A. T. FERRELL.

ROLL ADJUSTMENT FOR BEAN PICKING MACHINES.

APPLICATION FILED DEC. 29, 1913.

1,240,693.

Patented Sept. 18, 1917.

2 SHEETS—SHEET 1.

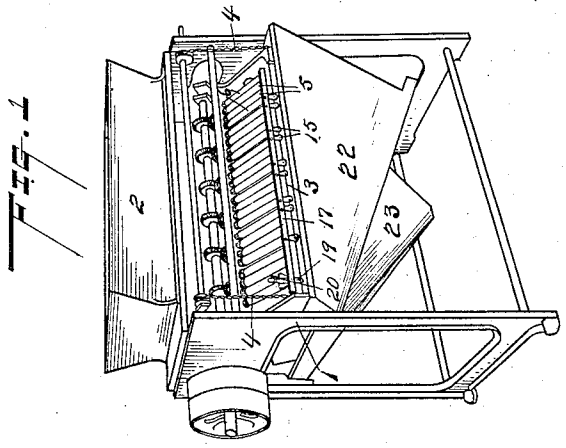


FIG. 1

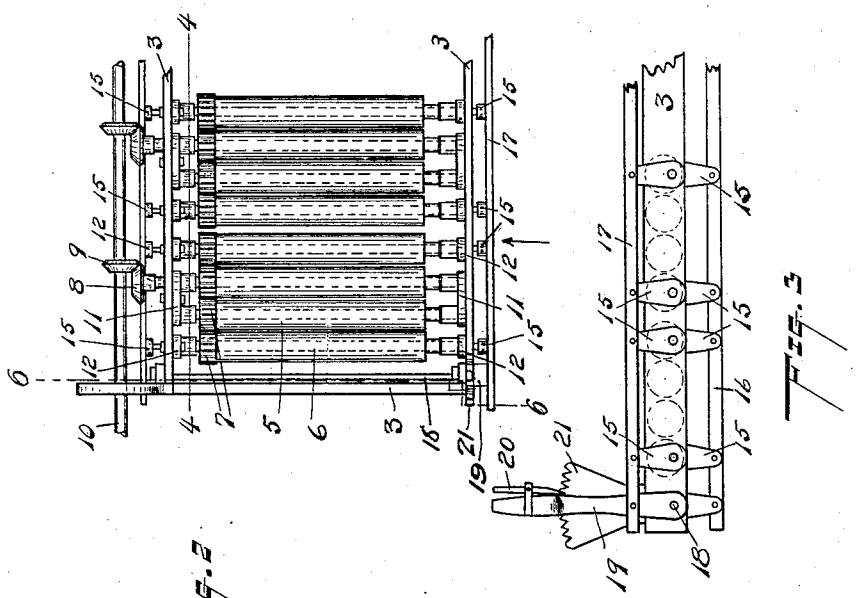


FIG. 2

FIG. 3

WITNESSES:

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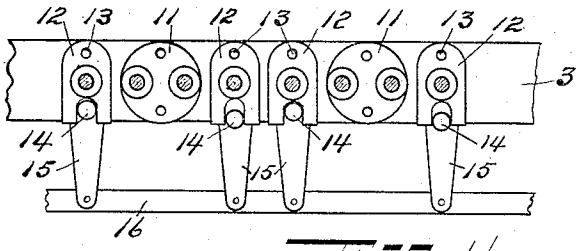


FIG. 4

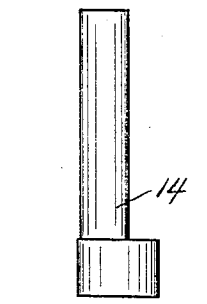


FIG. 6

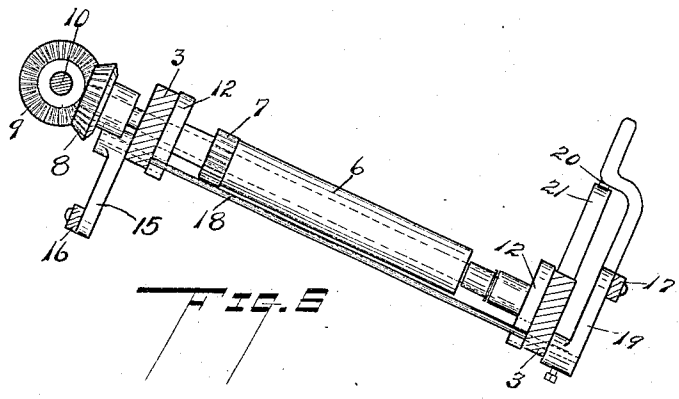


FIG. 5

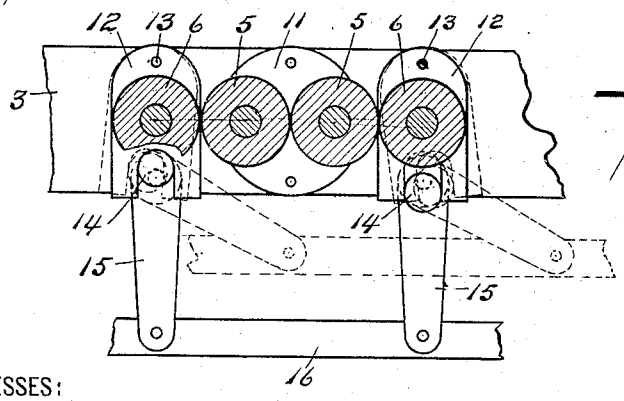


FIG. 7

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UNITED STATES PATENT OFFICE.

ALBERT T. FERRELL, OF SAGINAW, MICHIGAN.

ROLL-ADJUSTMENT FOR BEAN-PICKING MACHINES.

1,240,693. Specification of Letters Patent. Patented Sept. 18, 1917.

Application filed December 29, 1913. Serial No. 809,225.

To all whom it may concern:

Be it known that I, ALBERT T. FERRELL, a citizen of the United States, residing at Saginaw, in the county of Saginaw and State of Michigan, have invented certain new and useful Improvements in Roll-Adjustments for Bean-Picking Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to means for simultaneously adjusting the rolls of bean-picking machines and is adapted to that type of bean-picking machines in which a number of pairs of rolls are arranged in an adjustable frame side-by-side and inclined downwardly, so that beans fed to the upper end of each pair of rolls will travel down the channel formed between the rolls by the inwardly-moving peripheries thereof.

It has been found in practice that in a single crop of beans, those from different localities require different adjustments of the distance between the peripheries of the two rolls of each pair. Heretofore it has been customary to adjust the rolls of each pair independently, but since the adjustment must necessarily be very slight and since it has been necessary for the operator to adjust each pair separately it has become customary to neglect the adjusting of the rolls to suit the different grades of beans and consequently a poorer separation and considerable waste of beans has been the result.

The object of my invention is to provide a quick and easy means for accurately adjusting all of the pairs of rolls of a set or battery simultaneously.

A further object of my invention is to provide a roll-adjusting means, whereby the required adjustment of the rolls may be accomplished without interfering with the raising or lowering of the rolls.

A still further object is to provide means whereby half of the rolls may be adjusted, both ends simultaneously, whether the rolls are in motion or stationary.

With the above objects in view, the invention consists in certain new and novel features of construction, arrangements and combinations of parts, and the equivalents thereof, as will be more fully described hereinafter and pointed out in the claims.

Referring to the drawings:

Figure 1 is a view in perspective showing the general arrangement of the rolls and means for revolving the rolls.

Fig. 2 is a plan view showing a part of the frame, two batteries of rolls and their adjusting means.

Fig. 3 is an end elevation thereof, looking in the direction of the arrow in Fig. 2.

Fig. 4 is a sectional view, taken on line 4—4 of Fig. 2.

Fig. 5 is a detail of the eccentric pin.

Fig. 6 is a sectional view taken on line 6—6 of Fig. 2.

Fig. 7 is a fragmentary view in cross-section of one set or battery of rolls clearly showing how the outer rolls of each set are adjusted.

In the drawings, 1 designates a suitable bean machine having a feed hopper 2. 3 represents a suitable roll-supporting frame. The frame is adapted to be placed at an incline below the hopper. The upper end of the frame is suitably hinged to the machine and the lower end is adapted to be supported by chains 4, or their equivalents for adjusting the frame to any desired inclination.

Rotatably mounted in the adjustable roll-supporting frame are a plurality of resilient, preferably rubber, rolls arranged in sets or batteries of one or more pairs to a set, preferably in fours. Half of these rolls, designated 5, are non-adjustable and the other half, designated 6, are movable or adjustable laterally. Each of the rolls of a set or battery is provided at its upper end with a pinion 7 meshing with the pinion of the next roll of the set.

The upper end of one of the rolls 5 of each set of rolls is provided with a bevel-gear 8 adapted to mesh with a bevel-gear 9 mounted upon the drive-shaft 10, for imparting motion to the several rolls of a set. The rolls revolve in such a manner that the upper peripheries of the two rolls of each pair of a set travel toward one another.

Each of the non-adjustable rolls 5 is mounted at its ends in suitable bearings 11 secured to the upper and lower members of the roll-supporting frame.

I provide means for adjusting both ends of one roll of each pair.

Each of the adjustable rolls 6 is supported at its ends in movable bearings 12, pivoted at 13, to the upper and lower members of the roll-supporting frame respectively.

A plurality of eccentric pins 14 are mounted adjacent the rollers 6 in the upper and lower members of the roll-supporting

frame. Each of the eccentric pins 14 is provided with an arm 15. The arms, secured to the eccentric pins mounted in the upper frame member extend in one direction, as downwardly and are pivotally connected at their ends with a link 16. The arms secured to the eccentric pins mounted in the lower frame extend in the opposite direction, as upwardly, and have their ends pivotally connected to a link 17.

For imparting movement to the arms 15 for adjusting the rolls 6, I provide a crank-shaft 18. The opposite end of the crank-shaft is provided with a lever 19 having connection with the link 17. Moving the crank shaft moves the upper and lower ends of the adjustable rolls simultaneously.

I provide the lever 19 with a detent 20 adapted to engage a suitable quadrant 21 for the purpose of holding the rolls in any adjusted position.

The smooth perfect beans roll or slide down the channel formed by the inner moving peripheries of each pair of rolls 5 and 6 and these beans drop off the lower ends of the rolls into a suitable hopper 22. The rough or split beans and the stones, dirt and other foreign substances are squeezed between the rolls and drop into a hopper 23 arranged below.

Through the medium of the eccentric pins and the movable bearings, it will be observed that I provide a roll-adjusting device, whereby the quick and easy adjustment of one of the rolls of each pair of a set or battery may be accomplished without interfering with the raising or lowering of the roll-supporting frame.

It will also be observed that there is provided a quick and easy means for accurately adjusting all of the pairs of rolls of a set or battery simultaneously and in parallel relation to one another.

Having described my invention, what I claim and desire to secure by Letters Patent is:

The combination with the main frame of a bean machine, of an inclined roll-supporting frame, means for changing the inclination of said frame, of sets of rolls arranged in pairs, half of said rolls being adjustable and the other half non-adjustable, a gear mounted on one end of each roll adapted to mesh with the next roll of the set, means for imparting movement to one of the non-adjustable rolls of each set, an arm secured to each end of each adjustable roll, a cam-shaft, a link pivotally connecting the arms at the upper ends of the adjustable rolls, each of said arms being connected at one end to said cam-shaft, a link pivotally connected to each arm at the lower end of the adjustable frame, said link being pivotally connected at one end to an adjustable lever, which lever is connected at its lower end to said cam shaft.

In testimony whereof, I affix my signature in presence of two witnesses.

ALBERT T. FERRELL.

Witnesses:
FRED'K J. LARSON,
NELLIE M. ANGUS.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."