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(54) Title: METHOD AND DEVICE FOR SELECTIVELY SEPARATING ELECTRONIC COMPONENTS FROM A FRAME
WITH ELECTRONIC COMPONENTS

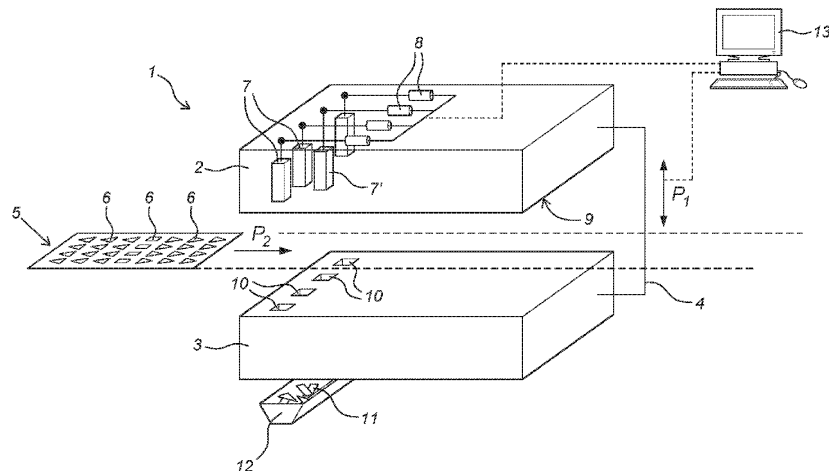


Fig. 1

(57) Abstract: A device (1, 20, 36, 38) for selectively separating electronic components (6, 16) from a frame (5, 15, 31) with electronic components (6, 16) comprises: at least two press parts (2, 3, 21, 22); drive means for moving the press parts (2, 3, 21, 22) towards and away from each other; a guide for guiding frames (5, 15, 31) between the press parts (2, 3, 21, 22); a plurality of punches (7, 23, 24) in a first press part (2, 21), which punches (7, 23, 24) are connected to individual punch controls (8); a plurality of openings (10, 25, 26) in a second press part (3, 22); and an intelligent control system (13) connecting to the individual punch controls (8). The electronic components (6, 16) to be selectively separated are determined based on component quality level information (e.g. due to malfunction and/or incorrect moulding of individual electronic components (6, 16)) so as to prevent that electronic components (11) that do not meet certain quality requirements end up in subsequent processing steps. The selective separation is executed by the punches (7, 23, 24), being tools for piercing or stamping those electronic components (6, 16) from a frame (5, 15, 31) that have to be selectively removed by moving the frame (5, 15, 31) along the press parts (2, 3, 21, 22). The openings (10, 25, 26) in the second press part (3, 22) may connect to

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at least one collecting bin (12, 27, 28) for receiving punched out electronic components (11), wherein a plurality of collecting bins (27, 28) may be provided to enable to collect various quality levels of separated electronic components (11) in various collecting bins (27, 28). A system (30) for in-line selectively separating electronic components (6, 16) from a frame (5, 15, 31) with electronic components (6, 16) and a method for selectively separating electronic components (6, 16) from a frame (5, 15, 31) with electronic components (6, 16) are also provided. The system (30) may also comprise at least one inspection unit (35) for individual inspection of the electronic components (6, 16) in a frame (5, 15, 31). The system (30) may also comprise a processing unit (37) acting on the frame (5, 15, 31) with electronic components (6, 16), for instance a processing unit for moulding, forming (e.g. bending), trimming, separating, marking and/or lasering (a part of) the electronic components (6, 16), which may be positioned either upstream or downstream from the separating device (36, 38). The system (30) may also comprise two separating devices (36, 38), with a forming unit (37) in-between, wherein a separating device (36) separates electronic components (6, 16), for instance electronic components (6, 16) that have been inspected by the inspection unit (35) as electronic components (6, 16) with inaccurate dimensions, a subsequent forming unit (37) for instance bends leads of the electronic components (6, 16) still remaining in the frame (5, 15, 31) after passing the separating device (36) and in a final process, a second separating device (38) separates components (6, 16) which for instance have been detected as incorrect during the previous processing step in the forming unit (37).