(No Model.)

F. TRUMP.

MULTIPLE CRANK SHAFT.

No. 301,537. Patented July 8, 1884.

Fig. 2.

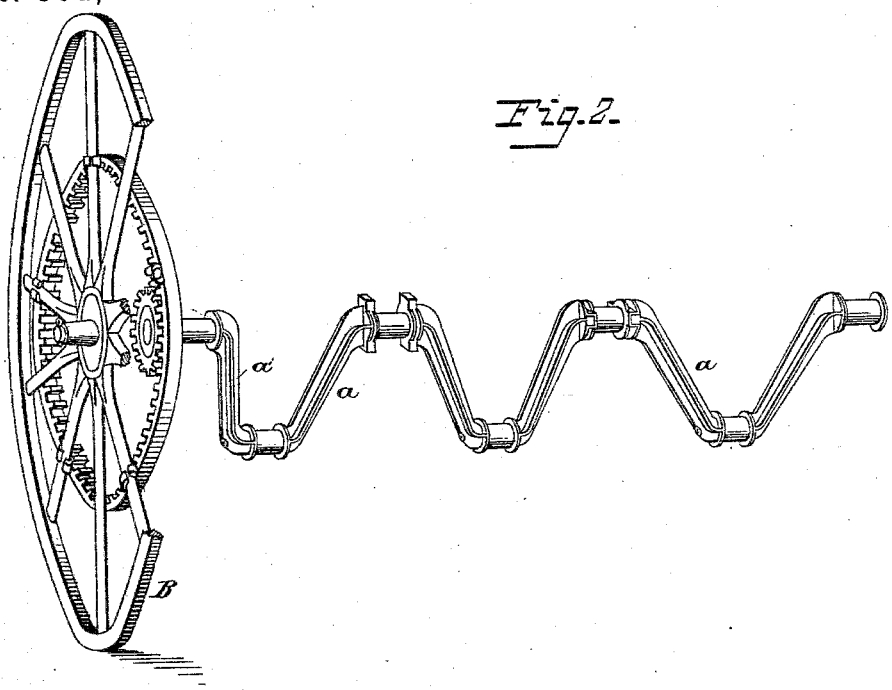


Fig. 3.

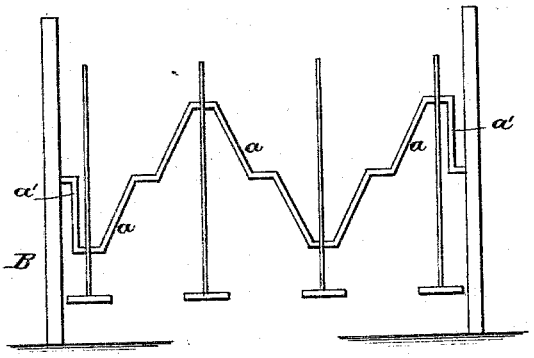
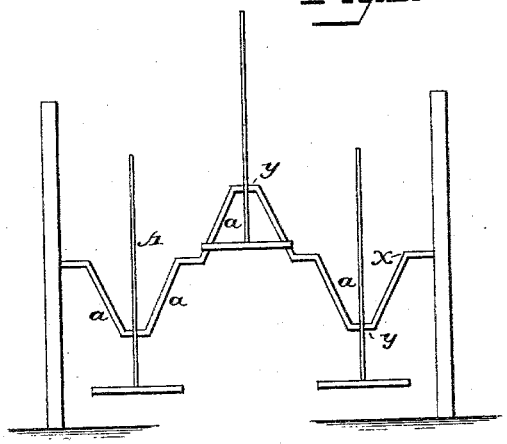


Fig. 1.



Attest:
Court. a Cooper.
Wm. F. Fayers.

Fuller Trump
Inventor.
By Foster & Freeman
Attys

UNITED STATES PATENT OFFICE.

FULLER TRUMP, OF SPRINGFIELD, OHIO.

MULTIPLE-CRANK SHAFT.

SPECIFICATION forming part of Letters Patent No. 301,537, dated July 8, 1884.

Application filed May 28, 1884. (No model.)

To all whom it may concern:

Be it known that I, FULLER TRUMP, a citizen of the United States, residing at Springfield, in the county of Clark and State of Ohio, have invented certain new and useful Improvements in Multiple-Crank Shafts, of which the following is a specification.

My invention relates to that class of shafts in which there are a series of cranks arranged to operate a series of devices arranged side by side—as, for instance, the shafts of wool-washing machines, crushing-mills, hay-tedders, &c.; and my invention consists in constructing a multiple-crank shaft, as fully described hereinafter, so as to avoid carrying the parts operated thereby to too great a distance from the side supports of the machine.

In the drawings, Figure 1 is a view illustrating the construction and operation of a multiple-crank shaft made in the ordinary manner. Fig. 2 is a perspective view illustrating my improved multiple-crank shaft as arranged in connection with the supporting-wheel of a hay-tedder. Fig. 3 is a view illustrating the construction and operation of my improved shaft in a wool-washer or other like machine.

In many machines in which multiple-crank shafts are used—as, for instance, wool-washers, hay-tedders, crushing-machines, and grain and hay elevators—it is common to connect the shafts or handles with the cranks arranged substantially as illustrated in Fig. 1, the arms *a* of each crank being inclined to the central line or axis, *x*, and from each side toward the bearing *y*. This construction results in carrying the shafts or handles A, or other bars connected to and operated by the crank-shaft, to a considerable distance from the sides B, or supports of the machine, the result being that the fork, blade, or head C upon each of the side shafts, A, must either be very wide or that there must be considerable space between the side of the head and the adjacent support B. As a consequence, the material between the support B and the head C is not operated upon. To obviate this objection I construct the shaft with any desired number of cranks according to the character of the machine in which it is to be used; but instead of making the shaft with both the arms of each side crank set at an angle to the axis of the shaft, I set each of the outer arms, *a'*, at right angles to the axis of the crank-shaft, so that the bearing *y* is carried close to the side support, B, there being but sufficient distance between the said bearing and the said support for the play of the arm *a'*. I am thus enabled to so set the heads C that they may be brought to operate upon the material across almost the entire width of the machine.

The shaft may be made of wrought metal and in any suitable manner. I prefer, however, to make it of connected sections of malleable iron with intermediate bearing-pieces detachable from said sections, as set forth in the Letters Patent granted to me March 8, 1884, No. 296,368, as this enables me to set the arms *a'* with a short bend or angle upon the body of the shaft without the expensive forging which would otherwise be required to bend the parts to this shape without impairing the strength at the angle.

Without limiting myself to the precise arrangement and construction of parts set forth, I claim—

1. A multiple-crank shaft having the outer arms of the side cranks at right angles to the axis of the shaft, and the inner arms inclined thereto, substantially as and for the purpose set forth.

2. A multiple-crank shaft consisting of a series of crank-pieces and intermediate detachable connecting-pieces, the outer arms of the crank-pieces at the ends of the shaft being at right angles to the axis of the shaft, substantially as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

FULLER TRUMP.

Witnesses:
F. L. FREEMAN,
L. C. YOUNG.