Skid-Steer Loader-Dozer Paper II
Raised Axles

Reference: SKID-STEER VEHICLE
Meyer, U.S. Patent Number 4,009,761 issued on March 1, 1977

This following four page paper contains the written **Abstract** copied, verbatim, from Meyer's Skid-Steer Vehicle, U.S. Patent Number 4,009,761, Also, from the ***Description*** section of his patent, will be copied below, verbatim, two complete paragraphs encompassing: BACKGROUND OF THE INVENTION, one complete paragraph encompassing: SUMMARY OF THE INVENTION and the final two paragraphs encompassing: OBJECTS OF THE INVENTION.

In addition I have included historical background information as well as further explanation of the design of the Melroe Model 660 "Six Wheeler" and the SST, Inc., "Sixer" Six-Wheel Skid-Steer Loaders (See the enclosed brochure/literature on both of the Six-Wheel machines).

Abstract

A loader or other vehicle provided with three pairs of wheels located as closely to each other as is practical while allowing a small space between the peripheral surfaces of adjacent wheels; the axles of the three pairs of wheels extending transversely of the vehicle, with the center axle located in a horizontal plane lower than the horizontal planes of the front and rear axles, providing four wheel traction at all times automatically utilizing either the combination of two front and two center wheels or the combination of two rear and two center wheels depending on whether the vehicle load is greater forwardly or rearwardly of the center axle.

Description

BACKGROUND OF THE INVENTION

This invention relates to "skid steer" vehicles, such as motor powered loaders and other vehicles which perform their intended functions in restricted areas. Skid steer vehicles have wheels which cannot be turned in any direction for changing the path of travel; turning of the vehicle is done by making the wheels on one side travel forwardly and making the wheels on the opposite side travel rearwardly, resulting in a skid motion of the loader to change the direction of travel.

Loaders of this type have been designed to employ relatively short wheel bases supported on four relatively large diameter wheels, the wheel base permitting the vehicle to turn in cramped surroundings. Difficulties have been encountered in the operation of prior art skid steer vehicles due to the fact that differences in vehicle load forwardly or rearwardly of wheel base center causes the wheel traction to be confined to either the front wheels or the rear wheels of the four wheel drive. This results in raising one pair of wheels, either front or rear, so that the skid steering movement as single path travel depends on two wheel traction. Such prior art vehicles may employ two pairs of 29 inch diameter wheels, with the wheels of one pair spaced five inches from the wheels of the other pair. The resultant two wheel traction results in unstable and unsafe performance, and other objections such as digging of holes in the terrain.

Skid-Steer Loader-Dozer Paper II
Raised Axles

SUMMARY OF THE INVENTION

The skid steer loader or other vehicle of this invention is provided with six wheels in which the three pairs of wheels are located as closely to each other as practical while allowing a small space between the peripheral surfaces of adjacent wheels. The axle of the center pair of wheels is mounted on the vehicle frame in a lower horizontal plane than the axles of the front and rear pairs of wheels. This six wheel construction always provides a four wheel drive automatically alternately utilizing the combination of two front and two center wheels or the combination of two rear and two center wheels, depending on the load differential forwardly or rearwardly of the center axle. Four wheel traction is provided at all times in skid steering for turns as well as for single direction travel.

OBJECTS OF THE INVENTION

The main object of the invention is to achieve easy skid steering, stability of the vehicle, safe performance, increase capacity, and positive four wheel traction regardless of differences in weight of front and rear loads.

Another object is to provide four wheel traction an all times by automatic transmittal of the driving traction to the combined front and center pairs of wheels or to the combined rear and center pairs of wheels by a rocking motion of the vehicle.

Although Meyer's patent achieves the end result by the fixed vertically lowering of the center axle one-half inch below the horizontal plane of his front and rear axles, the same end result can be achieved by vertically raising the rear axle one-inch above the horizontal plane of the front and center axles as was done on the SST, Inc., "Sixer".

The fixed vertical one-half inch lowering of the center axle has already been done in the early 1980's by the Melroe Brothers, Inc., based in Longmont, Colorado. They are the manufacture that licensed the Meyer U.S. Patent # 4,009,761 and proceeded to manufacture approximately one hundred and thirty-four machines identified as the Model 660 Melroe "Six Wheeler" Skid-Steer Loader. The company soon folded due to under capitalization and then being further compromised by the severe economic downturn experienced during the 1980's.

Again this Melroe "Six Wheeler" center axle was lowered in a fixed position in a horizontal plane below the horizontal plane of the front and rear axles which were also fixed. This Model 660 Melroe "Six Wheeler" weighed 6440 lbs. with bucket and had 56 maximum brake horsepower. It had a 56 inch overall wheelbase with a 28 inch tight turning radius.

Skid-Steer Loader-Dozer Paper II
Raised Axles

In the late 1980's another attempt was made by Syl Melroe, nephew to the original Melroe Brothers, to manufacture a three axle/Six-Wheel Skid-Steer Loader with a one-inch vertically raised fixed rear axle that was in a horizontal plane higher than the horizontal plane of the front and center axles that were also fixed. There were ten of these prototypes machines manufactured by SST, Inc., based in Fergus Falls, Minnesota. The machine model was identified as the SST, Inc., "Sixer" Skid-Steer Loader and weighed in at 7200 lbs. and had 80 horsepower. Again this second start-up attempt failed, this time prior to ever going into the production stage, mainly due to under capitalization and the even more turbulent economic conditions of the late 1980's which were so turbulent that even Caterpillar lost money for the first time in the history of their company.

Should more information be desired pertaining to the Rigid Frame/Chain Drive (Skid-Steer) concept, please reference the following additional Skid-Steer patents as listed below.

- MULTIWHEELED MODULAR RIGID FRAME VEHICLE (Divisional Patent)
  Kole, U.S. Patent Number 7,124,853 issued on October 24, 2006

- MULTI-WHEEL STEERABLE RIGID FRAME POWER MODULE VEHICLE
  Kole, U.S. Patent Number 4,782,906 issued on November 8, 1988

- ALL TERRAIN VEHICLE CONTROL SYSTEM
  Bogner et al., U.S. Patent Number 4,568,095 issued on February 4, 1986

- TRACTION VEHCILE Garner et al., U.S. Patent Number 4,266,625 issued on May 12, 1981

- SKID STEER VEHICLE
  Meyer, U.S. Patent Number 4,009,761 issued on March 1, 1977

Hopefully the foregoing with the attached six drawing sheets and viewing the Melroe 660 "Six Wheeler" video at my websites listed below will be sufficient in conveying the features, advantages and benefits of the Meyer Six-Wheel Skid-Steer Loader concept.

Steve Kole

Cell: 214.766.0252
Email: awssixwheeler@gmail.com
Website: www.4-Wheelloader.com