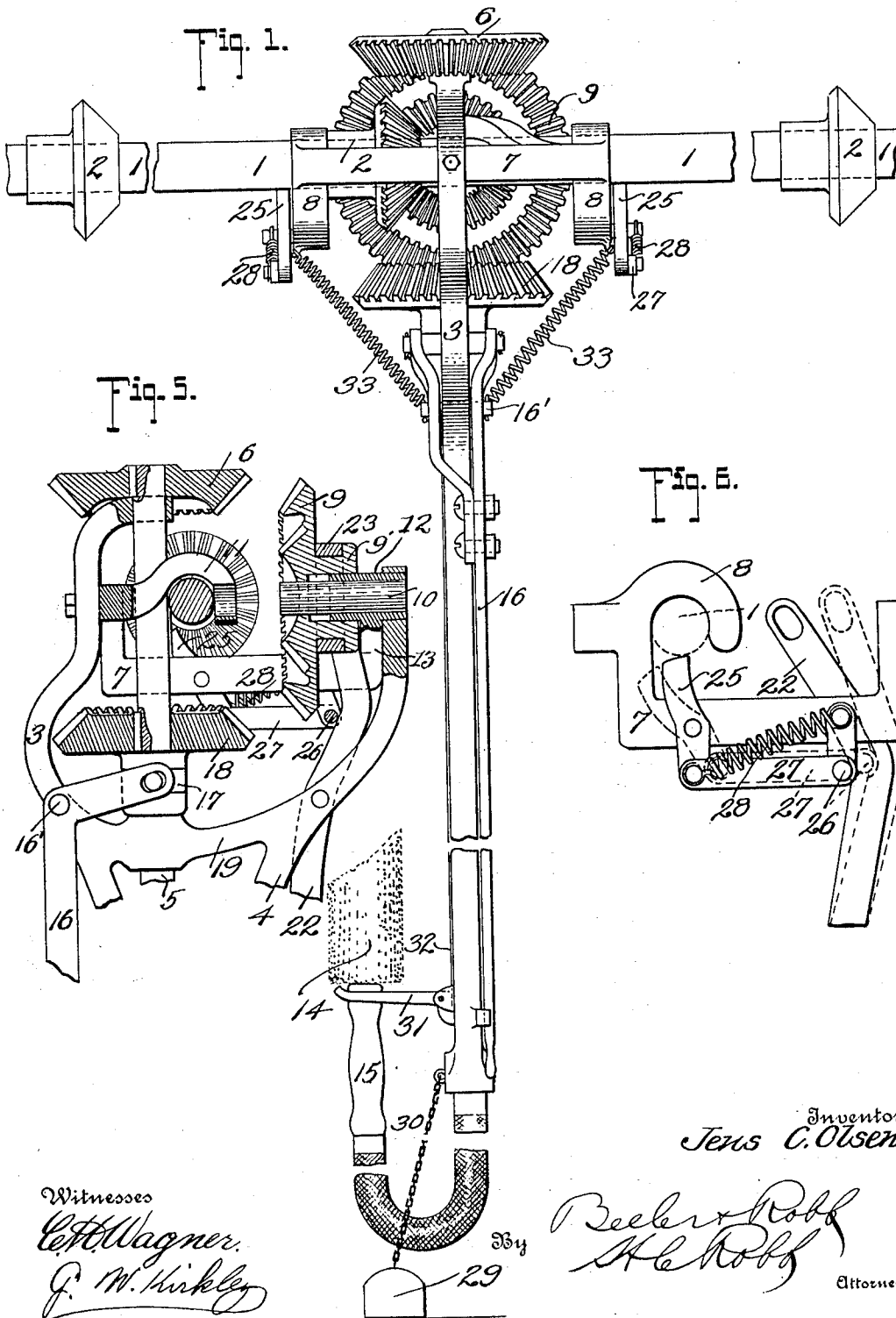


J. C. OLSEN.
GEARING.
APPLICATION FILED MAR. 13, 1912.

1,048,864.

Patented Dec. 31, 1912.

2 SHEETS-SHEET 1.



Witnesses
C. H. Wagner.
J. W. Hinkley

Inventor
Jens C. Olsen

Beeler & Robb
Attorneys

J. C. OLSEN.

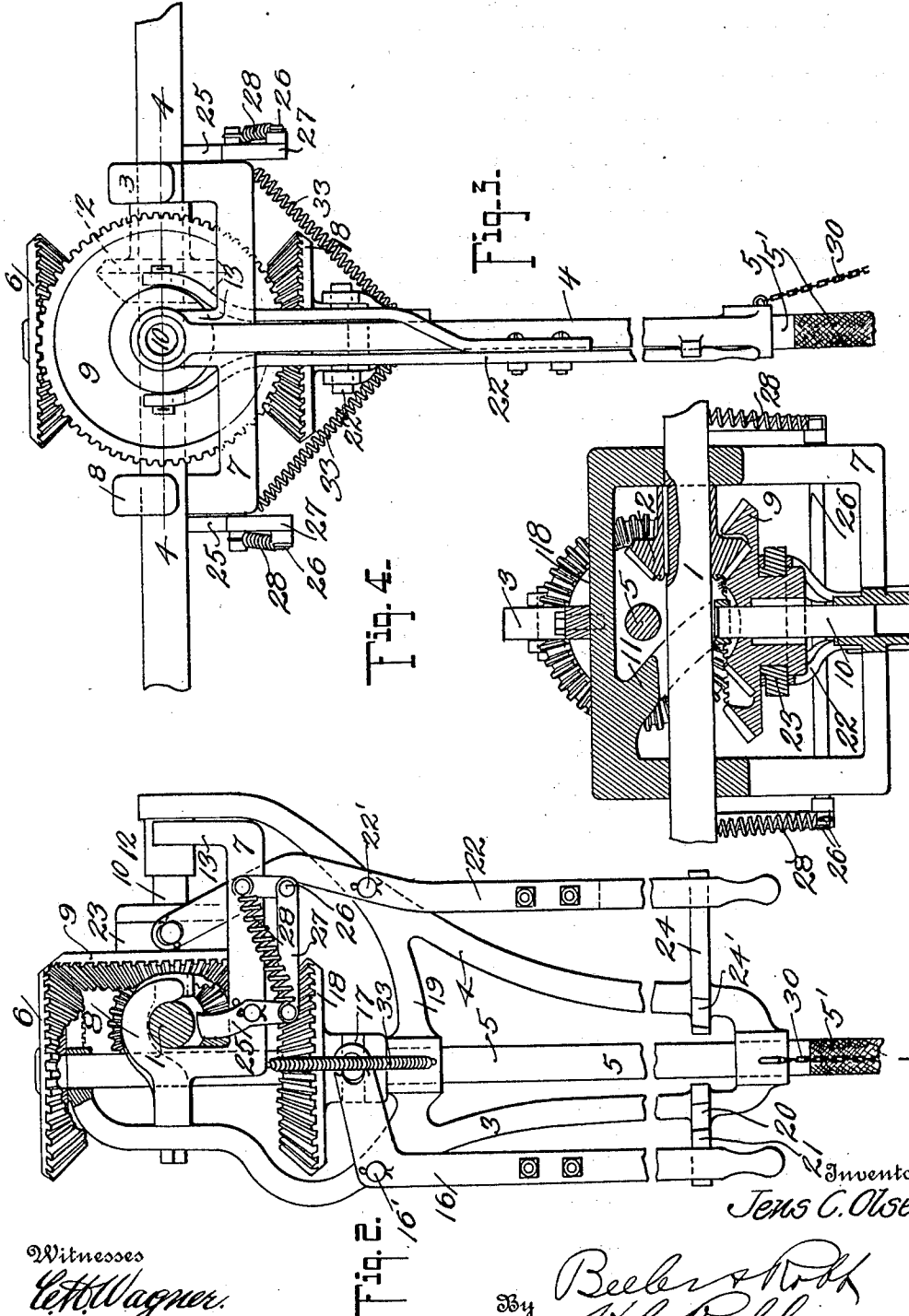
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Witnesses

Edw. Wagner.
J. W. Kirkley

334

Becker & Roth
H. C. Roth

Attorneys

Inventor
Jens C. Olsen

UNITED STATES PATENT OFFICE.

JENS C. OLSEN, OF TOLLEY, NORTH DAKOTA.

GEARING.

1,048,864.

Specification of Letters Patent.

Patented Dec. 31, 1912.

Application filed March 13, 1912. Serial No. 683,429.

To all whom it may concern:

Be it known that I, JENS C. OLSEN, a citizen of the United States, residing at Tolley, in the county of Ward and State of North Dakota, have invented certain new and useful Improvements in Gearing, of which the following is a specification.

This invention relates to brush operating mechanisms and particularly to that type adapted for grooming purposes.

The primary object of my invention is to provide a novel machine capable of being connected with a power driven shaft by means of which a brush may be revolved through the medium of a flexible connection, the direction of rotation of said brush being readily reversed as desired.

A further advantageous feature of my device is the provision of a machine such as above described involving means whereby the mechanism may be easily disengaged from the driving shaft and moved to other locations most convenient for use in grooming horses and other animals without necessitating the change of their respective positions.

For a full understanding of the present invention, reference is to be had to the following description and the accompanying drawings, in which—

Figure 1 is a front elevation of my invention suspended in position from the driving shaft; Fig. 2 is a side elevation thereof in position for operation; Fig. 3 is a rear elevation; Fig. 4 is a horizontal sectional view on the line 4—4 of Fig. 3, and showing more clearly the auxiliary frame; Fig. 5 is a view partly broken away and partly in section, showing the position assumed by the compound gear when operated by the shifting lever for the purpose of removal of the machine from the driving shaft; and Fig. 6 is a detail view, showing the operation of the locking dogs, the shifting lever being broken away just above its pivot.

Throughout the following detail description and on the several figures of the drawings, similar parts are referred to by like reference characters.

Referring to the drawings, 1 designates a driving shaft which is preferably located at a convenient point overhead and in proximity to the stalls of the horses or other ani-

mals, said shaft being provided with a plurality of beveled driving pinions 2 secured thereto and the number of which is governed by the number of stalls or horses to be operated upon. Upon the shaft 1 to which any suitable operating power may be applied, such as a gasolene engine or the like, the machine constituting my invention is adapted to be suspended, the means for engaging with and disengaging from the shaft being hereinafter more specifically described.

Referring particularly to Fig. 2, my invention comprises a main frame composed of side members 3 and 4 in which is rotatably mounted an operating shaft 5 provided at its upper extremity with a beveled gear 6 fixedly secured thereto. Secured at a suitable point below the upper end of the side member 3 and extending horizontally is an auxiliary suspending frame 7, most clearly shown in Fig. 4 of the drawing. Said auxiliary frame is quadrangular in shape and at opposite sides thereof is formed with the hook bearings 8 by means of which the mechanism is suspended from the shaft 1. As thus described the machine is positioned on the driving shaft 1 in such a manner that the driving gear 2 will intermesh with the compound beveled gear 9 keyed on the stub shaft 10 near its inner end, said shaft extending horizontally at an angle to the driving shaft. The stub shaft 10 normally has its bearings at the inner end in an integral arm 11 extending inwardly within the frame 7, as seen in Fig. 4, and at its outer end is slidably mounted in the journal 12 at the upper end of the vertically extending arm 13 formed on the auxiliary frame and located adjacent the upper extremity of the side member 4 of the main frame. The periphery of the compound gear 9 intermeshes with the gear 6 on the operating shaft 5 so that power may be transmitted thereto and to the flexible shaft 5' connected at its lower end.

Through the means above described the brush 14 is caused to revolve, said brush being connected with the other extremity of the flexible shaft 5', a handle being also loosely mounted adjacent the brush and provided with suitable roller bearings by means of which handle the brush may be manipulated in the grooming operations.

In order to reverse the direction of rotation of the brush I provide a reversing lever 16 pivotally secured to the side member 3 centrally thereof, as indicated at 16', the upper extremity of said lever being forked and loosely connected to the collar 17 mounted on the operating shaft 5. Above the collar 17 a gear 18 is secured to the shaft 5, it being oppositely beveled with respect to the gear 6 and adapted to intermesh with the gear 9 when the lever 16 is moved inwardly, which movement simultaneously disengages the gear 6. The direction of rotation of the brush is thus reversed and when the operation of the shaft is again changed by movement of the lever 16 outwardly, the downward movement of the shaft 5 is arrested by the bracket 19 extending between the side members 3 and 4 of the main frame and through which the operating shaft 5 passes. A notch 20 in the arm 21 formed on the lower portion of the side member 3 is provided for the purpose of engaging the reversing lever 16 therein to hold the shaft 5 in its raised position.

The means for removing from or securing the machine to the shaft 1 will now be described. Opposite the lever 16 and pivotally secured at 22' in the side member 4 of the main frame is a shifting lever 22 forked at its upper portion and connected to the collar 23 rotatably mounted on the casting of the compound gear 9. Movement of the lower end of the lever 22 inwardly will withdraw the gear 9 from its intermeshed position and the stub shaft 10 from its bearing in the end of the arm 11, sliding said shaft in the journal 12, as most clearly shown in Fig. 5 of the drawings. The machine may now be raised slightly to permit the shaft 1 to pass between the end of the arm 11 and the gear 9, allowing said machine to be moved to another position on the shaft 1 where it is again suspended on the hook bearings 8. The shifting lever 22 which is preferably engaged in the notch 24' in the integral arm 24 at the lower portion of the side member 4 when the machine is removed, is then pressed inwardly bringing the compound gear 9 into mesh with the operating gear 2 and the gears 6 and 18, as the case may be.

Locking dogs 25 are pivotally mounted on the opposite sides of the auxiliary frame 7, the upper ends of which are normally held in engagement with the shaft 1 therebeneath by means of the lever 22 which presses against the shaft 26 mounted between the connecting links 27 pivotally secured to the lower ends of the dogs and to the frame 7. When this pressure is released in the removal of the machine from the shaft 1, the springs 28 also connected to the lower ends of the dogs 25 and the sides of the

frame 7, will disengage the former from said driving shaft, as will be most clearly seen by reference to Fig. 6.

While it is not essential, I prefer to use some means for preventing likelihood of the machine described in the foregoing from revolving or tending to revolve around the shaft 1, such means being conventionally shown in the drawings as a weight 29 connected by means of the chain 30 to the lower end of the main frame.

As a convenient means for disposition of the brush 14 when the machine is not in operation or is being moved, an arm 31 is pivotally secured to the lower portion of the main frame, the handle 15 being inserted in the forked extremity of said arm. When the brush is being used, the arm 31 may be pushed upwardly so that the leaf spring 32 secured to the frame and interposed between the same and the inner end of the arm will tend to hold the latter in its elevated position.

It will be apparent that the invention in its broader significance embodies an operating mechanism for brushes or other devices associated with a driving shaft and adjustable to different positions on said shaft. The adjustment of this operating mechanism necessitates a detachment of said mechanism from the driving means or shaft, and the operative connection between the compound transmission gear 9 and the locking dogs or members 25 constitutes broadly a means for compelling a discontinuance of the operation of the said mechanism before the latter can possibly be removed from the driving means. The above feature of the invention is especially advantageous for obvious reasons.

In order to control the auxiliary frame 7 when the machine is removed from the shaft 1, I preferably provide springs 33 fastened at one of their ends to the said auxiliary frame at opposite sides thereof and connecting with the bracket 19 at their opposite ends. The springs will also hold the machine steady when the brush is being given hard usage.

Having thus described the invention, what is claimed as new is:

1. In combination with a driving shaft, a frame, an operating shaft journaled in said frame, operative connections between said shafts, and means for disengaging the connections aforesaid to release and permit removal of the frame from the driving shaft.

2. In combination with a driving shaft, a frame, an operating shaft journaled in said frame and operably connected to the driving shaft aforesaid, means for disengaging the connections aforesaid to release and permit removal of the frame from the

shaft, and means for reversing the operation of the operating shaft.

3. In combination with a driving shaft, a driving gear thereon, a main frame, an auxiliary frame secured thereto and adapted to suspend the main frame on the driving shaft, an operating shaft journaled in the main frame, a gear slidably mounted in the main frame and adapted to normally mesh with the gear on the driving shaft, a gear carried by the operating shaft adapted to mesh with the slidable gear whereby said operating shaft may be rotated, and means for moving the slidable gear to permit disengagement of the auxiliary frame from the driving shaft.

4. In combination with a driving shaft, driving gear thereon, a main frame, an auxiliary frame secured thereto and adapted to suspend the main frame on the driving shaft, an operating shaft journaled in the main frame, a gear slidably mounted in the main frame and adapted to normally mesh with the gear on the driving shaft, spaced gears carried by the operating shaft one of which is adapted to normally mesh with the slidable gear whereby said shaft may be rotated, a shifting lever mounted in the main frame and adapted to move the slidable gear to permit the removal of the main frame from the driving shaft, and means for shifting the operating shaft to disengage one of the gears thereon from the slidable gear and engage the other of said spaced gears thereby whereby the operation of the last mentioned shaft may be reversed.

5. In combination with a driving shaft, a drive gear thereon, a main frame, an auxiliary frame secured thereto and adapted to suspend the main frame on the driving shaft, a stub shaft having its bearings in the main and auxiliary frames, a compound gear secured to the stub shaft normally intermeshing with the gear on the driving shaft, a shifting lever adapted to move the stub shaft from its bearings in the auxiliary frame at one end whereby the main frame may be removed from the driving shaft, an operating shaft journaled in the main frame, spaced gears secured thereto, a reversing lever mounted in the main frame and operably connected to the operating shaft whereby the spaced gears may be engaged with and disengaged from the compound gear to reverse the operation of the last mentioned shaft, and locking means carried by the auxiliary frame operable by the shifting lever simultaneously with the movement of the compound gear to permit the removal of the main frame aforesaid.

6. In combination with a driving shaft, a main frame, an auxiliary frame secured thereto and comprising hook bearings upon which the main frame is suspended from the

driving shaft and an arm, a slidable stub shaft having its bearings at one end in the arm aforesaid and at the other end in the main frame, a gear secured to the stub shaft, a shifting lever pivotally secured in the main frame and connected with the gear on said stub shaft, locking dogs pivotally mounted on the auxiliary frame and normally holding the main frame in position on the driving shaft, said dogs being operable by the shifting lever to release the main frame and permit its removal from the driving shaft, an operating shaft journaled in the main frame, gears secured to said operating shaft and adapted to mesh with the gear on the stub shaft, a reversing lever pivotally mounted in the main frame and connected with the operating shaft whereby the latter may be moved axially to reverse the operation of said operating shaft, and a flexible shaft connected to one extremity of the operating shaft.

7. In brush operating mechanism, the combination with a driving shaft, of a main frame, an auxiliary frame secured thereto and by which the main frame is supported on the driving shaft, an operating shaft journaled in the main frame, means operably connecting the driving and operating shafts to transmit motion to the latter, and means for disconnecting the means aforesaid and simultaneously releasing the auxiliary frame from the driving shaft to permit removal therefrom.

8. In combination, a driving shaft, driving elements at intervals thereon, an operating mechanism detachable in relation to said shaft, said operating mechanism including power transmitting means adapted for operative connection with the driving elements on the shaft, means normally locking the operating mechanism to the shaft, and means for compelling disconnection of the driving elements and power transmitting means preliminary to release of the operating mechanism from the shaft.

9. In combination, a driving shaft, driving elements at intervals thereon, an operating mechanism detachable in relation to said shaft, said operating mechanism including power transmitting means adapted for operative connection with the driving elements on the shaft, means normally locking the operating mechanism to the shaft, means for unlocking the operating mechanism with respect to the shaft, and means for disconnecting the driving elements and power transmitting means previous to the unlocking of the operating mechanism.

10. In combination, a driving shaft, driving elements at intervals thereon, an operating mechanism detachable in relation to said shaft, said operating mechanism including power transmitting means adapted for oper-

active connection with the driving elements
on the shaft, means normally locking the
operating mechanism to the shaft, means
for unlocking the operating mechanism with
5 respect to the shaft, and a common actuator
for said unlocking means and the power
transmitting means.

In testimony whereof I affix my signature
in presence of two witnesses.

JENS C. OLSEN.

Witnesses:

M. H. LYDERS,
DAN S. RILEY.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents
Washington, D. C."
