July 5, 1955 H. G. BELL ET AL 2,712,407

HOGSHEAD LOADER AND COMPACTER

Filed June 20, 1951 3 Sheets-Sheet 1

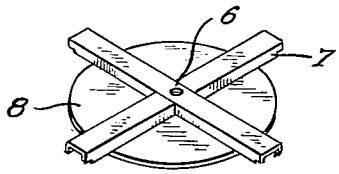


FIG. 5.

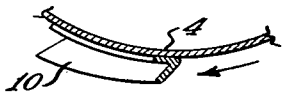


FIG. 4.

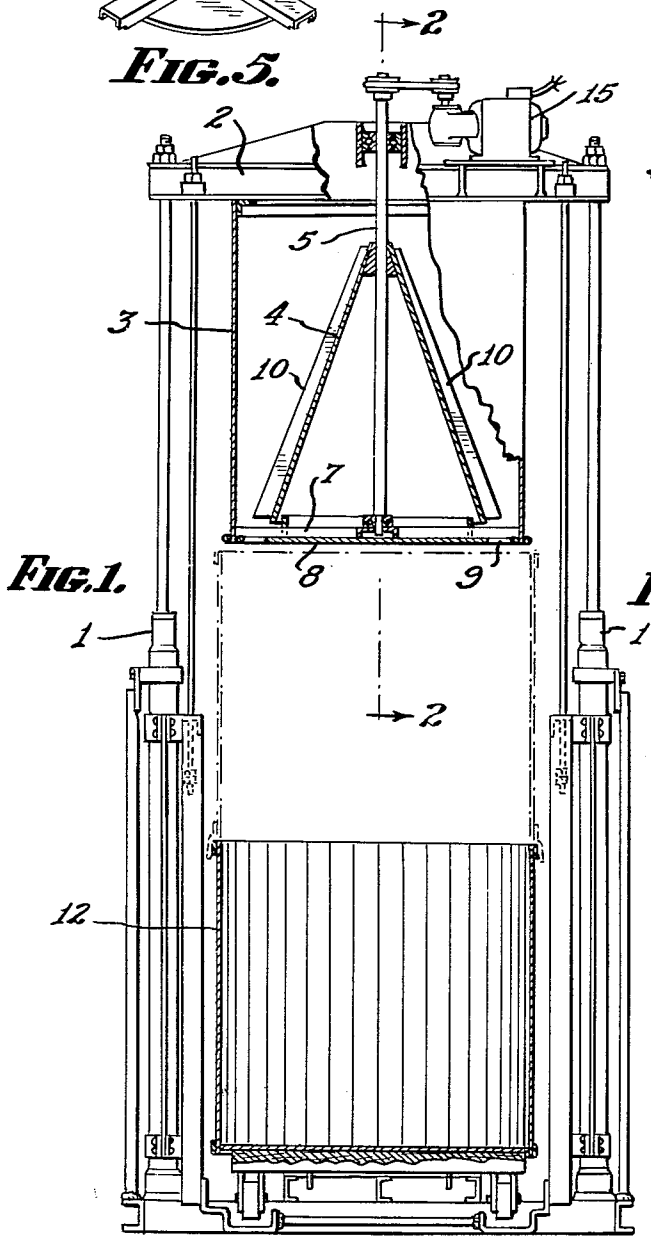


FIG. 1.

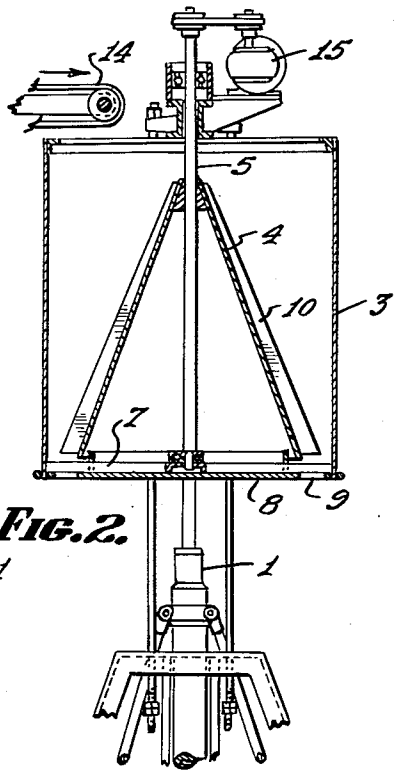


FIG. 2.

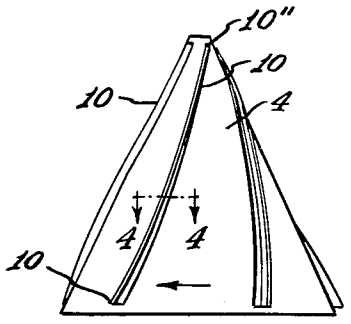


FIG. 3.

INVENTORS.
HARRY GUTHRIE BELL
AND JACOB DOUGLAS GAY, JR.,
BY
Allen & Allen
ATTORNEYS.

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HOGSHEAD LOADER AND COMPACTER

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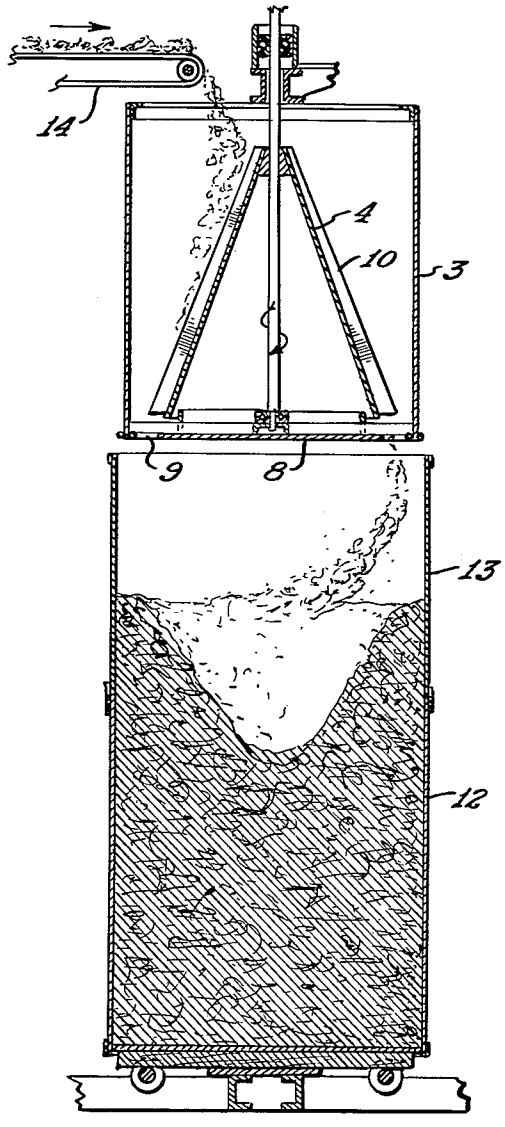


FIG. 6.

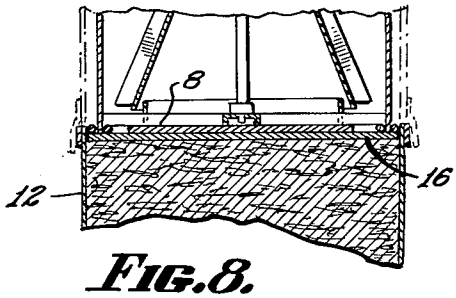


FIG. 8.

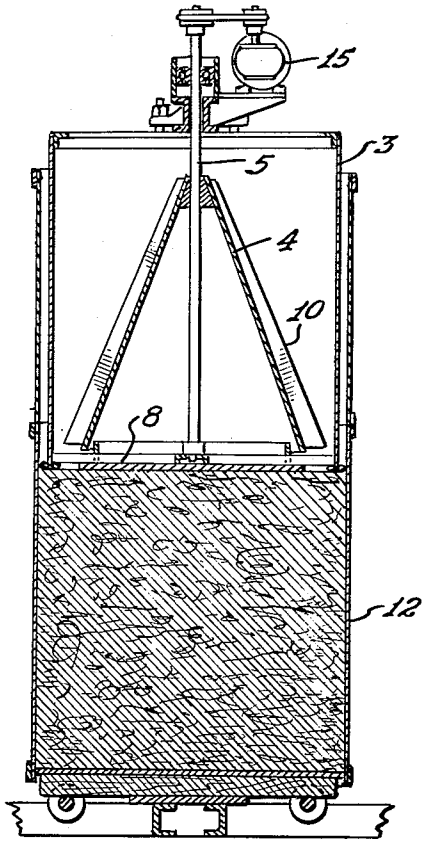


FIG. 7.

INVENTORS.
HARRY GUTHRIE BELL
AND JACOB DOUGLAS GAY, JR.,
BY
Allen & Allen
ATTORNEYS.

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FIG. 9.

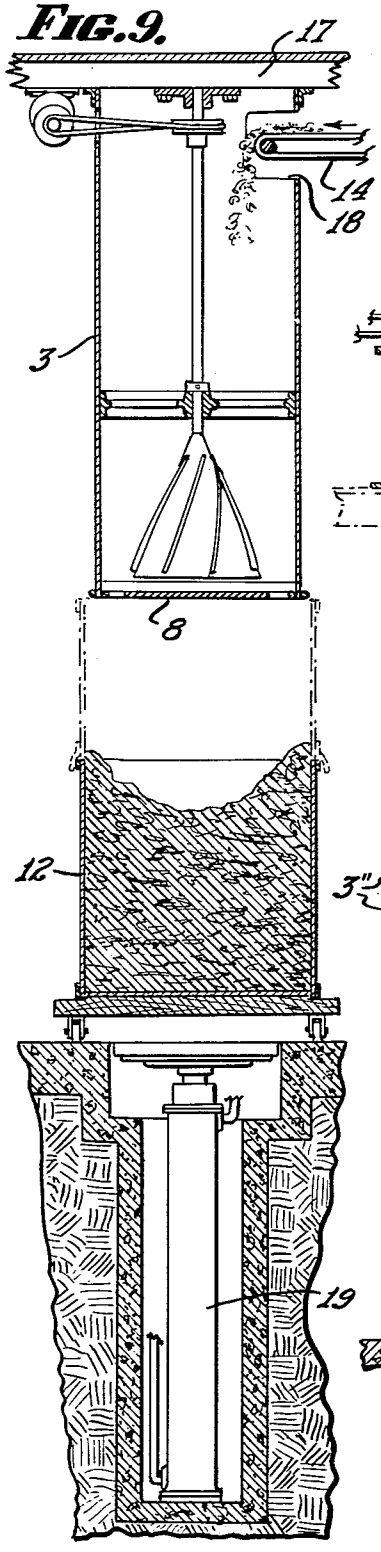
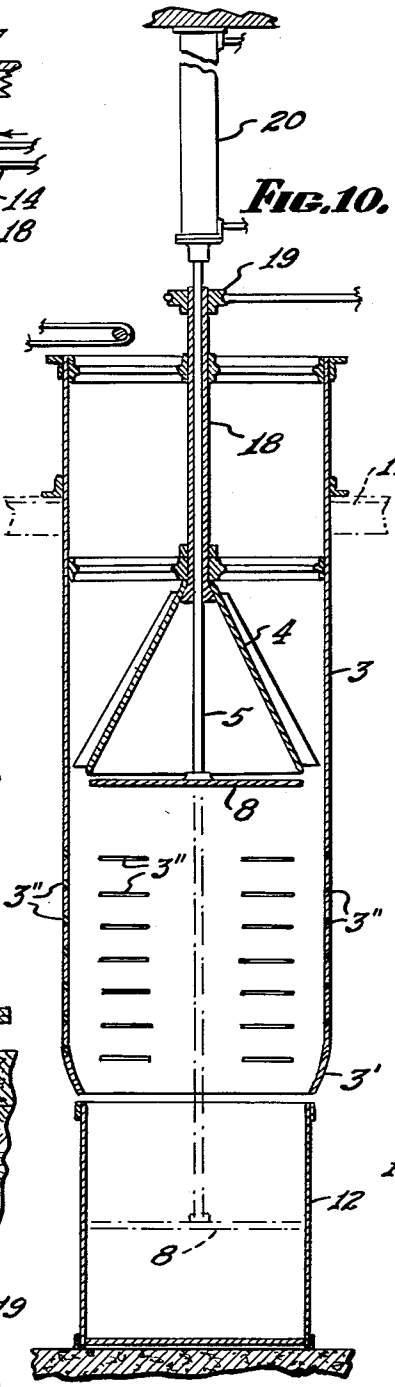


FIG. 10.



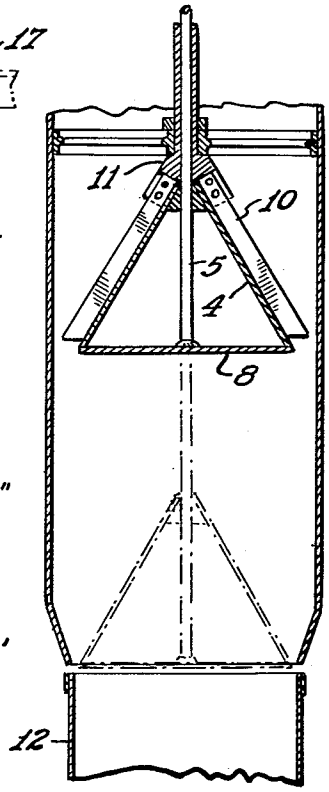


FIG. 11.

INVENTORS.
HARRY GUTHRIE BELL
AND JACOB DOUGLAS GAY, JR.,
BY
Allen & Allen
ATTORNEYS.

United States Patent Office

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2,712,407

HOGSHEAD LOADER AND COMPACTER

Harry Guthrie Bell, Paris, and Jacob Douglas Gay, Jr., Lexington, Ky., assignors to Gay-Bell Corporation, Paris, Ky., a corporation of Kentucky

Application June 20, 1951, Serial No. 232,628

12 Claims. (Cl. 226—71)

Our invention relates to a loader and compacter for loading material into a hoghead and compressing or compacting the same during the loading operation and without the necessity of removing the hoghead from one machine to another.

The loader and compacter, which is the subject matter of our invention, is primarily, but not exclusively designed for use in loading cured tobacco into hogsheads for storage and transportation.

Tobacco, when loaded in a hogshead, continues its curing process while in the hogshead and hence it is desirable for this and other reasons, that the tobacco be packed in the hogshead in such a manner that it has a "soft center." This soft center is accomplished by feeding the tobacco in the loading operation close to the periphery or edge of the hogshead so that it has a tendency to build up on the periphery of the load so that when the tobacco is compressed by a compressing or compacting disc, the tobacco in the center of the hogshead will be more loosely packed than the tobacco around the center portion.

It is an object of our invention to provide a loader which feeds the tobacco into the hogshead adjacent the periphery of the hogshead as described above.

It is a further object of our invention to provide a loader as described above which is combined with a compacting press so that the tobacco may be compacted during the loading operation and the barrel head inserted under pressure after the load is completed without the necessity of moving the hogshead from one machine to another.

In the following description of our invention, as well as in the drawings, we have shown our novel loader in combination with a compacting press similar to that shown and described in our copending application, Serial No. 97,264, filed June 4, 1949, now Patent Number 2,605,697, for a Compacting Press.

It is a further object of our invention to provide a combination loader and compacter which is portable in a similar manner as that shown in the aforesaid copending application and which permits the tobacco to be loaded or fed into the hoghhead, while in a stationary position, and at the same time permits a compacting operation at intervals during the loading operation with the hogshead in the same position at all times.

A further object of our invention is to provide a portable combination hogshead loader and compacter which is completely self-contained and, therefore, which may be easily moved from place to place for loading hogsheads in different tobacco warehouses.

A further object of our invention is to provide a combination loader and compacter which is simple and rugged in construction, easy to maintain and repair and clean when necessary, and which is relatively inexpensive to construct.

While in the drawings and following description, we show and describe a loader and compacter for use with cured tobacco, we do not intend to limit ourselves to the material being handled since our device is equally adaptable for other material which is loaded and compacted into a hogshead, such as cotton, paper, and the like.

These and other objects of our invention which will be set forth hereinafter or will be apparent to one skilled in the art upon reading these specifications, we accomplish by that certain construction and arrangement of parts of which we shall now describe an exemplary embodiment. Reference is now made to the drawings which form a part herein and in which:

Figure 1 is a front elevation with a portion broken away and in section of our combined hogshead loader and compacter.

Figure 2 is a cross section of the loading and compacting element taken on the section line 2—2 of Figure 1.

Figure 3 is a front elevation of the material directing cone which is a part of our novel loader.

Figure 4 is a cross section of a portion of the cone shown in Figure 3 taken on the section line 4—4 of Figure 3.

Figure 5 is a perspective view of the compacting disc, together with the grid or framework for holding the same in position.

Figure 6 is a cross section of a hogshead being loaded and of the operation portion of our loader and compacter in loading operation.

Figure 7 is a similar view as Figure 6, but with the combined loader and compacter in compacting position.

Figure 8 is a view similar to a portion of Figure 7 showing the device in compacting position with a barrel head in place for the final sealing of the hogshead.

Figure 9 is a vertical section of a modified loader and compacter incorporating our invention.

Figure 10 is a front elevation of a portion in section of another modification of our loader and compacter.

Figure 11 is a vertical section of a portion of a modified loader and compacter incorporating features of our invention.

Briefly, in the practice of our invention, we provide a compacting disc or surface which may be reciprocated vertically into and out of a hogshead for compacting its contents. Directly over the compacting disc, we provide material directing means in the form of a revolving cone with its base in substantial registry with the compacting disc and carrying vanes on its surface. Means are provided above the cone for feeding the tobacco onto the surface of the cone which revolves and directs the tobacco over the edge of the compacting disc, and hence into the hogshead adjacent its periphery. The compacting disc and the cone are preferably enclosed in a cylindrical housing which is opened at the bottom and of such an internal diameter as to provide an annular opening between the housing and both the compacting disc and the base of the directing cone.

In our preferred embodiment, the compacting disc, the cone and the cylindrical housing are all mounted on a vertically reciprocating yoke and move as a unit. When the hogshead is being loaded, the yoke is in its upper position so that the cylinder and other mechanism is spaced over and above an open hogshead or over and above the usual type of hogshead extension. After the hogshead is partially filled by the loader, the yoke is brought down which forces the compacting disc into the hogshead and on top of the load and presses the load downwardly for compacting the same. Then the yoke is moved upwardly to its initial position and more tobacco is fed in over the revolving directing cone. In some instances, the feeding means may be continued during the compacting operation since this results in merely filling up the cylindrical

housing above the directing cone and does not interfere with the operation of the compacting disc.

In the final operation, a barrel head is placed on top of the load over the opening of the hogshead and the compacting disc brought down so as to force the head against the load and into the hogshead itself where it is fastened by any one of a number of well known means.

As a modification, the compacter and directing cone may be non-reciprocable and the hogshead with its load forced upwardly against the compacting disc. As a further modification, the material directing cone may be non-reciprocating, but the compacting disc below the cone may be reciprocable into and out of the hogshead. In our preferred embodiment, the directing cone carries vanes upon its surface and rotates therewith. As a modification, the cone itself may remain stationary while the vanes which in this case are mounted on a frame may be rotated over the surface of the cone.

In all cases, the tobacco is fed by means of a conventional conveyor on top of the cone and the revolving vanes. These vanes direct the tobacco over the periphery of the compacting disc and through the annular opening adjacent the housing wall so it will fall around the outside of the interior of the hogshead.

Referring to the drawings, we provide a compacting press generally shown at 1 which is similar to the compacting press shown in our copending application, Serial No. 97,264, filed June 4, 1949, now Patent Number 2,605,697. Mounted on the yoke 2 is a cylindrical housing 3 open at both ends. Within this housing is provided a cone 4 which is mounted on the vertical shaft 5, one end of which is journaled in the yoke 2 and the other end of which is juornaled in the center 6 of the frame 7. The frame 7 is composed of two cross pieces fastened across the lower opening of the cylinder 3. On the lower side of the frame 7 is fastened the compacting disc 8 which is of less diameter than the diameter of the cylinder 3 so as to provide an annular opening 9 between the walls of the cylinder 3 and the periphery of the disc 8. The cone 4 has a base which is substantially the same diameter as the diameter of the disc 8 so that material sliding down the surface of the cone 4 will be directed through the annular opening 9.

On the cone 4 are provided vanes 10 for moving and directing the material fed over the cone. These vanes 10 are so mounted that their ends 10' adjacent the base of the cone 4 are in advance of their upper ends 10'' in the direction of rotation of the cone 4. The vanes 10 are also tilted in reference to the surface of the cone 4 and in the direction of its rotation as shown in Figure 4. This positioning of the vanes 10 insures the even feeding of the material progressively through the annular opening 9.

The cylinder 3 with its contained structure is positioned over a hogshead 12, either with or without the usual type of extension 13. As shown in Figure 6, when the tobacco is fed by the conveyor 14 into the upper open end of the cylinder 3, it falls on the surface of the rotating cone 4 and is directed by the vanes 10 so it will fall through the annular opening 9 and be distributed in a progressive manner around the outer portion of the interior of the hogshead.

The shaft 5 upon which the cone 4 is mounted is preferably rotated by a motor 15 mounted directly on the yoke 2 and operatively connected to the shaft 5, so that upon vertical reciprocation of the yoke 2, the motor 15 rides with the yoke 2, the cylinder 3 and the mechanism contained therein.

When it is desirable to compact the contents of the hogshead 12, the yoke 2 is brought down, which brings down the cylinder 3, together with its enclosed mechanism, and forces the compacting disc 8 against the material within the hogshead 12 as shown in Figure 7.

As a final operation a barrel head 16 (see Figure 8) is positioned between the disc 8 and the contents of the hogshead 12 and forced within the hogshead in its final position where it is fastened.

In the modification shown in Figure 9 the cylinder 3 together with its enclosed mechanism is immovably fastened against the ceiling joist or some other support 17 and the tobacco is fed between the conveyor 14 through an opening 18 in the cylinder 3. In this case, the hogshead 12 rests over a ram 19 in the floor of the building and when it is desirable to compress or compact the contents of the hogshead 12, the ram 19 is energized and the hogshead 12 forced up around the cylinder 3 so the contents would be compacted by the disc 8.

Figure 10 shows another modification wherein the cylinder 3 is permanently fastened against a joist or frame 17. In this case, the cylinder 3 is of a greater diameter than the diameter of the hogshead 12 and its lower open end 3' is narrowed down to a diameter which will register with the hogshead 12.

In this case, the revolving cone 4 is positioned well up in the casing 3 which may in some instances be as much as 30 or 40 feet long, so that the material being acted upon will fill up the lower portion of the housing 3 between the cone 4 and the hogshead 12. Thus, the lower portion of the casing 3 acts as the hogshead extension 13.

In order to relieve the air pressure within the casing 3 and to assist in aerating the material within the case, we preferably provide vents 3'' in the side of the case 3. These vents 3'' are preferably slanted as shown in the drawing so as to permit the passage of air and prevent the material in the casing 3 from leaking through the vents.

In the modification shown in Figure 10, the cone 4 is rotated around the shaft 5 which in this case does not itself rotate. The cone 4 is mounted on a sleeve 18 around the shaft 5 and is driven by a pulley 19 as shown. The compacting disc 8 is firmly mounted on the end of the shaft 5 and when it is desirable to compact the contents of the hogshead 12, the shaft 5 is forced downwardly by a hydraulic ram 20 so that the compacting disc 8 takes the position shown in broken lines in Figure 10 and compacts the contents of the hogshead 12.

In the modification shown in Figure 11, the general design is similar to that shown in Figure 10 excepting that in this case the cone 4 is an integral part of the compacting disc 8 and is fixedly mounted on the shaft 5. The vanes 10 are mounted on a fixture 11 which rotates them around the surface of the cone 4 which itself is non-rotatable. The advantage of this construction is that when the shaft 5 is brought down so the disc 8 will compact the contents of the hogshead 12, the disc 8 is backed up and maintained in position by the cone 4 which rides down with it as is shown in the broken lines in Figure 11.

From the above, it is apparent that we have provided a hogshead loader and compacter which is a single portable self-contained unit and which permits the loading of a hogshead so as to have a soft center and the compacting of the contents during the loading without the necessity of moving the hogshead from one machine to another.

It is further apparent that we have provided a loader which is very simple in construction but which carefully distributes the tobacco in a progressive manner around the periphery of the interior of a hogshead so that the center of the final load will be soft.

Our device is relatively inexpensive to construct and maintain. In the portable embodiment as shown in Figures 1 and 2, the whole device may be lowered by bringing down the yoke 2 so that it may be easily transported from warehouse to warehouse and will clear relatively low doorways and provide a low center of gravity for transportation.

It is to be understood that modification may be made in our invention without departing from the spirit thereof and we do not intend to limit ourselves otherwise than as pointed out in the claims which follow.

Having thus described our invention, what we claim as new and desire to secure by Letters Patent is:

1. A hogshead loader and compacter comprising an imperforate compacting surface capable of relative vertical reciprocation into and out of a hogshead for compacting the contents thereof, means adapted to feed material to be loaded in the hogshead above said compacting surface and means above said compacting surface directing said material over the peripheral edge of said surface and into the hogshead adjacent its wall, said compacting surface being circular and of a slightly less diameter than the diameter of the hogshead being acted upon, said material directing means comprising a cone continuous throughout its periphery of 360° and with its base substantially in registry with said compacting surface, and means to rotate said cone whereby a shower of material is deposited within said hogshead about said wall substantially simultaneously throughout the full 360° thereof.

2. A hogshead loader and compacter comprising a compacting surface capable of relative vertical reciprocation into and out of a hogshead for compacting the contents thereof, means adapted to feed material to be loaded in the hogshead above said compacting surface and means above said compacting surface directing said material over the edge of said surface and into the hogshead adjacent its wall, said compacting surface being circular and of a less diameter than the diameter of the hogshead being acted upon, said material directing means comprising a cone continuous throughout its periphery of 360° and with its base substantially in registry with said compacting surface, and means to rotate said cone whereby a shower of material is deposited within said hogshead about said wall substantially simultaneously throughout the full 360° thereof, said material directing means being surrounded by a vertical cylindrical wall with its base in the same plane as said compacting surface.

3. A hogshead loader and compacter comprising a compacting surface capable of relative vertical reciprocation into and out of a hogshead for compacting the contents thereof, means adapted to feed material to be loaded in the hogshead above said compacting surface and means above said compacting surface directing said material over the edge of said surface and into the hogshead adjacent its wall, said compacting surface being circular and of a less diameter than the diameter of the hogshead being acted upon, said material directing means comprising a cone continuous throughout its periphery of 360° and with its base substantially in registry with said compacting surface, and means to rotate said cone whereby a shower of material is deposited within said hogshead about said wall substantially simultaneously throughout the full 360° thereof, said material directing means being surrounded by a vertical cylindrical wall with its base in the same plane as said compacting surface, and having a diameter less than the hogshead but greater than the compacting surface.

4. A hogshead loader and compacter comprising a compacting surface capable of relative vertical reciprocation into and out of a hogshead for compacting the contents thereof, means adapted to feed material to be loaded in the hogshead above said compacting surface and means above said compacting surface directing said material over the peripheral edge of said surface and into the hogshead adjacent its wall, said compacting surface being circular and of a less diameter than the diameter of the hogshead being acted upon, said material directing means comprising a cone continuous throughout its periphery of 360° and with its base substantially in registry with said compacting surface, and means to rotate said cone whereby a shower of material is continuously deposited within said hogshead about said wall substantially simultaneously throughout the full 360° thereof, and said cone having at least one projecting vane on its surface.

5. A hogshead loader and compacter comprising a compacting surface capable of relative vertical reciprocation into and out of a hogshead for compacting the contents thereof, means adapted to feed material to be loaded in the hogshead above said compacting surface and means above said compacting surface directing said material over the peripheral edge of said surface and into the hogshead adjacent its wall, said compacting surface being circular and of a less diameter than the diameter of the hogshead being acted upon, said material directing means comprising a cone continuous throughout its periphery of 360° and with its base substantially in registry with said compacting surface, and means to rotate said cone whereby a shower of material is deposited within said hogshead about said wall substantially simultaneously throughout the full 360° thereof, and said cone having at least one projecting vane on its surface, said vane being at an angle to the axis of rotation of the cone with the end nearest the cone base ahead of the other end in the direction of rotation of the cone.

6. A hogshead loader and compacter comprising a compacting surface capable of relative vertical reciprocation into and out of a hogshead for compacting the contents thereof, means adapted to feed material to be loaded in the hogshead above said compacting surface and means above said compacting surface directing said material over the peripheral edge of said surface and into the hogshead adjacent its wall, said compacting surface being circular and of a less diameter than the diameter of the hogshead being acted upon, said material directing means comprising a cone continuous throughout its periphery of 360° and with its base substantially in registry with said compacting surface, and means to rotate said cone whereby a shower of material is deposited within said hogshead about said wall substantially simultaneously throughout the full 360° thereof, and said cone having at least one projecting vane on its surface, said vane being at an angle to the axis of rotation of the cone with the end nearest the cone base ahead of the other end and the free edge of the vane ahead of the other edge in the direction of rotation of the cone.

7. A hogshead loader and compacter comprising a portable base adapted to support a hogshead to be loaded, a frame projecting upwardly from said base a distance greater than the height of the hogshead, a vertically reciprocable yoke mounted on said frame over said hogshead, a downwardly projecting hollow cylinder open at both ends mounted on said yoke and reciprocable therewith into and out of said hogshead, a compacting disc mounted within the lower open end of said cylinder and spaced therefrom so as to form an annular opening between the cylinder and the disc, a vertical rotatable shaft positioned at the axis of the cylinder and journaled in the disc center and through the yoke, a cone mounted on said shaft within the cylinder and with its base in substantial registry with said disc and carrying outwardly projecting surface vanes, and means adapted to rotate said shaft and cone, and means adapted to feed material into the upper open end of said cylinder and onto said cone so that the rotation of the vanes on the cone direct the material through the annular opening and into a hogshead adjacent its side wall substantially simultaneously about the full 360° thereof.

8. A hogshead loader and compacter comprising a portable base adapted to support a hogshead to be loaded, a frame projecting upwardly from said base a distance greater than the height of the hogshead, a vertically reciprocable yoke mounted on said frame over said hogshead, said yoke being mounted on a pair of pistons working in cylinders located to either side of the hogshead, a downwardly projecting hollow cylinder open at both ends mounted on said yoke and reciprocable therewith into and out of said hogshead, a compacting disc mounted within the lower open end of said cylinder and spaced therefrom so as to form an annular opening between the cylinder and the disc, a vertical rotatable shaft positioned at the axis of the cylinder and journaled in the disc center and through the yoke, a cone mounted on said shaft within the cylinder and with its base in substantial registry

with said disc and carrying outwardly projecting surface vanes and means adapted to rotate said shaft and cone and means adapted to feed material into the upper open end of said cylinder and onto said cone so that the rotation of the vanes on the cone direct the material through the annular opening and into a hogshead adjacent its side wall substantially simultaneously about the full 360° thereof.

9. A hogshead loader and compacter comprising a hollow cylindrical casing adapted to be positioned above a hogshead to be loaded, a rotatable cone continuous throughout its periphery of 360° and located within said casing with its base spaced from said casing wall to provide an annular opening of substantially the same outer diameter as the inner diameter of the hogshead, means adapted to feed material into said casing above said cone so that it will be directed by said cone through said annular opening into said hogshead, a compacting disc positioned below and registering with said cone base, and means adapted to reciprocate said disc into and out of said hogshead.

10. A hogshead loader and compacter comprising a hollow cylindrical casing adapted to be positioned above a hogshead to be loaded, a rotatable cone continuous throughout its periphery of 360° and located within said casing with its base spaced from said casing wall to provide an annular opening of substantially the same outer diameter as the inner diameter of the hogshead, means adapted to feed material into said casing above said cone so that it will be directed by said cone through said annular opening into said hogshead, a compacting disc positioned below and registering with said cone base and means adapted to reciprocate said disc into and out of said hogshead, independently of said cone.

11. A hogshead loader and compacter comprising a hollow vertical cylinder casing having an open lower end adapted to register with the rim of an open hogshead to be loaded, a rotatable cone continuous throughout its periphery of 360° and located within said casing and having its base spaced vertically above said lower end and from said casing wall to provide an annular passageway, a compacting disc positioned below and registering with said cone base, and means adapted to feed material into said casing above said cone so that it will be directed by said cone through said annular passageway and fall down through the open lower end of the casing into said hogshead, a portion of the casing holding said cone being of a greater diameter than the rim of the opened hogshead and the lower end of said casing being of the same internal diameter as the internal diameter of the rim of the hogshead, and means adapted to reciprocate said cone and disc vertically within said hollow vertical cylinder casing.

12. A hogshead loader and compacter comprising a hollow vertical cylinder casing having an open lower end adapted to register with the rim of an open hogshead to be loaded, a rotatable cone continuous throughout its periphery of 360° and located within said casing and having its base spaced vertically above said lower end and from said casing wall to provide an annular passageway, means adapted to feed material into said casing above said cone so that it will be directed by said cone through said annular passageway and fall down through the open lower end of the casing into said hogshead, a horizontal compacting disc movable independently of said cone and of less diameter than said hogshead opening, and means to reciprocate said disc vertically from a position directly below the base of said cone to a position within said hogshead for compacting the load therein, the base of said cone having a diameter at least as great as the diameter of said disc.

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