Sept. 15, 1942. J. POWELL 2,295,755

HUSKING ROLLS

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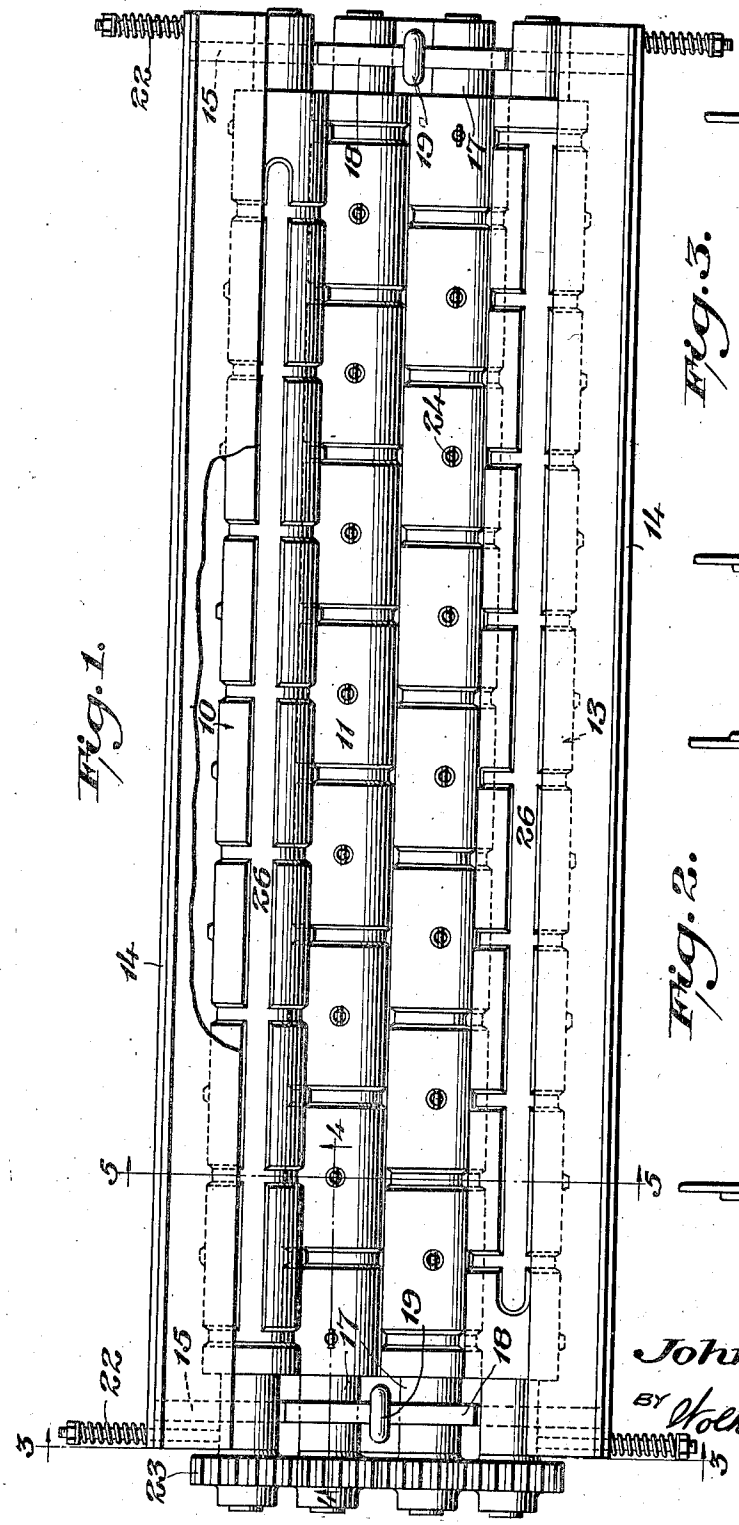


Fig. 1.

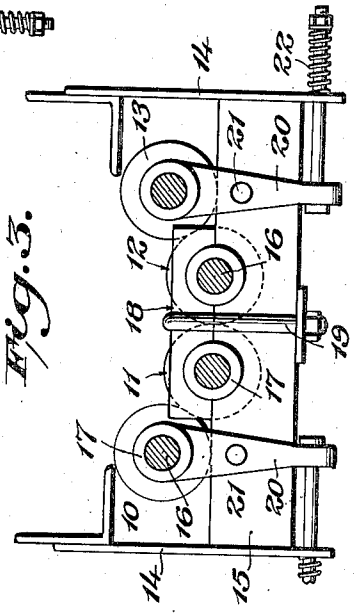


Fig. 3.

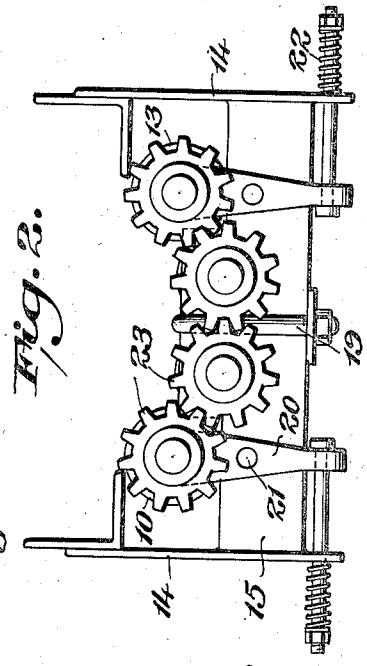


Fig. 2.

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Fig. 4.

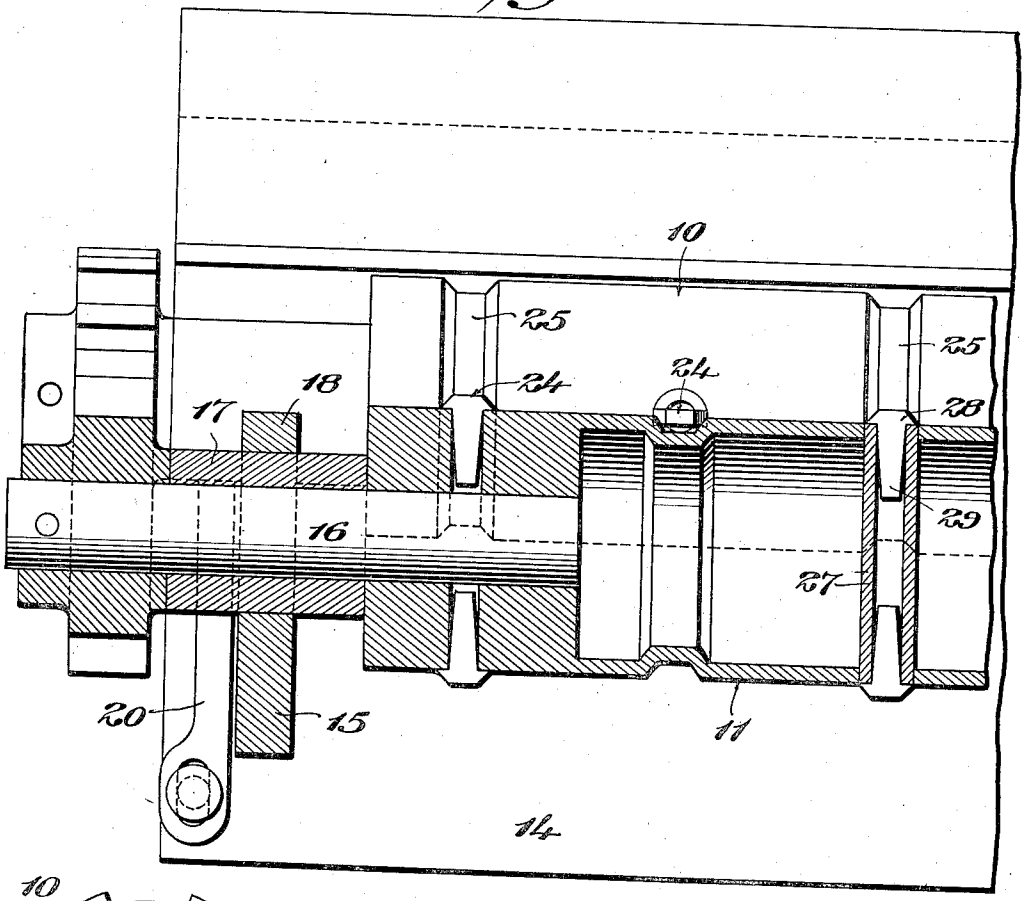
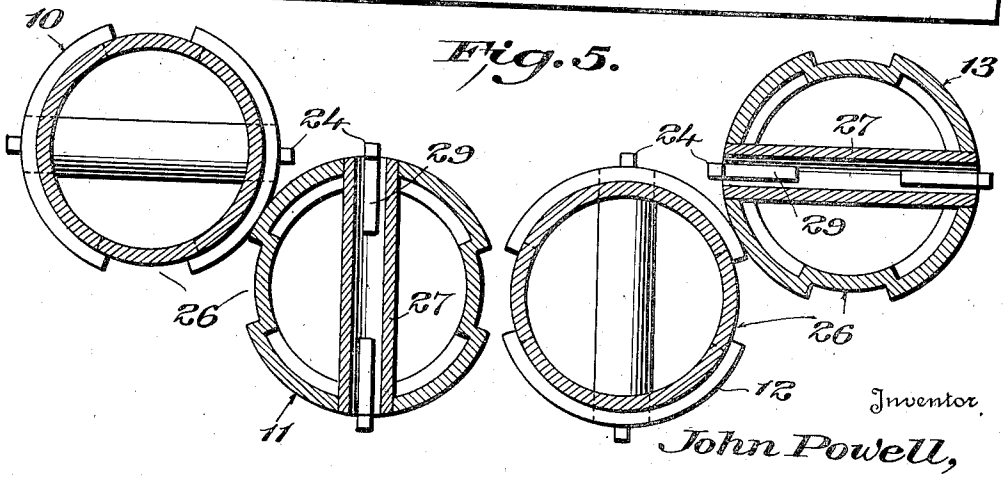


Fig. 5.



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Patented Sept. 15, 1942

2,295,755

UNITED STATES PATENT OFFICE

2,295,755

HUSKING ROLLS

John Powell, Kokomo, Ind.

Application March 4, 1941, Serial No. 381,729

2 Claims. (Cl. 130—5)

This invention relates to husking rolls for corn husking machines, and has particular reference to improvements in husking rolls of the type which are equipped with pegs for tearing the husks from the ears of corn.

Some husking machines may have only two husking rolls while others may have four or more rolls, but in any case the rolls are disposed in side to side relationship and operate as a pair, or in pairs, as the case may be. Usually the rolls of a pair are geared together for rotation in opposite directions and usually, too, at least one of the rolls of a pair is mounted to yield outwardly relative to the other to permit parts of stalks and husks to pass between them.

Heretofore, when either roll of a pair has been provided with husk-tearing pegs the other roll of the pair usually has been provided with recesses to register with and accommodate the pegs of the first roll during rotation of the rolls. In most instances of pegged rolls, both rolls of a pair are provided with pegs and each roll of the pair is provided with recesses to accommodate the pegs of the other roll.

As long as rolls of the character mentioned are not urged so far apart as to disengage their gear wheels from each other the pegs and recesses of the respective rolls will register during rotation of the rolls and no harm will result. If, however, the rolls should be forced so far apart as to disengage their gear wheels from each other, one roll may be rotated through a greater angle than the other and their correct angular relationship may thereby be destroyed, with the result that their recesses and pegs no longer will register with each other. The pegs then will act to undesirably force the rolls apart as the rolls rotate with the result that the rolls will not function properly. Moreover, the pegs themselves may, as a consequence, become broken off or damaged.

Accordingly, one special object of the present invention is to provide, for cooperation with husking rolls of the pegged type, companion rolls having peg accommodating recesses in the form of channels extending entirely therearound whereby the angular relationship of the rolls to each other is immaterial so far as concerns the pegs and said recesses. Thus, it is immaterial whether the rolls are forced so far apart as to disengage their gear wheels and whether one roll rotates through a greater angle than the other while their gear wheels are disengaged, as the annular recesses will accommodate the pegs and permit the rolls to move together whatever may be their angular relationship to each other when they are permitted to return to their normal positions after having been forced so far apart as to disengage their gear wheels.

Another special object of the invention is to provide, in husking rolls of the pegged type, simple means for securely fastening the pegs to the rolls.

With the foregoing and other objects in view, which will become more fully apparent as the nature of the invention is better understood, the same consists in the novel features of construction, combination and arrangement of parts as will be hereinafter more fully described, illustrated in the accompanying drawings and defined in the appended claims.

In the accompanying drawings, wherein like characters of reference denote corresponding parts in the different views:

Figure 1 is a plan view of a set of husking rolls constructed and arranged to operate in accordance with the invention.

Figure 2 is an end view of the structure shown in Fig. 1.

Figure 3 is a cross section on the line 3—3 of Fig. 1.

Figure 4 is an enlarged, fragmentary, longitudinal section on the line 4—4 of Fig. 1; and

Figure 5 is an enlarged cross section through the rolls on the line 5—5 of Fig. 1.

Referring to the drawings in detail, it will be observed that the husking structure illustrated in the present instance is of the four-roll type embodying the four rolls designated as 10, 11, 12 and 13, respectively, of which the rolls 10 and 11 constitute one cooperating pair and the rolls 12 and 13 constitute another cooperating pair. It is desired to point out, however, that while a four-roll structure is illustrated in the present instance, this is entirely arbitrary and has been selected merely for convenience and not because the features of the invention may not be employed equally as well in two-roll structures. As a matter of fact, the four-roll structure illustrated amounts in substance to two separate, distinct and independent two-roll structures disposed in side to side relationship. It will be understood, therefore, that the features comprising the invention may be embodied equally as well in two-roll structures as in four-roll structures and that the appended claims are to be construed in this light.

According to the particular structure illustrated in the present instance the rolls 10—13 are supported by a frame composed of side plates 14,

14 and cross members 15, 15 connecting said plates 14, 14, together. At their ends the rolls are provided with projecting shafts 16 which are journaled in bearings 17, and in the case of the two innermost rolls 11 and 12, which are disposed in side to side relationship, the bearings 17 thereof are fixedly supported by the cross members 15, 15 in any suitable manner, as for example, by being seated in recesses in said cross members and held in said recesses by clamp blocks 18 fastened to said cross members 15 by tie bolts 19. On the other hand, the two outermost rolls 10 and 13, which are disposed in side to side relationship to their companion rolls 11 and 12, respectively, are mounted in any suitable manner to yield outwardly relative to said rolls 11 and 12. For example and as illustrated in the present instance, the bearings 17 of the rolls 10 and 13 may be carried by lever arms 20 which are pivoted to the cross members 15, as indicated at 21, and which have suitably associated therewith springs 22 which tend constantly to swing said arms in directions to urge said rolls 10 and 13 against the rolls 11 and 12, respectively.

At either or both ends of the rolls 10—13 the shafts 16 thereof have fixed thereto gear wheels 23 which normally are in mesh with one another so that said rolls, which may be driven in any suitable manner, are rotated in unison.

The two outermost rolls 10 and 13 are elevated relative to the rolls 11 and 12 so that collectively said rolls constitute in effect a trough to receive the ears of corn to be husked. The rolls rotate as indicated by the arrows in Figs. 3 and 4. That is to say, the two innermost rolls 11 and 12 rotate in directions such that their adjacent sides turn toward the trough constituted by the several rolls and their outer sides turn away from said trough, while the two outermost rolls 10 and 13 rotate in directions such that the sides thereof adjacent to the rolls 11 and 12, respectively, turn away from said trough. Since the adjacent sides of the rolls 11 and 12 turn toward the trough constituted by the several rolls the tendency of said rolls 11 and 12 is to urge ears of corn delivered to said trough laterally outward toward the rolls 10 and 13, respectively. In other words, the directions of rotation of the rolls 11 and 12 are such that they do not tend to draw stalks and husks between them. Therefore, said rolls 11 and 12 need not be mounted to yield outwardly relative to each other but may be mounted in fixed bearings as described. On the other hand, since the directions of rotation of the cooperating pair of rolls 10 and 11 and of the cooperating pair of rolls 12 and 13 are such as to tend to draw between them husks and stalks removed from ears of corn delivered to the trough constituted by the several rolls, the rolls 10 and 13 are mounted to yield outwardly relative to the rolls 11 and 12, respectively, in order to permit removed husks and stalks to pass between said cooperating pairs of rolls.

Each of the rolls 10—13 is provided at points suitably spaced therealong and therearound with pegs 24. Moreover, each of the rolls 10—13 is provided at points suitably spaced therealong with recesses in the form of annular channels 25 to accommodate the pegs 24 of the adjacent roll or rolls, as the case may be. In other words, each of the rolls 11 and 12 is provided with annular channels 25 to accommodate the pegs 24 of the other of said rolls, as well as the pegs of the cooperating rolls 10 and 13, respectively, while the rolls 10 and 13 are provided with annular channels to accommodate the pegs of the rolls 11 and 12, respectively. As the rolls of the respective pairs rotate, the pegs 24 thereof cooperate with the annular channels 25 thereof to remove in a generally well known manner husks and stalks from ears of corn delivered to the trough constituted by the several rolls. Some or all of the removed stalks or husks pass between the rolls 10, 11 and 12, 13 and should either or both of the rolls 10 or 13, as a consequence, be forced so far outwardly from the related roll 11 or 12 as to disengage the gear wheels 23, and should any of the rolls, during disengagement of said gear wheels, be rotated through an angle greater than any other roll, this will not affect the operative relationship of the rolls so far as concerns the pegs 24 and the recesses 25 since, the operative relationship between the rolls, so far as concerns the pegs 24 and the recesses 25, remains the same regardless of the relative angular positions of the rolls due to the fact that the recesses 25 extend entirely around the rolls.

Besides being provided with the annular recesses 25 the rolls 10—13 preferably are provided with longitudinally extending channels 26 to accommodate grains of corn accidentally removed from the ears of corn during husking of the same and to permit the removed grains to pass between the rolls without being crushed.

The rolls 10—13 may be solid or hollow and may be equipped in any suitable manner with pegs 24 of any suitable type. Preferably, however, the rolls are hollow and are provided with diametrically alined openings in which are disposed the ends of tubes 27 which extend through the rolls, and preferably the pegs 24 comprise heads 28 which conform in contour to the cross sectional size and shape of the recesses 25 and which have tapered shanks 29 which are driven into the ends of the tubes 27. Thereby the ends of the tubes 27 are expanded and anchored in the holes in the rolls and the pegs 24 are, at the same time, securely anchored in the ends of said tubes, which affords a simple yet effective manner of providing the rolls with the pegs.

As will be observed from the drawings, the rolls 10—13 are duplicates of one another, which is highly advantageous from an economical production standpoint. In their assembled relationship adjacent or cooperating rolls simply are reversed, end for end, in order to register the recesses and the pegs of adjacent rolls.

Without further description it is thought that the features and advantages of the invention will be readily apparent to those skilled in the art, and it will of course be understood that changes in the form, proportion and minor details of construction may be resorted to, without departing from the spirit of the invention and scope of the appended claims.

I claim:

1. A pair of rotatable corn husking rolls disposed in side to side relationship, husking pegs carried by at least one of said rolls, the other roll having recesses extending entirely therearound to accommodate the pegs of said first roll and further having longitudinally extending corn grain accommodating channels intersecting said annular recesses and extending continuously between the two end recesses of the roll, and gearing connecting said rolls for rotation of the latter in opposite directions and in predetermined angular relationship to each other, the portions of said first mentioned roll which regis-

ter with said channels during rotation of the rolls being disposed entirely outside of said channels and being devoid of any channel-entering projections whereby said channels are free and open at all times to protectively accommodate grains of corn against being crushed.

2. A hollow husking roll having diametrically opposite openings in its wall, a tube extending transversely through the roll and having its ends disposed in said openings, and headed husking pegs having tapered shanks driven into the ends of said tube, whereby the ends of the tube are expanded into tube securing engagement with the roll wall and the pegs are anchored in the ends of said tube.

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