Nov. 20, 1923. 1,474,707

M. L. CROWL

SAND BUCKET

Filed March 2, 1922

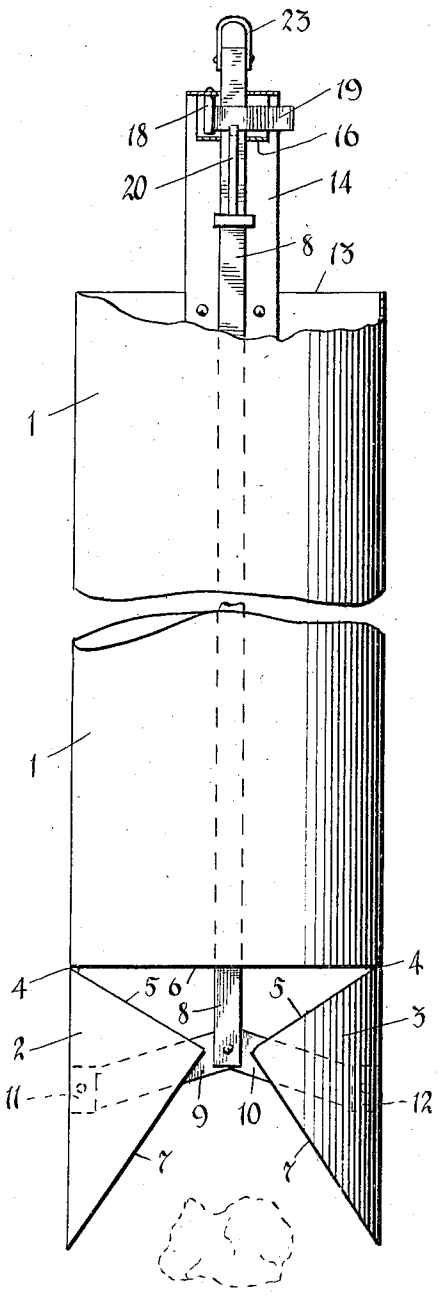


Fig. 1.

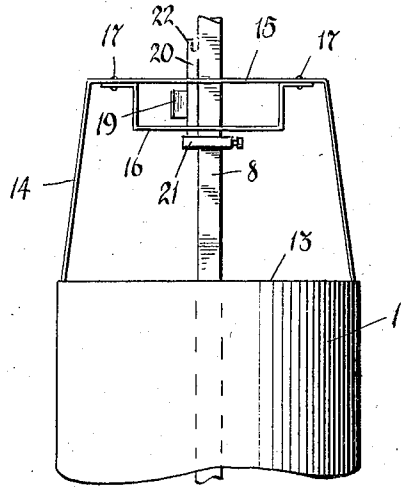


Fig. 2.

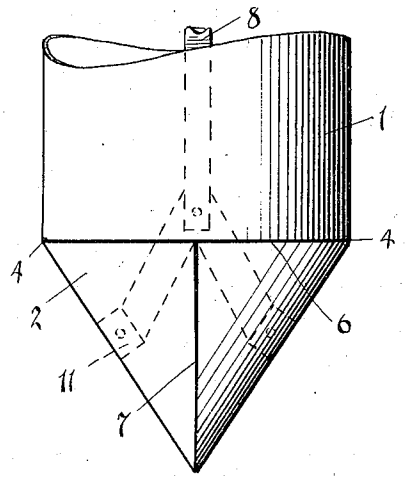


Fig. 3.

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UNITED STATES PATENT OFFICE.

MARTIN LUTHER CROWL, OF PUEBLO, COLORADO.

SAND BUCKET.

Application filed March 2, 1922. Serial No. 540,461.

To all whom it may concern:

Be it known that I, MARTIN LUTHER CROWL, a citizen of the United States, and a resident of Pueblo, in the county of Pueblo and State of Colorado, have invented a new and useful Improvement in Sand Buckets, of which the following is a full, clear, and exact description.

My invention relates to improvements in sand buckets, and it consists in the combinations, constructions, and arrangements herein described and claimed.

An object of my invention is to provide a device of the character described for removing sand, rock, or other loose obstructions from the casing of a well.

A further object of my invention is to provide a device of the character described, the bucket blades of which are held open until the device has been filled and ready to be hoisted out of the casing.

A further object of my invention is to provide a device of the character described which is extremely simple in construction, durable, and thoroughly practical for the purpose intended.

Other objects and advantages will appear in the following specification, and the novel features of the invention will be particularly pointed out in the appended claims.

My invention is illustrated in the accompanying drawings, forming part of this application, in which—

Figure 1 is a side elevation, partly in section of an embodiment of my invention,

Figure 2 is a side elevation of the upper portion of the mechanism illustrated in Figure 1 with the central shaft elevated, and

Figure 3 is a side elevation of the lower portion of the mechanism shown in Figure 1 with the bucket blades closed.

In carrying out my invention, I make use of a relatively long cylinder 1 of a strong sheet metal. The cylinder 1 comprises the body of the sand bucket and I shall hereafter refer to this portion as the bucket. The diameter of the bucket 1 is of such dimension that it may be admitted to the casing of a well and is sufficiently long to hold a considerable amount of loose sand or refuse from the well.

A pair of bucket blades 2 and 3 are hingedly mounted upon the lower end of the bucket 1 at 4. The bucket blades 2 and 3 are made of hardened plow steel and are fashioned so that when their upper edges 5 are drawn into close engagement with the lower end 6 of the bucket 1, the arcuate edges 7 or jaws of the blades, will contact one another, and thus close the lower open end 6 of the bucket. This is clearly shown in Figure 3.

Means for actuating the bucket blades 2 and 3 is provided in a central shaft 8 centrally located within the bucket 1. The lower end of the shaft 8 has pivotally mounted thereon a pair of short links 9 and 10. The links 9 and 10 are pivotally connected to lugs 11 and 12 on the inner sides of the bucket blades 2 and 3, respectively. When the central shaft 8 is elevated, it is obvious that because of the links 9 and 10 and their connections to the bucket blades, the blades will assume the position shown in Figure 3 and thus close the bucket 1.

The upper end 13 of the bucket 1 is open and is provided with a bail 14 riveted thereto. The upper horizontal portion 15 of the bail 14 has supported on the under surface thereof a U-shaped guide member 16 riveted to the portion 15 by rivets 17. A downwardly extending pillar 18 is supported upon the under surface of the portion 15, and has mounted thereon a steel band spring 19. This steel spring 19 is normally out of engagement with the central shaft 8. A vertical bolt 20 is held in close engagement with one side of the central shaft 8 by means of an adjustable locking collar 21. The bolt 20 is provided with a tongue 22 at its upper end, which tongue is parallel and spaced apart from the adjacent side of the central shaft 8.

A small bail 23 is fixed to the upper end of the central shaft 8 and provides a means for receiving the cable from which the bucket is suspended.

From the foregoing description of the various parts of the device, the operation thereof may be readily understood. Before lowering my sand bucket into the well, I press the central shaft 8 downwardly until the bucket blades 2 and 3 are in the position shown in Figure 1. At this time, the bolt 20 is below the lower edge of the spring 19. The next step is to manually press the spring 19 toward the central shaft 8 and elevate the shaft 8 until the tongue 22 overlaps the spring 19. The bucket may now be suspended by means of the cable or the like, attached to the bail 23, and the weight of the bucket will tend to hold the bolt 20 in close engagement with the spring 19, thus holding

the bucket blades 2 and 3 in an open operative position.

I then lower the sand bucket into the well or well casing. Let us assume that a quantity of loose rock and sand is disposed at the bottom of the well, and that it must be removed. The bucket 1, as it descends into the well, will forcefully strike the bottom and the bucket blades 2 and 3, because they are of a hard steel, will be unharmed in their forceful contact with the well bottom. As the blades 2 and 3 sink into the loose contents of the well bottom, the sides of the bucket 1 will encompass this loose material. At the same time that the bucket strikes the well bottom, the weight thereof will be released from the cable supporting the central shaft 8, and the momentum gathered by the shaft 8 in its descent in the well, will cause the shaft to move downwardly and thus release the bolt 20 from its engagement with the spring 19. The cable from which the bucket is suspended, is now drawn upwardly, and will cause the central shaft 8 to be elevated, since the spring 19 is at this time in the position shown in Figure 2, and will not obstruct the movement of the shaft by engagement of the bolt 20 therewith. The fact that the bucket 1 contains a quantity of the loose rock and sand will also tend to hold the bucket 1 down, and as the central shaft 8 is elevated, the bucket blades 2 and 3 will assume the position shown in Figure 3, after which movement any further pull upon the cable will cause the entire device to move therewith. It may be said that the weight of the contents of the bucket virtually holds the blades 2 and 3 in close engagement with one another.

The purpose of the adjustable collar 21 is that the bolt 20 may be moved longitudinally to adjust the position of the bucket blades 2 and 3 when the device is being lowered into the well.

I claim:

1. A device of the character described comprising a hollow cylindrical body member, a pair of bucket blades hingedly mounted on the lower end of said body member, arranged to cooperate with one another to close the lower end of said body member, a central shaft disposed in said body member, a pair of links connected to the lower end of said central shaft and to the inner surfaces of the bucket blades respectively, a bail carried by said central shaft at its upper end for engagement with a cable or the like, and means associated with said central shaft for locking said blades apart on said body member when said body member is suspended in a well casing or the like, said means comprising a bail disposed at the upper end of said body member, a band spring carried by said last named bail and normally held out of engagement with said central shaft, a bolt disposed on said central shaft and adapted to engage said spring when said spring is moved manually toward said shaft to prevent the elevation of said shaft when said device is suspended from a cable in the manner described.

2. A device of the character described comprising a hollow body member, a pair of clam shell bucket blades hingedly mounted on the lower end of said body member arranged to cooperate with one another to close the lower end of said body member, a central shaft disposed in said body member, means carried by said central shaft for engaging with a cable for suspending said shaft therefrom, a pair of rigid links connected to the lower end of said shaft and to said blades, a bail disposed on the upper end of said body member, a band spring carried by said bail and normally held out of engagement with said central shaft, and means carried by said central shaft and adapted to engage said spring when said spring is moved manually toward said shaft to prevent the rotation of said shaft when said device is suspended from a cable in the manner described.

MARTIN LUTHER CROWL.