May 15, 1928. 1,670,232

F. BISZANTZ

DUMPING BODY

Filed Nov. 28, 1927 2 Sheets-Sheet 1

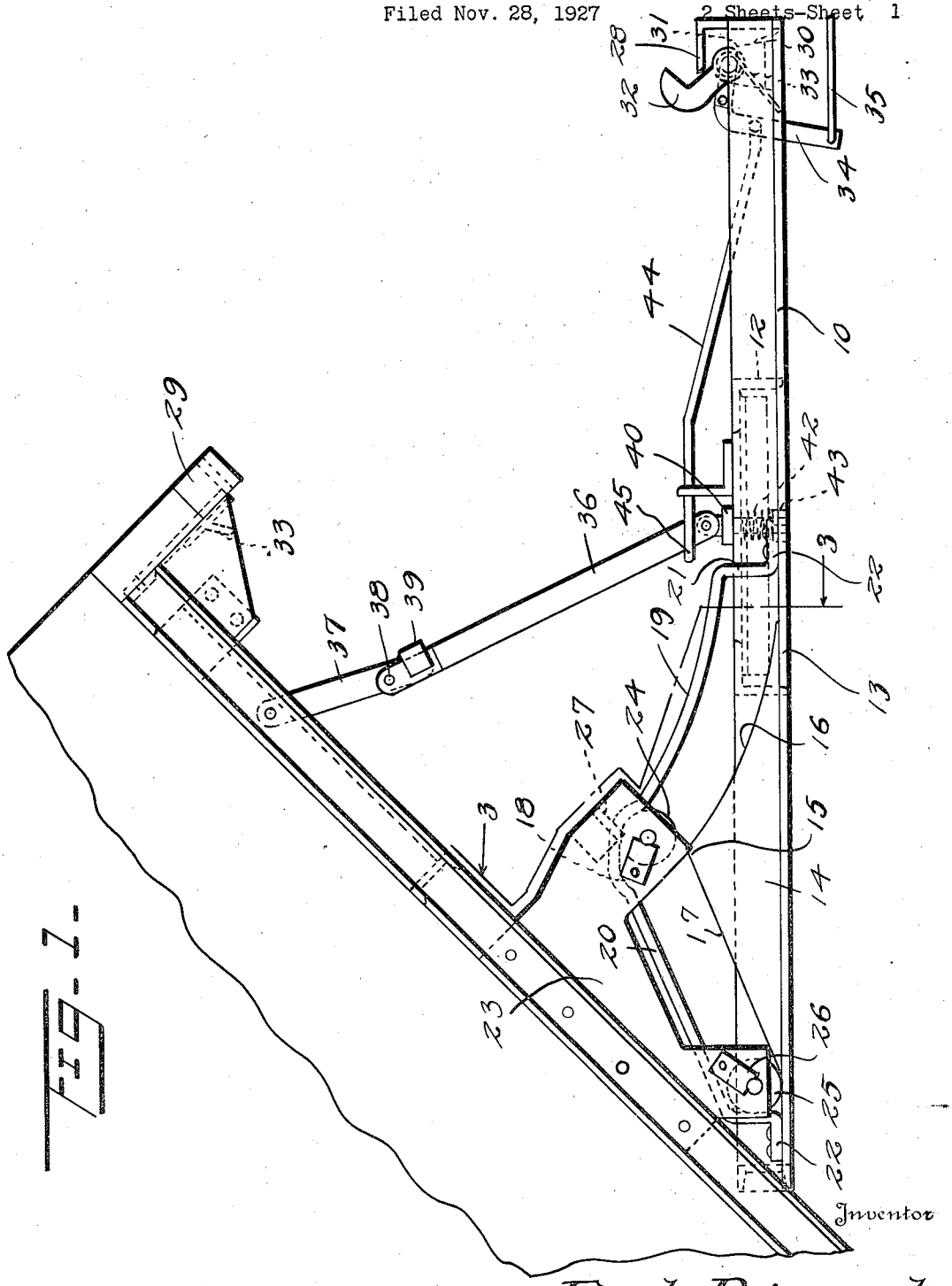


Fig. 1.

Inventor

Fred Biszantz

By Frederick L. Siebel

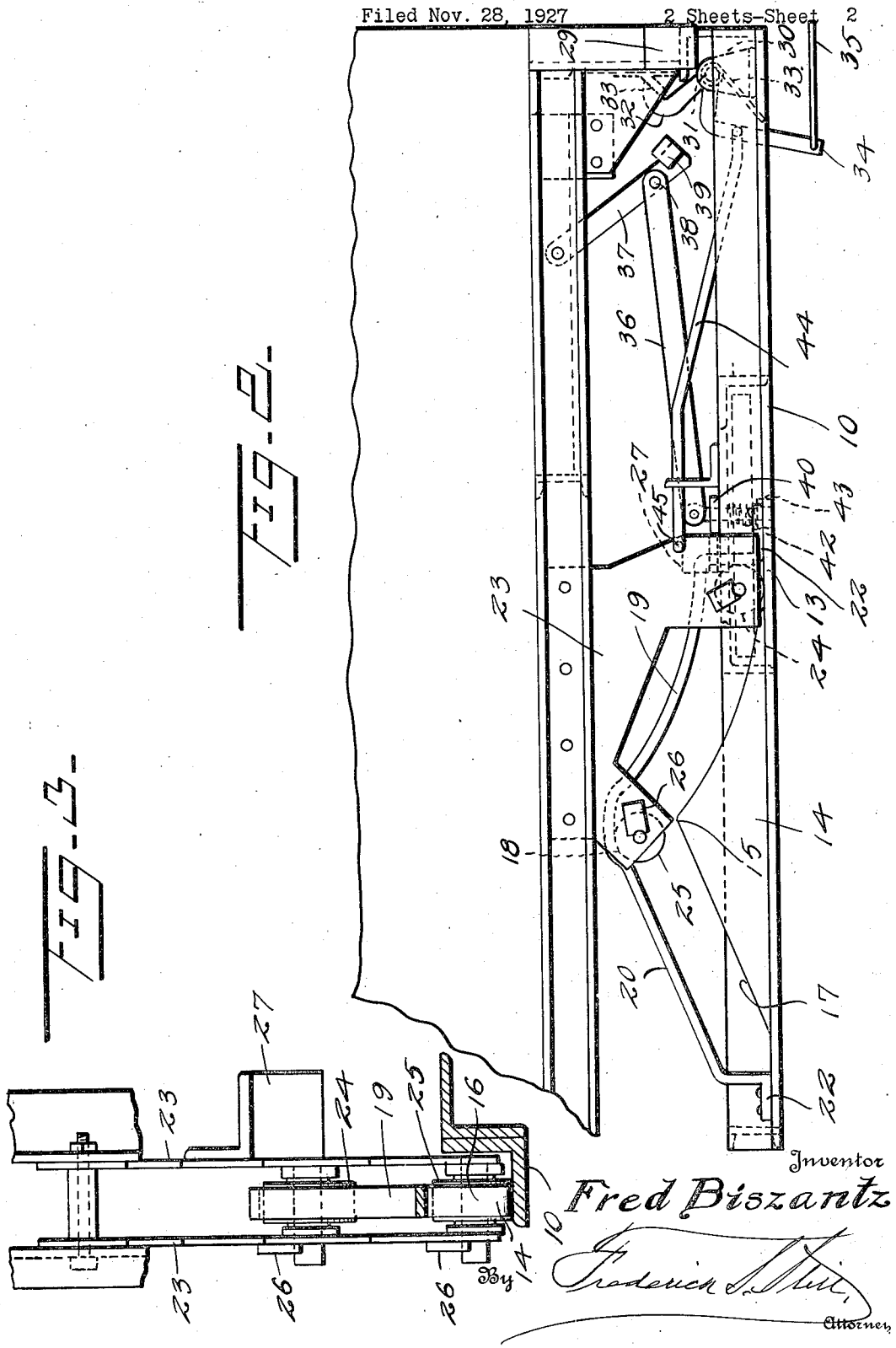
Attorney

May 15, 1928. 1,670,232

F. BISZANTZ

DUMPING BODY

Filed Nov. 28, 1927 2 Sheets-Sheet 2



Patented May 15, 1928. 1,670,232

UNITED STATES PATENT OFFICE.

FRED BISZANTZ, OF GALION, OHIO, ASSIGNOR TO THE NATIONAL GRAVE VAULT CO., OF GALION, OHIO, A CORPORATION OF OHIO.

DUMPING BODY.

Application filed November 28, 1927. Serial No. 236,278.

This invention relates to dumping bodies and more particularly to the construction of a gravity operated dumping body which both tilts and shifts longitudinally in the dumping operation.

An important object of the present invention is to provide a device of this character which is entirely automatic in both its dumping and return movements and in which the body is first elevated at its forward end without any rearward movement to permit the body to clear all obstructions and then simultaneously elevated and longitudinally shifted until the body has assumed a position where the rear end of the frame is cleared and the completion of the tilting operation is in order.

A further object of the present invention is to produce a device of this character which will be substantially entirely free from parts projecting beneath the frame upon which the body is mounted and which will be entirely free of portions which project beneath the frame in such manner as to interfere with operation of any normal portion of the vehicle.

A still further object of the invention is to provide a device of this character which, due to its construction, may be produced at a very low cost, will be durable and efficient in service and may be readily controlled in its dumping and return movements.

These and other objects I attain by the construction shown in the accompanying drawings, wherein for the purpose of illustration is shown a preferred embodiment of my invention and wherein:—

Figure 1 is a side elevation showing a dumping body constructed in accordance with my invention, the body being illustrated in the dumping position;

Figure 2 is a similar view with the body in the loading and load-transporting position;

Figure 3 is a section on the line 3—3 of Figure 1.

Referring now more particularly to the drawings, a frame is provided including side members 10 and suitable transversely extending bracing members 12 maintaining the side members in properly spaced relation. These side members are constructed to provide adjacent the rear ends thereof an outwardly extending flange 13 upon each of which is mounted a cam track 14. This cam track has a central peak 15 and from the peak slopes forwardly and downwardly with a re-entrantly curved face 16 to the level of the upper surface of the flange and from the peak slopes downwardly and rearwardly with a flat straight face 17. Secured to the flange and associated with each track is a retaining bar. The central portion of this retaining bar, indicated at 18, directly overlies the peak of the cam track and is formed as a cove. At opposite sides of the central portion 18, the retaining bar is provided with portions 19 and 20 opposing and paralleling the surfaces 16 and 17 of the cam track. The ends of the portions 19 and 20 are downbent, as indicated at 21, and then out-turned and secured to the flange 13, as at 22.

The body has secured thereto at each side thereof pairs of longitudinally extending bracket plates 23 between which are supported front and rear rollers 24 and 25. The roller 24 is located forwardly of the center of gravity of the body when empty, while the roller 25 is located rearwardly of the center of gravity of the body while empty. The roller 24 is farther spaced from the bottom of the body than the roller 25. These rollers operate in the channels produced between the retaining bars and their associated cams. The pivot shafts of the rollers are preferably retained in position in brackets 23 by latch plates 26 secured to the outer face of the outer bracket plate of each pair, so that they are readily accessible for insertion or removal in replacement or assembly. The inner bracket plate of each pair has secured thereto an inwardly extending flange 27 opposing and adapted to seat upon the side member of the frame when the body is in load transporting position.

At its forward end, the frame includes a transversely extending sill 28 adapted to receive a bumper 29 carried by the forward end of the body. The frame further includes a mounting 30 for a latch shaft 31 having secured thereto a latch element 32 for coaction with a latch element 33 carried by the bumper 29. The shaft 31 is spring-urged by a spring 33 to a position where the latch element 32 engages the latch element 33 and the coaction of these latch elements is such that the latch element 32 will automatically withdraw during movement of the body to the loading and load trans-

porting position to permit passage of the latch element 33 and to permit the bumper 29 to come into engagement with the sill 28. The shaft 31 has further secured thereto a lever 34 adapted for connection with an operating rod 35 leading to the cab of the vehicle to which the body is applied.

A jack knife connection is provided between the body and frame including a relatively long link 36 pivoted to the frame and a short link 37 pivoted to the body. The short link 37 is extended beyond the pivotal connection 38 between the links and provided with a hook 39 which engages against the link 36 when the links have moved past a point where they are aligned, so as to limit movement of the links in this direction. The pivotal connection of the link 36 with the frame comprises a bolt 40 directed through a plate forming a transverse member of the frame, the bolt beneath the plate being surrounded by a spring 42 which engaging the plate and a nut 43 upon the bolt holds the bolt seated. This spring may yield under stress to permit a slight upward movement of the bolt.

In the dumping position in which the parts have been illustrated, the pivotal connection 38 of the links 36 and 37 is moved beyond the front end of the body from the point of pivotal connection of these links with the frame and body. The body is resting upon the rollers 26 and accordingly has a tendency to move downwardly at its forward end. This downward movement would, however, necessitate a further rearward movement of the pivotal connection of the links 36 and 37 and this is prevented by the engagement of the hook 39. To returned the body to its load transporting position, a pull is exerted upon the operating member 35. This pull is transmitted to the lever 34 and through this lever, by a link 44 having a hooked rear end 45 engaging the rear face of the link 36, forcing the link 36 forwardly, so that the links 36 and 37 may fold. Downward movement of the forward end of the body being now unopposed, this end moves downwardly. During initial downward movement, the pivot is about the axis of the roll 25 and there is accordingly no forwa movement of the body. After this primary tilting movement, the rollers 24 come into engagement with the faces 16 of the cams and the motion of the body then becomes a combined tilting and longitudinal shift during which the rollers 24 and 25 move forwardly on the faces 16 and 17 of the cams. When the rollers 24 come into engagement with the downbent forward end portions of the sections 19 of the retaining bars, forward motion is checked. At this time, the body moving under the impetus gained during the preceding movements, pivots about the roller 24. By this pivotal movement, the bumper 29 comes into engagement with the sill 28 and the latch elements 32 and 33 are engaged. At the same time, the flange 27 seats upon the side member 10 and in so doing, lifts the roller 24 from the flange 13 to a sufficient extent to insure against the weight being borne thereby. The roller 25 is elevated and comes into position in the cove 18 of the retaining bar. Since both the flange 27 and roller 24 lie forwardly of the center of gravity of the body when loaded, it will be obvious that upon a second operation of the operating member 35, the movements just described will be reversed and the body will return to its dumping position. As the body arrives at its dumping position, its movement is checked by the links 36 and 37, the mounting of the link 36 yielding to cushion the shock occasioned by the checking of the motion of the body. The pivotal connection of the links moves beyond the points of pivotal connection with the body and frame, so that a lock is provided against return movement.

It will be obvious that a construction of this character may be very readily and cheaply produced and, because of its simplicity, may be very readily attached to or removed from a vehicle. This simplicity further promotes durability and efficiency. Since the construction hereinbefore set forth is capable of a certain range of change and modification without materially departing from the spirit of the invention, I do not limit myself to such specific structure except as hereinafter claimed.

I claim:—

1. In a dumping body construction, a body, a supporting frame, means mounting the body on the frame for tilting and shifting movements in the same general direction comprising two pairs of rollers alternately engaging the frame to act as primary and secondary pivots for the body during tilting of the body in either direction and inclined cam tracks with which either of said pairs of rollers will engage when the body has tilted through a predetermined degree about the other pair as a pivot and prior to their operation as a secondary pivot, engagement of either pair of rollers with said cam tracks causing longitudinal shifting movement of the body in the direction of initial tilt.

2. In a dumping body construction, a body, a supporting frame, means mounting the body on the frame for tilting and shifting movements in the same general direction comprising two pairs of rollers alternately engaging the frame to act as pivots for the body during tilting of the body in either direction, cam tracks with which either of said pairs of rollers is engaged by initial tilting movement of the body about the other pair as a pivot, engagement of

either pair of rollers with said cam tracks causing longitudinal shifting movement of the body in the direction of initial tilt, and stops with which said pairs of rollers alternately engage to limit shifting of the body, each pair of rollers upon engagement with its stops acting as a pivot for final tilting movement of the body.

3. In a dumping body construction, a body, a supporting frame, means mounting the body on the frame for tilting and shifting movements in the same general direction comprising two pairs of rollers alternately engaging the frame to act as pivots for the body during tilting of the body in either direction, cam tracks with which either of said pairs of rollers is engaged by initial tilting movement of the body about the other pair as a pivot, engagement of either pair of rollers with said cam tracks causing longitudinal shifting movement of the body in the direction of initial tilt, the rollers of one pair lying forwardly of the center of gravity of the body when loaded and in the load transporting position, the rollers of the other pair lying rearwardly of the center of gravity of the body when empty and in the dumping position, and stops with which said pairs of rollers alternately engage to limit shifting of the body, each pair of rollers upon engagement with its stops acting as a pivot for final tilting movement of the body.

4. In a dumping body construction, a body, a supporting frame, means mounting the body on the frame for tilting and shifting movements in the same general direction comprising two pairs of rollers alternately engaging the frame to act as pivots for the body during tilting of the body in either direction, and cam tracks secured to the frame each cam track having a central peak and having its faces inclining downwardly and forwardly and downwardly and rearwardly from said peak, initial tilting movement of the body about either of said pairs of rollers as pivots bringing the other pair of rollers into engagement with the cam faces at the opposite sides of the peaks from the rollers which are acting as pivots whereby upon continued tilting movement the body is shifted.

5. In a dumping body construction, a body, a supporting frame, means mounting the body on the frame for tilting and shifting movements in the same general direction comprising two pairs of rollers alternately engaging the frame to act as pivots for the body during tilting of the body in either direction, cam tracks secured to the frame, each cam track having a central peak and having its faces inclining downwardly and forwardly and downwardly and rearwardly from said peak, initial tilting movement of the body about either of said pairs of rollers as pivots bringing the other pair of rollers into engagement with the cam faces at the opposite sides of the peaks from the rollers which are acting as pivots whereby upon continued tilting movement the body is shifted, and stops with which said pairs of rollers alternately engage to limit shifting of the body, each pair of rollers upon engagement with its stops acting as a pivot for final tilting movement of the body.

6. In a dumping body construction, a body, a supporting frame, means mounting the body on the frame for tilting and shifting movements in the same general direction comprising two pairs of rollers alternately engaging the frame to act as pivots for the body during tilting of the body in either direction and cam tracks secured to the frame, each cam track having a central peak and having its faces inclining downwardly and forwardly and downwardly and rearwardly from said peak, initial tilting movement of the body about either of said pairs of rollers as pivots bringing the other pair of rollers into engagement with the cam faces at the opposite sides of the peaks from the rollers which are acting as pivots whereby upon continued tilting movement the body is shifted, the rollers of one pair lying forwardly of the center of gravity of the body when loaded and in the load transporting position, the rollers of the other pair lying rearwardly of the center of gravity of the body when empty and in the dumping position.

7. In a dumping body construction, a body, a supporting frame, means mounting the body on the frame for tilting and shifting movements in the same general direction comprising two pairs of rollers alternately engaging the frame to act as pivots for the body during tilting of the body in either direction, cam tracks secured to the frame, each cam track having a central peak and having its faces inclining downwardly and forwardly and downwardly and rearwardly from said peak, initial tilting movement of the body about either of said pairs of rollers as pivots bringing the other pair of rollers into engagement with the cam faces at the opposite sides of the peaks from the rollers which are acting as pivots whereby upon continued tilting movement the body is shifted, the rollers of one pair lying forwardly of the center of gravity of the body when loaded and in the load transporting position, the rollers of the other pair lying rearwardly of the center of gravity of the body when empty and in the dumping position, and stops with which said pairs of rollers alternately engage to limit shifting of the body, each pair of rollers upon engagement with its stops acting as a pivot for final tilting movement of the body.

8. In a dumping body construction, a body, a supporting frame, means mounting the body on the frame for tilting and shifting movements in the same general direction comprising two pairs of rollers alternately engaging the frame to act as pivots for the body during tilting of the body in either direction, cam tracks secured to the frame, each cam track having a central peak and having its faces inclining downwardly and forwardly and downwardly and rearwardly from said peak, initial tilting movement of the body about either of said pairs of rollers as pivots bringing the other pair of rollers into engagement with the cam faces at the opposite sides of the peaks from the rollers which are acting as pivots whereby upon continued tilting movement the body is shifted, the body having brackets at each side mounting a roller of each pair and a member upon said bracket engaging the frame when the body is in load transporting position to support the body at the center thereof and remove weight from said rollers.

In testimony whereof I affix my signature.

FRED BISZANTZ.