COMMISSIONER'S DECISION

UNOBVIOUS : In View of Prior Art Teaching; Commercial Success.

The success of applicants superior construction, obtaining advantages unattainable by the 60-year-old prior art construction, indicates presence of a degree of ingenuity which was the result of thought and experiment, and the fulfillment to some degree of a "long felt want" over the old construction.

FINAL ACTION : Reversed.

This decision deals with a request for review by the Commissioner of Patents of the Examiner's Final Action dated July 9, 1973 on application 048,296 (Class 301-36). The application was filed on April 10, 1969 in the name of Leonard J. Verhoff and is entitled "Auxiliary Wheel Attaching Means."

The Patent Appeal Board held a Hearing on the rejection on September 11, 1974 at which Mr. A.L. Grove and Mr. Kirk represented the applicant. They were accompanied by the inventor Mr. L.J. Verhoff.

This application relates to apparatus for detachably mounting an auxiliary wheel coaxially to a vehicle wheel. Independently releasable clamps secure the auxiliary wheel rim to the vehicle wheel rim and a spacer ring is inserted therebetween.

In the prosecution terminated by the Final Action the Examiner refused the application on the ground that it was obvious in view of the teachings of the following references:

United States Patents

3,237,992	Kiesau et al
3,223,455	Hammer

French Patents

411,455	Lefaix
402,261	Savoye

In the Final Action the Examiner stated (in part):

> Kiesau et al disclose a dual rim assembly having a first rim attached to the axle by lugs with hook engaging means, a spacer ring, and an auxiliary rim. The patent also discloses attaching means including a plurality of independently releasable and longitudinally adjustable connecting devices which engage the hook engaging means at one end with hook portions and adjustably secure to strip means which engage the auxiliary rim.
>
> The alleged invention as disclosed and claimed differs slightly from the device by Kiesau et al since applicant's clips extend to engage the terminal end flange of the auxiliary rim.
>
> However the French patents disclose that it is common knowledge in the art to provide independent attaching devices having hook means to engage the extremity of the auxiliary rim. It is considered but expected skill to extend flanges 42 to 45 of Kiesau et al to engage the rim in the manner shown by the French patents.
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> On page 1 of the above letter applicant emphasizes the importance of having his strip or hook means supported by the auxiliary rim. No particular advantage can be seen in this arrangement, but in any case Savoye et al and Hammer show such means supported by the auxiliary rim. It is true that the French patents do not have "rims with axially outwardly extending terminal rim edge flanges", but the type of rim is held to be of no patentable significance. The rims of the French patents happen to turn inwardly at their extremities but the function of hooks is the same no matter what the configuration of the rims.
>
> The Hammer patent is cited to show that toggle means are known in the art and it is held that no inventive ingenuity is exercised in substituting such means for bolt and nut arrangements. In fact Figs. 8 and 9 of the instant application are further evidence that these alternatives would readily occur to one skilled in the art.

The Applicant in his response dated December 18, 1973 to the Final Action stated (in part):

The present invention embodies a simplicity and an economy which is clearly advantageous and does so by means of apparatus which, as claimed, is clearly different from that of the Kiesau patent.

...

SUMMARY OF THE DISTINCTIONS BETWEEN CLAIM 1 AND KIESAU

1. The connecting devices of the applicant are independent of the rim and of each other. The connecting devices of Kiesau are all associated with one another through the presence of a large unitary square frame to which they are all attached.

2. The auxiliary rim engaging means comprises a flat strip having a claimed relationship with the auxiliary rim while the auxiliary rim engaging means of Kiesau is a large square frame having flanges welded thereto which engage the rim in a manner that is different from the manner claimed in the application.

A secondary reference contemplated by the Examiner is the United States Patent to Hammer number 3,223,455. This Patent is directed to similar subject matter but discloses an arrangement wherein the clamping members are mounted on and carried by the auxiliary rim through the medium of brackets 60 which are, presumably, welded to the inner surface of the auxiliary rim and which then carry the toggle mechanism by means of which hooks 48 can engage rings on the main tractor wheel. In view of the foregoing discussion of Kiesau, the distinctions between the invention claimed herein and that disclosed in Hammer will be apparent.

SUMMARY OF THE DISTINCTIONS BETWEEN CLAIM 1 AND HAMMER

1. The connecting devices of claim 1 are said to be independent of the rim and each other. Hammer's connecting devices are not independent of the rim since they are secured thereto and they are not independent of each other since they are all welded to the same common element, namely, the auxiliary rim.

2. Element (B) of claim 1 is not to be found at all in Hammer since there is no flat strip means engaging the rim nor extending axially of the tire bead seat flange nor does Hammer disclose a hook for engaging the outer rim flange of the auxiliary rim.

In addition to the two United States patents cited, the Examiner has referred to French patents 402,261 and 411,455, both for the purposes of showing that devices for accomplishing a similar purpose are known in which the auxiliary rim clamping member does engage the axial extremity

of the rim. It is acknowledged that the French patents do, indeed, disclose such an apparatus. However, neither of the French patents discloses a device which could be used in combination with either Hammer or Kiesau and, accordingly, since no combination between the references is possible, the relevance of the isolated showing of one feature of the applicant's claim is not understood. Neither of the French patents disclose a device which could be used in association with tractor wheels having the solid disc type hub which is disclosed by Kiesau, Hammer and the applicant. The device of French patent 402,261 is so different from that of the present application that discussion of it appears to be unnecessary. Apart from being directed to a similar problem, the similarity is non-existent. The device of patent 411,455 is, we submit, hopelessly impractical and, in all probability, inoperative. A study of figure 1 will disclose that as the nut is tightened to clamp the two rims together, a bending moment will be developed with regard to clamp f which will tend to pry it off the rim. As soon as a vehicle using this arrangement begins to move, particularly over rough ground, it is believed that the clamp would be disengaged from the rim in a matter of only a few revolutions of the wheel.

In the light of the discussion of the individual patents given above, it is not seen how a rejection of obviousness can be maintained. The feature that the clamping devices or connecting devices are to be independent of the rim and of each other is not to be found in Kiesau or in Hammer as pointed out above. The nature of the auxiliary rim engaging member is not to be found in any reference. The limitations as set forth in paragraph (B) of claim 1 are not found in Kiesau, they are not found in Hammer, and they are not found in either of the French patents.

Our first consideration is the scope and content of the prior art cited.

Both the Kiesau and the Hammer references relate to devices for mounting an auxiliary wheel coaxially on a farm tractor wheel. A spacer ring is inserted between the two wheels and the fastening apparatus comprise elongated "J" bolts. The hook end of the bolts fit into mounting rings on the vehicle wheel and the threaded portion engage the auxiliary rim retaining means. In Kiesau the auxiliary rim is held in position by a welded square frame having protruding corner lugs which engage the outer annular stepped shoulder of the rim. The threaded portion of the "J" retaining bolts extend through each

corner of the frame to maintain it in operative position. Hammer uses lugs welded to the inner surface of the auxiliary rim and these lugs anchor a toggle lever arrangement coupled to the threaded end of the "J" bolts.

French patents 402,261 dated 1909 and 411,455 dated 1910 disclose apparatus for attaching an auxiliary wheel to a vehicle wheel. A spacer ring is used between the two wheels and a hook arrangement is used to engage the inturned rim flange of the auxiliary wheel.

A cross sectional view of the rim used in these patents is somewhat similar to a modified letter "C". The tire is contained within the ends of the "C" and this is the area where the hooks engage.

The question the Board must determine is whether the applicant has made a patentable advance in the art. Claim 1 reads:

> In combination with a dual rim assembly of the type wherein an auxiliary rim is spaced by a cylindrical ring means from a main rim of a vehicle wheel having a plurality of clamp lugs with hook engaging means thereon near its rim, and said auxiliary rim includes inner and outer axially outwardly extending terminal rim edge flanges and therebetween a central base portion and a stepped portion on each side of the central base portion including an axially extending tire bead seat flange, the improvement comprising a plurality of releasable and longitudinally adjustable connecting devices independent of said rim and each other and extending between and releasably engaging each hook engaging means and said auxiliary rim, each device comprising:
>
> A) link means having a hook portion for attachment to one of said hook engaging means on the main vehicle wheel,
>
> B) a flat strip means bridging said axially extending tire bead seat flange and supported by and parallel to the central base portion of said auxiliary rim, said strip means having a hook portion at one end for removably engaging the outer axially extending terminal rim edge flange of said auxiliary rim, and
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> C) adjustable means secured to said link means and engaging said flat strip means near its other end for varying the length of said link means.

It is observed that the applicant secures the auxiliary rim to the vehicle wheel by means of contoured flat strips, which are supported by the rim base, in conjunction with a hook to engage the axial extremity of the rim. A spacer ring is incorporated between the vehicle rim and the auxiliary rim. Mounting rings on the vehicle wheel serve as an anchor for elongated "J" bolts which hold the flat strips by means of a nut on the threaded end in assembled or operative position.

At the Hearing the applicant emphasized three limitations found in the broad claim which he maintains distinguishes the claim from the prior art, namely:

(1) the flat strip means - won't separate from the rim,

(2) the flat strip means closely conforms to rim contour- strength, and

(3) the flat strip is supported by the centre portion of the rim - strength.

The applicant argued that "in order to sustain the high stress forces developed by modern tractors these characteristics were essential to derive the required strength for the auxiliary wheel." In addition he maintains that "the close contour fit of the strips is necessary to prevent the possibility of debris lodging under the strips, and thereby causing disengagement thereof."

It is noted that the type of rim the applicant is using has a different configuration from that of the two French patents.

A cross-sectional view from the flange to the centre line of the modern tractor rim shows the edge is outwardly turned, and this is followed by one or two stepped rings in which the inner step portion forms the horizontal base. This type of rim is known as a "drop center" rim.

There is little doubt that the arrangement found in the French patents will not transmit a load of such magnitude as that of the applicant's device. Also, due to the inwardly turned rim flange it would appear that the hooks will disengage under high torque.

Attachment of the auxiliary rims in both Kiesau and Hammer represent the different approach that each has taken. Unlike the French patents these are capable of transmitting high torque load which is obtained by welding a lug on the auxiliary wheel or by making a frame to fit the auxiliary wheel. Claim 1, which is the broad claim, requires clamping devices which are "independent of the rim and of each other." Kiesau's frame requires clamping as a unit. Hammer welds the holding lugs on the auxiliary rim. In addition the claim requires "a flat strip means bridging said axially extending tire bead seat flange and supported by and parallel to the central base portion of said auxiliary rim, said strip means having a hook portion at one end for removably engaging the outer axially extending terminal rim edge flange of said auxiliary rim." Neither of these patents show any flat strip means or the necessary hook support arrangement.

If the teaching of the French Patents is used in making the present device, the applicant would have to modify the hook arrangement in order to fit the rim edge in use today. Further modification to the inner portion of the hook strap would also be required in order to derive support from the rim base for the necessary strength.

To achieve this necessary strength applicant has used a flat strip

which hooks at the rim edge, and which follows the rim contour with substantially no clearance, as it is in contact with the rim base. It is the width of hook plus the contact with the base that makes the transmission of the high torque possible. Close rim fit to prevent the lodging of debris, which could disengage the hook, does not appear to have been of concern in the French patents as the clearance there is substantial.

At the Hearing the applicant also emphasized that "his device has been commercially successful" as evidenced by sales, and by the fact that it has almost completely replaced Hammer's device, which by the way is also sold by the applicant's distributor. While evidence of commercial success by itself does not necessarily demonstrate invention, the step taken by the applicant indicates that it must have fulfilled to some degree "a long felt want," for the French patents are over 60 years old.

On the matter of commercial success, it was stated by Thorson, P. in the King v American Optical Co., 11 Fox Pat. C. 62 at 89 (Ex. Ct. 1950):

> ... I agree ... that the main reason for its success was that it was superior to the older constructions .... Under the circumstances I am of the view that commercial success of ... (the invention) is strong evidence that its production was the result of an inventive step ....(emphasis added.)

The Board is therefore satisfied that there is present a degree of ingenuity which was the result of thought and experiment on the part of the applicant. The Board recommends that the decision of the examiner to refuse the application be withdrawn.

J.F. Hughes,
Assistant Chairman,
Patent Appeal Board.

I concur with the findings of the Patent Appeal Board and withdraw the Final Action. The application is returned to the examiner for resumption of prosecution.

A.M. Laidlaw,
Commissioner of Patents.

Dated at Hull, Quebec,
this 24th. day of October,
1974.

Agent for Applicant

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