

COMMISSIONER'S DECISION

UNOBVIOUSNESS: Patentable Advance in the Art.

While one reference suggests that it might be feasible, no reference shows the conveyor chain operating in the horizontal plane to accomplish the functions and practical utility as contemplated by the present applicant. While the use of plates to prevent wear may be old, there is no suggestion of the dual purpose of the plates as "friction drive" means and "slip" means.

FINAL ACTION: Reversed.

This decision deals with a request for review by the Commissioner of Patents of the Examiner's Final Action dated October 25, 1973 on application 104,483 (Class 201-73). The application was filed on February 4, 1971 in the name of Zoltan E. Zilahy and Anthony L. Dato and is entitled "Machine Having Overhang Supports For Pallets." The Patent Appeal Board conducted a Hearing on December 4, 1974, at which Messrs. Hicks and Proulx represented the applicant.

Briefly this application relates to a work conveying device comprising horizontal chain links which pivot about the vertical axis and are employed to transport pallet carriers past successive work stations. These chain links have wear plates which contact wear plates on the carrier to move a pallet carrier to various work stations.

The prosecution terminating with the Final Action refused claims 1-9 and 11-16 for failing to define any inventive step in view of the following prior art and expected skill:

U.S.	Reissue	25,886	Oct. 25, 1968	Cargill
U.S.		2,819,784	Jan. 14, 1958	Brown Jr.

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

...

Noting claim 1, it is not seen in what respect any inventive departure is provided over Cargill in view of Brown. Cargill notes that a horizontal loop is possible, he uses a chain drive, he uses stop means on the carriers, (note arm 48b actuating element 33 attached to the carrier or pallet) Both Cargill and Brown note that a simple friction drive of a carrier or pallet is possible. Wear will inevitably occur between a continuously moving chain or belt and a stationary pallet undersurface as in Cargill or Brown. To provide "wear plates" or other resistant means to compensate for such wear is obvious. It is similar to putting plates on the soles and heels of shoes to prevent wear. To put members on one or each of the opposed sliding surfaces to prevent wear and/or facilitate sliding is obvious.

Claim 11 in setting forth tilt prevention means does not inventively depart from Cargill who shows means 27, 27a which fit into rails 28 and as can be seen in Figures 4, 5 and 6 this arrangement will definitely prevent tilt.

Claims 2-9 and 12-16 setting forth features such as a brake actuating mechanism (involving levers and springs and cams), plungers for actuating levers, lateral pallet supports, pallet apertures and pallet locating clamps fail to reveal anything beyond the art in view of expected skill. These features are held to be in the realm of choice, elementary engineering design and expected skill.

The applicant in his response dated December 11, 1973 stated (in part):

The invention is unique in providing a vertical rail on which the carriers move in straight and arcuate paths to be advanced from one station to another station where work is performed. A chain mounted on the support is driven at a predetermined speed and wear plates are carried by the chain mounted in a manner to permit the chain to bend in a normal manner and to engage wear plates on the carriers which are advanced by the chain until stopped while the chain continues to advance. It is not a question of employing plates that permit wear. The plates are hardened so that very little wear occurs between those on the chain and those on the carriers. The friction drive provided between the wear plates on the chain and on the carriers is unique with applicant and has functioned in a very satisfactory manner on the vertical rail support.

The patent to Brown cannot anticipate the claimed structure since it must operate in a single path being a continuous belt on which there are no wear plates to engage wear plates on the pallets. The Brown pallets are merely frames designed to support thin plastic sheets which are to be operated on to form circuit board panels. The Cargill patent employs a chain, a sprocket

and clutch means which produces a drive of the pallet when the sprocket is prevented from rotating. The Examiner pointed to the statement in Cargill that friction could be employed. The patent stated at Column 4, line 61, "For example, in some cases, it might be feasible to eliminate the sprocket and clutch arrangement shown in the drawings and merely have one end of the pallet rest in frictional engagement on the chain,"

Apparently, this has never been carried out as it is stated, "it might be feasible." It would appear that considerable ingenuity amounting to invention would be required to have one end of the pallet rest in frictional engagement on the chain and produce satisfactory drive therebetween which is interrupted at the various stations. This disclosure, however, does not anticipate the structure claimed since the wear plates are provided not only on the chain but also on the carriers. This drive proved exceedingly satisfactory on the vertical rail which permits the pallet supports to extend outwardly from one side of the rail for supporting the pallet in cantilever. In other types of conveyors, such as those showing in the cited art, no operations could be performed on the portion of the workpiece which rested upon the pallet. By extending the support in cantilever from the vertical rail, large apertures may be provided therethrough and through the pallet so that the bottom portion of the workpiece is exposed for work operations thereon. This is new with applicant and there is nothing known in the prior pallet conveying art in which the article resting on the pallet can be operated on from below. Considering the art cited the Cargill reference relates to a conveyor line extending past successive automated work stations which require accurate workpiece location. Clutch means is provided for engaging and disengaging a continuously driven conveyor chain to position each pallet at the precisely required location.

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The Brown reference relates to a continuously driven conveyor belt for transporting pallets for electrical circuit panels. Motion is imparted to the pallet by frictional engagement between the lower pallet surface and the conveyor belt. Stop members engage matching surfaces on the pallet in order to hold and position the pallet at fabricating stations located along the belt path.

The question which we must decide is whether claims 1-9 and 11-16 disclose a patentable advance over the cited art. Claim 1 reads:

In a work conveying device, a plurality of carriers for supporting and advancing workpieces, a support having straight and arcuate sections upon which said carriers are movable, a chain having the links disposed substantially horizontal for advancing said carriers on the support with the links on the chain pivotable in a horizontal plane, wear plates on the chain and carriers providing a driving relation therebetween when the carriers are free to advance, and stop means on the carriers which when actuated interrupt the carriers' advancement and permit the wear plates on the chain to continue to advance.

As previously mentioned this application employs a continuous chain conveyor which has carriers thereon for moving pallets to successive work stations. The chain conveyor consists of horizontal links that pivot about the vertical axis. Drive means for the carrier is derived from frictional contact of wear plates located on the chain and on the carrier. When a pallet arrives at a designated work station the carrier is held at this location but the conveyor chain continues to move as it overcomes the frictional force and the chain wear plates slip on the carrier wear plates.

It is observed that Brown uses a belt conveyor where the weight of the pallet on the belt develops sufficient frictional drag to cause it to move with the belt. While the pallet is held at the work station the belt overcomes the frictional drag and continues to move. The pallets used are of relatively light weight as they carry circuit panels for television receivers. As a result, the frictional drag necessary to carry or hold the pallet is relatively small, and wear on the belt or bottom of the pallet surface is of no consequence. There is no mention of the use of wear plates for "driving the pallet or overcoming wear." Brown's conveyor is used in the vertical plane rather than the horizontal plane as contemplated by the applicant.

Cargill uses a conveyor chain link arrangement in the vertical plane. Carriers are pulled with the chain by means of a "clutch" arrangement which consists of a drive gear mounted on a transverse shaft in the carrier. When a carrier is stopped at a work station the gear "freewheels" thereby allowing the chain to continue moving. Locking the gear to prevent rotation allows the carrier to proceed to the next station. When the carrier is coupled to the chain the weight is carried by rollers and slide blocks which operate in guide rails.

In the specification Cargill states that:

Many modifications are also possible in the specific form of conveyor, pallet, fixture and clutch arrangement. For example, in some cases, it might be feasible to eliminate the sprocket and clutch arrangement shown in the drawings and merely have one end of the pallet rest in frictional engagement on the chain, particularly in the case of a horizontal conveyor loop where gravity would be equally operative throughout the pallets' complete travel around the conveyor circuit.

It is significant that none of the references show conveyor chain operating in the horizontal plane. While Cargill indicates that his device could have alternative uses and that "it might be feasible" for his conveyor to operate in this fashion, he does not, however, suggest what modifications would be required. His carriage structure discloses rollers at the leading end; clutch gear arrangement in the middle and sliding blocks at the trailing end. Neither the modifications nor the problems that may have to be resolved in eliminating the gear clutch for friction drive are described.

The concept of wear plates on both elements to utilize friction therebetween as the driving force for the carrier, as well as their use for wear surfaces when holding the carrier, is not shown in the references. While the use of wear plates to prevent wear per se may be old as shown by the examiner in the example of a protective plate on the heel of a shoe,

there is, however, no suggestion in any of the citations for the dual purpose of the use of wear plates for friction drive means and slip means as contemplated by the applicant.


Of interest is the rationale of the court in Hickton's Patent Syndicate v Patent and Machine Improvements Co. Ltd. (1909) 26 R.P.C. 339.

At page 348 Fletcher Moulton J. stated:

I have taken the case of Bolton and Watt with the condenser, but I can give another. Take the case of the safety valve for boilers. The man who first discovered the idea of a properly weighted valve in the boiler solely for the purpose of relief, if the pressure rose too high, would have been making a most valuable and meritorious invention. So soon as he conceived that idea of guarding against the danger of explosion the carrying out of the idea required no invention at all. In my opinion, invention may lie in the idea, and it may lie in the way in which it is carried out, and it may lie in the combination of the two; but if there is invention in the idea plus the way of carrying it out, then it is good subject-matter for Letters Patent. (underlining added.)


Clearly the practical utility of the combination of the conveyor operating in the horizontal plane and the "friction drive and slip means" as recited in claim 1 is neither taught nor suggested in the cited references. Accordingly, the Board is satisfied that there is present in the new combination claimed a degree of ingenuity which was the result of thought and experiment. (See Crosley Radio Corporation v Canadian General Electric Company (1936) S.C.R. 551 at 556). Consequently the rejection of claims 2-9 and 11-16 which depend directly or indirectly on claim 1 is also transversed.

The Board therefore recommends that the decision of the examiner to refuse claims 1-9 and 11-16 be withdrawn.


J.P. 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.

Decision accordingly,

A handwritten signature in cursive script, appearing to read 'A.M. Laidlaw', with a long horizontal line extending to the right from the end of the signature.

A.M. Laidlaw,
Commissioner of Patents.

Dated at Hull, Quebec
this 9th. day of
January, 1975.

Agent for Applicant

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