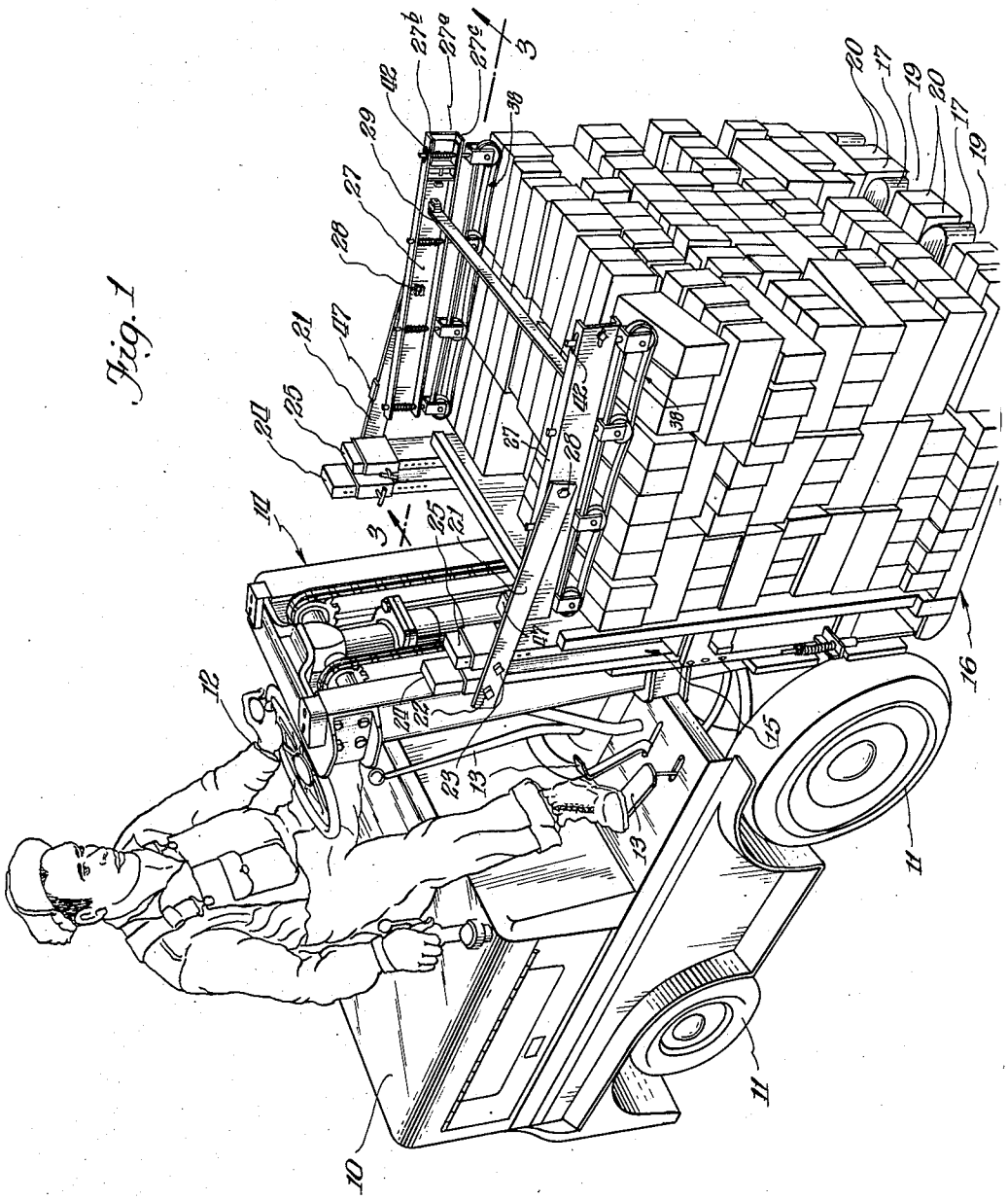
June 19, 1951 C. H. SCHMIDGALL 2,557,395

LOAD STABILIZER FOR BRICK FORK TRUCKS

Filed June 8, 1949 3 Sheets-Sheet 1

Fig. 1



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LOAD STABILIZER FOR BRICK FORK TRUCKS

Filed June 8, 1949 3 Sheets-Sheet 2

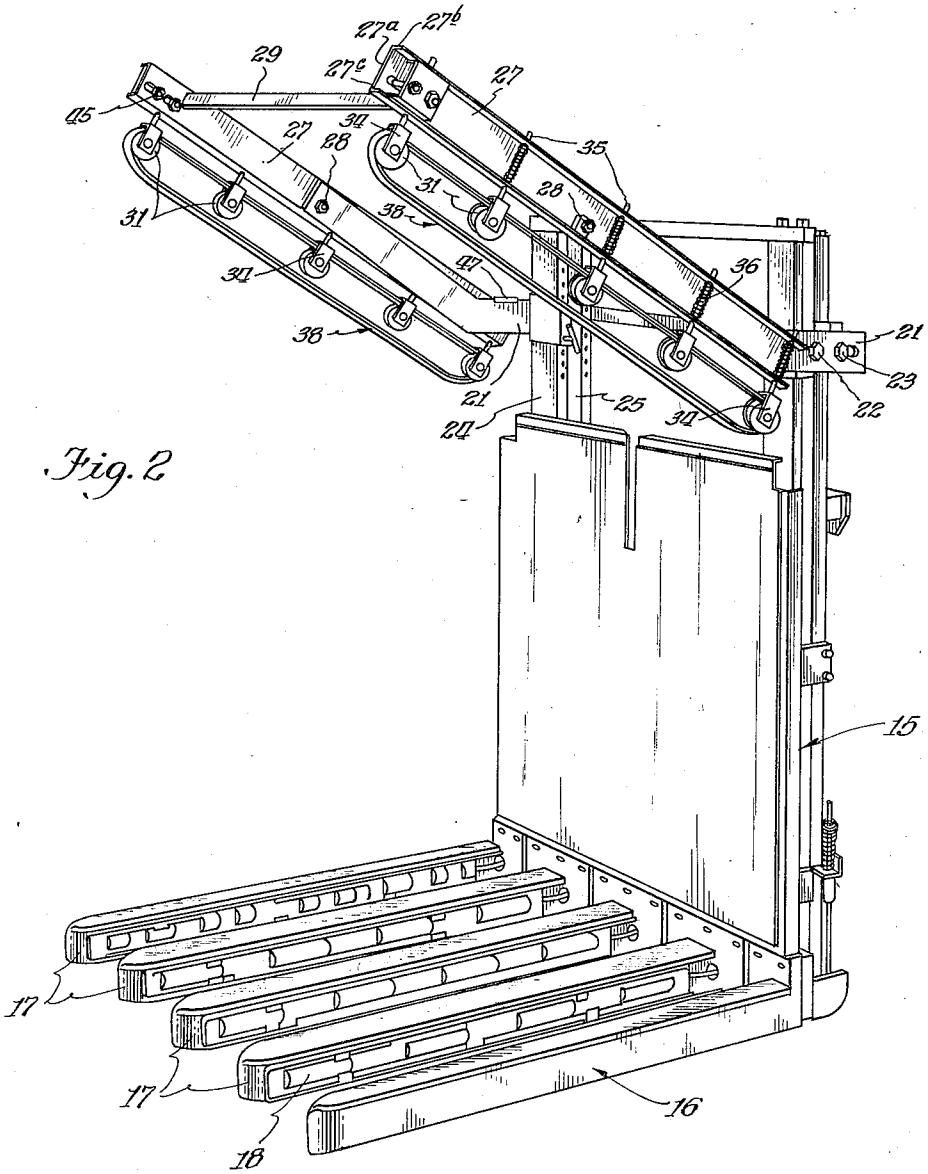


Fig. 2

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Filed June 8, 1949 3 Sheets-Sheet 3

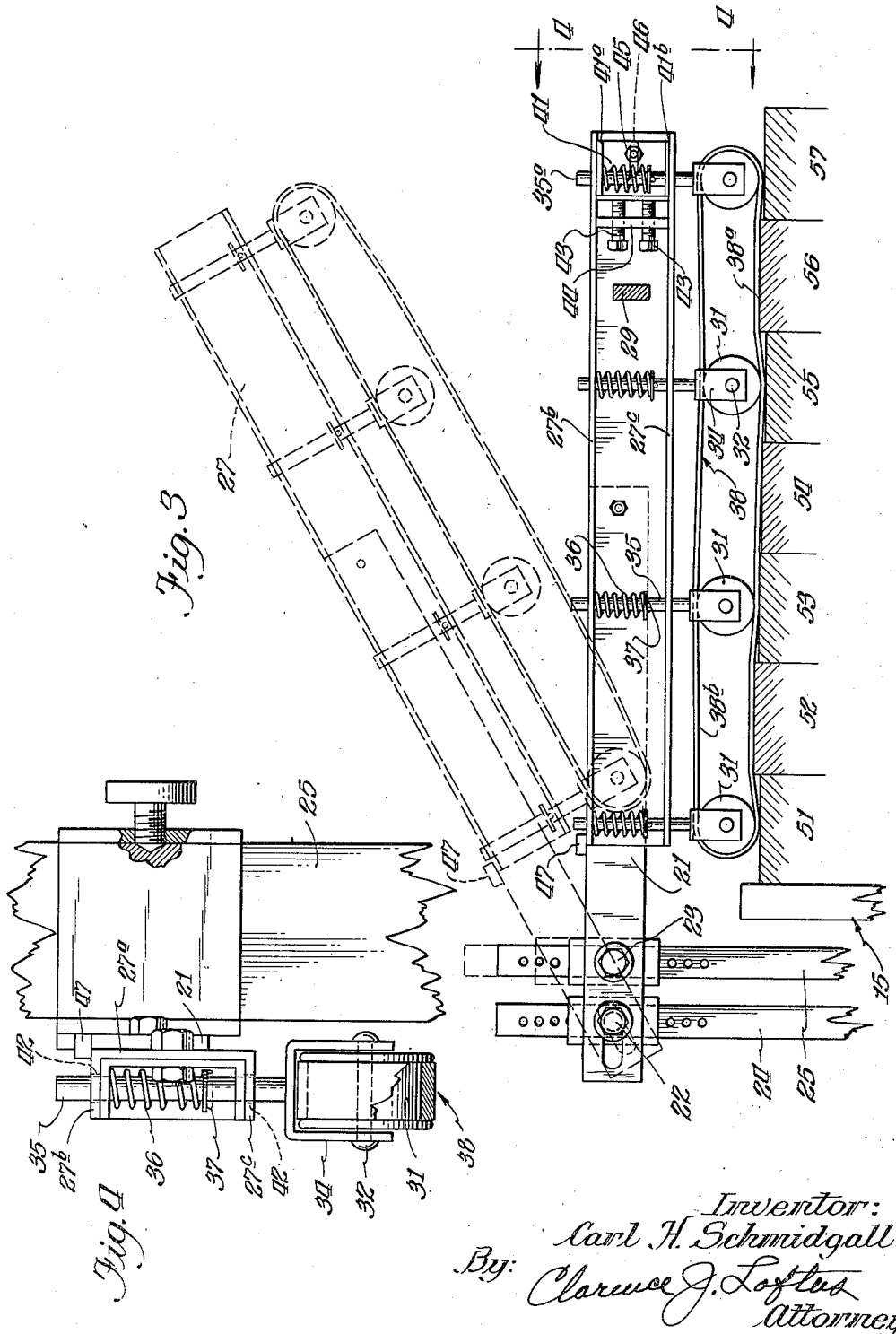


Fig. 3

Fig. 4

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LOAD STABILIZER FOR BRICK FORK TRUCKS

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Application June 8, 1949, Serial No. 97,830

4 Claims. (Cl. 214—65.2)

1

This invention relates to material handling equipment, particularly brick forks of the type ordinarily mounted on a lift truck for handling brick, tile, or similar materials. The invention is specifically directed to the provision of an improved stabilizing device for steadying the load as it is lifted and moved from place to place.

It is a general aim of the invention to provide an improved stabilizing device adapted to engage the upper bricks of the stack as it is lifted on the fork, to steady the stack and hold the individual bricks against undue shifting. In pursuance of this general aim, it is a more specific object of the invention to provide a novel and improved stabilizing device including a frame to extend along the upper edges of the stack with novel and improved pressure contact devices to engage the bricks in such a manner that they are adequately held against shifting, irrespective of minor irregularities in their dimensions or misalignments existing between their exposed surfaces.

A further object of the invention is the provision of a stabilizer as indicated above wherein the gripping device comprises a plurality of pressure members spaced from each other and individually spring compensated, so that each may automatically advance into resilient contact with the surface it engages; together with a flexible belt member extending between the pressure devices to maintain substantially continuous contact between the stabilizer and all of the bricks in the uppermost row at each edge of the stack.

The manner in which these objects are accomplished according to the present teaching will be best described in connection with the drawings of the present application, wherein:

Figure 1 is a perspective view of a stabilizer as here contemplated shown in its conventional environment, with a brick fork carried on the vertical lift on a self-propelled material handling truck;

Figure 2 is a perspective view of a brick fork and slightly modified form of stabilizer, shown in disengaged position;

Figure 3 is a sectional view of the stabilizer shown in Figure 1; the view being taken substantially on the plane of the line 3—3 of Figure 1; and

Figure 4 is a detail elevational view of the end of one of the stabilizer beams, the view being taken at the point indicated by the lines 4—4 of Figure 3.

In commercial handling of materials such as brick, it is conventional practice to utilize a brick fork carried by a self-propelled motor driven lift truck. The truck may be of any one of several well known types, but ordinarily includes a chassis 10 having traction wheels 11, steering wheel 12, motor controls 13, and a vertical power hoist 14 on which a vertically shiftable carriage 15 is mounted. The brick fork, generally designated as 16, is mounted at the lower end of the lift carriage. The brick fork may be of any one of several types as, for example, one of the forks illustrated in my co-pending applications Ser. No. 670,645 filed May 17, 1946, now Patent No. 2,527,103, granted October 24, 1950, and Ser. No. 769,297 filed August 18, 1947, which include a plurality of individual tines 17 each having shiftable gripper portions 18 so that stacks of bricks may be prepared with apertures 19 so spaced that the forks may be inserted under the stack to grip the lowermost bricks 20 and thus lift the entire stack.

2

In some instances, particularly when the bricks must be moved over rough ground or uneven surfaces, the tilting and vibration of moving the truck may tend to dislodge the uppermost bricks from a high stack and to thus limit the load that may be carried to something considerably less than the actual lifting capacity of the truck and its hoist. To avoid this, the present invention provides a stabilizing device which includes a shiftable top frame having resilient pressure pads to engage the uppermost bricks of the stack along its opposite edges, thus effecting a steadying influence on the stack and permitting the vehicle to be moved about with little if any tendency to dislodge the bricks or unduly tilt the stack.

As illustrated in Figures 1 and 2, the stabilizer comprises a frame mounted on a pair of arms or levers 21, each pivoted at the points 22 and 23 so that the outermost ends of the arms may be raised or lowered by relative vertical shifting between the vertical frame members 24 and 25 of the carriage of the truck. This movement is accomplished by power apparatus conventionally supplied to trucks of this general design and forms no part of the present invention except to provide means for raising and lowering the stabilizing device here disclosed.

The stabilizer itself consists of a frame having a pair of opposite beams 27, each pivoted on a bolt or rivet 28 carried at the outer ends of one of the arms 21. As shown, these beams 27 are interconnected by a cross bar 29 extending between them. The beams 27 are of channel shape,

having a vertical web 27*a* with a top flange 27*b* and bottom flange 27*c*. The flanges 27*b* and 27*c* may extend inwardly from the web as illustrated in the form of the invention shown in Figures 1 and 3, or may extend outwardly as in the slightly modified showing of Figure 2. In either case, the beams are provided with a plurality of pressure members, preferably in the form of flanged pulleys 31, each of which is mounted on a rivet 32 extending through a forked yoke 34 welded or otherwise fixed to a vertically shiftable shaft 35 extending through aligned apertures in the upper flange 27*b* and lower flange 27*c* of the beam 27. The pulleys 31 are spring urged downwardly by compression springs 36 telescoped over the shafts 35 between the flanges of the beam and arranged to bear against cotter pins 37 fixed in transverse bores through the shafts 35. The number and spacing of the pulleys 31 may be varied according to individual requirements, but satisfactory results have been obtained by the use of four or five of the pulleys on each of the beams, as shown in Figures 1 and 2, respectively. In any case, all of the individual pulleys below each beam are joined by a flexible belt 38 which, as shown, is of endless construction, having its lower span 38*a* extending below the pulleys and adapted to function as a pressure pad between the pulleys and the upper surfaces of the bricks, while the upper span 38*b* extends across the top of each of the pulleys immediately below the forked yoke 34. The belt 38 is preferably maintained in a condition of regulated tension, and to this end it has been found advisable to mount one of the end pulleys in a manner permitting endwise adjustment so that it may be moved inwardly or outwardly as desired. To this end, shiftable brackets 41 may be mounted between the flanges 27*b* and 27*c* of the beams 27, and vertical shafts 35*a* slidably mounted in aligned apertures in the flanges 41*a* and 41*b* of these brackets, it being understood, of course, that the flanges 27*b* and 27*c* are slotted at 42 (Figure 1) to permit inward or outward shifting of the vertical shafts 35*a*. Adjusting screws 43 may be mounted in fixed plates 44 to bear against the brackets 41 and move them outwardly to tighten the belts, and clamping bolts 45 may be mounted in the brackets to extend through slots 46 in the end of the beams in order to tighten the brackets to the beams in any desired position of tension.

By the teachings of this invention, which utilizes a novel combination of individually compensated shiftable pressure members spaced apart from each other yet joined by a flexible tension element extending between them, it is practicable to maintain substantially constant contact with all of the bricks along the uppermost edges at each side of the track, irrespective of minor misalignments and unevenness of their exposed surfaces. That is, the individual bricks 51, 52, 53, 54, 55, 56, 57, (Figure 3) are all engaged by the lower span 38*a* of the belt and are thus each individually held against accidental displacement, notwithstanding the fact that the varying dimensions of these bricks and those below them in the stack may cause some of the upper row of bricks to project substantially higher than others. It follows that when the stabilizer is lowered to the full-line position of Figure 3, it will effectively engage all of the bricks along each edge of the stack and effectively prevent shifting or tottering of the stack as it is moved from place to place. To release the bricks and to engage another stack, the entire stabilizer frame is lifted to the dotted line position of Figure 3, and at this time, since it is preferable to tilt the stabilizer upwardly, a tilting lug 47 on each of the arms 21 will engage the innermost end of the beam 27 adjacent to it so that as the arms 21 pivot upwardly the beams assume a similar angle.

From the foregoing it will be apparent that by these teachings it is feasible to employ a brick fork in lifting and transporting stacks of bricks that are higher or are of less inherent stability than with previously known devices, and that the inherent difficulties of shifting these materials from place to place is correspondingly reduced. Also, by employing a stabilizer as here disclosed, it becomes feasible to utilize a lift truck and fork arrangement in locations wherein the rough or irregular material of the ground or floor surface has heretofore caused such tilting or vibration as to render the use of this type of equipment impractical.

By the present teachings the disadvantages of previous types of stabilizers are largely overcome since none of the bricks along either edge of the stack are ordinarily free to shift, irrespective of the height of the stack or its inherent instability, with the result that the material may be quickly and expeditiously moved from place to place with confidence that none of the bricks of the stack will be accidentally dislodged.

Having thus described the invention, what I claim as new and desire to protect by United States Letters Patent is:

1. The combination, with a brick fork, of a load stabilizer comprising a pair of shiftable arms having a stabilizing frame pivoted thereon, said frame including a pair of opposite spaced-apart beams adapted to overlie the upper edges of a stack of brick held by the fork; each of said beams having a plurality of individually compensated spring loaded pressure members depending downwardly from the beam at points spaced apart along its length, each of said pressure members comprising a pulley at the lower end of a vertically slidable rod having a spring thereon to urge the pulley and rod downwardly against the stack; together with a tension member below each beam comprising an endless belt having an upper span extending across the top of each of the individual pulleys carried on said beam, and a lower span extending below each of said pulleys to directly engage the upper surfaces of the uppermost bricks in the stack.

2. The combination, with a brick fork, of a load stabilizer comprising a pair of shiftable arms having a stabilizing frame pivoted thereon, said frame adapted to overlie the upper edges of a stack of brick held by the fork and having a plurality of individually compensated spring loaded pressure members depending downwardly from the beam at points spaced apart along its length, together with a tension member comprising a flexible belt extending between said pressure members and adapted to directly engage the upper surfaces of the uppermost bricks in the stack.

3. The combination, with a brick fork, of a load stabilizer comprising a shiftable frame adapted to overlie the upper edges of a stack of brick held by the fork and having a plurality of individually compensated spring loaded pressure members depending downwardly from the beam at points spaced apart along its length, together with a tension member comprising a flexible belt extending between said pressure members and adapted

to directly engage the upper surfaces of the uppermost bricks in the stack.

4. In a load stabilizer for a brick fork, the combination of a stabilizing frame adapted to overlie the upper edges of a stack of brick, a plurality of individually compensated spring loaded pressure members depending downwardly from the frame at points spaced apart from each other, each of said pressure members comprising a pulley carried by a vertically slidable rod, with a spring thereon to urge the pulley and rod downwardly against the stack, together with a tension member comprising an endless belt having an upper span extending across the top of the pulleys, and a lower span extending below each of said pulleys to directly engage the upper surfaces of the uppermost bricks in the stack; and means to

vary the spacing between the pulleys to regulate the tension on the belt.

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REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
2,281,012	Sears	Apr. 28, 1942
2,403,356	Francis	July 2, 1946
2,468,055	Gibler	Apr. 26, 1949

FOREIGN PATENTS

Number	Country	Date
105,542	Great Britain	Jan. 16, 1917