Claims

1. An inserting system for inserting envelope contents 5 into an envelope 2, wherein the inserting system 1, 1’ comprises a holder 6 for empty envelopes, a flap opener 7 for opening an envelope flap 3 of the envelope 2, transport elements 8 for transporting the envelopes 2 from the holder 6 to a packing pocket 9 on which the envelopes are filled, a supply device 10 for supplying the envelope contents 5 to the packing pocket and into the packing pocket 9, and onward transport elements 11 for the onward conveying of the filled envelope 2’, characterized in that the transport elements 8 comprise a funnel 12 for aligning the envelope 2 with the packing pocket 9, said funnel being movable in a first angle (W1) relative to a flap guide 13 of the packing pocket 9 which is mounted on the inserting system 1, 1’ or on a mounting rail 15, and at least one pulling means 14 for at least partially pulling the envelope 2 onto the packing pocket 9, said pulling means cooperating temporarily with the flap guide 13 of the packing pocket 9 and being movable in a second angle (W2) relative to the flap guide 13, and synchronizing means 16 for synchronizing the movement of the funnel 12 and of the pulling means 14, as a result of which the funnel 12 and the pulling means 14 are movable from a first position I at receipt of the envelope flap 3 by the funnel 12 into a second position II after the envelope flap 3 has been placed onto the flap guide 13, and a transport angle (Wt) between the supplied envelope 2 and the flap guide 13 can be varied during the pulling of the envelope onto the packing pocket 9, in order to enable opening of the envelope.

2. The inserting system according to claim 1, characterized in that the at least one pulling means comprises a pulling roller 14.

3. The inserting system according to claim 1, characterized in that, in the first position I, the transport angle (Wt) lies in a range between 15° and 45°, preferably between 20°

and 40°, particularly preferably around 30°±5°, the limit values being included.

4. The inserting system according to any of the preceding claims, characterized in that, in the second position II, the transport angle (Wt) is smaller than in the first position and preferably lies in a range between -10° and 10°, particularly preferably between 0° and 6°, the limit values being included.

5. The inserting system according to any of the preceding claims, characterized in that the means 16 comprise synchronous motors, but preferably mechanical transmission means such as toothed wheels, toothed belts, chains, drive belts, particularly preferably a guide cam 17.

6. The inserting system according to claim 5, characterized in that the guide cam 17 is a cam disk or a cam lobe.

7. The inserting system according to any of the preceding claims, characterized in that the funnel 12 comprises two angle profiles 18 which are arranged parallel to and against one another, on opposite sides and transversely to the transport direction, and are mounted such as to be able to be moved by the means.

8. The inserting system according to claims 1 to 6, characterized in that the funnel 12 comprises two angle profiles which are arranged parallel to and against one another, on opposite sides and transversely to the transport direction, said angle profiles being mounted on a common funnel base 19 which is able to be moved the means 16.

9. The inserting system according to any of the preceding claims, characterized in that an onward transport angle (Wa) formed between a plane K, which includes the flap guide 13, and the onward transport direction of the filled envelopes 2’ is acute and directed downward, preferably in a range between 1° to 12°, the limit values being included.

10. The inserting system according to any of the preceding claims, characterized in that arranged upstream of the funnel 12 counter to the transport direction of the envelope 2 is a transport roller 20 which cooperates with a preferably spring-biased counter-roller 21 in order to transport the envelope 2 through the funnel 12 onto the packing pocket 9 as far as the pulling means 14.

11. The inserting system according to claim 9 or claim 10, characterized in that provided downstream of the packing pocket 9 in the onward transport direction of the filled envelope 2’ is an onward transport roller 22 and a further onward transport element 23 cooperating therewith for conveying the filled envelope 2’ onward from the packing pocket 9.

12. The inserting system according to claim 10 or claim 11, characterized in that the transport roller 20, 22 is arranged between a transport plane T, T’, T’’ and the onward transport plane so as to cooperate alternately or else simultaneously with the counter-roller 21 and the further onward transport element 23.

13. The inserting system according to any of claims 10 to 12, characterized in that the onward transport angle (Wa) from the front edge of the packing pocket 9 is acute and directed downward, preferably in a range between 1° and 12°, the limit values being included.

14. The inserting system according to any of claims 11 to 13, characterized in that the further onward transport element comprises a segment 23, preferably a segment which can be spring-biased against the transport roller/onward transport roller.

15. The inserting system according to any of the preceding claims, characterized in that transport elements 11 or/and

onward transport elements comprise further rollers or/and segments.

16. The inserting system according to any of the preceding claims, characterized in that the flap opener 7 is designed as at least one opener claw 25 arranged on a circular circumference.

17. The inserting system according to any of the preceding claims, characterized in that the flap opener 7 comprises a blowing unit for generating an air flow that is directed below the envelope flap 3.

18. The inserting system according to any of the preceding claims, characterized in that the supply device 10 comprises fingers 26 attached to toothed belts or drive belts or chains.

19. The inserting system according to any of claims 9 to 18, characterized in that the first angle (W1) lies in a range from 90° to 150°, preferably in a range from 110° to 130°, relative to the plane K that includes the flap guide, the limit values being included.

20. The inserting system according to any of claims 9 to 19, characterized in that the second angle (W2) lies in a range from 70° to 110°, preferably in a range from 80° to 100°, relative to the plane K that includes the flap guide, the limit values being included.

21. The inserting system according to any of the preceding claims, characterized in that the first angle (W1) or/and the second angle (W2) can be varied, in particular can be varied by pivoting.

22. The inserting system according to any of the preceding claims, characterized in that cones 27 which are preferably adjustable and which laterally delimit at least the flap guide

plane 13 are provided laterally between the pulling means 14 and the funnel 12 in order to easily open the envelope 2.

23. The inserting system according to any of claims 9 to 22, characterized in that the packing pocket 9 comprises a mid-line M in the plane K and also a plurality of slats 28 which are parallel to the mid-line M and which are arranged with the respective flap guide 13 in the plane K, wherein to at least two outer slats 28’ with respect to the mid-line a sheet guide 30 is assigned, which is at a distance from the respective flap guide 13, and the slats 28 are arranged separately from one another on the inserting system 1, 1’ or on a mounting rail 15, 35, wherein adjusting means 31 for displacing the side slats 28’ are arranged for displacing the latter in parallel substantially perpendicular to the mid-line.

24. The inserting system according to claim 23, characterized in that at least one inner slat 28’’ is arranged in a stationary manner between the outer slats 28’.

25. The inserting system according to claim 23 or claim 24, characterized in that the sheet guide 30 is designed to be flexible relative to the flap guide 13 at least in a front region which is arranged at the front in relation to the envelope supply.

26. The inserting system according to any of claims 23 to 25, characterized in that the adjusting means 31 comprise electrical and/or mechanical means, preferably an adjusting spindle 31.

27. The inserting system according to any of claims 23 to 26, characterized in that the outer slats 28’ are closed on the respective outer side surface.

28. The inserting system according to any of claims 23 to 27, characterized in that the outer slats 28’ form at least partially a U-shaped profile with an outwardly directed base,

so that the envelope contents 5 are guided on both sides by the U-shaped profile.

29. The inserting system according to any of claims 24 to 28, characterized in that the at least one inner slat 28'' is open on both side surfaces.

30. A method for operating an inserting system 1, 1' according to any of the preceding claims, wherein, from a stack of envelopes stored in the holder 6, the flap 3 of the envelope 2 located closest to an envelope removal opening of the holder 6 is opened by the flap opener 7, transport elements 8 transport the envelope 2 from the holder 6 to the packing pocket 9 on which the envelopes 2 are filled, and the envelope contents 5 are supplied to the packing pocket 9 by means of the supply device 10, and onward transport elements 11 convey the filled envelope onward, characterized in that the movable funnel 12 aligns the envelopes in the direction of the packing pocket 9, wherein said funnel is moved in the first angle (W1) relative to the flap guide 13 of the packing pocket 9, and a pulling means 14 which is moved in the second angle (W2) relative to the flap guide 13 pulls the envelope 2 at least partially, but preferably completely, onto the packing pocket 9, wherein it cooperates at least temporarily with the packing pocket 9, wherein additionally synchronizing means 16 for synchronizing the movement of the funnel 12 and of the pulling means 14 move these from the first position I for receipt of the envelope flap 3 by the funnel 12 into the second position II after the envelope flap 3 has been placed onto the flap guide 13, as a result of which the transport angle (Wt) between the supplied envelope 2 and the flap guide 13 is varied during the pulling of the envelope 2 onto the packing pocket 9, in order to facilitate opening of the envelope 2.

31. The method according to claim 30, characterized in that the first angle W1 and the second angle W2 is moved in a range

from 70° to 150° relative to the plane K that includes the flap guide, the limit values being included.

32. The method according to claim 30 or claim 31, characterized in that the first angle W1 and the second angle W2 is varied by a rotational movement when moving from position I into position II and vice versa.