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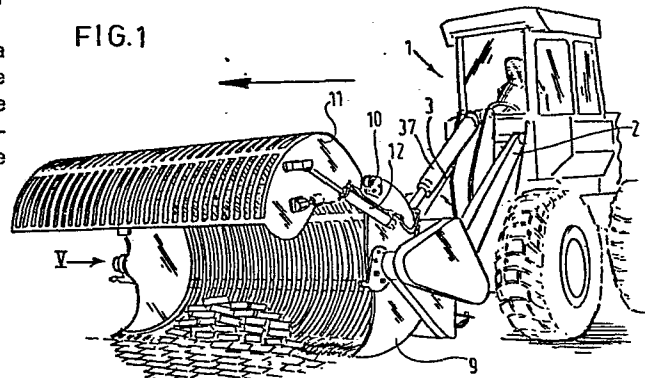
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(54) **Device for picking up elements, for example, of a pavement.**

(57) The invention relates to a device for picking up elements located in one plane on the ground, for example, of a pavement, comprising a fork-like scooping member, means for moving the scooping member in a substantially vertical direction, means for swing the scooping member about a horizontal axis and means for attachment to a vehicle, for example, a tractor.

The device according to the invention is characterized by a flap which is movable between a position in which the scooping member is closed and a position in which the scooping member is accessible, by control-means for moving the flap and by designing the swinging means so as to be capable of rotating the scooping member and the flap.

FIG.1



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Short title: Device for picking up elements, for example, of
a pavement

The invention relates to a device for picking up
elements located in one plane on the ground, for example, of
a pavement comprising a fork-like scooping member, means for
moving the scoop in a substantially vertical direction,

5 swinging means for turning the scoop about a horizontal axis
and means for attachment to a vehicle, for example, a
tractor.

Such a known device is employed for picking up
paving stones. When the stones are picked up, the device is
10 driven to a collecting site where the scoop is emptied. After
the stones are cleaned and, if necessary, the ground is
heightened, the stones are reused for the pavement.

Cleaning of the stones is performed in different
ways. One method consists in manually picking up the stones
15 deposited on the storage site and placing them in a vibratory
or scraping device. In this vibratory or scraping device the

stones are cleaned. Picking up the stones from the storage site and depositing them in the vibratory or scraping device is a hard and monotonous job. A further method of removing earth or sand sticking to the stones consists in transiently
5 actuating the control-members of the device so that by vibrating and shaking the earth or sand is removed. This method is detrimental to the bearings and the seal of the hydraulically actuated members.

The invention has for its object to provide a device
10 in which after the paving is picked up the stones can be cleaned in a single run.

This is achieved by means of a flap adapted to move between a position in which the scoop is closed and a position in which the scoop is accessible, by means of
15 control-members for moving the flap and by designing the swinging means so as to be able to rotate the scoop and the flap.

In this way the stones picked up from a range of pavement are cleaned by causing the device to rotate after
20 the flap is closed. The stones will tumble along and scrape one another and the loosened earth will be deposited on the site of use. Subsequently the cleaned stones can be deposited on a temporary storage site by opening the flap and by turning the scooping member.

25 The fork-like scooping member preferably has a substantially semi-cylindrical shape and the flap preferably is the complement thereof. The flap is pivotable about a shaft arranged on the cylindrical wall of the scooping member by means of an actuating plunger arranged between the flap
30 and the scooping member.

In order to ensure that during the rotation the flap and the scooping member will be relatively locked in place, a snap lock is provided. The inner side of the flap and the scooping member may be lined with sieving material, the mesh
35 size of which can be chosen at will.

Precautions are required for establishing a connection between the hydraulic control-ram rotating together with the flap and the scooping member and a stationary hydraulic

pressure source. To this end the hydraulic pressure source communicates through ducts with channels in a hub of the rotary shaft opening out in annular grooves in the rotary shaft of the scooping member and through ducts of the plunger with channels in the rotary shaft opening out in the grooves of the rotary shaft.

The invention will be explained with reference to the drawings of one embodiment.

The drawings show in:

10 Fig. 1 a perspective view of the device embodying the invention;

Fig. 2 a detail of the stop means for blocking the movement of the scooping member opposite the direction of rotation;

15 Fig. 3 a perspective view of the device embodying the invention during the cleaning operation;

Fig. 4 a perspective view of the device of Fig. 1 viewed from the opposite side;

20 Fig. 5 a sectional view taken on the line V-V in fig. 1; and

Fig. 6 a sectional view taken on the line VI-VI of fig. 5.

A fastening plate 7 is pivotally arranged with the aid of fastening beams 2 and 3 via arms 5 and 6 on a vehicle, for example, a tractor 1. The fastening plate 7 is coupled with a plunger 37 in a manner such that the fastening plate 7 can rotate about a shaft 8. To the fastening plate 7 is secured the fork-like scooping member 9. The scooping member has a substantially semi-cylindrical shape and holds at one end a pivotal shaft 10 for a flap 11, the shape of which is complementary to the scooping member 9. The flap can be caused to swing by means of the plunger 12. The flap can swing between an open position (fig. 1) and a closed position (fig.3). In the closed state the scooping member 9 and the flap 11 are locked in place by means of a snap latch 36, which is movable between two spring-loaded locking members 13 and 14 arranged side by side. In the scooping position (fig.1) the paving produces a rotary effort on the scooping

member 9. In order to prevent the rotary effort from rotating the scooping member in the direction of the arrow 16 (fig.2), a stop 17 is provided on the fastening plate 19, at which a substantially channel-section beam 18 of the scooping member 5 9 is blocked.

The plunger 12 is connected with a hydraulic pressure source provided on the tractor by means of the construction shown in fig. 6. With a stationary hub 20 are connected ducts 21 and 22 for establishing a connection with 10 the source. The rotary shaft of the scooping member 9 and of the flap 11 is rotatably journalled in the bearing 24 of the hub. The rotary shaft 23 has two peripheral grooves 25 and 26 communicating with the ducts 21 and 22 and with longitudinal channels 27 and 28 in the rotary shaft. With the channels 27 15 and 28 communicate connecting ducts 29 and 30 leading the hydraulic medium to the plunger 12. This construction permits of coupling the simultaneously rotating plunger 12 with the hydraulic pressure source. In order to rotate the scooping member 9 and the flap 11 a hydraulic motor 31 is provided, 20 which drives the rotary shaft 23 through a gear wheel transmission box 32.

The device operates as follows:

In the opened position of the device (see fig.1) the pavement is picked up from the ground by the forward movement 25 of the tractor in the direction indicated by the arrow. After an amount of stones is picked up, the flap 11 is moved into its closed position and the cylindrical unit thus formed is vertically moved upwards by actuating the plunger 37 and causing to rotate in the direction of the arrow in fig. 3. 30 During this rotation the stones are cleaned by the scraping effect of the moving stones. The sand drops through the mesh to the ground and the cleaned stones can be brought to a temporary storage site or they may be directly worked up locally. By a selection of the sieve arranged on the inner 35 side of the flap and the scooping member a grading operation may be carried out, for example, for obtaining gravel for use in concrete or on tennis courts and slags for road construction.

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Claims

1. A device for picking up elements located in one plane on the ground, for example, of a pavement, comprising a fork-like scooping member, means for moving the scooping member in a substantially vertical direction, means for swing
5 the scooping member about a horizontal axis and means for attachment to a vehicle, for example, a tractor, characterized by a flap which is movable between a position in which the scooping member is closed and a position in which the scooping member is accessible, by control-means for
10 moving the flap and by designing the swinging means so as to be capable of rotating the scooping member and the flap.

2. A device as claimed in claim 1, characterized in that the fork-like scooping member has a substantially semi-cylindrical shape and the flap has a complementary
15 shape.

3. A device as claimed in claims 1 and 2, characterized in that the flap is pivotable about a shaft arranged on the cylindrical wall of the scooping member.

4. A device as claimed in claims 1 to 3, characterized in that an actuating plunger is arranged between the flap and the scooping member.

5. A device as claimed in claims 1 to 4,
5 characterized in that in the closed position the scooping member and the flap are locked in position by a snap lock.

6. A device as claimed in claims 1 to 5, characterized in that the inner side of the flap and the scooping member are coated with a sieve.

10 7. A device as claimed in claims 1 to 6, characterized in that a hydraulic pressure source communicates through ducts with channels in a hub of the rotary shaft opening out in annular grooves of the rotary shaft of the scooping member and in that the plunger is
15 connected through ducts with channels in the rotary shaft communicating with the grooves in the rotary shaft.

8. A device as claimed in claims 1 to 7, characterized by stop means for blocking the movement of the scooping member opposite the direction of rotation.

FIG. 1

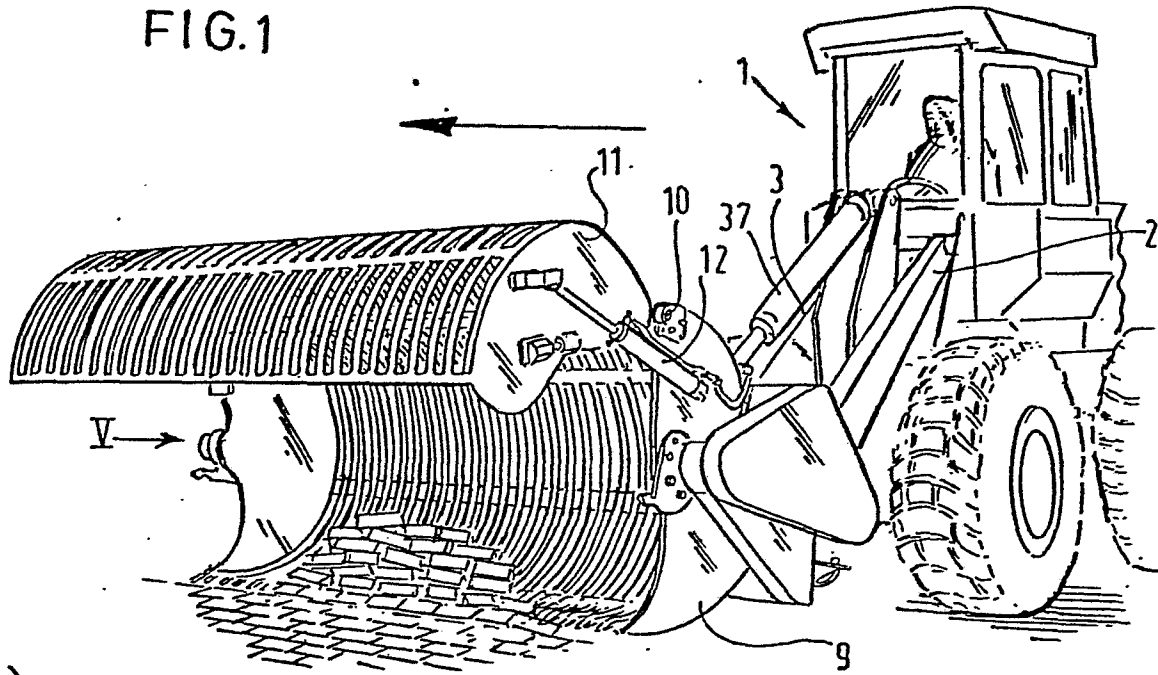


FIG. 2

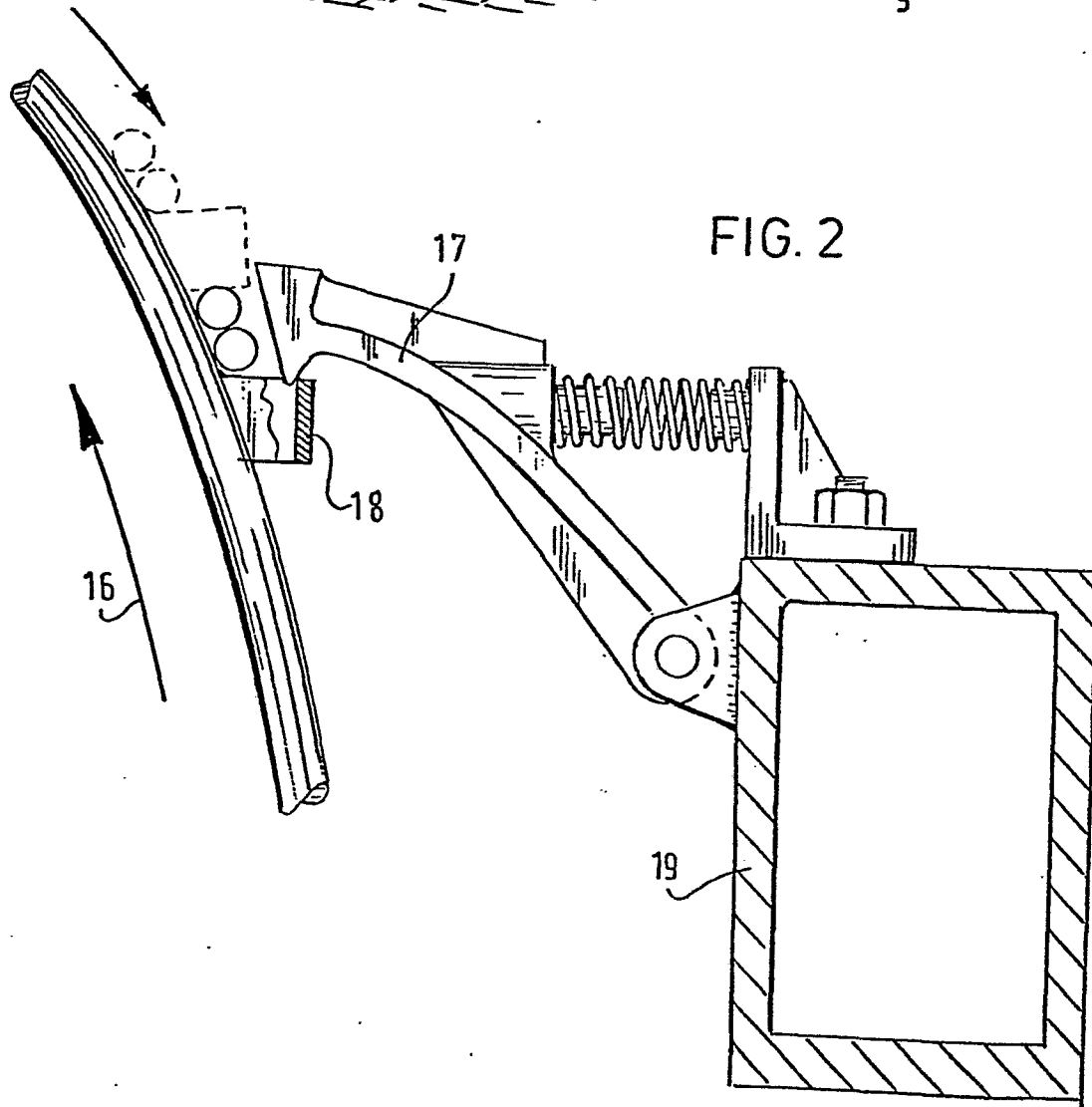


FIG. 3

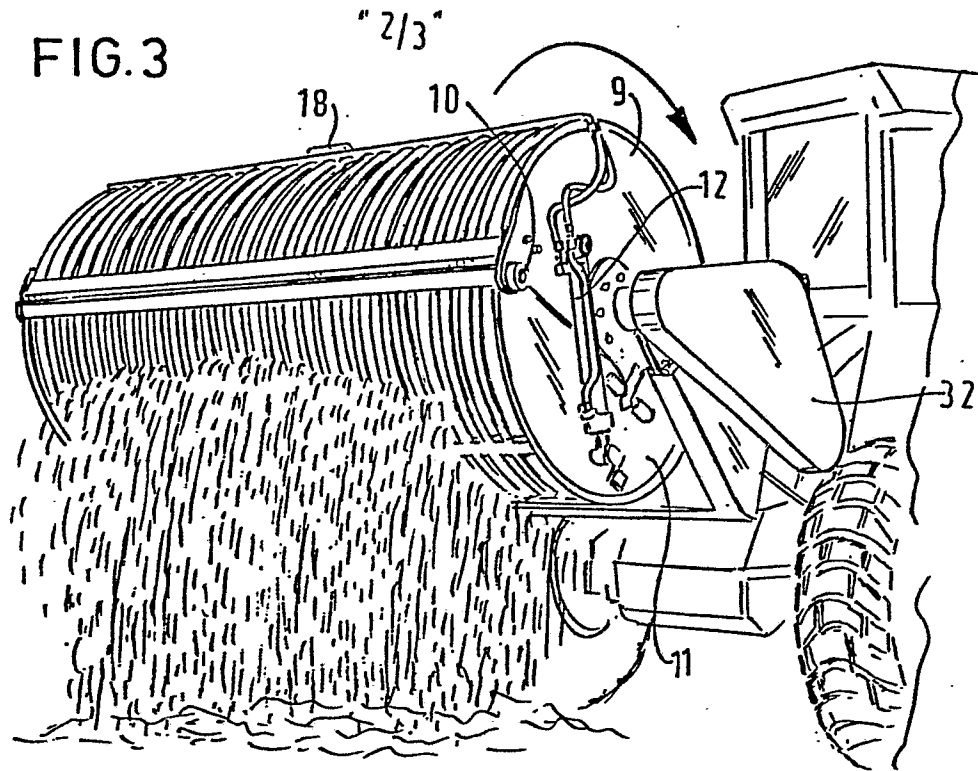


FIG. 4

