CLAIMS

1. An ammunition transfer system for reversible transfer of ammunition in an automatic cannon, comprising:

a primary magazine, at least one secondary magazine, a hoisting device comprising a chain drive arrangement for the transport of the at least one secondary magazine to the primary magazine,

wherein the system comprises a docking and transfer arrangement for docking of the secondary magazine with the primary magazine for transfer of ammunition between the magazines,

wherein the secondary magazine and the primary magazine comprise a respective chain conveyor for feeding ammunition to or from an ammunition outlet,

wherein the respective chain conveyors are driven synchronously with one another via at least one drive arrangement for driving the secondary magazine and the primary magazine during the transfer of ammunition between the magazines.

2. The ammunition transfer system as claimed in claim 1, wherein the hoisting device is arranged in the form of two vertical self-supporting pairs of rails beneath the primary magazine, being a front pair of rails and a rear pair of rails, configured for the hoist transport of a secondary magazine,

wherein the chain drive arrangement of the hoisting device is a freestanding construction separated from the two pairs of rails and is attached and fixed to the outside of the two front pairs of rails.

3. The ammunition transfer system as claimed in claims 1 or 2, wherein the hoisting device is arranged in the form of a self-supporting framework comprising two parallel side-mounted vertical pairs of members between an ammunition store and the primary magazine of the automatic cannon,

wherein the two pairs of members are each linked together via a lower pair of transverse members, two intermediate pairs of transverse members and an upper pair of transverse members,

wherein, arranged on the insides of the two vertical pairs of members, are four vertical parallel support rails and slide rails, two being two front support rails and two being two rear support rails, between which rails the secondary magazine is transported upwards and downwards to the primary magazine via the chain drive arrangement of the hoisting device,

wherein the chain drive arrangement is arranged in the framework in the form of a loop on the inside of the pair of members of the framework via chain wheels and drive wheels mounted on the three pairs of transverse members of the framework.

4. The ammunition transfer system as claimed in any of claims 1-3, wherein the ammunition loading system comprises a common drive arrangement for synchronized driving of the secondary magazine and the primary magazine during the transfer of ammunition from the secondary magazine till the primary magazine.

5. The ammunition transfer system as claimed in any of claims 1-3, wherein the ammunition loading system comprises two separate drive arrangements for independent driving of

the secondary magazine and the primary magazine during the transfer of mixed types of ammunition from the secondary magazine to different positions in the primary magazine.

6. The ammunition transfer system as claimed in claim 5, wherein the ammunition loading system comprises a switching unit for switching from the common drive arrangement to two separate drive arrangements and vice versa.

7. The ammunition transfer system as claimed in any of claims 1–6, wherein the ammunition loading system comprises a programmable control and monitoring unit for controlling and monitoring of the hoisting device and the docking and transfer arrangement.

8. The ammunition transfer system as claimed in any of the foregoing claims, wherein the docking and transfer arrangement comprises four locking bolts arranged in the corners of the ammunition inlet of the primary magazine, four preloaded, V-shaped projecting articulations, movably connected to the four movable locking bolts, so that the locking bolts, during activation of the articulations, are displaced radially from a closed blocking position into an open position in the ammunition inlet of the primary magazine,

wherein the secondary magazine comprises four gate devices each one enclosed by a casing, arranged in the corners of the ammunition outlets of the secondary magazines, each comprising a contact surface, a toothed wheel, a chain wheel and a chain link arranged in conjunction with the chain wheel which is driven by the toothed wheel, and when the secondary magazine is hoisted up towards the primary magazine and the articulation meets

the secondary magazine is thereby forced sideways so that the ammunition outlet is opened at the same time as the primary magazine pushes the contact surface down onto the secondary magazine which drives the toothed wheel and the chain wheel in order to draw back the chain link,

wherein the ammunition outlet in the secondary magazine is opened so that ammunition can be transferred between the primary and the secondary magazine.

9. A method for reversible transfer of ammunition in an ammunition transfer system as claimed in any of claims 1–8, wherein the method comprises the following steps;

– providing an ammunition transfer system according to any of claims 1–8,

– transporting a secondary magazine to the primary magazine via a hoisting device,

– docking the secondary magazine with the primary magazine,

– transferring the ammunition in the desired direction between the magazines via the docking and transfer arrangement and via the at least one drive arrangement.

10. The method as claimed in claim 9, wherein at least one secondary magazine is arranged in a transport carriage and is subsequently docked to the chain drive arrangement of the hoisting device.