	
Miller Bros. & Toms		A. G. Penchen & Co.	
T. W. Ness		Rennis Mfg. Co.	
The Wm. Johnson Co.		Taylor, Scott & Co.	
Intercolonial Railway Co.		Toronto Incan. Electric Light Co.	
The W. Cane & Sons Mfg. Co.		Toronto Hardware Mfg. Co.	
T. M. & J. B. Edmondson		T. Tushingham & Son	
Alex. Fleck, Jr.		G. Unser	
J. R. Quain		S. R. Warren & Son	
Polson Iron Works Co.		James Hay & Co.	Woodstock, Ont.
Paris Winery Mills Co.		R. Muir & Co.	Winnipeg, Man.
Penman Mfg. Co.		Wilkinson Plow Co.	West Toronto Junc., Ont.
Peter Hamilton		Heintzman & Co.	
W. H. Law		Wagner, Zeller & Co.	
Wm. Stevenson		J. P. Wagner & Co.	
Jonathan Ellis		Milton Mfg. Co.	Yarmouth, N.S.
A. W. Morris & Bros.		Yarmouth, Dux & Yarn Co.	
Globe File Mfg. Co.		I. Matheson & Co.	New Glasgow, N.S.
Can. Office & School Furniture Co.		Nova Scotia Steel & Forge Co.	
F. H. Andrews & Son			

RULE FOR CALCULATING THE SPEEDS AND THE DIAMETERS OF A PAIR OF PULLEYS.

Multiply the number of revolutions of one pulley by its diameter, and divide the product by the diameter of the other pulley, the quotient will be the number of revolutions of the latter; or, divide by its number of revolutions, and the quotient will be its diameter.

EXAMPLES.

A 30 inch pulley making 180 revolutions per minute, drives a countershaft with a 12 inch pulley. What is the speed of the latter?

$$180 \times 30 \div 12 = 450 \text{ revolutions per minute.}$$

A countershaft is to make 450 revolutions per minute, driven by a 30 inch pulley making 180 revolutions per minute. What will be the diameter of counter-shaft pulley?

$$180 \times 30 \div 450 = 12 \text{ inches.}$$

What will be the diameter of a pulley making 180 revolutions per minute, to drive a 12 inch pulley 450 per minute?

$$450 \times 12 \div 180 = 30 \text{ inch pulley.}$$

In calculating toothed gears, substitute the numbers of teeth for the diameters, and proceed as above.

HORSE-POWER OF AN ENGINE.

The diameter of piston in inches, multiplied by itself, multiplied by the stroke in inches, multiplied by the revolutions per minute (not the strokes), multiplied by the mean effective (average pressure per square inch on piston), multiplied by .00000397, gives the gross or indicated horse-power.

For the nett effective horse-power, deduct from the above about $\frac{1}{4}$ for friction of the working parts.

The mean effective pressure can be accurately determined only by the aid of an indicator. When the indicator is not used, and in the calculation the boiler pressure is substituted for the mean effective pressure, deduct from the result obtained, from 40 to 60 per cent. for loss by condensation and friction of steam in pipes and passages, decrease of pressure in cylinder due to expansion, back pressure of exhaust, and friction of the working parts.

For engines from 20 to 60 horse-power, an average of 50 per cent. may be deducted; for smaller engines, more.

The mean pressure in the cylinder when cutting off at

$\frac{1}{2}$ stroke equals boiler pressure multiplied by	.597
$\frac{1}{4}$ " " " " " " " "	.670
$\frac{3}{8}$ " " " " " " " "	.743
$\frac{1}{2}$ " " " " " " " "	.847
$\frac{5}{8}$ " " " " " " " "	.919
$\frac{3}{4}$ " " " " " " " "	.957
$\frac{7}{8}$ " " " " " " " "	.966
" " " " " " " "	.992

TO CALCULATE THE DRIVING POWER OF BELTS.

Divide the speed in feet per minute by 750; the product will be the horse power a 1 inch single belt will transmit when in good condition and properly applied. A 2 inch belt will transmit twice as much as one inch, and $\frac{1}{2}$ as much as a one inch in addition. A 3 inch belt $\frac{1}{2}$ more than a 2 inch, and $\frac{1}{3}$ as much as a two inch in addition. A 4 inch belt $\frac{1}{3}$ more than a three inch, and $\frac{1}{4}$ as much as a three inch in addition, and so on.

As double belts can be strained more tightly than single, they will transmit about $\frac{1}{2}$ more than the latter.

The following is a simpler rule and gives the same result as the foregoing.

RULE.—Diameter of pulley in inches \times revolutions per minute \times constant from table = Horse power of single belt.

For double belts multiply the result by $\frac{1}{2}$.

EXAMPLE.—What is the horse power of a 3 inch single belt running on a 24 inch pulley at 100 revolutions per minute.

$$24 \times 100 \times .00119 = 2.85 \text{ horse-power.}$$

TABLE OF CONSTANTS.

Width of Belt	Constant.	Width of Belt	Constant.	Width of Belt	Constant.
1 in.	.00094	3 in.	.00119	6 in.	.00294
$1\frac{1}{4}$	.00098	$3\frac{1}{4}$	.00120	6 $\frac{1}{4}$	.00327
$1\frac{1}{2}$	.00098	$3\frac{1}{2}$	.00123	7	.00366
$1\frac{3}{4}$	.00098	$3\frac{3}{4}$	.00126	$7\frac{1}{4}$	.00410
2	.00094	4	.00121	8	.00445
$2\frac{1}{4}$	.00094	$4\frac{1}{4}$	.00120	9	.00580
$2\frac{1}{2}$	.00096	5	.00229	$9\frac{1}{4}$	.00674
$2\frac{3}{4}$	.00107	$5\frac{1}{4}$	.00230	10	.00623

Weight and Strength of Manilla Cordage.

Size Diam. Inches.	Weight of 100 Fathoms Manilla in Lbs.	Strain Borne by New Rope Pounds.	Feet in a Pound.	Size Diam. Inches.	Weight of 100 Fathoms Manilla in Lbs.	Strain Borne by New Rope Pounds.	Feet in a Pound.
1/2 in.	12	540	50 feet.	1 1/2 in.	310	16,000	1 ft. 11 in.
3/4 in.	18	780	33 " 4 in.	1 3/4 in.	346	18,062	1 " 8 "
1 in.	24	1,000	25 " "	1 7/8 in.	390	20,250	1 " 6 "
1 1/8 in.	30	1,280	20 " "	1 7/8 in.	435	22,500	1 " 5 "
1 1/4 in.	37	1,562	17 " 8 "	1 7/8 in.	480	25,000	1 " 3 "
1 1/2 in.	46	2,250	18 " "	1 7/8 in.	581	30,250	1 " "
1 3/4 in.	65	3,062	9 " 8 "	2 in.	678	36,000	10 3/4 " "
2 in.	80	4,000	7 " 6 "	2 1/4 in.	797	42,250	9 " "
2 1/4 in.	98	5,000	6 " "	2 1/2 in.	920	48,000	7 1/2 " "
2 1/2 in.	130	6,250	5 " "	2 3/4 in.	1,106	56,250	6 3/4 " "
2 3/4 in.	142	7,500	4 " 8 "	2 3/4 in.	1,265	64,000	5 3/4 " "
3 in.	170	9,000	3 " 6 "	2 3/4 in.	1,420	72,250	5 " "
3 1/4 in.	200	10,500	3 " "	3 in.	1,573	81,000	4 1/2 " "
3 1/2 in.	230	12,250	2 " 7 "	3 1/4 in.	1,760	90,250	4 " "
3 3/4 in.	271	14,000	2 " 3 "	3 3/4 in.	1,951	100,000	3 1/2 " "

SETTING A BELT ON QUARTER-TWIST.

Every machinist knows that an ordinary straight belt must run squarely on the pulley; (that is.) it must run on at right angles with the shaft. If you wish to connect with a belt two horizontal shafts at right angles with each other, say an engine shaft near the floor with a line attached to the ceiling, it will require a quarter turn, and the above principal governing a straight belt must be observed. First, ascertain the central point on the face of each pulley at the extremity of the horizontal diameter where the belt will leave the pulley, and then set that point on the driven pulley plumb over the corresponding point on the driver. This will cause the belt to run squarely onto each pulley, and it will leave at an angle greater or less according to the size of the pulleys and their distance from each other. This rule will render the setting of a quarter twist as easy as the setting of an ordinary straight belt.



A SUBSTITUTE FOR QUARTER-TWIST BELTS.

In driving one shaft from another, situated above or below, and lying in a plane at right angles to the first shaft, it is common to employ the arrangement of belting known as the quarter-twist belt. This is always inconvenient, and often unsatisfactory, as any reversal of the motion throws the belt off the pulleys, and besides, the wear of the belt is rapid and unequal, especially in the case of wide and heavy belts.

The arrangement shown in the illustration, while not altogether new, is not used as frequently as it might be, and possesses many advantages.

In the cut the pulley B is the driver, and the pulley A is driven; the pulleys C and D being mere idlers, running in the slack of the belt.

The system admits of being driven in either direction; but it is desirable to place it so that the belt runs directly from the driven pulley on to the driver, so that the bearings of the idler pulleys are free from the strain due to the pull of the belt.

The pulleys are shown of equal diameter, but may be in pairs of different sizes if a change of speed is desired.

The writer has seen a heavy ten-inch belt in daily operation for four years over such a system, composed of twenty-four inch pulleys, and though frequently driven up to its full capacity, it has never given any trouble.

WEIGHT OF CASTINGS BY WEIGHT OF PATTERNS.

- Weight of Pattern, White Pine, x 16 gives weight in Cast Iron.
- Weight of Pattern, White Pine, x 17.1 gives weight in Wrought Iron.
- Weight of Pattern, White Pine, x 17.8 gives weight in Steel.
- Weight of Pattern, White Pine, x 18 gives weight in Copper.
- Weight of Pattern, White Pine, x 22 gives weight in Lead.

SHRINKAGE OF CASTINGS.

- Cast iron 1-8 inch per lineal foot.
- Brass 3-16 inch per lineal foot.
- Tin 1-12 inch per lineal foot.
- Zinc 5-16 inch per lineal foot.

Following is a List of a
FEW OF THE MANUFACTURERS

USING OUR SYSTEM OF

ROPE TRANSMISSION

THE BARBER & ELLIS Co.	Toronto, Ont.
CHAS. BOECKH & SON.	" " "
LAURENTIDE PULP Co.	Montreal, Que.
DARTMOUTH ROPE WORKS Co.	Halifax, N.S.
ATLANTIC GLUE WORKS	Berlin, Ont.
THE RATHRUN Co.	Deseronto, "
GEO. BALL	Barrie, "
AUG. NEWELL & Co.	Toronto, "
J. BROWN & Co.	Québec, Que.
R. MUIR & Co.	Winnipeg, Man.
SHOAL LAKE MILLING Co.	Shoal Lake, "
GRANBY RUBBER Co.	Granby, Que.
ONTARIO AGRICULTURAL COLLEGE	Guelph, Ont.
MILLER BROS. & TOMS	Montreal, Que.
BROADFOOT & BOX FURNITURE Co.	Seaforth, Ont.
WATERLOO WOOLLEN MANUFACTURING Co.	Waterloo, "
JOS. SIMPSON, KNITTING MILLS	Toronto, "
PERLEY & PATTEE	Ottawa, "
J. MACLAREN & Co.	" "
J. R. BOOTH	" "
BRUNETTE SAW MILLS Co.	New Westminster, B. C.
W. H. BANFIELD	Toronto, Ont.
MASSEY MANUFACTURING Co.	" "
MORSE SOAP WORKS	" "
THOS. TUSHINGHAM & SON,	" "
A. R. CLARKE & Co.	" "
H. R. IVES & Co.	Montreal, Que.

FROM ALL OF WHOM WE HAVE LETTERS OF HIGH PRAISE AND ENDORSATION.

THE DODGE AMERICAN SYSTEM OF ROPE TRANSMISSION.

(Patented in the United States, Canada and Europe.)

ROPE DRIVING.

(Power and Transmission.)

"There are two methods of transmitting power greater than the capacity of a single groove, one being by a lot of independent ropes running in corresponding grooves, and the other where a single rope passes from one groove to another, the ends being brought around and joined together, and the last loop being held by a binder pulley. This is known as the Dodge system, and is considered preferable in many instances where ropes are subject to severe usage, on account of the diminution of the number of splices."

(From Engineering.)

"The first systematic attempt to substitute a rope of any kind in place of belts or shafts to transmit power from a motor to machinery at a distance was made by Mr. C. F. Hirn, of Logleback on the Rhine. The experiments which finally resulted in success extended from 1852 to 1860, for notwithstanding the apparent simplicity of the proposition there were serious and unexpected mechanical difficulties to be overcome. It has been said that the gist of this invention is in a very simple principle, viz: the substitution of velocity of motion for mass of matter moved, because a given force may be equally well represented by a heavy body moving slowly or a light body moving swiftly. Thus it may be said he imparted portability to his force, since it may be neither practicable to move the motor to the work nor to transmit its motion through slow moving heavy shafting."

The cable employed was of wire about 1 c. m. in diameter, and bearing pulleys were placed about one hundred and fifty yards apart.

The transmission of power by Hirn's Telodynamic cable has been frequently employed in this country, but cannot be said to have met with a success commensurate with its great promise. This is largely due to the rigidity and great weight of the cable. Its rigidity resists flexure around the terminal pulleys, and its great weight and velocity generate strong centrifugal force as it passes around the pulley to reverse the direction of its motion. Both of these add to the load of the motor.

The use of wire ropes for transmitting power is, practically, limited to long spans and has not been found to be adapted to take the place of belts. But ropes had long been used to drive small machines and in a large way for cable haulage in mines and on inclined railways. Hemp and cotton ropes have been employed for this purpose in England for several years. The distinguishing feature of the English system being in the duplication of individual rope belts when the power to be transmitted exceeded the capacity of a single rope of convenient size. This system has several disadvantages, among which are prominent the impossibility of securing uniform tension on the several ropes and the multiplicity of splices. This system is quite extensively used in Europe and the East but has not been received with equal favor in this country. As a matter of fact the Yankee was quick to perceive the objectionable points, or at least one Yankee was, and evolved the American or Dodge system which is familiar to the readers of *POWER AND TRANSMISSION*. It employs but one rope, however many wraps may be required to transmit the given power, and by a system of winders the ropes pass the terminal wheels as many times as may be required to secure complete adhesion and entire avoidance of slip. This invention was patented in 1885, but has been greatly improved since that date and made the subject of several additional patents. Probably the most important is the system of double wind whereby the splice is relieved of one half the strain to which it might be subjected under the older system by variations of load."—*Power and Transmission*.

The accompanying cut is typical only and is intended merely to give an idea of our system.

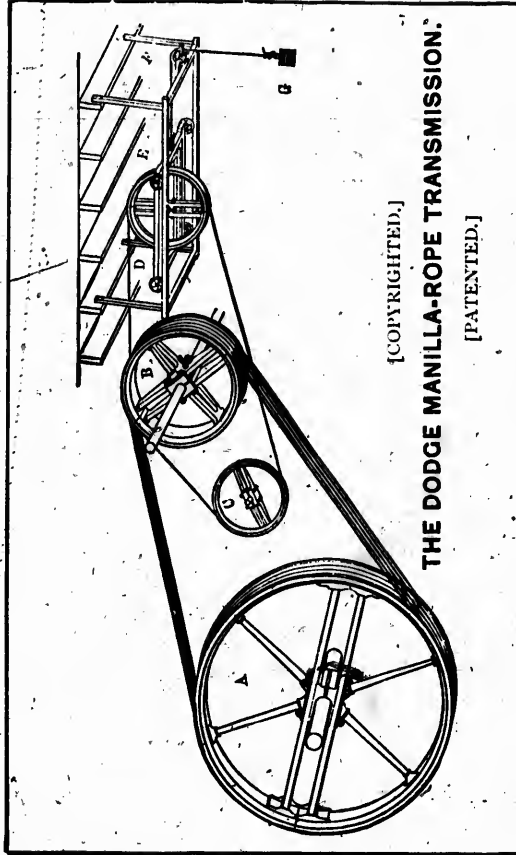
The Dodge American System of Firmus, Rope Transmission, for transmitting power long distances, and in places where a belt is not practical; going around corners and at any angle; also for transmitting power direct from Engine, doing away with large, heavy and expensive Belts, and giving from 10 to 25 per cent. more power from same engine than with Belts.

Write us for estimates for driving your plant, giving us following data:

FIRST—Amount of power wanted, speed of Driver and Driven shafts, Distance from Driver to Driven; greatest diameter of wheels that can be used; also give Sketch, showing approximate location of Shafts, direction of Travel, etc.

We will make estimate, and send drawing of same, showing our system complete.

ROPE TRANSMISSION.



[COPYRIGHTED.]

THE DODGE MANILLA-ROPE TRANSMISSION.

[PATENTED.]

ENGINE DRIVE.

- A—Main Driving Pulley on Engine Shaft, diameter 144 inches.
- B—Main Driven Pulley on Line Shaft, diameter, 64 inches.
- C—Winder for Driven, Diameter, 48 inches.
- D—Carriage and Idler, for taking up Slack, diameter, 48 inches.

- E—Travelling Carriage on Wheels.
- F—Track for Carriage.
- G—Impelling and Tension Weight.
Rope Travel, 3,120 F.T.M. Power Transmitted, 150 H.P.

FRICION CLUTCHES.

In the use of Rope Transmission, it is often found desirable to employ a first-class friction clutch, for the purpose of "throwing out" the power at Driven end, without stopping line shaft.

We are prepared to supply our customers with a strictly first-class Patent Clutch at moderate prices.

PRICE LIST

FOR

"BROWN" PATENT FRICTION CLUTCH.

Diameter of Friction Clutch.	Diameter of Shaft.	Horse Power at 100 revol. per minute.	Price subject to Discount.
6 inches.	1½ inches and under,	5	\$ 50 00
9 "	from 1¾ to 2½ inches,	10	60 00
10 "	" 1¾ to 2½ "	12	65 00
12 "	" 2¼ to 3 "	20	75 00
15 "	" 2¾ to 4 "	30	90 00
18 "	" 3 to 4½ "	45	115 00
21 "	" 3½ to 5 "	60	150 00
24 "	" 4 to 8 "	80	200 00
27 "	" 4½ to 8 "	100	235 00
30 "	" 5 to 8 "	125	315 00
36 "	" 5½ to 8 "	180	415 00
42 "	" 6 to 8 "	245	550 00
48 "	" 6 to 8 "	320	700 00

The cost of shipping levers is not included, but we are furnishing the composition-metal-rings for the fork. The shipping-levers are of so many-fold design, according to local changes, that we are unable to state the price, unless we are familiar with all the details required.

Following is a List of our Sale Agents, with whom you
can deal safely. They all carry large stocks
and can fill Orders promptly
at ruling prices.



- | | |
|-------------------------------------|-----------------|
| Wm. Stairs, Son & Morrow..... | Halifax, N. S. |
| Geo. H. Evans, 62 Water Street..... | St. John, N. B. |
| A. Andrew & Son..... | Quebec, Que. |
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