includes a locking stirrup which comprises two limbs connected by a joke. The joke of the locking stirrup is pressed against a drum counter by a spring. The drum counter includes three counter wheels, each counter wheel being provided with a groove. Once the grooves are in line in a specific counter state, locking stirrup may be displaced such that the ends of the limbs engage into the path of movement of entrainment portions of the closure cap. This mechanism is particularly adapted for use with a drum counter and requires also several moveable parts as well as at least one spring element in order to ensure a reliable operation.

Another type of inhaler for discharging liquid agent into an air stream is for instance disclosed in US 2010/0083963 A1.

It is accordingly an object of the present invention to provide an inhalation device of the above-referred kind which has a simplified design. These and other objects are achieved by an inhalation device according to independent claims 1 and 12.

Summary

In one aspect of the present disclosure, there is provided an inhalation device for powdered drugs to be received by a patient by an inhalation-caused air stream, comprising at least one powder reservoir, metering means for repeatedly metering a powder dose from the reservoir, a transportation mechanism for moving said metering means from a filling position for receiving a powder dose into an emptying position for releasing said powder dose into a powder channel, at least one activating device for manual operation by the patient, said activating device being operatively connected to said transportation mechanism such that upon operation a single powder dose is being metered, said activating device comprising a dosage key (5) acting on said transportation mechanism when pressed by the patient and further comprising an advancing mechanism for advancing a counter means each time the inhalation device has been activated by the patient so that a powder dose has been released into the powder channel, wherein the counter means comprises a mechanical index coupled to a locking mechanism blocking the dosage key and/or the activating device and/or the transportation mechanism after a predetermined number of metering cycles after detection of the index, wherein the locking mechanism includes a locking lever (7)

for positive engagement with the dosage key (5) and/or the activating device and/or the transportation mechanism in the blocked condition, characterized in that the locking lever (7) includes signaling means integrally formed therewith and engaging the index after said predetermined number of metering cycles.

In another aspect of the present disclosure, there is provided an inhalation device for powdered drugs to be received by a patient by an inhalation-caused air stream, comprising at least one powder reservoir, metering means for repeatedly metering a powder dose from the reservoir, a transportation mechanism for moving said metering means from a filling position for receiving a powder dose in an emptying position for releasing said powder dose into a powder channel, at least one activating device for manual operation by the patient, said activating device being operatively connected to said transportation mechanism such that upon operation a single powder dose is being metered, said activating device comprising a dosage key (5) acting on said transportation mechanism when pressed by the patient, and further comprising an advancing mechanism for advancing a counter means each time the inhalation device has been activated by the patient so that a powder dose has been released into the powder channel, characterized in that the advancing means comprises at least one counter slide (34) engaging a counter ring (35) carrying visual information on the number of doses already administered and/or still available, a translatory reciprocal movement of the counter slide (34) causing a stepwise rotary movement of the counter ring (35).

Description

According to ~~one aspect of~~ the ~~invention~~present disclosure, there is provided an inhalation device for powdered drugs to be received by a patient by an inhalation-induced air stream, comprising at least a powder reservoir, metering means for repeatedly metering a powder dose from the reservoir, a transportation mechanism for moving said metering means from a filling position for receiving a powder dose into an emptying position for releasing said powder dose into an emptying position for releasing said powder dose into a powder channel, and at least one activating device for manual operation by the patient, said activating device being operatively connected to said transportation mechanism such that upon operation a single

powder dose is being metered, said activating device comprising a dosage key acting on said transportation mechanism when pressed by the patient, and further comprising an advancing mechanism for advancing a counter means each time the inhalation device has been activated by the patient so that a powder dose has been released into the powder channel, wherein the counter means comprises a mechanical index coupled to a locking mechanism blocking the dosage key and/or the activating device and/or the transportation mechanism after a predetermined number of metering cycles after detection of the index,