SELF-PROPELLED LUGGAGE BAG WITH DETACHABLE FOLDABLE WHEELS

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ABSTRACT
The main body of the luggage bag has a special tilted shape that puts more weight at the top instead of at the bottom of the luggage bag. There are two sets of wheels. The first set of wheels is at the bottom of the luggage bag. The second set of wheels has a spring, screws or fixed positions attached to adjust the height. This second set of wheels can be foldable (into a box), or detachable from the luggage, and be attached to any existing traditional luggage bag. There is an "L" shape lever as part of the handle to release the stress of the human arm while dragging the luggage bag. The wheels can be connected and powered by electrical sources or batteries.
Gravity pushes forward
The wheels can be supported by the top of the cover box (with or without a door) or by some cushion device near the top of the box.

FIG. 4
FIG. 5
these can be a screw or a high adjustment device

covered box attached to the luggage

FIG. 7
groove

platform attached to the luggage

groove

screws and holes
to attach the wheels
to the luggage

detachable wheels

FIG. 8A

racks are foldable

the wheels can be protected by racks or box

FIG. 8B
The upper edge of the box or a support bar

a support rod tied to the luggage bag

FIG. 9
The wheel(s) and the handle can be connected. When the handle is pulled out, the wheel(s) also come out simultaneously.

When the handle is pulled up, the control rod 1 is pulled down, release spring 1, which was in a tight condition when the handle is down. When spring 1 is loose, spring 2 is tight.

When the handle is pushed down, spring 2 is released and pushed the control rod 1 back. Control rod 2 is pulled up that fold the wheel back.

FIG. 10
SELF-PROPELLED LUGGAGE BAG WITH DETACHABLE FOLDABLE WHEELS

BACKGROUND OF THE INVENTION

[0001] Traditional luggage, such as the ones used by airport passengers, is not of the most convenient design. This is because the luggage needs to be half lifted from the bottom, stressing the passenger’s arm from one side. It can be very tiring especially if the passenger needs to walk a long way from one terminal to another.
This force dragging the luggage backward.
[0002] A newly designed self-propelled luggage bag takes advantage of the gravity, which propels the luggage bag forward, instead of backward. There is a 2nd set of wheels, besides the main wheels fixed to the bottom of the luggage bag, to support the weight of the bag. This 2nd set of wheels (one wheel or more) is foldable, detachable, and can be designed to act simultaneously with the handle movement. It can also be connected to the 3rd wheel, which is in between the 2 main wheels at the bottom, for electrical propelling.
DETAILED DESCRIPTION OF THE INVENTION

[0003] In FIG. 1, a 2nd set of wheels is attached to the luggage bag. The 2nd set of wheels are foldable and detachable. They can be folded into a box outside of the luggage bag (FIG. 1A), or inside the luggage bag (FIG. 1B).

[0004] In FIG. 2, the tilted body of the bag is shown. The tilted top portion of the bag puts more weight at the top, that provides a forward-pushing force from gravity while the passenger carry the bag forward.

[0005] FIG. 3. The 90 degree angles ("L" shape lever) lower the position of the front rod so the passenger does not need to raise his or her hand while carry the luggage. The handle is attached to the top side of the luggage, compared to conventional luggage where the handle is attached to the bottom side. When the passenger grabs the front rod, he or she presses down the luggage, instead of having to lift the bag up if the handle is attached to the bottom side, thus saving strength and energy with the natural force of gravity.

[0006] In FIG. 4, the second set of wheels is described. This is a totally detachable part, which can be compatible to any existing conventional baggage. There is a spring above the wheel. When the passenger drags the bag forward and also downward, the spring causes the gravity for force the luggage to move forward.

[0007] FIG. 5 shows the 2nd set of wheels can be folded into the bottom of the luggage bag.

[0008] FIG. 6 shows possible electrical connection between the two sets of wheels.

[0009] FIG. 7 shows how a foldable wheel is attached to the luggage.

[0010] FIG. 8 shows one of the various ways the 2nd set of wheels can be detachable to the luggage bag. It can be fit into the grooves on the sides of a platform on the luggage.

[0011] Or the wheels can be protected by foldable racks. The cover box can be detachable too in the same manner.

[0012] FIG. 9 shows various designs for the 2nd set of wheels. There can be multiple wheels attached to a frame, supported by various mechanisms. Or two wheels can be attached to the same rod.

[0013] FIG. 10: The handle of the luggage bag and the 2nd set of wheels can act simultaneously. When the handle is pulled up, the wheels are out. When the handle is pushed down, the wheels are folded in. There are electronic as well as mechanic approaches to accomplish this. In the figure a mechanic approach is shown.

What the claimed is:
1. The shape of the bag is tilted, so more weight is at the top of the bag.
2. The handle has two 90 degree angles ("L" shape) to lower the front rod.
3. The handle can be attached to the same side of the luggage bag, where the 2nd set of wheels is attached, or to the opposite side of the bag.
4. The 2nd set of wheels is foldable and detachable. They can be folded into a box or protected by foldable racks.
5. There is a spring attached to the 2nd set of wheels, so when the passenger drags the bag, the spring converts the gravity to a forward moving force.
6. The 2nd set of wheels with a spring can be detached and compatible to all existing conventional luggage bags.
7. Special electrical connection between the two sets of wheels.
8. A 2nd set of wheels that is foldable and can be attached to the bottom of the luggage.
9. The handle of the luggage bag and the 2nd set of wheels can act simultaneously, through mechanical or electronic devices and connections.

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