E. P. Russell,

Crank Wrist for Harvesters.

No. 49,306. Patented Aug. 8, 1865.

Fig. 1.

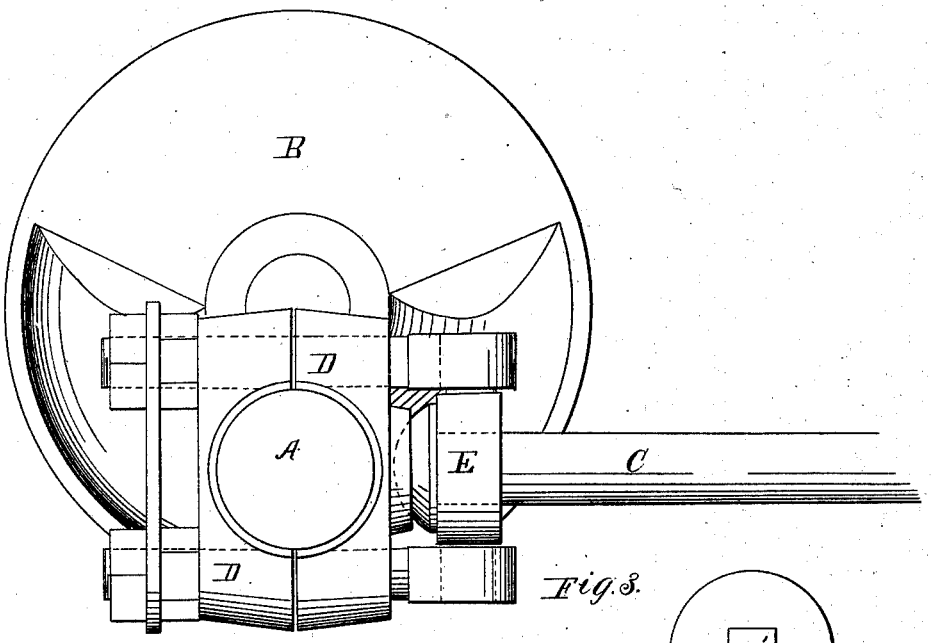


Fig. 3.

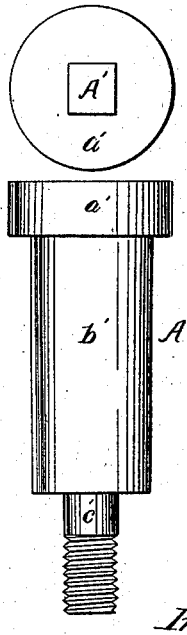
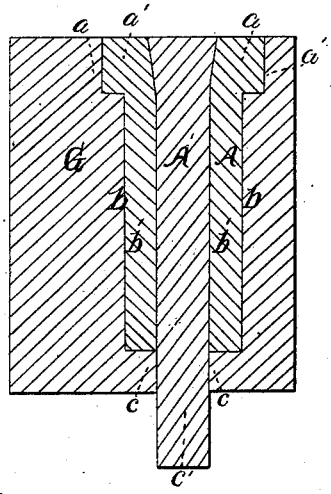


Fig. 2.



Witnesses.
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UNITED STATES PATENT OFFICE.

E. P. RUSSELL, OF MANLIUS, NEW YORK.

IMPROVEMENT IN THE METHOD OF MAKING WRIST-PINS.

Specification forming part of Letters Patent No. **49,306**, dated August 8, 1865.

To all whom it may concern:

Be it known that I, E. P. RUSSELL, of Manlius, in the county of Onondaga and State of New York, have invented a new and Improved Crank-Wrist; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a side view of the bearing-box and a portion of the pitman-rod applied to the crank-pin which gives motion to the sickles of a harvesting-machine. Fig. 2 is a vertical section through a chilling-box and the crank-pin which is formed therein. Figs. 3 and 4 show the form of a crank-pin when removed from the chilling-box.

Similar letters of reference indicate corresponding parts in the several figures.

This invention relates to the construction of crank-wrists or wrist-pins for any and all purposes to which they are applicable; but for the purpose of more fully illustrating its utility in one instance, I shall refer to it as an improved mode of constructing that portion of a harvesting-machine which is known as the "crank-wrist" or "wrist-pin," and which is applied eccentrically to the face of a wheel upon a driving-shaft for the purpose of receiving a bearing on one end of the pitman which communicates motion to the sickle.

The wrist-pin of a harvesting-machine is subject to considerable friction and probably more strain than any other part of the machine in consequence of the irregular movements of the cutting apparatus and the power which is required to perform the cutting. For these reasons such pins, as hitherto constructed, break or wear out very rapidly and require frequent renewing.

By my invention I produce a wrist-pin which will withstand all the strain brought upon it, and which will be very durable, requiring very little or no lubrication, and keeping the pitman-connection in good working order for a long time.

To enable others skilled in the art to understand my invention, I will describe its construction and operation.

In order that I may fully explain the nature and object of my invention, I have illustrated in Fig. 1 of the accompanying drawings the mode of applying the pitman of a sickle to a wrist-pin. In this figure, A represents the wrist-pin, which is secured by means of a nut to the face of a wheel, B, that is keyed on one end of a driving-shaft. The pitman C is applied to a two-part bearing-box, D, which is chilled, and which embraces the neck or journal of the pin A, and is held in place thereon by the enlarged cylindrical head of said pin, as shown in Fig. 4. The two parts of the box D are held together by means of bolts and jam-nuts, the heads of the bolts forming bearings for a pivoted yoke, E, which receives the end of the pitman-rod C and allows it to accommodate itself to the movements of the cutting apparatus. By the rotation of the wheel B the pitman-rod C receives a lengthwise reciprocating motion, which it communicates to the sickle.

The position of the pin A and the work which it is required to perform renders it very important that this pin should not wear away rapidly and cause the parts connected directly and indirectly with it to work loose or with a jerking movement. To obviate these objections I construct a wrist-pin in the following manner: G represents a flask or box in which the pins are produced. This box is made of metal, with a cylindrical cavity, *a*, and a deep cylindrical cavity, *b*, formed in it, as shown in Fig. 2, which latter terminates at the bottom in a central hole, *c*, passing through the box. Such an opening in the box corresponds in size and shape to the wrist-pin A, with the exception that when this pin is produced it has a cylindrical extension, *c'*, on its lower end of greater length than the depth of the central hole, *c*, through the flask. This flask G, being made of metal, becomes a chilling-box for chilling the metal which is poured into it to form the body of the wrist-pin.

As it is not desired to have the entire pin chilled, but only that portion which constitutes the head *a'* and the neck or journal *b'*, I employ a wrought-metal pin or core, A', which is inserted into and through the cavity of the chill-box G, so that its lower end will project a suitable distance through the central hole, *c*, and serve when the pin is finished as a male-screw stem for receiving a nut by which to secure this pin rigidly to its wheel B.

The core-pin A' is properly centered in the cavity of the chill-box B, and the metal is

poured around it, as shown in Fig. 2, after which the upper end of the core-pin may be hammered down and the wrist-pin removed from its box.

If desirable, the screw-thread shown in Fig. 4 may be cut on the projecting end of the core-pin A′ previously to introducing this pin into the chilling-box, and, if desirable, the upper end of the core-pin may be flattened or squared, as shown in Fig. 3; but for all practical purposes a cylindrical core-pin will be found to answer the desired object.

By thus producing a wrist-pin I obtain a chilled or hardened surface where the pin is subject to wear, and at the same time secure the advantages of a strong wrought-metal or less hard metal pin for receiving the nut which secures the wrist-pin rigidly to its wheel or crank and adding strength to the metal of greater brittleness.

It will thus be seen that I overcome a serious defect in all pitman-connections which employ a removable crank-wrist or wrist-pin, and also that when the said invention is applied to the sickle-connections of harvesting-machines such machines are greatly enhanced in their utility and durability, and these advantages I attain by the production of a crank-wrist which is not only not liable to wear out during the life-time of a machine, but which may be readily substituted in place of the ordinary crank-wrist used upon such machines.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

An anti-friction crank or wrist-pin, substantially as described, when constructed with a chilled-metal surface or journal surrounding a core of softer metal which projects from one end of said journal, the two metals being united mechanically in the casting of the former around the latter, substantially as and for the purposes set forth.

E. P. RUSSELL.

Witnesses:
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