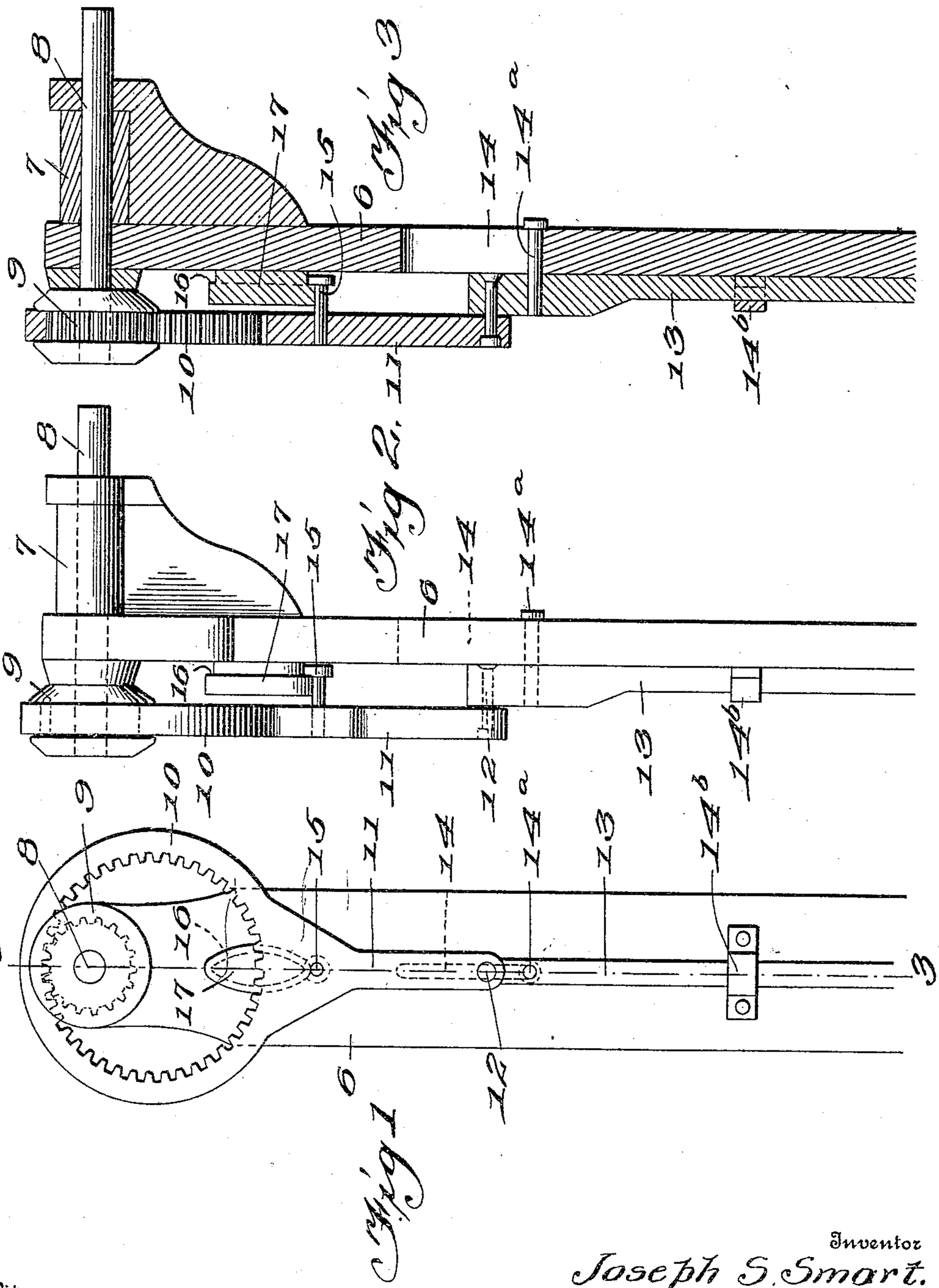
J. S. SMART.

GEARING.

APPLICATION FILED JUNE 30, 1908.

936,376.

Patented Oct. 12, 1909.



Witnesses

Geo. Thom

Arthur Wesley

Inventor

Joseph S. Smart.

By Geo. E. Dew

Attorney

UNITED STATES PATENT OFFICE.

JOSEPH S. SMART, OF DETROIT, MICHIGAN.

GEARING.

936,376. Specification of Letters Patent. Patented Oct. 12, 1909.

Application filed June 30, 1908. Serial No. 441,256.

To all whom it may concern:

Be it known that I, JOSEPH S. SMART, a citizen of the United States, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Gearing, of which the following is a specification.

This invention relates to gearing, and particularly to gearing adapted for use on windmills, to convert the rotation of the wheel shaft into reciprocation of the rod by which the power is transmitted.

The object of the invention is to simplify the construction of such gearing, and to provide a device of the kind which will have less friction and loss of power than the common pitman gear.

The device includes an internal or ring gear combined with a pitman connected to the rod, and provided with a guide to insure proper motion, and engagement of the gear with the pinion of the wheel shaft.

The invention is illustrated in the accompanying drawings, in which—

Figure 1 is a front elevation of the gear. Fig. 2 is a side elevation thereof. Fig. 3 is a section on the line 3—3 of Fig. 1.

Referring specifically to the drawings 6 indicates the standard or support, which has at the top a boxing 7 for the wheel shaft 8. On its rear end the wheel shaft has a shrouded pinion 9 which meshes with an internal ring gear 10 provided on its lower side with an integral pitman or extension 11 connected by pivot 12 to the connecting rod 13 which must be provided with a suitable guide so as to assure a steady slide motion. I have shown one way to guide consisting of a slot 14 through which a heavy pin 14^a on the rod projects, and the other guide consists of a strap 14^b. On its rear or underside the pitman has a headed stud 15 the head of which travels under the flange 16 of an elliptical guide block 17, which acts to guide the longitudinal and lateral movements of the pitman and to hold the gear in mesh with the pinion.

The gear is shown as a ring, but it may be an ellipse, or otherwise elongated or shaped to vary the stroke.

In operation, rotation of the shaft causes the ring gear to travel around the pinion thereby producing reciprocation of the pitman and the connecting rod.

This forms a gearing of great strength and simplicity, and it is particularly inexpensive because only two gears have to be cut. There is an absence of all unnecessary pivots and shafts and accordingly little risk of breakage. It takes up little room and requires very little lubrication. Although particularly useful on windmills, the device may be applied to machines of any kind where such translation of motion is required.

I claim:

The combination of a support provided with bearings, a shaft in said bearings, a shrouded pinion carried by the shaft, an internal gear meshing with the pinion, an integral pitman projecting from the gear and having a headed stud, an elliptical guide block, with which said stud engages, projecting from the face of the support and having a continuous outstanding flange offset from said support and behind which the head of said stud projects.

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

JOSEPH S. SMART.

Witnesses:

ELIZABETH J. PRICE,

SOPHIE C. GATZKE.