March 29, 1932. T. WAGENER 1,851,074

CONCRETE CONVEYING BUCKET

Filed July 9, 1929

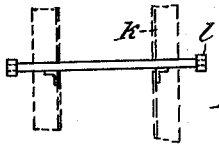


Fig. 1.

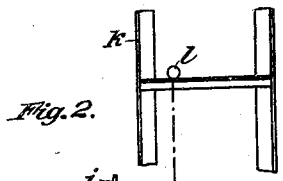
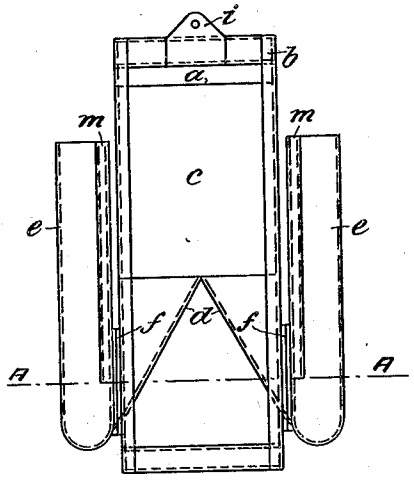
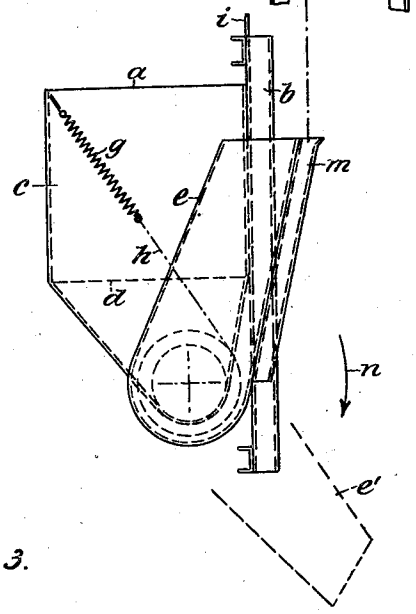


Fig. 2.





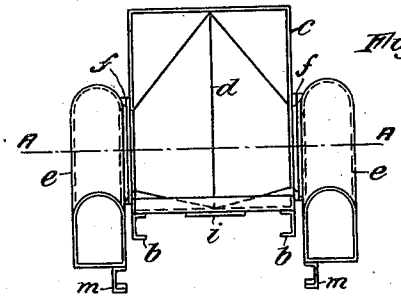


Fig. 3.

Fig. 4.

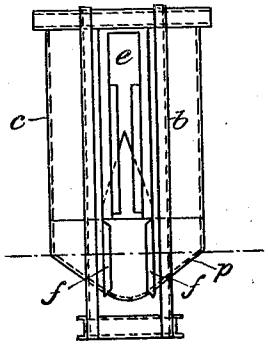


Fig. 5.

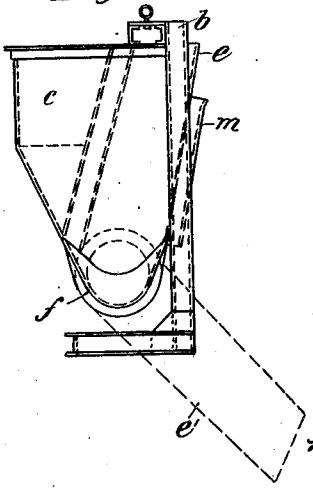
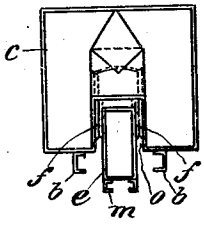


Fig. 6.



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UNITED STATES PATENT OFFICE

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CONCRETE CONVEYING BUCKET

Application filed July 9, 1929, Serial No. 376,941, and in Germany July 17, 1928.

In constructing equipments for hoisting cast concrete buckets, it has heretofore been customary, to hoist the material by means of tipping buckets or by means of buckets having a bottom discharge aperture adapted to be closed by a slide or pivoted cover. Both arrangements, however, are to a certain extent objectionable. In the tipping bucket the material contained sets down when the bucket is hoisted, the heavier stones, gravel, and sand sinking to the bottom, whereas the water collects there above. If now the bucket is tipped, the water jumps out and inundates more or less the casting chute, whereas the stones, gravel, and sand remain at the bottom of the bucket, and must subsequently be discharged by means of shovels. This very frequently results in interruptions of the operation. It is further objectionable that the one-sided acting charge exerts a very strong pressure on the tipping mechanism upon the tipping of the bucket, so that a correspondingly strong construction of these elements is required. On the other hand, the buckets having bottom discharge are objectionable as their closure is never completely tight, so that valuable substances, such as cement, are wasted in the form of cement broth, so that the concrete mixture is impaired. The operation of the slide closures of this type of buckets is further frequently interrupted by the slides being jammed by said grains or little stones. Finally the whole equipment may be soiled by cement broth unless the slide closure is completely tight.

It is the purpose of this invention to do away with these drawbacks. According to my invention the discharge of the concrete buckets is effected by the tilting of one or a plurality of discharge spouts tiltable around a horizontal axis and being preferably so long that they prevent a discharge of the material from the bucket when being in their upright position. Accordingly the objectionable slide closures on the one hand, and the one-sided pressures produced by the tipping of the bucket on the other hand, are successfully avoided. The tiltable or rotatable discharge spouts can be supported by the body of the bucket with a one-sided or a double-sided support.

In the drawings which represent more or less diagrammatically different preferred embodiments of my invention:

Figure 1 is a front view of a first embodiment of my invention.

Figure 2 is a side view,

Figure 3 is a plan view of the cement body.

Figures 4 to 6 are the corresponding views of a second embodiment.

In the embodiment, Figures 1 to 3, the material to be conveyed, for example cast concrete, is charged through the charge spout *a* into a bucket *c* attached to a slide or carriage *b*. A wedge-shaped partition *d* within the bucket *c* deflects the concrete towards and into lateral discharge spouts *e* which have a substantially sealed flange connection *f* with the body of the bucket *c* and may be tilted around the horizontal axis A—A. A tension spring *g* engaging to the spouts *e* by the intermediary of a cable *h* tends to hold the discharge spouts in their upright position illustrated. The discharge spouts *e* are so long that the material contained in the bucket *c* cannot run out therefrom, when the spouts are in their upright position illustrated. The buckets can be moved along a casting mast *k* by means of a hoisting cable action to an eyelet *i* of the slide *b*. At the discharge point the mast *k* is provided with a suitable stop which in the embodiment illustrated comprises rollers *l*. As soon as these rollers engage, when the bucket *c* is hoisted up, with guiding bars *m* arranged at the discharge spouts *e*, the spouts are upon further movement of the bucket *c* moved downwardly in the direction of the arrow *n* and at a corresponding tensioning of the spring *g*, this tilted position being illustrated with dotted lines *e'* in the drawing. Accordingly the bucket *c* is emptied. Upon the subsequent downward movement of the bucket the discharge spouts *e* are returned into the upright position by the cooperation of the rollers *l* and the guiding rails *m*, whereupon they are held in their upright position by the tension spring *g*.

Instead of the tension spring other mecha-

nisms may be used for locking the discharge spouts in their upright position or for imparting them an upward bias. So for example locking pawls, counter-weights, automatically acting locking mechanisms or the line devices might be used, as will be readily understood.

As above mentioned the discharge spouts *e* are preferably given such a length that a discharge of the material contained in the bucket *c* is prevented, when the spouts are in their upright position. It is, of course, also possible to carry out the discharge spouts shorter. In this instance suitable slide closures or the like must be arranged in order to avoid an undesired discharge of the material.

In the embodiment, Figures 1 to 3, the laterally arranged discharge spouts are only one-sidedly supported, wherefrom objectionable stresses or distortions might result upon the discharge of the buckets. This deficiency is avoided in the embodiment, Figures 4 to 6, according to which one or a plurality of discharge spouts can be arranged at the central plane of the bucket. In the particular embodiment illustrated in Figures 4 to 6 one single discharge spout of this type is arranged and two-sidedly supported in contradistinction to the embodiment, Figures 1 to 3, so that the spout may offer a higher resistance to the strains produced by and upon the discharge of the bucket, and the rotation or tilting of the spout may be effected easily and without friction or jamming. These spouts may be arranged at the front or back wall or at the bottom of the bucket. According to requirements one such discharge spout or a plurality thereof may be provided, for example one of these spouts respectively at the front or the back wall of the bucket. The bucket wall or the bottom, at which the discharge spout is attached, is preferably given an embossment to which the discharge spout is attached with a double-sided support and which at the same time acts as a deflector for guiding the material into the discharge spouts.

According to Figures 4 to 6 the discharge spout *e* is arranged at the central plane of the concrete bucket *c* in such a way, that the spout has a double-sided support at the bottom of the bucket by means of the stuffing-box like flange connections *f* and extends in its upright position into an inflection of the bucket wall. When the bucket is to be discharged, the spout is manually or automatically tilted into the dotted line position *e'*.

The bottom *p* of the bucket *c* is in its centre downwardly embossed so that the concrete mass automatically flows from both sides into the discharge spout *e* when the same is tilted down into its discharge position *e'*. Also in this embodiment the discharge spout *e* is provided with a guiding rail *m* cooperating, as the corresponding element of Figures 1 to 3, with a suitable stop or roller arranged on the guiding mast at a suitable point in order to automatically tilt the discharge spout. Also with this embodiment the discharge spout can be given an upward bias, for example by the same means illustrated in Figures 1 to 3.

I claim:

A hoisting mechanism comprising a bucket means for maintaining said bucket in substantially vertical position, a pivoted tubular spout secured to said bucket, said spout serving as an additional container when in upright position, and a casting mast, a stop thereon, and a guiding rail upon said spout designed to cooperate with a stop upon the casting mast at the discharge position to tilt said spout downwardly and secure the discharge of the contents of said bucket.

In testimony whereof I affix my signature.

THEODOR WAGENER.