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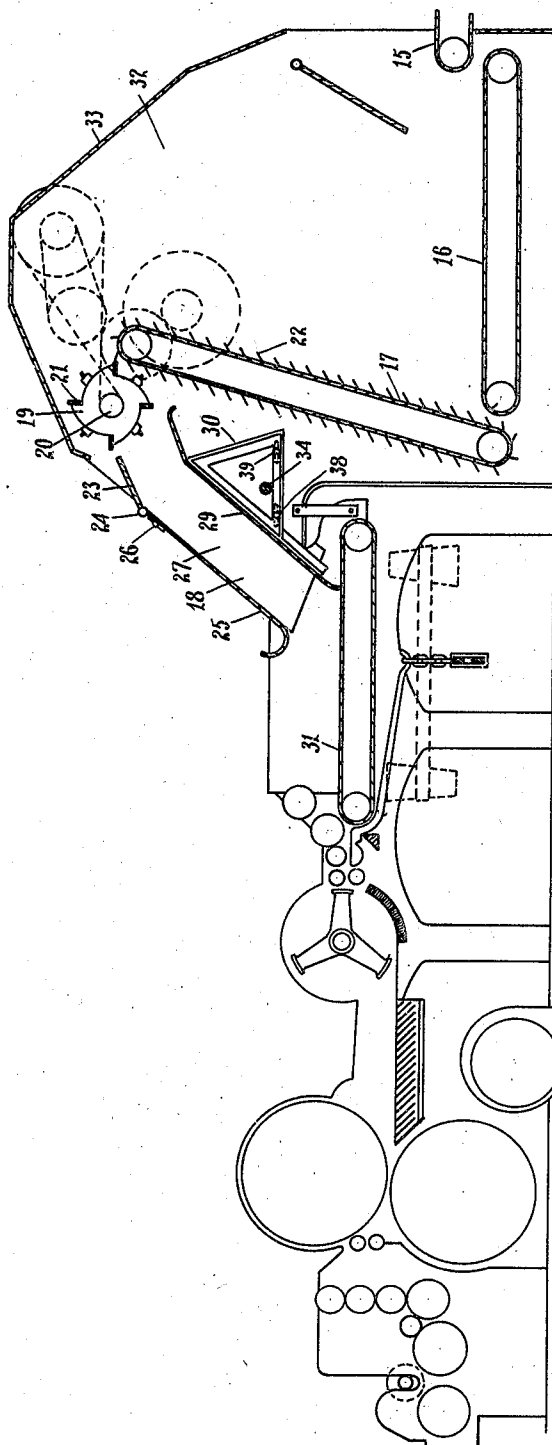
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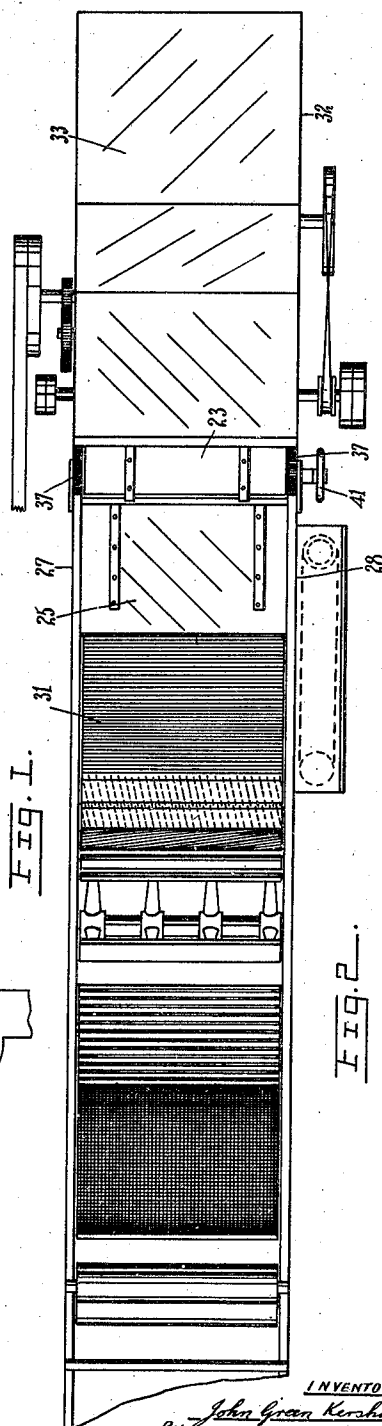
CAPACITY ADJUSTING MECHANISM IN HOPPER FEEDING MACHINES

Original Filed Aug. 3, 1934

2 Sheets-Sheet 1



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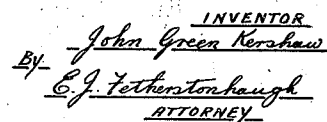
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UNITED STATES PATENT OFFICE

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CAPACITY ADJUSTING MECHANISM IN
HOPPER FEEDING MACHINES

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738,282. Divided and this application May 22,
1935, Serial No. 22,819

2 Claims. (Cl. 19—67)

The invention relates to a capacity adjusting mechanism in hopper feeding machines, as described in the present specification and illustrated in the accompanying drawings that form part of the same.

The invention consists essentially in the novel means employed for adjusting the side of the throat of the delivery section whereby a rigid member is mechanically operated to enlarge or constrict the throat to various rigid positions in accordance with the requirements of the material or the purposes of the machine to which the said material is supplied as pointed out in the claims for novelty following a description in detail of the construction.

The objects of the invention are to adapt a hopper feed mechanism to various uses and particularly in cotton machinery to adjust the throat of the delivery section in accordance with the nature of the fibrous material fed therethrough as the raw cotton varies considerably according to its origins and in other arts the materials may likewise vary so that the throat of the delivery section must naturally be rigid and yet have at least one side of it capable of adjustment so as to insure the desired quantities to be fed into operating parts such as are found in scutching and picking mechanism in the cotton industry and which is described more fully in a specification attached to an application filed under Serial Number 738,282, on August 3rd, 1934 of which this application is a division, and generally to provide a feed hopper with an adjustable section adapted to enlarge the throat or constrict it in agreement with the uses that the hopper may be put to.

In the drawings, Figure 1 is a longitudinal sectional view of one form of machine containing the throat adjusting mechanism in hopper feeds for manually changing the capacity and density of feed in the delivery section.

Figure 2 is a plan view of the machine as illustrated in Figure 1.

Figure 3 is a vertical sectional view showing the delivery section illustrated in Figure 1 enlarged and pointing out the details in the operation of the rigid side wall.

Figure 4 is a cross sectional view on the lines 4—4 in Figure 3 showing the operating parts of the adjustable wall, the latter being broken away to disclose these parts.

Figure 5 is a detail showing an elevational view of the operating wheel and gears.

Like numerals of reference indicate corresponding parts in the various figures.

In this invention, the specific features are

mostly concerned in the delivery section and in this delivery section it is most important that the throat and incidentally the mouth must be enlarged or constricted according to the material, as mentioned in the paragraph relating to the objects and to do this, one wall is movable in a manner keeping the bottom and top walls parallel to permanently extend or narrow the throat and while the other walls of the hopper are described and certain specific features pointed out, the invention in this application is intended to specifically refer to the changes in the capacity of the throat for definite periods because the rigidity of the movable section is all important in so far as determining the dimensions of the lap tailing out from the delivery section is concerned, and this applies to many different materials, though as a rule it will be more applicable to fibrous substances.

Referring to the drawings, following the breaking of the bales and rough cleaning, the stock reaches the carrier or carriers indicated by the numeral 15, and it is on to this carrier mechanism that the stock or cotton, as it will be generally called in this description, for convenience's sake, will be transported and this cotton, which has been roughly cleaned, feeds on to the carrier 16 and is elevated by the carrier 17 to the delivery section of the hopper feeding machine.

The beater 19 is formed with a hub mounted on the driven shaft 20, and from which the blades 21 project radially and extend across the machine. The beater 19 is at the mouth of the delivery section 18, and its blades strip the cotton from the carrier apron 17 and propel it forward into the delivery section. The dust, dirt, leaf, sticks and other extraneous matter fall on the ground. This carrier being rearwardly inclined from the vertical, the teeth 22 lift the cotton up on the leaning face and carry it to the beater 19 which is practically at the mouth of the delivery section.

This mechanism so far as it has been described is conventional construction and the novel features begin with the passage of the cotton into the delivery section. Naturally the rotation of the blades in a downward direction strips the cotton from the spikes of the apron carrier 17, driving it into the mouth of the delivery section, and this partially cleaned cotton continues passing in a mass in so far as the capacity of the delivery section will permit.

The delivery section construction may include a top wall formed of two hinged door sections, the uppermost door constituting a yielding mem-

ber capable of being pushed outwardly by an increasing mass of cotton which builds up after the delivery section becomes full, tending to choke the throat of the delivery section, and therefore relief must be obtained by hesitation or stoppage of the apron carrier 17. The result of this outward door movement is the temporary cessation of the feed as will be explained more fully hereinafter. This door 23 as a yielding member is pivotally secured in the bearings 24, while the cover door 25 is secured in the pivot bearings 26.

The side walls 27 and 28 are fixed while the bottom wall 29 and the sectional top wall are adjustable and have independent functional movements in controlling the feed of the cotton.

The adjustable bottom wall 29 can be moved in a horizontal direction, backwardly or forwardly in the boxlike structure and is carried on the triangular frame 30 towards and away from the cover door 25, always leaving sufficient space for the cotton to pass, according to the amount desired, which is controlled by the action of the upper hinged door 23. The cover door 25 has a smoothing effect on the cotton when brought into contact with it through the manipulation of the adjustable bottom 29.

The delivery section empties the cotton on to a wood slat apron carrier 31 for further treatment.

The outer casings 32 and top plate 33 are in the nature of cover plates, which enclose the feed end of the machine and extend forwardly as far as the delivery section.

The lower wall of the delivery section may be termed also the bottom, for the delivery section is on a considerable slant and this lower wall or bottom 29 is a plate or plates supported on a triangular frame 30.

The operating shaft 34 is journaled in the casing 32 and this shaft carries at each end a pinion 36 coacting with a rack 37, these racks having inwardly projecting pins 38 through the elongated slots 39 in the casing 32 and engaging inside said casing the triangular frame 30, which is manually operated inwardly and outwardly between the side walls of the hopper by the hand wheel 41.

The turning of this hand wheel moves the rack, which slides in the bracket 42 from which the posts 43 project upwardly to serve as bearings for said operating shaft 34, and by this means the triangular frame is carried in a way to constrict the throat of the delivery section, as there

are several different kinds of cotton fibrous material, all depending in so far as volume and density are concerned on the source of supply.

Briefly, in the operation of this invention, the throat section which happens to be the lower one in this particular kind of delivery operates between the side walls, which are so dimensioned as to constitute the full depth of the delivery section.

It has already been described how the rack is operated. Therefore it will be seen that the board or plate, here shown as being the lower side or bottom of the delivery section, is moved inwardly and outwardly according to the density of stock required to keep regulator cone belt in centre of cones when making a lap of required weight. When the stock being worked is of a very light nature, it is obvious that the capacity of the delivery section must be increased to obtain a lap of the required weight.

What I claim is:—

1. In a capacity adjusting mechanism in feed hoppers, a chute member having a mouth and throat, a cover door and an adjusting section parallel to one another and forming a part of the upper and lower sides respectively of the chute member, a structure supporting said chute member, a triangular bracket rigidly secured to said adjusting section, an operating shaft suitably journaled and a rack and pinion mechanism operated by said shaft and engaging said section for adjustment as to its position between side walls of the chute.

2. In a capacity adjusting mechanism in feed hoppers, a chute member having a mouth and throat and an adjustable section, a structure enclosing said chute member, fixed brackets having projecting posts forming bearing members, a triangular bracket rigidly secured to said adjustable section, limiting slots in said structure, an operating shaft journaled in the posts of said fixed brackets and having pinions adjacent to each end, racks having projecting guide pins inserted through the limiting slots of said structure and slidably mounted on said fixed brackets and engaging the triangular bracket on which said adjustable section is supported, and a hand wheel secured to one end of said shaft and adapted to be manually operated to adjust the position of said section between side walls of the chute.

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