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5 [0001] The invention relates to an apparatus for handling coins, having a conveying unit for transporting the coins, wherein the conveying unit has a separating unit for separating inserted coins, having a coin-feeding unit which feeds the inserted coins to a dropping-prevention unit, wherein with the conveying unit and the dropping-prevention unit arranged in a first position, the coins fed to the dropping-prevention unit are directed onwards into a coin-receiving unit, and wherein the coins directed onwards from the dropping-prevention unit are fed to the conveying unit by the coin-receiving unit.

10 [0002] With known devices of the type mentioned above the dropping-prevention unit causes the inserted coins to be directed onwards to the coin-receiving unit or to the conveying unit without encountering coins which have already been separated. This hereby prevents coins which have already been separated from being thrown down by the conveying unit or by the separating unit and having to be separated once more.

15 [0003] Such devices have as a rule a very space-saving construction. The result of this is in particular that a foreign body inserted into the device cannot pass through an opening or a restricted spot between the dropping-prevention unit and the coin-receiving unit and thus remains suspended there permanently. This can have the result that coins inserted in such a position can likewise remain suspended at this point, which can lead to a slow-down or blockage in the coin transport. As a result the device might possibly no longer be used until the foreign body has been removed from the device by a qualified technician.

20 [0004] The object of the present invention is therefore to provide a device for handling coins having a dropping-prevention unit which avoids the drawbacks of the prior art.

25 [0005] US 5355988 A shows a device for handling coins.

[0006] This object is achieved by a device having the features of claim 1. Advantageous further developments of the invention are provided in the dependent claims.

30 [0007] According to the invention the device for handling coins has a conveying unit for transporting the coins, wherein the conveying unit has a separating unit for separating the inserted coins. The device furthermore has a coin-feeding unit which feeds the inserted coins to a dropping-prevention unit, wherein with the conveying unit and the dropping-prevention unit arranged in a first position the coins fed to the dropping-prevention unit are directed onwards into a coin-receiving unit, and wherein the coins directed onwards from the dropping-prevention unit are fed to the conveying unit by the coin-receiving unit. The device is characterized in that the dropping-prevention unit is coupled mechanically

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to the conveying unit, the conveying unit and the dropping-prevention unit are arranged relative to the coin-receiving unit in the first position so that a first opening, formed at the transition between the dropping-prevention unit and the coin-receiving unit, is present, and the conveying unit and the dropping-prevention unit are arranged relative to the coin-receiving unit in a second position so that a second opening formed at the transition between the dropping-prevention unit and the coin-receiving unit is present, the second opening being larger than the first opening. The first position of the conveying unit and the dropping-prevention unit is preferably an operating position of the device, and the second position of the conveying unit and the dropping-prevention unit is a release position of the device in which objects retained in the device can be transported through the device.

[0008] Through a device having the features of claim 1 it is achieved that a foreign body inserted into the device and which in the first position of the conveying unit and the dropping-prevention unit cannot pass through the first opening, but which in the second position of the conveying unit and the dropping-prevention unit can pass through the second opening, can be removed from its position in the first opening through the conveying unit and the dropping-prevention unit moving from the first position into the second position. Depending on the configuration of the device the foreign body, after it has been removed from its position in the first opening and passed into the second opening, can be directed onwards to a customer return compartment of the device. Through this movement of the conveying unit and the dropping-prevention unit the foreign body can be automatically removed from the device without intervention by a person.

[0009] The conveying unit is preferably mounted to pivot about a first axis of rotation and the dropping-prevention unit is mounted to pivot about a second axis of rotation and they can be pivoted jointly about the respective axis. With a suitable selection of the position of the axes of rotation it can be achieved that the dropping-prevention unit during rotation of the conveying unit as a result of movement from the operating position into the release position is turned about such an angle which is required in order to enlarge the first opening so that a foreign body can pass from its position, in which in the operating position it cannot pass through the first opening, into the release position. The parameters are however preferably selected so that the dropping-prevention unit is opened to the maximum amount in the second position, i.e. that an underside of the dropping-prevention unit contacts an upper side of the conveying unit.

[0010] The dropping-prevention unit is preferably pushed with the aid of mechanics, more particularly a spring, against an engagement element which is cou-

pled to the conveying unit. It is hereby achieved that the dropping-prevention unit during movement or rotation of the conveying unit and thus also of the engagement element coupled to the conveying unit, as a result of the force exerted by the mechanics, in the direction of the engagement element follows the movement of the conveying unit and engagement element. It is thus achieved that the conveying unit is mounted to pivot about a first axis of rotation and the dropping-prevention unit is mounted to pivot about a second axis of rotation and they can pivot jointly about the respective axis. The engagement element is preferably coupled rigidly to the dropping-prevention unit.

5 [0011] The dropping-prevention unit is preferably designed and arranged at least in the first position such that the coins fed to the dropping-prevention unit are directed onwards or around from the dropping-prevention unit so that they do not encounter coins already separated by the separating unit. This has the advantage that the coins which have already been separated are not affected during their transport through the conveying unit or the separating unit by the other coins fed to the coin-receiving unit, and more particularly cannot be discarded therefrom. The conveyor performance of the separating unit is thus increased since it is thereby avoided that the coins rejected by the conveying unit or the separating unit have to be separated once more.

15 [0012] The dropping-prevention unit preferably has on one side a protrusion wherein this one side is in the first position facing the coin-feeding unit. The protrusion of the dropping-prevention unit is hereby arranged relative to the coin-feeding unit, the coin-receiving unit and the separating unit so that the coins meeting the dropping-prevention unit from the coin-feeding unit are deflected by the protrusion such that they are guided sorted to the coin-receiving unit. The directions in which the coins are deflected by the protrusion here run preferably orthogonally to the transport direction of the coins on the conveying unit in the plane of the surface of the conveying unit. If the transport direction of the coins on the coin-feeding unit and the transport direction of the coins on the conveying unit lie in one and the same, more particularly vertically aligned, plane, then the protrusion of the dropping-prevention unit causes the coins to leave this plane so that the subsequent separating of the coins which takes place in the said plane can continue undisturbed. The protrusion preferably has a triangular cross section so that when the coins strike the protrusion a first portion of the coins slips along on an arm of the triangular cross section and a second portion of the coins slips along the other arm of the triangular cross section, whereby the coins leave the plane in which the coins are separated in the separating unit which is arranged downstream.

[0013] The coin-receiving unit and the conveying unit preferably form a container in the first position wherein in the second position a third opening is present between the coin-receiving unit and the conveying unit. It is here advantageously achieved that in the first position the conveying unit forms a container together with the coin-receiving unit which receives the inserted coins after they have dropped or slipped from the coin-feeding unit into the coin-receiving unit via the dropping-prevention unit. After the conveying unit and the dropping-prevention unit have been moved from the first position into the second position, by pivoting the conveying unit away from the coin-receiving unit the third opening is advantageously present between the conveying unit and the coin-receiving unit, whilst at the same time the first opening has been enlarged to the size of the second opening. It is hereby achieved that objects which in the first position of the conveying unit and the dropping-prevention unit could not pass through the first opening, in the second position pass via the second opening into the coin-receiving unit and from there the third opening, or directly, without passing through the coin-receiving unit, can pass through the third opening. It is furthermore achieved that objects which could in the first position of the conveying unit and the dropping-prevention unit pass through the first opening and be found in the coin-receiving unit, can pass through the third opening in the second position of the conveying unit and the dropping-prevention unit. These objects, once they have passed through the third opening, preferably move back into a customer return compartment.

[0014] A control unit is preferably provided which, after each insertion of coins by a customer or at the customer's request, activates a drive unit such that the conveying unit and the dropping-prevention unit are moved from the first position into the second position. Normally a customer inserts for example a bag of coins into such a device for payment. Through the feature mentioned above it is achieved that after each such input, the conveying unit and the dropping-prevention unit are moved into the second position in order to remove any foreign bodies which may be present from the device. Alternatively the control unit can be preset so that after each insertion of coins by a customer the latter is asked whether any foreign body is to be returned. If the answer from the customer is positive then the conveying unit and the dropping-prevention unit are moved into the second position in order to remove the foreign bodies from the device. Otherwise the conveying unit and the dropping-prevention unit remain in the first position.

[0015] The transport device in which the coins are transported in the first position from the conveying unit preferably forms an angle between 20° and 90°,

preferably between 45° and 65° with the horizontal. It is hereby achieved that the device for handling coins can be built compactly and in a space-saving manner, more particularly with a low depth.

5 [0016] Further features and advantages of the invention are apparent from the following description which explains the invention in further detail with reference to embodiments in conjunction with the accompanying drawings.

[0017] In the figures:

10 Figure 1 shows a diagrammatic illustration of a device according to the invention for handling coins in a first position of a conveying unit and a dropping-prevention unit;

Figure 2 shows a diagrammatic three-dimensional illustration of a concrete embodiment of the device illustrated in Figure 1;

15 Figure 3 shows a diagrammatic illustration of the device according to the invention for handling coins according to Figure 1 in a second position of the conveying unit and the dropping-prevention unit; and

Figure 4 shows a diagrammatic three-dimensional illustration of a concrete embodiment of the device illustrated in Figure 3.

20 [0018] Figure 1 shows a diagrammatic illustration of a device 10 according to the invention for handling coins 12 in a first position of a conveying unit 14 and a dropping-prevention unit 16. Objects, more particularly coins 12, inserted into the device first reach a conveyor belt of a coin-feeding unit 18. The upper side of the conveyor belt of the coin-feeding unit 18 moves along the direction P1 so that the objects inserted into the device 10 are moved along the direction P1 to the dropping-prevention unit 16 and at the left end of the coin-feeding unit 18 drop onto an upper side of the dropping-prevention unit 16. The dropping-prevention unit 16 is mounted to pivot at its left upper end about a second axis of rotation 20. The dropping-prevention unit 16 is pushed by means of a spring, not shown in Figure 1, along the direction P2 against an engagement element, here a first pin 66, which is rigidly coupled to the conveying unit 14 and which is arranged on an underside 22 of the dropping-prevention unit 16. The pin 66 is here guided along an oblong hole which is disposed in a fastening plate, wherein the fastening plate is not shown. In other embodiments other engagement elements can also be provided.

35 [0019] The coins 12 dropping from the coin-feeding unit 18 to the dropping-prevention unit 16 are deflected by the dropping-prevention unit 16 so that they pass into a coin-receiving unit 26. The coin-receiving unit 26 is fixed on a base element 28 and forms with this, the conveying unit 14 and two direction elements attached to the conveying unit 14, but not shown in Figure 1, a container for re-

ceiving the inserted coins 12 or other objects. The coins 12 which are located in this container are then transported by means of the conveying unit 14 along the direction P3 and are fed to a separating unit 40 for separating the coins 12.

5 [0020] The conveying unit 14 comprises two revolving belts 30 which are driven in the transport direction P3, of which only one belt 30 is visible and illustrated in Figure 1. The second belt is concealed in Figure 1 by the visible belt 30. The belts 30 are guided over two driven guide pulleys 32, 34. As an alternative also only one of the guide pulleys 32, 34 can be driven. Several pins 36 protruding from the belts 30 are fixedly arranged on the belts 30, wherein the longitudinal axes of
10 the pins are each directed transversely to the transport direction P3 and stand orthogonal to the surface of the belts 30 on which the coins 12 rest.

[0021] A coin support strip 50 is attached between the two belts 30 so that the upper side of the coin support strip 50 is disposed slightly above the belts 30. The coins rest on the coin support strip 50 and are transported by the force action of
15 the pins 36 into the transport direction P3. The pins 36 are hereby arranged on the belts 30 so that the longitudinal axes of two adjacent pins 36 of the two belts 30 are arranged parallel to one another, i.e. a line connecting these two pins 36 is directed perpendicular to the transport direction P3. In each case, four of these pins 36 and the coin support strip 50 define a receiving compartment 38 of the
20 conveying unit 14 which serves to receive a coin 12. For this the spacing between the belts 30 is preset so that the spacing of the pins 36 is less than the diameter of the smallest coin 12 which is to be conveyed so that the coin 12 cannot slip through between the pins 36.

[0022] It may happen that more than one coin 12 is arranged in a receiving
25 compartment 38. Therefore the separating unit 40 is arranged downstream of the coin-receiving unit 26 and separates the coins 12 so that one coin 12 at the most is received in a receiving compartment 38. For this the separating unit 40 comprises an elevation element 42 which is attached to the coin support strip 50 and protrudes transversely to the transport direction P3 out from the plane defined by
30 the coin support strip 50. The coins 12 which are transported by way of the conveying unit 14 along the elevation element 42 are raised up relative to the coin support strip 50 by way of the elevation element 42 so that when several coins 12 rest one on top of the other, only that coin 12 which contacts the elevation element 42 is stopped by the pins 36 in the receiving compartment 38, and the other
35 coins 12 resting on this coin 12 are moved over the pins 36 out from the receiving compartment 38.

[0023] A first sensor 44 is arranged downstream of the elevation element 42 and by means of this it is possible to determine whether more than one coin 12 is dis-

posed in the receiving compartment 38. Should this be the case, a control unit (not shown) controls an ejection element 46 which is arranged downstream of this sensor 44 and upstream of a second unit 48 so that it removes all the coins 12 received in this receiving compartment 38, or at least all except for one coin 12, from the receiving compartment 38. The ejection element 46 is designed in particular in the form of an electrically driven lift magnet wherein in order to eject the coins 12 the armature of the lift magnet is moved between the two belts 30 into the receiving compartment 38 and thus expels the coins 12 received in the receiving compartment 38 out from this receiving compartment 38 so that they fall back again by means of gravity into the coin-receiving unit 26.

[0024] The sensor unit 48 preferably determines the diameter of the coins 12 which are transported past it and/or the material of the coins 12. The sensor unit 48 comprises by way of example an image detection unit for detecting at least one image of the coin 12, wherein the diameter of the coins 12 is preferably determined by the control unit from this image by means of corresponding image processing algorithms. The sensor unit 48 furthermore has in particular an inductive sensor by means of which the material of the coins 12 is determined.

[0025] A second sensor 52 is arranged downstream of the sensor unit 48 and through this it is possible to determine whether there is a coin 12 disposed in the receiving compartment 38. Should this be the case, then the control unit controls a second ejector element 54 which is arranged downstream of the sensor 52 so that it ejects the coin 12 which is received in this receiving compartment 38 from the receiving compartment 38 into a guide channel which is not shown. The coin 12 falls down in the guide channel by means of gravity until it meets a device having at least one receptacle container. The coin 12 can hereby be stored in a single receptacle or in several receptacles which are provided for the various denominations.

[0026] The conveying unit 14 is mounted for pivotal movement about a second axis 56. The conveying unit 14 can be pivoted between the first position and a second position by rotation about the second axis 56. The second axis 56 is mounted on an axle bearing 57. This mechanism will be described in more precise detail below, more particularly in conjunction with Figures 3 and 4.

[0027] Figure 2 shows a diagrammatic three-dimensional illustration of a concrete embodiment of a section of the apparatus illustrated in Figure 1, in which in particular the region between the coin-feeding unit 18, the dropping-prevention unit 16, the coin-receiving unit 26 and the separating unit 40 can be seen. Corresponding elements are provided here with the same reference numerals as in Figure 1. The coins 12 which drop from the coin-feeding unit 18 to the dropping-

prevention unit 16 are diverted by a protrusion 58 of triangular cross section transversely to the transport direction P3 so that the coins 12 strike neither coins 12 already separated after the elevation element 42 nor coins 12 which are located on the elevation element 42. It can clearly be seen in Figure 2 that the elevation element 42 already starts inside the container which is formed by the coin-receiving unit 26, the base element 28, the conveying unit 14 and the direction elements 60 which are attached to the conveying unit 14 at the side of the belts 30. The direction elements 60 are arranged so that the conveying unit 14 is protected from the coins 12 falling down from the dropping-prevention unit 16. The coins 12 collect at a lower end of the coin-receiving unit 26 and are conveyed from there from the receiving compartments 38 along the direction P3. Still inside the container which is formed by the coin-receiving unit 26, the base element 28, the conveying unit 14 and the direction elements 60, the coins 12 present in a receiving compartment 38 reach the elevation element 42 whereby they are separated. Excess coins 12 thereby slip back again to one of the following receiving compartments 38 or to the lower end of the coin-receiving unit 26, where they again reach and are conveyed into a receiving compartment 38. The direction elements 60 here have the effect that coins 12 located on the direction elements 60 slip in the direction of the belts 30 or the coin support strip 50.

[0028] Two guide elements 61 are preferably provided laterally next to the first ejection element 46. These guide elements 61 prevent the coins 12 from escaping out at the sides during separation.

[0029] Between the dropping-prevention unit 16 and the coin-receiving unit 26 is a first opening 62 which cannot be passed through by certain foreign bodies which are inserted into the device 10. The size at which an inserted foreign body cannot pass through the first opening 62 depends here on the size of the first opening 62 at which the foreign body meets the first opening 62.

[0030] The dropping-prevention unit 16 is pushed by means of a spring 64 against an engagement element which is rigidly coupled to the conveying unit 14, currently here against a first pin 66. On the other side this same spring 64 pushes against a second pin 68 of a fastening element 70. The pin 66 is guided along an oblong hole which is disposed in a fastening plate. The fastening plate, which is not shown, as well as the fastening element 70 are hereby fixedly connected to a chassis frame of the device 10. More particularly the coin-receiving unit 26, the base plate 28 as well as the coin-feeding unit 18 are fixedly connected to the chassis frame. Elements which are coupled rigidly to the engagement element, thus to the first pin 66, are inter alia the conveying unit 14 the separating unit 40,

the elevation element 42, the first sensor 44, the first ejection element 46 as well as the direction elements 60.

5 **[0031]** The device 10 in the second position of the conveying unit 14 and the dropping-prevention unit 16, as well as the mechanism for transferring the device 10 from the first position into the second position will now be described in particular in conjunction with Figures 3 and 4.

10 **[0032]** As already described above, the conveying unit 14 as well as the pin 66 can be transferred into a second position. For this the conveying unit 14 is pivoted about the first axis 56 which is mounted on an axle bearing 57. The axle bearing 57 is here, like the coin-feeding unit 18, the fastening element 70, the coin-receiving unit 26 and the base element 28, fixedly connected to the chassis frame. The control unit 14 is on the other hand rigidly coupled to the pin 66.

15 **[0033]** Pivoting the conveying unit 14 is hereby carried out by means of a displacement mechanism 72 which is driven by a motor and which slides a lower end of the conveying unit 14 horizontally so that the conveying unit 14 is pivoted around the first axis 56. In order to pivot the conveying unit 14 from the first position into the second position the displacement mechanism 72 is moved to the left in the view of Figure 3. In order to move from the first position to the second position it is necessary to pivot the conveying unit 14 around about 8°.

20 **[0034]** By pivoting the conveying unit 14 as well as the pin 66 about the first axis 56 from the first position into the second position the dropping-prevention unit 16 which is pressed against the pin 66 is pivoted about the second axis 20. At the same time the first opening 62 which is formed between the fixed coin-receiving unit 26 and the dropping-prevention unit 16 in the first position is enlarged into a second opening 74 which is formed between the fixed coin-receiving unit 26 and the dropping-prevention unit 16 in the second position. A lower end of the dropping-prevention unit 16 is hereby located in the second position roughly where the surface of the conveying unit 14 is located in the first position so that the entire surface area which in the first position defines the opening of the container formed by the coin-receiving unit 26, the base element 28, the conveying unit 14 and the direction elements 60, is not blocked by the dropping-prevention unit 16. The dropping-prevention unit 16 is hereby pivoted around about 25°.

30 **[0035]** Simultaneously with pivoting from the first position into the second position a third opening 76 is formed between the coin-receiving unit 26 and the conveying unit 14.

35 **[0036]** In this second position of the conveying unit 14 and the dropping-prevention unit 16 objects which pass through the second opening 74 and objects which are located in the coin-receiving unit 26 can pass through the third opening

76 and move into a customer return compartment 78. In the second position it may be that the second opening 74 is so large that coins 12 fed to the dropping-prevention unit 16 do not drop into the coin-receiving unit 26 but at the coin-receiving unit 26 can pass directly through the third opening 76 formed between
5 the conveying unit 14 and the coin-receiving unit 26, and thus can likewise reach the customer return compartment 78. The coins 12 pass through the third opening 76 preferably as a result of gravity to the customer return compartment 78 which is located underneath the third opening 76.

[0037] Figure 4 shows a diagrammatic three-dimensional illustration of a concrete embodiment of a section of the device 10 illustrated in Figure 3. Corresponding elements are provided here with the same reference numerals. Figure 4
10 clearly shows in particular the region between the dropping-prevention unit 16, the coin-receiving unit 26 and the conveying unit 14 in order to illustrate the position of the second opening 74 and the third opening 76.

15

LIST OF REFERENCE NUMERALS

[0038]

	10	Device for handling coins
	12	Coin
5	14	Conveying unit
	16	Dropping-prevention unit
	18	Coin-feeding unit
	20	Second axis
	22	Underside of the dropping-prevention unit
10	26	Coin-receiving unit
	28	Base element
	30	Belt
	32,34	Guide pulleys
	36	Pins
15	38	Receiving compartment
	40	Separating unit
	42	Elevation element
	44	First sensor
	46	First ejection element
20	48	Sensor unit
	50	Coin support strip
	52	Second sensor
	54	Second ejection element
	56	First axis
25	57	Axle bearing
	58	Protrusion
	60	Direction element
	61	Guide element
	62	First opening
30	64	Spring
	66	First pin
	68	Second pin
	70	Fastening element
	72	Displacement mechanism
35	74	Second opening
	76	Third opening
	78	Customer return compartment
	P3	Transport direction

Patentkrav

1. Apparat (10) til håndtering af mønter (12) og med en transportør (14) til transport af mønterne (12), hvori transportøren (14) har en separeringsenhed (40) til skille de indførte mønter (12) i enkeltmønter, med en mønttilførselsenhed (18), som fører de indførte mønter (12) en faldbeskyttelsesenhed (16), hvori de til faldbeskyttelsesenheden (16) førte mønter (12), med transportøren (14) og faldbeskyttelsesenheden (16) i en første position, ledes direkte videre ind i en møntmodtagelsesenhed, og
- 10 hvori de til faldbeskyttelsesenheden (16) ledte mønter (12) tilføres transportøren (14) af møntmodtagelsesenheden (26), hvori faldbeskyttelsesenheden (16) er mekanisk koblet til transportøren (14), **kendetegnet ved, at** transportøren (14) og faldbeskyttelsesenheden (16) i den første position er arrangeret i forhold til møntmodtagelsesenheden (26) sådan, at
- 15 en første åbning (62) dannet ved overgangen mellem faldbeskyttelsesenheden (16) og møntmodtagelsesenheden (26) er til stede, og at transportøren (14) og faldbeskyttelsesenheden (16) i en anden position er arrangeret i forhold til møntmodtagelsesenheden (26) sådan, at en anden åbning (74) dannet ved overgangen mellem faldbeskyttelsesenheden (16) og møntmodtagelsesenheden (26) er
- 20 tilstede, idet den anden åbning er større end den første åbning (62).
2. Apparat (10) ifølge krav 1, **kendetegnet ved, at** transportøren (14) er lejret sådan, at den kan svinges om en første rotationsakse (56), og at faldbeskyttelsesenheden (16) er lejret sådan, at den kan svinges om en anden rotationsakse (20), og at de kan svinges sammen om den respektive akse.
- 25
3. Apparat (10) ifølge krav 2, **kendetegnet ved, at** faldbeskyttelsesenheden (16) ved hjælp af en fjeder (64) skubbes mod et indgrebselement (66), som er koblet til transportøren (14).
- 30
4. Apparat (10) ifølge et af de foregående krav, **kendetegnet ved, at** faldbeskyttelsesenheden (16) er udformet og i det mindste i den første position arrangeret sådan, at de til faldbeskyttelsesenheden (16) førte mønter (12) ledes videre eller omledes fra faldbeskyttelsesenheden (16), så de ikke kommer i kontakt med
- 35 mønter (12), der allerede er skilt ad i enkeltmønter af separeringsenheden (40).

5. Apparat (10) ifølge krav 4, **kendetegnet ved, at** faldbeskyttelsesenheden (16) har et i tværsnit trekantet fremspring (58) på en side, hvor denne ene side i den første position er rettet mod mønttilførselsenheden (18).
- 5 6. Apparat (10) ifølge et af de foregående krav, **kendetegnet ved, at** i den første position danner møntmodtagelsesenheden (26) og transportøren (14) en beholder, og i den anden position er en tredje åbning (26) til stede mellem møntmodtagelsesenheden (26) og transportøren (14).
- 10 7. Apparat (10) ifølge et af de foregående krav, **kendetegnet ved** tilvejebringelse af en styreenhed, som efter hver indføring af mønter (12) af en kunde eller på kundens anmodning aktiverer en drivenhed sådan, at transportøren (14) og faldbeskyttelsesenheden (16) bevæges fra den første position til den anden position.
- 15 8. Apparat (10) ifølge et af de foregående krav, **kendetegnet ved, at** den transportretning (P3), i hvilken mønterne (12) transporteres af transportøren (14) i den første position, danner en vinkel mellem 20° og 90° , fortrinsvis mellem 45° og 65° , i forhold til vandret.

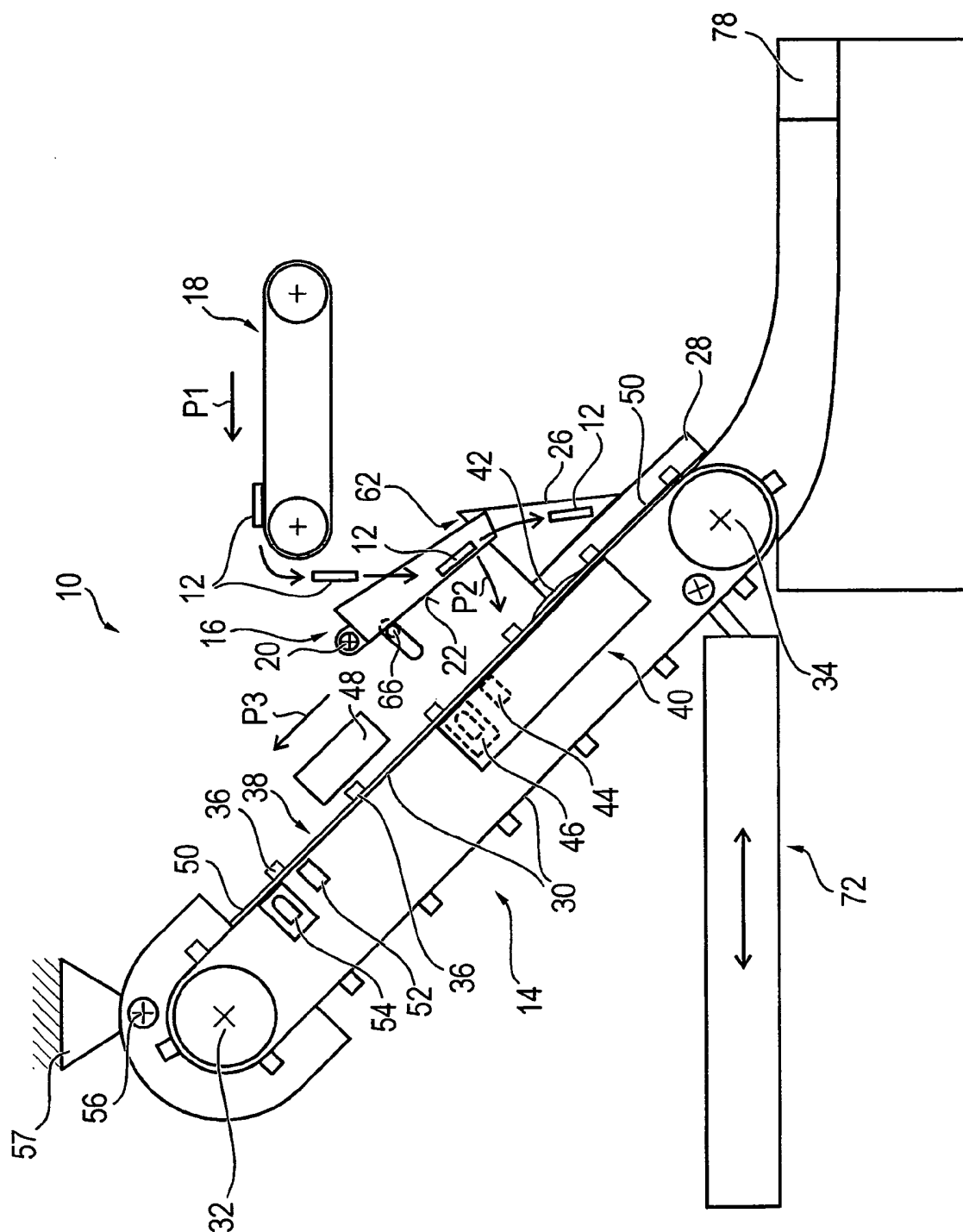


FIG. 1

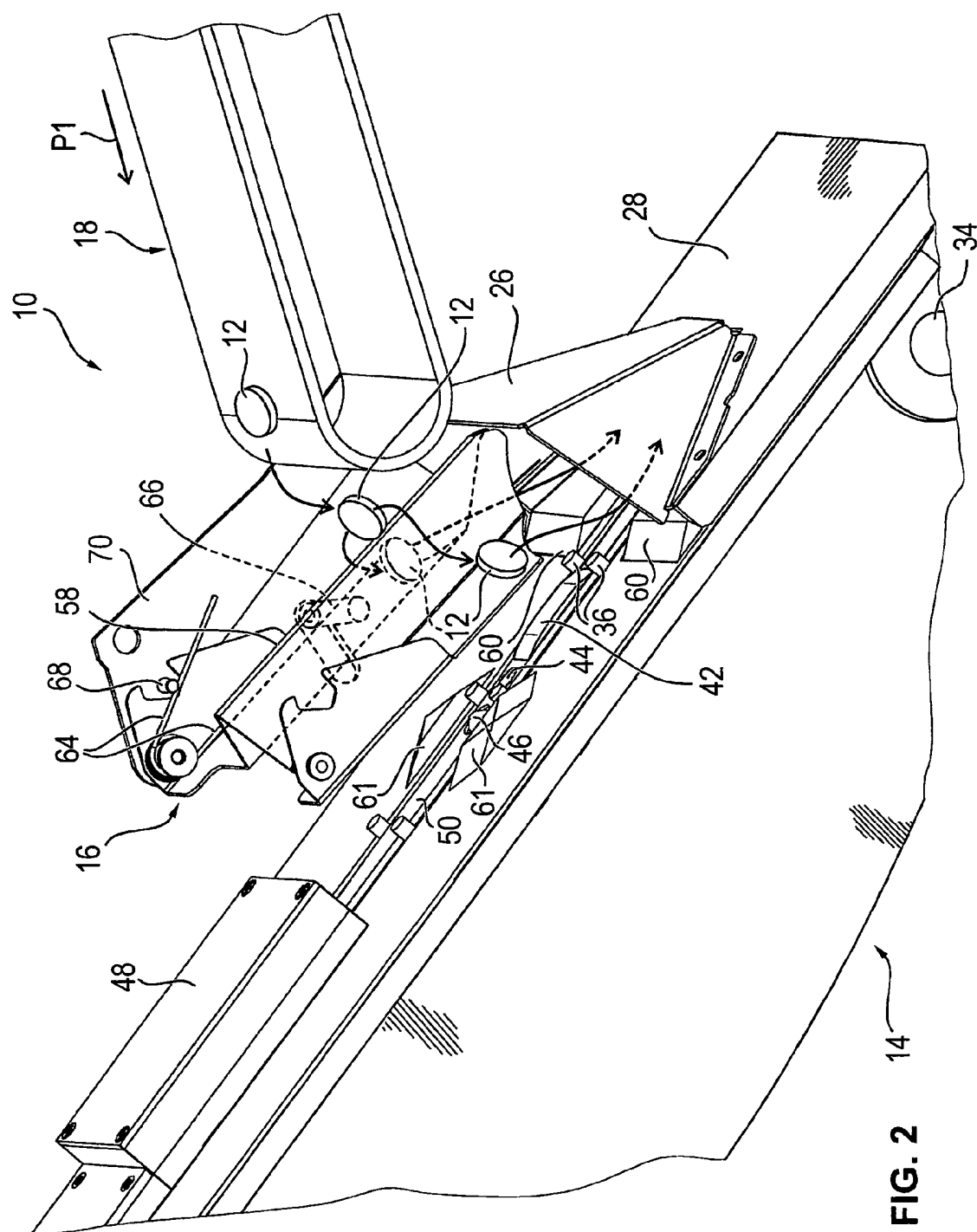
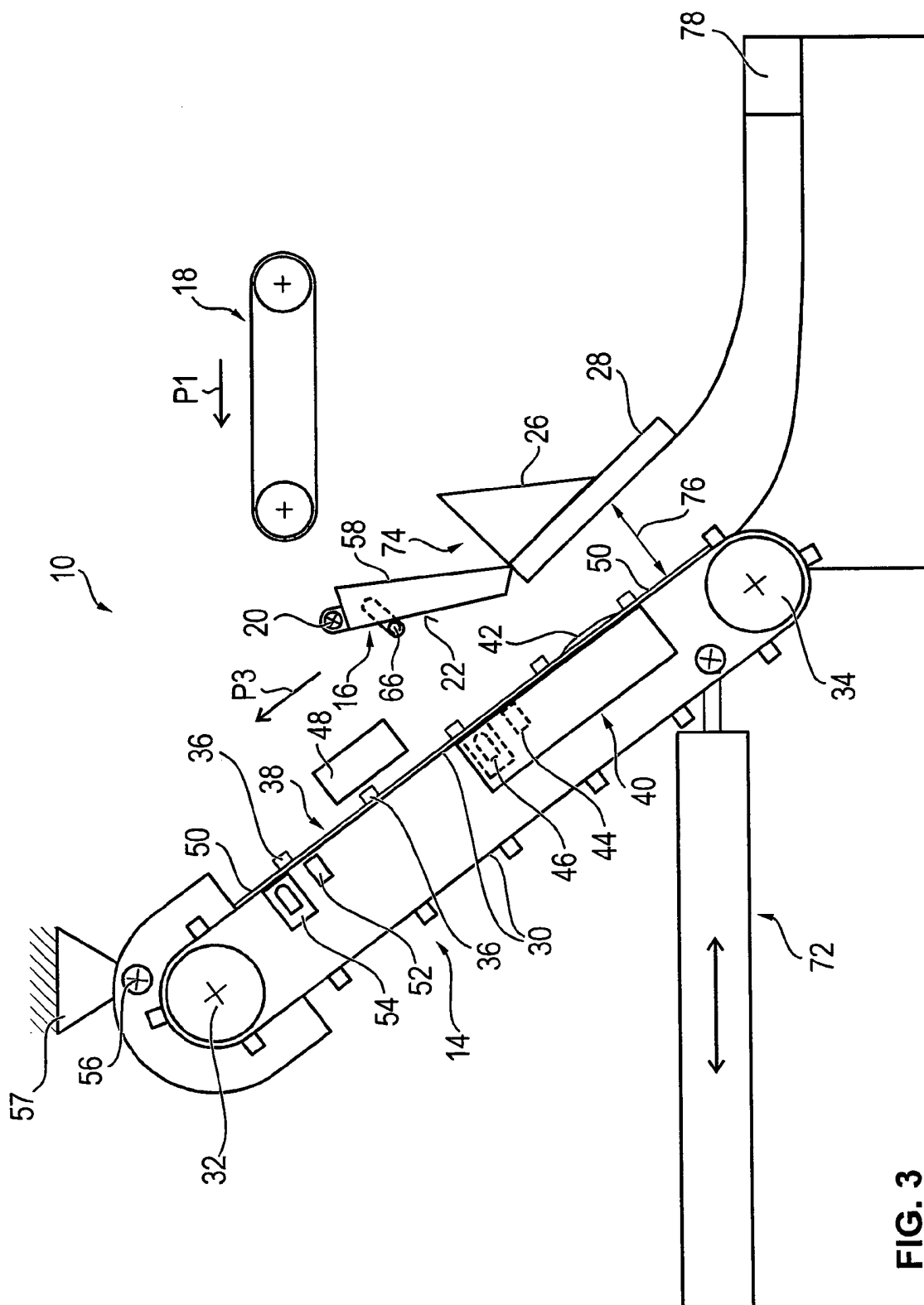


FIG. 2



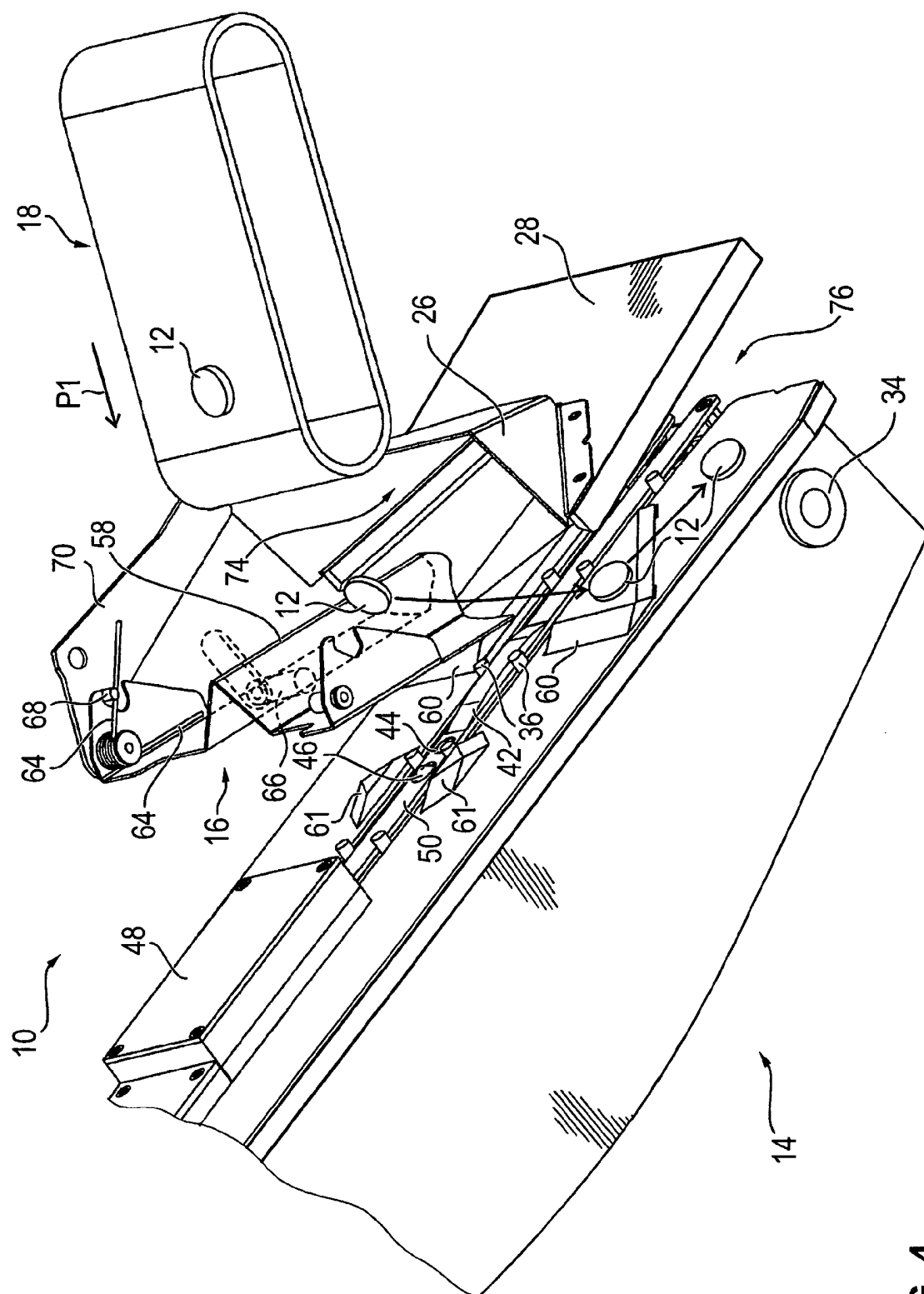


FIG. 4