

W. KOESTER.
STRAW RACK FOR GRAIN SEPARATORS.
APPLICATION FILED AUG. 19, 1909.

966,693.

Patented Aug. 9, 1910.

2 SHEETS—SHEET 1

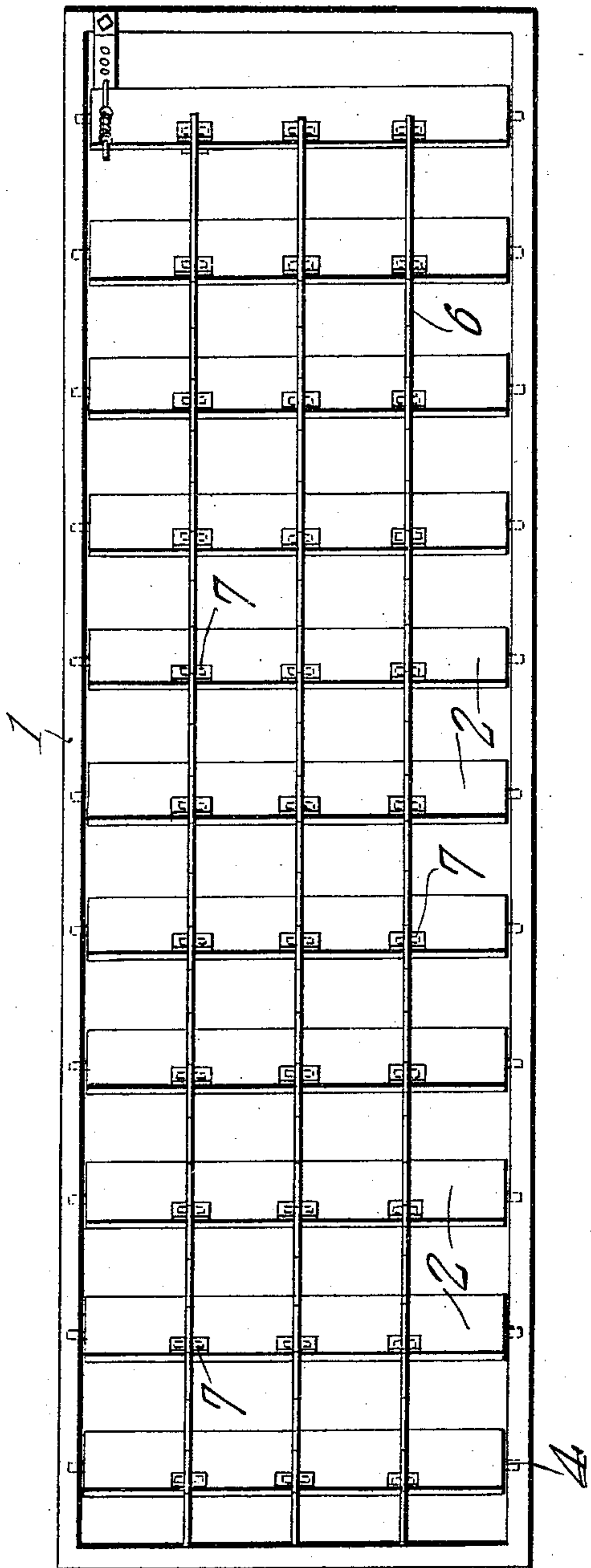
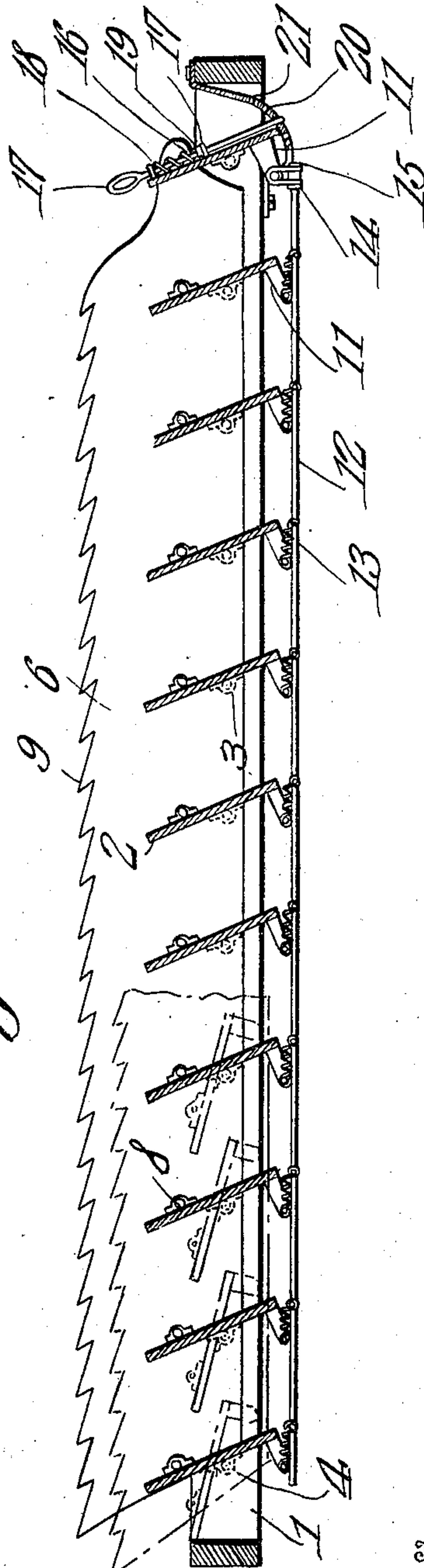


Fig. 2.



Witnesses
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Fig. 1.

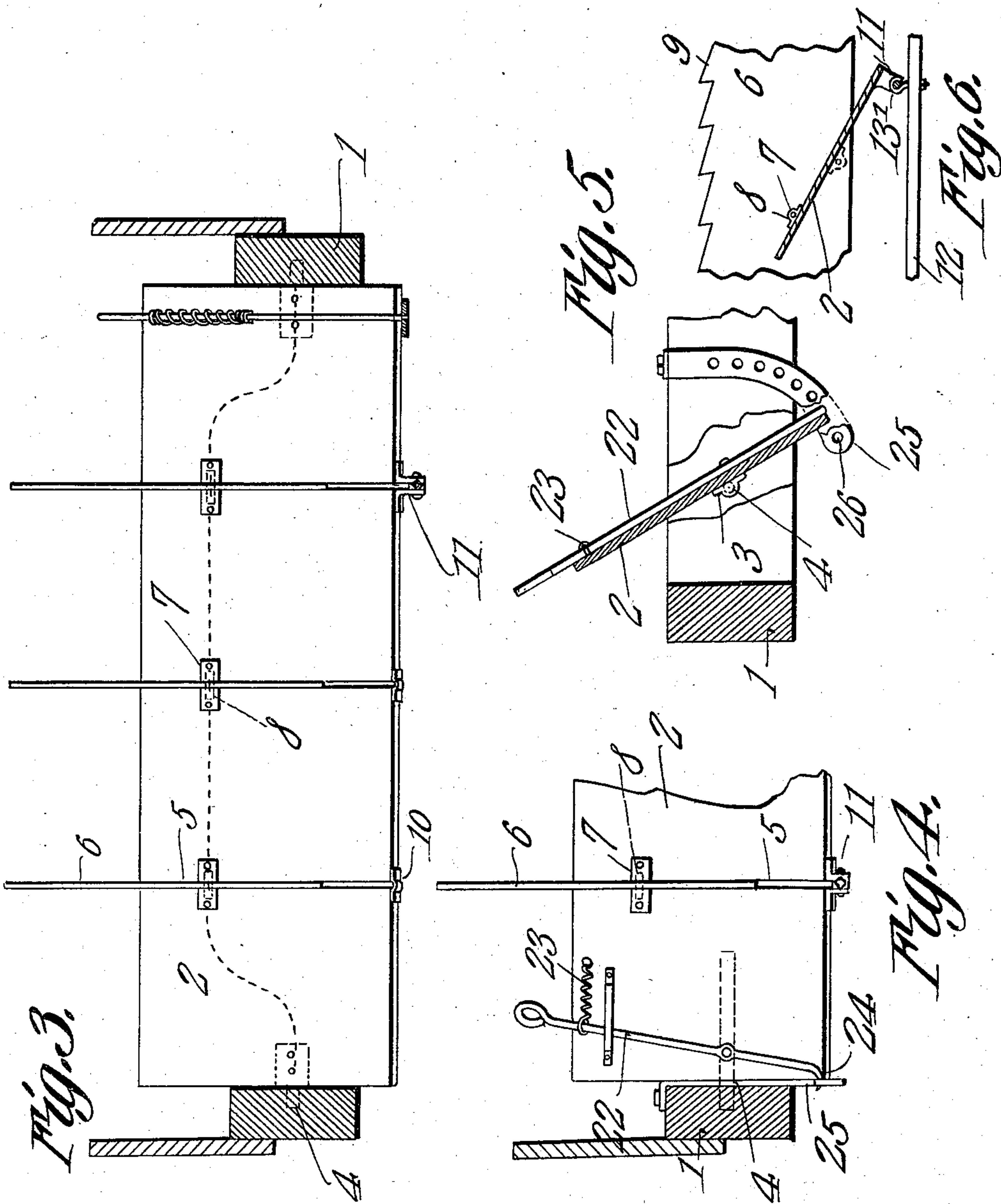
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Witnesses

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UNITED STATES PATENT OFFICE.

WILLIAM KOESTER, OF FAIRFAX, SOUTH DAKOTA.

STRAW-RACK FOR GRAIN-SEPARATORS.

966,693.

Specification of Letters Patent.

Patented Aug. 9, 1910.

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To all whom it may concern:

Be it known that I, WILLIAM KOESTER, a citizen of the United States, residing at Fairfax, in the county of Gregory and State of South Dakota, have invented a new and useful Straw-Rack for Grain-Separators, of which the following is a specification.

This invention has relation to adjustable straw racks for grain separators, and it consists in the novel construction and arrangement of its parts hereinafter described and claimed.

The object of the invention is to provide a straw rack having slats and risers so mounted that the space between the slats may be increased or diminished as desired, thus effecting what is generally known as an adjustable mesh. The adjustment of the mesh may be accomplished while the rack is in operation and by providing such adjustment the rack may be quickly adapted to operate on straw under different conditions for instance if the straw is long or short, dry or damp, brittle or fuzzy. The idea being when the straw is long and damp the mesh may be increased to let the short straw and chaff through and if the straw is short and merely all chaff the mesh may be closed so that a maximum quantity of straw is not permitted to fall through the rack and block the sieves of the separator.

A further object of the invention is to provide an adjustable rack as stated, the parts of which are so assembled as to effectually withstand the strains to which it is subjected and as such racks are usually caused to move at a rapid rate of speed when in actuation in a grain separator, it is essential that means be provided for preventing the parts from rattling while in operation and in the present invention such means is included which not only prevents unnecessary noise but reduces wear and tear which is necessarily present in a loose structure in which the parts may rattle.

As the subject matter of the present invention relates to the rack and not to the manner in which it is reciprocated or operated, the description and illustration is confined to the structure of the rack only.

With the above stated objects in view, the rack includes a series of transversely disposed pivoted slats adjustably held in position with relation to each other and connected together by a series of longitudinally

disposed bars or risers, which are pivotally connected with said slats. The arrangement of the pivots between the slats and the sides of the rack and between the slats and the said bars or risers is peculiar and of such nature as to render the assemblage of slats and bars of a crank nature. That is to say the axes of the pivots between the slats and risers is eccentric with the relation to the axes of the pivots of the slats and consequently the risers are mounted upon cranks with relation to the frame. This assemblage permits of the adjustment above stated and the straw may be passed readily over the rack and the separation of the grain therefrom is economically accomplished.

In the accompanying:—Figure 1 is a top plan view of the rack. Fig. 2 is a longitudinal sectional view of the same including dotted lines which illustrate the manner of adjustment of the slats. Fig. 3 is a transverse sectional view of the rack including a dotted line which indicates the crank upon which the bars or risers are mounted. Fig. 4 is a transverse sectional view of a portion of the rack showing a modified form of the same. Fig. 5 is a sectional view of a portion of the rack in the form illustrated in Fig. 4, and cut on a plane at a right angle to that in which the illustration shown in Fig. 4 is cut. Fig. 6 is a detailed view of a modified form of a rod and means connecting the slats of a series together.

The rack comprises a frame work 1 which is preferably rectangular in plan and as heretofore stated is mounted for reciprocation in the body of a grain separator (not shown). Parallel slats 2 are pivotally attached at their ends to the sides of the frame 1 and extend transversely across said frame. Each slat 2 is provided at its ends and at points intermediate of its long edges with bearings or eyes 3 which project beyond the plane of the under surfaces of the slats. Said eyes or bearings 3 contain gudgeons 4 which are pivoted in the sides of the frame 1.

The slats 2 are provided at points intermediate their ends with vertically disposed slots 5. The slots 5 of all of the slats throughout the series are alined with each other and lie parallel with the side pieces of the frame 1. Bars or risers 6 are located in the alined slots of the series of slats and each bar is pivotally connected with each of the slats of the series. Each slat is provided

upon its upper face in the vicinity of the edge of its slot 5 with bearings or eyes 7 which hold gudgeons 8 which serve as supporting pivots for the bars or risers 6. Each bar or riser 6 is provided at its upper end with a series of teeth 9. Each slat 2 except the initial slat of the series is made up of a series of sections which are connected together at their lower edges by means of clips of iron 10 which bridge the slots 5 as illustrated in Fig. 3 of the drawings. Each slat 2 is provided upon its under side and in the vicinity of its lower edge with a laterally disposed arm 11 which is rigidly connected with the slat upon which it is mounted. A rod 12 is located under the series of slats 2 and extends parallel with the long dimension of the frame 1. As shown in Fig. 2, coil springs 13 are connected at their ends at intervals along the length of the rod 12 and the other ends of said springs are connected one to each of the arms 11 attached to the slats 2. As shown in Fig. 6, the coil springs 13 are dispensed with and the rod 12 is connected with the slats by means of hooks 13' or their equivalent.

At the initial slat of the series the spring 13 or hook 13' is omitted and in its stead a sleeve 14 is pivotally connected with the laterally disposed arm. The rod 12 passes through the said sleeve and adjusting nuts 15 are screwed upon the end of said rod and bear against the ends of the sleeve.

It will be seen that by reason of the connections between the slats as described, the said slats will always remain parallel one with the other although the spaces between the slats may be increased or diminished and that the pivotal connections between the slats and frame and slats and bars or risers are held tight and prevented from rattling. The initial slat of the series is provided with a lever or handle member whereby the said slat may be swung upon its pivotal connection with the frame 1 and it of course follows that as the said initial slat is swung upon its pivot, the remaining slats throughout the series will be correspondingly swung through the bars or risers 6. In Figs. 1, 2, and 3 of the drawings, one form of handle or lever is shown, while in Figs. 4 and 5, a modified form of lever or handle is illustrated.

The form of handle or lever as shown in Figs. 1, 2 and 3, consists of a bar 16 in the form of a bolt which passes through a guide or guides mounted upon the upper side of the initial slat of the series. The said bolt 16 is provided with an outwardly projecting handle 17 and a coil spring 18 is interposed between the upper guide 17 and a stop 19 mounted upon the said bolt 17 and is under tension with a tendency to project the lower end of the bolt 16 beyond the lower edge of that slat upon which it is mounted. An

arcuate plate or strip 20 is mounted upon the end of the frame 1, adjacent the initial slat 2 of the series and is provided with a series of depressions or perforations 21 any one of which is adapted to receive the projecting end of the bolt 16. Thus it will be seen that after the slats have been tilted at a desired angle with relation to the plane of the frame 1, the said slats may be secured in such position by permitting the end of the bolt 16 to enter the registering perforation or depression 21 in the strip or plate 20.

In the form of slat tilting mechanism as illustrated in Figs. 4 and 5 of the drawings, it will be seen that the bolt 16 as shown in the other figures is substituted by a lever 22, which is fulcrumed to the initial slat 2 of the series. A traction spring 23 is connected at one end with the upper portion of the lever 22 and its end is fixed to the slat upon which the said lever is fulcrumed. At its other end the lever 22 is provided with a laterally disposed extremity 24. A segment strip 25 is mounted upon one of the sides of the frame 1 and is provided with a series of perforations or indentations 26 any one of which is adapted to receive the laterally disposed extremity 24 of the lever 22. In this form of the invention, namely: that form shown in Figs. 4 and 5, it will be seen that in order to adjust the slat as above described, the lever 22 is swung upon its fulcrum against the tension of the spring 23 and when the slats have been brought to proper position, the laterally disposed end 24 of the lever is permitted to engage a registering perforation or indentation 26 provided in the segment place 25 when the said slats will be held in such position.

Irrespective of the specific form of means for adjusting or pitching the slats at desired angles with relation to the plane of the frame of the rack, it will be seen that in both instances, the slats throughout the series are held in position with the bars and these with the first slat are held and locked by a lever mechanism. Consequently as the straw passes upon the upper edges of the bars or risers and slats and the rack is subjected to reciprocatory movement, the straw is given a succession of thrusts or casts which causes it to move along the slats and at the same time be subjected to a severe agitation which separates the grain from the straw and permits the grain to fall through the spaces between the slats. It will also be seen that by reason of the peculiar arrangement of the pivotal connections between the slats and bars, and the slats and sides of the frame, that the slats are subjected to pressure and also to tension of the springs 13 and thus the parts cannot rattle. Thus it will be seen that a simple and effective means is provided for adjusting the mesh between the slats of a straw rack and for pitching

the slats at desired angles. As the pivotal connections between the slats and the rack frames and the slats and the risers become worn, the rods 12 may be adjusted to hold
5 (through its connections) all of the slats of the series against rattling as indicated. The rods 12 being connected to the slats, with or without springs, cause a tension on all the slats of the rack and the tension does not
10 vary when adjustment is made.

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

1. A rack for grain separators comprising
15 a frame, a series of slotted slats pivoted therein at points below the planes of their lower sides, straw advancing risers located in the slots of the slats and pivoted to the slats at points above the planes of the upper
20 sides of the slats, laterally disposed arms fixed to the slats, a rod connected with said arms at points below the planes of the lower sides of the slats, and means for adjusting the said rod longitudinally and securing the

same in an adjusted position with relation 25 to the frame.

2. A rack for grain separators comprising a frame, a series of slotted slats pivoted therein at points below the planes of their lower sides, straw advancing risers located 30 in the slots of the slats and pivoted to the slats at points above the planes of the upper sides of the slats, laterally disposed arms fixed to the slats, a rod adjustably located below the slats, means for securing the rod 35 in an adjusted position with relation to the frame, springs connected at one end with said rod, and at the other ends with the arms at points below the planes of the lower sides of the slats. 40

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

WILLIAM KOESTER.

Witnesses:

J. J. CAREY,

T. M. CARRAHER.