

To all to whom these presents shall come

Whereas

Joseph A. Bombardier,

of Valcourt,

Quebec,

Canada,

has petitioned the Commissioner of Patents, praying for the grant of a Patent for an invention entitled Sprocket wheel,

a description of which invention is contained in the specification of which a duplicate is herewith attached, and made an essential part hereof, and has complied with the requirements of the Patent Act,

Now Therefore the present Patent grants to the said

Joseph A. Bombardier,

and his legal representatives for the period of Seventeen Years from the date of these presents the exclusive right, privilege and liberty of making, constructing, using and vending to others to be used in Canada the said invention subject to adjudication in respect thereof before any court of competent jurisdiction.

Provided that the grant hereby made is subject to the conditions contained in the Act aforesaid.

In Testimony Whereof, I have herewith set my hand, and caused the Seal of the Patent Office to be herewith affixed, at the City of Ottawa, in Canada, this Thirty-first day of January in the year of Our Lord, one thousand nine hundred and fifty-six

*[Signature]*  
Commissioner of Patents.





**REPRESENTATIVE IN CANADA.**

**Name**.....

**Address**.....

.....

1911  
1912



646-324

# ALBERT FOURNIER

Patent Attorney

934 ST. CATHERINE STREET EAST

MONTREAL 24

Canada

The present invention pertains to a novel sprocket wheel for driving the track of a belt-traction machine and constitutes improvements on the device shown in my Canadian patent No. 428,317, of June 28, 1945.

Track-propelled vehicles are often used on snow, under which the ground is hidden, or on rough terrain as in military operations. Under such hard driving conditions, the sprocket wheels are often broken, especially at the teeth, by impact with hard protruding objects.

The principal object of the invention is to eliminate such breakage and is accomplished by rendering the wheel flexible or pliable when striking obstacles, namely at the teeth and at the troughs between the teeth. A further object is to provide a simple and durable construction.

## S P E C I F I C A T I O N

BE IT KNOWN that Joseph Armand BOMBARDIER, of Valcourt, County of Shefford, Province of Quebec, Canada, having made an invention entitled:

### " SPROCKET WHEEL "

the following disclosure contains a correct and full description of the invention and of the best mode known to the inventor of taking advantage of the same.

At the inner circumference of the rim the layers are relatively thin and closely packed to form a rigid body. As the layers extend outward into the teeth and toward the troughs between the teeth, the resilient layers become



The present invention pertains to a novel sprocket wheel for driving the track of a belt-traction machine and constitutes improvements on the device shown in my Canadian patent No. 428,317, of June 26, 1945.

Track-propelled vehicles are often used on snow, under which the ground is hidden, or on rough terrain as in military operations. Under such hard driving conditions, the sprocket wheels are often broken, especially at the teeth, by impact with hard protruding objects.

The principal object of the invention is to eliminate such breakage and is accomplished by rendering the wheel flexible or pliable when striking obstacles, namely at the teeth and at the troughs between the teeth. A further object is to provide a simple and durable construction for this purpose.

In the accomplishment of these objects, the device of the invention comprises a rim with spaced sprocket teeth thereon. The rim is ultimately mounted on a suitable wheel body or hub. The wheel and teeth are composed of continuous, alternating layers of fabric and resilient material, secured together as in a molding process, and lying parallel to the plane of the wheel. At the inner circumference of the rim, the layers are relatively thin and closely packed to form a rigid body. As the layers extend outward into the teeth and toward the troughs between the teeth, the resilient layers become



thicker and thus flare outward. The thicker portions form a relatively pliable body that resists shock without breakage, for the purpose set forth above.

5 The flare is symmetrical to a central plane, so that the wheel may be used on either side of the vehicle.

The invention is fully disclosed by way of example in the following description and in the accompanying drawings in which:

10 Figure 1 is a side elevation of the device, partly in section;  
Figure 2 is a section on the line 2--2 of Figure 1; and  
15 Figure 3 is a section on the line 3--3 of Figure 1.

Reference to these views will now be made by use of like characters which are employed to designate corresponding parts throughout.

20 In Figure 1 is shown a sprocket or similar wheel comprising a rim 1 on which are formed sprocket teeth 2. The spaces between adjacent teeth are designated as troughs 3. The rim is adapted to be mounted on a suitable wheel body or hub.

25 The wheel, including rim and teeth, is made up of alternating layers of rubber 4 and layers of fabric 5. The resilient layers become thicker at the outer edge of



the rim and the body of the teeth, as well as at the  
troughs 3, as indicated by the numerals 4' and 5'.  
Consequently, the wheel flares outward from the inner  
part, since the layers are substantially parallel to  
5 the plane of the wheel, where they maintain a constant  
thickness. The flare is symmetrical with respect to  
a central plane, so that the wheel may be used on  
either side of the vehicle.

10 The pack of layers is enclosed in a sheet rubber  
sheath 6 which constitutes the outer layers and is  
suitably secured to the circumferential edges of the  
layers 4 and 5. The track-engaging surfaces of the  
teeth and troughs are convex as indicated by the  
numerals 7 and 8 respectively for better contact.

15 The resilient or rubber layers are suitably joined  
or welded to the fabric layers preferably in a  
molding process. Where the layers are thicker, at the  
teeth and troughs, the wheel is more flexible than at  
the more compact portion of the rim 1. Thus, these  
20 parts yield under the impact of obstructions such as  
rocks and the like and do not break or chip, as do the  
more rigid constructions in present use. This property  
of the invention is especially valuable in the case of  
a track vehicle, used on covered or rough terrain.

25 Although a specific embodiment of the invention  
has been illustrated and described, it will be under-  
stood that various alterations in the details of cons-  
truction may be made without departing from the scope  
of the invention as indicated by the appended claims.



THE EMBODIMENTS OF THE INVENTION  
IN WHICH AN EXCLUSIVE PROPERTY OR PRIVILEGE IS CLAIMED,  
ARE DEFINED AS FOLLOWS:-

1- In a sprocket wheel having a rim and teeth on the outer circumference thereof, said rim comprising layers of resilient material and fabric secured together and lying substantially parallel to the plane of the wheel, said layers being extended outwardly to form the teeth and said layers of resilient material being thicker and more flexible at the teeth of the wheel than at the inner portion, whereby the wheel flares outward from the inner portion along the sides of the teeth, the flaring being symmetrical with respect to a central plane.

2- In a sprocket wheel having a rim and teeth on the outer circumference thereof, said rim comprising layers of resilient material and fabric secured together and lying substantially parallel to the plane of the wheel, said layers being extended outwardly to form the teeth and said layers of resilient material being thicker and more flexible at the teeth of the wheel than at the inner portion, whereby the wheel flares outward from the inner portion along the sides of the teeth, the flaring being symmetrical with respect to a central plane, and a sheath of resilient material enclosing said layers and forming a continuous surface traversing the outer edges of said layers.

Albert Fournier,  
934 St. Catherine Street East,  
Montreal, Canada.

Patent Agent for the Applicant.



The attention of Patentees is called to the following section of the Patent Act, Chapter 203, R.S.C., 1952.

Abuse of rights under patents.

67. (1) The Attorney General of Canada or any person interested may at any time after the expiration of three years from the date of the grant of a patent apply to the Commissioner alleging in the case of that patent that there has been an abuse of the exclusive rights thereunder and asking for relief under this Act.

What amounts to such abuse.

(2) The rights under a patent shall be deemed to have been abused in the following circumstances:

(a) if the patentee or a person claiming under him is not working the invention in Canada to the fullest extent that is reasonable having regard to the nature of the invention and the requirements of the market in Canada, or if the importation from abroad of the patented article by the patentee or persons claiming under him or by other persons directly or indirectly purchasing from him or them is such that the working of the invention on a commercial scale is being prevented or restricted;

Not meeting demand.

(c) if the demand for the patented article in Canada is not being met to an adequate extent and on reasonable terms;

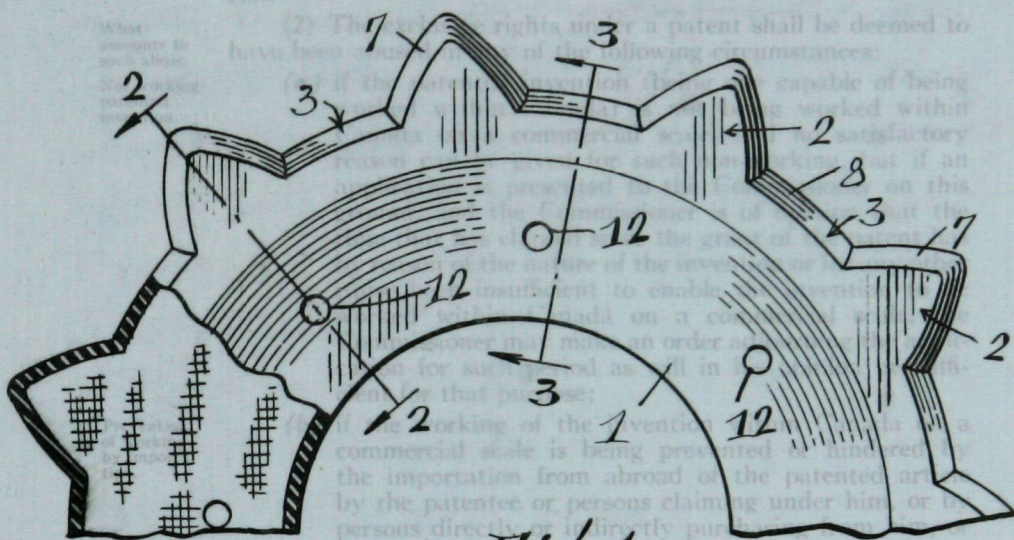


Fig. 1

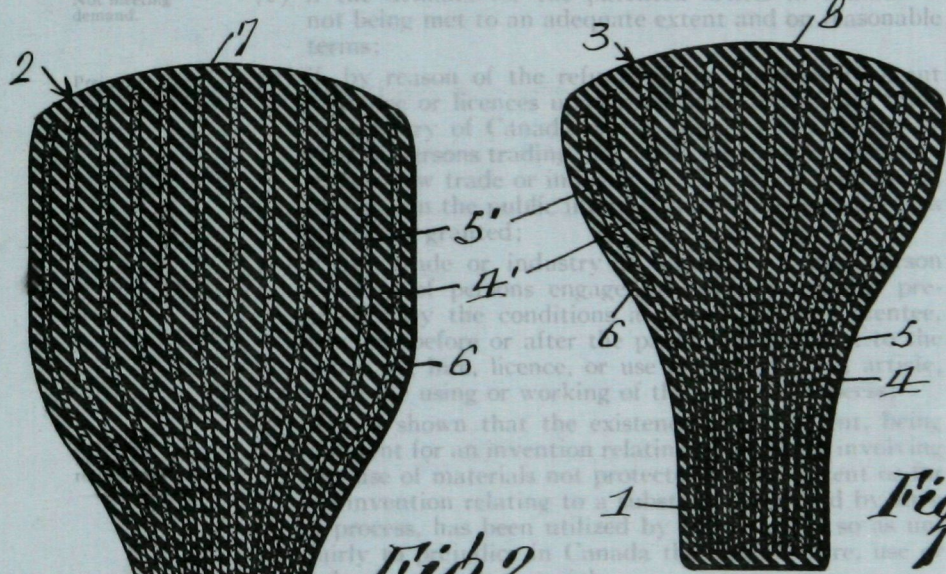
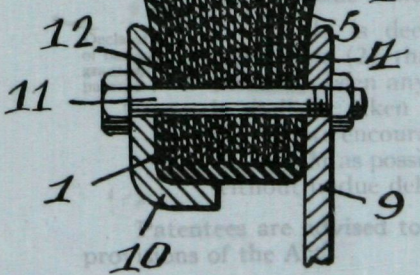


Fig. 2

Fig. 3



Inventor:  
**Joseph Armand Bombardier**

Attorney

*Alber J. J. J.*



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(2) The exclusive rights under a patent shall be deemed to have been abused in any of the following circumstances:

Not working patented invention.

(a) if the patented invention (being one capable of being worked within Canada) is not being worked within Canada on a commercial scale, and no satisfactory reason can be given for such non-working, but if an application is presented to the Commissioner on this ground, and the Commissioner is of opinion that the time that has elapsed since the grant of the patent has by reason of the nature of the invention or for any other cause been insufficient to enable the invention to be worked within Canada on a commercial scale, the Commissioner may make an order adjourning the application for such period as will in his opinion be sufficient for that purpose;

Prevention of working by importation.

(b) if the working of the invention within Canada on a commercial scale is being prevented or hindered by the importation from abroad of the patented article by the patentee or persons claiming under him, or by persons directly or indirectly purchasing from him, or by other persons against whom the patentee is not taking or has not taken any proceedings for infringement;

Not meeting demand.

(c) if the demand for the patented article in Canada is not being met to an adequate extent and on reasonable terms;

Prejudice to trade by refusal to licence.

(d) if, by reason of the refusal of the patentee to grant a licence or licences upon reasonable terms, the trade or industry of Canada or the trade of any person or class of persons trading in Canada, or the establishment of any new trade or industry in Canada, is prejudiced, and it is in the public interest that a licence or licences should be granted;

Prejudice by reason of conditions attached.

(e) if any trade or industry in Canada, or any person or class of persons engaged therein, is unfairly prejudiced by the conditions attached by the patentee, whether before or after the passing of this Act, to the purchase, hire, licence, or use of the patented article, or to the using or working of the patented process;

Prejudice in other respects.

(f) if it is shown that the existence of the patent, being a patent for an invention relating to a process involving the use of materials not protected by the patent or for an invention relating to a substance produced by such a process, has been utilized by the patentee so as unfairly to prejudice in Canada the manufacture, use or sale of any such materials.

Declaration of basis of grants of patents.

(3) It is declared with relation to every paragraph of subsection (2) that, for the purpose of determining whether there has been any abuse of the exclusive rights under a patent, it shall be taken that patents for new inventions are granted not only to encourage invention but to secure that new inventions shall so far as possible be worked on a commercial scale in Canada without undue delay. 1935, c. 32, s. 65.

Patentees are advised to acquaint themselves with this and the other provisions of the Act.