

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventors: Richard L. Leimbach, et al. : Art Unit: 3731
Serial No.: 17/090,018 : Examiner: Michelle Lopez
Filed: November 5, 2020 : Confirmation No. 3011
For: **FASTENER DRIVING TOOL USING A GAS SPRING**

AMENDMENT

Mail Stop Amendment
COMMISSIONER FOR PATENTS
PO Box 1450
Alexandria, VA 22313-1450

Dear Sir or Madam:

INTRODUCTORY COMMENTS

Claims 1-24 are pending in the application.

Claims 1-12, 14-15, and 17-24 currently stand rejected (a non-Final rejection).

Claims 13 and 16 currently are objected to.

Please amend the above-identified application as follows:

AMENDMENTS TO THE CLAIMS

Please cancel claims 15-24, without prejudice.

Please add *new* claims 25-30, as below.

Please amend claims 1, 9, and 13, as follows:

1. (Currently amended) A gas pressure system for a portable power tool, said gas pressure system comprising:

a hollow cylinder having a movable piston therewithin; and

a storage chamber that is in fluidic communication at all times with said cylinder, said storage chamber being charged with a pressurized gas;

wherein:

said movable piston moves in a reciprocating pattern during an operating cycle, including moving through a drive stroke that is caused by said pressurized gas; ~~[[and]]~~

said pressurized gas is not vented to atmosphere after said drive stroke, but instead said pressurized gas is re-used for a plurality of said operating cycles; and

said movable piston is the sole movable piston in the gas pressure system.

2. (Original) The gas pressure system of claim 1, further comprising:

(a) a movable driver that is in communication with said piston, said movable driver including at least one protrusion; and

(b) a lifter that causes said driver and said piston to move through a return stroke, by a mechanical engagement between said lifter and said at least one protrusion of the driver.

3. (Original) The gas pressure system of claim 2, further comprising:

a guide body with a linear passageway for said driver;

wherein: said lifter moves in a rotational motion and causes said driver to move in a linear motion.

4. (Original) The gas pressure system of claim 2, wherein:
said cylinder and piston act as a gas spring during said drive stroke, and
said lifter does not engage said driver during said drive stroke.

5. (Original) The gas pressure system of claim 1, wherein:
said movable piston moves through a pathway through said hollow cylinder between a
higher pressure position and a lower pressure position.

6. (Original) The gas pressure system of claim 2, further comprising:
a motor and an on-board electrical power source, wherein said motor provides motive
power for said lifter.

7. (Original) The gas pressure system of claim 6, wherein:
(a) said on-board electrical power source comprises a detachable battery; and
(b) said motor comprises an electric motor.

8. (Original) The gas pressure system of claim 1, wherein: said pressurized gas in the
storage chamber remains above atmospheric pressure during all portions of an operating cycle.

9. (Currently amended) A portable fastener driving tool, comprising:
a housing with a storage chamber that contains a pressurized gas, a hollow cylinder that
includes a movable piston, a driver that is in communication with said piston at least during a
drive stroke, a lifter that is in communication with said driver at least during a return stroke, a
prime mover, and a source of energy;

wherein:

said pressurized gas is used as a gas spring to propel said piston during said drive stroke;
said prime mover causes said lifter to mechanically engage said driver during said return
stroke; ~~[[and]]~~

said housing has no external energy source cable and no external hose attached thereto;
and

said movable piston of the hollow cylinder is the sole movable piston that is in fluidic communication with the storage chamber.

10. (Original) The portable fastener driving tool of claim 9, wherein:
said storage chamber and said hollow cylinder are always in fluidic communication.

11. (Original) The portable fastener driving tool of claim 10, wherein:
said pressurized gas is re-used for a plurality of operational cycles that each include said drive stroke and said return stroke.

12. (Original) The portable fastener driving tool of claim 9, wherein:
said piston has a rest position between operational cycles; and
said rest position is achieved after said return stroke.

13. (Currently amended) A portable fastener driving tool, comprising:
~~The portable fastener driving tool of claim 9, wherein:~~
a housing with a storage chamber that contains a pressurized gas, a hollow cylinder that includes a movable piston, a driver that is in communication with said piston at least during a drive stroke, a lifter that is in communication with said driver at least during a return stroke, a prime mover, and a source of energy;

wherein:
said pressurized gas is used as a gas spring to propel said piston during said drive stroke;
said prime mover causes said lifter to mechanically engage said driver during said return stroke;
said housing has no external energy source cable and no external hose attached thereto;
said piston travels through said hollow cylinder between a higher pressure position and a lower pressure position;

said piston has a rest position between operational cycles; and
a location of said rest position is proximal to said higher pressure position.

14. (Original) The portable fastener driving tool of claim 9, wherein:
said prime mover comprises an electric motor; and
said source of energy comprises a detachable battery.

15. (Cancelled)

16. (Cancelled)

17. (Cancelled)

18. (Cancelled)

19. (Cancelled)

20. (Cancelled)

21. (Cancelled)

22. (Cancelled)

23. (Cancelled)

24. (Cancelled)

25. (New) A gas pressure system for a portable power tool, said gas pressure system comprising:

a hollow cylinder having a movable piston therewithin; and

a storage chamber that is in fluidic communication at all times with said cylinder, said storage chamber being charged with a pressurized gas;

wherein:

said movable piston moves in a reciprocating pattern during an operating cycle, including moving through a drive stroke that is caused by said pressurized gas;

said pressurized gas is not vented to atmosphere after said drive stroke, but instead said pressurized gas is re-used for a plurality of said operating cycles; and

said movable piston of the hollow cylinder is the sole movable piston that is in fluidic communication with the storage chamber of the gas pressure system.

26. (New) The gas pressure system of claim 25, further comprising:

(a) a movable driver that is in communication with said piston, said movable driver including at least one protrusion; and

(b) a lifter that causes said driver and said piston to move through a return stroke, by a mechanical engagement between said lifter and said at least one protrusion of the driver.

27. (New) The gas pressure system of claim 26, further comprising:

a motor and an on-board electrical power source, wherein said motor provides motive power for said lifter.

28. (New) The gas pressure system of claim 25, wherein: said pressurized gas in the storage chamber remains above atmospheric pressure during all portions of an operating cycle.

29. (New) The portable fastener driving tool of claim 13, wherein:

said storage chamber and said hollow cylinder are always in fluidic communication.

30. (New) The portable fastener driving tool of claim 13, wherein:

said pressurized gas is re-used for a plurality of operational cycles that each include said drive stroke and said return stroke.

REMARKS

Prior Art Rejections

In the Office Action mailed on February 4, 2021, the Examiner rejected claims 1-12, 14-15, and 17-24 as being either anticipated by Kondo (US 5,720,423), or as being obvious in view of the combination of Kondo in view of Sollberger (US 4,215,808). The Kondo reference clearly is the primary reference being relied upon by the Examiner.

A telephone interview was held on March 24, 2021 between the Examiner and the undersigning Attorney of Record to discuss amended language for some of the claims, and an agreement was reached. Those claims are presented above.

The Examiner also commented during the telephone interview that she would look at the earlier patents in this patent family to be certain that a terminal disclaimer was not needed; Applicant's Attorney replied that none of the earlier patented claims had a "sole piston" as an element, so a terminal disclaimer should not be needed. Of course, a terminal disclaimer can be entered, if needed, since the Applicant owns all of the patents in this patent family.

"Objected To" Claims

In the above-identified Office Action, the Examiner stated that claims 13 and 16 comprised allowable subject matter if they would be rewritten in independent form. Applicant acknowledges this status with thanks. Claim 13 has been placed into independent form by this Amendment document, and it includes the subject matter of its original base claim (i.e., claim 9).

Cancelled Claims

Claims 15-24 are being canceled herein. By converting claim 13 into an independent claim, and by adding new claim 25, along with the cancellation of independent claims 17 and 22, there are only four (4) independent claims pending in the application after the entry of this Amendment, so the "fast track" status is still maintained.

New Claims

Claims 25-30 have been added herein. Of these new claims, claim 25 is independent.

Support for the subject matter of claim 25 is found in the written description of the instant application at Paragraph [0073] and in FIGS. 2-5 of the instant application (the single piston 80 for the first embodiment fastener driving tool), and at Paragraph [00113] and in FIG. 11 (the single alternative embodiment piston 180 for the first tool embodiment), and at Paragraphs [00144]-[00145] and in FIGS. 19-20 (the single piston 458 for the second embodiment fastener driving tool).

For new dependent claims 26-30, they are virtually identical to original dependent claims 2, 6, 8, 10, and 11, respectively, so they have support in general from the specification and drawings.

Conclusion

There should be no fees associated with this amendment. However, the Director of Patents and Trademarks is hereby authorized to charge any underpayment of fees incurred due to this amendment to Deposit Account No. 50-2116.

Applicant respectfully requests the Examiner to favorably enter this Amendment and pass this application to the allowance stage.

Respectfully submitted,

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