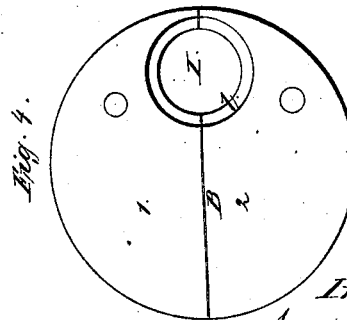
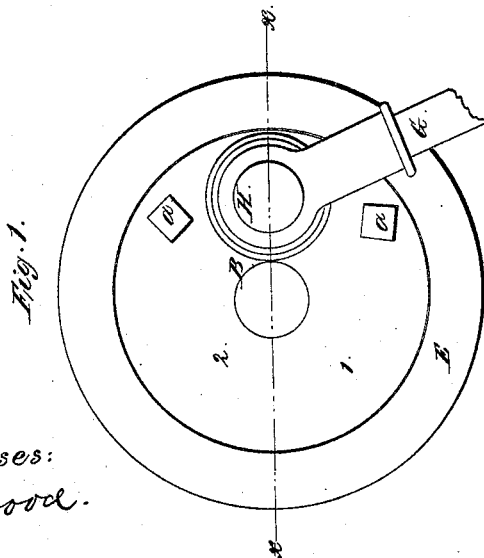
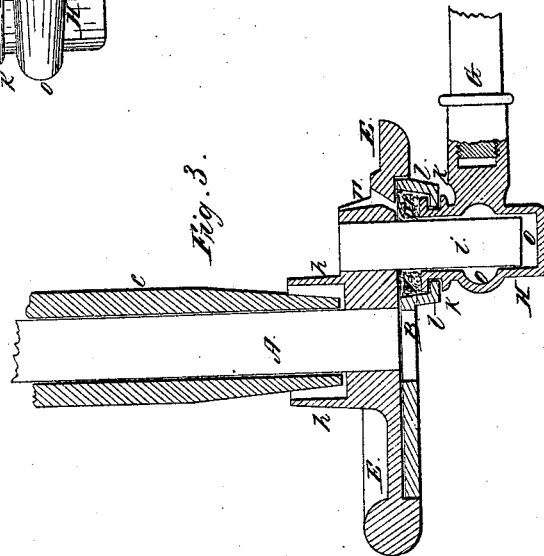
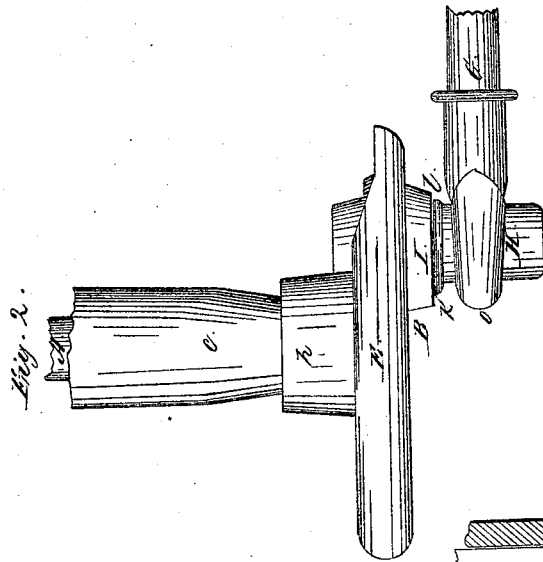


*A. Palmer,
Firman.*

No 54,397.

Patented May 1, 1866.



*Witnesses:
H. L. Osgood.
J. A. Davis*

*Inventor:
Aaron Palmer
By J. I. Lawrence
Attorney*

UNITED STATES PATENT OFFICE.

AARON PALMER, OF BROCKPORT, NEW YORK.

IMPROVEMENT IN HARVESTER CRANK-MOTIONS.

Specification forming part of Letters Patent No. 54,397, dated May 1, 1866.

To all whom it may concern:

Be it known that I, AARON PALMER, of Brockport, in the county of Monroe and State of New York, have invented certain new and useful Improvements in Inclosing the Wrist-Pin of Balance-Wheels for Harvesters; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making part of this specification.

Figure 1 is a bottom view of the balance or pitman wheel of a harvester with my improvements applied thereto; Fig. 2, a side elevation thereof; Fig. 3, a central vertical section in the plane of line *x x*, Fig. 1; Fig. 4, an inside view of the sectional disk or plate that holds the box that incloses the wrist-pin in place.

Like letters of reference indicate corresponding parts in all the figures.

My invention consists, essentially, in forming at the end of the pitman-rod a tight box or case that incloses the crank or wrist pin in such a manner as to retain the lubricating-oil and exclude dirt, and at the same time allow a free action of all the parts; also, in the employment of an oil-cup on top the balance or pitman wheel, that revolves around a stationary bearing for the shaft of the wheel.

The drawings represent the pitman-wheel that drives the cutting apparatus of a harvester. The pitman-wheel *E* and its crank-pin or wrist *i* are of usual construction; but the pitman-rod *G* is connected with the crank-pin in a peculiar manner. The end of the pitman is formed into or connected with a tight box or case, *H*, of suitable size, which is formed in a single piece, as represented in the drawings, in such a manner as to fit over the end of the crank-pin and insulate or inclose the same, so as both to retain the lubricating-oil placed therein and to exclude dirt. This box or case may be connected with the pitman-wheel in a variety of ways to sustain it in place and allow the said wheel a free revolution and the crank-pin to turn easily therein; but I prefer that represented in the drawings, in which the upper end of the box is provided with a circular groove, *k*, in which fits an angular flange, *l*, of a dish-shaped disk, *B*, attached on the under side of the pitman-wheel, forming a chamber, *I*, which is filled with cotton or other fibrous material *m*, to absorb oil. For conven-

ience of application the disk may be made in two halves or parts, 1 2, which are secured in place by bolts *a a*. This method of attaching the box or case *H* is particularly applicable when the crank-pin and box stand vertically, as represented, since it not only insulates the crank-pin, but also sustains the box. It may also be used with equal advantage when the parts stand horizontally instead of vertically, or in this case some other equivalent arrangement may be employed.

I am aware that it is not unusual to employ a box with a closed end—that is, stationary or immovable—to receive the end of a turning shaft, but such, in its broad sense, I do not claim. In contradistinction to this, my invention consists in a tight box, either forming the end of or connected with the pitman-rod, and used, in combination with the crank-pin or wrist of the pitman-wheel, in such a manner as to accomplish three essential results—viz: First, allow a free revolution of the pitman-wheel, the equally free reciprocation of the pitman-rod, and the free turning of the crank-pin within the box or case, none of which effects follow the use of a stationary closed box and turning shaft; second, the retention of oil, especially where the pin and box stand vertically; and, third, to exclude dirt. The advantages of this arrangement are at once apparent, as well as the distinction between it and the stationary box and turning shaft before mentioned.

In my device the connection between the pitman, the box, and the crank-pin are such as to allow, to so speak, a universal motion of all the parts. In other words, the box as well as the crank-pin moves and adapts itself to all positions.

By the employment of the chamber *I*, filled with fiber, as described, and the flange *l*, fitting in the groove *k*, it will be seen that the retention of oil is most effectual, for to escape the oil must pass a roundabout way through the groove *k*. It is equally difficult for dirt to enter.

In order to produce a perfect lubrication by the oil inside, I prefer to employ a depression or depressions, *o*, within the box *H*, extending entirely around the wrist-pin, so as to leave some space in which the oil settles or rests. If desired, the crank-pin itself may be also grooved, so as to retain the oil. In the draw-

ings but a single depression is represented at the side of the crank-pin and one at its bottom; but more may be employed if necessary, or but a single one if desired. The essential object of these depressions is to produce a sufficient agitation of oil to lubricate the parts under all circumstances. It will be perceived that this will be accomplished by the action of the parts in turning, for in such case the dashing of the oil in the depression or depressions will have the effect to stir it up thoroughly, which would not be the case if the box fitted tightly to the pin its whole length. Besides, the depressions serve to retain a supply of oil, thereby saving frequent application of the same.

The oil may be introduced by any desirable means; that represented in the drawings being a hole, *n*, through the pitman-wheel, as shown in Fig. 3.

On top of the wheel *E* is situated a central dish-shaped open-topped oil-chamber, *h*, of suitable size to receive the lower end of the stationary bearing *c*, in which the wheel-shaft *A* works, and still leave considerable space around the box within the oil-chamber. This chamber revolves with the pitman-wheel around the box and retains the oil, which, on account of the shaft being vertical, would otherwise run down over the top of the wheel and be lost.

The device is very simple and effective, and avoids considerable waste. If the shaft were horizontal instead of vertical, the same difficulty would not be experienced, and there would be less need of such a device; but as

it is, the tendency of the oil is to run down through the box by gravity, and there is need of some receptacle at the bottom to catch it. The oil can be applied either at the top or at the bottom, or both. When the chamber is filled the oil rises around the shaft *A* on a level with that in the chamber, and by capillary attraction rises still higher on the shaft, especially as the shaft becomes warmed by turning in the bearing *c*, and therefore it will keep the parts effectually lubricated at all times, even if the oil is not applied often.

I have never before seen such a revolving oil-chamber used in combination with a vertical shaft and a stationary bearing, *c*. It is common to use a revolving shaft in a stationary oil-box, but such is not the equivalent of my invention.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. Retaining the box *H* upon the crank-pin *i* by means of the groove and flange *k l*, arranged and operating substantially as described.

2. In combination with the box *H* and crank-pin *i*, the chamber *I*, filled with fibrous or other suitable packing *m*, substantially as specified.

3. The revolving oil-chamber *h*, secured to the top of the balance-wheel, in combination with the revolving shaft *A* and stationary box *c*, substantially as and for the purpose herein set forth.

AARON PALMER.

Witnesses:

R. F. OSGOOD,
J. A. DAVIS.