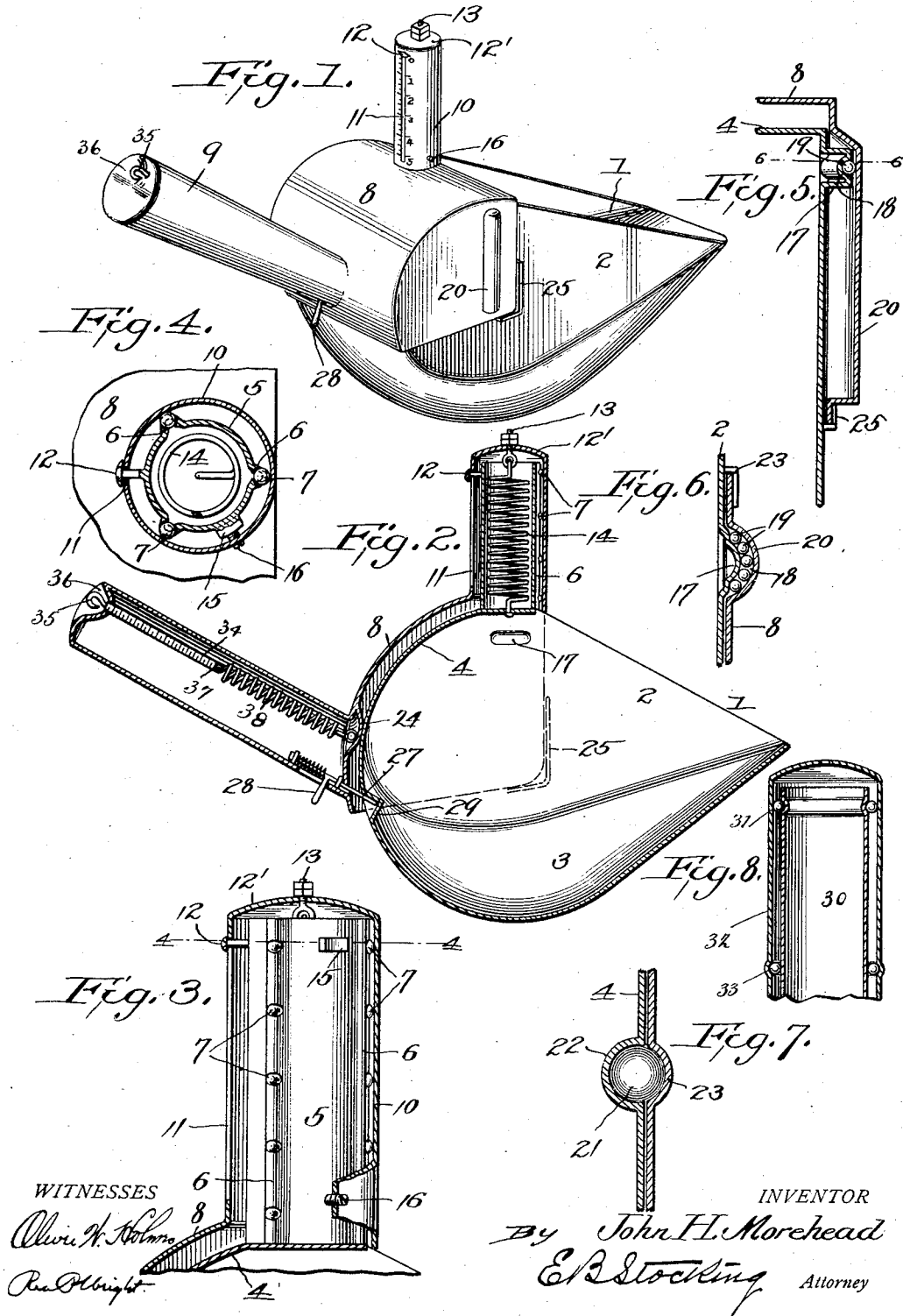


J. H. MOREHEAD.
SELF WEIGHING SCOOP.
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JOHN HOE MOREHEAD, OF GLOBE, ARIZONA.

SELF-WEIGHING SCOOP.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, JOHN HOE MOREHEAD, a citizen of the United States of America, residing at Globe, in the county of Gila and State of Arizona, have invented certain new and useful Improvements in Self-Weighing Scoops, of which the following is a specification.

This invention relates to certain new and useful improvements upon my scoop for which application for patent was filed October 12, 1911, Serial #654,211; the object being to improve the general construction and to provide additional means for reducing friction between the respective members.

A still further object of the invention is to provide a scoop which is exceedingly simple and cheap in construction, and very durable in use; the members being so connected that when the bowl is being forced into a bulk of material, the strain upon the same is reduced.

Another object of the invention is to provide means for locking the scoop to the handle so as to throw the weighing means out of operation, whereby the scoop can be used as an ordinary scoop.

Other and further objects and advantages of the invention will be hereinafter set forth and the novel features thereof defined by the appended claims.

In the drawings—Figure 1, is a perspective view of a self-weighing scoop constructed in accordance with my invention; Fig. 2, is a longitudinal vertical section; Fig. 3, is an enlarged vertical section through the outer telescoping tubular portion of the scale showing the inner section in elevation and the arrangement of the anti-friction balls carried thereby; Fig. 4, is a section taken on the line 4—4 of Fig. 3; Fig. 5, is an enlarged vertical section through the bowl and scoop showing the arrangement of the anti-friction balls; Fig. 6, is a section taken on the line 6—6 of Fig. 5; Fig. 7, is an enlarged section through a modified form showing the use of one anti-friction ball for reducing friction between the bowl and guide-portion of the scoop, respectively; and Fig. 8, is a detail section through the tubular telescoping members showing a slightly modified form of anti-friction balls arranged therein for reducing friction between the respective cylinders.

Like numerals of reference refer to like

parts in the several figures of the drawing.

Referring to the drawing, 1 indicates the bowl which is provided with parallel vertical straight sides 2 and a convex bottom 3 which terminates in a top portion 4 having a tubular member 5 extending upwardly therefrom, which is provided with spaced vertical beads 6 carrying anti-friction balls 7 for spacing and guiding the same in its vertical movement in order to reduce friction, as will be hereinafter fully described. Arranged over the rear portion of the scoop or bowl 1, is a guide-portion 8 which is provided with a handle 9 for manipulating the same; said guide-portion conforming in shape to the rear portion of the scoop and comprises a back portion having an upwardly projecting tubular member 10 of a diameter slightly larger than the tubular member 5 into which the tubular member of the bowl of the scoop is adapted to telescope and be guided therein, by the anti-friction balls so that friction between the two telescoping members is greatly reduced, and the tubular member of the bowl has a free vertical movement therein, but is prevented from wobbling by the balls 7 which travel upon the inner face of the outer tubular member, as clearly shown in Fig. 4. The outer tubular member 10 of the guide-portion is provided with a vertical slot 11 having graduations to each side thereof designating pounds and fractions thereof, as clearly shown, and extending through the slot 11 is a pointer 12, carried by the inner tubular member 5 for indicating the number of pounds of material within the bowl as will be later described.

The tubular portion 10 of the guide member, is provided with a cap 12' having a central opening in which is mounted an adjusting eye-screw 13 through the eye of which is connected the upper end of a retractile spiral spring 14 which fits snugly within the inner tubular portion and is connected to the top portion of the scoop or bowl, as clearly shown in Fig. 2. In order to prevent the retractile spring from being strained by an overload and to provide means for limiting the movement of the telescoping members in respect to each other, I provide the inner tubular member 5 between one of the pair of beads, with a stop 15 adapted to engage a set screw 16 mounted in the threaded bore of the tubu-

lar member 10, as clearly shown. From this construction, it will be seen that when the bowl is forced into a body of material and raised by the handle 9, the tubular portion of the bowl will slide within the tubular portion of the handle allowing the weighing spring to act in order to designate the weight of the material within the bowl; it of course being understood that the weight of the bowl is compensated for by the setting of the pointer and the adjusting of the spring. The rear portion of the bowl conforms in shape to the guide-portion of the handle, and in order to reduce the friction between these portions, I provide the sides of the scoop with semi-circular extensions 17 having annular ball-retaining grooves 18 in which are mounted balls 19, which are adapted to travel against the inner face of a semi-circular guide-way 20 formed upon the sides of the guide-member 8 which are preferably formed by forcing a portion of the metal outwardly. By this construction the bowl and guide-member are held in their proper position in order to maintain the telescoping members in proper position in respect to each other.

In Fig. 7, I have shown a slightly modified form of friction reducing means which comprises a ball 21 which is mounted in a ball socket 22 formed in the side of the scoop; and is adapted to work in a guide-groove 23 formed in the side of the guide-portion of the handle. By providing the scoop with anti-friction means, as hereinbefore described, the strain upon the telescoping tubular members of the scale is reduced, when forced into a body of material and in order to provide additional means so that the scoop will stand the rough handling to which it would be subjected, I provide the guide-portion of the handle with a transverse bead 24 which engages the back portion of the scoop, as clearly shown and limits the rearward movement of the bowl within the guide-portion. Additional means is also provided for this purpose by providing the sides 2 of the bowl with angular projections 25 which are adapted to engage the corner of the sides of the guide-portion of the handle, as clearly shown in Figs. 1 and 2; and forming stops for limiting the inward movement of the scoop in the guide-portion and the horizontal portion of the angular portion 25, limits the upward movement of the bowl within the guide-portion, so that when the scoop is thrown into a bin, all danger of the members becoming twisted is prevented. In order to provide means for locking the bowl of the scoop in a fixed position in respect to the guide portion of the handle, so as to allow the scoop to be used as an ordinary scoop, I provide the handle 9 with a spring-actuated bolt 27 which is provided with a trigger 28 working through a

slot formed in the handle, said bolt being normally held in an extended position, as clearly shown in Fig. 2; and the end thereof is adapted to extend into an indentation 29 formed in the bowl, as clearly shown in Fig. 2, whereby the bowl is firmly locked in an inoperative position in respect to the guide-portion. By this construction, when it is desired to release the bowl to weigh the material therein, it is only necessary to grasp the handle 9 and digitly operate the trigger 28 by drawing the same outwardly against the action of the spring to remove the projecting end out of the indentation of the bowl, and the bowl is free to move vertically within the guide-portion.

From the foregoing description, it will be seen that I have provided a self-weighing scoop which can be used as an ordinary scoop or converted into a self-weighing scoop by simply drawing outwardly upon the bolt in order to allow the bowl of the scoop to move vertically within the guide-portion of the handle. Additional means have also been provided for reducing friction between the guide-portion and bowl so that a scoop is formed which will be very accurate and one which is so constructed that the weighing means is thoroughly protected whereby all danger of the pointer or spring from being broken is prevented and a highly efficient scoop is formed which has many advantages over scoops of this character now in use.

In the modification shown in Fig. 8, the inner cylinder 30 is provided with an annular row of balls 31 adapted to contact with the inner face of the outer cylinder 32 which is provided with an annular row of balls 33 adjacent its lower end and from this description it will be seen that the two telescoping members will be guided in their vertical movement in order to reduce friction between the same and by this construction a square or irregular-shaped telescoping member can be used. In order to provide means for weighing bulky material the handle of the scoop is formed hollow, as clearly shown, in which is arranged a spring scale comprising a graduated bar 34 having a hook 35 at one end, normally held seated in a depression 36 formed in the closed end of the handle; said bar having an eye 37 at its opposite end to which one end of a retractile spring 38 is connected, the other end of said spring being secured to the depression 24 of the guide-portion as clearly shown in Fig. 2. From this construction, it will be seen that the graduated bar can be provided with numerals designating pounds and fractions thereof, and will be normally maintained in the position shown so as to be out of the way when the scoop is being used. In order to use the scale it is only necessary to throw the scoop into vertical

position and to attach the article to be weighed on the hook, and the same can be weighed quickly and easily.

I claim:

5 1. A self-weighing scoop comprising a bowl, a handle having a guide-portion conforming in shape to the shape of the bowl, projections on the side of said bowl, guide-ways formed on the sides of said guide-
10 portions to receive said projections, telescoping tubular portion carried respectively by the bowl and guide-portion, and a weighing spring arranged within said tubular portions.

15 2. A self-weighing scoop comprising a bowl, a handle having a guide-portion conforming in shape to the shape of the bowl, telescoping tubular portions carried respectively by the bowl and guide-portions, beads
20 formed on the inner tubular portion provided with anti-friction balls engaging the outer tubular portion, a weighing spring arranged within said tubular portions, and means for limiting the rearward and up-
25 ward movement of said bowl in said guide-portion.

3. A self-weighing scoop comprising a bowl having a socket, a handle having a guide-portion to receive a portion of said
30 bowl, telescoping tubular portions carried respectively by the bowl and guide-portion, a weighing spring arranged within said tubular portion, and a spring-actuated bolt carried by the handle of the guide-portion
35 extending into the socket of the bowl for locking said bowl against vertical movement within the guide-portion.

4. A self-weighing scoop comprising a handle having a guide-portion, a bowl con-
40 forming in shape to the guide-portion mounted to move vertically therein, telescoping tubular portions carried respectively by the bowl and guide-portion, anti-friction balls arranged between the telescoping guide-
45 tubular portions and the scoop and guide-portion, and means for locking said bowl within the guide-portion.

5. A scoop, comprising a bowl having a convex bottom and straight side portions,
50 said bottom terminating in a top portion having a tubular member extending upwardly therefrom, a handle having a guide-portion conforming in shape to the shape of the rear portion of said bowl, and having
55 a guide-way formed on its sides, a weighing spring having a connection at one end with the bowl and at the other end with the guide-portion of the handle, and projections formed on the sides of the bowl carrying
60 anti-friction balls working in the guide-

ways formed on the sides of the guide-portion of the handle for spacing the bowl from the guide-portion.

6. A self-weighing scoop comprising a bowl having straight sides and a convex
65 bottom terminating in a top portion, a tubular member extending from said top portion provided with vertical beads carrying balls, a handle having a guide-portion to receive the rear end of said bowl, a tubular
70 member carried by said guide-portion adapted to receive the tubular member of the bowl, means for limiting the movement of the inner tubular member within the outer
75 tubular member, a weighing spring arranged within the inner tubular member having one end connected to the top portion of the bowl, and the other end adjustably connected to the outer tubular member, and
80 means for limiting the rearward and upward movement of said bowl within said guide-portion.

7. A scoop comprising a bowl, having sides provided with semi-circular projec-
85 tions having ball retaining grooves, a handle having a guide-portion provided with guide-ways to receive said projections of said bowl, balls arranged within the grooves of said
90 projections, telescoping portions carried respectively by the bowl and guide-portion, and a weighing spring arranged within said telescoping portions.

8. A self-weighing scoop comprising a handle provided with a guide-portion, a
95 bowl arranged within said guide-portion, a weighing spring for supporting said bowl therein, having a connection at one end with the guide-portion and at its other end with the bowl, said bowl being provided with an indentation, a spring-actuated bolt
100 mounted in the handle of the guide-portion adapted to fit within said indentation for locking the bowl within said guide-portion, and a trigger carried by said bolt.

9. A self-weighing scoop, comprising a
105 guide-portion and a bowl mounted therein, telescoping tubular members carried respectively by the bowl and guide-portion, a stop arranged on the inner tubular member, a set-screw carried by the outer member
110 adapted to be engaged by said stop, and a weighing spring arranged within the inner tubular member connected respectively to the outer tubular member and the bowl.

In testimony whereof I affix my signa-
115 ture in presence of two witnesses.

JOHN HOE MOREHEAD.

Witnesses:

FLOYD I. OLDS,
JOHN WALLACE.