Skid-Steer Loader-Dozer Paper I
Patented Internal Sliding Counterweight

Reference: MULTIWHEELED MODULAR RIGID FRAME VEHICLE
Kole, U.S. Patent Number 7,124,853 issued on October 24, 2006

This following three page paper of written description in conjunction with the attached six drawing sheets dated, April 17, 2011, should aid in explaining the patented Internal Sliding Counterweights in detail and how they work and what features, advantages and benefits are derived by incorporating them into a Four-Wheel or Six-Wheel Skid-Steer Loader.

The enclosed drawing sheets numbered: 1, 3, 5 and 6, of 6, dated 4-17-11, pertain to incorporating the Dual Internal Sliding Counterweights into a conventional Four-Wheel Skid-Steer Loader similar to the Thomas 255. The enclosed drawing sheets show a 48.75 inch wheelbase Four-Wheel Skid-Steer Loader with a 300 lb Internal Sliding Counterweight located within the Port-Side Chain/Transmission Tank/Case. Also shown is an identical in size 300 lb Internal Sliding Counterweight located within the Starboard-Side Chain Tank for a total aggregate weight of 600 lb of Internal Sliding Counterweights located within the Dual Chain Tanks.

This Dual Internal Sliding Counterweight arrangement can travel 45 inches laterally to provide for moving of the total 600 lb from the 45 inch in length back half of the machine to the 45 inch in length front half of the machine. This transfer of weight in order to better balance the machine to match the attachment and task that is being performed can be achieved by the push of a button from the operator's seat that will allow the machine, when loading with a bucket, to have a significantly increased tipping load as well as operating capacity.

In addition when the machine is equipped with a Dozer Blade, it can be more evenly balanced fore and aft so as to allow the innate superior wheel traction found within the Skid-Steer concept to be more effectively harnessed and put to beneficial use in pushing dirt, etc., with a Dozer Blade or when ripping with a Ripper, etc.

The Dual Port and Starboard Chain/Transmission Tank/Case as illustrated on the enclosed six drawings, dated 4-17-11, are large enough in capacity to incorporate a much larger Internal Sliding Counterweight than each of the dual 300 lb weights or a total of 600 lb as depicted on the drawings. The reason for this is, it is my contention that the 600 lb total of Internal Sliding Counterweights will be sufficient for when you move a total of 600 lb from the back half of the machine to the front half of the machine it is a weight shift of 1200 lb as regards to the machine's performance.

It will be tantamount to adding 1200 lb to the front of the machine. This significant and serendipitous 1200 lb weight shift is achieved because not only was a total of 600 lb moved to the front half of the machine but in doing so the 600 lb was removed from the back half of the machine and thus the machine now experiences a total shift in balance and performance similar to as if a 1200 lb weight had been added to the front of the machine.

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On a Four-Wheel Skid-Steer Loader with a 43 inch wheelbase, similar to the Caterpillar 242B, the Dual Internal Sliding Counterweights will weigh an approximate total of 450 lb. For a large Four-Wheel Skid-Steer Loader with a 55 inch wheelbase, similar to the Gehl 7810E, the Dual Internal Sliding Counterweights would total approximately 680 lb in weight. The 45 inch lateral movement as reflected on the enclosed drawings, dated 4-17-11, would be achieved by a small hydro-stat motor powering a worm screw shaft located within each of the Dual Internal Sliding Counterweights. The two worm screw shafts would be connected to the small hydro-stat motor via roller type chain as shown in enclosed drawing sheets: 1, 3 and 5 of 6, dated 4-17-11.

The Dual Internal Sliding Counterweights are designed to be made from multiple pieces of one inch thick strips of steel plate bolted together to achieve the exact desired weight for different operating capacity machines utilizing the same 48.75 inch wheelbase. The entrance of the Sliding Counterweight into the Chain Tanks can be made from the front of the Chain Tanks through an opening that can be sealed closed by a bolt-on cover plate.

This patented Internal Sliding Counterweight concept could provide a more profitable and marketing advantage to a manufacture that would endure until the patent expires on April 20, 2024. The increased productivity and versatility provided by this patented concept could elevate a Skid-Steer manufacture's line of equipment to a major-player status within the Skid-Steer Loader industry. At the same time the proprietary aspects could inoculate and thus immune a manufacture from having to become entangled in competitive price wars that are a scourge to profit margins.

So as to minimize confusion, my recently issued Skid-Steer Sliding Counterweight, U.S. Patent # 7,124,853 of October 24, 2006 bears the same name, written description, patent drawings as does my Skid-Steer Modular, U.S. Patent # 6,779,617 that was issued on August 24, 2004. The only difference in the two patents is in the patent claims. The reason for the similarity in the two patents is that the Sliding Counterweight patent application was originally filed as part and parcel of the Modular patent application but the U.S. Patent Office made us separate out the two concepts and then submit a separate patent individually on each. Thus the Sliding Counterweight patent is what my patent attorney refers to as a divisional patent of the Modular patent.

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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.

- 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 this proposed new Internal Sliding Counterweight concept when incorporated into Four-Wheel or Six-Wheel Skid-Steer Loader-Dozers.

Steve Kole

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