No. 738,812. PATENTED SEPT. 15, 1903.

E. A. JOHNSTON.

PITMAN CONNECTION.

APPLICATION FILED JAN. 7, 1901.

NO MODEL.

Fig. 1.

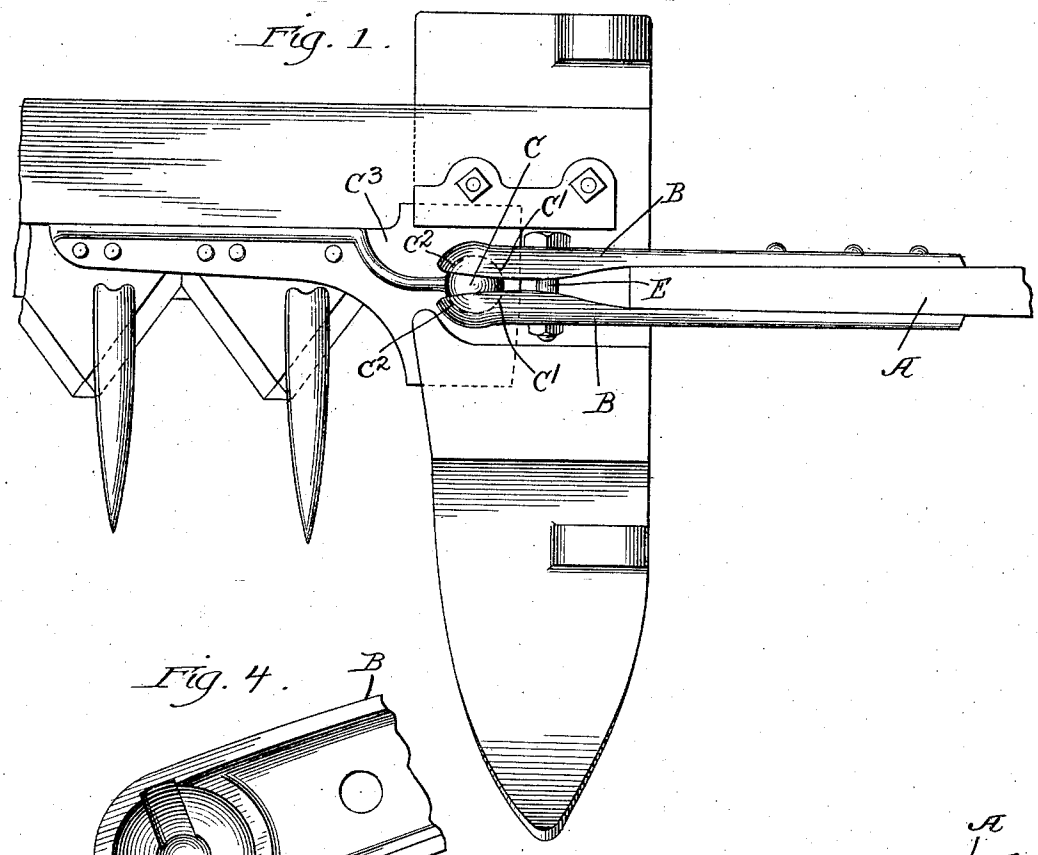
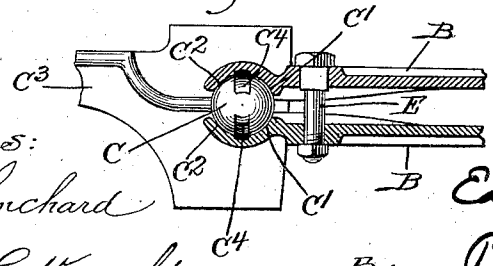


Fig. 4.

Fig. 2.

Fig. 3



Witnesses:

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No. 738,812. Patented September 15, 1903.

UNITED STATES PATENT OFFICE.

EDWARD A. JOHNSTON, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE McCORMICK HARVESTING MACHINE COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

PITMAN CONNECTION.

SPECIFICATION forming part of Letters Patent No. 738,812, dated September 15, 1903.

Application filed January 7, 1901. Serial No. 42,286. (No model.)

To all whom it may concern:

Be it known that I, EDWARD A. JOHNSTON, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Pitman Connections, of which the following is a specification.

My invention relates to pitman connections particularly adapted for mowers, reapers, harvesters, and the like, and has for its object to provide a new and improved construction of this description.

My invention is illustrated in the accompanying drawings, wherein—

Figure 1 is a view of a pitman connection embodying my invention. Fig. 2 is a side elevation of the construction shown in Fig. 1 with parts omitted. Fig. 3 is a section on line 3 3, Fig. 2. Fig. 4 is an enlarged view showing the inner face of one of the engaging parts on the pitman-rod.

Like letters refer to like parts throughout the several figures.

It is essential to the economical and satisfactory operation of the cutter of a mowing-machine, grain-harvester, or the like that such cutter have a firm and unvarying connection with the pitman-rod of the machine. It has been difficult heretofore to obtain this result because of the fact that there is a great strain and wear at the connecting-point between the pitman-rod and the cutter-head, due in part to the fact that the cutter is suddenly stopped and started at each limit of its movement. As the cutter is reciprocated at a high rate of speed, it will readily be seen that this repeated stopping and starting produces a wear and tear upon the parts which soon injuriously affects their operation.

Referring now to Fig. 1, I have shown a pitman-rod A provided with the two engaging parts B, between which is clamped the connecting piece or ball C, connected with the cutter-head C^3 of the machine. These engaging parts B are each formed or hollowed out near the end so as to fit the ball C, thus forming a movable or ball-and-socket connection between the pitman-rod and the cutter-head. As the pitman-rod is moved back and forth at a high speed, it will be seen that the tendency is to wear the ball and the engaging parts B at particular or localized points. When the pitman-rod is moved forward, the pressure is at the points C'. (See Fig. 3.) After it has been moved to its limit in this direction there is a sudden reversal and it is pulled back, thus causing a wear at the points C^2, Fig. 3. It is found in practice that after the machine is used a while the ball and the engaging parts wear away at the points C' and C^2, and as there is subsantially no wear at the intermediate points the pitman connection cannot be tightened or adjusted so as to take up the slack. There is therefore a certain amount of lost motion which is very disadvantageous. This lost motion, for example, besides being destructive to the parts causes the stroke or throw of the cutter to be shortened. The shortening of the stroke is very detrimental to the proper operation of the cutter, as it prevents the blades from coming into proper relation with the guards and causes the cutter to choke, thus putting a much greater strain upon the parts and increasing the power necessary to operate the machine.

One of the objects of my present invention is to obviate these difficulties.

In carrying out my invention I cut, mutilate, distort, or otherwise form the parts, so that the engaging devices will engage the ball C at the particular or localized bearing-points and will be free from it at the intermediate points, so that when wear occurs the spring of the parts will automatically cause them to be adjusted so as to take up this wear, or the wear can be taken up by other means, as by tightening the nut on the bolt E. I prefer to do this by cutting away the material of the ball, so as to form the depressions or grooves C^4, as shown. I also cut away the metal of the inner faces of the engaging parts opposite the center of the ball, as shown at D, Fig. 4, and preferably provide the inner faces of the engaging parts opposite the grooves C^4 with the depressions or grooves D'. It will thus be seen that the parts which do not become worn in the operation of the device are removed or formed so that they do not engage each other and thus

prevent the proper adjustment of the pitman connection.

It will be seen that by this construction I divide the surface of the ball and the inner faces of the engaging parts into separate engaging faces, which are preferably formed so as to wear away in a substantially uniform manner, and hence the engaging devices can be tightened as this wear occurs, insuring a tight connection between the pitman and the cutter-head at all times.

I claim—

1. The combination with a reciprocating part, provided with a connecting-piece, of a pitman-rod, provided with engaging parts having wearing-faces, which engage said connecting-piece at the localized points of pressure developed by the sudden reversals of the cutter, the opposed faces of the engaging parts and connecting-piece being provided with non-contact portions between said localized points of pressure, so as to permit adjustment to take up the uneven wear of the parts.

2. The combination with a reciprocating part of a pitman-rod, provided with engaging parts, an engaging part connected with said reciprocating part and engaged by said engaging parts, at least one of the contacting engaging parts having a portion of its engaging face formed or depressed so as to be out of contact when the parts are in their operative position, and means for adjusting the engaging parts with relation to the ball so as to take up the wear.

3. The combination with a reciprocating part, having a ball connected therewith, of a pitman-rod, provided with two separated engaging parts which engage said ball, a groove or depression on the inner engaging face of each of said engaging parts and an opposed groove or depression on the surface of said ball, whereby the surface of the ball and the inner faces of the engaging parts are divided into a series of separated engaging faces.

4. The combination with a reciprocating part, having a ball connected therewith, of a pitman-rod, provided with two separated engaging parts which engage said ball, a groove or depression on the opposed bearing-faces of said ball and engaging parts, between the localized points of pressure due to the sudden reversals of the cutter, and means for adjusting the engaging parts with relation to the ball so as to take up the wear at said localized points of pressure.

5. The combination with a reciprocating part, provided with a connecting-piece, of a pitman-rod, two separated opposed engaging parts attached to said pitman-rod and between which said connecting-piece is received, the opposed faces of the engaging parts and connecting-piece being provided with non-contact portions, and an adjusting device for moving said non-contact portions relatively so as to vary the distance between them in order to adjust the parts.

6. The combination with a reciprocating part, provided with a connecting-piece, of a pitman-rod, provided with engaging parts which engage said connecting-piece, a groove or depression on the inner engaging face of each of said engaging parts and an opposed groove or depression on the surface of said connecting-piece, whereby the area of contact of the engaging faces is confined to the wearing-points, and an adjusting device for moving the two engaging parts toward each other and toward the connecting-piece so as to adjust for wear.

7. The combination with a reciprocating part of a connecting-piece, a pitman-rod associated therewith, two separated opposed engaging parts attached to said pitman-rod and between which the connecting-piece is received, each engaging part having at least two localized points of pressure and an intermediate neutral point, when the parts are reciprocated, the parts arranged so that the neutral point is out of contact with the opposed connecting-piece.

Signed at Chicago, county of Cook, State of Illinois, this 4th day of January, 1901.

EDWARD A. JOHNSTON.

Witnesses:
GEORGE C. BLACKMER,
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